CHAPTER 4

AIRFRAME AND ALIGHTING GEAR

5ECTION I - SCOPE

4-1. PURPOSE.

4-2. The purpose of this chapter to to provide all the essential information for maintenance personnel to accomplish organizational maintenance on the complete airframe and alighting gear in accordance with maintenance allocation chart.

SECTION II - FUSELAGE SECTION

4-3. FUSELAGE.

4-4. DESCRIPTION.

4-5. The fuselage section consists of two sections; the cabin and the tail boom.

4-6. CABIN.

4-7. The cabin (see figure 4-1) consists of the pilot's compartment, cargo area, transmission mount, engine deck and fuel tanks. The cargo and crew doors have transparent plastic windows at the top. Transparent plastic windows are provided in the cabin roof above the pilot's and copilot's compartment and two forward and below the tail rotor control pedals. The following are structural panels: All cabin fuselage floor panels and general access panel (53, figure 4-2) on the underside of cabin-fuselage. All island structural panels are marked with decals stating that the panel is a structural panel. Island panels that do not have a decal stating that the panel is a structural panel are considered non-structural panels.

4-8. EQUIPMENT AND ELECTRICAL COMPARTMENT ACCESS DOORS.

4-9. Access to forward fuselage section compartments, other than the crew area, is obtained by use of hinged doors. These doors are secured, when not in use by means of latches. (See figure 4-2.)

4-10. REMOVAL - EQUIPMENT AND ELECTRICAL COMPARTMENT ACCESS DOORS. Release spring loaded latch and remove hinge pin attaching door to structure.

4-11. INSPECTION - EQUIPMENT AND ELECTRICAL COMPARTMENT ACCESS DOORS. Inspect doors for damage, cracks; hinges and latches for serviceability, damage and wear.

4-12. REPAIR OR REPLACEMENT - EQUIPMENT AND ELECTRICAL COMPARTMENT ACCESS DOORS. Replace unserviceable, worn or damaged hinges or latches.

4-13. INSTALLATION - EQUIPMENT AND ELECTRICAL COMPARTMENT ACCESS DOOR. Position door in opening and insert attaching hinge pin. Close door firmly, forcing spring loaded latch to lock.

4-14. MISCELLANEOUS CABIN COMPARTMENT ACCESS DOORS. (See figure 4-2.)

4-15. REMOVAL - MISCELLANEOUS CABIN COMPARTMENT ACCESS DOORS. (Refer to paragraph 4-10.)

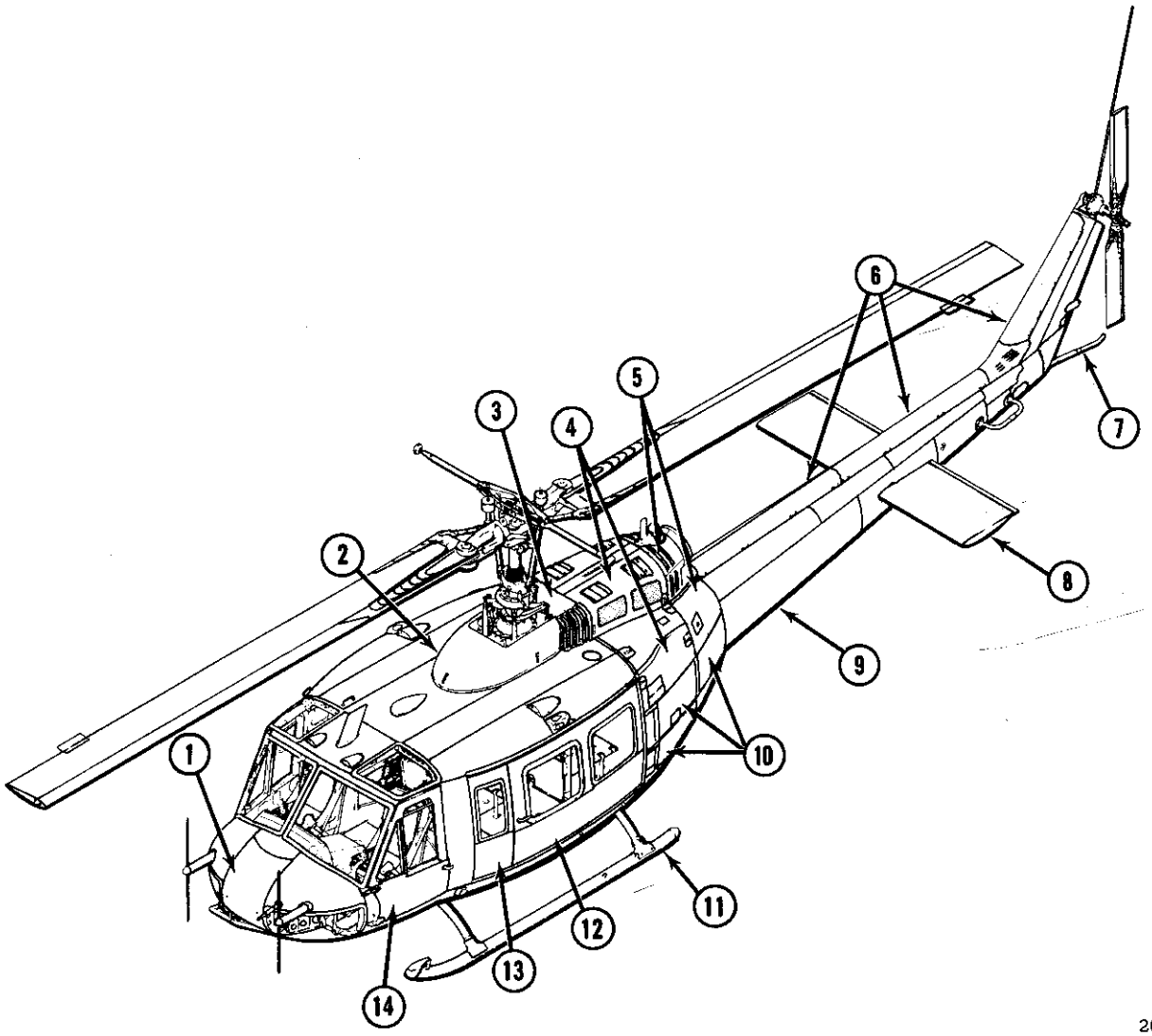
4-16. INSPECTION - MISCELLANEOUS CABIN COMPARTMENT ACCESS DOORS. (Refer to paragraph 4-11.)

4-17. REPAIR OR REPLACEMENT - MISCELLANEOUS CABIN COMPARTMENT ACCESS DOORS. (Refer to paragraph 4-12.)

4-18. INSTALLATION - MISCELLANEOUS CABIN COMPARTMENT ACCESS DOORS. (Refer to paragraph 4-13.)

4-19. PILOT'S AND COPILOT'S DOORS.

4-20. Access to crew compartment is gained through two swingout doors (14, figure 4-1), which are hinged on the forward side. Each door incorporates three transparent plastic windows, which may be termed the forward, upper and adjustable windows. A latch assembly, which may be operated from either side of each door, secures the door in the closed position. In an emergency, doors may be jettisoned by pulling EMERGENCY RELEASE handle mounted inside cabin forward of each door.



205900-8B
AV 054025

1. Nose Compartment Door
2. Transmission Fairing
3. Engine Intake Fairing
4. Engine Cowling
5. Tailpipe Fairing
6. Drive Shaft Covers
7. Tail Skid
8. Synchronized Elevator
9. Tail Boom
10. Fuselage Compartment Doors
11. Landing Gear
12. Sliding Cargo Door
13. Hinged Panel Door
14. Crew Door

Figure 4-1. Airframe group

4-21. REMOVAL - PILOT'S AND COPILOT'S DOORS. Open door, pull EMERGENCY RELEASE handle, and lift from the helicopter.

4-22. INSPECTION - PILOT'S AND COPILOT'S DOORS.

a. Visually inspect seal strips around inner edge of door for deterioration and damage.

b. Examine door hinges (10, figure 4-3) for cracks, condition of spring assemblies, rubber bumper and shim. Door hinges may be inspected by Fluorescent Penetrant method.

c. Visually inspect sliding window stop assembly, located at forward end of lower window channel.

d. Visually inspect latch tube clevis ends and internal threads.

e. Inspect latch release spring (6) for initial tension of 0.30 pound, spring rate of 3.54 pounds per inch, and a load of 2.0 pounds (plus or minus 0.30 pound) at 1.75 inches extended length.

f. Manually check bellcrank (7) for bushing wear. If bushing appears to be worn and bellcrank is loose on mounting bolt, remove bellcrank and replace bushing.

g. Visually inspect aft vertical latch tube (3) rod end and internal threads.

h. Check roller assemblies (2) for smoothness of operation in channel and for condition of threads.

Note

With door in locked position, tops of roller assemblies (2) should clear channel by 0.08 inch.

i. Inspect ejection handle assembly components. Perform pull test of cable and terminals at 100 inch-pounds.

j. Visually inspect all components of the ejection mechanism.

k. Inspect door for cracks, dents and damage.

4-23. REPAIR OR REPLACEMENT - PILOT'S AND COPILOT'S DOORS. Replace worn or unserviceable hinges.

4-24. INSTALLATION - PILOT'S AND COPILOT'S DOORS. Position door on hinges and insert hinge pins. Close door and latch shut. For final adjustment of doors, peel shims on upper and lower door hinges as necessary.

4-25. PILOT'S AND COPILOT'S DOOR LATCH.

4-26. The latch may be operated from either side of the door.

4-27. REMOVAL - PILOT'S AND COPILOT'S DOOR LATCH.

a. Remove screw holding inner handle to shaft and remove handle.

b. Remove access plate and disconnect two tube assemblies from bellcrank.

c. Remove screw from outer handle and remove handle from shaft.

d. Remove door handle plate attachment screws and remove plate. Lift latch from door.

4-28. INSPECTION - PILOT'S AND COPILOT'S DOOR LATCH. Inspect for damage, wear, binding, and serviceability.

4-29. REPAIR OR REPLACEMENT - PILOT'S AND COPILOT'S LATCH. Replace worn, damaged, or unserviceable latch.

4-30. INSTALLATION - PILOT'S AND COPILOT'S DOOR LATCH.

a. Position latch in door and install outer door handle plate.

b. Install outer handle on shaft.

c. Connect two tube assemblies in latch bellcrank and install access plate.

d. Install inner handle on shaft.

4-31. CABIN NOSE RADIO ACCESS DOOR.

4-32. The cabin nose radio access door (1, figure 4-1) provides access to the radio compartment.

4-33. REMOVAL - CABIN NOSE RADIO ACCESS DOOR.

a. Remove hardware attaching eyebolts on plungers to door hinges.

b. Remove hardware attaching door hinges to aircraft. (Remove hardware from right side hinge first.)

c. Raise door to approximately 3/4 open position or until eyebolts align with holes in hinges.

d. Remove door.

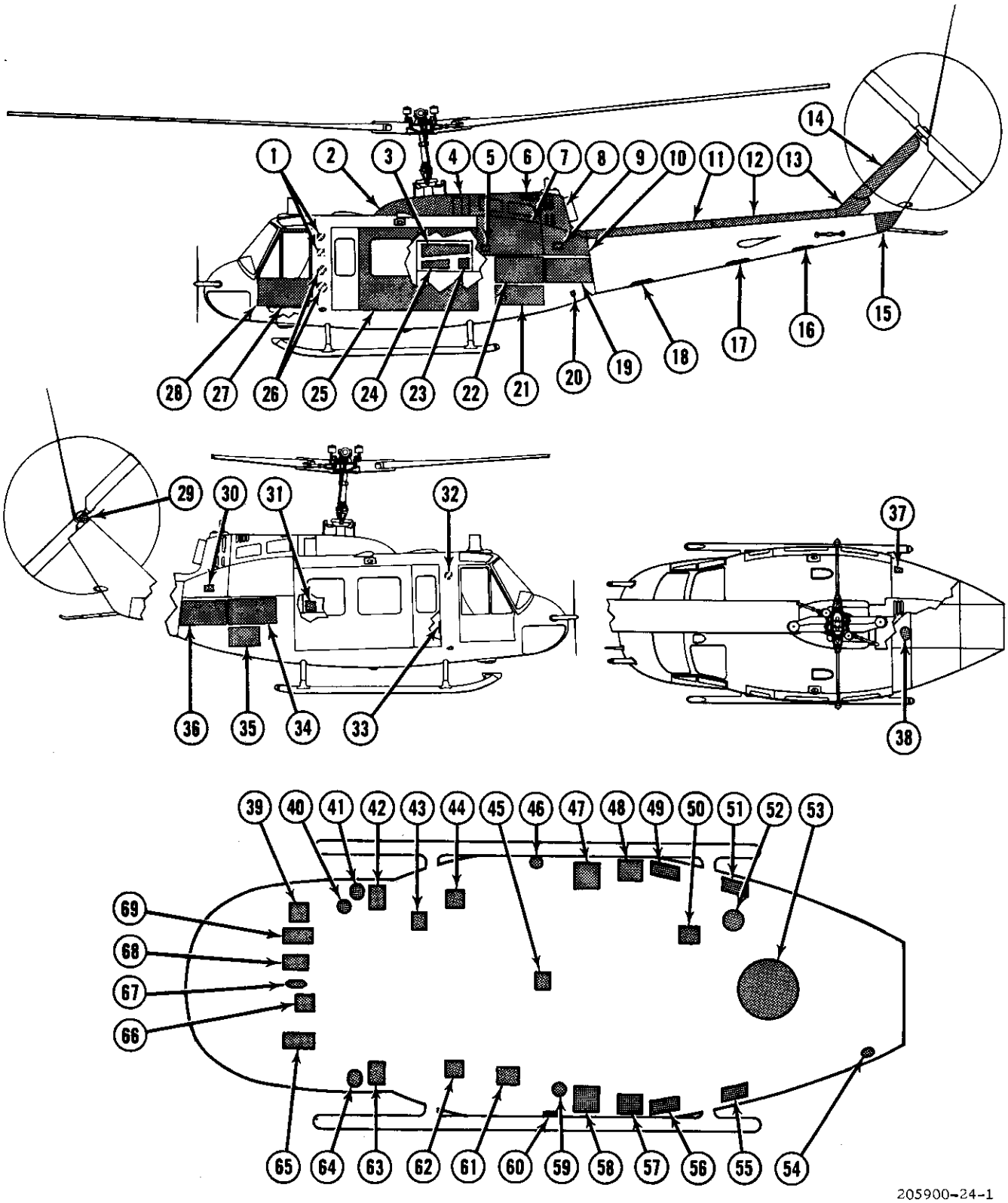
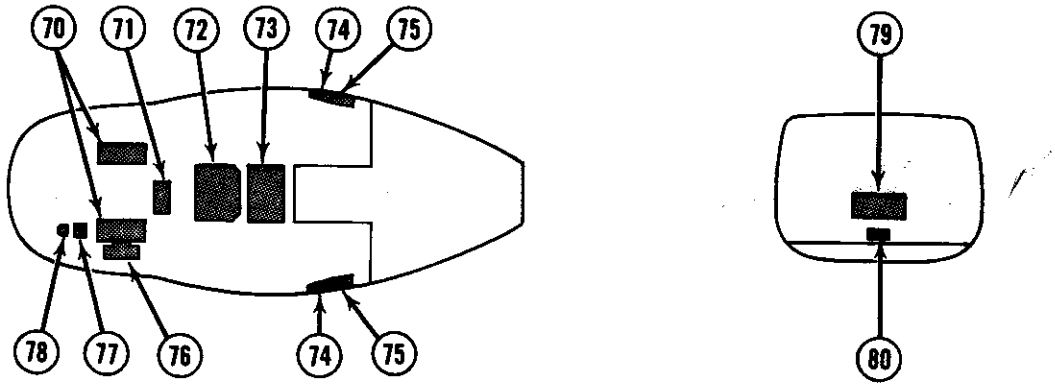


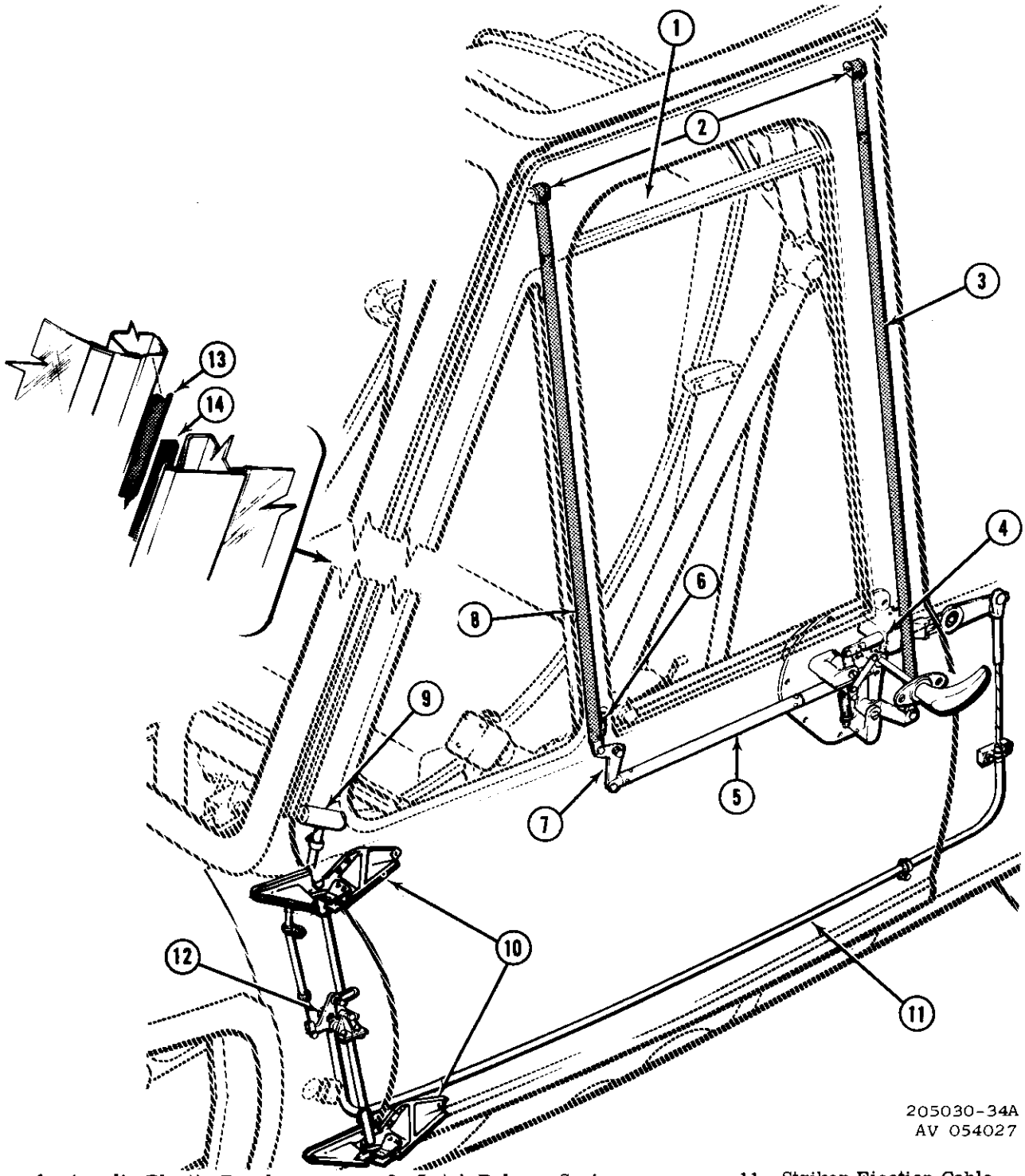
Figure 4-2. Model UH-1D/H access and inspection provisions (Sheet 1 of 2)



205900-24-2
AV 054026-2

1. Stowage Access Door
2. Transmission Fairing
3. Pylon Access Door
4. Engine Cowl
5. Fire Extinguishing Access Door
6. Upper Engine Cowl
7. Lower Engine Cowl
8. Tailpipe Fairing (Upper)
9. Driveshaft and Electrical Disconnect Access Door
10. Tailpipe Fairing (Lower)
11. Forward Tail Rotor Shaft Access
12. Aft Tail Rotor Shaft Access
13. Intermediate (42°) Gear Box Access
14. Vertical Fin Driveshaft Access
15. Ventral Fin Fairing
16. General Access
17. Flight Controls Access Door
18. Flight Controls Access Door
19. Electrical Controls Access Door
20. External Power Access Door
21. Electronic Equipment Access Door
22. General Access Door
23. Fuel Control Access Door
24. Lower Pylon Access Door
25. Cargo Door
26. Emergency Door Release Cover Plate
27. Lower Window Access Door
28. Crew Door
29. Tail Rotor Chain Access Cover
30. Driveshaft Access Door
31. General Access Door
32. General Stowage Access Door
33. General Access Cover Plate
34. Cargo Hook Mirror Access Door
35. General Access Door
36. General Access Door
37. Engine Oil Tank Access Door
38. Fuel Cell Access Door
39. Flight Controls Access Door
40. Flight Controls Access Door
41. Flight Controls Access Door
42. Flight Controls Access Door
43. Flight Controls Access Door
44. General Access Door
45. Fuel Lines Access Door
46. External Stores Jettison Cable Access Door
47. External Stores Disconnect Access Door
48. Fuel Lines Access Door
49. Ammunition Chute Access Door
50. Fuel Lines Access Door
51. Cabin Heater Duct Access Door
52. Fuel Lines Access Door
53. General Access Door
54. General Access Door
55. Cabin Heater Duct Access Door
56. Ammunition Chute Access Door
57. Fuel Lines Access Door
58. External Stores Disconnect Access Door
59. Fuel Lines Access Door
60. External Stores Jettison Cable Access Door
61. General Access Door
62. Cabin Heater Duct Access Door
63. Cabin Heater Duct Access Door
64. Flight Controls Access Door
65. Flight Controls Access Door
66. Flight Controls Access Door
67. Antenna Access Cover
68. General Access Door
69. Flight Controls Access Door
70. Controls Access Door
71. Controls Access Door
72. General Access Door
73. General Access Door
74. Auxiliary Fuel Tank Fittings Cover Plate
75. Gun Chute Tunnel Cover Plate
76. Dual Collective Stick Cover
77. Dual Cyclic Stick Access
78. Cyclic Stick Electrical Access Door
79. Hydraulic Controls Access Door
80. Armament Provisions Access Cover

Figure 4-2. Model UH-1D/H access and inspection provisions (Sheet 2 of 2)



1. Acrylic Plastic Panels
2. Door Roller Assemblies
3. Aft Vertical Latch Tube
4. Door Latch
5. Lower Horizontal Latch Tube
6. Latch Release Spring
7. Bellcrank
8. Forward Vertical Latch Tube
9. Ejection Handle Assembly
10. Door Hinges
11. Striker Ejection Cable
12. Ejection Mechanism
13. Seal
14. Seal

Figure 4-3. Typical pilot's and copilot's door assembly

4-34. INSPECTION - CABIN NOSE RADIO ACCESS DOOR. (Refer to paragraph 4-11.)

4-35. REPAIR OR REPLACEMENT - CABIN NOSE RADIO ACCESS DOOR. (Refer to paragraph 4-12.)

4-36. INSTALLATION - CABIN NOSE RADIO ACCESS DOOR.

a. Position door (approximately 3/4 open) so that eyebolts align with holes in hinges.

b. Slip one washer, previously removed, onto each eyebolt attached to left and right plungers. (Contoured side of washers fit against surfaces of hinges.)

c. Insert eyebolts through hinges.

d. Secure plungers to hinges with two contoured washers and two nuts previously removed.

e. Raise radio compartment door to full open position and install hinges to aircraft with hardware previously removed and secure with two cotter pins.

f. Square up nose radio compartment door, adjust latch retainers, and check swing of door. Tighten latch retainer nuts.

4-37. HINGED PANEL DOOR.

4-38. A hinged panel (removable door post YUH-1D) just ahead of sliding door will provide a wider opening for cargo loading. (See figure 4-1.)

4-39. REMOVAL - HINGED PANEL DOOR.

a. Open sliding cargo door.

b. Operate latch handle of panel door to release pins from upper and lower channels of door opening. Swing door open.

c. Disengage stop spring from stud at top of opening.

d. Remove quick-release pins from hinges. Lift off door panel.

Note

On YUH-1D with non-hinged removable door post, omit instructions above. Release latches at upper and lower forward corners, pull removable door post slightly aft and raise to release assembly from structure.

4-40. INSPECTION - HINGED PANEL DOOR. Inspect door for dents, cracks or damage; hinges and latches for wear or damage.

4-41. REPAIR OR REPLACEMENT - HINGED PANEL DOOR. Replace worn or unserviceable hinges and latches.

4-42. INSTALLATION - HINGED PANEL DOOR.

a. Align panel door on hinges and install pins.

b. Swing door partly closed and engage slotted stop spring on stud at top of door opening.

c. Close door and operate handle to extend latch pins into holes in upper and lower structural channels of frame.

d. Close sliding door to check for proper latching.

Note

On YUH-1D with non-hinged removable door posts, omit instructions above. Position panel to engage hangers and hook in upper and lower frame channels, and pull down to seat. Push assembly forward and secure latches to fixed door post.

4-43. CABIN INSPECTION PLATES.

4-44. Inspection plates, secured with screws or fasteners, are provided whenever needed for inspection and maintenance of the helicopter. (See figure 4-2.)

4-45. REMOVAL - CABIN INSPECTION PLATES. Remove screws attaching plates to structure.

4-46. INSPECTION - CABIN INSPECTION PLATES. Inspect for dents, cracks, elongated mounting holes and other obvious damage.

4-47. REPAIR OR REPLACEMENT - CABIN INSPECTION PLATES. Replace inspection plates which do not meet inspection requirements.

4-48. INSTALLATION - CABIN INSPECTION PLATES. Position inspection plate in opening and attach to structure with screws.

Note

All fasteners shall be installed in structural panels. Non-structural panels may have every third fastener missing, however, no panel shall have more than fifty percent of the total number of fasteners missing.

4-49. CARGO DOORS.

4-50. A large sliding door operating on rollers and tracks gives access to cargo-passenger area on each side of cabin. (See figure 4-1.) Each sliding door has a latch for closed position, and two jettisonable windows which can be used as emergency escape hatches. On YUH-1D, the door can be secured in open position by manually releasing the lock of a spring-loaded plunger at top front corner, which engages a guide in upper frame. Plunger is automatically retracted, by means of a cable, when door latch is operated. On UH-1D/H, the door can be secured in open position by a retractable stop located on rear bulkhead of cabin.

4-51. REMOVAL - CARGO DOOR.

a. Unlatch door. Check that open-position stop is retracted.

b. Remove screw and rubber stop from aft end of lower track on fuselage behind door.

c. Slide door aft, guiding rollers and slider out of tracks.

4-52. INSPECTION - CARGO DOOR.

a. Inspect door for dents, damage and cracks.

b. Inspect latch for binding, wear or damage.

c. Inspect slider, P/N 204-030-220-1, for excessive wear.

4-53. REPAIR OR REPLACEMENT - CARGO DOOR.

a. Replace unserviceable latch. (Refer to paragraph 4-56.)

b. If slider, P/N 204-030-220-1, is excessively worn it may be rotated 180 degrees and reinstalled, or replaced, as necessary.

4-54. INSTALLATION - CARGO DOOR.

a. Position door with forward edge in line with aft end of door tracks.

b. Start rollers and slider through cut-outs at aft ends of tracks. Push door forward.

c. Install rubber bumper with screws at aft end of lower track on fuselage.

4-55. ADJUSTMENT - CARGO DOOR. Both sliding cargo doors must be properly aligned to be secure in all flight conditions and to operate correctly. Check and adjust fit of each door according to procedure outlined below:

a. Place door to full closed and latched position. Check upper edge of door for being parallel to top of cabin door frame.

b. If door is out of alignment, loosen screws attaching roller support and slider (or roller) support on rear edge of door. Adjust slider support (lowest of two supports on rear edge) to raise or lower door to align upper edge parallel to door frame. Tighten slider support screws.

c. Adjust roller support (upper of two on rear edge) so that roller is fully engaged in track. Tighten attaching screws.

d. Operate door through full travel while checking that all rollers on upper edge are fully engaged in track at all positions. Adjust roller supports as required.

e. With door fully closed and latched, check that lower door track is engaged not less than 0.25 inch in cabin door channel. If required, loosen screws attaching lower track on door and adjust track to provide maximum engagement in cabin door channel without restricting door travel through full range from closed to open positions. Be sure door track attaching screws are tightened after adjustment.

f. Check door latch for proper operation and adjust if required. (Refer to paragraph 4-56.)

4-56. CARGO DOOR LATCH.

4-57. A latch is provided for both sides of the cargo door.

4-58. REMOVAL - CARGO DOOR LATCH.

a. Unhook tension spring (1, figure 4-4) from latch hook (10) and from hanger directly below on door structure.

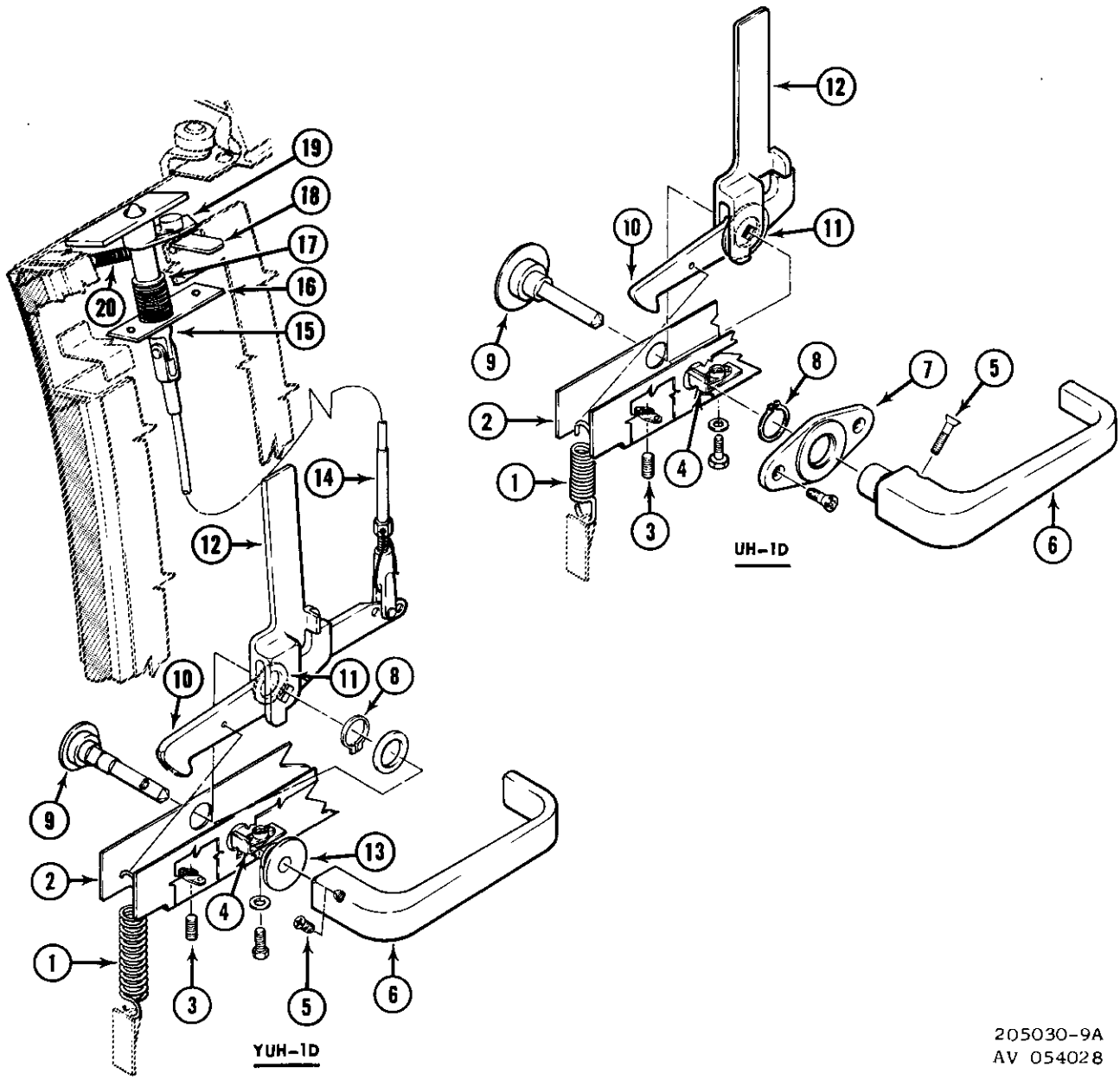
b. Remove outer handle (6) of latch.

(1) Remove set-screw (5) which secures handle to latch shaft (9).

(2) On YUH-1D only, pull handle off end of shaft.

(3) On UH-1D/H, remove two screws to detach door handle plate (7) from door. Pull handle and door handle plate assembly off end of shaft. When necessary, remove retaining ring (8) to separate parts.

c. Withdraw latch shaft to remove inner handle (12) and hook (10), with washers. On YUH-1D, disconnect cable fork terminal (14) from rear end of handle by removing cotter pin, flat head pin, and washer.



1. Tension Spring
2. Door Structure Channel
3. Hook Adjusting Screw
4. Stop
5. Set-Screw
6. Outer Handle
7. Door Handle Plate (UH-1D)
8. Retaining Ring
9. Latch Shaft
10. Hook
11. Washer
12. Inner Handle
13. Shaft Bushing (YUH-1D)
14. Actuating Cable (YUH-1D)
15. Plunger (YUH-1D)
16. Retainer (YUH-1D)
17. Plunger Spring (YUH-1D)
18. Lock (YUH-1D)
19. Guide (YUH-1D)
20. Release Spring (YUH-1D)

Figure 4-4. Cargo door latches - typical

Note

Mark hole in handle (10) to which cable (14) was attached so that cable can be installed to same hole. Do not remove lockwire from cable terminal.

d. Leave latch adjustment set-screw (5) and handle stop (4) in place in support channel (2), unless replacements are necessary. On YUH-1D, shaft bushing (13) with retaining ring and washer can be removed for replacement.

4-59. INSTALLATION - CARGO DOOR LATCH.

a. Check that hook adjustment set-screw and angle fitting which serves as stop (4, figure 4-4) for inner handle (12) are installed in support channel (2) of door. On YUH-1D, install shaft bushing (13) through outboard side of channel (2) and secure with thin washer and retaining ring.

b. Place latch hook (10) in fork of inner handle (12). Insert a washer between hook and handle at outboard side of UH-1D/H; at inboard side on YUH-1D.

c. Place hook and handle assembly into support channel (2) of door, with hook through guide slot. Align holes and insert latch shaft (9) from inboard side.

d. On UH-1D/H, check that door handle plate (7) is secured on outer handle (6) with retaining ring (8).

e. Place outer handle (6) over end of latch shaft (9). Check alignment of parts before installing set-screw through handle into shaft.

(1) Outer handle (6) should be pointing aft and horizontal when inner handle (12) is upright, with stop (4) face against angle fitting in bottom of support channel (2). If necessary, change position of latch shaft (9) to align holes for set-screw, and adjust position of stop fitting.

(2) On UH-1D/H, secure door handle plate (7) to door with two screws.

(3) On YUH-1D, check gap between latch bushing (13) and shoulder on latch shaft (9) for 0.040 inch maximum. If necessary, install washer to reduce gap.

f. Connect tension spring (1) between latch hook (10) and hanger located below on door structure.

g. On YUH-1D, connect cable from plunger of position lock (18) to rear arm of inner handle (12) with flat head pin, washer, and cotter pin.

h. Check operation of latch. Adjust set-screw under latch hook so that hook will positively engage striker in panel door.

i. On YUH-1D, also check operation of position lock (18) at top of door. If necessary, adjust cable (14) terminal or change attachment hole. Lock-wire cable (14) terminal through fork.

4-60. COWLING.

4-61. Cowling and fairings are used to protect and provide easy maintenance access to engine compartment, intake and exhaust tailpipe areas, and top of main transmission.

4-62. ENGINE COWLING.

4-63. Engine compartment between front and rear firewalls is covered by side and upper cowling assemblies. (See figure 4-1.) Each side cowl opens by swinging aft on hinges of rear firewall, and can be secured open by a web strap snapped to a stud on fuselage. Upper cowl sections swing upward on hinges of a beam between tops of firewalls, and are held open by rods. Flush-type spring-locking latches provide closure.

4-64. REMOVAL - ENGINE COWLING.

a. Unlatch and open each side cowling. Pull pins from hinges on rear firewall to remove cowling sections.

b. Unlatch upper cowl and raise to open position at each side.

c. Disconnect fire detector wiring at connectors near top of front firewall.

d. Disconnect flexible duct with clamp from starter-generator cooling air intake on cowling support beam.

e. Pull out pins at each end of beam to detach from firewall. Remove beam with upper cowl sections attached.

4-65. INSPECTION - ENGINE COWLING. Inspect cowling for cracks, dents and damage.

4-66. REPAIR OR REPLACEMENT - ENGINE COWLING. Replace engine cowling which does not meet inspection requirements.

4-67. INSTALLATION - ENGINE COWLING.

a. Lift upper cowling assembly to position. Align ends of beam in brackets on front and rear firewalls and install pins.

b. Engage support rods to hold upper cowling open.

c. At right side of engine, connect flexible duct from starter-generator cooling blower to air intake on bottom of cowling support beam. Secure duct with clamp.

d. Connect fire detector wiring from both cowl sections to connectors near top of front firewall.

e. Align side cowling sections to hinges on rear firewall and install hinge pins.

f. Close upper cowling, with support rods stowed in clips. Close side cowlings.

4-68. ENGINE INTAKE FAIRING OR AIR FILTERS.

4-69. The engine air intake area, above cabin roof level and between the transmission fairing and the engine compartment cowling, is enclosed either by a fairing with side louvers (3, figure 4-1) or by a three-section air filter installation. As original equipment (subject to field modification) the following configurations may be encountered:

(1) Through Serial No. 62-12372: Three-piece fairing, consisting of a top panel and two side louvers. Panel is secured to tops of induction baffle and engine firewall by cowling fasteners. Side louvers are secured at bottom by bolts to plate-nuts in cabin roof structure, and at top to sides of panel by cowling fasteners.

(2) On Serial No. 63-8739 through 65-9810: Fairing similar to that described above, but with side louvers hinged to top panel and secured to cabin roof by cowling fasteners. Side louvers can be opened upward and held open by rods, for access to engine inlet area.

(3) On Serial No. 65-9811 and subsequent, or on earlier aircraft so modified: Three-piece air inlet filters, secured by cowling fasteners.

4-70. TRANSMISSION COWLING.

4-71. A one-piece cowling (2, figure 4-1) over front and sides of transmission upper area, is secured by three latches and two hinge assemblies. For access, the unlatched fairing can be swung forward to rest on cabin roof.

4-72. REMOVAL - TRANSMISSION COWLING.

a. Disengage three latches and swing cowling to open position.

b. Detach hinges from three fittings on cabin roof by removing bolts with nuts and washers. Lift off cowling assembly. If hinges are detached from cowling, observe position of washers used for alignment, for reassembly in same manner.

4-73. INSPECTION - TRANSMISSION COWLING.

a. Inspect hinges, latches and fitting for wear, damage and serviceability.

b. Inspect seals for cracks, tears, deterioration and security of bonding.

c. Inspect cowling for dents, cracks and damage.

4-74. REPAIR OR REPLACEMENT - TRANSMISSION COWLING.

a. Replace hinges, latches, fittings and seals if unserviceable.

b. Replace cowling if damaged.

4-75. INSTALLATION - TRANSMISSION COWLING.

a. Position cowling hinges to fittings on cabin roof and install bolts with washers and nuts.

b. Swing cowling to closed position. Check alignment for secure latching and for clearance with control linkages or other parts on transmission pylon.

4-76. TAILPIPE FAIRING.

4-77. A three-piece fairing (5, figure 4-1) covers exhaust tailpipe area behind engine rear firewall, and is secured by cowl fasteners. An antenna and anti-collision light are mounted on top of upper fairing.

4-78. REMOVAL - TAILPIPE FAIRING.

a. Through door in lower left fairing, disconnect antenna and anti-collision light wiring at deck connectors.

b. Open drive shaft cover which overlaps upper fairing. Release fasteners and remove upper and two lower tailpipe fairings.

4-79. INSPECTION - TAILPIPE FAIRING. Inspect for damage, cracks or dents.

4-80. REPAIR OR REPLACEMENT - TAILPIPE FAIRING. Replace fairing if inspection requirements are not met.

4-81. INSTALLATION - TAILPIPE FAIRING.

a. Install and fasten lower fairings and upper fairing. Close drive shaft cover.

b. Through door on lower left fairing, connect antenna and anti-collision light wiring at deck connectors.

4-82. PILOT'S AND COPILOT'S SEATS.

4-83. Crew seats are adjustable, non-reclining type, mounted on tracks fixed to cabin floor. (See figure 4-5.) Lubricate pilot's and copilot's seat tracks with lubricant (item 6, table 1-2) as required.

4-84. REMOVAL - PILOT'S AND COPILOT'S SEATS.

a. Remove stopbolts or quick-release pins at aft ends of seat tracks.

b. Lift handle, located on left side of seat, to release position pin. Slide seat aft off tracks.

4-85. INSTALLATION - PILOT'S AND COPILOT'S SEATS.

a. Engage rollers on aft end of tracks. Lift handle on left side of seat. Slide seat forward on tracks to normal position.

b. Install stopbolts or quick-release pins at aft ends of tracks.

4-86. ADJUSTMENT - PILOT'S AND COPILOT'S SEATS. Vertical adjustment is provided by a lever on right side of each seat. Fore and aft adjustment lever is located on left side of seat. Tightening or loosening of the seat (bottom) net is accomplished by adjustment of turnbuckles. The back net tension can be controlled by use of the nylon cord lacing.

4-87. PILOT'S AND COPILOT'S ARMORED SEAT.

4-88. The seat armor, constructed from a composite ceramic-metal material, is designed to protect pilot and copilot against small arms ball and armor piercing ammunition. A segmented construction is used to permit the replacement of any damaged components.

Note

Armored seats cannot be used in the helicopter without the armored shell.

Pilot's and copilot's armored seats which may be installed in this helicopter are part numbers:

Pilot's	Copilot's
177787-1	177755-1
177787-3	177755-3
*178061-1	178062-1

*Lightweight Seat

4-89. REMOVAL - PILOT'S AND COPILOT'S ARMORED SEAT.

Note

When changing from armored seats to standard seats or vice versa, inertia reel must be repositioned either on helicopter cabin floor for standard seat or attached to back of armored seat.

Note

Retain removed hardware and serviceable parts for reinstallation.

a. Remove bolts holding shoulder straps to tension reel.

b. Remove adjustment buckles from both halves of seat belt.

c. Remove both halves of seat belt through slots provided in armored seat.

d. Remove inertia release lever.

e. Remove inertia reel release cable.

f. Remove the inertia reel from box on armored seat.

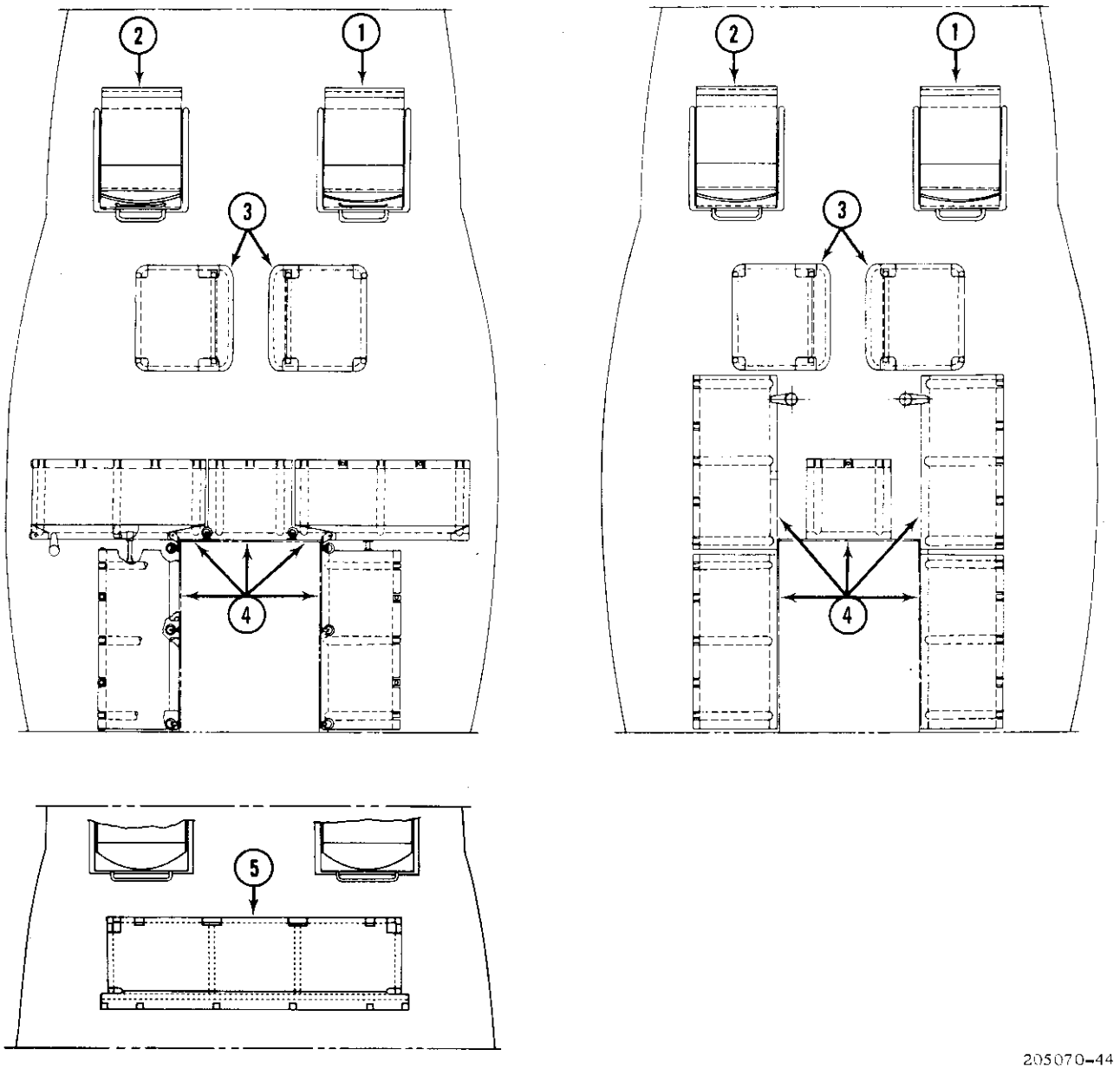
g. Remove rear seat stops from ends of seat track.

h. Place seat in full down position and remove from helicopter.

4-90. INSPECTION - PILOT'S AND COPILOT'S ARMORED SEAT.

a. Inspect armor for damage from enemy fire and other unserviceable conditions.

b. Inspect for proper movement and locking of side panels.



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1. Pilot's Seat
2. Copilot's Seat
3. Passenger Seats (Folding)
4. Passenger Seats
5. Passenger Seats (Non-folding)

Figure 4-5. Seating arrangement

4-91. REPAIR OR REPLACEMENT - PILOT'S AND COPILOT'S ARMORED SEAT. Replace any segment that is damaged or shows unserviceable condition.

4-92. INSTALLATION - PILOT'S AND COPILOT'S ARMORED SEAT.

a. Attach inertia release lever to seat.

b. Install inertia reel into box provided.

c. Install release cable.

Note

Test operation of tension reel at this time.

d. Install shoulder straps into armored seats and bolt to tension reel.

e. Install both halves of seat belt through slots provided, belts go between wall of seat and the tube of the seat frame.

f. Place seat in full down position, install on seat rails and install seat stops.

g. Install adjustment buckles on seat belts.

4-93. CREW SEAT COVERS.

4-94. Crew seat metal frames are covered with nylon mesh material. Metal eyes are provided in seat back cover for lacing with nylon cord. Metal strips are attached to tabs of lower seat cover with eyelets for attachment of turnbuckles.

4-95. REMOVAL - CREW SEAT COVERS.

a. Remove seat back cover as follows:

(1) Lift flap on aft side of seat back cover for access to nylon cord.

(2) Untie nylon cord and loosen as necessary to remove cover.

b. Remove lower seat cover as follows:

(1) Cut lockwires and loosen turnbuckles underneath seat.

(2) Disconnect turnbuckles from metal reinforcing strips in seat cover tap.

4-96. INSTALLATION - CREW SEAT COVERS.

a. Install seat back cover as follows:

(1) Position cover on seat back.

(2) Use nylon cord laced through reinforcing eyes to tighten cover to desired tension.

(3) Secure in position by tying nylon cord.

b. Install lower seat cover as follows:

(1) Position cover on lower seat.

(2) Attach turnbuckles to metal reinforcing strips in seat cover through slots provided in material.

(3) Adjust seat cover to desired tension by tightening turnbuckle. Lock-wire turnbuckles together for security.

4-97. ADJUSTMENT - CREW SEAT COVERS. If turnbuckle has reached its extreme position and further tightening is desired, the seat cover may be tightened further as follows:

a. Cut lockwire securing turnbuckle.

b. Loosen and disconnect turnbuckles from metal reinforcing strip in seat cover tab.

c. Turn metal reinforcing strip one-half turn.

Note

Roll tab material evenly.

d. Connect turnbuckles to metal reinforcing strips through slots provided in material.

e. Adjust seat covers to desired tension by tightening turnbuckles.

f. Lock-wire turnbuckles together for security.

4-98. TROOP SEATS.

4-99. Arrangements have been made in aft section of the forward fuselage section for seating eleven passengers. Either of the two following arrangements may be used for passenger seating.

(1) Three seats facing forward, and accomodating five passengers, may be placed across cabin immediately forward of the transmission support structure. A one-passenger seat, without back rest, is located between two two-man seats (4, figure 4-5 which have backs. Two more two-man seats (4), without backs, are located parallel to the helicopter center line aft of the five passenger seats. Passengers in these seats face outboard. Two single-passenger folding seats, with backs (3), are located just aft of the crew seats.

(2) Four two-man seats, facing outboard, may be placed, two on each side of the helicopter center line, approximately in line with the side faces of the transmission support structure. The two forward seats (4) are equipped with backs. A one-passenger seat, without back rest, is located immediately forward of the transmission support structure on the helicopter center line and faces forward. Two single-passenger folding seats, with backs (3), are located aft of the pilot's and copilot's seats.

Note

Single troop seats (3) can be installed facing forward, aft, or towards either side of the helicopter.

(3) A three-man non-folding troop seat kit is provided to use in place of the two single-passenger folding seats, located just aft of the crew seats.

4-100. REMOVAL - TROOP SEATS.

a. Remove one-man seat without back as follows:

(1) Slide collar of each leg attachment fitting upward from the floor to release fittings from floor studs.

(2) Disengage aft tube assembly from spring-loaded lock fittings and remove seat assembly from the helicopter.

b. Remove one-man seat with back as follows:

(1) Slide collar of each leg attachment fitting upward from the floor to release fittings from floor studs.

(2) Pull the quick-release pin attaching seat back support tubes to each side of the seat bottom, and fold seat back forward onto seat bottom.

(3) Pull the quick-release pin attaching diagonal leg brace to forward leg and fold each leg inboard against seat bottom.

(4) Remove seat assembly from helicopter.

c. Remove two-man seat without back as follows:

(1) Slide collar of each leg attachment fitting upward from the floor to release fittings from floor studs.

(2) Disengage aft tube assembly from fittings and fold seat legs against seat bottom.

(3) Remove seat assembly from the helicopter.

d. Remove two-man seat with back as follows:

(1) Pull upper and lower quick-release pins attaching seat back to stanchion assembly fittings.

(2) Remove nuts, washers, and bolts attaching seat back to fittings and fold seat back forward onto seat bottom.

(3) Slide collar of each leg attachment fitting upward from the floor to release fittings from floor studs and fold seat assembly legs against bottom of seat.

(4) Remove seat from helicopter.

(5) Slide collars of upper and lower attachment fittings on stanchion assemblies toward center of assembly to release stanchions from roof and floor studs, and remove stanchion assemblies from the helicopter.

e. Remove three-man troop seats with back as follows:

(1) Slide collar on each leg attachment fitting upward from the floor to release fittings from floor studs.

(2) Remove seat from helicopter.

4-101. INSTALLATION - TROOP SEATS.

a. Install one-man seat without back as follows:

(1) Position seat assembly in helicopter and engage aft tube assembly in spring-loaded lock fittings.

(2) Position seat assembly support legs on floor studs and secure legs to floor by sliding attachment fitting collars downward as far as possible.

b. Install one-man seat with back as follows:

(1) Unfold diagonal leg brace and attach to forward leg with quick-release pin.

(2) Raise seat back to vertical position and attach seat back support tubes to each side of seat bottom by installing quick-release pins.

(3) Position seat assembly support legs on floor studs and secure legs to floor by sliding attachment collars downward as far as possible.

c. Install two-man seat without back as follows:

(1) Position seat assembly in helicopter and engage aft tube assembly in fittings.

(2) Unfold seat assembly support legs and position on floor studs. Slide leg attachment fitting collars downward as far as possible to secure legs to floor.

d. Install two-man seat with back as follows:

(1) Position stanchion assemblies in helicopter between roof and floor studs and slide attachment fitting collars as far as possible toward studs to secure stanchion assemblies to roof and floor.

(2) Unfold seat assembly support legs and position on floor studs. Slide leg attachment fitting collars downward as far as possible to secure legs to floor.

(3) Raise seat back to vertical position and install bolts, washers, and nuts attaching seat back to fittings.

(4) Position seat back in stanchion assembly fittings and install upper and lower quick-release pins.

e. Position seat assembly support legs on floor studs and secure legs to floor by sliding attachment fitting collars downward as far as possible.

4-102. TROOP SEAT BELTS.

4-103. Individual lap-type seat belts are provided for all troop seats. The same belts, with web extensions, are provided for litter patients when helicopter is used for mercy rescue missions.

4-104. REMOVAL - TROOP SEAT BELTS.

a. To remove seat safety belts, unsnap both ends of the belt from rings and remove belt.

b. To remove safety belts and extensions from litters, disconnect belt from extension and remove from litter.

4-105. INSPECTION - TROOP SEAT BELTS. Inspect belts for fraying, wear, and loose stitching.

4-106. REPAIR OR REPLACEMENT - TROOP SEAT BELTS. Replace worn or unserviceable belts.

Note

Seat belts are replaced at 60 month intervals. (Refer to TM 55-405-3.)

4-107. INSTALLATION - TROOP SEAT BELTS.

a. To install seat safety belts, position belt across seat bottom and attach both ends by snapping to rings.

Warning

Assemble each belt with release handle pointing left.

b. To install safety belts and extension on litters, connect one end of belt to extension. Pass belt and extension combination around litter and connect other ends.

Note

Two safety belt and extension combinations are required for each litter.

4-108. CREW SEAT BELTS.

4-109. Lap-type seat belts are installed on crew seats. On YUH-1D, seat belts are attached to structure of seat. On UH-1D/H, seat belts are attached to fittings on cabin floor.

4-110. REMOVAL - CREW SEAT BELTS. Remove bolts, washers and nuts holding seat belt to fittings.

4-111. INSPECTION - CREW SEAT BELTS. Inspect belts for fraying, wear and loose stitching.

4-112. REPAIR OR REPLACEMENT - CREW SEAT BELTS. Replace worn or unserviceable seat belts.

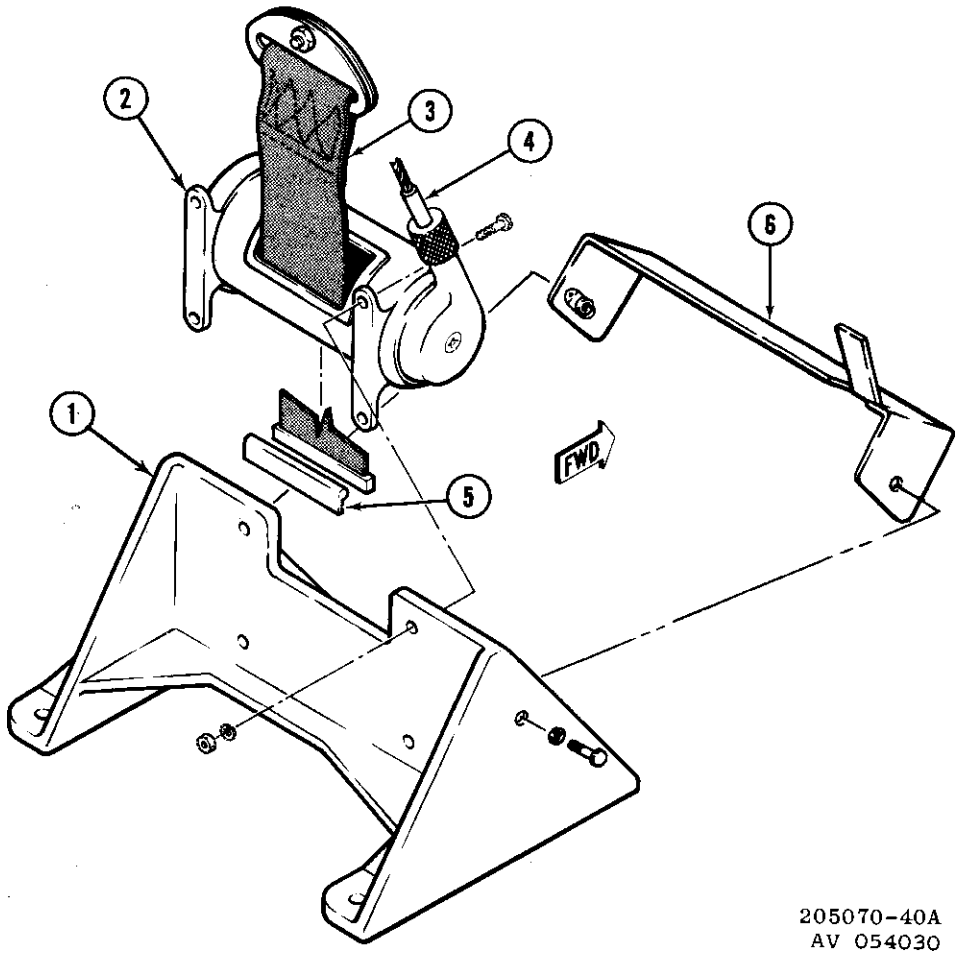
Note

Seat belts are replaced at 60 month intervals. (Refer to TM 55-405-3.)

4-113. INSTALLATION CREW SEAT BELTS. Position belts on fittings and install nuts, washers and bolts.

4-114. SHOULDER HARNESS AND INERTIA REEL.

4-115. An inertia reel shoulder harness, with a manually operated control handle is incorporated on each pilot seat. The inertia reel is a mechanical restraining device that is designed to hold pilot in normal seated position during any maneuver which would tend to pitch the pilot forward. Each reel is connected to a shoulder harness with a web strap. An automatic locking mechanism, a webbing roller, and a manual control are incorporated in each unit. (See figure 4-6.)



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1. Support Bracket
2. Reel Assembly
3. Strap
4. Control Cable
5. Web Retaining Insert
6. Cover

Figure 4-6. Inertia reel

Note

Shoulder harness shall be replaced at 60 month intervals. (Refer to TM 55-405-3.)

4-116. OPERATIONAL CHECK - INERTIA REEL.

a. Inspect shoulder harness for wear and security of attachment to reel webbing. Inspect inertia reel for security of mounting and attachment to floor structure.

b. Place manual control handle to AUTO position. Disconnect shoulder harness from reel webbing, attach spring scale to end of reel webbing and, while watching scale, slowly pull length of webbing out of inertia reel. The tension indicated shall be not less than two pounds initially nor more than six pounds when the final increment is pulled out of the reel.

c. Cycle control handle from AUTO to MANUAL several times as the reel webbing is being reeled in and out. The reel shall positively lock and hold each time the handle is moved to MANUAL.

4-117. REMOVAL - INERTIA REEL. (See figure 4-6.)

a. Detach shoulder harness from inertia reel strap by removing bolt with nut and washer.

b. Remove manual control handle from seat.

c. Remove attaching hardware and cover.

d. Remove four nuts, washers, and bolts to detach inertia reel from mounting bracket.

4-118. REPAIR OR REPLACEMENT - INERTIA REEL. Replace if inertia reel fails operational check. (Refer to paragraph 4-116.)

4-119. INSTALLATION - INERTIA REEL.

a. Position inertia reel in mounting bracket. Install four bolts, washers, and nuts.

b. Install manual control handle on seat.

c. Attach shoulder harness to inertia reel strap with bolt, nut and washer.

4-120. REMOVAL - INERTIA REEL STRAP.

a. Move inertia reel control handle to AUTO position and pull out slowly on strap assembly (3, figure 4-6) until web retaining insert (5) is visible through lower slot in reel housing (2), then move control handle to MANUAL to lock reel.

Note

Reel must remain positively locked until new strap (3) assembly is installed. If the reel is inadvertedly released while the strap is removed, replace the entire reel assembly.

b. Remove web retaining insert (5) and withdraw strap (3) from reel.

4-121. INSPECTION - INERTIA REEL STRAP. Inspect strap for fraying, wear, and loosened stitches.

4-122. REPAIR OR REPLACEMENT - INERTIA REEL STRAP. Replace strap if frayed, worn or unserviceable.

4-123. INSTALLATION - INERTIA REEL STRAP.

a. Insert end of new strap through upper slot in reel housing and through slot in main shaft until end of strap (3, figure 4-6) protrudes through lower slot in reel housing.

b. Install web retaining insert (5), then pull upward on strap (3) with at least six pounds force. Maintain force until reel lock is released.

c. Move control handle to AUTO position and allow strap (3) to rewind onto main shaft.

4-124. WINDSHIELDS.

4-125. Windshields are made of transparent plastic. They are set in weathertight sealer, and are mounted to the cabin structure with dural screws, washers, and nuts.

4-126. REMOVAL - WINDSHIELD.

a. Cut lockwire, loosen Allen head screw, remove bolt at wiper shaft, and lift wiper assembly from shaft.

b. Remove free air temperature gage. (Pilot's windshield only.)

c. Remove nuts, washers, and screws attaching windshield to fuselage.

d. Separate windshield from sealing compound and remove windshield from helicopter.

4-127. CLEANING - WINDSHIELD. (Refer to TM 55-405-4.)

4-128. INSPECTION - WINDSHIELD. Inspect windshield for cracks or damage that might impair pilot's vision.

4-129. REPAIR OR REPLACEMENT - WINDSHIELD. Replace windshield if damage is greater than practical to repair. Repair damaged windshield in accordance with instructions contained in TM 55-405-4.

4-130. INSTALLATION - WINDSHIELD.

a. Remove old sealing compound from mounting flange with putty knife, spatula, or other suitable tool.

b. Wipe and clean mounting flange with cloth dampened with naphtha, (item 304, table 1-2).

c. Position windshield over opening. Trim surplus edge to permit windshield to be in mounting position against flange.

Note

Do not trim windshield to final size until all mounting holes have been drilled.

d. Position windshield against mounting flange, and using a 0.190 to 0.196 inch drill, back drill two holes on each edge of windshield. Use holes in mounting flange as template.

e. Secure windshield to mounting flange with four dural screws, washers, and nuts, lightly tightened. Finish drilling holes in windshield.

f. Determine proper edge distance, mark windshield and remove. Trim windshield edge to proper size.

g. Remove all dust and foreign matter from windshield mating area and from windshield mounting flange.

h. Apply a 0.125 inch bead of water-tight sealing compound (item 204, table 1-2).

i. Position windshield in mounting flange, align holes and install screws, washers and nuts.

j. Remove excess sealing compound from around windshield and repaint as necessary.

k. Install windshield wiper assembly and free air temperature gage. (Pilot's windshield only.)

4-131. UPPER DOOR WINDOWS - PILOT'S AND COPILOT'S.

4-132. Refer to paragraph 4-19 for description.

4-133. REMOVAL - UPPER DOOR WINDOWS - PILOT'S AND COPILOT'S. Perform steps c. and d., paragraph 4-126.

4-134. CLEANING - UPPER DOOR WINDOWS - PILOT'S AND COPILOT'S. (Refer to TM 55-405-4.)

4-135. INSPECTION - UPPER DOOR WINDOWS - PILOT'S AND COPILOT'S. (Refer to paragraph 4-128.)

4-136. REPAIR OR REPLACEMENT - UPPER DOOR WINDOWS - PILOT'S AND COPILOT'S. (Refer to paragraph 4-129.)

4-137. INSTALLATION - UPPER DOOR WINDOWS - PILOT'S AND COPILOT'S. (Refer to paragraph 4-130.)

4-138. ADJUSTABLE WINDOWS - PILOT'S AND COPILOT'S DOOR.

4-139. (Refer to paragraph 4-19 for description.)

4-140. REMOVAL - ADJUSTABLE WINDOWS - PILOT'S AND COPILOT'S DOOR.

a. Remove screws attaching plastic handle to window.

b. Remove screws holding cover plate to bottom door channel, in door frame, below the window.

c. Guide window downward through slot in bottom of door assembly and remove from door.

4-141. CLEANING - ADJUSTABLE WINDOWS - PILOT'S AND COPILOT'S DOOR. (Refer to TM 55-405-4.)

4-142. INSPECTION - ADJUSTABLE WINDOWS - PILOT'S AND COPILOT'S DOOR. Inspect windows for damage that might impair pilot's vision.

4-143. REPAIR OR REPLACEMENT - ADJUSTABLE WINDOWS - PILOT'S AND COPILOT'S DOORS. Replace windows if damage is greater than practical to repair. Repair damage in accordance with TM 55-405-4.

4-144. INSTALLATION - ADJUSTABLE WINDOWS - PILOT'S AND COPILOT'S DOORS.

a. Guide window upward through slot in bottom of door channel, and into side window channels.

Note

Check progress through opening in aft edge of door.

b. Place window in partially closed position and attach window handle and bottom door channel cover plate with screws.

4-145. CABIN ROOF WINDOWS.

4-146. Refer to paragraph 4-7 for description.

4-147. REMOVAL - CABIN ROOF WINDOWS. Perform steps c. and d., paragraph 4-126.

4-148. CLEANING - CABIN ROOF WINDOWS. (Refer to TM 55-405-4.)

4-149. INSPECTION - CABIN ROOF WINDOWS. Inspect windows for damage that might impair pilot's vision.

4-150. REPAIR OR REPLACEMENT - CABIN ROOF WINDOWS. Replace windows if damage is greater than practical to repair. Repair damage in accordance with TM 55-405-4.

4-151. INSTALLATION - CABIN ROOF WINDOWS. (Refer to paragraph 4-130.)

4-152. LOWER FORWARD CABIN WINDOWS.

4-153. Refer to paragraph 4-7 for description.

4-154. REMOVAL - LOWER FORWARD CABIN WINDOWS.

a. Remove rear view mirror. (Refer to paragraph 4-199.)

b. Remove window. (Perform steps c. and d., paragraph 4-126.)

4-155. CLEANING - LOWER FORWARD CABIN WINDOWS. (Refer to TM 55-405-4.)

4-156. INSPECTION - LOWER FORWARD CABIN WINDOWS. Inspect windows for damage that might impair pilot's vision.

4-157. REPAIR OR REPLACEMENT - LOWER FORWARD CABIN WINDOWS. (Refer to paragraph 4-150.)

4-158. INSTALLATION - LOWER FORWARD CABIN WINDOWS.

a. Install window. (Refer to paragraph 4-130.)

b. Install and adjust rear view mirror. (Refer to paragraph 4-200 and 4-201.)

4-159. CARGO DOOR WINDOWS.

4-160. REMOVAL - CARGO DOOR WINDOWS.

a. During removal of each window, support it from outer side to avoid damage by accidental dropping.

b. At inner side, pull window latch handle up and aft to withdraw latch plates from lower guides.

c. Push window outward at bottom, then lower it until free from upper guides.

4-161. CLEANING - CARGO DOOR WINDOWS. (Refer to TM 55-405-4.)

4-162. INSPECTION - CARGO DOOR WINDOWS. Inspect window for damage that might impair pilot's vision.

4-163. REPAIR OR REPLACEMENT - CARGO DOOR WINDOWS. Replace window if inspection requirements are exceeded.

4-164. INSTALLATION - CARGO DOOR WINDOWS.

a. Raise window to position from outer side of door. Engage upper guides.

b. With latch handle at full aft position, push bottom of window inward to seat on seals.

c. Engage latch plates in lower guides by placing handle full forward and down. Secure handle to door frame with lockwire small enough to break if handle is intentionally pulled.

4-165. SOUNDPROOFING BLANKETS.

4-166. Cabin interior is covered with blankets of soundproofing material to reduce noise level for crew and passengers during operation. Blankets are attached to structure by hook-and-pile and snap-type fasteners, and can be detached for maintenance access.

4-167. REMOVAL - SOUNDPROOFING BLANKETS. Release snap fasteners and hook-and-pile attachments holding blankets to structure. Remove blankets.

4-168. INSPECTION - SOUNDPROOFING BLANKETS. Visually inspect blankets for cuts and tears. Inspect for missing and damaged buttons and sockets.

4-169. REPAIR OR REPLACEMENT - SOUNDPROOFING BLANKETS. Replace blanket if inspection requirements are not met.

4-170. INSTALLATION - SOUNDPROOFING BLANKETS. Position blankets in helicopter and attach to structure with snap fasteners and hook-and-pile attachments.

4-171. BLACKOUT CURTAINS.

4-172. A blackout curtain may be installed behind pilot's and copilot's seats, between forward and aft cabin sections. Other blackout curtains may be installed over both cargo door windows and window in removable door post.

4-173. REMOVAL - BLACKOUT CURTAINS. Release fasteners and screws attaching curtains to structure. Remove curtains.

4-174. INSPECTION - BLACKOUT CURTAINS. Inspect curtains for cuts, tears, missing attachment buttons and sockets. Inspect slide fastener for operation and damage.

4-175. REPAIR OR REPLACEMENT - BLACKOUT CURTAINS. Replace curtain if inspection requirements are exceeded.

4-176. INSTALLATION - BLACKOUT CURTAINS. Position blackout curtains in helicopter and attach with screws and fasteners.

4-177. WORK PLATFORMS.

4-178. Fixed work platforms are provided by walkways on cabin roof and by engine compartment deck under cowling. Steps for access are on each side of fuselage below engine and on right door post of cabin between crew door and cargo doors.

4-179. INSPECTION - WORK PLATFORMS.

a. Inspect for minor ruptures.

b. Inspect for bonding separation by tapping metal covered surfaces with sounding device. Panel will produce a dead or flat sound where bond separation (void) exists.

c. Inspect for leaks, wrinkles and buckles.

4-180. REPAIR OR REPLACEMENT - WORK PLATFORMS. For repair of bond separation, refer to next higher level of maintenance. Minor ruptures are repaired as follows:

a. Lay out area to be repaired in three-inch squares.

b. Drill 0.125 inch diameter hole, through upper skin only, at each corner of squares. Use a stop on drill.

c. Fabricate an L-shaped cutter with 0.250 inch leg. (A 1/8 inch diameter allen wrench, with leg cut off to 1/4 inch length, is satisfactory.)

d. Insert cutter through each hole drilled in step b., and clean out core between upper and lower skins to 0.500 inch diameter.

e. Apply filler (item 205, table 1-2) through each hole to completely fill core cut-out. Cure 24 hours at room temperature.

f. After filler plug has cured, use each plugged hole in upper skin as pilot to drill 0.125 inch diameter hole through roof panel, from upper through lower skin.

g. Install AN525-10R14 screw, AN970-3 washer, AN960PD10 washer, and 679-A3 nut in lieu of rivet through each hole.

h. Seal all overlap skin joints with a small continuous bead of sealant (item 207, table 1-2).

4-181. CARGO TIE-DOWN EQUIPMENT.

4-182. Cargo tie-down rings are provided on cabin aft bulkhead and pylon island structure, and in recessed fittings on cabin floor aft of crew seats. A three-piece cargo net is also available, as loose equipment, for use in securing cargo to rings. Net is made of nylon web straps treated with latex, 7.5 inches between centers. Each piece of net is lettered to indicate its position. Adjustable non-swiveling hooks with keepers are used on forward and outboard edges, and on two aft straps of center net. Fixed hooks are used on aft and inboard edges of right and left nets. Reefing rings and hooks are provided on nets for adjustment to size and shape of cargo. Maintenance and repair will be in accordance with TM 55-405-3.

4-183. EXTERNAL CARGO SUSPENSION.

4-184. A suspension assembly for carrying external cargo loads hangs at approximate center of gravity from a structural cross beam under transmission pylon. Cargo release hook, on lower end of suspension assembly, extends through a padded opening in lower skin of fuselage. Hook unit is a horizontal loading type with an automatic pickup latch, and has both electrical and mechanical load release provisions. On YUH-1D, suspension assembly used as original equipment incorporates a swivel head and a self-aligning bearing at attachment to lift beam. Cargo hook has a guard over its hand lever. On UH-1D/H, the suspension has no swiveling action, being for use with a load connector which has a swivel or other device to relieve torsion effects due to a load twisting or turning. Cargo hook assembly is guarded by a bumper ring with nylon outer surface. Beginning with UH-1D/H Serial No. 63-8739, suspension shaft is secured to lower yoke by a shear pin (instead of four bolts) and by a fail-safe retaining collar, two washer-type thrust bearings, and a nut threaded and bonded into shaft end.

4-185. REMOVAL - CARGO SUSPENSION.

a. Remove access door from front of pylon island in cabin.

b. With electrical power off, disconnect electrical cable (1, figure 4-7) of suspension assembly at connector located on right underside of structural lift beam.

c. Detach upper control cable (7) of suspension assembly from support clamp (8) on beam. Remove cotter pin and detach ball terminal of cable from connector (6) inboard of pulley bracket.

d. Unhook three restraint springs (11) from fittings on suspension shaft.

e. Remove cotter pin, bolt, nut and washers, to detach suspension link from bracket (9). Remove suspension assembly.

4-186. INSPECTION - CARGO SUSPENSION.

a. Inspect bolts, fittings, and restraint springs for damage, wear and serviceability.

b. Inspect brushes, spring and guides for wear and serviceability.

c. On non-swiveling type assembly, inspect shear pin for damage.

d. Check electrical operation. Check continuity of circuits. (Refer to Chapter 13.)

4-187. REPAIR OR REPLACEMENT - CARGO SUSPENSION.

a. Replace any damaged or unserviceable attachment bolts, fittings, clamps, or restraint springs on suspension assembly as necessary.

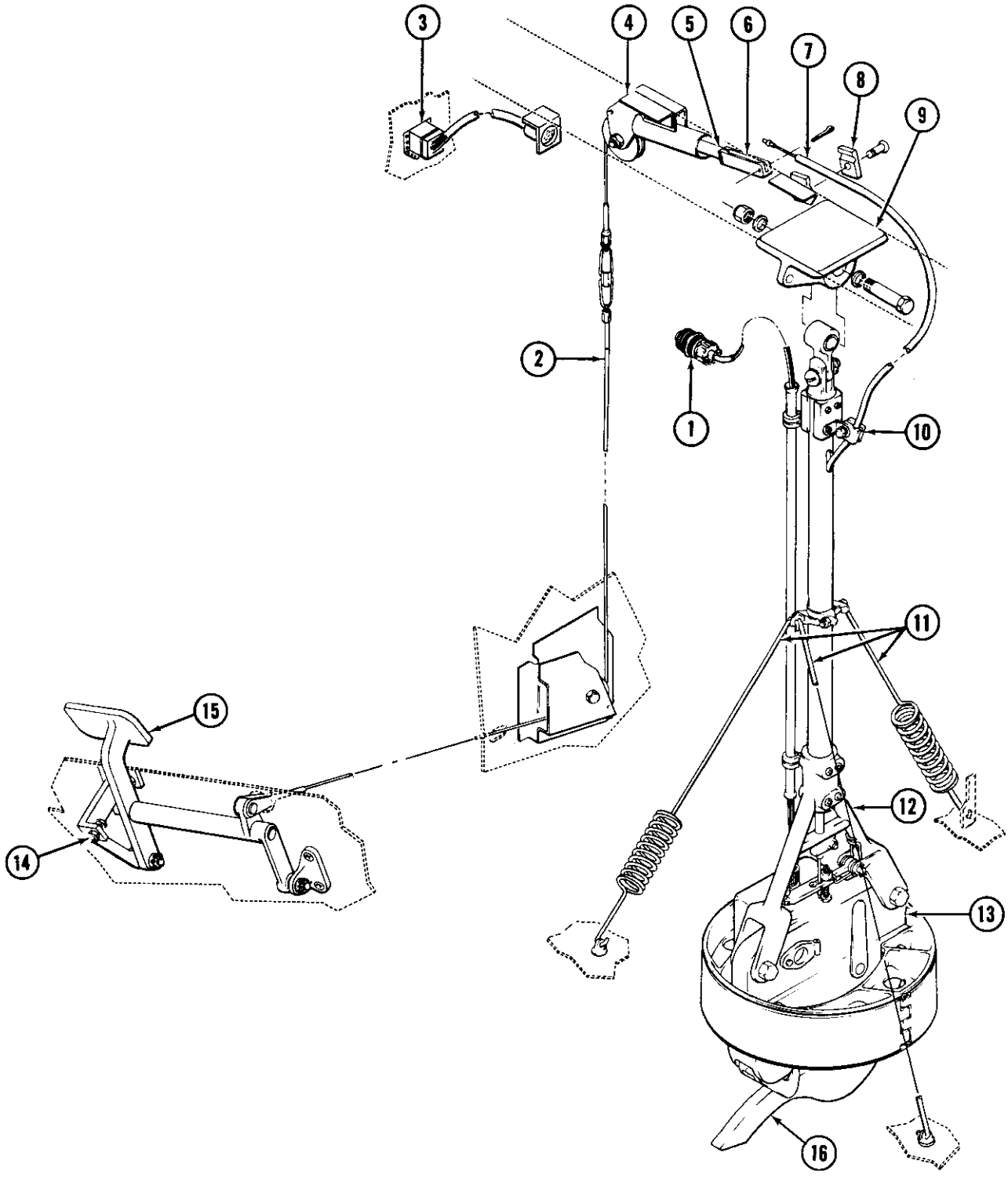

Figure 4-7. Cargo suspension installation - typical (Sheet 1 of 2)

1. Electrical Cable
2. Actuating Cable
3. Cargo Release Relay
4. Pulley and Spring Bracket
5. Spacer
6. Connector
7. Upper Control Cable
8. Support Clamp
9. Suspension Bracket
10. Clamp Set
11. Restraint Springs
12. Lower Yoke
13. Cargo Release Hook Assy.
14. Pedal Stop
15. Cargo Release Pedal
16. Load Beam

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Figure 4-7. Cargo suspension installation - typical (Sheet 2 of 2)

b. On YUH-1D suspension which has a swivel head, excessively worn or unserviceable brushes can be replaced as assemblies, or can be repaired by replacing spring or guide with attached brush in phenolic cover. When installed in upper housing lock-wire brush covers to hole provided in adjacent web of housing.

c. On a suspension with fail-safe yoke attachment, replace shear pin as necessary in attachment of lower yoke to suspension shaft. Remove damaged pin, align holes through yoke and shaft, insert new pin, and secure with cotter pin.

4-188. LUBRICATION - CARGO SUSPENSION.

a. When cargo hook is in daily use, apply a small amount of grease (item 7, table 1-2) each day to end of load beam (16, figure 4-7) where it engages latch, and wipe off excess grease.

4-189. INSTALLATION - CARGO SUSPENSION.

a. Position suspension assembly with open side of hook load beam forward and with upper link aligned in bracket (9, figure 4-7). Install bolt, washers, nut and cotter pin.

b. Install three restraining springs (11), hooked into fittings on structure and on shaft of suspension assembly.

c. Route free end of suspension upper control cable (7), aft and to right of support bracket. Engage ball terminal in cable connector (6) and secure with cotter pin. Attach cable conduit in clamp (8) secured by a screw to bracket on beam.

d. Rig and check operation of upper control cable. (Refer to paragraph 4-196.)

e. Connect electrical cable (1) of suspension assembly to connector located on right underside of lift beam. Check operation with electrical power on.

4-190. MECHANICAL CARGO RELEASE CABLE AND PEDAL.

4-191. Mechanical release control cable of cargo suspension assembly is connected to a two-section actuating cable, which is routed through pulleys and fairleads down inside right wall of pylon island structure and forward under cabin floor to a MANUAL CARGO RELEASE pedal at pilot's station. Actuating cable is spring-loaded to hook-closed position by a coil spring in upper pulley bracket.

4-192. REMOVAL - CARGO RELEASE CABLE AND PEDAL.

a. Remove access doors from front of pylon island in cabin, and from cabin lower skin at right of center in line with pedal.

b. Disconnect upper control cable (7, figure 4-7) of suspension assembly from connector (6), by removing cotter pin and lifting out ball terminal.

c. Cut lockwire and disconnect turnbuckle of actuating cable (2).

d. To remove upper section of actuating cable, proceed as follows:

(1) Upper pulley bracket (4) may be left in place or may be removed with two attaching screws, nuts and washers, from bracket on lift beam.

(2) Detach cable ball terminal from connector (6) by removing cotter pin.

(3) Remove spacer (5) split guide and spring from pulley bracket and end of cable.

(4) Remove cable guard pin with cotter pin and pull cable from bracket. Pulley with bolt, nut, washer, and cotter pin may be removed and replaced as necessary.

e. To remove lower section of actuating cable, proceed as follows:

(1) Disconnect cable fork terminal from arm on pedal (15) by removing pin, with cotter pin and washers.

(2) Remove cable guard pins at lower pulley in cargo suspension compartment and three pulleys under cabin floor. One pulley is located just aft of fuselage Station 52 bulkhead; two pulleys are just ahead of Station 102.

(3) On helicopters Serial No. 68-15214 and subsequent, remove nut, washer, screw and clamp from end of boot on forward side of Station 123.0 bulkhead.

(4) Carefully pull cable section forward through bulkhead grommets.

(5) Remove and replace pulleys, with attaching bolts, nuts, and washers, as necessary.

f. Remove pedal assembly by removing three bolts and two screws, with nuts and washers, to detach support fittings from Station 23 bulkhead.

4-193. INSPECTION - CARGO RELEASE CABLE AND PEDAL.

a. Inspect cables for frayed wires and wear.

b. Inspect pulleys for wear and freedom of rotation; brackets for damage.

c. Inspect fume-tight boot and cable grommets for cracks and deterioration.

4-194. REPAIR OR REPLACEMENT - CARGO RELEASE CABLE AND PEDAL.

a. Replace worn and unserviceable cables.

b. Replace brackets, pulleys, grommets and boot if unserviceable.

4-195. INSTALLATION - MECHANICAL CARGO RELEASE CABLE AND PEDAL.

a. Align pedal assembly (15, figure 4-7), if removed, on front of Station 23 bulkhead in cabin ahead of pilot's seat. Attach right support to structure with three bolts, washers, and nuts. Attach left support with two screws, washers, and nuts. Check for snug fit of pedal assembly in supports; adjust shims on pivot bolts as necessary to eliminate end play and to align pedal with stop.

b. Install lower section of actuating cable as follows:

(1) Insert threaded terminal of cable through hole in Station 23 bulkhead into area under cabin floor.

(2) Route cable through bulkhead grommets and three pulleys below floor, and through lower pulley in cargo suspension compartment. Install cable guard pins, with cotter pins, at pulleys.

Note

On helicopters Serial No. 68-15214 and subsequent, route cable through boot on forward side of Station 123.0 bulkhead and install clamp, screw, washer and nut.

(3) Attach fork terminal of cable to arm on pedal with flathead pin, washer, and cotter pin.

c. Install upper section of actuating cable as follows:

(1) Insert ball terminal of cable from outboard side over upper pulley and completely through tube of bracket assembly (4).

(2) Assemble spring, split guide, spacer (5) and connector (6) on end of cable, inboard of pulley bracket. Seat spring and guide inside tube on bracket. Secure cable ball terminal in connector with cotter pin.

(3) Install cable guard pin through bracke next to pulley and secure with cotter pin.

(4) If removed, place pulley bracket on aft side of support bracket at right underside of lift beam. Secure with two screws, washers, and nuts.

d. Connect upper and lower sections of actuating cable with turnbuckle.

e. Connect mechanical release control cable of suspension assembly, rig and check operation.

f. Reinstall access doors.

4-196. ADJUSTMENT - MECHANICAL CARGO RELEASE.

a. With pedal (15, figure 4-7) full aft and with control cable (7) of suspension assembly loose in clamp (8) on lift beam, adjust actuating cable (2) at turnbuckle to provide 20 to 24 pounds tension. Lockwire turnbuckle.

b. Check at cargo hook for correct position of parts with load beam (16) latched. Stopbolt of cable lever should be in contact with top of cargo hook case, holding lever parallel to plane of two yoke attachment bolts, and adjusted to provide correc slack in the short lower cable.

(1) For hook assembly with lower cable extending inside case, open hinged access door on cover of hook and check that ball terminal of cable is 0.43 to 0.50 below seat of latch lever. (See figure 4-8, detail A.)

(2) For hook assembly with lower cable outside of case, check that ball terminal of cable is 0.12 to 0.18 inch beyond seat of latch lever. (See figure 4-8, detail B.)

c. Adjust slack of upper cable conduit between clamps (8 and 10, figure 4-7) so that cable terminals are snug at connector (6) and at lever on top of hook.

d. Check that electrical and mechanical cables have enough slack to allow full swing of suspension assembly.

e. Check operation of mechanical release, with at least 20 pounds load on cargo hook load beam.

(1) With pedal pushed forward, cargo hook load beam should be released, but cable spring in upper pulley bracket (4) should not bottom out. Adjust pedal stop (14) as necessary.

(2) With pedal forward, external lever at top of cargo hook should be full up but not bottomed against end of cable conduit or clamp.

(3) When pedal is released, cable should return to locking position. (Refer to step b.)

4-197. REAR VIEW MIRROR.

4-198. The helicopter is equipped with an adjustable rear view mirror located outside the forward cabin below the pilot's lower window. This mirror, when properly adjusted, enables the pilot to visually check the operation of the external cargo suspension hook. When the helicopter is employed on missions which do not require use of the external cargo suspension, the rear view mirror may be covered or removed and stowed.

4-199. REMOVAL - REAR VIEW MIRROR.

a. Remove bolts, washers, nuts and/or quick-release pins, which attach braces and supports to structure and remove mirror assembly from helicopter.

b. To remove mirror from brace assembly, remove mirror cover, spring pins from adjustment handles.

4-200. INSTALLATION - REAR VIEW MIRROR.

a. Install braces and supports to structure, using previously removed bolts, washers, nuts and/or quick-release pins.

b. Position rear view mirror and align mounting holes.

c. Screw adjustment handles through mounting holes. Adjust mirror to desired angle, tighten adjustment handles, and insert spring pins in threaded ends of handles.

d. Slide protective cover over mirror and fasten holding snap.

4-201. ADJUSTMENT - REAR VIEW MIRROR.

a. Remove spring pin and loosen adjustment handles.

b. Manually adjust mirror to desired angle.

c. Tighten adjustment handles and insert spring pins.

4-202. MAP AND DATA CASE.

4-203. A case with a hinged, lock-down cover is installed with four screws on aft end of lower pedestal between crew seats.

4-204. REMOVAL - MAP AND DATA CASE. Remove four screws attaching case to mounting brackets.

4-205. INSTALLATION - MAP AND DATA CASE. Position case on bracket and install four screws.

4-206. LITTER RACKS.

4-207. Two different litter rack installations may be used in UH-1D/H helicopters. One installation accommodates six litters (three on a side, one above the other) parallel to cabin center line in aft cabin passenger compartment, and outboard transmission support structure. (See figure 4-9.) The other installation accommodates three litters (one above the other) parallel to, and just forward of, the aft cabin passenger compartment aft bulkhead. (See figure 4-10.) Litters can be quickly installed for transporting patients, or rapidly removed for carrying cargo or personnel.

4-208. REMOVAL - LITTER RACKS.

a. Compress tension fittings (1, figures 4-9 and 4-10) at each end of strap assemblies (2) and detach strap assemblies from roof fittings and hold-down rings on floor. Remove strap assemblies.

b. Release stanchion stud locks (3) at each end of stanchion (4).

c. Apply enough downward pressure to top of stanchion to permit upper end of stanchion to clear cabin roof fitting. Remove stanchion assembly from helicopter.

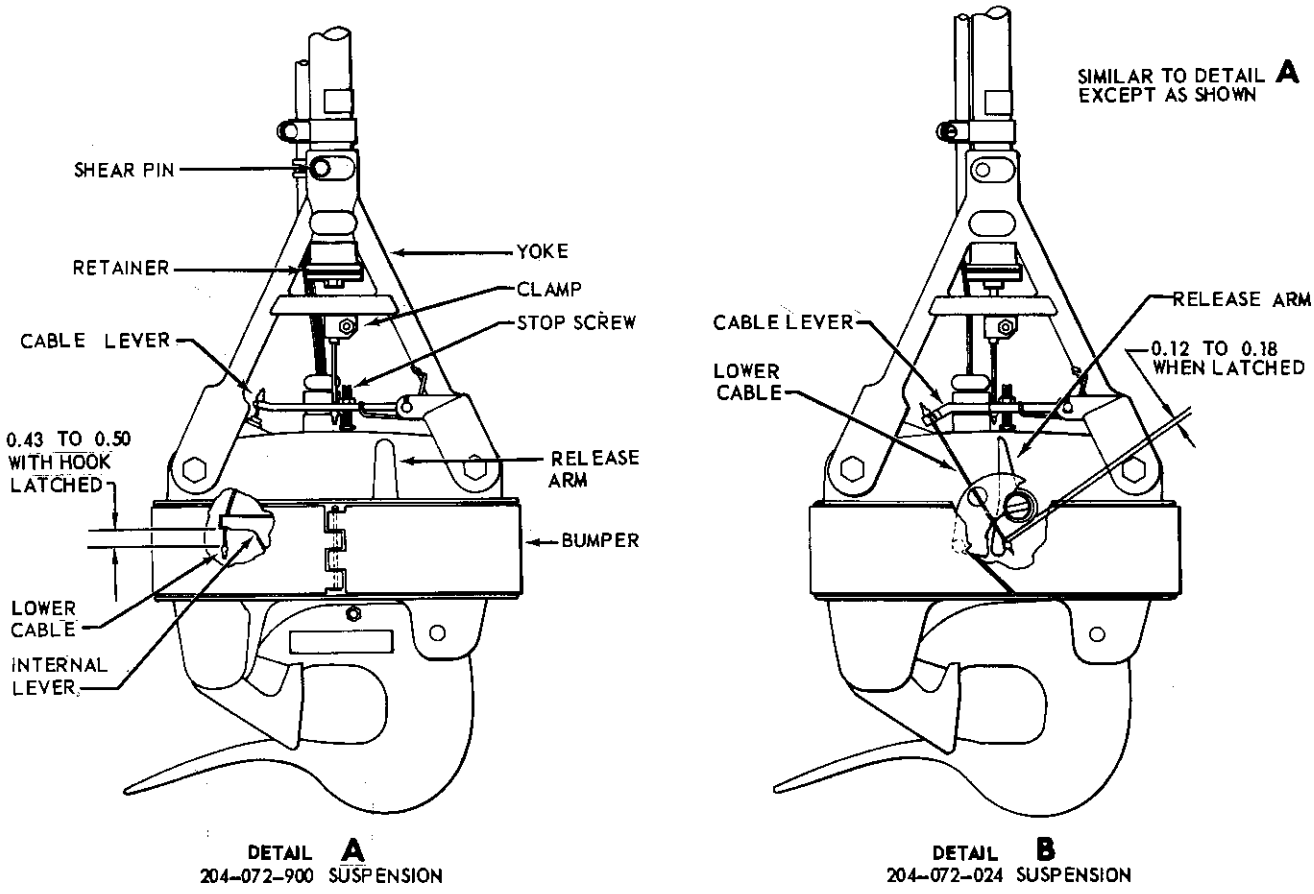


Figure 4-8. Typical hooks on cargo suspension assemblies

d. Remove litter support brackets (5) from transmission support structure.

4-209. INSTALLATION - LITTER RACKS.

a. Install litter support brackets (5, figures 4-9 and 4-10) on transmission support structure.

b. Depress upper end of stanchion (4) and position lower end over hold-down stud in floor. Align upper end of stanchion with cabin roof fitting. Pull up on slotted end of stanchion to position in roof fitting. Secure both ends of stanchion.

c. Install strap assemblies (2) to roof fittings and hold-down rings on cabin floor.

Note

Tension fitting (1) on upper end of strap assembly has hole in end for attaching to stud in cabin roof.

4-210. FIRST AID KITS.

4-211. Provisions for installing four aeronautical type first aid kits, are incorporated on right and left door posts. Refer to TB 55-1500-308-25 for inspection.

4-212. REMOVAL - FIRST AID KITS. Pull outward on kit to release from snap fasteners.

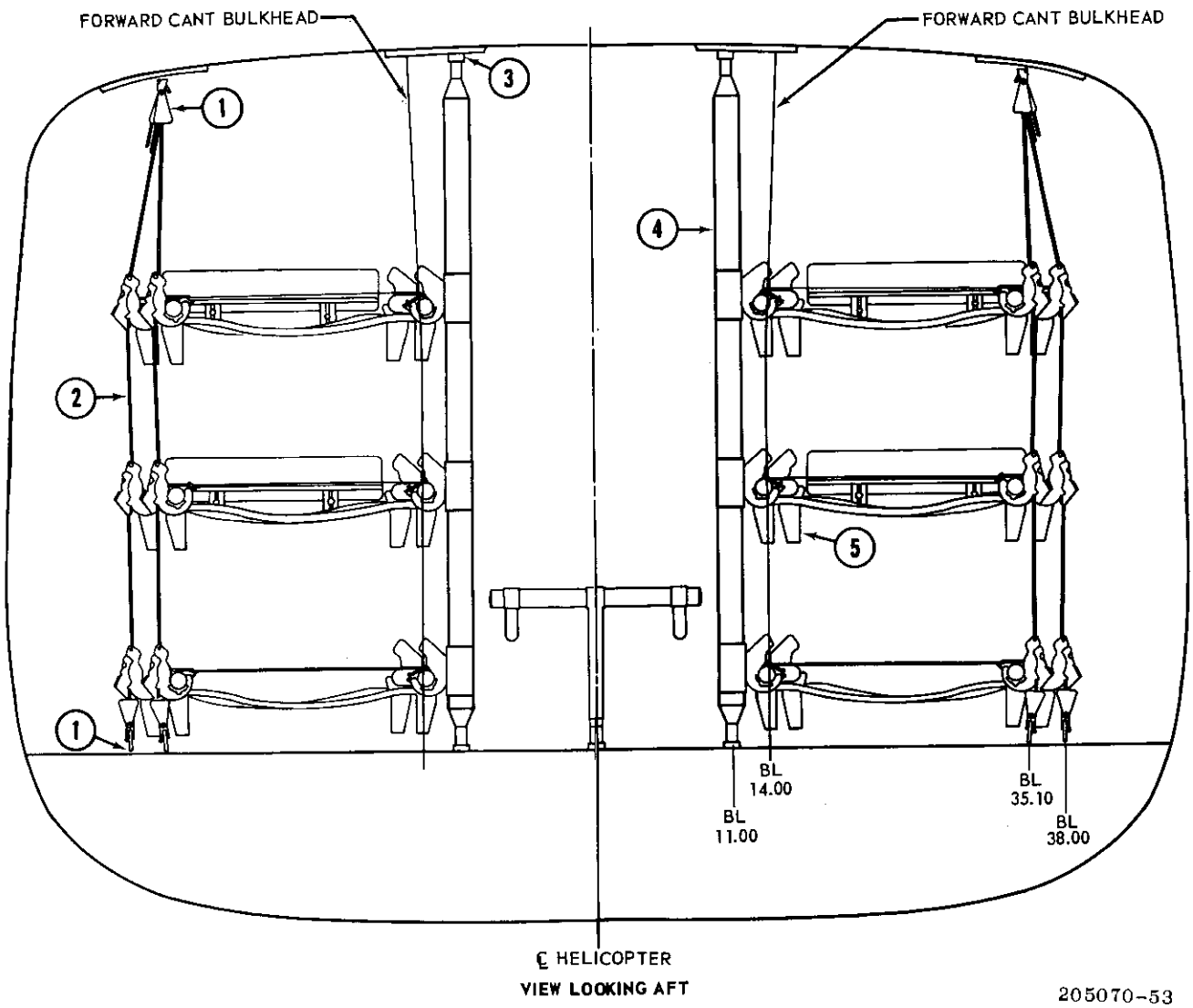
4-213. INSTALLATION - FIRST AID KIT. Position kit on snap fasteners and push to engage fasteners.

4-214. BLOOD BOTTLE HOOKS.

4-215. Six blood bottle hooks (three on each side of the island) are mounted in the cabin above the litters.

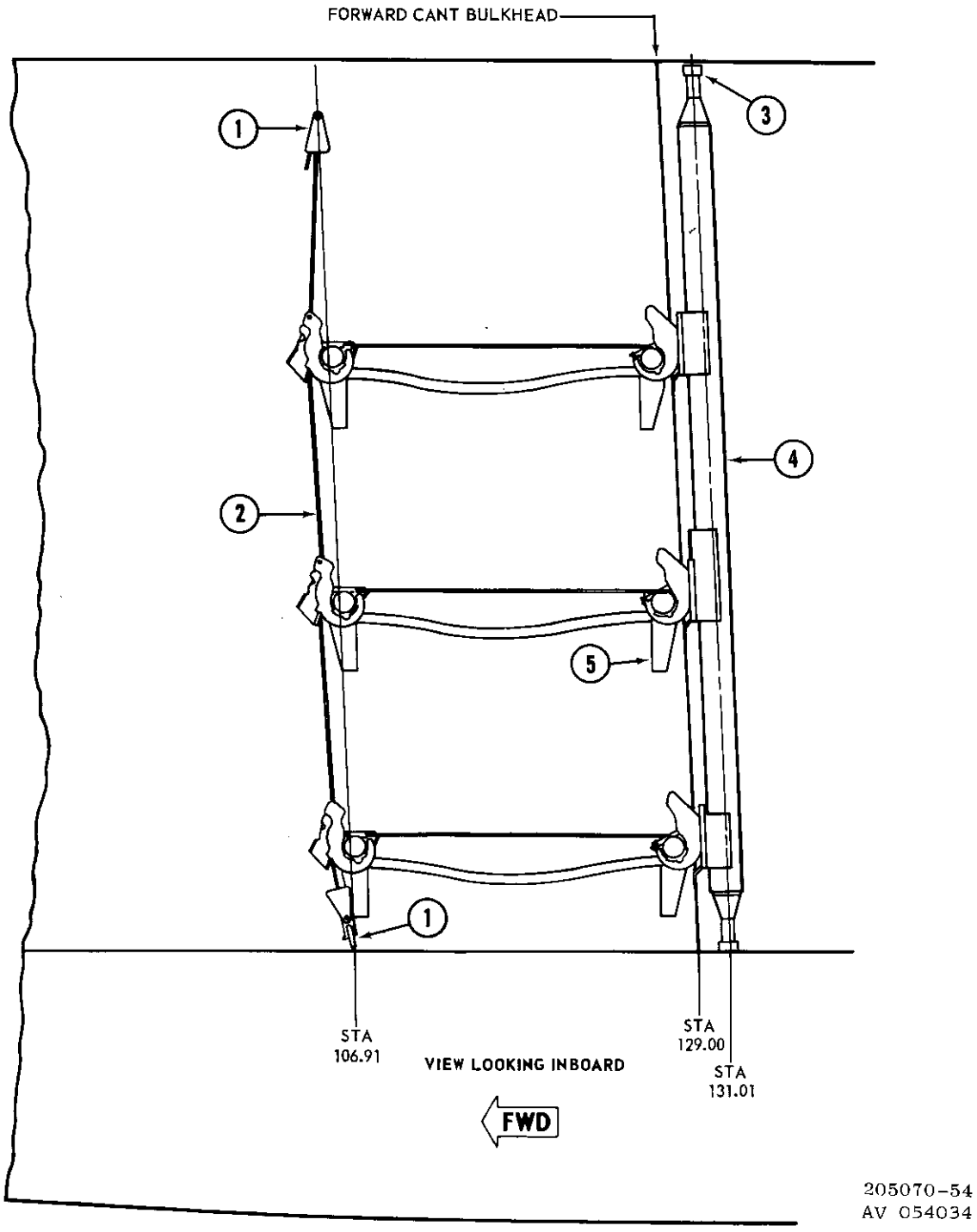
4-216. FIRE EXTINGUISHER.

4-217. The fire extinguisher bottle on the YUH-1D is located on the left-hand side of the pedesta adjacent to the copilot's seat. The UH-1D/H has the



1. Tension Fitting
2. Strap Assemblies
3. Stud Locks
4. Stanchion
5. Support Brackets

Figure 4-9. Litter rack installation (6 litters)



1. Tension Fitting
2. Strap Assemblies
3. Stud Locks
4. Stanchion
5. Support Brackets

Figure 4-10. Litter rack installation (3 litters)

fire extinguisher located on the cabin floor to the right of the pilot's seat.

4-218. REMOVAL - FIRE EXTINGUISHER AND BRACKET.

a. Loosen retaining clamp from around upper section of the extinguisher by pulling the hinged lever aft. Tension on the extinguisher will be released so that the catch on the hinged lever will be disengaged from the attaching ring.

b. Grasp the fire extinguisher by the handle and remove from the hanger bracket.

c. Remove screws, washers and nuts attaching hanger bracket to left-hand side of instrument pedestal and remove hanger bracket.

4-219. INSPECTION - FIRE EXTINGUISHER.

a. Pressure gage reading should be within the green arc.

b. All CF3BR type fire extinguishers should be weighed every six months to determine that they are fully charged. The fully charged weight of fire extinguisher should not be less than four ounces below the gross weight stamped on the nameplate.

c. All fire extinguishers for broken or missing seals.

4-220. REPAIR OR REPLACEMENT - FIRE EXTINGUISHER. If inspection requirements are not met, extinguisher should be recharged.

4-221. INSTALLATION - FIRE EXTINGUISHER AND BRACKET.

a. Position hanger bracket on left-hand side of instrument pedestal, on cabin floor to the right of the pilot's seat, and install attaching nuts, washers and screws.

b. Position fire extinguisher in hanger bracket with extinguisher handle opposite bracket.

c. Hook the latch of the retaining clamp handle through ring on inboard section of the retaining clamp. Force free end of a clamp handle to the left and forward. This will close the clamp and secure the fire extinguisher in the hanger bracket.

4-222. CABLE - PARATROOP STATIC LINE CABLE.

4-223. A paratroop static line cable may be installed on the center of the aft cabin bulkhead. This installation consists of a cable (1, figure 4-11), a compression tube (2), attach plates (3), fitting (4) and attaching hardware.

4-224. REMOVAL - PARATROOP STATIC LINE CABLE.

a. Remove cotter pins and washer attaching cable (1, figure 4-11) to fitting (4) and remove cable.

b. Remove nuts, washers and bolts securing attach plates (3) to fittings (4) and remove attach plates.

c. Remove bolts and washers securing fittings (4) to aft cabin bulkhead and remove fittings and compression tube (2) from bulkhead.

d. Remove nuts (5) and washers on end of compression tube (2). Remove pins (6) from compression tube and separate tube from fittings (4).

4-225. INSTALLATION - PARATROOP STATIC LINE CABLE.

a. Install nut (5, figure 4-11), lock-washer and flat washer on compression tube (2). Position fittings (4) on compression tube. Align holes in tube and fittings and insert pins (6).

b. Position static line cable (1) on pins (6) and install washers and cotter pins.

c. Install flat washer, lock-washer and nut (5) on end of compression tube.

d. Position compression tube (2) and fittings (4) to aft cabin bulkhead and install attaching washers and bolts. Tighten both nuts (5) on compression tube against fitting.

e. Position attach plates (3) to fittings (4) and install bolts, washers and nuts.

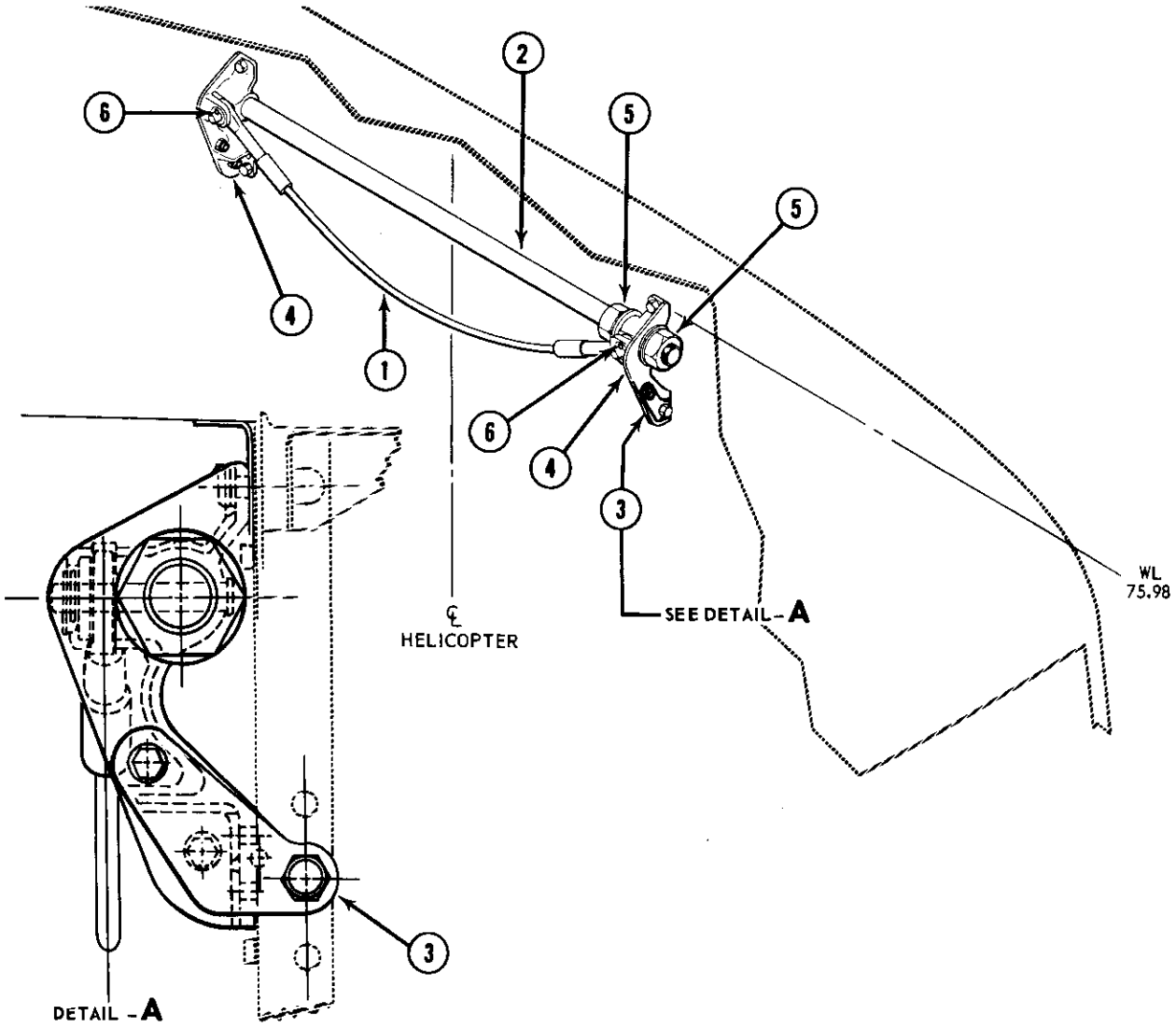
4-226. INTERNAL MANUAL RELEASE MECHANISM.

4-227. A series of cables, actuated by a manually operated jettison lever located beside the pilot's seat, enables the pilot to mechanically jettison externally carried kits and equipment. These cables are equipped with adjustable fittings which facilitate final rigging and adjustment.

4-228. REMOVAL - INTERNAL MANUAL RELEASE MECHANISM.

a. Remove access plate from lower fuselage skin below external stores forward support beam.

b. Disconnect inboard end of lower cable assembly (1, figure 4-12) from quick-disconnect on outboard end of emergency jettison cable assembly.



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1. Static Line Cable
2. Compression Tube
3. Attach Plates
4. Fittings
5. Nuts
6. Pins

Figure 4-11. Paratroop static line cable

c. Remove grommet (2) from fuselage skin and pull lower cable assembly (1) outboard.

d. Remove cotter pin, washer and flat head pin attaching cable assembly (3) to mechanical release actuating lever.

e. Remove cotter pins, pins, nuts, washers and bolts holding pulleys in pulley brackets (4) and remove pulleys.

f. Remove nuts, washers, screws and clamps attaching upper (5) and lower (6) guard tubes and remove guard tubes.

g. Remove cable assemblies and cut safety wire at barrel (7) to separate.

h. Remove cotter pins, pins, nuts, washers and bolts holding lateral release, cable pulleys (8) in pulley brackets and remove pulleys.

i. Remove three cotter pins, washers and flat head pins attaching cable assemblies to bellcrank (9). Remove two lateral release cable assemblies (10) and cut safety wire on barrels.

j. Remove cotter pin, nut, washer and screw attaching bellcrank (9) and remove bellcrank.

k. Remove nuts, washers, spacers, screws, and clamps attaching cable guard (11) to pedestal. Remove cotter pin and pin attaching longitudinal release cable (12) to emergency release lever assembly (13). Remove cable guard and grommet (14).

l. Remove cotter pins, pins, nuts, washers and bolts holding longitudinal release cable pulleys (15) in pulley brackets and remove pulleys.

m. Remove fairlead (16) and six grommets (17) which guide longitudinal release cable (12) and remove release cable.

n. Remove cotter pin, nut, washer and clevis bolt attaching lever assembly (13) to support assembly (18).

o. Remove three nuts, washers and bolts attaching support assembly (18) to pedestal and remove support assembly.

4-229. INSPECTION - INTERNAL MANUAL RELEASE MECHANISM.

a. Inspect pulleys for wear, damage and freedom of rotation.

b. Inspect cables for broken or frayed wires.

c. Inspect grommets for wear.

d. Inspect lever assembly for serviceability and damage.

e. Inspect support assembly bushing for wear.

4-230. REPAIR OR REPLACEMENT - INTERNAL MANUAL RELEASE MECHANISM.

a. Replace worn and unserviceable pulleys and grommets.

b. Replace frayed or unserviceable cables.

c. Replace damaged or unserviceable lever assembly.

d. Replace support assembly if bushing is worn or unserviceable.

4-231. INSTALLATION - INTERNAL MANUAL RELEASE MECHANISM.

a. Position support assembly (18, figure 4-12) on pedestal and install three attaching bolts, washers, and nuts.

b. Position emergency release lever assembly (13) on support assembly (18) and install attaching clevis bolt, washer, nut and cotter pin.

c. Thread longitudinal release cable (12) through bulkhead openings and install fairlead (16) and grommets (17).

d. Position longitudinal release cable pulleys (15) and cable (12) in pulley brackets and install attaching bolts, washers, nuts, pins and cotter pins.

e. Thread forward end of longitudinal release cable (12) through cable guard (11) and attach to emergency release lever assembly (13) by installing pin and cotter pin.

f. Position cable guard (11) and install grommet (14) and attaching clamps, screws, spacers, washers and nuts.

g. Position bellcrank (9) and install attaching screw, washer, nut and cotter pin.

h. Position aft end of longitudinal release cable (12) and inboard end of lateral release cable assemblies (10) on bellcrank (9), and attach with flat head pins, washers and cotter pins.

i. Position lateral release cable pulleys (8) and cable (10) in pulley brackets and install attaching bolts, washers, nuts, pins, and cotter pins.

j. Position upper (5) and lower (6) guard tubes and install attaching clamps, screws, washers and nuts.

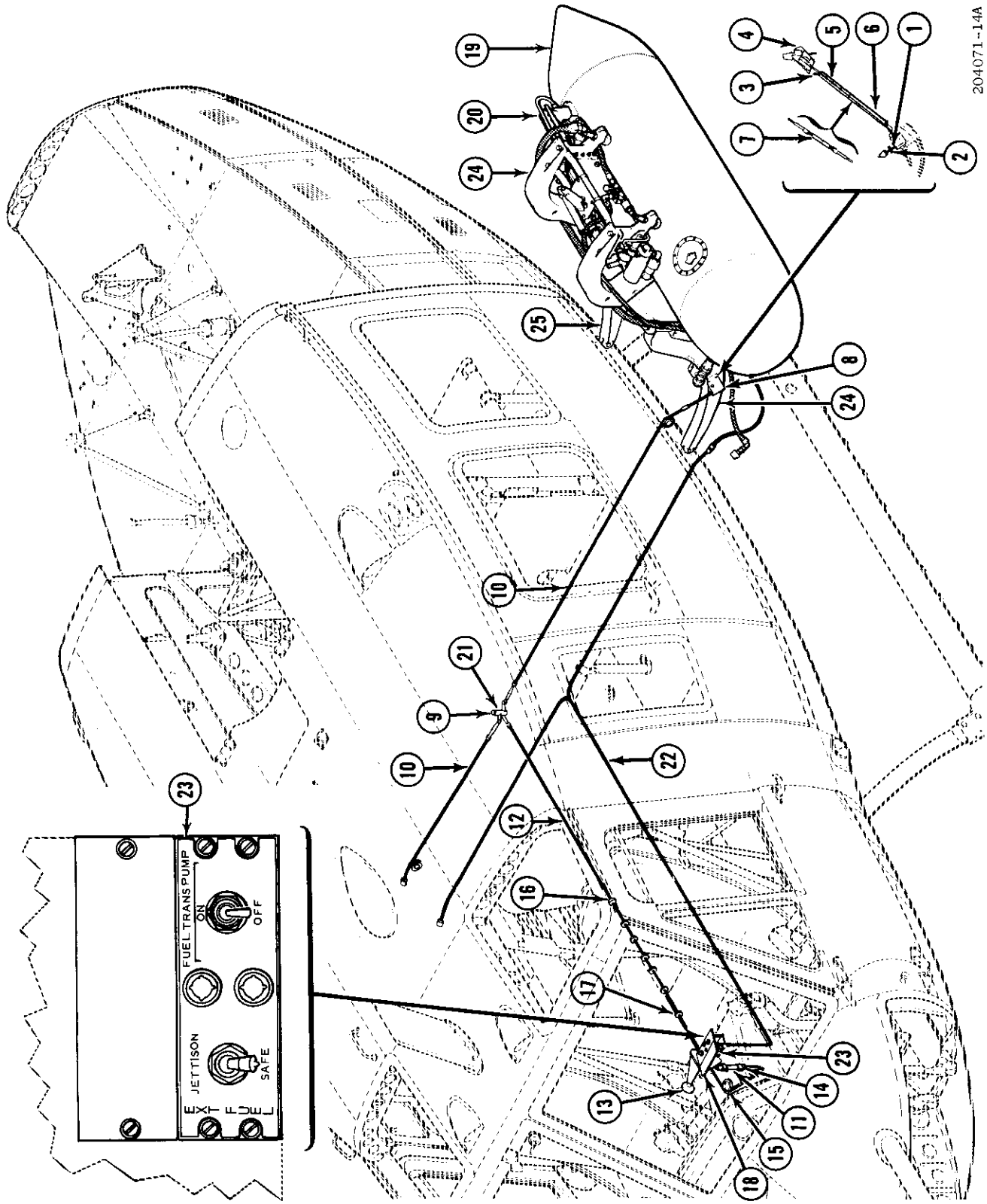

Figure 4-12. Manual release mechanism (Sheet 1 of 2)

1. Lower Cable Assembly
2. Grommet
3. Cable Assembly
4. Pulley Brackets
5. Upper Guard Tube
6. Lower Guard Tube
7. Barrel
8. Lateral Release Cable Pulleys
9. Bellcrank
10. Lateral Release Cable Assemblies
11. Cable Guard
12. Longitudinal Release Cable Assembly
13. Emergency Release Lever Assembly
14. Grommet
15. Longitudinal Release Cable Pulleys
16. Fairlead
17. Grommets
18. Support Assembly
19. Auxiliary Fuel Tank
20. Pylon Assembly
21. Manual Release Mechanism
22. Electrical Release Controls
23. Control Panel
24. Pylon Support
25. External Stores Support Assembly

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Figure 4-12. Manual release mechanism (Sheet 2 of 2)

k. Connect external support cable assemblies (1 and 3) by means of barrel (7) and thread through guard tubes (5 and 6).

l. Position external support cable pulleys and cables (1 and 3) in pulley brackets (4) and install attaching bolts, washers, nuts, pins and cotter pins.

m. Connect cable assembly (3) to mechanical release actuating lever by installing flat head pin, washer and cotter pin.

n. Thread inboard end of lower cable assembly (1) through opening in fuselage skin and install grommet (2).

o. Connect inboard end of lower cable assembly (1) to quick-disconnect on outboard end of emergency jettison cable assembly.

p. Rig manual emergency jettison controls as follows:

(1) Place emergency release lever assembly (13) in full forward position.

(2) Make certain that the mechanical release actuating lever is in the full down (locked) position.

(3) Loosen attaching parts of upper guard tube (5) and slide guard tube down over lower guard tube (6) to expose barrel (7).

(4) Adjust cable barrels to obtain a 1.30 inch dimension between the inside edge of lower helicopter skin and center of the terminal on the inboard end of the lower cable assembly (1).

Note

The 1.30 inch dimension is to be held when the system is in full locked (armed) position.

(5) Safety wire all cable barrels.

(6) Slide upper guard tube (5) up from lower guard tube (6) and tighten attaching parts.

q. Install access plates and covers.

4-232. RESCUE HOIST.

4-233. The rescue hoist is an electrically powered device with a maximum capacity of 600 pounds and usable cable length of 256 feet. Mounting of the hoist, which is completely internal, is provided for by fittings in the cabin roof and floor. The actuator lever and actuator plate are convertible to allow installation of the hoist in four alternate positions. The hoist is operated by means of a control pendant or by controls on the right-hand cyclic stick. The cyclic stick controls will override the pendant controls. A headset, wired through the hoist control box and controlled by a switch on the pendant, gives the hoist operator interphone communication with the flight crew. An electrically powered traction sheave assembly, mounted on the end of the hoist boom aids in lowering the hoist cable and prevents snarling of cable in boom while being reeled out. The traction sheave free wheels while the cable is being retrieved. A cable cutting guillotine, employing a pressure charge, provides a means of cutting the cable free of the helicopter in an emergency. The cutter is electrically actuated by switches, protected by lock-wired guards, and located on the hoist control box and on the pilot's pedestal.

4-234. INSTALLATION - RESCUE HOIST.

The hoist may be installed in any one of four locations in the cabin. (See figure 4-14.)

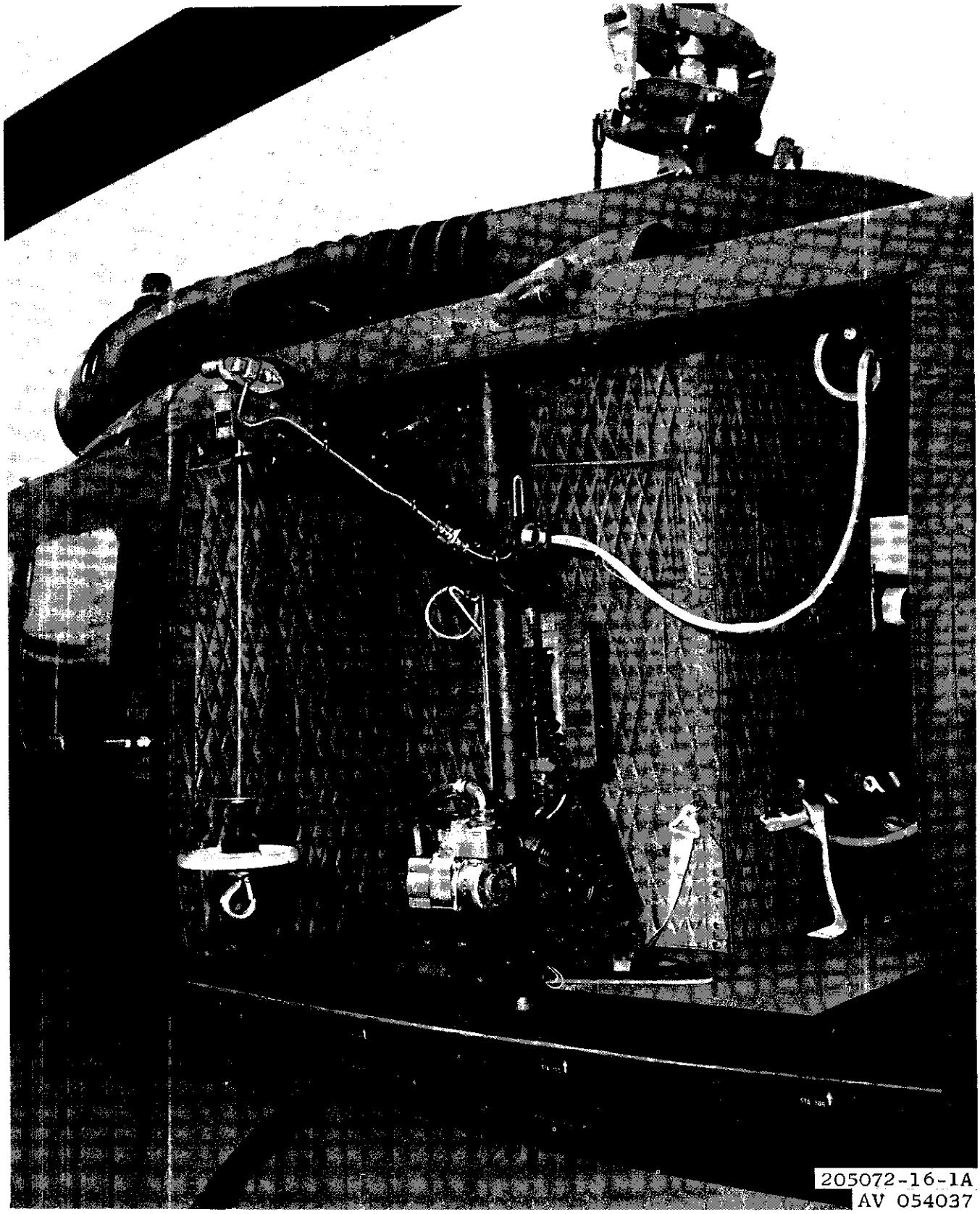
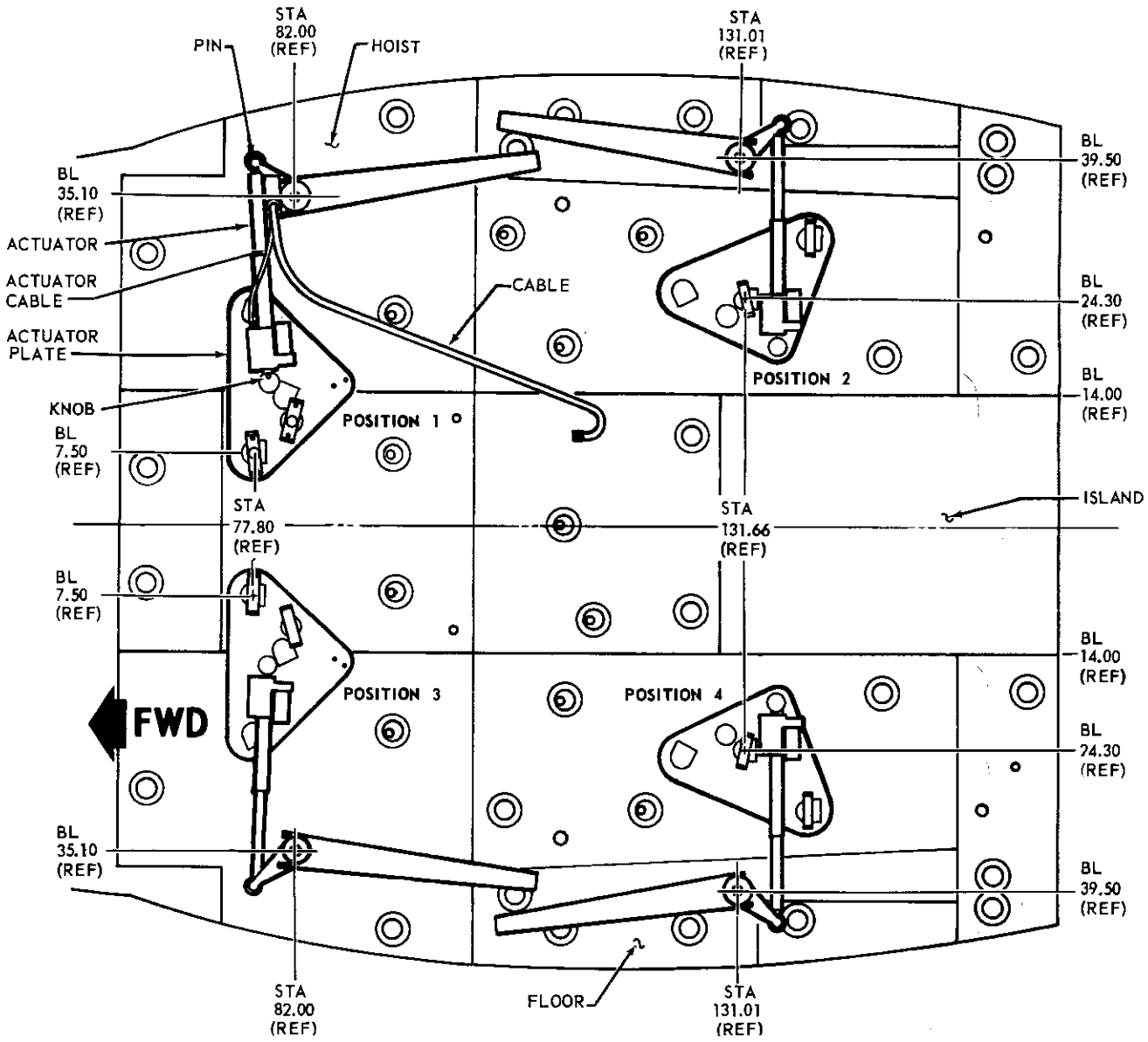


Figure 4-13. Rescue hoist



PLAN VIEW OF CABIN FLOOR

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Figure 4-14. Rescue hoist positions

Note

Helicopters equipped with personnel rescue hoist provisions and subject to frequent installation of the rescue hoist kit should be rigged to provide maximum left cyclic control capability. See figure 9-9, for swashplate setting.

a. Disconnect battery and external power.

b. Place hoist upright on cabin floor stud and align top end of hoist directly under mounting stud in cabin roof. Adjust height of hoist, if necessary, by loosening locknut (12, figure 4-16) and lowering support (11).

Caution

Do not use tools or extension bars to turn locknut. Turn only by hand. Excessive force applied in turning nut may result in damage to the roof structure.

c. Remove two stud adapters from actuator plate and install on floor studs to be used. (See figure 4-14.)

d. Determine correct configuration of actuator plate according to hoist installation position (see figure 4-15). Reposition stud adapter fittings and motor actuator fitting on actuator plate as necessary.

e. Position actuator plate on floor over adapters, secure plate to adapters, and tighten locknut.

f. Determine correct position of actuator lever according to hoist installation position. (See figure 4-15.) If necessary, reposition lever (23, figure 16) on post (13).

g. Install motor actuator, (either side may be up), between actuator plate and hoist lever and secure with knob and pin.

h. Uncover power receptacle in cabin roof by opening soundproofing blanket at Station 112. Connect hoist power cable to receptacle and hand-tighten.

i. Connect plug of boom actuator cable (17).

j. Remove pin (14), place boom in extended position, and reinstall pin.

k. Reconnect battery. Check oil level in hoist drive unit (24). (Refer to paragraph 4-238.)

l. Test operation of hoist using the following steps:

(1) BAT Switch - ON.

(2) NON-ESS BUS Switch - MANUAL - ON.

(3) Operate hoist using both controls and note proper functioning of traction sheave and cable up limit switch. (Refer to paragraph 4-239.)

Note

If external power is used, position BAT switch to OFF and NON-ESS BUS Switch to NORMAL - ON.

Caution

Make certain cargo doors are fully open before operating hoist.

Caution

If hoist is not fitted with a traction sheave (1, figure 4-16) maintain a minimum of five pounds tension when extending cable, since a slack cable will run out of winch grooves. The hook provides this tension when its full weight is suspended on the cable.

4-235. REMOVAL - RESCUE HOIST.

a. Disconnect hoist power cable at cabin roof receptacle and disconnect boom actuator cable at actuator.

b. Pull pin at actuator lever (18, figure 4-16), knob at actuator plate (figure 4-14), and remove actuator.

c. Remove nut from two stud adapters, remove adapters, and remove actuator plate.

Note

The hoist boom is normally left in the extended position.

d. Release hoist adapters at cabin floor and roof, loosen locknut (12, figure 4-16), and lower support (11).

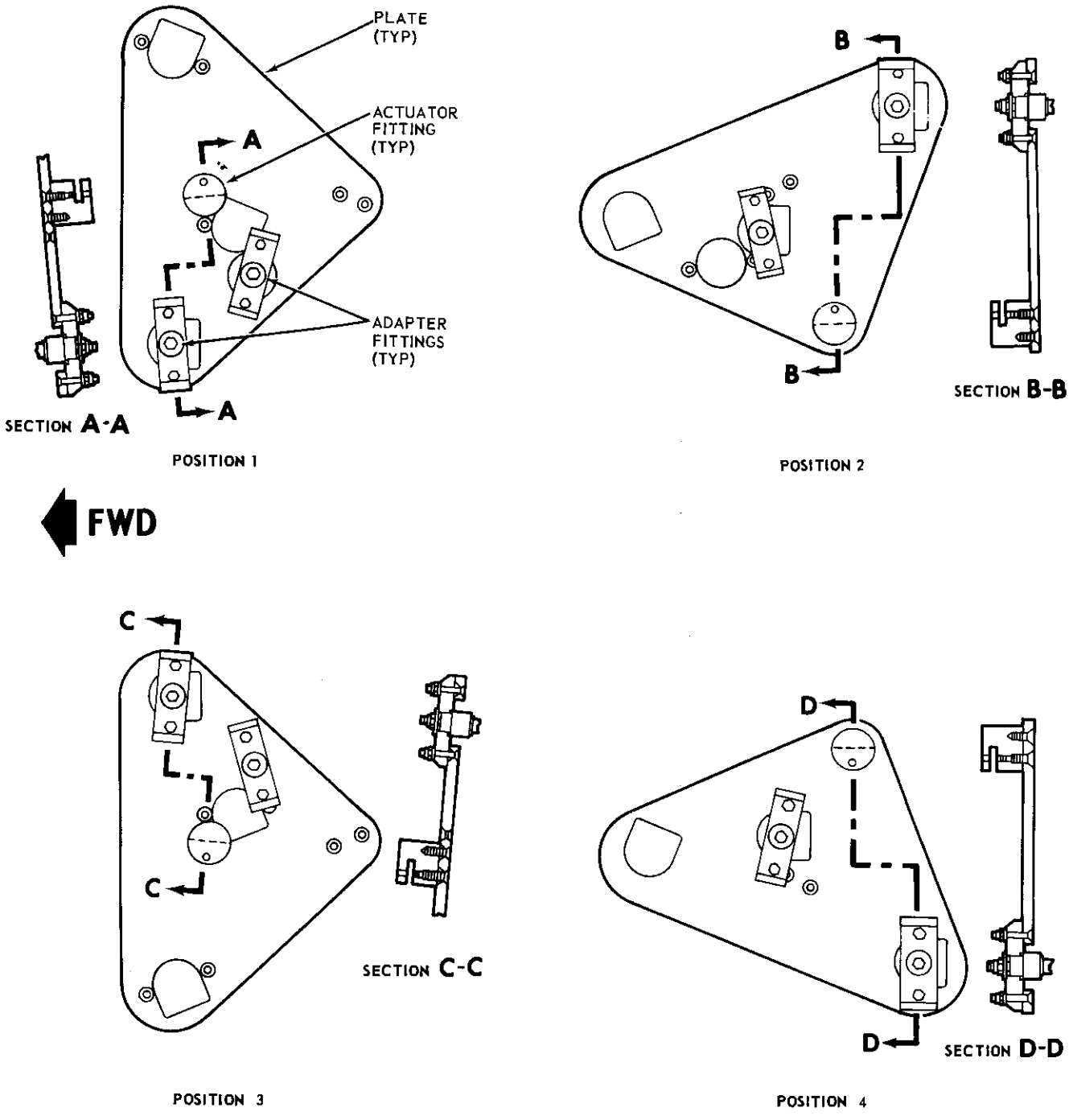

Figure 4-15. Actuator plates

e. Remove hoist from cabin.

Caution

Stow in upright position if possible. Lay the hoist down with the cable stowage drum up. Weight of the hoist on the drum may bend the drum side frames.

4-236. INSPECTION - RESCUE HOIST.

a. Hoist cable for cleanliness, broken or kinked wires, and interference anywhere along its routing.

Note

No broken wires allowed in hoist cable.

b. Cable stowage drum side frames for wobble while hoist is operating and for uniform and flat winding of cable.

c. All rollers and pulleys for damage and freedom of rotation. Check pressure roller at traction sheave for proper spring pressure.

d. Pilot's and operator's guillotine switch guard for proper lockwiring.

e. All electrical wiring and harnesses for condition and security of connections. Check continuity of circuits. (Refer to Chapter 13.)

f. Security and installation of hardware, cotter pins and lockwire.

4-237. REPAIR OR REPLACEMENT - RESCUE HOIST.

a. Tighten loose nuts, bolts, or screws and replace missing, loose, or broken lockwire.

b. As conditions indicate, repair or replace defective electrical wiring and harnesses.

4-238. LUBRICATION - RESCUE HOIST.

Note

To properly check oil supply level of winch, the system must be operated and the cable run out and reeled in 25 feet. This will be accomplished by two men; one to operate the hoist and the other to walk the cable while maintaining a constant load or tension on the cable. The oil level in the hoist gear box should be checked at the time that the hoist is running and the cable is either being payed out or rewound.

a. The hoist unit gear box is lubricated with oil (item 12, table 1-2), serviced through a filler port on the side of the gear case. With the hoist in operating position, fill the gear box to the top of the sight glass located below the filler port.

Note

Do not use the filler port dip stick to measure oil level in this installation.

4-239. ADJUSTMENT - CABLE UP LIMIT SWITCH. (See figure 4-16.) Adjust with up limit switch in the full down position. Adjust screw to clear switch approximately 0.010 inch and secure jamnut.

4-240. INSPECTION - RESCUE HOIST CONTROL BOX.

a. Check security of mounting screws and washers attaching control box (16, figure 4-16) to mounting angles attached to hoist post.

1. Traction Sheave Assembly
2. Boom Cover
3. Hoist Cable
4. Guillotine Assembly and Support
5. Guide Tube
6. Sheave Motor Cable
7. Boom
8. Turnbuckle
9. Roof Stud
10. Adapter
11. Support
12. Locknut
13. Post
14. Boom Retaining Pin
15. Hoist Power Cable
16. Control Box
17. Boom Actuator Cable
18. Pin
19. Floor Stud
20. Rubber Pressure Roller
21. Deck
22. Adapter
23. Actuator Lever
24. Hoist Drive Unit
25. Hoist Motor Cable
26. Control Pendant
27. Hook Assembly
28. Bumper Assembly
29. Limit Switch
30. Trigger Assembly
31. Side Plate

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Figure 4-16. Rescue hoist installation (Sheet 1 of 2)

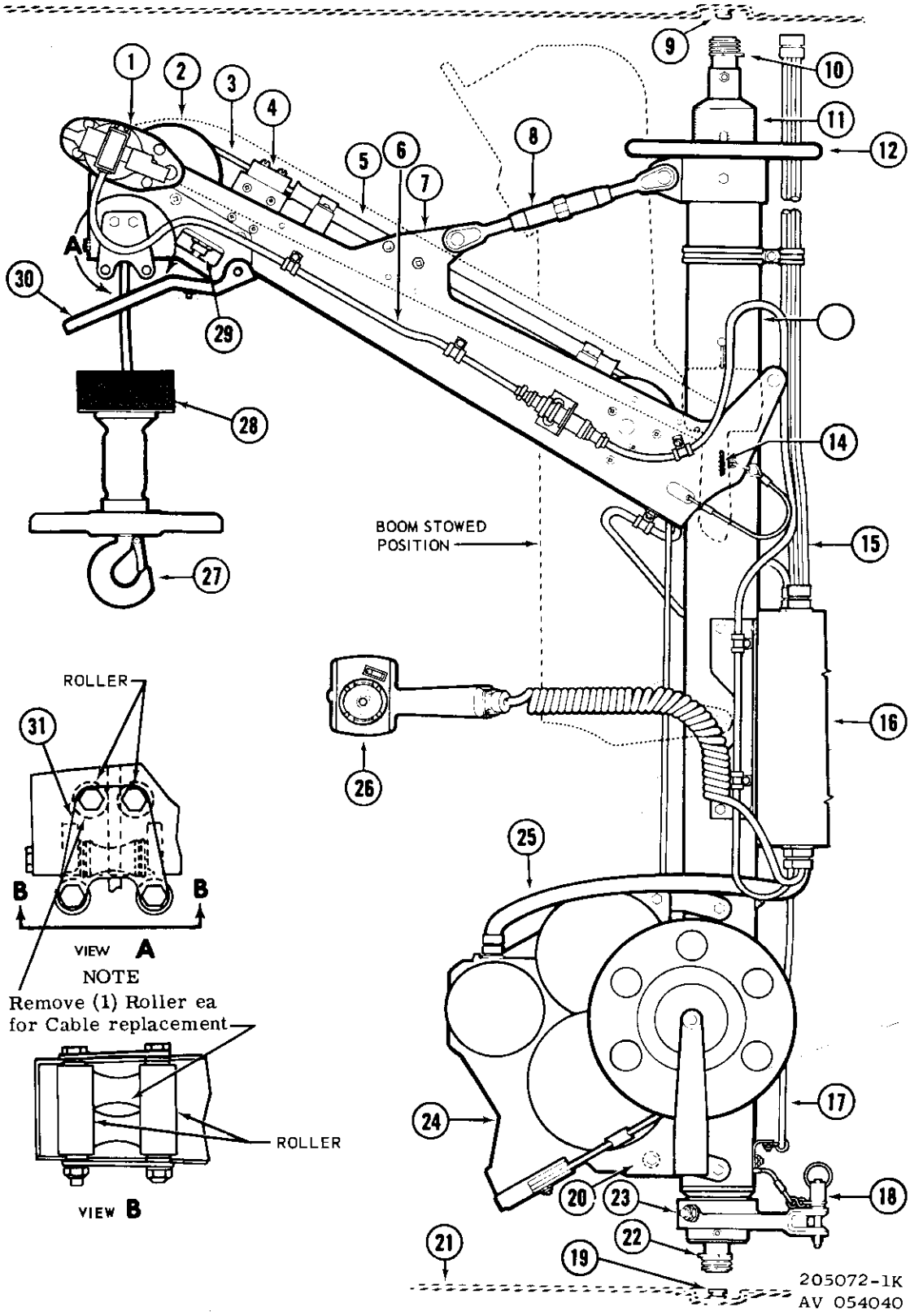


Figure 4-16. Rescue hoist installation (Sheet 2 of 2)

b. Check security of switches on control box.

c. Check security of cable connectors.

d. Check cables for fraying and wear.

4-241. INSPECTION - RESCUE HOIST BOOM AND POST.

a. Insure that latch in adapter collar snaps are locked into position.

b. Check for clearance between cabin roof and boom.

c. Check all hardware, screws, and safety pin for installation and security.

d. Check electrical wiring for fraying and wear.

4-242. REMOVAL - RESCUE HOIST HOOK ASSEMBLY. (See figure 4-17.) Disconnect cable from hook as follows:

a. Pull cotter pin and remove retaining pin from ring assembly.

b. Withdraw split insert from ring and separate halves from cable ball-end and hook.

c. Remove ring assembly by pulling cable through boot and bumper plate.

4-243. INSTALLATION - RESCUE HOIST HOOK ASSEMBLY. (See figure 4-17.) Connect cable to hook as follows:

a. Pass the ball on cable through rubber bumper and the ring and boot assembly from top end.

b. Assemble cable to hook with split insert and slide assembly into ring.

c. Align holes in ring and insert retaining pin, washer, and cotter pin.

4-244. INSPECTION - RESCUE HOIST HOOK ASSEMBLY.

a. Energize hoist and check that bumper engages limit switch trigger (29, figure 4-16) to stop hoist motor. (Refer to paragraph 4-239 for adjustment.)

b. Check security of retaining pin and cotter pin in ring. (See figure 4-17.)

c. Check boot for wear and tears.

4-245. INSPECTION - RESCUE HOIST PENDANT CONTROL.

a. Inspect coil wire end and plug for security.

b. Inspect rubber boot for security.

Note

If pendant switch will not return to center and motor continues to run; rubber boot is not secure.

c. Inspect switch for security.

4-246. REPAIR OR REPLACEMENT - RESCUE HOIST PENDANT CONTROL. (26, figure 4-16.) Repair rubber boot as follows:

a. Remove retaining ring that secures boot and remove boot.

b. Secure boot to pendant control with a suitable adhesive, insuring that boot is centered.

c. Replace retaining ring.

4-247. RESCUE HOIST OVERLOAD SENSING CONTROL.

4-248. The overload sensing control is mounted near the hoist power relay and serves to sense hoist overload current surges, and opens circuit to hoist power relay holding coil, thus removing electrical power from hoist motor. Sensing control will reset automatically.

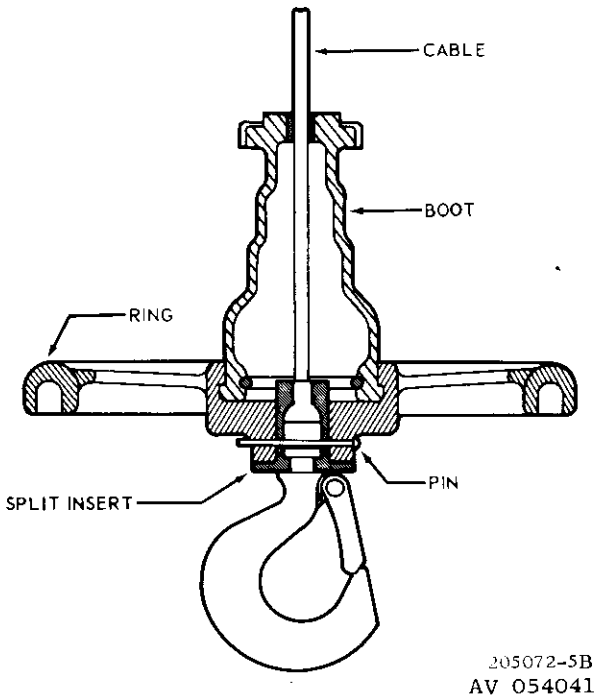


Figure 4-17. Rescue hoist hook assembly

4-249. REMOVAL - RESCUE HOIST OVERLOAD SENSING CONTROL.

a. Disconnect battery and external power.

b. Remove electrical wires from overload sensing control terminal.

c. Tape ends of disconnected wires.

d. Remove mounting screws and washers from overload sensing relay.

e. Remove relay.

4-250. INSTALLATION - RESCUE HOIST OVERLOAD SENSING CONTROL.

a. Remove protective tape from overload sensing control wire terminals.

b. Electrically ground sensing control mounting hole and contact surface.

c. Position sensing control on mounting bracket, install mounting screws and washers.

d. Place wire terminals on sensing control terminal post and secure with existing washers and nuts.

e. Reconnect battery.

SECTION III - TAIL BOOM

4-251. TAIL BOOM.

4-252. DESCRIPTION.

4-253. The tail boom (9, figure 4-1) includes the synchronized elevator. Four special high tension bolts attach the tail boom to the forward fuselage by engaging floating barrel nuts. On helicopters with 48-foot rotors, an extension approximately two feet long is installed between the forward fuselage and the existing tail boom. Otherwise, all tail boom assemblies remain essentially the same except for necessary adapters and extensions for the wiring harnesses, drive shaft, and control cables. Tail boom panels are all structural panels.

4-254. INSPECTION - TAIL BOOM.

a. Open right-hand, aft access door on forward fuselage to inspect tail boom attachment fittings. Use a flashlight or other suitable light source to inspect fittings.

Note

Special emphasis should be given to the upper left-hand fitting.

b. Inspect fuselage tail boom to angle attachment fittings for loose rivets, cracks, damage and corrosion.

c. Check aft fuselage bulkhead for cracks, dents, damage and corrosion.

4-255. REPAIR OR REPLACEMENT - TAIL BOOM. Small cracks, one to two inches in length may be stop drilled, provided the hole does not extend into stiffeners, etc. For more extensive repairs, or removal and replacement of attachment point doublers, refer to General Support Maintenance.

Note

Should any doubt exist to presence of a crack in a fitting, a dye penetrant check should be accomplished (removal of zinc chromate primer from fittings is not required). Refer to General Support Maintenance.

4-256. TAIL BOOM ACCESS DOORS AND INSPECTION PLATES.

4-257. Access doors and inspection plates are provided wherever needed on the tail boom for fast, efficient maintenance and inspection of the area. (See figure 4-2.)

4-258. REMOVAL - ACCESS DOORS AND INSPECTION PLATES. Remove screws and washers, or disconnect fasteners, and remove access doors or inspection plates from the tail boom.

4-259. INSTALLATION - ACCESS DOORS AND INSPECTION PLATES. Position access doors or inspection plates on tail boom and install attaching washers and screws, or connect fasteners.

4-260. DRIVE SHAFT COVERS.

4-261. The tail rotor drive shaft is enclosed by four covers (6, figure 4-1) two of which are located between the tailpipe fairing and the 42-degree gear

box. The third is a separate cover for the 42-degree gear box, while the fourth cover extends up the vertical fin to the 90-degree gear box attaching point. With the exception of cover over the 42-degree gear box, the covers are hinged along the right-hand side, and are secured, in the closed position by fasteners on the left-hand side.

4-262. REMOVAL - DRIVE SHAFT COVERS.

a. Disconnect fasteners along left-hand side of door and swing door to open position.

b. Pull hinge pin on right-hand side of door, and remove door from tail boom.

4-263. INSPECTION - DRIVE SHAFT COVERS. Inspect for damage, dents, and cracks; hinges and fasteners for serviceability.

4-264. REPAIR OR REPLACEMENT - DRIVE SHAFT COVER. Replace damaged or unserviceable hinges or fasteners.

4-265. INSTALLATION - DRIVE SHAFT COVERS.

a. Position door on tail boom and install hinge pin on right-hand side.

b. Swing door to closed position, and secure fasteners on left-hand side.

4-266. SYNCHRONIZED ELEVATORS.

4-267. Synchronized elevator installation consists of two elevator assemblies, a horn assembly, two support sets, and attaching parts. Horn assembly is mounted horizontally through sides of tail boom, and is secured to structure by supports which serve as bearings for rotational movement. A control arm on horn provides attachment for linkage from fore-aft cyclic control system at swashplate. Each elevator is a horizontal airfoil section built up on a spar tube, which is inserted into a projecting end of horn assembly and secured by a single bolt.

4-268. REMOVAL - SYNCHRONIZED ELEVATOR.

a. To remove either elevator: Remove special bolt (2, figure 4-18) with washer to detach elevator fitting from lug (4) on horn assembly (5). Withdraw elevator straight outward until spar tube (3) is pulled free.

Note

Horn assembly can be left in place, except when replacement of parts is necessary.

b. To remove horn assembly, after removal of both elevators, proceed as follows:

(1) Remove access door, with 18 bolts and washers, from tail boom below elevator installation.

(2) Disconnect control tube from arm (6) on elevator horn.

(3) At each end of horn inside tail boom, remove two bolts with nuts, washers, and shims (8) between upper and lower retainers (7) of support. Keep parts in sets for each location.

(4) Carefully remove each support set with shims (9), attaching bolts, and washers from brackets (10) in tail boom. Keep parts in sets.

Note

Handle support retainers with care to avoid damaging inner surfaces of bushings, which are dry bearing material bonded in place.

(5) Remove horn assembly through access opening.

4-269. INSPECTION - SYNCHRONIZED ELEVATOR.

a. Inspect for damage, dents, and cracks. Inspect support retainer bushings for damage and wear.

b. Inspect synchronized elevator support brackets for loose rivets. Apply enough vertical pressure to elevator at outboard end to provide normal deflection. Inspect rivets visually and by hand contact for signs of movement.

c. Inspect tip cap for security of bonding.

4-270. REPAIR OR REPLACEMENT - SYNCHRONIZED ELEVATOR.

a. Replace unserviceable support retainer sets.

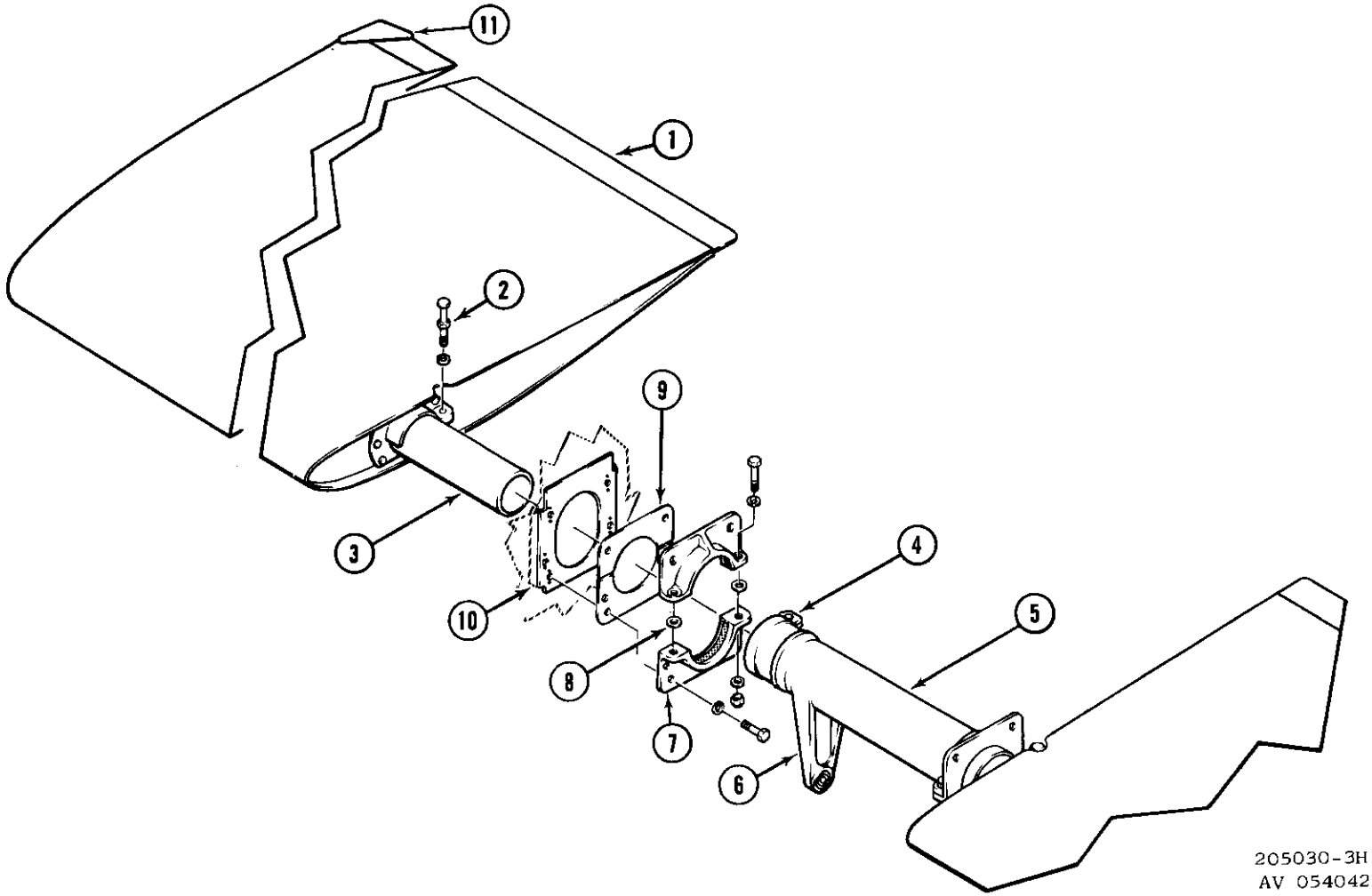
b. Replace elevator if damaged.

c. Replace tip cap (11, figure 4-18) as follows:

(1) Clean elevator tip area with aliphatic naphtha, (item 304, table 1-2).

(2) Inspect new cap (11) to insure that it is free of oil, grease, dirt, etc. Cap may be cleaned with toluene (item 322, table 1-2).

(3) Brush a thin coat of adhesive (item 211, table 1-2) (approximately 0.010 inch thick) on the elevator tip (cleaned area) and the inside of the cap.



1. Elevator Assembly
2. Retaining Bolt
3. Spar Tube
4. Mating Lug for Retaining Bolt
5. Horn Assembly
6. Control Arm
7. Support Retainers Set
8. Shims
9. Shim Set
10. Tail Boom Bracket
11. Cap

Figure 4-18. Synchronized elevator installation

(4) Allow approximately one hour drying time until adhesive attains an aggressive tack. Then, install the cap on the elevator tip as shown in figure 4-18.

(5) Hold cap in place for a minimum of 15 seconds.

(6) Allow a minimum of 24 hours drying time before releasing the aircraft for flight.

4-271. INSTALLATION - SYNCHRONIZED ELEVATOR.

Note

Prior to installing elevator assemblies, coat the horn assembly with corrosion preventative compound (item 309 or 312, table 1-2). Do not use zinc chromate (item 200, table 1-2) as a substitute for corrosion preventative compound (item 309 or 312, table 1-2).

a. Insert horn assembly (5, figure 4-18) into tail boom through access door. Place assembly with ends through support brackets (10) at each side, and with control arm (6) at right of center pointing down.

Note

If horn assembly was not removed, proceed to step e., below.

b. Attach lower and upper support retainers (7) and shim sets (9) with bolts and washers to matching holes and plate nuts of brackets in tail boom. Peel shims as required for 0.005 to 0.030 inch lateral chuck of horn.

Note

Handle support retainers with care to avoid damaging bearing surfaces of bushings.

c. At each support, secure upper and lower retainers together with two bolts, with thin aluminum alloy washers next to both heads and nuts with shims (8) between retainers.

(1) First adjust shims to provide 7-1/2 to 10-3/4 pounds drag.

(2) Add shims between retainers, increasing diameter of each support by 0.0015 to 0.0030 inch, to obtain a slight even drag on rotation of horn without chatter or binding.

d. Connect elevator control tube to arm of horn assembly.

e. Install each elevator by inserting spar tube (3) into end of horn, aligning mating holes of elevator fitting and horn, and installing special bolt (2) with washer. Tighten bolt with 100 to 140 inch-pounds torque.

Note

Bolt is 2.53 inches overall length. Do not try to use similar bolt, approximately 0.25 inch longer, which is used on Model UH-1B elevators.

f. Check rigging of elevator.

Note

Approximately one degree droop in the right-hand elevator is acceptable.

g. Install access door, with 18 bolts and washers, on underside of tail boom.

4-272. VERTICAL FIN FAIRING.

4-273. The vertical fin fairing is located at the junction of the vertical fin and tail boom, and provides access to the tail skid attachment point.

4-274. REMOVAL - VERTICAL FIN FAIRING. Remove screws attaching fairing, and remove fairing from helicopter.

4-275. INSPECTION - VERTICAL FIN FAIRING. Inspect for cracks and damage; fasteners for serviceability.

4-276. REPAIR OR REPLACEMENT - VERTICAL FIN FAIRING. Replace unserviceable fasteners.

4-277. INSTALLATION - VERTICAL FIN FAIRING. Position fairing on helicopter, and install attaching screws.

4-278. TAIL SKID.

4-279. A tubular steel tail skid (7, figure 4-1) is attached on lower aft section of tail boom. The purpose of the tail skid is to warn the pilot of a tail-low attitude when landing.

4-280. REMOVAL - TAIL SKID.

a. Remove screws attaching two covers to lower tail boom fin, at aft end of tail boom, and remove covers.

b. Remove nut, washer, and bolt attaching forward end of skid tube to tail boom structural member, and pull tube out through support block.

4-281. INSPECTION - TAIL SKID. Inspect for minor nicks, scratches, and dents; cracks or permanent buckles. Maximum allowable deflection of the tail skid is approximately 4 inches vertical.

4-282. REPAIR OR REPLACEMENT - TAIL SKID. Repair minor nicks, scratches or dents by polishing out. Replace cracked or permanently buckled tail skid.

4-283. INSTALLATION - TAIL SKID.

a. Insert tail skid tube through support block. Align holes in forward end of tail skid with holes in tail boom structural member, and install attaching bolt, washer, and nut.

b. Position covers on lower tail boom fin, at aft end of tail boom, and install attaching screws.

SECTION IV - PYLON SECTION

(Not Applicable)

SECTION V WING SECTION

(Not Applicable)

SECTION VI - ALIGHTING GEAR

4-284. LANDING GEAR.

4-285. DESCRIPTION.

4-286. Landing gear (11, figure 4-1) is of formed aluminum alloy tubes, consisting of two skids attached on ends of two arched cross tubes which are secured to fuselage structure by four padded caps. Each skid tube is fitted with a forward end step, a two-ring fitting, two saddles with sockets for cross tubes, a two-piece shoe along bottom, a rear end cap, and two eyebolt fittings for mounting of ground handling wheel assemblies. Cross tubes are fitted with bearing straps at mounting points.

4-287. REMOVAL - LANDING GEAR. Complete landing gear can be removed as an assembly, or skids and cross tubes can be removed separately.

a. To remove complete landing gear: With helicopter supported but not raised on hoist or jacks, remove six bolts and washers at each of four caps which secure cross tubes to structure. Identify caps for location. Raise helicopter off landing gear.

b. To separate skids from cross tubes: Remove bolts with washers at saddles of skids. Pull ends of cross tubes from sockets of saddles.

4-288. INSPECTION - LANDING GEAR.

a. Visually inspect steps and fittings for obvious damage.

b. Inspect landing gear skid shoes for damage, wear and suitability for continued service.

c. Inspect landing gear skid tubes as follows:

(1) Inspect tubes for slight scratches, scuffs, nicks and dents.

(2) Inspect area between cross tube saddles for scratches, dents and holes.

Note

Smooth dents, not exceeding 0.25 inch in depth and 1.0 to 1.2 inches in diameter. The area between the cross tube saddles may be disregarded. Scratches, dents and holes in the skid tubes forward of forward cross tube saddle and aft of aft cross tube saddle may be repaired at discretion of local maintenance officer.

d. Inspect cross tubes for light scratches, scuffs, nicks, dents or other obvious damage.

e. Inspect cross tube bearing plates for looseness.

f. Inspect rubber bumper pad on landing gear retention cap assemblies for looseness and deterioration.

g. With landing gear installed on helicopter, inspect cross tubes for proper deflection as follows:

(1) Position the helicopter on a smooth surface.

(2) Raise the helicopter off the surface with hydraulic jacks (refer to paragraph 1-54), removing all weight from the landing gear.

(3) Level the helicopter. (Refer to paragraph 1-59.)

(4) Measure the distance between the cross tube bearing plates, and divide that distance to determine helicopter center line.

(5) Drop a plumb line from helicopter center line to ground or floor surface. (See figure 4-19.) Measure from plumb line to center line of each skid tube at cross tube locations.

Note

Distance should be 48 inches from center line of skid tube to plumb line. If distance exceeds 50 inches from center line, or 100 inches between skid tube center lines, replace defective cross tube.

(6) Lower helicopter to surface and remove hydraulic jacks.

4-289. REPAIR OR REPLACEMENT - LANDING GEAR.

a. Replace damaged steps and fittings.

b. Replace landing gear skid shoes which are considered unserviceable due to damage or wear.

c. Replace skid tubes which show excessive wear or damage.

d. Scratches up to 0.03 inch deep and 1.0 to 1.2 inches long, running directly across top of skid tube between cross tube saddles, shall be repaired by Direct Support personnel.

e. Scratches more than 0.03 inch deep and 1.0 to 1.2 inches long, running directly across top of skid tube shall be repaired by Direct Support personnel.

f. Dents over 0.25 inch deep and 1.0 to 1.2 inches in diameter between the cross tube saddles shall be repaired by Direct Support personnel.

g. Holes in skid tubes shall be repaired by Direct Support personnel.

h. Minor scratches, scuffs and nicks in the landing gear cross tubes may be polished out to depth of damage, but not to exceed 10 percent of cross tube wall thickness, by Direct Support personnel.

i. Replace cross tubes if deflection dimension exceeds inspection requirements. (Refer to paragraph 4-288.)

j. All other damage (refer to paragraph 4-288) requires replacement of cross tubes.

4-290. REPLACEMENT - SKID SHOES. Raise skid clear of ground by use of jacks, hoist, or ground handling wheels. Detach front and rear shoe sections by removing bolts and washers along each side of skid. Align new rear shoe to mounting holes and install bolts with thin steel washers. Install front shoe, overlapping end of rear shoe, in same manner.

4-291. INSTALLATION - LANDING GEAR.

a. If separated, assemble skids and cross tubes by inserting ends of cross tubes into sockets of skid saddles and installing bolts with washers.

b. Position landing gear and carefully lower helicopter to seat four mounting points of structural beams on bearing straps of cross tubes. Install four cap assemblies, and secure each assembly to plate nuts in fuselage by four short and two long bolts with washers. Tighten bolts to snug fit while aircraft is still supported by hoist or jacks.

c. Lower aircraft fully and remove hoist or jacks. Make sure aircraft settles on cross tubes correctly before tightening bolts through cap assemblies to proper torque.

Caution

Insure bearing plates are centered and fully seated in cross tube saddles. On forward and aft cross tubes, viewing from outside, no more than two bearing plate studs should be seen at each position. If more than two studs are seen, the aircraft is unsafe to fly.

4-292. GROUND HANDLING GEAR.

4-293. Two ground handling gear assemblies are provided for quick mounting on landing skids to allow moving helicopter on ground. Each assembly consists of two wheels on an offset axle, a supporting cradle, and a hand-operated hydraulic jack with two rams which actuate axle to extend or retract wheels. (Figure 4-20.) Cradle is mounted to eyebolts on landing skid by means of a fixed rear pin and a

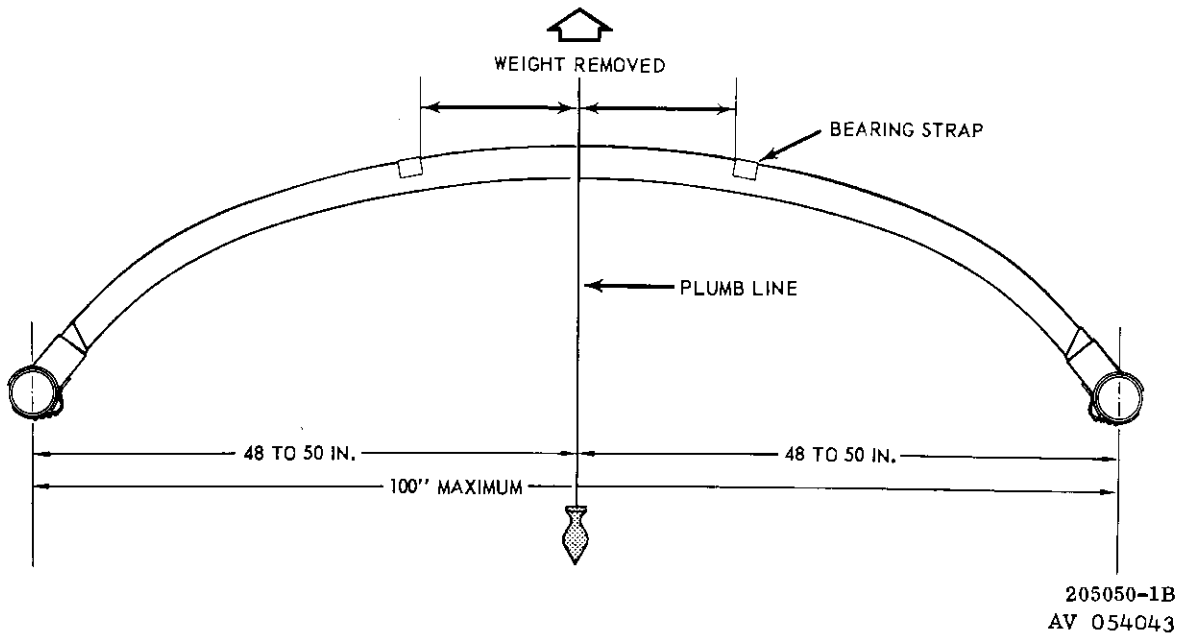


Figure 4-19. Checking landing gear cross tubes

spring-loaded front pin. Two support rods stowed on axle can be engaged in holes on skid to secure assembly with wheels up, when handling gear is left in place during flight.

4-294. WORK AID FOR GROUND HANDLING GEAR. A work aid, for moving ground handling gear assemblies to and from parked helicopters can be locally fabricated. (See figure 4-21.) The device is a small tow bar, with lugs to fit on mounting pins of ground handling gear which can then be pulled or pushed on its own wheels.

4-295. REMOVAL - GROUND HANDLING GEAR. For removal procedures refer to Chapter 1.

4-296. INSPECTION - GROUND HANDLING GEAR.

a. Inspect tires for proper inflation, cuts and excessive wear.

b. Check hydraulic pump for proper operation.

c. Inspect structure for loose and missing bolts, nuts, and general condition.

4-297. REPAIR OR REPLACEMENT - GROUND HANDLING GEAR.

a. Inflate tires to 45 psig air pressure. Replace if badly cut or worn excessively.

(1) With ground handling gear removed from skid, remove either wheel from axle by removing cotter pin, nut (1, figure 4-20) and retainer (2).

(2) Repair or replace tire as required. (Refer to TM 55-405-3.)

(3) Place wheel (3) on axle (4) and secure with retainer (2), nut (1) and cotter pin.

b. Replace hydraulic pump, if necessary, as follows:

(1) Release hydraulic pressure by turning T-handle valve on pump (15) to open.

(2) Place suitable vessel to catch fluid. Disconnect hydraulic hoses from tee fitting on pump. Cap hoses. Remove fitting and reducer (11) from pump, and install plug.

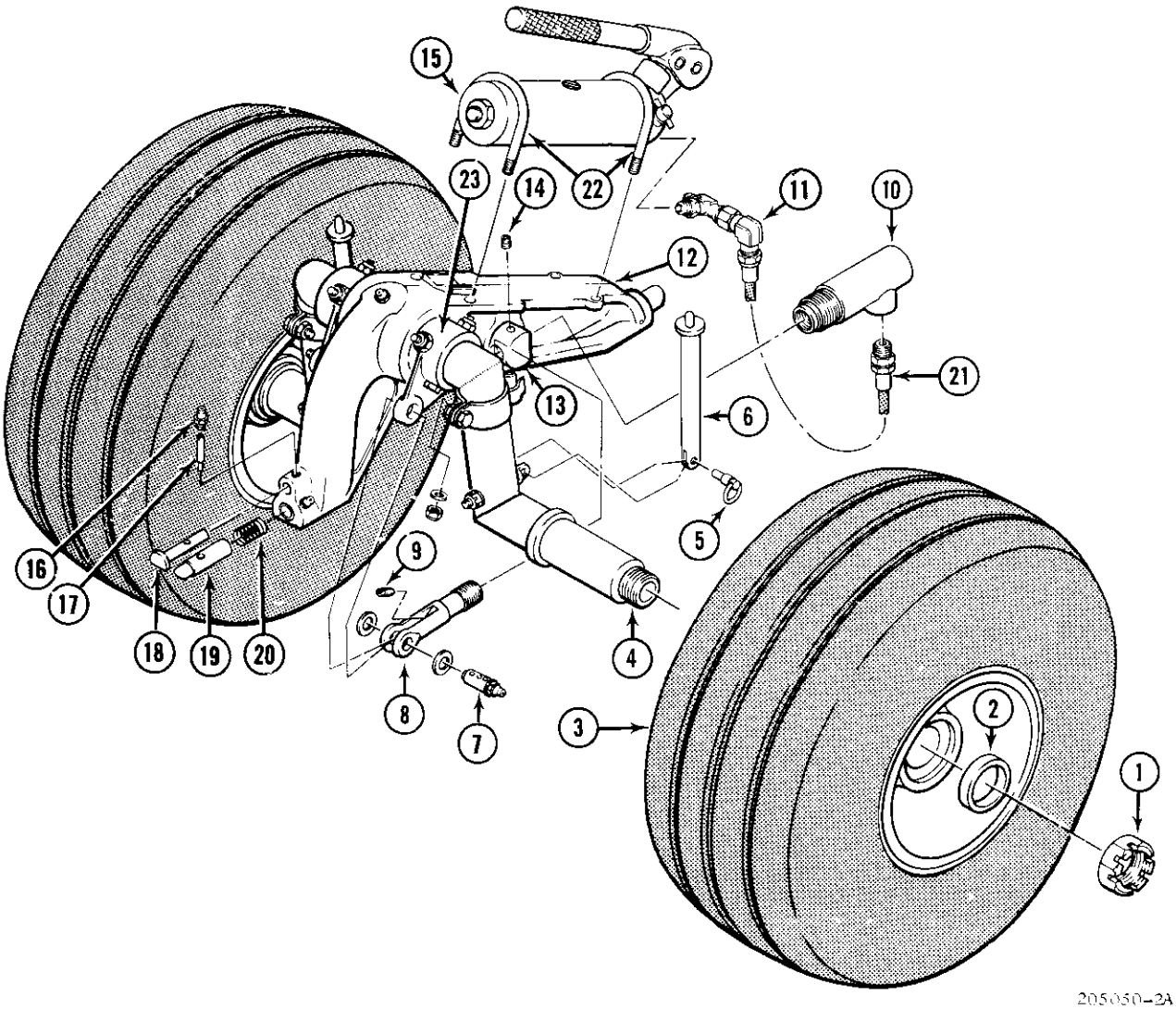
(3) Remove four nuts and washers from U-bolts to detach pump from cradle. Keep U-bolts with pump.

(4) On replacement pump, remove pipe plug from outlet and drain fluid. Install reducer and tee fitting (11) in outlet, aligning open ends of tee across end of pump cylinder.

(5) Place pump, with outlet aft, on cradle (12). Install two U-bolts over pump and through flange of cradle, and secure with washers and nuts.

(6) Connect hydraulic hoses from each ram (10), to outlet tee of pump.

(7) Refill pump with hydraulic fluid (item 4, table 1-2).



1. Nut
2. Retainer
3. Wheel Assembly
4. Axle
5. Ball-Lock Pin
6. Support Rod
7. Lubricator Pin
8. Clevis
9. Set-Screw
10. Hydraulic Ram
11. Hose and Fittings
12. Cradle Assembly
13. Trunnion
14. Set-Screw
15. Hydraulic Pump
16. Lubricator Fitting
17. Connecting Pin
18. Release Pin
19. Support Pin
20. Spring
21. Hose
22. U-Bolts
23. Ram Arm

Figure 4-20. Ground handling gear

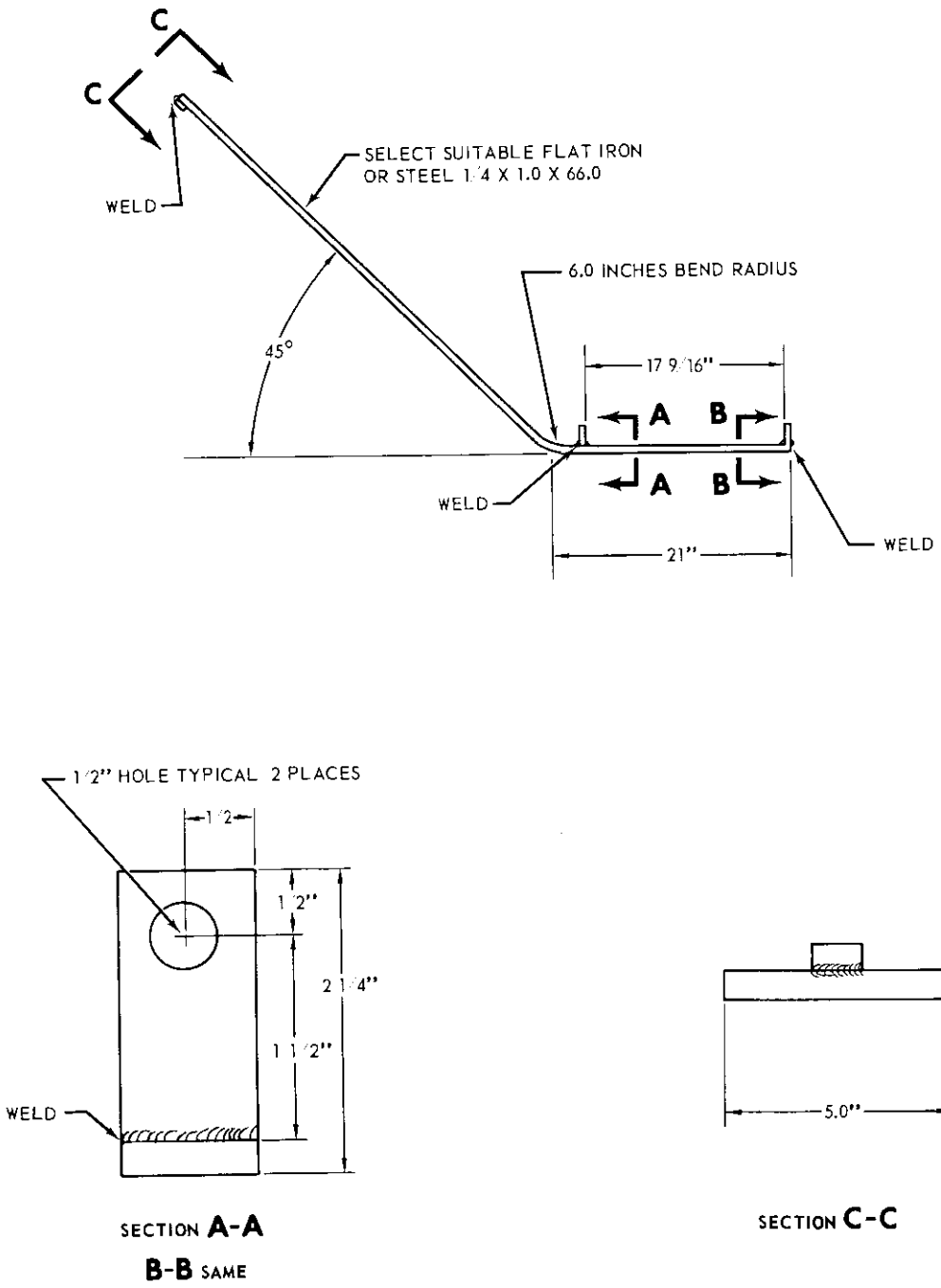


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Figure 4-21. Work aid for towing ground handling gear

(8) Pump handle several strokes.

(9) Crack hose at tee on pump.

(10) Pump until no air can be expelled. Tighten hose connection.

(11) If air is still present in ram (10), refill pump and repeat procedure.

c. Tighten or replace bolts, nuts and hardware as necessary.

4-298. LUBRICATION - GROUND HANDLING GEAR. Lubricate assemblies in accordance with Lubrication Chart. (Refer to Chapter 2.)

4-299. INSTALLATION - GROUND HANDLING GEAR. For installation procedures refer to Chapter 1.