

C H E C K   L I S T   N O . 1  
=====

Pre flight check

1. Main pins safetied ?
2. Rear wing attachment pins: can you see the safety lock above the pin ?
3. Horizontal tail unit pins safetied ? Is the spring retainer engaged ?
4. Pushrod connected to elevator ? (This is only applicable for ASK 21 with manual elevator connection ).  
**Note:** If the ASK 21 features the automatic elevator connection, check this for proper fit !
5. Aileron pushrods connected to lever ?  
Sight control through access hole !
6. Airbrake pushrods connected to lever ?  
Sight control through access hole !
7. Check for foreign objects !

**Attention !**

With all HOTELLIER type joints one must be able to touch the ball pivot by feeling through the slot in the ball socket ! Push the safety lock towards "Closed" !

C H E C K   L I S T   /   2

=====

Pre take off check

1. Parachute connected to harness ?
2. Safety harness fastened ?
3. Airbrakes locked ?
4. Trim lever adjusted to a middle position ?
5. Altimeter adjusted ?
6. Canopies closed and locked ?  
Rear canopy !!
7. For flight with only one occupant remove  
rear back rest !!
8. Put your toes under the toe-straps !!  
Do not flatten the straps !!  
Danger of jamming the pedals !!

IV.10 APPROACH AND LANDING

The most favorable approach speed is about 90 km/h (49 kts). With turbulence it may be advisable to increase the approach speed slightly. Even steep approaches may be slowed down efficiently with the airbrakes. It is advisable to unlock the airbrakes at the beginning of the landing final approach.

Note : The airbrakes increase the stalling speed by about 3 km/h (1,6 knots).

Sideslipping is also suitable as an approach control.

With full rudder during sideslipping the rudder pressure decreases to zero; the rudder must be pushed back.

## ASK 21 - Flight Manual

### V. RIGGING AND DE-RIGGING

#### V.1. RIGGING

Rigging the ASK 21 can be carried out by four persons without mechanical assistance, and by three persons with the use of a fuselage stand or a wing support.

Prior to rigging all pins, pinholes, and all control system connections must be cleaned and greased.

1. Set up the fuselage and hold it horizontal.
2. Plug the 2-prong spar end of the left wing into the fuselage and - if available - place a wing support under the wingtip.
3. Plug in the right wing.
4. Insert the two main pins and safety them with the safety hook at the spar tunnel. **Never** insert the rear wingpins prior to the main pins.
5. Insert rear attachment pins; unscrew T-grip and check whether the safety lock is engaged.
6. Connect aileron ball fittings behind the spar tunnel. You must be able to touch the ball pivot by feeling through the slot in the socket. Press the safety lock.
7. Connect airbrake ball fittings behind the spar tunnel.
8. The horizontal tail is fitted onto the fin from the front. Screw in the Allan bolt from above and tighten it with some pressure. The spring-loaded retainer must snap securely into place, i.e. into one of the longitudinal slots of the Allan bolt.

9. Connect elevator !

**Note:** If your glider features a horizontal tail unit with automatic elevator connection, fit the horizontal tail onto the fin from the front, simultaneously the elevator must be fitted into its connector. The tailplane is now pushed back until the Allan bolt at the leading edge can be screwed in; this should be screwed in tightly until the spring retainer snaps securely into place.

10. Carry out a pre-flight check, referring to the Check List.

V.2 DE-RIGGING

De-rigging is carried out in the reverse sequence to that of rigging. It must be taken care that the rear wing attachment pins have to be removed prior to the main pins.

**WARNING:** For derigging the horizontal tail from the fin it has to be regarded that only the method according to Fig. V.2-2 is used.

Fig. V.2-1  
WRONG: Twist movement

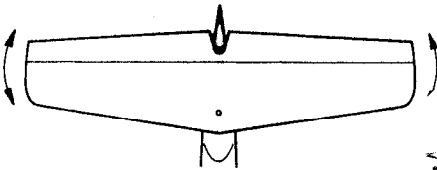


Fig. V.2-2  
RIGHT: Pitch movement



*Diese Seite ist auf dem Stand von "TNA" nicht vorhanden!*

V.3 PARKING

When parking the canopies have to be closed.

When an ASK 21 is on an airfield in the sunshine (this must be observed during the waiting time until take-off when the pilots are already on board) the canopies must not be left open for some time.

## II. DESCRIPTION OF A/C ASSEMBLY & EQUIPMENT

### II.1. CONTROL SYSTEMS

#### Elevator control system

Both control sticks are built as 2-armed levers and feature universal joints. The control sticks are linked together by a main steel tube torsion rod at the bottom. This torsion rod features at its front and rear end an adjustable stop for both control sticks. Another bent steel tube torsion rod leads from the rear control stick to a combined elevator/aileron rocker arm. From there a short aluminum pushrod leads to a 180° duralumin bellcrank which is linked up by a long aluminum pushrod which runs through 4 support bearings; the support bearings consist of a fiberglass bracket with 3 ball bearings. Via a 90° duralumin bellcrank, the control forces are lead upwards into the fin using a fiberglass plastic pushrod. Here connects a 180° duralumin bellcrank to a short aluminum pushrod which in turn connects to a M12.41/HOTELLIER joint which operates the elevator.

#### Elevator with automatic connection:

Instead of the aluminum pushrod, an actuating pushrod is installed, which is supported with a parallel rocker.

#### Trim

The trim is spring suspended and consists of 2 trim levers, 1 connecting pushrod and the 2 trim springs with slotted gate sheet metal. The trim levers are connected to the control sticks with a knurled nut at the control

stick bearing bolt. A friction brake is tightened with this knurled nut at the control stick bearing bolt. The braking force should be distributed evenly between the front and rear brake. The brake should be tightened so strong that even with extremely opposed positions of stick and trim lever, the trim will not move. The trim connecting pushrod features a stop at its front and rear end. The springs with the adjusting plate between them, are suspended into the 2 rings of the front control shaft.

The adjusting plate itself is mounted to the bolt of the trim connecting pushrod; here the trim may be adjusted.

The trim should be adjusted such that with 1 pilot and the trim set full forward, a trimmed speed of 150-160 km/h (81-86,3 kts; 93,2-99,4 mph) is reached; then the trim lever is in a slightly forward position when the stick is free and in its center position (elevator connected).

To adjust the trim roughly to a trimmed speed of max. 160 km/h (86,3 kts; 99,4 mph):

1. Connect elevator.  
(This is inapplicable when your glider features the automatic elevator connection).
2. Adjust the trim spring such that the stick is set to the above-mentioned relative position to the trim lever. Friction must be balanced by "feeling for" the center position.



VII. CHECKS

Check List no.1:

Pre flight check

1. Main pins safetied ?
2. Rear wing attachment pins: can you see the safety lock above the pin ?
3. Horizontal tail unit pins safetied ? Is the spring retainer engaged ?
4. Pushrod connected to elevator ? (This is only applicable for ASK 21 with manual elevator connection.)  
**Note:** If the ASK 21 features the automatic elevator connection, check this for proper fit !
5. Aileron pushrods connected to lever ? Sight control through access hole !
6. Airbrake pushrods connected to lever ? Sight control through access hole !
7. Check for foreign objects !

**Attention !**

With all HOTELLIER type joints one must be able to touch the ball pivot by feeling through the slot in the ball socket !

Check List no.2:

Pre take off check

1. Parachute connected ?
2. Safety harness fastened ?
3. Airbrakes locked ?
4. Trim in center position ?
5. Altimeter correctly set ?
6. Canopies closed and locked ? Rear canopy !!
7. For flights with only one occupant, remove the rear backrest !
8. Put your toes under the toe-straps ! Do not flatten the straps ! Danger of jamming the pedals !!

3. Special checks

After rough landings :

Check the landing gear suspension mount at the front main bulkhead !!  
Check the wheel fork for deformation; gear box !!  
Check the control shaft above the wheel for deformation !!  
Make sure that the rubber buffers have not come over the support discs !!  
Check spar tongue and fork for white areas !!  
Check the wing connections at the fuselage !!  
Check the cross tube at the front main bulkhead for compression deformations !!  
Determine wing bending oscillation frequency and compare with the value of the last inspection report. In case of differences by more than 5 % contact the Schleicher factory. (See survey drawing on page 29 of the Maintenance Manual for jack up points !).

After ground loops :

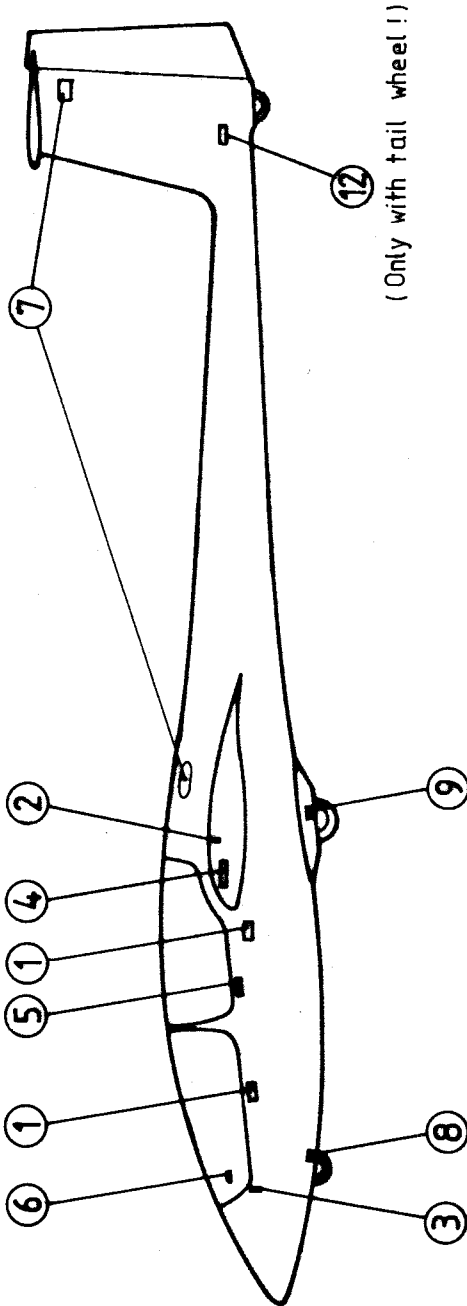
Inspect the fuselage tail cone at the transition to the fin and also the attachment of the horizontal tail unit to the fin !!  
Check wing connections at the fuselage !!  
Inspect horizontal shear web in the fuselage (between front and rear main bulkhead).

X. PLACARDS AND MARKINGS

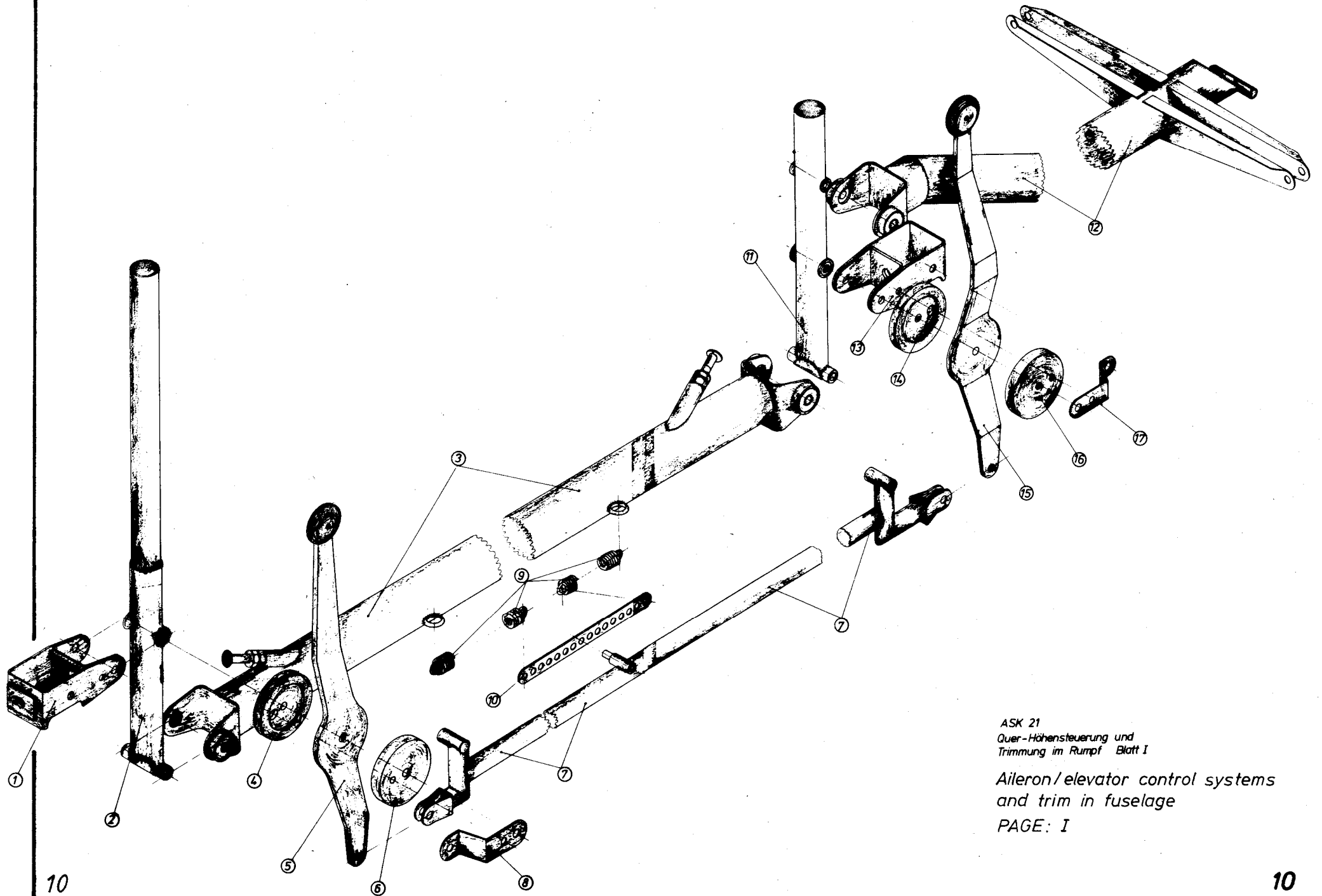
1. Data placard with weight & balance data; one placard each for the front and rear seat on the right cockpit wall.
2. Fire-proof type plate; right at the spar tunnel bottom.
3. Placard stating the approved Airworthiness Category; on the front instrument panel.
4. Max. baggage compartment loading; one placard each left and right on the rear cockpit wall close to the baggage compartment opening.
5. Placard on the rear instrument panel.
6. Placard for "Pre take off check"; on the underside of the front instrument panel cover so that the placard is visible when the canopy is open.
7. Placard on left side of top of fin.  
**Note:** This placard is cancelled if your glider features the automatic elevator connection. Placard in the access hole cover !
8. Placard for tire pressure nose wheel:  
2,0 bar !
9. Placard for tire pressure main wheel:  
2,7 bar !
10. Airspeed indicator marking.
11. G-meter marking.

For gliders with pneumatic tailwheel only

12. Placard for tire pressure tail wheel (only when the pneumatic tailwheel is installed):  
2,5 bar !



Setting of placards

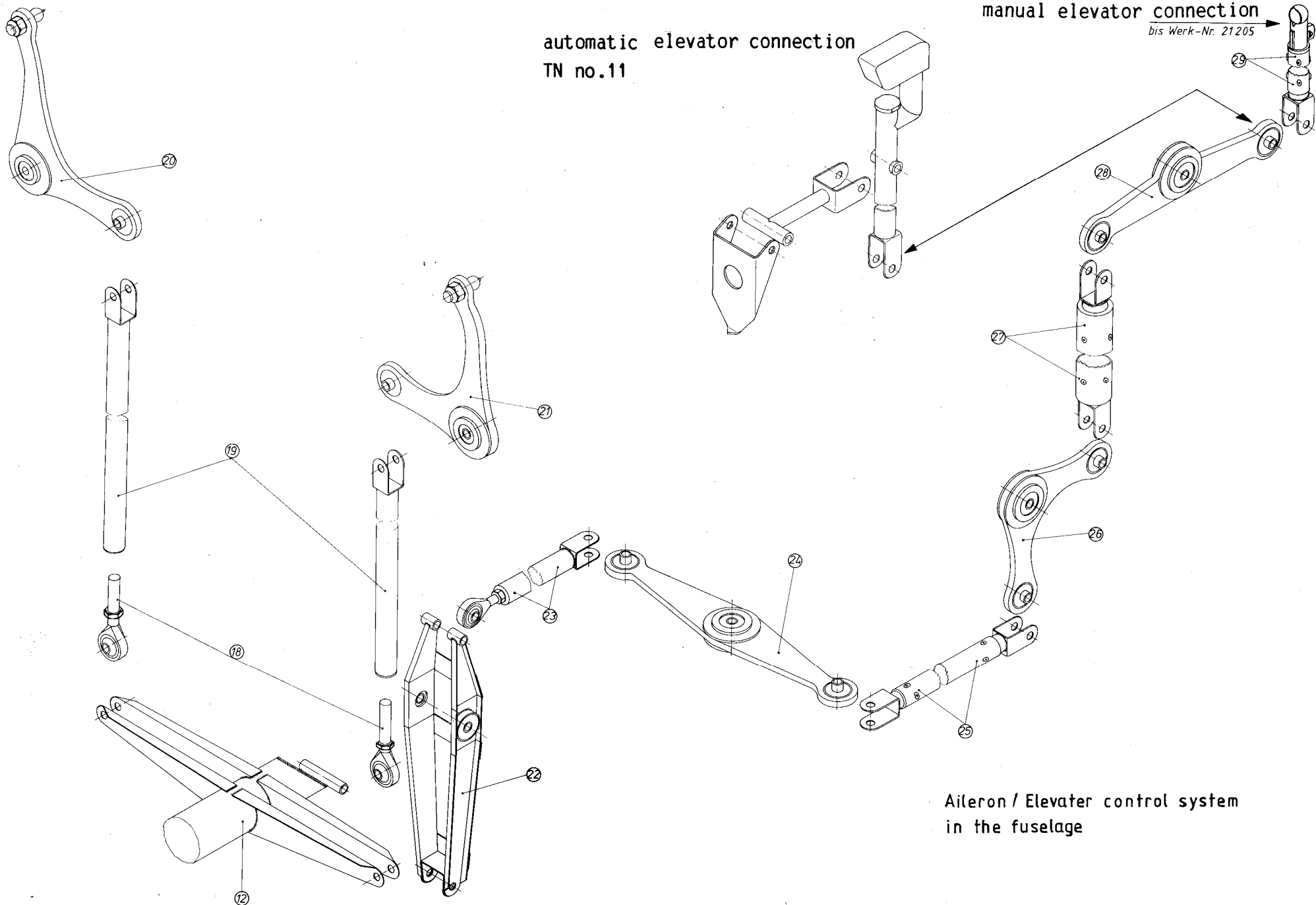


ASK 21  
 Quer-Höhensteuerung und  
 Trimmung im Rumpf Blatt I

Aileron/elevator control systems  
 and trim in fuselage

PAGE: I

automatic elevator connection  
TN no.11



Aileron / Elevator control system  
in the fuselage