

Chapter 4

FLYING CONTROLS

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GENERAL

1. The flying controls are conventionally operated, using chains, cables and rods for transmitting the movements from the cockpit. The elevator trim system is operated by Teleflex control between the cockpit hand wheel and a position midway on rib 1, thence by cables to the trim-tab jack. Non-interchangeable turnbuckle adapters are fitted to the control cables to ensure correct assembly. The control locking position for rigging is shown in Sect. 4, Chap. 3.

CONTROL COLUMN

2. The control column is a tubular steel member incorporating at its lower end a transverse torque tube, to each end of which is attached a double-ended lever (Sect. 4, Chap. 3). The lower ends of the levers are located in fittings at floor level, permitting fore and aft movement about these points, thus providing the elevator control (fig. 2). An inertia weight projecting forward is attached to an arm which is bolted to the control column tube. Aileron control is provided by a spade-grip extension piece, hinged at the top of the column. A brake lever, gun-firing button and a press-to-speak switch are mounted on the spade-grip.

AILERON CONTROLS (fig. 1)

3. The aileron control spade-grip is integral with a sprocket, which is connected by tie-rods and chains to an oval

sprocket at the base of the column. The oval sprocket operates a quadrant to which are bolted the cable ends. Pulleys, located on each side of the cockpit, carry the cables from the quadrant through the bulkheads to a pulley assembly positioned on the face of No. 1 wing rib (Sect. 4, Chap. 3). The top pulley of the assembly changes the direction of the cable and conducts it to an aileron differential wheel, located on the rear face of the false spar. Two pulleys, located on the left and right-hand sides of the aft face of No. 4 bulkhead, carry the balance cable connecting the aileron differential wheels in each wing. The position of the turnbuckles is shown in fig. 1.

AILERON TRIM TABS

4. Servo trim tabs are fitted to both ailerons, and may only be adjusted on the ground. The trim tab is adjusted by altering the length of its connecting rod, or the setting of the tab connecting link as shown in Sect. 4, Chap. 3.

ELEVATOR CONTROLS (fig. 2)

5. The control column transverse torque tube is connected by rods from the upper ends of the two levers (para. 2) to quadrant pulleys located on each side of the cockpit. Cable ends are bolted to the quadrants and pass through the bulkheads to pulley assemblies positioned on No. 1 wing rib (Sect. 4, Chap. 3). Cable direction is then

changed to the aft face of the false spar, which bear oval pulley assemblies positioned on the tail boom centre-lines. The oval pulleys provide a low-gear ratio at small control angles and a progressively higher gear ratio at increased control column movement. The cables are bolted to this assembly and carried through fairleads to a lever assembly in the boom rear end, where the lever movement is transmitted to the elevator by a lead-filled control rod (*Sect. 4, Chap. 3*).

6. A bungee cord is located on a light frame fitting at the starboard boom-to-wing joint, and stretches to the elevator control lever in the boom rear end. Its function is to assist the pilot in recovering the aircraft from a diving attitude.

ELEVATOR TAB

7. The elevator tab provides servo action for the elevator, and can also be adjusted for trimming by a hand wheel, on the left-hand side of the cockpit. The hand wheel operates Teleflex controls to which

cables are attached. The cables pass round pulleys in the boom spar rear end, thence to the chain on the trim-tab jack. A connecting rod transmits movement from the jack to the tab.

RUDDER CONTROLS (fig. 3)

8. The rudder controls consist of pendulum-type rudder pedals located on a layshaft forward of the control column. The pedals are independently adjustable for reach, by lifting them against the tension of a spring. The run of the cables to the rudder control lever in the boom rear end is similar to that of the elevator cables.

RUDDER TABS

9. Trim tabs are fitted, and can only be adjusted on the ground to correct flying irregularities by unscrewing a wire-locked bolt that passes through an elongated hole in a bracket at the base of the tab, and setting the tab in the desired position. The bolt must then be tightened and wire-locked.

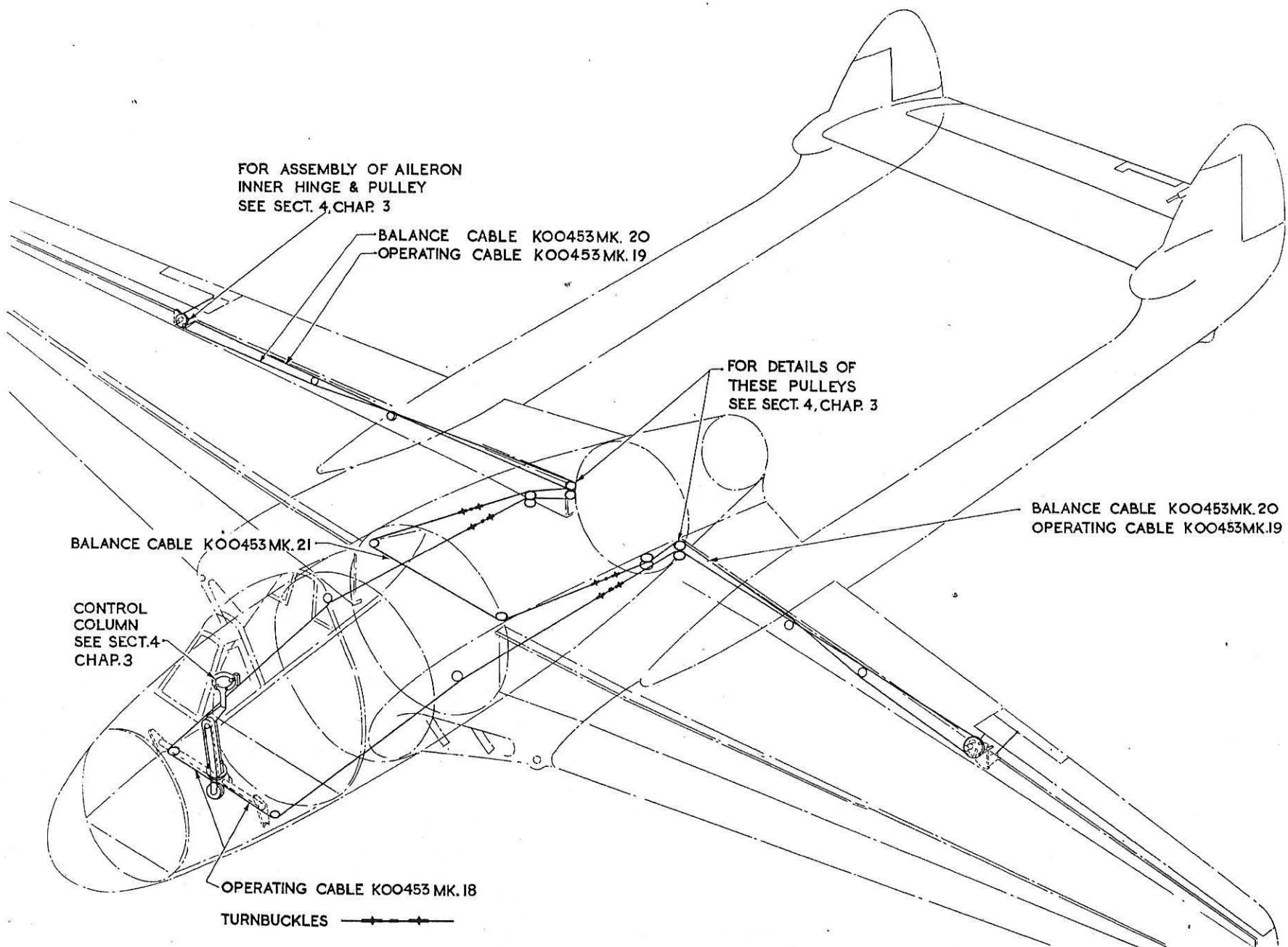
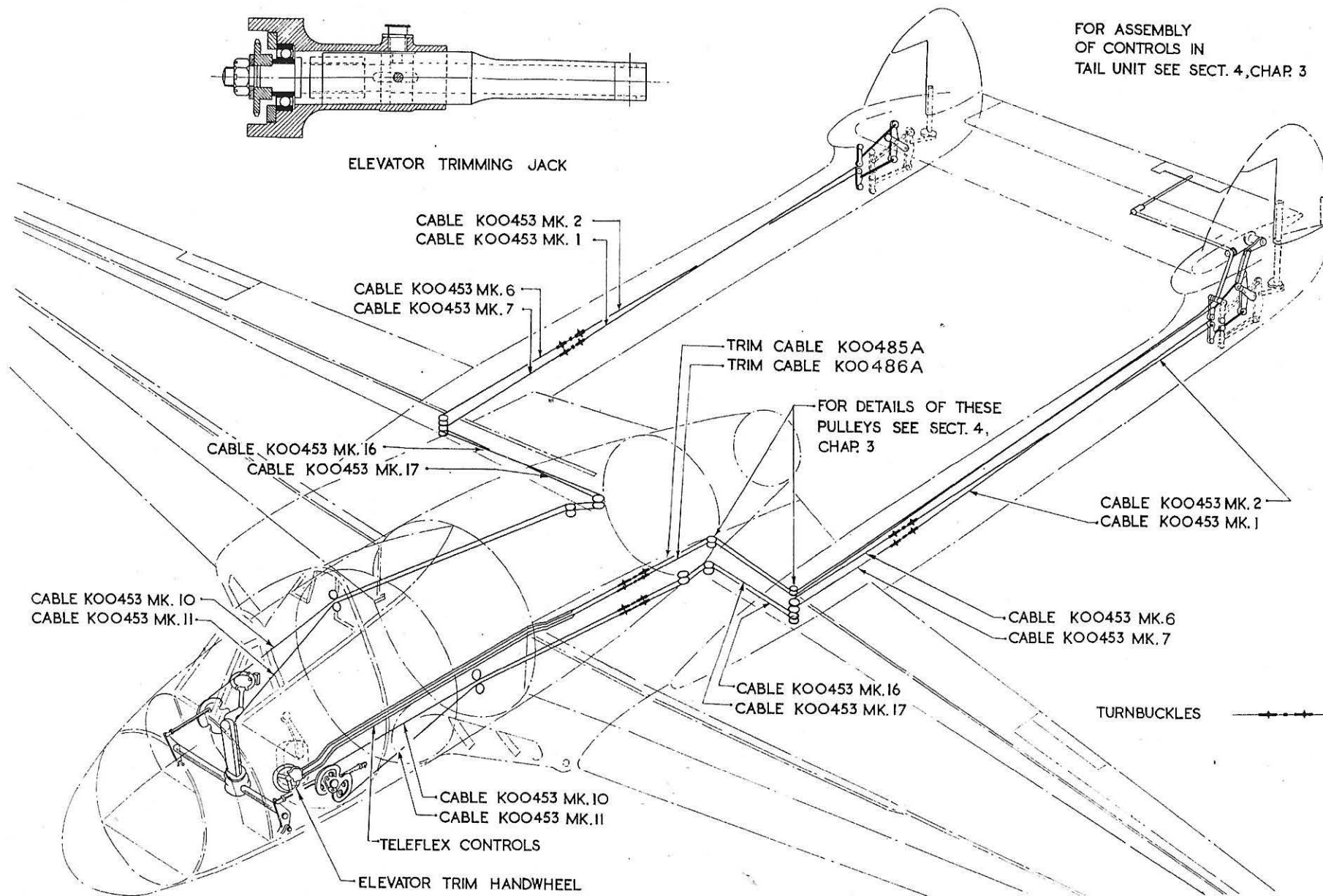


FIG. 1. AILERON CONTROLS

FIG 2. ELEVATOR CONTROLS



FOR ASSY. OF CONTROLS
IN TAIL UNIT SEE SECT. 4, CHAP. 3

FOR DETAILS OF
THESE PULLEYS
SEE SECT. 4, CHAP. 3

TURNBUCKLES

CABLE KOO453 MK. 3
CABLE KOO453 MK. 4

CABLE KOO453 MK. 5
CABLE KOO453 MK. 14

CABLE KOO453 MK. 8
CABLE KOO453 MK. 15

CABLE KOO453 MK. 4
CABLE KOO453 MK. 3

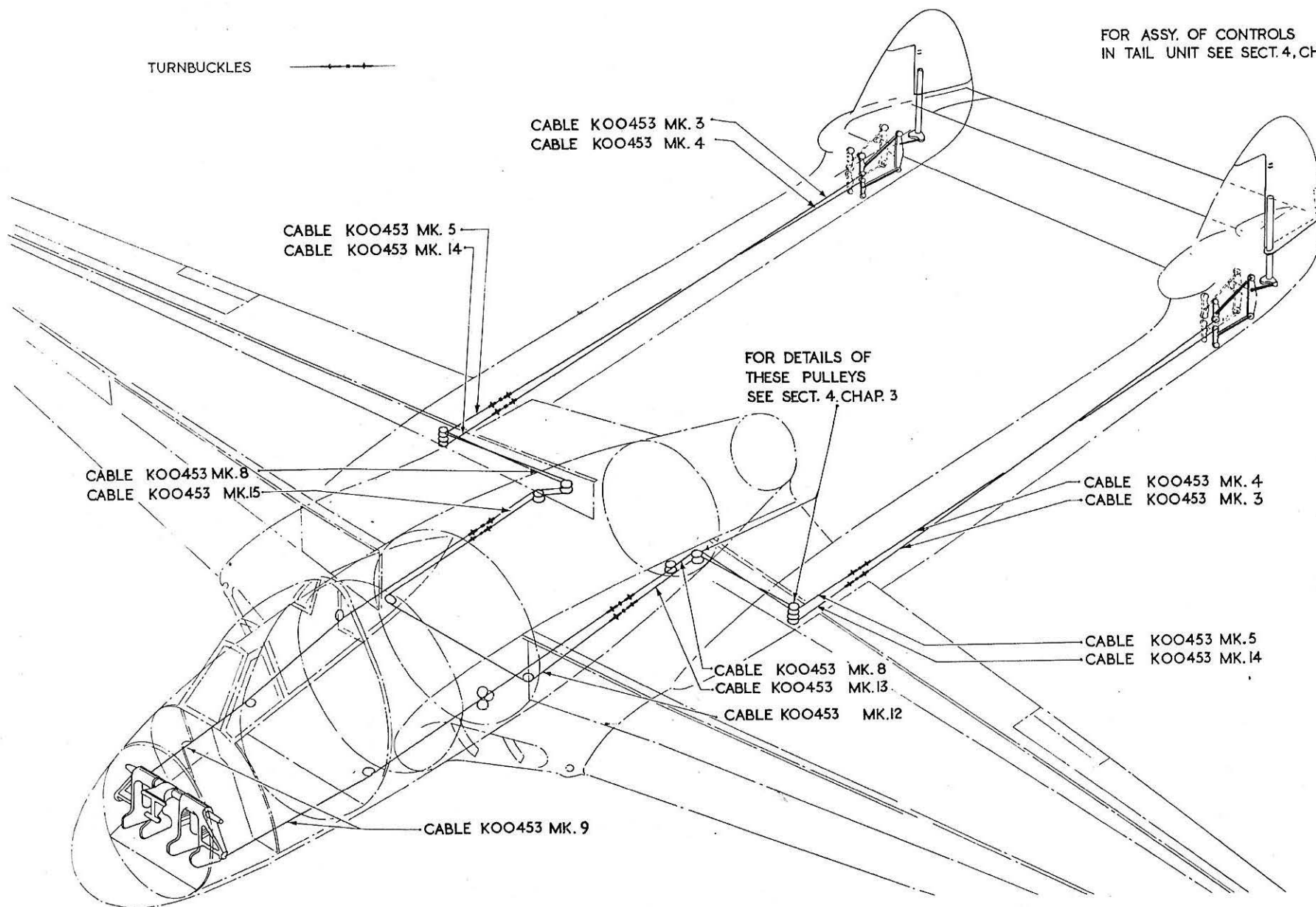
CABLE KOO453 MK. 5
CABLE KOO453 MK. 14

CABLE KOO453 MK. 8
CABLE KOO453 MK. 13
CABLE KOO453 MK. 12

CABLE KOO453 MK. 9

FIG. 3. RUDDER CONTROLS

G2857 M16535 L/49 360 C.B. & S. LTP. G155.



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