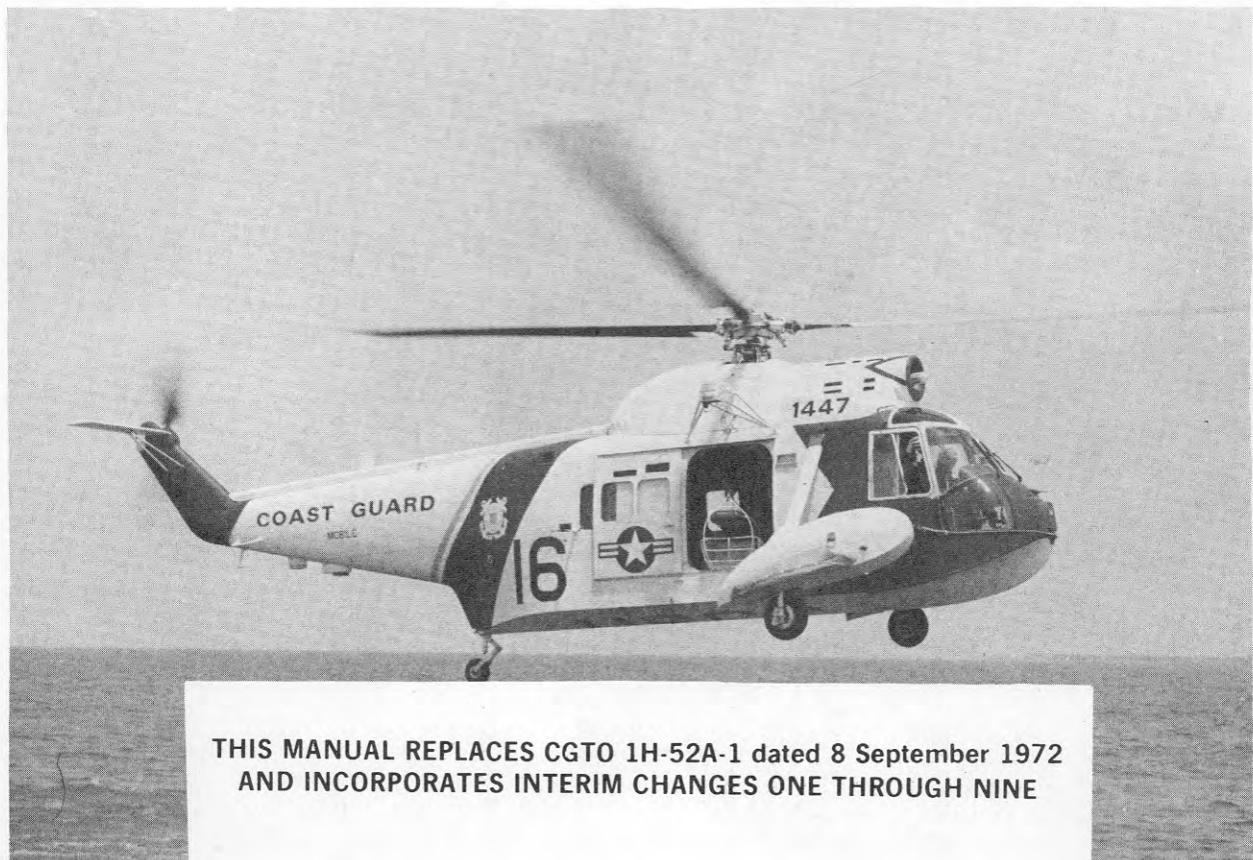


T.O. 1H-52A-1

# FLIGHT MANUAL

U. S. COAST GUARD

# MODEL HH-52A HELICOPTERS



THIS MANUAL REPLACES CGTO 1H-52A-1 dated 8 September 1972  
AND INCORPORATES INTERIM CHANGES ONE THROUGH NINE

PUBLISHED BY DIRECTION OF  
THE COMMANDANT OF THE U. S. COAST GUARD

1 JANUARY 1979

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## LIST OF EFFECTIVE PAGES

Insert latest changed pages, destroy superseded pages.

Dates of issue for original and changed pages are:

Original . . . 0 . . . 1 January 1979

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margin of the page. Changes to illustrations are indicated by a vertical line in the outer margin adjacent to the figure title.

Total number of pages in this publication is 292, consisting of the following:

Page No.	Change No.	Page No.	Change No.	Page No.	Change No.
Title .....	0	1-12 .....	0	1-39 .....	0
A .....	0	1-13 .....	0	1-40 .....	0
B .....	0	1-14 .....	0	1-41 .....	0
C .....	0	1-15 .....	0	1-42 .....	0
Certification-1 .....	0	1-16 .....	0	1-43 .....	0
Certification-2 Blank .....	0	1-17 .....	0	1-44 .....	0
Flyleaf-1 .....	0	1-18 .....	0	1-45 .....	0
Flyleaf-2 .....	0	1-19 .....	0	1-46 .....	0
Flyleaf-3 .....	0	1-20 .....	0	1-47 .....	0
Flyleaf-4 Blank .....	0	1-21 .....	0	1-48 .....	0
i .....	0	1-22 .....	0	1-49 .....	0
ii .....	0	1-23 .....	0	1-50 .....	0
iii .....	0	1-24 .....	0	1-51 .....	0
iv .....	0	1-25 .....	0	1-52 .....	0
1-1 .....	0	1-26 .....	0	2-1 .....	0
1-2 .....	0	1-27 .....	0	2-2 .....	0
1-3 .....	0	1-28 .....	0	2-3 .....	0
1-4 .....	0	1-29 .....	0	2-4 .....	0
1-5 .....	0	1-30 .....	0	2-5 .....	0
1-6 .....	0	1-31 .....	0	2-6 .....	0
1-7 .....	0	1-32 .....	0	2-7 .....	0
1-8 .....	0	1-33 .....	0	2-8 .....	0
1-9 .....	0	1-34 .....	0	2-9 .....	0
1-10 .....	0	1-35 .....	0	2-10 .....	0
1-11 .....	0	1-36 .....	0	2-11 .....	0
		1-37 .....	0	2-12 .....	0
		1-38 .....	0	2-13 .....	0

Upon receipt of the second and subsequent changes to this technical order, personnel responsible for maintaining this publication in current status will ascertain that all previous changes have been received and incorporated. Action should be taken promptly if the publication is incomplete.

OS OS

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OS

## OPERATIONAL SUPPLEMENT FLIGHT MANUAL

U.S. COAST GUARD

MODEL HH-52A

HELICOPTERS

THIS PUBLICATION SUPPLEMENTS TO 1H-52A-1 DATED 1 JANUARY 1979

COMMANDING OFFICERS ARE RESPONSIBLE FOR BRINGING THIS SUPPLEMENT TO THE ATTENTION OF ALL AFFECTED COAST GUARD PERSONNEL.

PUBLISHED BY DIRECTION OF THE COMMANDANT, U.S. COAST GUARD

1 NOVEMBER 1979

SHORT TITLE: ARN-118 TACAN

1. PURPOSE.

To provide flight crews with operating instructions for the AN/ARN-118(V) TACAN.

2. GENERAL.

TCTO 1H-52A-523 directs the installation of the AN/ARN-118(V) in all HH-52A helicopters.

3. INSTRUCTIONS.

NOTE

A reference to this supplement shall be made opposite the paragraph entitled TACAN RADIO SET AN/ARN-52(V).

TO 1H-52A-1S-2

a. Page 3-17, RADIO AUTOTRANSFORMER ( $\emptyset$ B) is replaced with the following:

**RADIO AUTOTRANSFORMER ( $\emptyset$ B) FAILURE**

**Symptoms**

1. Loss of the following equipment: BDHI, RMI, NO. 1 and NO. 2 NEEDLE information, DME (frozen), and partial loss of OMNI and TACAN Course Indicator information.

**NOTE**

The TACAN course deviation indicator (CDI) will continue to function. The OMNI CDI will function only if the AN/ARN-123 VHF NAV is installed. Both relative heading indicators are unreliable.

**Corrective Action**

1.  $\emptyset$ B AUTO XMFR circuit breaker - CHECK. RESET IF OUT.
2. IND circuit breaker - CHECK. RESET IF OUT.

**NOTE**

If the circuit cannot be regained, and the AN/ARN-123 is not installed, only GCA, ILS, and VOR(TAC) approach methods are available. If the AN/ARN-123 is installed, a VOR approach is also available.

**NOTE**

The Broadband Homer will continue to function.

3. If this does not restore the circuit, mission urgency and flight conditions will determine the action to be taken.

b. Page 4-15, TACAN RADIO SET AN/ARN-52(V) (TACTICAL AIR NAVIGATION) is replaced with the following:

#### TACAN AN/ARN-118(V)

The TACAN Navigation Set AN/ARN-118(V) is used to determine the relative bearing and slant range distance to a selected TACAN station. The selected TACAN station can be a ground, shipboard, or airborne station. The ground and shipboard TACAN stations are considered surface beacons. An airborne station only supplies slant range distance information unless the aircraft is specially equipped with a bearing transmitter and rotating antenna. This TACAN set is not capable of transmitting bearing information but does supply slant range distance replies when interrogated. The TACAN set has provisions for 126 channels in the X mode, and 126 channels in the Y mode. The Y channels differ in frequency assignment and pulse spacing. The maximum operating range of the TACAN set is 390 NM when the selected TACAN is a surface beacon, and 200 NM when the selected TACAN is an airborne beacon. The BDHI is only capable of displaying 299 NM.

#### NOTE

The Y channels were developed to alleviate congestion of the existing channels (in the X mode). If a channel has no specification on a chart or publication, it is an X channel.

The TACAN Navigation Set supplies inputs to the BDHI, RMI, the TACAN Course Indicator, and the Flight Directors (when TAC is selected). TACAN audio signals can be monitored by turning the FM/TAC receiver select switch on. The TACAN set is powered by the AC and DC Radio Busses and is protected by two circuit breakers marked TACAN on the radio circuit breaker panel.

#### TACAN Controls

Controls for the tacan system are located on the TACAN CONTROL PANEL (figure 4-15A) on the upper radio console. A five-position (OFF, REC, T/R, A/A REC, A/A T/R) function switch selects the mode of operation. With the function switch in the REC position, only bearing information is received; with the switch in the T/R position, both bearing and range data are received. The A/A REC and A/A T/R positions of the switch are the same as the REC and T/R positions, except that the tacan system is transmitting and receiving signals to and from a suitably equipped cooperating aircraft. The second aircraft's TACAN must be set 63 channels away from the channel setting of the first aircraft.

on the same X or Y mode, and operated in the A/A mode. The channel selector tunes the equipment to any of 126 frequency channels. The X/Y channel selector sets either X or Y. The volume control knob varies the volume of the audio signal received from a surface beacon and heard through the number four receiver select switch on the ICS control panels. The test switch is used to make a complete test of the system except for the antenna.

CAUTION

The channel selector switch contains a built-in mechanical stop to prevent rotation past the nine (9) position on the one's digit channel setting. Do not attempt to override this mechanical stop. Direction of rotation must be reversed when the stop is reached.

Manual Self-Test of Tacan System

To initiate self-test, select a course of 180 degrees, place the function switch in the T/R position, and allow 90 seconds for warmup. Depress the test button and observe that the indicator illuminates for about one second. Release the button. For about seven seconds the DME and CDI "OFF" flags come into view and the bearing pointers (TACAN selected) indicate 270 degrees. For the next 15 seconds, the flags go out of view, the DME indicates 000.0 (+/- 0.5), the bearing pointers indicate 180 (+/- 3 degrees), the CDI centers to within 1/2 dot, and the TO-FROM indicator shows TO. When the self-test is complete, all indicators return to normal. A failure is recorded on the indicator light if it stays on during the test and/or the indicators are out of limits. The test can be performed again in the REC mode, and if the indicator light does not stay on, the malfunction is isolated to the transmitter section and bearing information is valid.

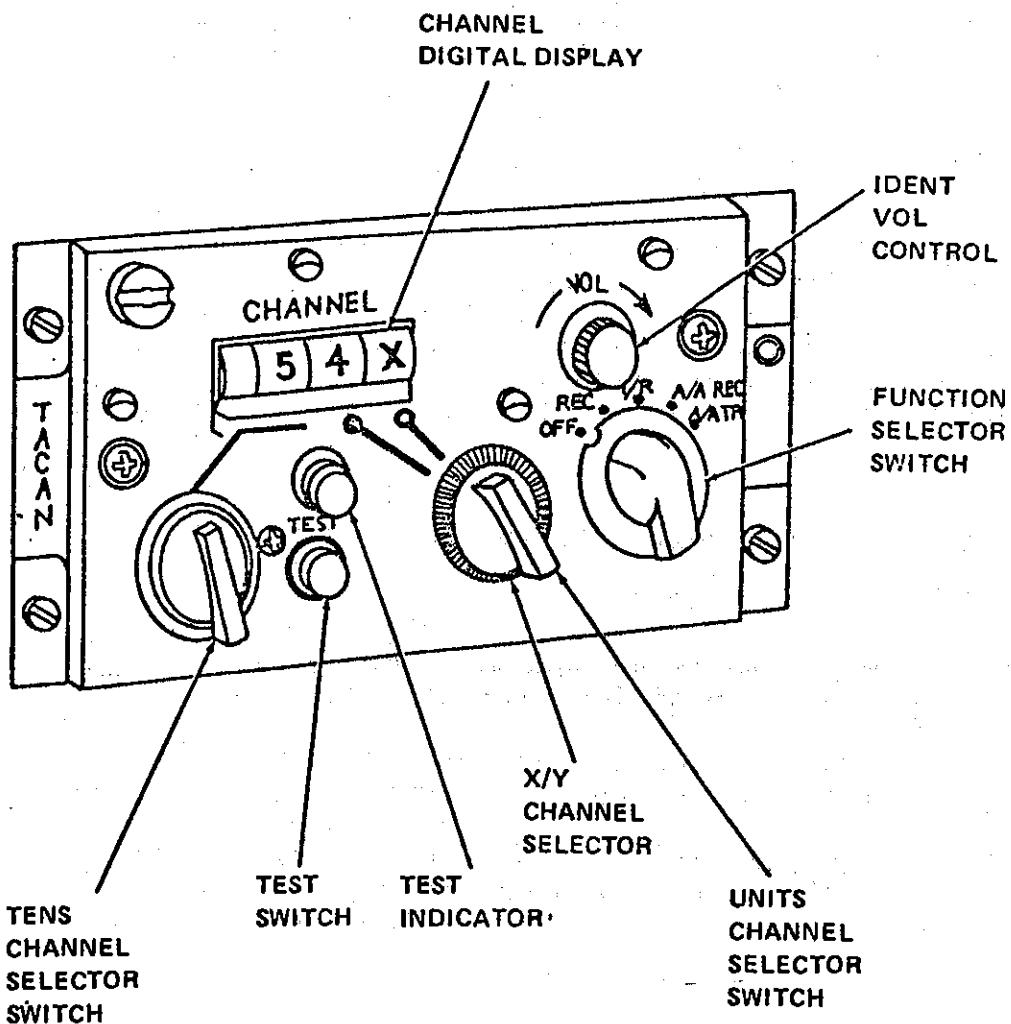


Figure 4-15A. AN/ARN-118(V) Control Panel

### Automatic Self-Test of Tacan System

An automatic self-test occurs when the receiver signal becomes unreliable or the signal is lost, to insure that the TACAN system is operating properly. The results of the automatic self-test are the same as for the manual self-test except the DME and CDI "OFF" flags remain in view. Failure of the system is indicated if the test lamp comes on.

#### CAUTION

Bearing and/or distance indications may still be present when the TEST lamp is on. Such indications could be either partially usable or grossly inaccurate. They should be cross-checked, using every available means. Be prepared for the tacan equipment failure if the TEST lamp illuminates.

### Normal Operation

1. Move the function switch to the desired position.

#### NOTE

Normal warmup time is 90 seconds. The switch may be set to any position without delay.

2. Turn the channel selector knob to the desired channel, and the X/Y channel selector to the desired position.
3. Check station identification by turning the number four receiver select switch on, and adjust the audio to a comfortable level with the volume control knob.

#### NOTE

It may be necessary to turn down the VHF-FM audio in order to receive the tacan signal.

4. TACAN Course Indicator and VOR-TACAN selector switch - set as required.
5. To change channels, adjust the channel selector switch as required. It is not necessary to change the function switch to REC when changing channels.
6. To turn the tacan system off, place the function switch to the OFF position.

## FLIGHT MANUAL, SAFETY SUPPLEMENT, AND OPERATIONAL SUPPLEMENT STATUS

This page is published with each Safety and Operational Supplement. It provides a comprehensive listing of the current Flight Manuals, Safety Supplements, and Operational Supplements. If you are missing any publications listed on this page, see your Publications Distribution Officer and get a copy.

FLIGHT MANUAL	DATE	CHANGE NO.
1H-52A-1	1 JAN 79	ORIGINAL

## CURRENT SUPPLEMENTS

NUMBER	DATE	SHORT TITLE	PAGES AFFECTED
S-1*	--	PRIMUS RADAR	Various
S-2	1 NOV 79	ARN-118 TACAN	SEC III, IV

## REPLACED / RESCINDED SUPPLEMENTS

NUMBER	DATE	DISPOSITION
NONE		

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SS

# SAFETY SUPPLEMENT

## FLIGHT MANUAL

U.S. COAST GUARD

MODEL HH-52A

HELICOPTERS

THIS PUBLICATION SUPPLEMENTS TO 1H-52A-1 DATED 1 JANUARY 1979

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PUBLISHED BY DIRECTION OF THE COMMANDANT, U.S. COAST GUARD

1 NOVEMBER 1979

SHORT TITLE: EMERGENCY EGRESS PROCEDURES

1. PURPOSE.

To provide information about Emergency Egress Procedures.

2. INSTRUCTIONS.

NOTE

A reference to this supplement shall be entered opposite each paragraph in the basic manual affected by this supplement.

a. Page iii, line 21 is amended to add the following information:

REFERENCE POINT - A known/familiar stationary object within arm's length used for emergency egress.

b. Page 3-24, left column, ABANDON INVERTED AIRCRAFT (WATER) is replaced with the following information:

#### EMERGENCY EGRESS PROCEDURES

Because of high probability of spatial disorientation due to aircraft attitude, damage, and/or environmental factors (night, water), it is imperative that all crew members become familiar with normal/emergency aircraft escape routes and the egress procedures. The importance of the use of reference points cannot be overstressed.

1. Reference Point - LOCATE AND REMAIN CALM.
2. Mike Cord - DISCONNECT.
3. Emergency Exits - LOCATE EMERGENCY RELEASE HANDLES - PULL AND JETTISON.
4. Reference Point - RELOCATE AND HOLD.

#### WARNING

Land - Wait until all buffeting stops (recommended 5-8 seconds).

Water - Take a normal breath and wait until completely immersed (recommended 5-8 seconds).

5. Seatbelt/Harness - RELEASE.
6. Egress - HOLDING REFERENCE POINTS, EXIT AT RIGHT ANGLES TO THE AIRCRAFT.

#### WARNING

Failure to maintain a handhold on a Reference Point until clear of the aircraft could result in disorientation.

TO 1H-52A-1SS-3

WARNING

Inflation of the life vest inside the aircraft may inhibit egress.

NOTE

A wet suit will exhibit some positive buoyancy when immersed.

7. Life Vest - INFLATE WHEN CLEAR OF THE AIRCRAFT.

THE END

FLIGHT MANUAL, SAFETY SUPPLEMENT, AND OPERATIONAL SUPPLEMENT  
STATUS

This page is published with each Safety and Operational Supplement. It provides a comprehensive listing of the current Flight Manuals, Safety Supplements, and Operational Supplements. If you are missing any publications listed on this page, see your Publications Distribution Officer and get a copy.

FLIGHT MANUAL	DATE	CHANGE NO.
1H-52A-1	1 JAN 79	ORIGINAL

CURRENT SUPPLEMENTS

NUMBER	DATE	SHORT TITLE	PAGES AFFECTED
S-1	--	PRIMUS RADAR	Various
S-2	1 NOV 79	ARN-118 TACAN	Sec III IV
SS-3	1 NOV 79	EMERGENCY EGRESS	Sec III

REPLACED / RESCINDED SUPPLEMENTS

NUMBER	DATE	DISPOSITION
NONE		

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TO 1H-52A-1S- 4

## OPERATIONAL SUPPLEMENT FLIGHT MANUAL

U.S. COAST GUARD

MODEL HH-52A

HELICOPTERS

THIS PUBLICATION SUPPLEMENTS TO 1H-52A-1 DATED 1 JANUARY 1979

COMMANDING OFFICERS ARE RESPONSIBLE FOR BRINGING THIS SUPPLEMENT TO THE ATTENTION OF ALL AFFECTED COAST GUARD PERSONNEL.

PUBLISHED BY DIRECTION OF THE COMMANDANT, U.S. COAST GUARD

5 NOVEMBER 1979

SHORT TITLE: LORAN C NAVIGATOR

OS  
1. Purpose.

To provide flight crews with operating instructions for the Loran C Navigator (AN/ARN-133).

OS  
2. General.

TCTO 1H-52A-524 directs the installation of the Loran C Navigator in all HH-52A helicopters. During the installation period some stations may have a mix of aircraft. The procedures contained in this supplement shall be used only in those aircraft with the Loran C Navigator installed.

This modification alters the upper and lower consoles. Due to the shallow depth of the upper console, the ADF and UHF could not be moved. The VHF COMM is moved to the upper console. Pilots are cautioned to avoid rapid head movements while tuning the upper console radios to avoid vertigo.

3. Instructions.

NOTE

A reference to this supplement shall be made opposite those paragraphs affected.

a. The BEFORE START check, page 2-3, is replaced with the following:

BEFORE STARTING

1. Seats, lap belt, shoulder harness, inertial reel lock, pedals fastened/adjusted - CHECKED.
2. Gyro select switch - PORT.
3. ASE hardover switches - CENTERED.
4. ASE channel disengage switches - ON.
5. Cockpit emergency window release handles - PROPER POSITION AND BREAKAWAY WIRE INTACT.
6. Flight controls - CHECK FOR COMPLETE FREEDOM OF MOVEMENT.
7. Collective friction - ADJUST FOR SLIGHT AMOUNT.
8. Emergency throttle - OPERATE THROUGH FULL TRAVEL TO INSURE SMOOTH AND COMPLETE MOVEMENT, THEN CLOSED.
9. Speed selector - OPERATE THROUGH FULL TRAVEL TO INSURE SMOOTH AND COMPLETE MOVEMENT, THEN STOPCOCK.
10. Flight control servo shutoff switch - CENTERED.
11. Flood and hover light switch - OFF.
12. Tailwheel - LOCKED.
13. ICS control panels - AS REQUIRED.
14. Transponder.
  - a. Function selector switch - STBY.
  - b. Code - AS REQUIRED.
15. Parking brake - RESET ON.
16. ASE CG trim index - SET TO ONE O'CLOCK.

17. Loran C Navigator - OFF.

NOTE

If the navigator was left on or is turned on at this point, temporary memory will be lost.

18. ADF/UHF radios - ON.

19. Landing gear switch - DOWN.

20. Fuel quantity selector - TOT.

21. Rotor brake lever - RESET ON.

22. Outside air temperature - NOTED.

23. T-handle - FUEL ON.

24. P3 valve - AS REQUIRED.

    a. Battery start - OPEN.

    b. External power start - CLOSED.

25. Pitot heater switch - OFF.

26. Windshield defroster switch - OFF.

27. Engine anti-ice switch - OFF.

28. Hoist master switch - OFF.

29. Hoist shear switch - GUARD COVER CLOSED AND BREAKAWAY WIRE INTACT.

30. NON ESS BUS OVRD switch - CENTERED.

31. Heater master switch - OFF.

32. Heater start switch - OFF.

33. Heater HI-LO cycling switch - HI.

34. Vent blower switch - NORM.

35. Navigation lights master switch - ON.

36. Position lights master switch - AS REQUIRED.

37. Rotating anti-collision light switch - AS REQUIRED.
  - a. Normal operations - ON.
  - b. Night ship operations - OFF.
38. Windshield wiper switch - OFF.
39. All lighting rheostats - AS DESIRED.
40. Overhead console COMM/NAV equipment - ON.

NOTE

Homing selector and Loud Hailer should be OFF unless system is to be used.

41. Pilot's compartment and cabin dome light switches - AS DESIRED.
42. Cockpit spotlight - AS DESIRED.
43. Cargo sling master switch - SAFE.
44. Release mode switch - TUGBIRD.
45. Radio master switch - ON.
46. Beeper trim switch - ON.
47. Fuel boost pump switches - ON.
48. Overspeed test switch - TEST NO. 1.
49. Ignition switch - NORM.
50. Generator switches - ON.
51. Battery switch - OFF.
52. External power switch - OFF.

b. The INSTRUMENT EQUIPMENT CHECK, page 2-7, is replaced with the following:

#### INSTRUMENT EQUIPMENT CHECK

If single-piloted, the pilot's instruments will be checked for normal readings during the check. If dual-piloted, the instruments which are duplicated on the copilot's instrument panel will be cross-checked as an additional check for proper instrument operation.

1. Loran C navigator - PREFLIGHT.
  - a. Mode switch - INITIALIZE.
  - b. Loran chain GRI, secondary pair, position - ENTERED/CHECKED.
  - c. Mode switch - OPERATE.
  - d. Search data/waypoints/variation - ENTERED/CHECKED AS DESIRED.
2. Fuel quantity indicator - CHECKED.
  - a. Selector to TOT position - CHECK QUANTITY.
  - b. Rotate selector to AFT - CHECK QUANTITY.
  - c. Depress test switch, needle deflects to minimum - CHECKED.
  - d. Release test switch, needle returns to the same reading - CHECKED.
  - e. Rotate selector to FWD - CHECK QUANTITY.
  - f. Quantity in TOT equals FWD plus AFT - CHECKED.
3. Caution/advisory panel - CHECKED.
  - a. Master switch to TEST. All modules and master caution light go on with equal intensity - CHECKED.
  - b. Master switch - RESET.
4. Emergency exit lights - CHECKED.
  - a. Emergency exit lights switch - ARMED, THEN OFF.
  - b. Both emergency exit lights - AIRCREWMAN OR FM CHECK ON.
  - c. Emergency exit lights switch - ARMED.
  - d. Both emergency exit lights - AIRCREWMAN OR FM CHECK OFF (trickle charge).
5. Engine and transmission instruments for normal indications - CHECKED.
6. Flight director selector switch - AS DESIRED.

7. Fire warning lights - CHECKED.
  - a. Test switch - DEPRESSED.
  - b. T-handle and instrument panel warning lights - CHECK ON.
  - c. Test switch - RELEASE.
8. Dual tachometer - CHECKED.
9. Airspeed indicator - CHECKED.
10. Vertical gyro indicator - CHECKED.
  - a. "OFF" flag - HIDDEN.
  - b. Adjust indicies as necessary to set actual attitude.
11. Radar altimeter control knob - SET TO 140 FEET.
12. Torquemeter - CHECKED.
13. Flight director ASE mode - SET.
  - a. Both "OFF" flags - VISIBLE.
  - b. Bars and pointers - CENTERED.
14. MA-1 compass - SET.
  - a. MA-1 compass and STBY compass - COMPARED.
  - b. Slave indicator centered. CHECKED. SLAVE MANUALLY IF NECESSARY.
  - c. Compass acknowledge button - DEPRESS.

NOTE

During shipboard operations, the MA-1 compass may not be accurate due to magnetic disturbances created by the ship. Use the ship's magnetic heading in this instance and compare with the STBY compass once clear of the ship.

15. Barometric altimeter - SET.

CAUTION

During normal use of the setting knob the counter drums may momentarily lock. If this occurs, do not force the setting knob. Use of force may cause internal gear disengagement and result in excessive altitude error. If locking occurs, the required setting may sometimes be obtained by turning the knob a full turn in the opposite direction and approaching the setting again with caution.

16. Clock - CHECKED.
17. Turn and slip indicator - CHECKED.
18. VOR/TACAN #2 needle selector switch - AS DESIRED.
19. Vertical speed indicator - CHECKED.
20. Pitot heater switch - AS REQUIRED (on below 10° C OAT).
21. Windshield defroster switch - AS REQUIRED.
22. Engine anti-ice systems - CHECKED (if it's use is contemplated).
  - a. Engine anti-ice switch - HOLD IN TEST POSITION.
  - b. ENG INLET ANTI ICE caution light cycles on and off - CHECKED.
  - c. Engine anti-ice switch - ON.
  - d. Slight T5 rise - CHECKED.
  - e. Engine anti-ice switch - AS REQUIRED (Normally on below 10°C OAT). Refer to COLD WEATHER OPS, During Flight, section IX.
23. Hoist check - AS REQUIRED.
  - a. FM report on hot mike - "HOIST CHECK COMPLETE, ON HOT MIKE, HOW DO YOU READ?"
  - b. Pilot - ACKNOWLEDGE.
  - c. Hoist master switch - OFF.
24. NON ESS BUS OVRD switch - ON.
25. Heater system - AS REQUIRED.

c. The PARKING check, page 2-10, is replaced with the following:

#### PARKING

1. Head helicopter into wind if possible.
2. Tailwheel - LOCKED.
3. Parking brake - SET.
4. Loran C navigator - OFF.
5. Raws - OFF.
6. Emergency exit light switch - DISARM, THEN OFF.

d. The following section is added just prior to RADAR ALTIMETER AN/APN-171(V), page 4-23:

LORAN C NAVIGATOR AN/ARN-133

The Loran C Navigator is a five channel fully automatic high performance Loran receiver with a navigation computer. The navigator provides accurate navigation and steering information anywhere there is Loran C or D coverage and has the capability to store nine programmable waypoints and two search patterns. The navigator continuously checks the incoming signals and the navigator programs for errors and reliability and advises the pilot if this self-test is not acceptable. The navigator consists of a control/display unit, an antenna coupler, a flight director selector switch, and a liquid crystal distance to go display. The navigator is powered by the DC non-essential bus and is protected by a circuit breaker marked LORAN ARN-133 on the forward circuit breaker panel.

Control/Display Unit

The control/display unit, (figure 4-13A) marked LORAN NAVIGATOR, is located on the lower radio console. All systems operations are controlled by two selector switches, seven function switches, and a twelve switch data entry keyboard. There are two lighting controls for display and panel lighting. An abbreviated description of the operating mode controls is provided below. Complete instructions are provided in the Operators Manual TDL-424 (AN/ARN-133 V2). Abbreviated procedures are provided in the TDL-424 PILOT'S CHECKLIST.

Display Hold Switch. Allows the pilot to freeze any data displayed in the upper and lower display windows. Used to capture a fix when overflying a position.

Loran Coord Switch. Allows selection of either TDA/TDB (time difference) or LAT/LONG information to be displayed.

Auto Man Switch. Allows either automatic or manual sequencing of waypoint navigation.

Search Switch. Used in conjunction with SF/PRL TK position of control display switch to call up the search programs for search pattern entry, modification, commence search, terminate search, and selection of search pattern (VS or CS).

PRL Track Switch. Used in conjunction with SF/PRL TK position of control display switch to initiate, program, and terminate off-set parallel track steering.

Insert Switch. Used to enter data displayed into the program, and to sequence waypoint callup.

Data Entry Keyboard. Twelve multifunction switches used to enter data on the displays.

Report Switch. Used in conjunction with Air Data Link capability of navigator to relay information back to a ship/shore station over any of the aircraft's communication radios.

Lighting Controls. Two lighting control knobs provide individual intensity control for the display intensity and the face lighting of the control panel.

Mode Control Switch. Selects the basic mode of operation as follows:

PWR OFF - Removes external power from the set.

INITIALIZE - Allows all initial data to be entered.

OPERATE - Normal operating mode. The receiver is freed to acquire and track signals, and the navigation function displays are activated.

ADVISE - Used to determine why advise and warn indicators are on or flashing. Used in conjunction with display switch positions to provide signal and system status and analysis. Allows some pilot control over receiver functions.

EMER - Causes emergency report (code 7) and aircraft position to be continuously transmitted when data link feature is installed. Continues to provide normal navigation as in Navigation Mode.

Display Control Switch. Controls the displayed information in the upper and lower display windows. The information is dependent upon the position of the mode control switch. If the mode control switch is in operate, the following is displayed:

WAY PT - Displays selected waypoint. May also be used to enter/change waypoints.

POSITION - Displays present position. May also be used to position update.

TTG/GS - Displays time to go and ground speed.

DIST/BRG - Displays distance and bearing to the TO waypoint.

DSR TK/XTK - Displays desired track and cross track error.

TK/TKE - Displays track angle and track angle error.

FF/VAR - Displays flight following data and variation. May also be used to enter this data.

SF/PRL TK - Displays search pattern and parallel track information. May also be used to enter this data.

#### Flight Director Selector Switch

The flight director selector switch is located on the pilot's instrument panel, and is used to select either GVR for Broadband Homer use or LORAN for Loran C navigator use. The selected information is displayed on the Flight Director with GVR selected. The switch lighting is controlled by the PILOT FLT INST LTS rheostat on the upper console.

#### Distance To Go Display

A liquid crystal distance to go display is located on the pilot's instrument panel. It provides a head's up display of long track information, which is shown anytime a nav leg is called up. The information displayed is in tenths of nautical miles up to 99.9.

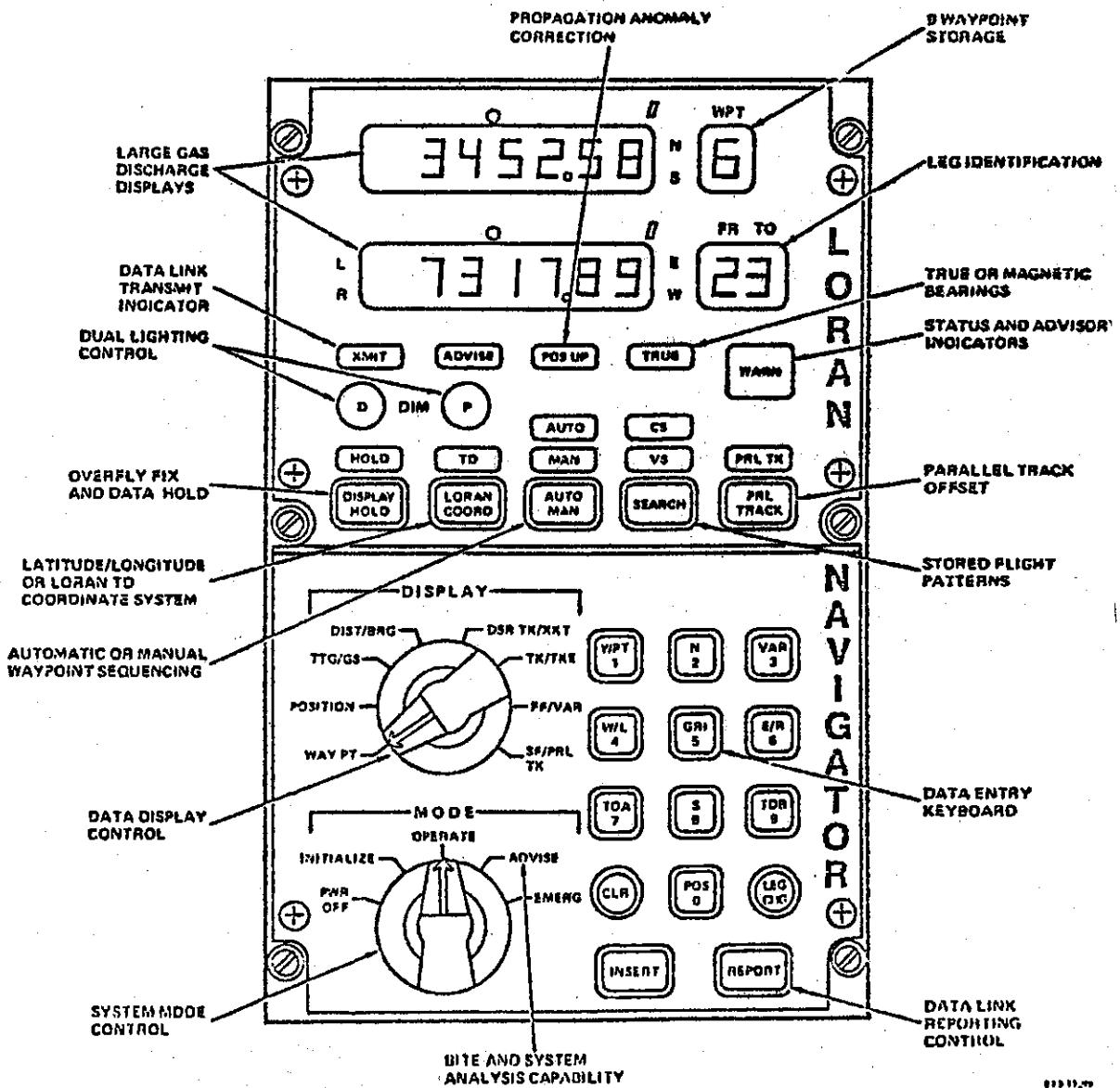


Figure 4-13A . Loran C Control Display Unit

Loran C Navigator Operation.

1. Mode Selector switch - INITIALIZE.

Enter the following data: Present position, Loran chain GRI selection, secondary pair selection.

NOTE

This information need not be entered if the navigator has not changed position (usually within 100 miles) since it was turned off.

NOTE

If present position entry is required, a precise position is not required. Usually, an estimate within 100 nautical miles or to the closest whole degree of LAT/LONG is sufficient.

2. Mode selector switch - OPERATE.

Enter the following data as required/desired: Waypoints, variation, FFrom and TO selection, search patterns, flight following data (when data link is installed).

CAUTION

Single piloted inflight programming is not advisable due to preoccupation/distraction factors. When dual piloted, these duties should be accomplished by the copilot.

NOTE

The data last entered will remain in memory up to 30 days without aircraft power.

To secure the set:

1. Mode selector switch - PWR OFF.

NOTE

If aircraft power is secured prior to this step all temporary memory data will be lost. This would require re-entry of present position, Loran chain GRI selection, waypoints, etc.

THE END

**FLIGHT MANUAL, SAFETY SUPPLEMENT, AND OPERATIONAL SUPPLEMENT STATUS**

This page is published with each Safety and Operational Supplement. It provides a comprehensive listing of the current Flight Manual, Safety Supplements, and Operational Supplements. If you are missing any publications listed on this page, see your Publications Distribution Officer and get a copy.

FLIGHT MANUAL	DATE	CHANGE NO.
1H-52A	1 JAN 79	ORIGINAL

**CURRENT SUPPLEMENTS**

NUMBER	DATE	SHORT TITLE	PAGES AFFECTED
S-1*	- -	PRIMUS RADAR	N/A
S-2	1 NOV 79	ARN-118 TACAN	Sec III, IV
SS-3	1 NOV 79	EMER EGRESS	Sec III
S-4	5 NOV 79	LORAN C NAV	Sec II, IV

**REPLACED / RESCINDED SUPPLEMENTS**

NUMBER	DATE	DISPOSITION
NONE		

\* Distributed to CGAS KODIAK (ALPAT) only

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## LIST OF EFFECTIVE PAGES (CONT)

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2-14 .....	0	4-2 .....	0	5-2 .....	0
2-15 .....	0	4-3 .....	0	5-3 .....	0
2-16 .....	0	4-4 .....	0	5-4 .....	0
2-17 .....	0	4-5 .....	0	5-5 .....	0
2-18 .....	0	4-6 .....	0	5-6 .....	0
2-19 .....	0	4-7 .....	0	5-7 .....	0
2-20 .....	0	4-8 .....	0	5-8 .....	0
2-21 .....	0	4-9 .....	0	5-9 .....	0
2-22 .....	0	4-10 .....	0	5-10 .....	0
2-23 .....	0	4-11 .....	0	6-1 .....	0
2-24 .....	0	4-12 .....	0	6-2 .....	0
2-25 .....	0	4-13 .....	0	6-3 .....	0
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A-30 .....	0	Blank .....	0
A-31 .....	0	FO-3 .....	0
A-32 .....	0	Blank .....	0
A-33 .....	0	FO-4 .....	0
A-34 .....	0	Blank .....	0
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## CERTIFICATION PAGE

This certification page must be used by any person who incorporates any change into this copy of the manual. A separate entry is required for each change. Each entry certifies that the person whose signature appears guarantees the accuracy and completeness of that change as it was made in this copy.

After the change has been incorporated, page check the manual. Be sure each instruction was followed accurately and completely. Before discarding superseded or deleted pages, check the date on each new page against the date listed for that page on the A page at the front of the manual or on the title page of the Interim Manual Change, whichever applies. Be sure write-in entries are accurate and placed correctly.

Make the required entry in the spaces below.

Date	Amendment/Change Incorporated	Pages Checked	Signature

## RECORD OF APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

T.O. No.	Issue Date	Recission (Mandatory Compliance) Date	Title	Change/Revision Supplement Date
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### **SAFETY SUPPLEMENT SUMMARY**

Safety Supplements are numbered as follows: T.O. 1H-52A-1 SS-1, SS-2, etc. The supplements you receive should follow in sequence and if you are missing one, check the current Numerical Index and Requirement Table (T.O. 0-1-1-5) to see whether the supplement

was issued and, if so, is still in effect. It may have been replaced or rescinded before you received your copy. If it is still active, see your Publication Distribution Officer and get your copy. It should be noted that a supplement number will never be used more than once.

### **SAFETY SUPPLEMENTS REPLACED BY THIS CHANGE OR RESCINDED**

<b>NUMBER</b>	<b>DATE</b>	<b>SHORT TITLE</b>	<b>DISPOSITION</b>
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### **ACTIVE SAFETY SUPPLEMENTS**

This portion is to be filled in by you when you receive your Flight Manual and to be added to as you receive your additional supplements. Refer to the current Numerical Index and Requirement Table (T.O. 0-1-1-

5) for latest information if any questions arise. Supplements outstanding at the time of preparation of this page have been listed below for your convenience.

<b>NUMBER</b>	<b>DATE</b>	<b>SHORT TITLE</b>
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## OPERATIONAL SUPPLEMENT SUMMARY

Operational Supplements are numbered as follows: T.O. 1H-52A-1S-1, 1S-2, etc. The supplements you receive should follow in sequence and if you are missing one, check the current Numerical Index and Requirement Table (T.O. 0-1-1-5) to see whether the supplement was issued and, if so, is still in effect. It

may have been replaced or rescinded before you received your copy. If it is still active, see your Publication Distribution Officer and get your copy. It should be noted that a supplement number will never be used more than once.

### OPERATIONAL SUPPLEMENTS REPLACED BY THIS CHANGE OR RESCINDED

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### ACTIVE OPERATIONAL SUPPLEMENTS

This portion is to be filled in by you when you receive your Flight Manual and to be added to as you receive additional supplements. Refer to the current Numerical Index and Requirement Table (T.O. 0-1-1-5) for

latest information if any questions arise. Supplements outstanding at the time of preparation of this page have been listed below for your convenience.

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## INTRODUCTION

### SCOPE

This manual contains the necessary information for safe and efficient operation of the HH-52A helicopter. These instructions provide you with a general knowledge of the helicopter, its characteristics, and specific normal and emergency operating procedures. Your flying experience is recognized, and therefore, basic flight principles are avoided.

### PERMISSIVE OPERATIONS

The Flight Manual takes a "positive approach" and normally states only what you can do. Procedures prescribed in this manual are mandatory but it is expected that they will be executed with sound professional judgment. Nothing in this manual shall be construed to relieve personnel of responsibility for using initiative in prosecuting a mission or taking such emergency action as the situation warrants.

### INTERIM CHANGE SYSTEM

Essential and urgent changes to this technical manual shall be issued by an Interim Change System. These changes shall be distributed to you on a non-scheduled, as needed basis to disseminate important information at the earliest possible date and eliminate many of your page change collation problems associated with large revisions.

Interim Changes shall consist of three types: (1) brief write-in instructions, (2) supplemental pages, paragraphs and illustrations, and (3) replacement or additional pages. Write-in instructions indicated must be made directly on the affected page. Supplemental pages must be inserted next to the affected page of the manual as instructed on the change. Replacement and additional pages must be collated into the manual and superseded pages removed.

The changes shall be issued in message or printed form. All shall have a change number for control purposes which you must enter on the Interim Change Summary (flyleaf) in this manual.

Periodically all Interim Changes will be considered to become a permanent part of the basic manual and shall be incorporated in a formal, printed amendment or revision.

### WARNINGS, CAUTIONS AND NOTES

The following definitions apply to "Warnings," "Cautions," and "Notes" found throughout the manual.

**WARNING** Operating procedures, techniques, etc., which will result in personal injury or loss of life if not carefully followed.

**CAUTION** Operating procedures, techniques, etc., which will result in damage to equipment if not carefully followed.

**NOTE** An operating procedure, technique, etc., which is considered essential to emphasize.

### YOUR RESPONSIBILITY—TO LET US KNOW

Every effort is made to keep the Flight Manual current. Review conferences with operating personnel and a constant review of accident and flight test reports assure inclusions of the latest data in the manual. However, we cannot correct an error unless we know of its existence. In this regard, it is essential that you do your part. Comments, corrections, and questions regarding this manual or any phase of the Flight Manual program are welcomed. These should be forwarded to the Commanding Officer, CGAVTRACEN (HH52A) Mobile, Alabama 36608.

## GLOSSARY OF TERMS AND ABBREVIATIONS

AC—Alternating current	IGV—Inlet guide vanes
ADF—Automatic direction finder	IN—Inches
ASE—Automatic stabilization Equipment	KCAS—Knots calibrated airspeed
ALT—Altitude	KIAS—Knots indicated airspeed
APU—Auxiliary power unit	KT—Knots
BAR ALT—Barometric altitude control	KTAS—Knots true airspeed
BDHI—Bearing distance heading indicator	KVA—Kilovolt-amperes
BIM—Blade inspection method	LAT—Latitude
°C—Degrees Celsius	LB/HR—Pound per hour
CAS—Calibrated airspeed	MAG—Magnetic
CG—Center of Gravity	MIN—Minutes
DC—Direct current	MSL—Mean sea level
DG—Directional gyro	N <sub>f</sub> —Power turbine speed
°F—Degrees Fahrenheit	N <sub>g</sub> —Gas generator speed
FOD—Foreign object damage	N <sub>r</sub> —Rotor speed
FPM—Feet per minute	OAT—Outside air temperature
FT—Feet	OGE—Out of ground effect
GAL—Gallons	P <sub>3</sub> —Compressor discharge pressure
GCA—Ground-controlled approach	PRESS—Pressure
GW—Gross weight	PSI—Pounds per square inch
HR—Hour	Q—Torque
Hz—Hertz (cycles per second)	ROC—Rate of climb
H/V—Height velocity	ROD—Rate of descent
IAS—Indicated airspeed	RPM—Revolutions per minute
IGE—In ground effect	SL—Sea level

STD DAY—Standard day atmospheric conditions	TEMP—Temperature
T <sub>2</sub> —Compressor inlet air temperature	VA—Volt amperes
T <sub>s</sub> —Power turbine inlet temperature	VAC—Volts alternating current
TAS—True airspeed	WL—Waterline