UH-1C

1. Engine oil tank cap secure.
2. Hydraulic oil reservoirs full and caps secure. (No leaks)
3. Metal band and Dzus fasteners secure.
3A. Mesh for cleanliness and bottom for trash.
4. Rotate free wheeling. Clamp bolts 90° apart, safetied, and heads in direction of rotation.
5. Pylon mounts (5) for cracks and bolts secure.
6. Transmission oil line here for chafing.
6A. No leaks.
7. All servos for security and leaks.
8. Slight horizontal play allowed on collective sleeve assembly and lever. Check assembly for cracks.
8A. Slight twist movement allowed. No end play.
9. Stationary star .015 horizontal play allowed. Check for cracks.
10. Synchronized elevator controls secure. Twist movement on push-pull rod is necessary.
10A. Drive link top trunnion should have .040 horiz play. Bottom trunnion for cracks.
11. Nuts in direction of rotation.
11A. No in-and-out play allowed on scissors pivot bolt.
12. Safety on collet nut.
13. Control tubes should have twist movement and slight end play allowed.
14. Push-pull tube mounted in back of damper arm.
15. Bottom bolts safetied on droop stop mount bracket.
15A. Check damper timing and reservoirs full.
16. Mast for dents and cracks.
16A. Droop stop weight arm pin for security and arm for freedom of movement.
17. Trunnion cap bolts for security.
17A. Pitch change links safetied and should have slight twist movement.
18. Main rotor retaining nut locked and safetied.
19. Teflon pivot bearings (No bond separation).
20. Stabilizer bar security and play at end of safety rod.
21. Blade grip lock nut secure.
22. Check for safety screw.
23. Drag brace secure.

UH-1D

1. Rotate free wheeling. Clamp bolts 90° apart, safetied, and heads in direction of rotation.
2. Synchronized elevator control secure and should twist.
3. Collective push-pull rod rigid.

3A. Barrier filter clean and trash removed.

4. Hydraulic reservoir full and cap secure.
5. Transmission oil cap secure.
6. Cyclic control push-pull tubes rigid.
7. No leaks.
8. Spring tight when controls neutral.
9. Synchronized elevator control secure and tight.
10. Collective lever rigid.

10A. Collective sleeve rigid.

11. Stationary star for cracks; .020 horizontal play allowed.
12. Drive link top trunnion should have .040 horizontal play. Bottom trunnion for cracks.

12A. Gimble ring bearings allowed .010 vertical movement.

13. Scissors sleeve lower retaining nut secure.
14. No in-and-out play on scissors pivot bolt. .040 assembly rotation allowed around mast.
15. Control tubes: No dents, end play, or contact with mixing lever. Should twist.
16. Dampers: Check timing, cracks, full of fluid andarm secure.
17. Damper push-pull tubes: Should twist and approximately .030 end play allowed. Mounted in front of arm.
18. Mast for dents and cracks.

18A. Pitch change links secure and should have slight twist movement.

19. Main rotor retaining nut locked and safetied.

19A. Pillow blocks full.

20. Mix lever inboard bearings allowed .010 play. Bolts safetied.
21. Stabilizer bar for cracks and play at end of safety rod.
22. Check for safety screw.
23. Acorn nut locked and safetied.
24. Grip reservoirs half full.
25. Drag brace secure.

b. Tail rotor failure with fixed-pitch setting. This is a malfunction, resulting in a fixed-pitch setting, such as a severed control cable. Normally, under these circumstances, the directional pitch setting that is in the tail rotor at the time the cable is severed will, to some degree, remain in the tail rotor system, and a varying amount of tail rotor thrust will be delivered at all times during flight.

(1) Aircraft reaction to tail rotor malfunction during approach in a reduced power situation. The nose will swing right when power is applied (possibly to an even greater degree than would be experienced with complete loss of tail rotor thrust), and the situation may be more hazardous.

(2) Recommended emergency procedure. Reduce power immediately and autorotate, using same procedure as listed in paragraph "a(2) above."

(3) Aircraft reaction to tail rotor malfunction during takeoff is an increased power situation. The nose will swing left when power is reduced.

(4) Recommended emergency procedure.

(a) Do not attempt autorotation .

(b) Continue powered flight to the nearest improved landing area and execute a running landing with power at a touchdown speed of 20 to 30 knots. During this approach, the sideslip angle will be corrected to some degree when power is applied to cushion the landing; however, upon decrease of power to initiate the approach to the landing area, the sideslip angle will increase for the duration of the approach but should be corrected when touchdown power is applied.

(5) Aircraft reaction to tail rotor malfunction during cruise power setting. The aircraft reaction should not be as violent as in the previously described situations and at speeds from 40 to 70 knots. The aircraft should streamline with little, if any, sideslip or roll angle. If power is reduced, a right sideslip will occur; if power is increased, a left sideslip will occur.

(6) Recommended emergency procedure. Continue powered flight to the nearest improved landing area and execute a running landing with power with a touchdown speed of 20 to 30 knots.

c. Loss of tail pylon or portion thereof. The gravity of the situation is dependent upon the amount of weight lost (how much tail pylon). If the loss is small, such as aft of the 42° gearbox, the situation would be quite similar to "complete loss of tail rotor thrust." If more than that is lost, immediate autorotation may be the only (if any) solution of possible value, since center of gravity problems may be encountered.

37. TAIL ROTOR FAILURE

A single solution (emergency procedure) for <u>all</u> types of antitorque malfunction is not available. The key to a pilot's successful handling of a tail rotor emergency lies in his ability to quickly analyze and determine the type malfunction that has occurred and to select the proper emergency procedure. Following is a discussion of some types of tail rotor malfunction and probable effects thereafter:

a. Complete loss of tail rotor thrust. This is asituation involving a break in the drive sytem, such as a severed drive shaft, wherein the tail rotor stops turning and no thrust whatsoever is delivered by the tail rotor.

(1) Aircraft reaction to this type of malfunction. A failure of this type will result in the nose swinging to the right (left sideslip) and a left roll of the fuselage along the horizontal axis.

(a) In powered flight, the degree of sideslip and the degree of roll may be varied by changing airspeed and by varying power (throttle or pitch), but neither can be eliminated. Below 30 to 40 knots, the sideslip angle becomes uncontrollable, and the tail of the aircraft begins to revolve on its vertical axis.

(b) In power-off flight (autorotation), the sideslip angle and the roll angle can be almost completely eliminated by maintaining an airspeed of 40 to 70 knots. When airspeed is decreased to approximately 20 to 30 knots, streamlining effect is lost, and the sideslip angle may become uncontrollable. Upon pitch application prior to touchdown, the fuselage will turn in the same direction the main rotor is turning (left, opposite torque effect).

(2) Recommended emergency procedure.

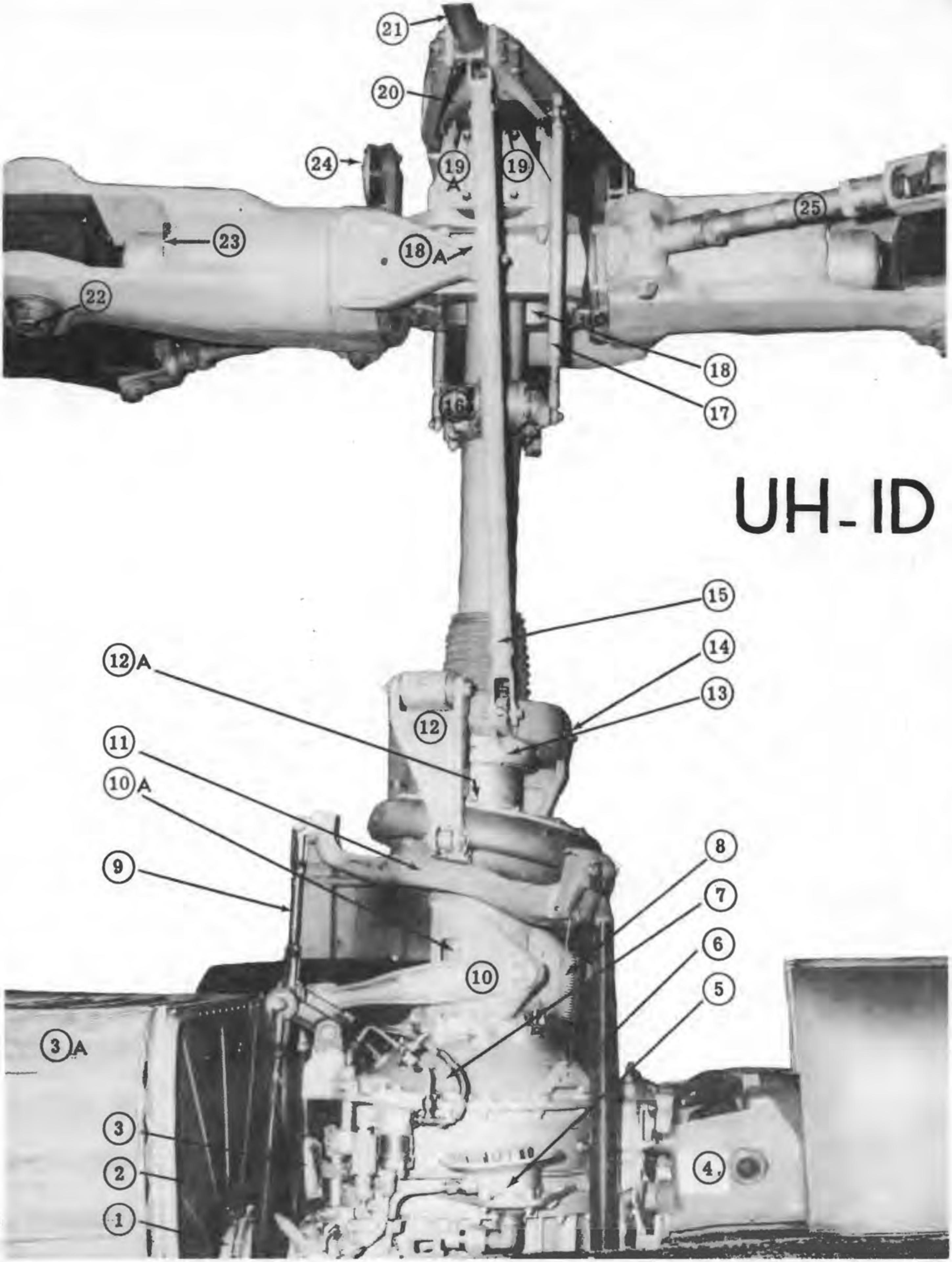
(a) Continue powered flight to a suitable landing area at 40 to 70 knot airspeed.

(b) Initiate a full autorotative landing, securing the engine switches <u>off</u> when landing area is assured.

(c) During the descent, maintain 60 knots indicated with turn being kept to a minimum.

(d) If landing area is a level surface, a run-on landing with a touchdown airspeed of 15 to 25 knots should be accomplished.

(e) If the field is unprepared, start to decelerate at approximately 75 feet, dissipating groundspeed to a minimum. Execute the touchdown with a rapid collective pitch applicator just prior to touchdown in a level attitude with minimum ground run (zero, if possible).



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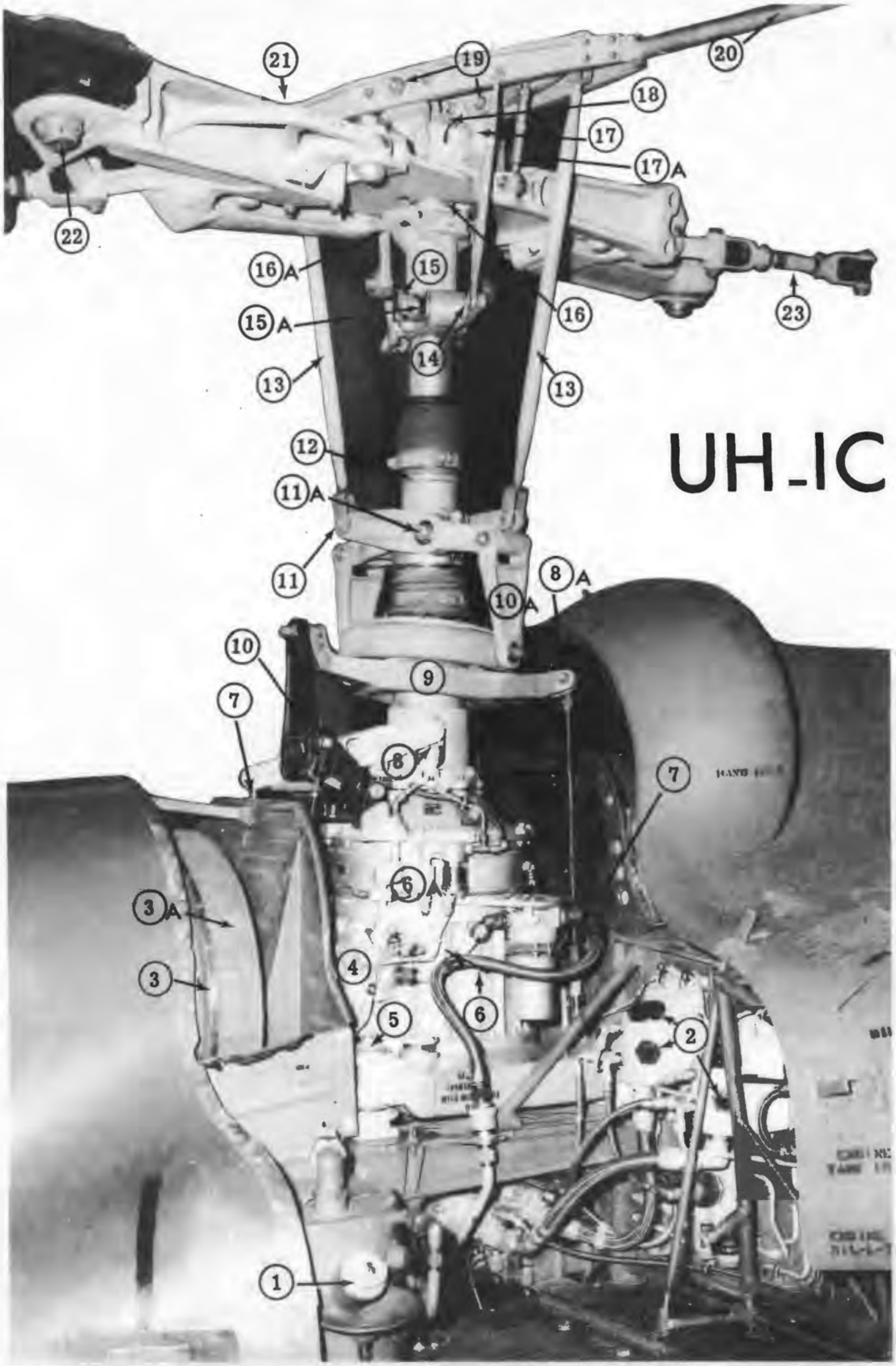

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