

MDEXPLORER

SYSTEM DESCRIPTIONS

3.6.6 Empennage.

The empennage consists of the tailboom, horizontal and vertical fins, and NOTAR® controls (discussed in Section 3.5).

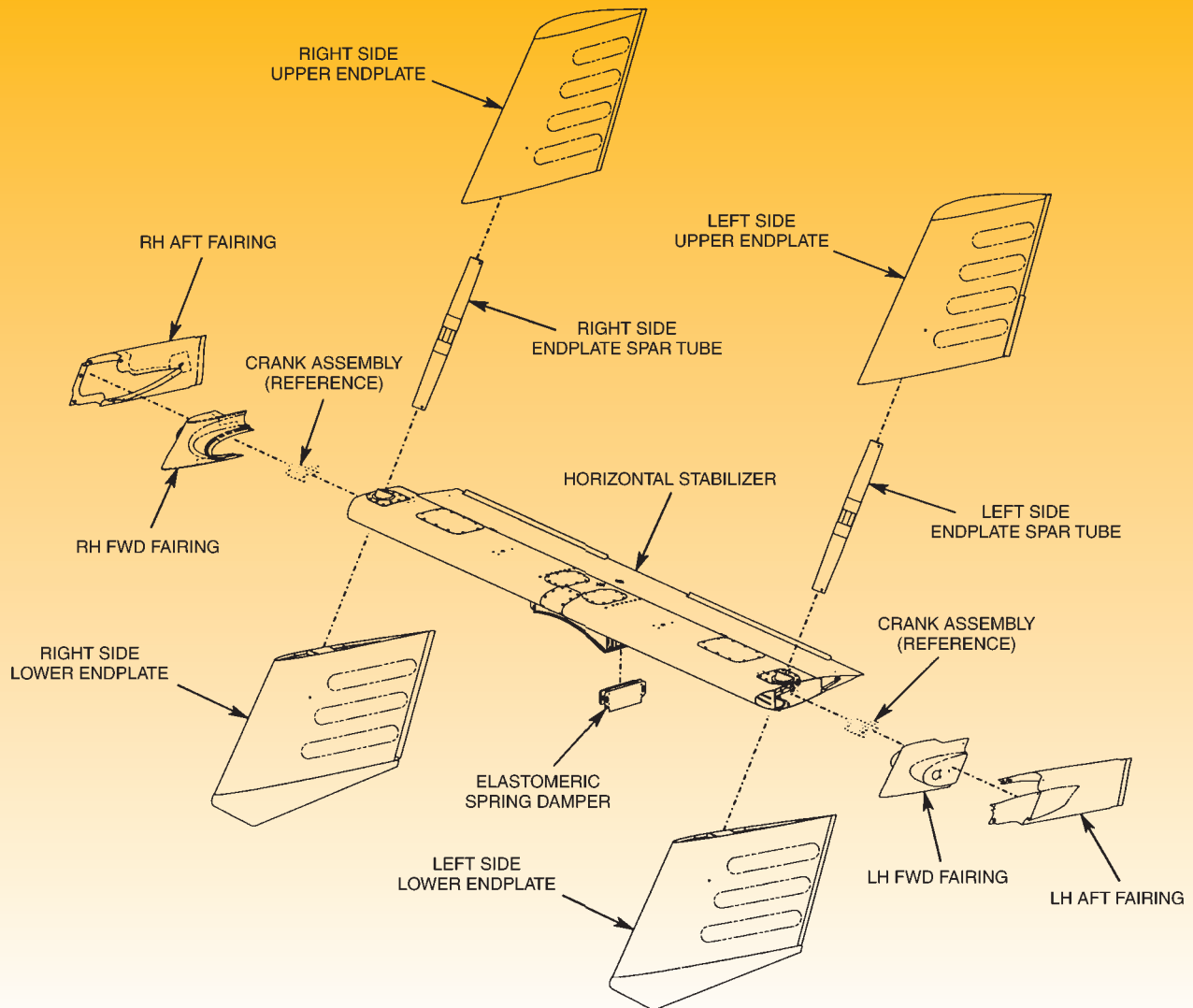


Figure 11. Empennage

Tailboom.

The tailboom is a composite tube which incorporates the NOTAR® slots along the right (starboard) side. It supports the horizontal stabilizer, the two articulated vertical fins, and the thruster. A tail skid is attached to protect the rotating cone.

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Horizontal and vertical stabilizers.

The composite horizontal stabilizer is fixed, and supports two vertical fins, which are trimmed for normal cruise flight conditions. The horizontal stabilizer is mounted with an elastomeric isolator which minimizes vibration transferred to the airframe by wake turbulence.

Each composite vertical fin is driven by an independent, electromechanical, fly-by-wire actuator. Each actuator is controlled by an independent Vertical Stabilizer Control System (VSCS). This provides complete dual-redundancy for flight safety.

3.6.7 Landing gear.

The landing gear is an aluminum alloy, non-retracting set of skid tubes which are supported by fore and aft cross tubes. The aft cross-tube connection to the skid tubes is through an elastomeric spring to prevent ground resonance. Heavy-duty skid shoes protect the basic structure and extend the life. Attachment points are provided for ground handling wheels. The landing gear has exceeded the ability to withstand an 10.2 ft/sec drop at full gross weight per FAR 27.725.

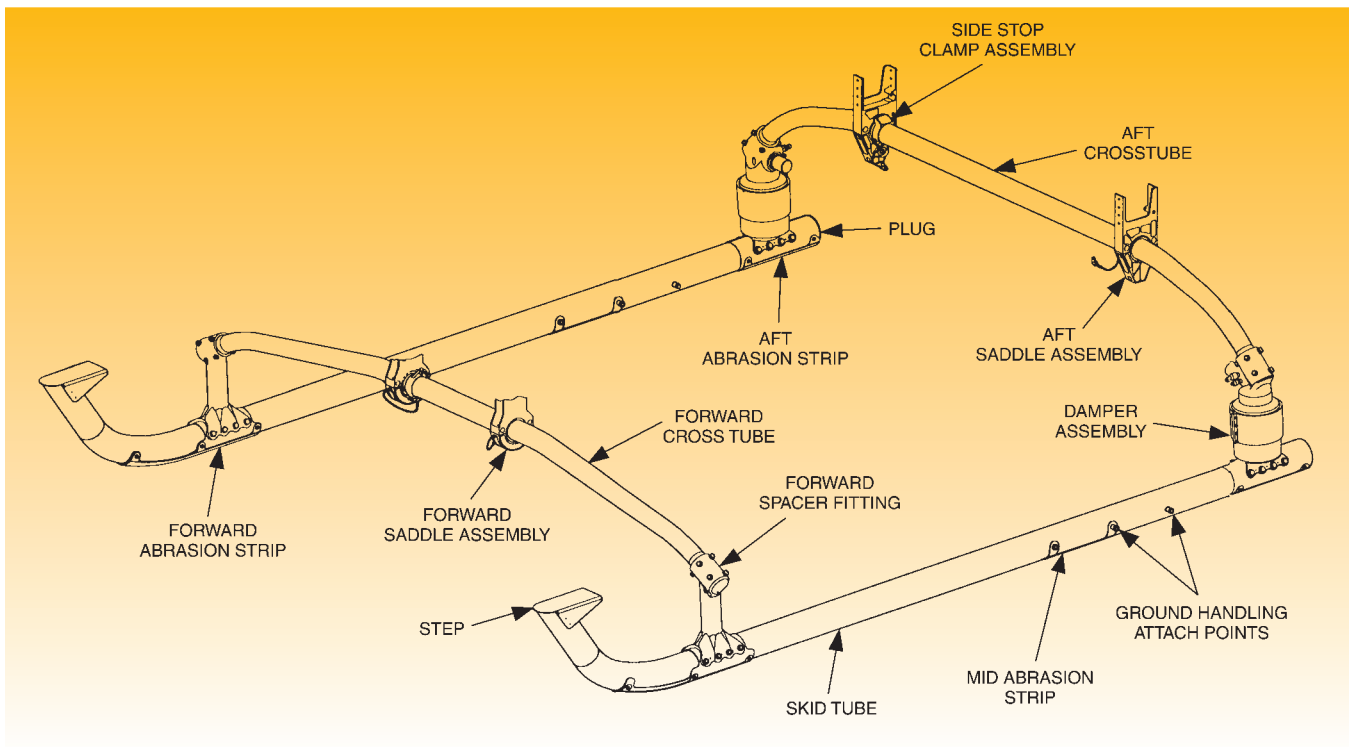


Figure 12. Landing Gear

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3.7 Flight control system.

Flight control is achieved by aerodynamically tilting the tip path plane of the rotor by cyclically changing the pitch on the rotor blades, and by combining the NOTAR® anti-torque system with the variable pitch vertical stabilizers.

The main components are:

- Mechanical controls
- Dual hydraulic boost system
- Vertical fin VSCS

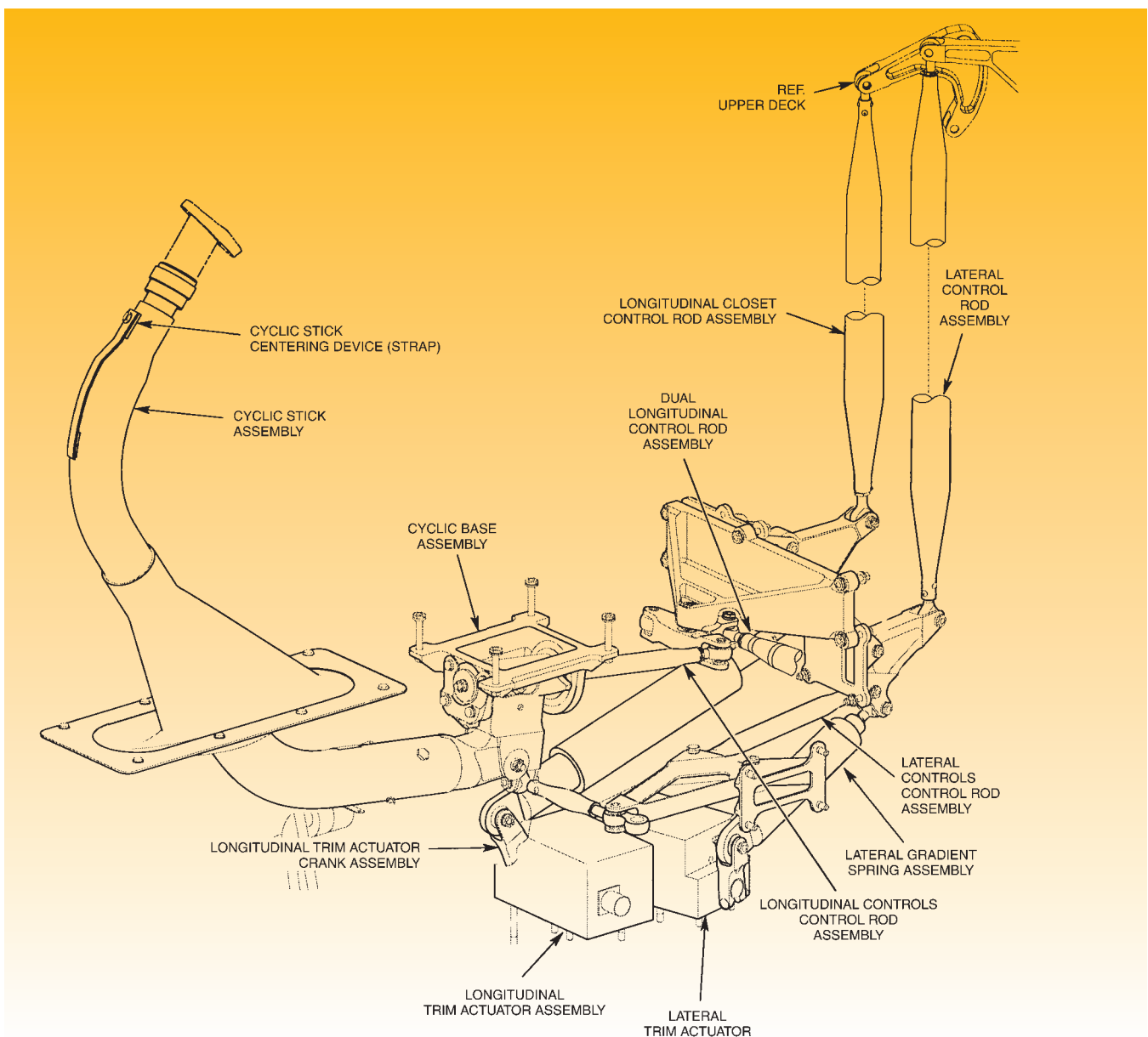


Figure 13. Flight Control System

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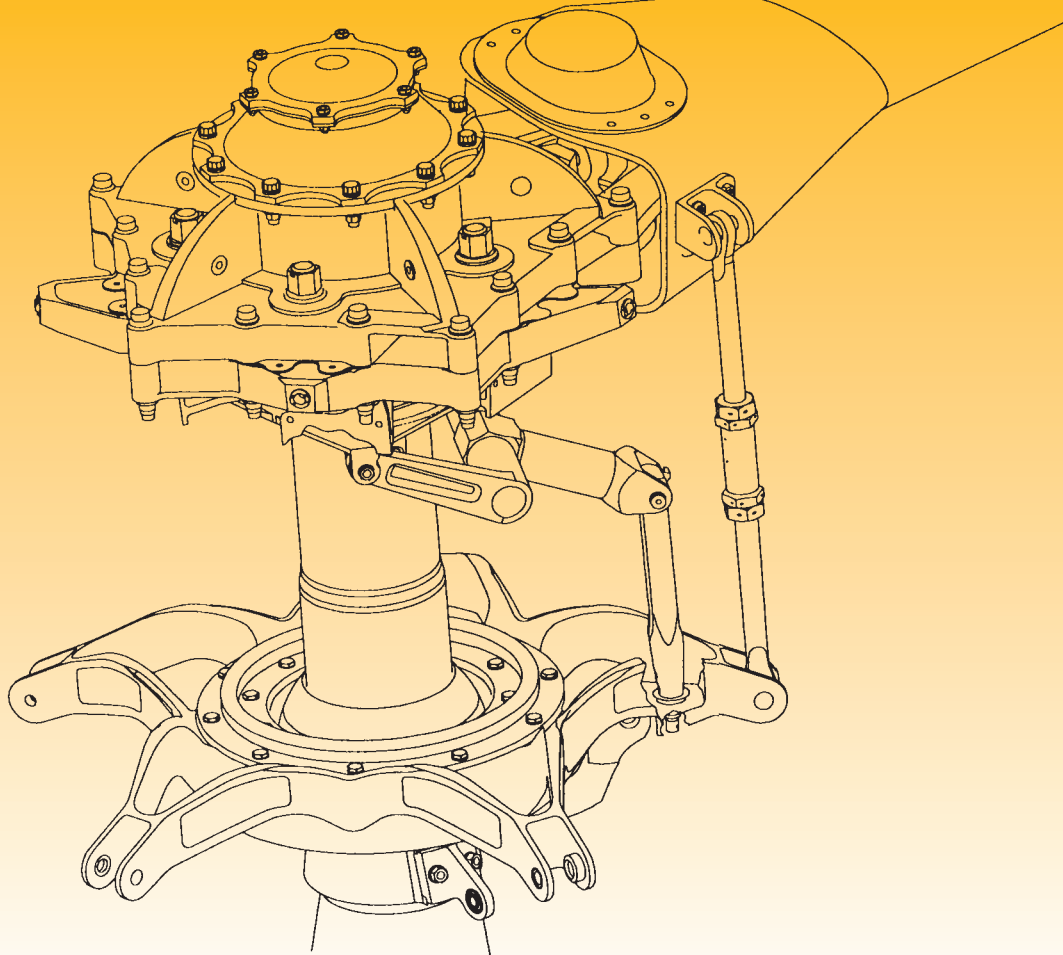
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3.7.1 Mechanical rotor controls.

The mechanical control system consists of the single cyclic control stick, the collective control stick, the anti-torque control pedals, and the FADEC override controls on the collective stick. Bell cranks and levers beneath and behind the pilot transfer control inputs to the hydraulic boost actuators which, in turn, make inputs to the stationary swashplate. The non-rotating swashplate then moves the rotating swashplate, which increases or decreases the pitch changes to the five rotor blades via a pitch change housing.

3.7.2 Swashplate assembly.

The swashplate assembly is the transition between the rotating rotors and the stationary control rod inputs. It consists of a lower nonrotating ring, which receives the boosted control inputs from the pilot cyclic and collective pitch sticks, and an upper rotating ring which transfers those inputs through pitch change links to each blade's pitch change housing.



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Figure 14. Swashplate Assembly