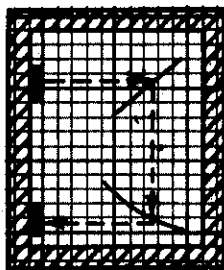


CONDITIONS:
103% N_T
ZERO WIND
FOD SHIELD ON OR OFF

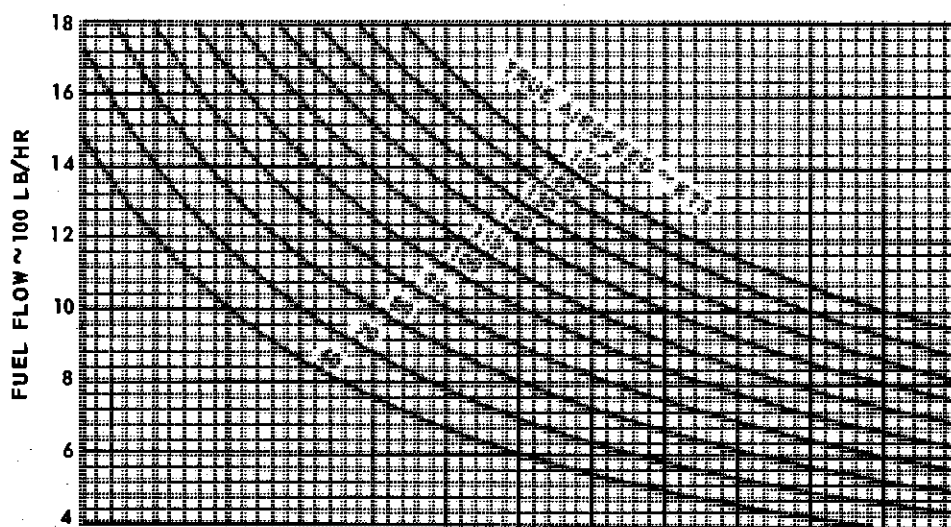
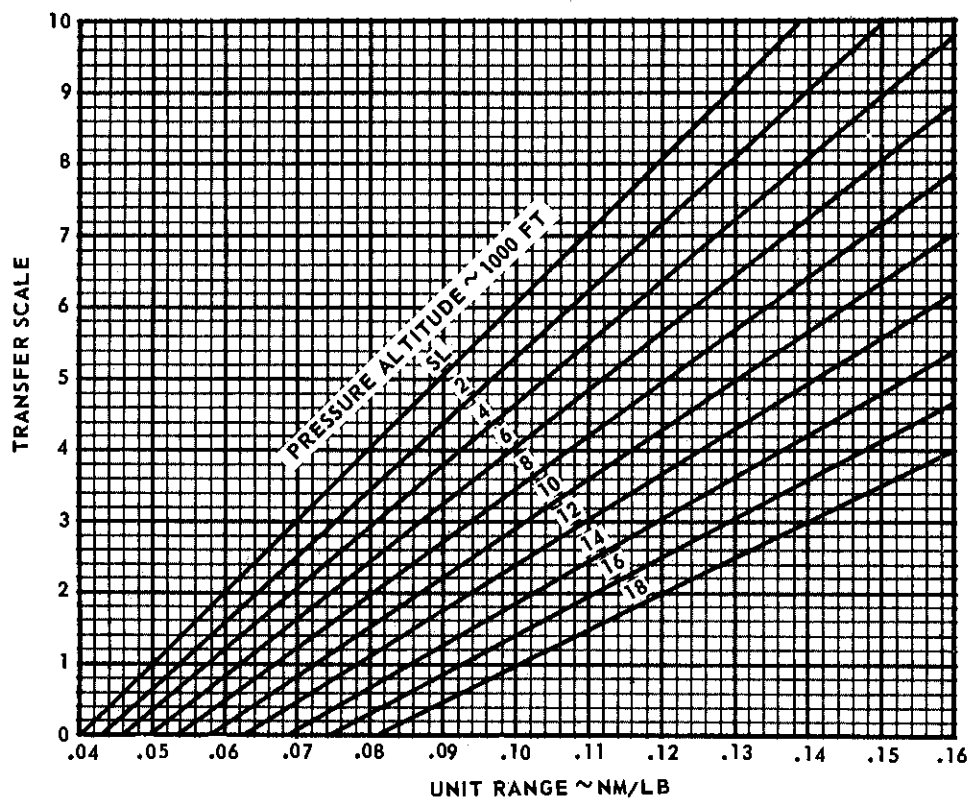
**CRUISE**

OAT BETWEEN 20°C AND 40°C
ONE ENGINE

MODEL
CH/HH-3E

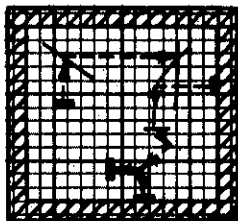
ENGINE
T58-GE-5

DATE: 15 APRIL 1971
DATA BASIS: FLIGHT TEST (AIR FORCE)



S 17060.2 (C3)

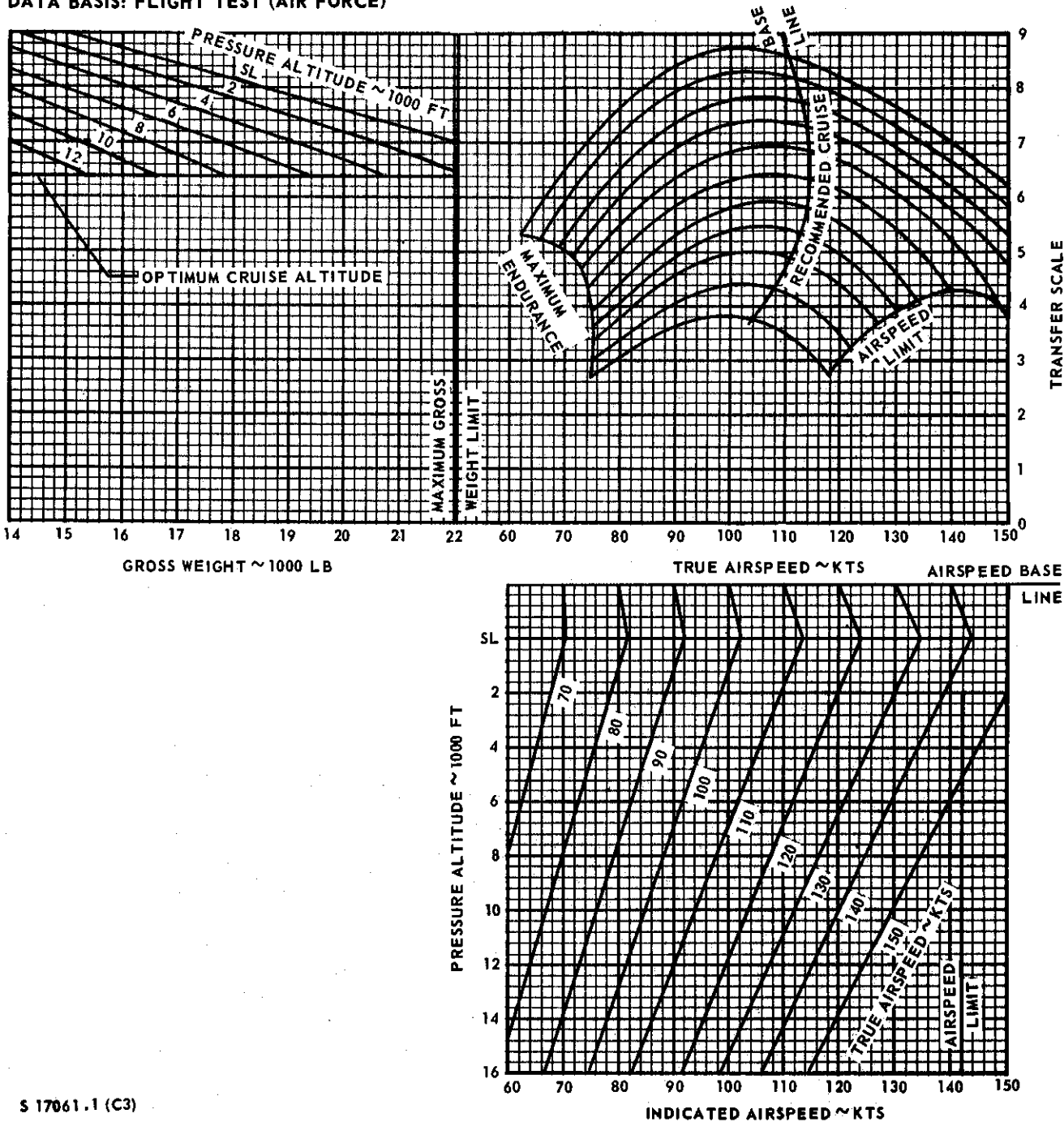
Figure A-32. Cruise (20°C to 40°C OAT) - One Engine (Sheet 2 of 2)

CRUISEOAT BETWEEN -40° AND 20°C
ONE ENGINEMODEL
CH/HH-3EENGINE
T58-GE-5

CONDITIONS:
103% N_r
ZERO WIND
FOD SHIELD ON OR OFF

DATE: 15 APRIL 1971

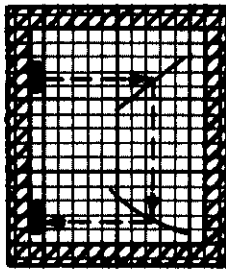
DATA BASIS: FLIGHT TEST (AIR FORCE)



S 17061.1 (C3)

Figure A-33. Cruise (-40°C to 20°C OAT) - One Engine (Sheet 1 of 2)

CONDITIONS:
103% N_p
ZERO WIND
FOD SHIELD ON OR OFF



CRUISE

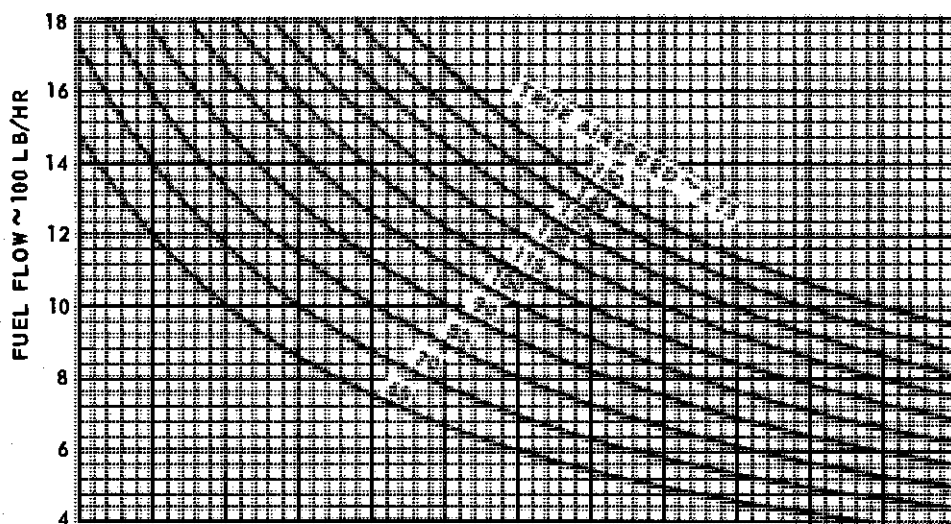
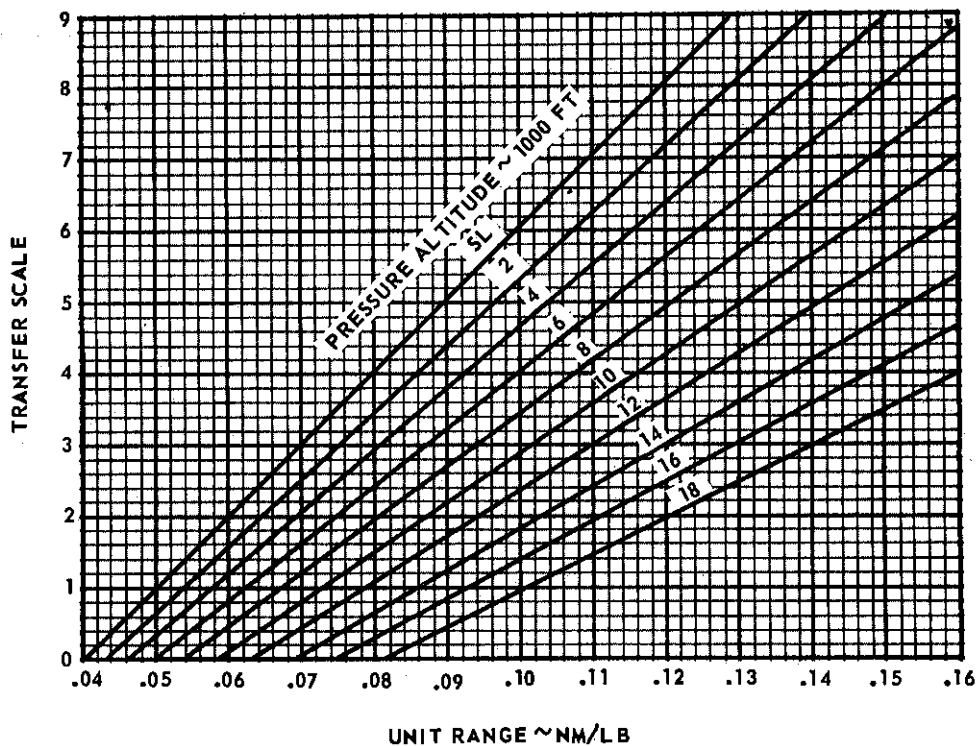
OAT BETWEEN -40°C AND 20°C
ONE ENGINE

MODEL
CH/HH-3E

ENGINE
T58-GE-5

DATE: 15 APRIL 1971

DATA BASIS: FLIGHT TEST (AIR FORCE)



S 17061.2 (C3)

Figure A-33. Cruise (-40°C to 20°C OAT) - One Engine (Sheet 2 of 2)

SINGLE ENGINE CAPABILITY

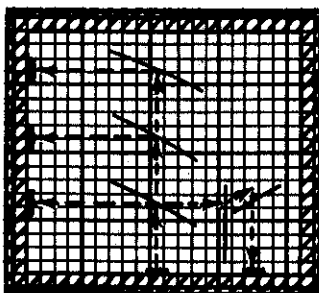
ONE ENGINE

MODEL
CH/HH-3E

ENGINE
T58-GE-5

DATE: 15 APRIL 1971

DATA BASIS: FLIGHT TEST (AIR FORCE)



CONDITIONS:
70 KTS IAS
MILITARY POWER
103% Nr
FOD SHIELD
ON OR OFF
LANDING GEAR UP

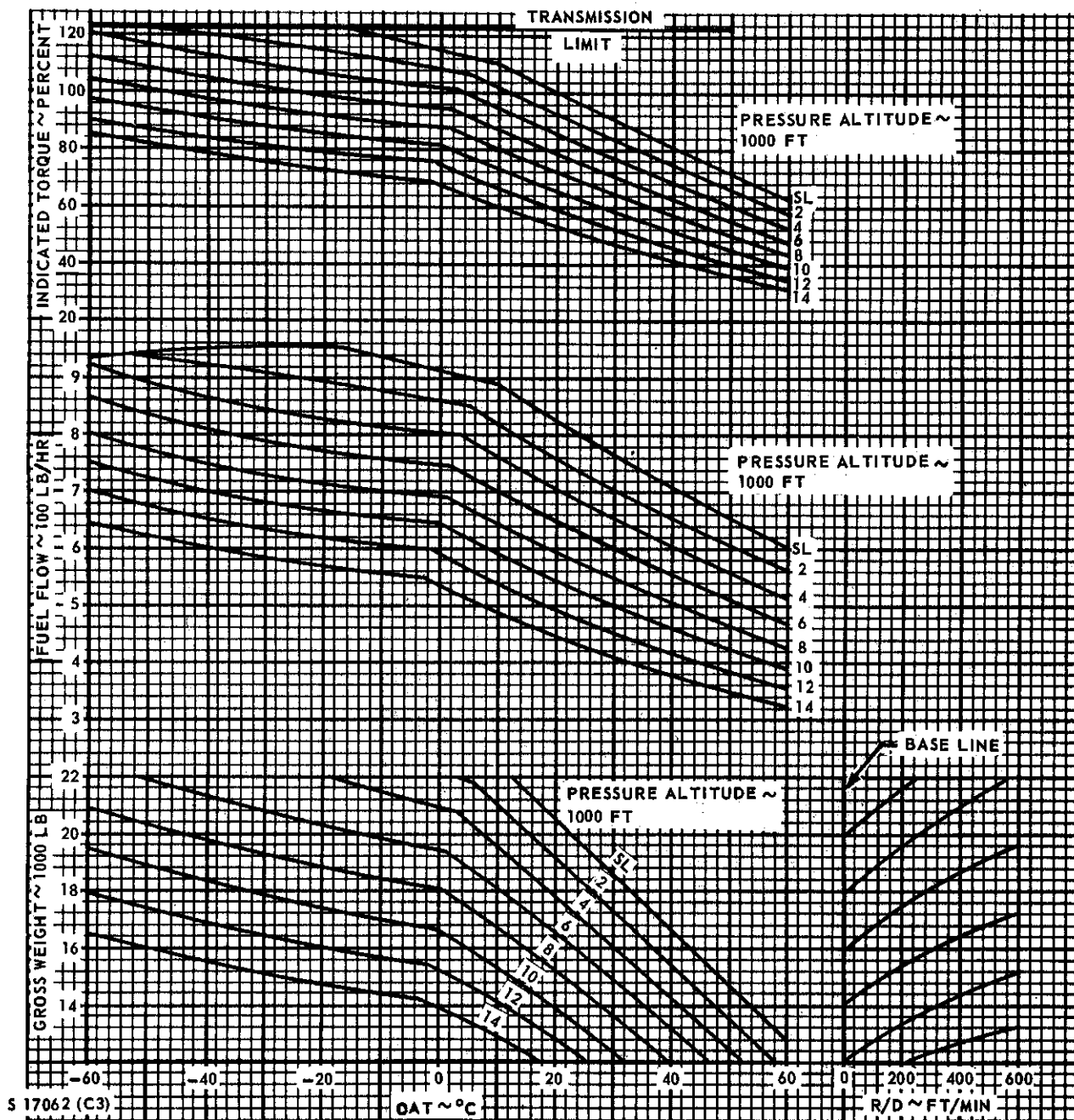
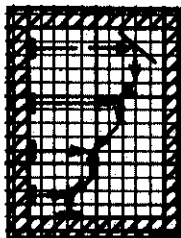


Figure A-34. Single Engine Capability - Military Power - One Engine

**BLADE STALL**

MODEL

ENGINE

CH/NH-3E

T58-GE-5

DATE: 15 APRIL 1964

DATA BASIS: FLIGHT TEST (CONTRACTOR)

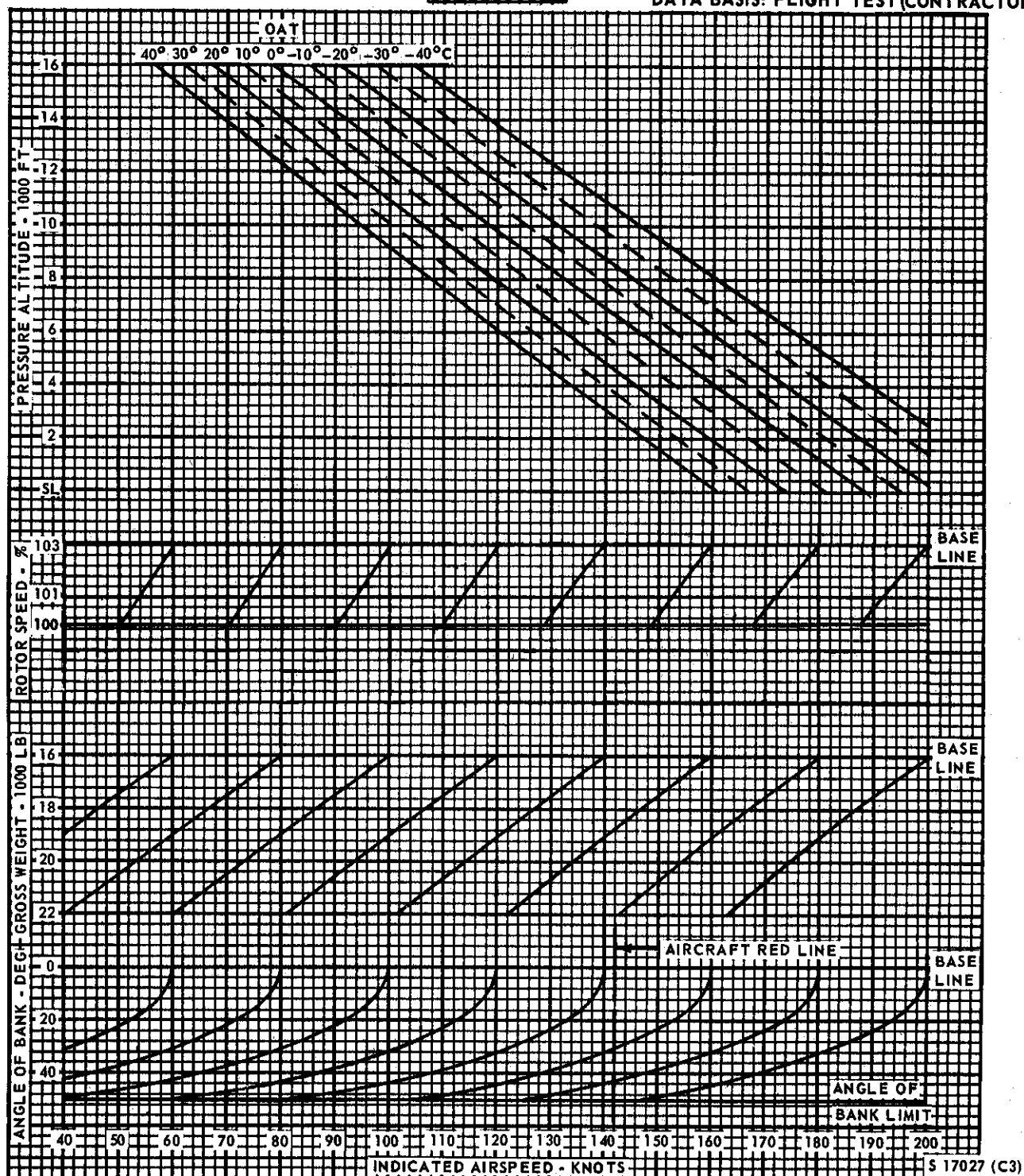
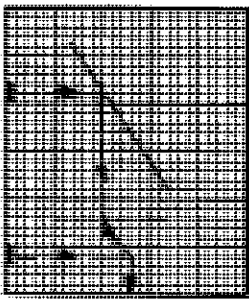


Figure A-35. Blade Stall

CONDITIONS:
UNACCELERATED
LEVEL FLIGHT
TIP MACH = 0.895



BLADE TIP MACH
MODELS
CH-3E & HH-3E

DATE: 27 JUNE 1972
DATA BASIS: FLIGHT TEST
(CONTRACTOR)

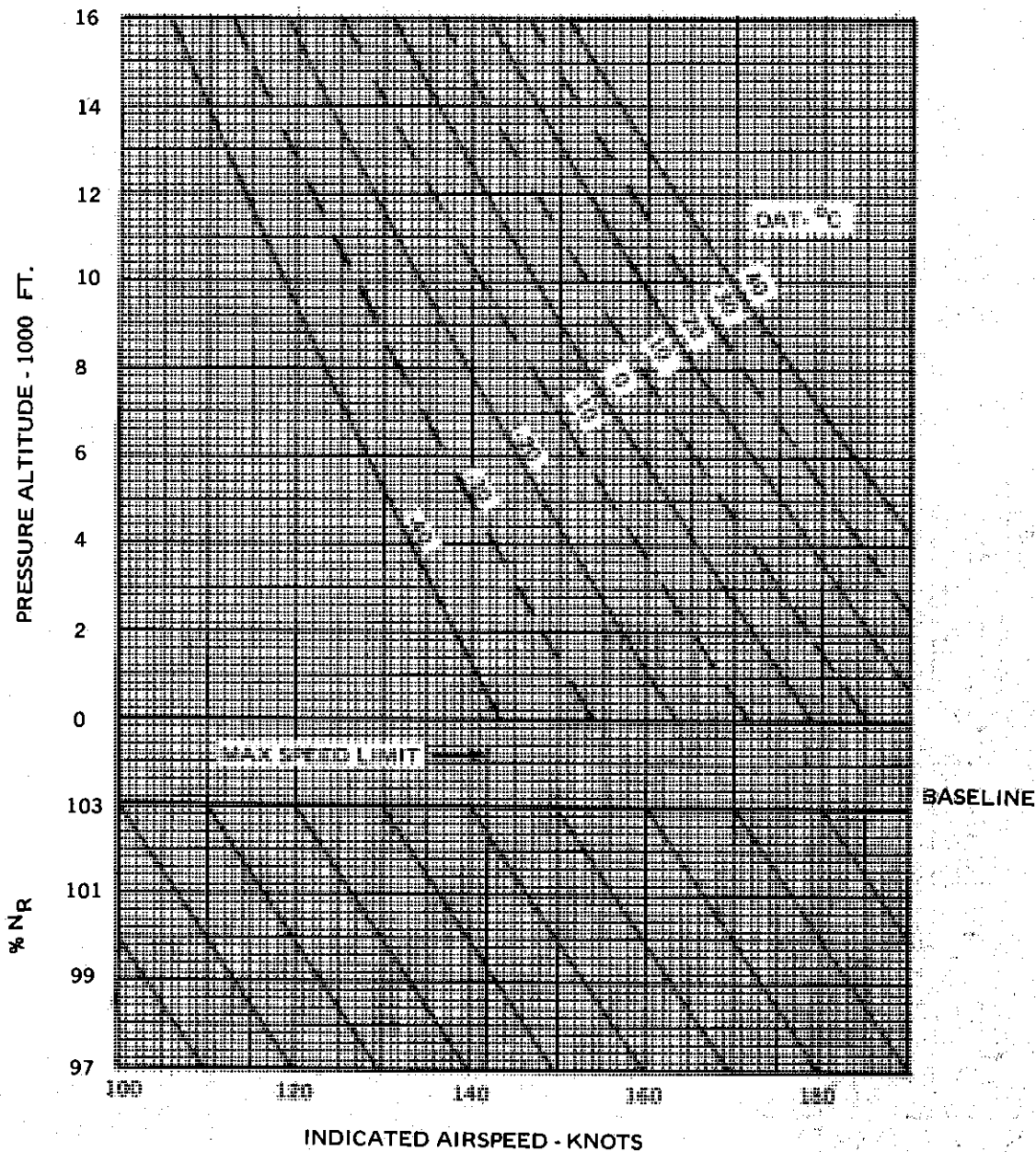
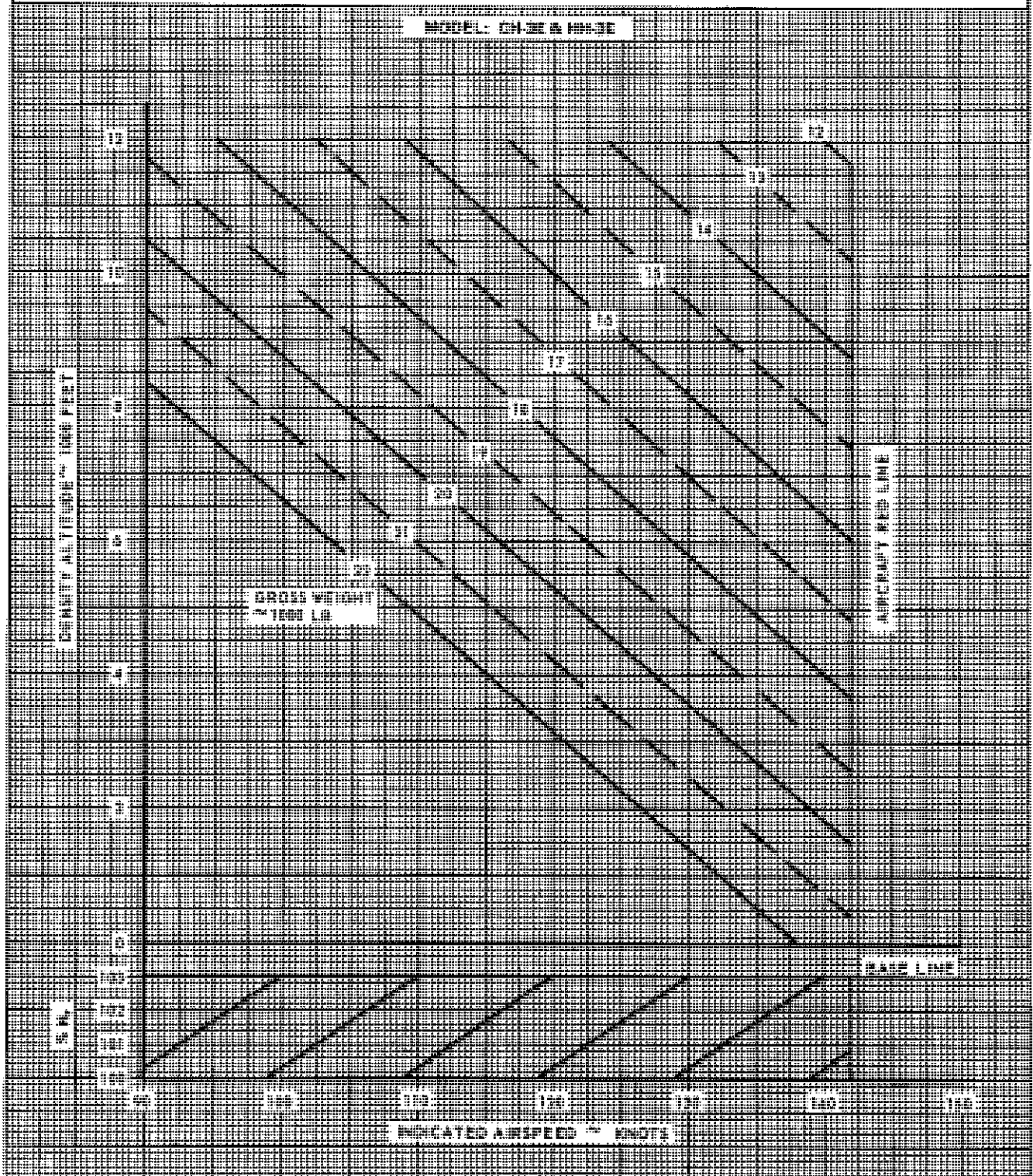


Figure A-36. Maximum Airspeed As Limited By Advancing Blade Tip Mach Number

MAXIMUM AIRSPEED CHART

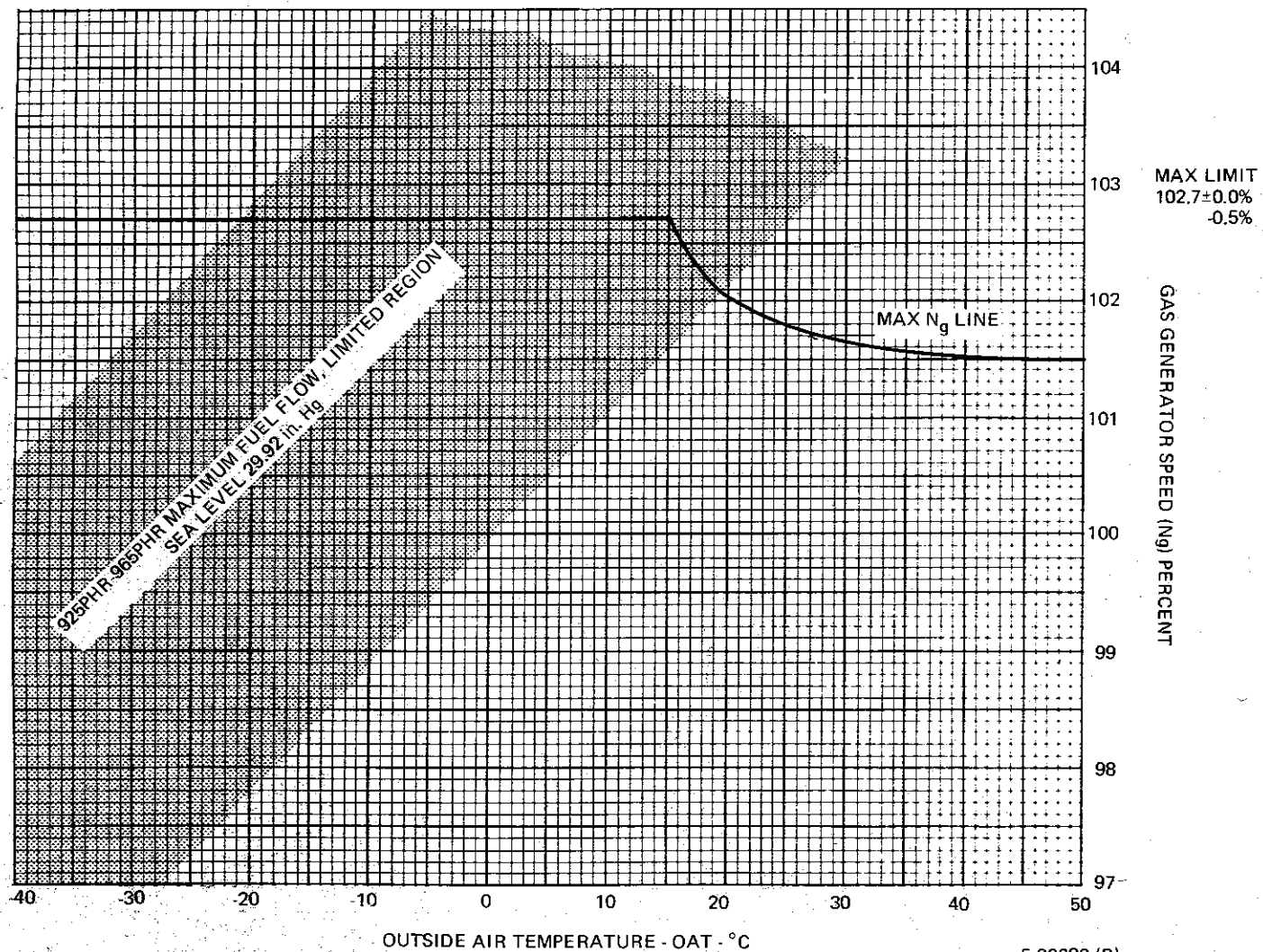
VARIATION OF MAXIMUM SPEED (KNOTS, IAS) WITH DENSITY ALTITUDE, GROSS WEIGHT AND ROTOR SPEED

MODEL: CH-3E & HH-3E



S 16882 (R1)

Figure A-37. Maximum Airspeed Chart



5 30680 (B)

Figure A-38. Topping Chart (T58-GE-6)

ALPHABETICAL INDEX

Subject	Figure, Table Number	Page
A		
AAU-21/A Altimeter-Encoder.....	F1-62,	1-61
Abort (Gunner's Procedures).....		8-3
AC Circuit Breakers.....		1-45
AC Distribution.....		1-44
AC Electrical Power Supply System.....	F1-46	
AC Essential Bus.....		1-45
AC External Power Receptacle, Switch, and Advisory Light.....		1-44
AC Non-essential Bus.....		1-45
AC Supply System.....		1-41
Autotransformer.....		1-45
Circuit breakers.....		1-45
Distribution.....		1-44
Electrical power supply system.....	F1-46	
Essential bus.....		1-45
External power receptacle, switch and advisory light.....		1-44
Generators.....		1-41
Generator switches.....		1-44
Inverter.....		1-44
Inverter bus.....		1-45
Inverter switch.....		1-44
Isolation and autotransformers.....		1-45
Non-essential bus.....		1-45
Action to be Taken Following an Overtemperature Condition.....	F5-9	
Additional Fuel, Load Adjuster Problem.....		4-80
Adverse Weather Conditions.....		2-29
Advisory Light, APU.....		4-48
Advisory Panel.....		1-64
AFCS Control Panel.....		1-59
AFCS Hardover Check (Pitch, Roll, Collective, and Yaw).....		7-13
AFCS Indicator.....		1-59
AFCS Release Button.....		1-60
AFCS System Ground Checks.....		7-13
Aft Gun Mount.....		4-81
Aft Gun Platform.....		4-81
After Landing.....		2-33
After Landing (Hot Refueling).....		2-44
After Landing on Water.....		2-41
After Landing (Rotor Shutdown and Engagement), Shipboard.....		2-35
After Landing - Shipboard.....		2-33
After Takeoff.....		2-22
After Takeoff from Water.....		2-37
Aft Ramp.....		4-50
Aft Ramp Uplock Release Levers.....		4-56
AIMS/IFF Transponder System, AN/APX- 64(V).....		4-24
Antenna AT-741/A (C-6280(P)/APX.....		4-26
Antenna switching unit SA-1474/A.....		4-26
IDENT-OUT-MIC control switch.....		4-25

Subject	Figure, Table Number	Page
A (Continued)		
IFF Antenna switch.....		4-26
Master switch.....		4-25
Mode control switches.....		4-25
Mode 1 code selector.....		4-25
Mode 3/A code selector.....		4-26
Mode 4 reply light.....		4-25
RAD/Monitor switch.....		4-25
Receiver-transmitter RT-727.....		4-24
Test light.....		4-25
Transponder computer, KIT/TSEC.....		4-24
Transponder control.....		4-25
Transponder set test set TS-1843.....		4-24
Air Data Mode Operation, AN/APN-175(V)...		4-41
Air Refueling System.....		1-39
Ground pressure and air refueling systems.....	F1-42,	1-38
Ground pressure refueling.....		1-39
Pressure refueling adapter.....		1-39
Pressure refueling control panel ...	F1-44,	1-40
Pressure refueling shut-off and high level sensor valves.....		1-40
Probe, refueling.....		1-39
Airspeed Calibration Chart.....	FA-16,	A-2
Airspeed Effects on Power Available and Fuel Flow Chart.....	FA-21,	A-4
Airspeed Limitations.....		5-7
Alert Procedures.....		2-43
Cocking checklist (Before starting engines checklist completed).....		2-43
Cocking checklist (Before takeoff or after landing checklist completed) ...		2-43
Cocking procedure.....		2-43
Scramble checklist.....		2-44
Security of cocked helicopter.....		2-43
Uncocking checklist.....		2-43
All Weather Operation.....		9-1
Cold Weather Procedures.....		9-10
Before leaving the helicopter.....		9-12A
Descent.....		9-12
During flight.....		9-12
Engine start and rotor engagement procedure with APU inoperative (Below -6.7°C (20°F).....		9-11
Engine starting.....		9-11
Landing.....		9-12
Preparation for flight.....		9-10
Starting APU engine.....		9-11
Takeoff (snow).....		9-12
Taxiing (snow).....		9-11
Stopping engine.....		9-12
Warm-up and ground tests.....		9-11
Desert Procedures.....		9-13
Before leaving the helicopter.....		9-14
During flight and descent.....		9-13

ALPHABETICAL INDEX (Continued)

Page
Figure, Table
Number

Subject

A (Continued)

Engine starting warmup and ground tests 9-13
Landing 9-13
Preparation for Flight 9-13
Stopping engines 9-14
Takeoff 9-13
Taxiing 9-13
Hot Weather Procedures 9-13
Before leaving the helicopter 9-13
Ice and Rain 9-5
Ice 9-5
 during flight 9-8
 exterior inspection 9-5
 landing 9-8
 rotor engagement 9-5
 takeoff 9-5
 taxiing 9-5
Rain 9-8
Instrument Flight Procedures 9-1
Descent 9-2
Holding 9-2
Instrument approaches 9-2
 radar approach F9-4, 9-2
 range, VOR, ADF approach F9-3
 TACAN and ILS approach F9-6, 9-5
Instrument climb 9-2
Instrument cruise 9-2
Instrument takeoffs 9-1
 normal takeoff 9-1
 running instrument takeoff 9-1
Preparation for instrument flight 9-1
Radio and navigation equipment 9-2
Night Flying 9-9
Landing procedures 9-9
Takeoff procedures 9-9
Turbulence and Thunderstorms 9-8
Lightning strikes 9-9
Alternate Fuels 7-8
Alternating Current Supply System 1-41
Alternating Current System Failure 3-18
Altimeter AAU-27/A 1-62
Altimeter-Encoder AAU-21/A 1-61
Altimeter Indicators, AN/APN-175(V) 4-35
Altimeter Set Electronic, AN/APN-150 4-34
 operation 4-35
Altitude Data A-1
Ammunition Storage Containers 4-84
AN/ALE-17 Flare Set 4-92
AN/APN-150, Altimeter, Electronic 4-34
 operation 4-35
AN/APN-171(V) F4-34, 4-31
AN/APN-175(V), RADAR Navigation Set 4-35
AN/ARA-25 Direction Finder Operation 4-19
AN/ARA-25 Direction Finder, VHF 4-20
AN/ARC-34C, UHF Command Set 4-17
AN/ARC-34B, UHF Command Set 4-16
 Operation 4-17

Page
Figure, Table
Number

Subject

A (Continued)

AN/ARC-44 FM Radio Set 4-15
 Jamming 4-16
 Operation 4-16
AN/ARC-164 Radio (Modified by TO 1H-3-737) 4-16B
AN/ARC-108, Backup UHF Command Set 4-16D
AN/ARN-58, ILS 4-28
 Glide slope receiver 4-29
 Local receiver operation 4-29
 Marker beacon operation 4-29
 Receiver control 4-29
AN/ARN-59, Direction Finder 4-20
 Operation 4-20
AN/ARN-65 (TACAN) 4-27
 Operation 4-28
AN/UPN-25, Radar Transponder 4-26
 Operation 4-27
Anchor 4-74
Anchoring the Helicopter 2-39
Anchor Lights 4-46
Antenna AT-741/A (C-6280(P)/APX) 4-26
Antennas F4-9
Antenna Switching Unit SA-1474/A 4-26
Anti-icing System 4-5
 Engine air inlet anti-icing system 4-5
 switches 4-6
 Engine anti-icing system 4-6
 Pitot heaters 4-7
 Windshield anti-icing system 4-6
 switch 4-6
 Windshield defogger 4-6
Approach and Landing 2-23
Approach and Landing with Tail Rotor Drive System Failure 3-10
Approach to a Hover Over Water 2-38
APU Advisory Light 4-48
APU Control Panel 4-47
APU Emergency Starting Procedure 4-48
APU Fire Detector and Extinguisher Control Panel 1-71
APU Fire Extinguisher Switch 4-48
APU Fire Warning Light 1-70, 4-48
APU Hand Pump and Accumulator Gage F4-49, 4-48
APU Installation F1-10
APU Master Switch 4-47
APU Starting Procedure 4-48
Armament Fields of Fire F4-86
Armament System (HH-3E 24 ▶ 25) F4-83
Armament System (HH-E 25 ▶) F4-85
Arming, AN/ALE-20 8-5
Arming, Gunner 8-3
Armor Protection 4-84
Ash trays 4-74
Attitude Indicators 1-62
Automatic Flight Control System

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
A (Continued)	
(AFCS).....	1-58, 3-21
BAR ALT release switches.....	1-61
Channel monitor control panel.....	1-59
Control panel.....	1-59
Indicator.....	1-59
Release button.....	1-60
Autorotation	
Landing.....	F3-7, 3-6, 3-14
Landing on water	3-14
Maximum glide distance	F3-12, 3-13
Practice power recovery	3-15
Two engine failure during flight.....	3-6
Autorotations, Practice Power Recovery.....	3-15
Autorotative Landings.....	3-14
Practice power recovery	3-15
Water landing	3-14
Autorotative Landings (Two engine failure	F3-7, 3-6
Autotransformer.....	1-45
Auxiliary Equipment	1-72
Auxiliary Flight Control Servo System	1-56
Auxiliary Fuel Control Panel	1-34
Auxiliary Fuel Jettison (Dump) Switch.....	1-36
Auxiliary Fuel System	1-32
Dual internal tank fuel system	F1-39
External fuel system	1-34
External fuel tanks.....	1-34
External fuel tank bomb shackle installation	F1-38
Fuel control panel	1-34
Fuel quantity data.....	F1-35
Fuel tank manual release handle.....	1-35
Internal fuel system manual shutoff valves	1-33
Internal fuel tanks	1-32
Internal fuel tank system	1-32
Single internal tank fuel system	F1-37
Auxiliary Fuel Tank Manual Release Handle	1-35
Auxiliary Fuel Tanks, External	1-34
Auxiliary Oil Tank.....	1-26
Auxiliary Oil Systems	1-25
Tank	1-26
directional valves	1-26
full indicator lights.....	1-27
hand pump.....	1-26
Auxiliary Power Unit Fire Extinguisher System.....	
Auxiliary Power Unit (APU)	4-46
Advisory light	4-48
Control panel	4-47
Emergency fuel shut-off switch.....	4-48
Fire extinguisher switch.....	4-48
Fire warning light	4-48
High exhaust temperature caution light....	4-47
Low oil pressure caution light	4-47
Master switch	4-47

Subject	Page Figure, Table Number
A (Continued)	
Overspeed caution light	4-47
Prime pump pressure caution light	4-47
Tachometer	4-47
Auxiliary Servo System.....	3-20
B	
Backup UHF Command Set (AN/ARC-108)	4-17
Bailout	3-13
BAR ALT Release Switches	1-61
Barrel Lock Lever	4-81
Basic Weight and Moment Scales	4-78
Battery	1-52
Battery Bus.....	1-52
Battery, Emergency Start	3-2
Battery Start, Emergency	3-2
Battery Switch	1-52
BDHI	4-30
Beaching	2-40
Bearing-Distance-Heading Indicator (BDHI)	4-30
Beat Frequency Oscillator Operation (BFO)	4-20
Beeper Trim Switches	1-13
Before Landing	2-23
Before Landing On Water	2-38
Before Leaving the Helicopter (cold weather)	9-12A
Before Leaving the Helicopter (desert)	9-14
Before Leaving the Helicopter (hot weather).....	9-13
Before Leaving the Helicopter on Water.....	2-41
Before Leaving the Helicopter, shipboard	2-34
Before Starting Engines	2-5
Before Starting Engines on Water	2-36
Before Takeoff	2-17
Before Takeoff on Water	2-37
Before Taxiing	2-16
Before Taxiing on Water	2-36
Bilge Pump	F4-77, 4-76
Locations	4-77
BIM Blade Indicator	F1-20
BIM (Blade Inspection Method) Indicator	1-20
Blade Stall.....	6-2
Blade Stall Chart	FA-55, A-9
Bleed Air Selector and Shut-off Valves	1-40
Blocked Return Line (Aux System)	3-20
Blocked Return Line (Primary System).....	3-20
Boost Pump Failure.....	3-17
Boost Pumps.....	1-31
Bottoming	7-1
Brake System	1-68
Burst Interval Selector, AN/ALE-20(V)	4-90
Bursts Remaining Counter, AN/ALE-20(V) ...	4-90
Burst Selector, AN/ALE-20(V).....	4-90

ALPHABETICAL INDEX (Continued)

Page
Figure, Table
Number

Subject

C

Camera, KB-18 Strike	4-84
Cargo Compartment	4-48
Aft ramp	4-50
Aft ramp uplock release levers	4-56
Cargo compartment and cargo loading stations	F4-51
Cargo floor	4-50
Cargo loading stations	4-49
Forward ramp	4-54
Forward ramp uplock release levers	4-56
Manual operation, ramp	4-57
Normal operation, ramp	4-56
Personnel door	4-57
Pilot's and crew member's ramp control panels	4-54
Pilot's ramp master switch	4-54
Ramp actuating system	F4-55
Ramp control panels	F4-56
Ramp system	4-50
Tie-down devices	4-50
Tie-down fittings	F4-53, 4-50
Cargo Compartment and Cargo Loading Stations	F4-51
Cargo Compartment Dome Lights	4-43
Cargo Compartment Fan	4-4
Cargo Compartment Windows	1-71, 3-24
Cargo Floor	4-50
Cargo Handling Instructions	F4-62
Cargo Hook Manual Release Arm	4-67
Cargo Hook Open Advisory Light	4-67
Cargo Hook Stowage Line	4-67
Cargo Loading Winch Operation	4-61
Cargo handling instructions	F4-62
Crewman's cargo loading winch controls	4-61
Winch controls	F4-62
Winch control panel	4-61
Cargo Loading Stations	4-49
Cargo Release Pedal	4-67
Cargo Release Switches	4-67
Cargo Sling Master Switch	4-67
Cargo Winch Installation	4-58
Case Assembly	4-92
Casualty Carrying Equipment	4-69
Litters	F4-71, F4-72, 4-62
Litter loading procedures	4-69
Loading instructions	4-73
Caution and Advisory Lights Test Switch	1-64
Caution and Advisory Panel	F1-20, 1-26
Advisory panel	1-64
Caution and advisory lights test switch	1-64
Caution panel	1-64
Dim-bright switch	1-64
Master caution light	1-64

Page
Figure, Table
Number

Subject

C (Continued)

Caution Panel	1-64
Caution and Warning Lights Initial Action	F3-2
Center of Gravity Grid, Load Adjuster	4-78
Center of Gravity Limitations	F5-10, 5-8
Channel Monitor Control Panel	1-59
Checklist Response	2-2
Checklists	4-73
Checklists - Emergency Procedures	
Bailout	3-13
Emergency Water Landing	3-16
after landing	3-16
before leaving the helicopter	3-17
planned ditching	3-16
Engine compartment fire	3-2
Engine compartment fire in flight	3-10
Engine restart during flight	3-5
Engine shutdown in flight	3-5
Failure of both generators	3-19
Failure of one generator	3-19
Fire in APU compartment	3-1
Fuselage/Electrical fire	3-11
Main rotor dampener malfunction	3-21
Servo hydraulic pressure failure	3-21
Shutdown with tail takeoff free wheel unit inoperative	3-23
Single engine failure during normal flight	3-4
Two engine failure during flight (autorotative landing)	3-8
Checklists, Normal Procedures	
After takeoff	2-22
Before landing	2-23
Before starting engines	2-5
Before takeoff	2-22
Before taxiing	2-17
Descent	2-23
Engine starting and rotor engagement	2-10
Exterior inspection	2-3
Interior inspection	2-2
Preflight	2-2
Checklists, Shipboard Operations	
After landing	2-33
Engine shutdown	2-33
Rotor engagement	2-31
Rotor engagement and shutdown (engines running)	2-35
after landing	2-35
rotor shutdown	2-35
rotor engagement and before takeoff	2-35
CH-3E Pilot's Compartment	F1-17
Chest Protectors	4-73
Circuit Breaker Panels	F1-50
Climb Charts	FA-34, A-7
Climb - Maximum Continuous Power (0°C to 40°C OAT) - Two Engines	FA-38

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
C (Continued)	
Climb - Maximum Continuous Power (-40°C to 0° OAT) - Two Engines.....	FA-39
Climb - Military Power (0°C to 40°C OAT) - One Engine	FA-36
Climb - Military Power (-40°C to 0°C OAT) - One Engine	FA-37
Climb - Military Power (0° to 40°C OAT) - Two Engines	FA-34
Climb - Military Power (-40°C to 0°C OAT) - Two Engines	FA-35
Clocks	1-61
Cocking Checklist (Before Starting Engine Checklist completed).....	2-43
Cocking Checklist (Before Takeoff or After Landing Checklist completed).....	2-43
Cocking Handle	4-81
Cocking Procedure.....	2-43
Cockpit Canopy Shades	4-74
Cockpit Console, CH-3E 16 and HH-3E	F1-24
Cockpit Console, CH-3E Prior to 16	F1-23
Coder Control Panel, AN/APX-46	4-21
Cold Hangup.....	7-2
Cold Weather Procedures	9-10
Collective Pitch Lever Grip	F1-12
Collective Pitch Levers	1-54
Collective to Cyclic Pitch Coupling.....	1-54
Collective to Yaw Coupling	1-54
Colored Top Strip, Load Adjuster	4-77
Combustion Chamber	1-4
Communication and Associated Electronic Equipment.....	4-7
Antennas.....	F4-9
Beat Frequency oscillator	4-20
Communication and electronic equipment table	F4-8
Operating controls (radio)	4-7
Radio circuit breaker panels	4-7
Communication and Electronic Equipment Table	F4-8
Compressibility Effects	A-1
Compressor	1-4
Compressor Stalls.....	7-2
Consecutive Fires In Alternate Engine Compartment	3-10
Console and Panel Lights	4-42
Control Indicator, AN/APN-175(V)	4-36
Controllable Spotlight	4-44
Control Panel, Public Address System	F4-15, 4-10
Controls, Engine.....	F1-11
Copilot (Duties)	8-2
Cookoff.....	8-4
Coordination of Flight Controls	6-3
Corrective Action For Servo Malfunction.....	3-21
Course Deviation Indicator (CDI), Course Indicator	4-29

Subject	Page Figure, Table Number
C (Continued)	
Course Indicator (typical)	4-29
CDI, deviation indicator	4-29
GSI, glide slope indicator	4-29
operation	4-29
Crash Axe	1-69
Crew Alarm Bell	1-69
Crew Alarm Bell Switch.....	1-69
Crew and Passenger Briefing Guide.....	8-1
Crew Briefing.....	8-1
Crew Duties.....	8-1
Crew Duties and Responsibilities	8-1
Copilot.....	8-2
Flight mechanic	8-2
rescue hoist operator	8-2
Pilot.....	8-1
crew and passenger briefing guide	8-1
crew briefing	8-1
passenger briefing.....	8-1
overwater briefing	8-2
predeparture briefing	8-1
Crewman's Cargo Landing Winch Controls ...	4-61
Crewman's Hoist Controls	4-60
Crewman's Intercommunication (ICS) Stations (Typical)	F4-12
Crewman's Rescue Hoist Control.....	4-65
Crewman's Rescue Hoist Manual Override....	4-65
Crewman's Safety Harness	4-73
Crewman's Seat	1-72
Crew Requirements.....	5-1
Cross Slope	2-30
Crosswind Landing.....	2-25
Cruise	2-22
Cruise Charts	FA-42, A-8
Cruise (-40°C to 20°C OAT) - One Engine	FA-52
Cruise (20°C to 40°C OAT) - One Engine	FA-50
Cruise (20°C to 40°C OAT) - Two Engines	FA-42
Cruise (0°C to 20°C OAT) - Two Engines ...	FA-44
Cruise (-40°C to -20°C OAT) - Two Engines	FA-48
Cruise (-20°C to 0°C OAT) - Two Engines	FA-46
Cruise, Water Operations	2-38
Cut-away View, Engine	F1-9
Cyclic Stick Flare Release Switch, AN/ALE-20(V)	4-91
Cyclic Stick Grip	F1-55
Cyclic Sticks.....	1-55
Cyclic Stick Trim Master Switch	1-55
Cyclic Stick Trim System.....	1-55
Cyclic Trim Switches	1-55
Cyclic Trim Release Button	1-55

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
D	
Danger Areas	F2-11
Data Case	4-74
DC Circuit Breakers.....	1-53
DC Distribution	1-52
DC Electrical Power Supply System	F1-48
DC Essential Bus	1-52
DC External Power, Receptacle, Switch, and Advisory Light	1-52
DC Non-essential Bus	1-52
DC Power Supply System	1-46
Battery	1-52
Battery bus.....	1-52
Battery switch	1-52
Circuit breakers	1-53
Distribution	1-52
Electrical power supply system.....	F1-48
Essential bus	1-52
External power receptacle, switch and advisory light	1-52
Loadmeters	1-53
Non-essential bus	1-52
Transformer-rectifiers	1-45
Transformer-rectifier switches	1-52
Voltmeter and voltmeter selector	1-53
De-arming, AN/ALE-20.....	8-5
De-arming, Gunner.....	8-3
Deceleration to Idle.....	7-7
Deck Handling	2-31
Decreasing Engine Load.....	7-7
Density Altitude	A-1
Density Altitude Chart.....	FA-15, A-2
Density Altitude, Mission Planning	A-11
Descent.....	2-23, 9-2
Cold weather	9-2
Rapid (Autorotation).....	2-23
Desert Procedures	9-13
Determination of CG	4-80
Determining Fuel Required for Climb.....	A-11
Determining Fuel Required for Cruise	A-11
Determining Mission Gross Weight At Landing	A-12
Determining Payload.....	A-12
Dim - Bright Switch	1-64
Dimensions	1-4
Direct Current Power Supply System	1-46
Direct Current System Failure	3-19
Directional Valves, Aux Oil Tank	1-26
Direction Finder (AN/ARA-25).....	4-19
Operation	4-19
Direction Finder (AN/ARA-25), VHF	4-20
Direction Finder Set (AN/ARN-59)	4-20
Operation	4-20
Distribution of Allowable Load	4-80
Distribution of Allowable Load (Cargo In Compartment)	4-81

Subject	Page Figure, Table Number
D (Continued)	
Distance to Clear 50-Foot Obstacle - Climb and Acceleration Takeoff - Two Engines	FA-29
Distance to Clear 50-Foot Obstacle - Level Acceleration Takeoff - Two Engines ...	FA-28
Distance to Clear 50-Foot Obstacle - Rolling Takeoff - One Engine	FA-33
Distance to Clear 50-Foot Obstacle - Rolling Takeoff - Two Engines	FA-32
Distance to Clear 50-Foot Obstacle - Sling Load Takeoff - Two Engines.....	FA-30
Distance to Clear 50-Foot Obstacle - Water Takeoff - Two Engines.....	FA-31
Diving	6-6
Docking	2-40
Doppler Computer Group, AN/APN-175(V)....	4-36
Droop	7-2
Dual Internal Tank Auxiliary Fuel System Diagram.....	F1-39
During Flight and Descent (desert).....	9-13
During Flight (cold weather)	9-12
During Flight (ice).....	9-8

E

Effects of High Altitude	2-27
Electrical Power Supply System.....	1-41
AC supply system	1-41
autotransformer	1-45
circuit breakers.....	1-45
distribution.....	1-44
electrical power supply system	F1-46
essential bus	1-45
external power receptacle, switch and advisory light	1-44
generators.....	1-41
generator switches	1-44
inverter.....	1-44
inverter bus	1-45
inverter switch.....	1-44
isolation and autotransformers	1-45
non-essential bus.....	1-46
DC power supply system	1-46
battery	1-52
battery bus	1-52
battery switch.....	1-52
circuit breakers	1-53
distribution.....	1-52
electrical power supply system	F1-48
essential bus	1-52
external power receptacle switch and advisory light.....	1-52
loadmeters	1-53

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
E (Continued)	
non-essential bus	1-52
transformer-rectifiers	1-45
transformer-rectifier switches	1-52
voltmeter and voltmeter selector	1-53
Electrical System Failures	3-18
Electrical Utility Receptacles	F4-75, 4-74
Electronic Altimeter, AN/APN-150	4-34
operation	4-35
Emergencies, In Flight	
Bailout	3-11
Descent	3-13
Engine failure	3-3
Engine restart in flight	3-5
Engine shutdown in flight	3-5
Failure of both engines	3-5
Fire	
consecutive fires in alternate engine	
compartment	3-10
electrical fire	3-11
engine compartment fire	3-10
flare case	3-11
fuselage	3-11
simultaneous fires in both engine	
compartments	3-11
Go-around with one engine inoperative	3-5
Jettisoning of auxiliary fuel tanks	3-10
Landing	
autorotative landing	3-6, F3-7, 3-14
emergencies	3-15
gear failure	3-15
practice single engine landing	3-14
single engine landing	F3-14, 3-13
single engine water landing	3-13
water autorotative landing	3-14
with all wheels retracted	3-15
with both main gears retracted and	
the nose gear down and locked	3-16
with nose gear retracted	3-16
Maximum autorotative glide	
distance	F3-12, 3-13
Single engine failure	3-3
Take-off	3-2
single engine take-off from water	3-2
Tail rotor control system failure	3-10
Tail rotor drive system failure	3-9
approach and landing with	3-10
during cruise	3-9
during take-off or landing approach	3-9
while hovering	3-9
Two engine failure	
at high power	3-8
at high power and high speed	3-8
at high speed and low altitude	3-8
at high power and low speed	3-8
during flight (autorotative landing)	3-6
during take-off and climb (below	
60 Knots)	3-6
while hovering	3-6

Subject	Page Figure, Table Number
E (Continued)	
Emergency Aircrew Procedures	8-4
Cookoff	8-4
Hangfire	8-4
Misfire	8-4
Procedures in case of failure to fire	8-4
Time interval	8-4
Emergency Battery Start	3-2
Emergency Descent	3-13
Emergency Entrances	F3-25, 3-24
cargo compartment windows	3-23
personnel door emergency entrance	3-23
pilot's compartment sliding windows	3-23
ramp	3-23
Emergency Equipment	1-68
Crash axe	1-69
Crew alarm bell	1-69
Crew alarm bell switch	1-69
First aid Kits	1-69
Life rafts	1-69
Portable fire extinguisher	1-68
Pyrotechnic Kit	1-69
Emergency Exits	1-71
Cargo compartment windows	1-71
Personnel door	1-71
Pilot's compartment sliding windows	1-71
Ramp	1-71
Emergency Exits and Equipment	F2-48
Emergency Fuel Control Levers	1-13, 7-5
Emergency Exit Lights	4-43
Emergency Fuel Control Lever to Assist	
Starting	3-2
Emergency Fuel Shutoff Switch, APU	4-48
Emergency Jettisoning of Auxiliary	
Fuel Tanks	3-10
Emergency Starting Procedure	4-48
Emergency Water Landing Procedures	3-16
After landing	3-16
Before leaving the helicopter	3-17
Planned ditching	3-16
Engines	1-4, 7-1
Combustion chamber	1-4
Compressor	1-4
Controls	1-11
Cut-away view	F1-9
Gas generator turbine	1-12
Main gear box	F1-10
Power turbine	1-12
Engine Air Inlet Anti-icing System (CH-3E	
and HH-3E Helicopters)	4-5
Engine Anti-ice Switches, (CH-3E and	
HH-3E Helicopters)	4-6
Engine Anti-icing System	4-6
Engine Compartment Fire (Ground operations)	3-2
Engine Compartment Fire In Flight	3-10
Engine Compressor Deterioration	7-7
Engine Compressor Efficiency/Performance,	
Salt Water Operation	2-41
Engine Compressor Stall Margin Check	7-7

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
E (Continued)	
Engine Compressor Stalls	3-3
Engine Control Quadrant	F1-17
Engine Controls	F1-11
Engine Control System.....	7-1
Engine Cut-away View.....	F1-9
Engine-Driven Fuel Pump	1-12
Engine-Driven Fuel Pump Failure	3-17
Engine, Emergencies	
Engine failure	3-3
Failure of both engines	3-5
Go-around with one engine inoperative.....	3-5
Restart during flight.....	3-5
Shutdown in flight	3-5
Single engine failure.....	3-3
Two engine failure at high power.....	3-8
Two engine failure at high power and high speed	3-8
Two engine failure at high power and low speed	3-8
Two engine failure at high speed and low altitude	3-9
Two engine failure during flight (Autorotative landing)	3-6
Two engine failure during takeoff and climb (below 60KIAS).....	3-6
Two engine failure while hovering	3-6
Engine Failure	3-3
Engine Fire Emergency Selector Handles (Fire Emergency T-Handles)	1-70
Engine Fire Extinguisher Switch	1-70
Engine Fire Warning Light and Test Switch Panel.....	1-69
Engine Fuel Control Unit.....	1-13
Engine Fuel Control System Operation	7-5
Engine Fuel System.....	F1-11, 1-12
Boost pump failure warning light	1-31
Boost pumps	1-31
Boost pump switches	1-31
Control unit	1-31
Crossfeed valve switch	1-30
Emergency fuel control lever	1-13
Engine driven fuel pump	1-12
Filter bypass caution light	1-31
Float valves.....	1-33
Flow indicators.....	1-16
Flow sensors	1-40
Fuel low level caution lights	F1-31
Fuel quantity data.....	F1-36
Fuel quantity data, self sealing tanks	F1-33
Fuel quantity gages and test switches	1-31
Fuel shut-off and crossfeed valve status lights	1-30
Fuel shut-off valve switches	1-30
Fuel tanks	1-28
Low fuel pressure warning lights	1-30
Manual fuel close line valve.....	1-37

Subject	Page Figure, Table Number
E (Continued)	
Speed selector levers	1-13
Tank pressurization system	1-34
Engine Gas Generator (Ng) Tachometer	1-16
Engine, Main Gear Box and APU Installation	F1-10
Engine Oil Low Level Caution System	1-25
Engine Oil Pressure Indicators	1-16
Engine Oil System.....	1-25
Low level caution indicator.....	1-25
Pressure indicators	1-16
Temperature indicator	1-16
Engine Oil System Malfunction.....	3-18
Engine Oil Tank Full Indicator Lights	1-27
Engine Oil Temperature Indicator	1-16
Engine Operating Limitations.....	5-1
Gas generator speed (Ng).....	5-6
Limiting T5 rise for salt water operation ..	5-7
Overspeed	5-6
rotor overspeed.....	5-7
Overtemperature	F5-9, 5-6
Power limitations	F5-6
Power turbine inlet temperature (T5)	5-6
Power turbine speed (Nf)	5-6
Engine Overspeed and Overtemperatures.....	5-6
Engine Restart During Flight	3-5
Engine Restart (Hot Refueling).....	2-46
Engine Shutdown	2-33
Engine Shutdown In Flight	3-5
Engine Shutdown On Water.....	2-41
Engine Shutdown, Shipboard	2-33
Engine Speed Trim Switches (Beeper Trim Switches)	1-13
Engine Start and Rotor Engagement Procedure with APU Inoperative (Below -6.7°C (20°F).....	9-11
Engine Starter Drop-Out	7-6
Engine Starting	7-5
Cold weather	9-11
Engine Starting and Rotor Engagement.....	2-10
Engine Starting Procedure on Water.....	2-36
Engine Starting, Warm-up, and Ground Tests (desert)	9-13
Engine Starting With Battery	7-6
Engine Starting With External Power.....	7-6
Engine Vibrations	6-6
Equipment Limitations	5-8
Errors Associated With Heading Reference, AN/APN-175(V)	4-41
compass deviation	4-41
heading	4-41
magnetic variation	4-42
map grid	4-42
Example Ng/Ts Relationship Check	F7-16
Exterior Diagram, General Arrangement.....	F1-5
Exterior Lights	4-44
Exterior Inspection	F2-4, 2-3, 9-5

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
E (Continued)	
External Auxiliary Fuel System	1-34
External Auxiliary Fuel Tank Bomb Shackle Installation	F1-38
External Auxiliary Fuel Tanks	1-34, 7-11
External Cargo Sling	4-65
Cargo hook manual release arm	4-67
Cargo hook open advisory light	4-67
Cargo hook stowage line	4-67
Cargo release pedal	4-67
Cargo release switches	4-67
Cargo sling master switch	4-67
External cargo sling (cable suspended)...	4-65
External Cargo Sling Controls	F4-66
External Cargo Sling, Low Response	4-68

F

Failure of Both Engines	3-5
Failure of Both Generators	3-19
Failure of Fuel Control Flex Shaft	3-18
Failure of One Generator	3-19
Failure of P3 Sensing	3-18
Fast Train Switch, AN/ALE-20(V)	4-88
Fire Detection System	1-69
APU fire warning light	1-70
Engine fire warning lights and test switch panel	1-69
Fire	
During Ground Operations	3-1
APU compartment	3-1
engine compartment	3-2
flare case	3-2
In Flight	3-10
consecutive fires in alternate engine compartment	3-10
electrical fire	3-11
engine compartment fire	3-10
flare case	3-11
fuselage	3-11
simultaneous fires in both engine compartments	3-11
Fire Extinguisher Switch, APU	4-48
Fire Extinguisher System	1-70
APU fire detector and extinguisher control panel	1-71
APU fire extinguisher system	1-71
Engine fire emergency selector handles (T-handles)	1-70
Engine fire extinguisher switch	1-70
Fire in APU Compartment	3-1
Fire in Flight	3-10
Fire Warning Light, APU	4-48
Firing, AN/ALE-20	8-5
Firing, Gunner	8-3

Subject	Page Figure, Table Number
F (Continued)	
First Aid Kits	1-69
Flare Case Fire (Ground operations)	3-2
Flare Case Fire (In flight)	3-11
Flare Case Manual Jettison Lever	4-91
Flare Ejector, AN/ALE-20(V)	4-88, 3-24A
Flare Ejector System	F4-89
Flare Ejector Set Operating Procedures	8-4
Operating instructions	8-5
arming	8-5
de-arming	8-5
firing	8-5
preflight	8-5
Flare Ejector Set Power Panel	4-92
Flare Programming Control Panel	4-88
Flare Programming Control Panel and Power Panel	F4-90
Flight Characteristics	
Engine compressor installs	3-3
Single engine conditions	3-4
Flight Characteristics Under Single Engine Conditions	3-4
Flight Controls	6-3
Control servos	6-3
Coordination	6-3
Flight Control Hydraulic Power Supply System	1-56
Auxiliary Flight control servo system	1-56
Flight control servo hydraulic system	1-57
Flight control servo switches	1-58
Primary and auxiliary servo pressure caution lights	1-58
Primary flight control servo system	1-56
Servo hydraulic pressure indicator	1-58
Servo switches	1-58
Flight Control Servo Hydraulic System	F1-57
Flight Control Hydraulic Servo System Failure	3-20
Flight Control Servo Switches	1-58
Flight Control Servos	6-3
Flight Control Servo Unit Malfunction	3-20
Flight Control System	1-53
Automatic flight control system	1-58
BAR ALT release switches	1-61
channel monitor control panel	1-59
control panel	1-59
indicator	1-59
release button	1-60
Flight control hydraulic power supply system	1-56
auxiliary flight control servo system ...	1-56
flight control servo hydraulic system	F1-57
flight control servo switches	1-58
primary and auxiliary servo pressure caution lights	1-58
primary flight control servo system ...	1-56
servo hydraulic pressure indicators ...	1-58

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
F (Continued)	
servo switches	1-58
Main rotor flight control system	1-53
collective pitch lever grip	F1-12
collective pitch levers	1-54
collective to cyclic pitch coupling	1-54
collective to yaw coupling	1-54
cyclic stick grip	F1-55
cyclic sticks	1-55
cyclic stick trim master switch	1-55
cyclic stick trim system	1-55
cyclic trim release button	1-55
cyclic trim switches	1-55
Tail rotor flight control system	1-56
pedal adjustment knobs	1-56
pedals	1-56
■ Flight Crew Checklist	2-46A
Flight Level Characteristics	6-1
Blade stall	6-2
Diving	6-6
Eliminating roughness caused by blade stall	6-3
Flight with external loads	6-6
Maneuvering	6-6
Power settling	6-3
Stalls	6-2
Tail rotor effectiveness	6-6
Flight Level Characteristics Under Various Speed Conditions	6-2
Flight Mechanic (Duties)	8-2
Flight Mechanics Panel, Flare Release AN/ALE-20(V)	F4-92, 4-91
Flight Planning	2-1
Flight Restrictions	2-1
Flight with External Loads	6-6
Float Valves	1-33
Floodlights	4-44
Flow Sensors	1-40
FM Command Set (FM-622A)	4-18
Operation	4-18
FM Radio Set AN/ARC-44	4-15
Jamming	4-16
Operation	4-16
Foreign Object Deflector (FOD)	1-4
Forward Airspeed Unaccelerated Level Flight	6-2
Forward and Aft Main Tanks	7-8
Forward Gun Mounts	4-81
Forward Ramp	4-54
Forward Ramp Uplock Release Levers	4-56
Forward Speed Landing On Water From a Hover	2-38
Forward Speed Landing On Water With High Sink Rate	2-39
Free Air Temperature Gage	1-61
Free Power Turbine Speed (Nf)	1-12
Fuel Boost Pump Failure Warning Lights	1-31
Fuel Boost Pumps	1-31
Fuel Boost Pump Switches	1-31
Fuel Control Scheduling	7-1

Subject	Page Figure, Table Number
F (Continued)	
Fuel Control System Failure	3-17
Fuel Crossfeed Procedures	7-12
Fuel Crossfeed Valve Switch	1-30
Fuel Dumping Systems	1-35
Auxiliary fuel jettison (dump) switch	1-36
Bleed air selector and shutoff valves	1-40
Fuel dump pump	1-38
Internal auxiliary fuel tank dumping system	1-36
Jettison (dump) switch, auxiliary fuel	1-36
Manual fuel close line and dump valves ...	F1-40
Manual fuel dump valve	1-37
Manually controlled fuel dumping system	1-36
Rapid fuel dumping system	1-38
Fuel Dumping Systems Procedures	2-46
Fuel Dump Pump	1-38
Fuel Dump Valves	1-38
Fuel Filter Bypass Caution Lights	1-31, 3-17
Fuel Flow Indicators	1-16
Fuel Low Level Caution Lights	1-31
Fuel Quantity Data	F1-32
Fuel Quantity Data (Configured for External Auxiliary Fuel Tank Installation)	F1-35
Fuel Quantity Data (Helicopters Modified by T.O. 1H-3-609)	F1-36
Fuel Quantity Data, Self-sealing Tanks	F1-33
Fuel Quantity Gage Failure	3-18
Fuel Quantity Gages and Test Switches	1-31
Fuels for T-58-GE-5 Engines	F7-9
Fuel Shut-off and Crossfeed Valve Status Lights	1-30
Fuel Shut-off Valve Switches	1-30
Fuel Supply System	F1-29, 1-28
Air refueling system	1-39
ground pressure and air refueling systems	F1-42, 1-38
ground pressure refueling	1-39
pressure refueling adapter	1-39
pressure refueling control panel	F1-44, 1-40
pressure refueling shut off and high level sensor valves	1-40
probe, refueling	1-39
Auxiliary fuel systems	1-32
dual internal tank fuel system	F1-39
external fuel system	1-34
external fuel tanks	1-34
external fuel tank bomb shackle installation	F1-38
fuel control panel	1-34
fuel quantity data	F1-35
fuel tank manual release handle	1-35
internal fuel system manual shut- off valves	1-33
internal fuel tanks	1-32
internal fuel tank system	1-32
single internal tank fuel system	F1-37

ALPHABETICAL INDEX (Continued)

Subject	Figure, Table Number	Page
F (Continued)		
Engine fuel system	F1-11, 1-12	
boost pump failure warning light	1-31	
boost pumps	1-31	
boost pump switches	1-31	
control unit	1-31	
crossfeed valve switch	1-30	
emergency fuel control lever	1-13	
engine driven fuel pump	1-12	
filter bypass caution lights	1-31	
float valves	1-33	
flow indicators	1-16	
flow sensors	1-40	
fuel low level caution lights	1-31	
fuel quantity data	F1-36	
fuel quantity data, self-sealing tanks	F1-33	
fuel quantity gages and test switches ...	1-32	
fuel shut-off and crossfeed valve status lights	1-30	
fuel shut-off valve switches	1-30	
fuel tanks	1-28	
low fuel pressure warning lights	1-30	
manual fuel close line valve	1-37	
speed selector levers	1-13	
tank pressurization system	1-34	
Fuel Supply System Failure	3-17	
Fuel System Management	7-8	
Fuel System	7-8	
Fuel System, Engine	F1-11	
Fuel Tank Pressurization System	1-34	
Fuel Tanks	1-28	
Fuselage/Electrical Fire	3-11	
Fuselage Diagram, Load Adjuster	4-78	
Fuselage Lights	4-46	

G

Gas Generator Tachometer (Ng)	1-16
Gas Generator Turbine	F1-9, 1-12
Gas Generator Speed (Ng)	5-6, 1-12
General Arrangement Exterior Diagram	F1-5
General Arrangement Interior Diagram	F1-6
Generator Failure	3-19
Generators	1-41
Generator Switches	1-44
Glide Distance Chart, Maximum Autorotative	F3-12, 3-13
Glide Slope Indicator (GSI), Course Indicator	4-29
Go-around	2-33
Go-around with One Engine Inoperative	3-5
Governing Range	7-2
Gross Weight and Center of Gravity Limit	2-23
Ground Landing Emergencies	3-15
Ground Operations	3-1

Subject	Figure, Table Number	Page
G (Continued)		
Ground Pressure and Air Refueling Systems	F1-42, 1-38	
Ground Pressure Refueling	1-39	
Ground Roll	6-4	
Gunner's Operating Procedures	8-2	
Abort	8-3	
Arming	8-3	
De-arming	8-3	
Firing	8-3	
Gun Stations	4-82	

H

Hand Pump and Accumulator Gage, APU	F4-49, 4-48
Hand Pump, Auxiliary Oil Tank	1-26
Hangfire	8-4
Headwing Influence on Maximum Gross Weight for Hovering	FA-23, A-5
Headwind Influence on Torque Required to Hover	FA-25, A-5
Heater Operation (Helicopters prior to HH-3E 32 not modified by T.O. 1H-3-575	4-4
Heater Operation (HH-3E 32 or Helicopters modified by T.O. 1H-3-575	4-5
Heater Switch	F4-3, F4-2, 4-1
Heating and Ventilating Diffusers	4-4
Heating System	4-1
Cargo compartment fan	4-4
Heating and ventilating diffusers	4-4
Heater operation	4-5
Switch	F4-3, F4-2, 4-1
Ventilating system	4-4
Height Velocity Diagram - One Engine Failure	FA-26
Height Velocity Diagrams	FA-26, A-6
Height Velocity Diagram - Two Engine Failure	FA-27
Helicopter Armor Protection	F4-87
Helicopter Deck Handling	2-31
Helicopter Vibration	6-4
Engine	6-6
Ground roll	6-4
High frequency	6-5
Low frequency	6-4
Main gear box	6-5
Medium frequency	8-5
One times main rotor speed (one per revolution)	6-4
One times tail rotor speed	6-5
Tail rotor drive shaft	6-5
Tail shake	6-4
2/3 times main rotor speed	6-4

ALPHABETICAL INDEX (Continued)

Subject	Figure, Table Number	Page
---------	-------------------------	------

H (Continued)

HF Communication System (HF-103).....	4-28	
operation	4-28	
HF103	4-28	
operation	4-28	
HH-3E Pilot's Compartment	F1-8	
High Exhaust Temperature Caution		
Light, APU	4-47	
High Frequency Vibrations	6-5	
Hoist Controls	F4-59	
Hoist Shear Circuit Test Panel	4-60	
Holding	9-2	
Hot Cup Receptacles	4-74	
Hot Refueling Operations	2-44	
After landing	2-44	
Engine restart	2-46	
No. 2 engine shut down	2-45	
Post refueling	2-45	
Hot Weather Procedures	9-13	
Hovering Charts	FA-22, A-4	
Hovering (over salt water)	2-42	
Hover Mode, AN/APN-175(V)	4-41	
Hydraulic Hardover (Aux System)	3-20	
Hydraulic Hardover (Primary System)	3-20	

I

ICE	9-5	
ICE and Rain	9-5	
IDENT-OUT-MIC Control Switch, (C-6280(P)/APX)	4-25	
Idle to Operating (N_1 Governing) Range	7-7	
Idling Engines	7-6	
Ignition Switches	1-15	
Ignition System	1-15	
IFF Antenna Switch (C-6280(P)/APX)	4-26	
ILS, AN/ARN-58	4-28	
Glide slope receiver	4-29	
Local receiver operation	4-29	
Marker beacon operation	4-29	
Receiver control	4-29	
Impending Tail Rotor Drive System Failure ..	3-22	
Increasing Engine Load	7-7	
Index Mark	5-1	

Subject	Figure, Table Number	Page
---------	-------------------------	------

I (Continued)

Indicated Torque Vs Fuel Flow - One Engine	FA-20	
Inert Victim Rescue Platform	4-74	
In-Flight Blade Inspection System (IBIS)....	1-20A	
In-Flight Blade Inspection System Pressure Warning	3-10	
In Flight Operations	3-3	
Instructions for Use of Load Adjuster	4-77	
Instrument Approaches	9-2	
Instrument Climb	9-2	
Instrument Cruise	9-2	
Instrument Emergency Lights	4-42	
Instrument Flight Procedures	9-1	
Instrument Panel	F1-18	
Instrument Range Markings	5-1	
Index mark	5-1	
Range markings	Fs-2	
Instruments	1-61	
Altimeter AAU-27/A	1-62	
Altimeter-encoder AAU-21/A	1-61	
Attitude indicators	1-62	
Clocks	1-61	
Free air temperature gage	1-61	
J-4 compass control panel	1-63	
J-4 compass system	1-63	
Magnetic compass	1-61	
Pitot-static system	1-61	
Turn rate switches	1-63	
Vertical velocity indicator	1-63	
Instrument Takeoffs	9-1	
Intercommunication System Control and Monitor Panels	4-7	
Intercommunication System (AN/AIC-18)	4-7	
Control and monitor panels	4-7	
Crewman's ICS stations	F4-12	
Pilot's and copilot's ICS	F4-11	
Interior Diagram, General Arrangement	F1-6	
Interior Inspection	2-2	
Interior Lights	4-42	
Intermediate and Tail Gear Box Oil System	1-28	
Intermediate Gear Box	1-22	
Internal Auxiliary Fuel System Manual Shut-off Valves	1-33	
Internal Auxiliary Fuel Tank Dumping System	1-36	
Internal Auxiliary Fuel Tanks	1-32, 7-11	
Internal Auxiliary Fuel Tank System	1-32	

ALPHABETICAL INDEX (Continued)

Subject	Figure, Table Number	Page
I (Continued)		
Internal Auxiliary Fuel Tanks Dumping (Jettisoning) System	7-12	
Inverter	1-44	
Inverter Bus	1-45	
Inverter Switch	1-44	
Isolation and Autotransformers.....	1-45	

J

Jettison (Dump) Switch, Auxiliary Fuel	1-36
Jettison of External Fuel Tanks Limitations.....	5-7
J-4 Compass Control Panel.....	1-63
J-4 Compass System.....	1-63
Junction Box Reset Switch and Reset Lights, AN/ALE-20(V)	F4-91, 4-90

K

KB-18 Strike Cameras	4-84
Kneeling.....	2-1
KY-28 Secure Speech System	4-30

L

Landing	2-23, 3-13
Approach and landing	2-23
Crosswind landing	2-25
Normal landing	F2-24
Running landing.....	2-25
Touch and go landings	2-25
Landing and Go-Around, Shipboard	F2-32
Landing (cold weather)	9-12
Landing (desert).....	9-13
Landing, Emergency	3-13
Autorotative landing.....	F3-7, 3-6, 3-14
Emergencies	3-15
Gear failure	3-15
Practice single engine landing.....	3-14
Single engine landing	F3-14, 3-13
Single engine water landing	3-13
Water autorotative landing	3-14
With all wheels retracted	3-15
With both main gears retracted and nose gear down and locked	3-16
With nose gear retracted	3-16
Landing Gear Actuating System	1-66
Landing Gear Alternate System	1-68
Landing Gear Control Handle Down-Lock Release	1-66
Landing Gear Emergencies	3-15

L (Continued)

Landing Gear Failure	3-15
Landing Gear Hydraulic System	F1-65
Landing Gear Limitations	5-8
Landing Gear Position Lights	1-67
Landing Gear System.....	1-64
Actuating system	1-66
Control handle down-lock release.....	1-66
Hydraulic system	F1-65
Position lights	1-67
Main landing gear	1-66
Nose landing gear	1-66
switch and caution light	1-66
Nose wheel lock handle	1-66
Landing Gear Warning Signal Light and Test Button.....	1-68
Landing Gear Warning System.....	1-67
Alternate system	1-68
Warning signal light and test button	1-68
Warning system silence button	1-68
Landing Gear Warning System Silence Button	1-68
Landing (ice).....	9-8
Landing Light	4-45
Landing on Slippery Areas.....	2-26
Landing On Water.....	2-38
Landing Procedure (night)	9-9
Landing, Shipboard	2-31
Landing Site Evaluation	2-26
Landing With All Wheels Retracted	3-15
Landing With Both Main Gears Retracted and The Nose Gear Down and Locked ..	3-16
Landing With Nose Gear Retracted	3-16
Latch Lever.....	4-81
Lateral and Rearward Water Taxing	2-37
Left Side Flare Release Panel AN/ALE-20(V).....	4-91
Life Rafts	1-69
Lighting Equipment	4-42
Exterior lights	4-44
anchor lights	4-46
controllable spotlight	4-44
flood lights	4-44
fuselage lights	4-46
landing lights	4-45
position lights	4-45
rescue floodlight	4-45
rotating anti-collision lights	4-46
searchlight	4-44
Interior lights	4-42
cargo compartment dome lights.....	4-43
console and panel lights	4-42
emergency exit lights	4-43
instrument emergency lights	4-42
loading lights	4-43
non-flight instrument lights	4-42
pilots' and copilot's flight instrument panel lights	4-42

ALPHABETICAL INDEX (Continued)

Page
Figure, Table
Number

Subject

L (Continued)

pilot's compartment dome lights	4-43
pilot's compartment spotlight	4-42
Lightning Strikes	9-9
Limitations	5-1
Airspeed	5-7
Center of gravity	5-8
Engine operating	5-1
Equipment	5-8
Jettison of external fuel tanks	5-7
Landing gear	5-8
Maneuvers	5-7
Rotor	5-7
Slope landing	5-12
Transmission	5-6
Weight	5-8
safety margin and load factors	5-8
Limiting T ₅ Rise for Salt Water Operation ..	5-7
Litter Loading Procedures	4-69
Litters	F4-71, F4-72, 4-69
Load Adjuster	F4-78, 4-77
Load Adjuster Operation	4-79
Load Adjustor, Sample Problem	4-79
Additional Fuel	4-80
Determination of CG	4-80
Distribution of allowable load	4-80
Distribution of allowable load (cargo in compartment)	4-81
Reading CG position from grid	4-80
Redistribution of load	4-80
Load factors	5-8
Loading Instructions, Litter	4-73
Loading Lights	4-43
Loadmeters	1-53
Loudhailer Controls	4-14
Loudhailer Operation	4-14
Loudhailer System (AN/UIH-5)	4-14
Low Frequency Vibrations	6-4
Low Fuel Pressure Warning Lights	1-30
Low Oil Pressure Caution Light, APU	4-47
Low Response External Cargo Sling	4-68

M

Machine gun, M60K Malfunction	3-24A
Machine gun, 7.62 MM	F4-82, 4-81
Magnetic Compass	1-61
Magnetic Variation	4-42
Main Difference Table	F1-2
Main Gear Box	1-21
Main Gear Box, Engine	F1-10
Main Gear Box Failure	3-21
Main Gear Box Oil Pressure	5-7
Main Gear Box Oil Pressure Indicator and Caution Light	1-27
Imminent Failure of The	3-23
Main Gear Box	
Main Gear Box Oil System	1-27
Pressure indicator and caution light	1-28
Temperature and caution light	1-28

Page
Figure, Table
Number

Subject

M (Continued)

Main Gear Box Oil Temperature and Caution Light	1-28
Main Gear Box Temperature	5-7
Main Gear Box Vibrations	6-5
Main Gear Box Malfunction	3-23
Main Landing Gear	1-66
Main Rotor Dampener Malfunction	3-21
Main Rotor Flight Control System	1-53
Collective pitch lever grip	F1-12
Collective pitch levers	1-54
Collective to cyclic pitch coupling	1-54
Collective to yaw coupling	1-54
Cyclic stick grip	F1-55
Cyclic stricks	1-55
Cyclic stick trim master switch	1-55
Cyclic stick trim system	1-55
Cyclic trim release button	1-55
Cyclic trim switches	1-55
Main Rotor System	1-16
Malfunction, AFCS	3-22
Manual Fuel Close Line and Dump Valves ..	F1-40
Manual Fuel Close Line Valve	1-37
Manual Fuel Dumping System	7-12
Manual Fuel Dump Valve	1-37
Manually Controlled Fuel Dumping System...	1-36
Manual Operation, Ramp	4-57
Maneuvering Flight	6-6
Maneuvers	5-7
Map Grid	4-42
Margin of Safety and Load Factors	6-8
Master Caution Light	1-64
Master Switch, C-6280(P)/APX	4-25
Maximum Airspeed As Limited By Advancing Blade Tip Mach Number	FA-56, A-9
Maximum Airspeed Chart	FA-57, A-9
Maximum Airspeed, Mission Planning	A-12
Maximum Autorotative Glide Distance Chart	F3-12, 3-13
Maximum Continuous Power Available - One Engine	FA-19
Maximum Gross Weight for Hovering Zero Wind - Two Engines	FA-22, A-4
Maximum Gross Weight, Mission Planning	A-11
Maximum Nf Governing	7-3
Maximum Performance Takeoff	F2-21, 2-19
Maximum Power Available and Topping	7-2
Maximum Power Available Check	7-2
Maximum Power Available - 5 minute Limit - One Engine	FA-17
Maximum Sink Rate on landing (Retractable Landing Gear)	F5-11

ALPHABETICAL INDEX (Continued)

Page
Figure, Table
Number

Subject

M (Continued)

Medium Frequency Vibrations..... 6-5
Methods of Eliminating Roughness Caused by
Blade Stall..... 6-3
Military Power Available - 30 minute
Limit - One Engine..... FA-18
Minimum Crew Requirements..... 5-1
Miscellaneous Equipment..... 4-73
Anchor..... 4-74
Ash trays..... 4-74
Canteen..... 4-73
Checklists..... 4-73
Chest protectors..... 4-73
Cockpit canopy shades..... 4-74
Crewman's safety harness..... 4-73
Data case..... 4-74
Electrical utility receptacles..... F4-75, 4-74
Hot cup receptacles..... 4-74
Inert victim rescue platform..... 4-74
Mooring rings..... 4-74
Personnel door safety strap..... 4-73
Pilot's compartment curtain..... 4-74
Relief tubes..... 4-74
Signal light..... 4-74
Spare lamps..... 4-74
Windshield washer system..... 4-74
Washer..... 4-76
Misfire..... 8-4
Mission Gross Weight and Torque Required
to Hover, Mission Planning..... A-11
Mission Planning..... A-10
Mode 1 Code Selector, (C-6280(P)/APX).... 4-25
Mode 3/A Code Selector (C-6280(P)/APX).... 4-26
Mode Control Switches (C-6280(P)/APX).... 4-25
Mode 4 Reply Light (C-6280(P)/APX)..... 4-25
Mooring Rings..... 4-74
M60 Machine Gun..... F4-82
Mountain and Rough Terrain Flying..... 2-25

N

Navigation Communication System Block
Diagram..... F4-33
Navigation Set RADAR, AN/APN-175(V).... 4-35
Navigation Set, Radar, AN/APN-175(V)F4-40, 4-39
Navigation Set, Radar, System Block
Diagram..... F4-34
N_f and N_r Triple Tachometers..... 1-16
N_f/T₅ Relationship Check..... 7-7
Night Flying..... 9-9
Landing procedures..... 9-9
Takeoff procedures..... 9-9

Page
Figure, Table
Number

Subject

N (Continued)

No. 2 Engine Shutdown (Hot Refueling)..... 2-45
Non-Flight Instrument Lights..... 4-42
Normal Instrument Takeoff..... 9-1
Normal Landing..... F2-24
Normal Operation, Ramp..... 4-56
Normal Procedures..... 2-1
Normal Start..... 7-5
Normal Takeoff..... F2-20
Nose Down-Slope..... 2-31
Nose Gear Switch and Caution Light..... 1-66
Nose Landing Gear..... 1-66
Nose Up-slope..... 2-31
Nose Wheel Lock Handle..... 1-66

O

Oil Supply System..... 1-25
Auxiliary oil system..... 1-25
Engine oil system..... 1-25
low level caution indicator..... 1-25
pressure indicators..... 1-16
temperature indicator..... 1-16
Intermediate and tail gear box oil system. 1-28
Main gear box oil system..... 1-27
pressure indicator and caution
light..... 1-28
loss of primary or secondary main
gear box oil pump..... 3-22
loss of main gear box oil supply..... 3-22
temperature and caution light..... 1-28
Transmission oil system..... 1-27
OMNI Navigation System (VOR-101)... F4-32, 4-31
Control panel..... 4-31
Nav/comm system..... 4-33
VOR/TACAN selector switches..... 4-31
One Times Main Rotor Speed (One Per
Revolution)..... 6-4
One Times Tail Rotor Speed..... 6-5
Operating Controls, KB-18..... 4-84
Operating Controls (Radio)..... 4-7
Operating Instructions, AN/ALE-20(V)..... 8-5
Operating Procedures, Gunner..... 8-2
Operating Procedure, KB-18..... 4-84
Operating Weight, Mission Planning..... A-11
Operation In Memory Mode, AN/APN-175(V). 4-41
Operation of Fuel System Table..... F7-11
Overhead Switch Panel and Engine Control
Quadrant..... F1-17
Overspeed Caution Light, APU..... 4-47
Over Water Briefing..... 8-2

P

Paralleling Batteries..... 7-6
Passenger Briefing..... 8-1
Passenger Information..... F2-47

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
P (Continued)	
Performance Data	A-1
Personnel Door	4-57
Personnel Door Emergency Entrance	3-24
Personnel Door Emergency Exit	1-71
Personnel Door Safety Strap	4-73
Pilot's and Copilot's Flight Instrument Panel Lights	4-42
Pilot's and Copilot's Intercommunication System (Typical)	F4-11
Pilot's and Copilot's Seats	1-72
Seat forward and aft adjustment lever	1-72
Seat height adjustment lever	1-72
Shoulder harness lock lever	1-72
Pilot's and Crewmember's Ramp Control Panels	4-54
Pilot's Compartment, CH-3E	F1-7
Pilot's Compartment Curtain	4-74
Pilot's Compartment Dome Lights	4-43
Pilot's Compartment, HH-3E	F1-8
Pilot's Compartment Sliding Windows ..	1-17, 3-23
Pilot's Compartment Spotlight	4-42
Pilot's Console	F1-60
Pilot (Duties)	8-1
Pilot's Hoist Controls	4-58
Pilot's Ramp Master Switch	4-54
Pilot's Rescue Hoist Control	4-65
Pitot Heaters	4-7
Pitot - Static System	1-61
Portable Fire Extinguishers	1-68
Portable Pendant	4-60
Position Lights	4-45
Post Flight Check (salt water operation) ..	2-43
Post Refueling (Hot Refueling)	2-45
Power and Automatic Signal Switches, AN/ALE-20(V)	4-88
Power Available Charts	FA-17, A-2
Power Available, Mission Planning	A-11
Power Reel, Rescue Hoist	4-58
Power Required For Hover at Landing Gross Weight	A-12
Power Reserve For Landing Mission Planning	A-12
Power Supply Failure (AFCS)	3-22
Power Turbine	F1-9, 1-12
Power Turbine Inlet Temperature (T ₅)	5-6
Power Turbine Inlet Temperature (T ₅) Indicators	1-16
Power Turbine Speed (N _P)	5-6
Power Settling	6-3
Practice Power Recovery Autorotations ..	3-15
Practice Single Engine Landing	3-14
Predeparture Briefing	8-1
Preflight, AN/ALE-20	8-5
Preflight Check	2-2
Preflight, Gunner	8-2
Preparation For Flight	2-1
Preparation for Flight (cold weather)	9-10

Subject	Page Figure, Table Number
P (Continued)	
Preparation for Flight (desert)	9-13
Preparation for Instrument Flight	9-1
Pressure Altitude	A-1
Pressure Refueling Adapter	1-39
Pressure Refueling Control Panel	F1-44, 1-40
Pressure Refueling Shut-off and High Level Sensor Valves	1-40
Primary and Auxiliary Servo Pressure Caution Lights	1-58
Primary Flight Control Servo System	1-58
Primary Servo System	3-20
Prime Pump Pressure Caution Light, APU ..	4-47
Probe, Refueling	1-39
Procedures In Case of Failure to Fire	8-4
Program-In-Progress, AN/ALE-20(V)	4-88
Public Address System (AN/AIC-13) ..	F4-15, 4-10
Control Panel	4-10
Purpose of Performance Data	A-1
Pyrotechnic Kit	1-69

R

Radar Approach	F9-4, 9-2
RADAR Altimeter Set, AN/APN-171(V)	4-31
Radar Navigation System	4-34
AN/APN-175(V), Radar navigation set	4-35
air data mode operation	4-41
altitude indicators	4-35
control indicators	4-36
doppler computer group	4-36
errors associated with heading reference	4-41
hover mode	4-41
operation in memory mode	4-41
sample problem	F4-40, 4-39
sensor group	4-35
true airspeed transmitter	4-38
typical mission	F4-40
velocity steering indicator ..	F4-37, 4-38
RADAR Transponder (AN/UPN-25)	4-28
Operation	4-27
Radio and Navigation Equipment	9-2
Radio Circuit Breaker Panels	4-7
Radio Set (AN/ARN-65) (TACAN)	4-27
Operation	4-28
RAD/MONITOR Switch (C-6280(P)/APX) ..	4-25
Rain	9-8
Ramp	1-17, 3-24
Ramp Actuating System	F4-55
Ramp Control Panels	F4-56
Ramp Observer Flare Release Panel AN/ALE-20(V)	4-91
Ramp System	4-50
Range, ADF, VOR Approach	F9-3

ALPHABETICAL INDEX (Continued)

Subject	Figure, Table Number	Page
R (Continued)		
Rapid Descent (Autorotation)	2-23	
Rapid Fuel Dumping System	1-38, 2-46A	
Reading CG Position from the Grid	4-80	
Receiver-Transmitter-Radio RT-727/APX-64(V), AIMS/IFF Transponder System ..	4-24	
Receiving Set (AN/ARN-58(ILS)	4-28	
Glide slope receiver	4-29	
Local receiver operation	4-29	
Marker beacon receiver operation	4-29	
Receiver control	4-29	
Redistribution of Load	4-80	
Refueling (Hot Refueling)	2-45	
Refueling Probe	1-39	
Release Switch, AN/ALE-20(V)	4-88	
Relief Tubes	4-74	
Remote Area Operations	2-25	
Mountain and rough terrain flying	2-25	
adverse weather conditions	2-29	
after landing	2-33	
cross slope	2-30	
effects of high altitude	2-27	
engine shutdown	2-33	
go-around	2-33	
landing on slippery area	2-26	
landing site evaluation	2-26	
nose down-slope	2-31	
nose up-slope	2-31	
slope landing	2-30	
summary	2-29	
turbulent air flight techniques	2-27	
wind direction and velocity	2-26	
wind effect in confined area	F2-28	
wind effect on ridgeline approach ..	2-27	
Wind flow in valley or canyon	2-29	
Wind flow over and around peaks ..	F2-28	
Wind flow over gorge or canyon	F2-29	
Rescue Floodlight	4-45	
Rescue Hoist Cable Shear and Circuit Test ..	4-65	
Rescue Hoist Controls	F4-64	
Rescue Hoist, Helicopters CH-3E 16, HH-3E, or helicopters modified by T.O. 1H-3(C)C-1-561	4-61	
Crewman's rescue hoist control	4-65	
Crewman's rescue hoist manual override ..	4-65	
Pilot's rescue hoist control	4-65	
Rescue hoist cable shear and circuit test ..	4-65	
Rescue hoist controls	F4-64	
Rescue hoist master switch	4-65	
Rescue Hoist Master Switch	4-65	
Rescue Hoist Operation, (Helicopters prior to CH-3E 16 not modified by T.O. 1H-3(C)C-561	4-58	

Subject	Figure, Table Number	Page
R (Continued)		
Crewman's hoist controls	4-60	
Hoist controls	F4-59	
Hoist shear circuit test panel	4-60	
Pilot's Hoist controls	4-58	
Portable pendant	4-60	
Power reel	4-58	
Rescue Hoist Operator	8-2	
Reset Lights, AN/ALE-20(V)	4-91	
Reset Switch, AN/ALE-20(V)	F4-91, 4-90	
Retarding Speed Selector	7-7	
RH Empty Light, AN/ALE-20(V)	4-90	
Rotating Anti-Collision Lights	4-46	
Rotor Brake	1-22	
Rotor Brake Caution Light	1-22	
Rotor Brake Cylinder and Lever	1-22	
Rotor Brake Lever	F1-25	
Rotor Brake Pressure Gage	1-22	
Rotor Engagement	2-31	
Rotor Engagement Chart	F2-13	
Rotor Engagement and Before Takeoff, Shipboard	2-35	
Rotor Engagement and Shutdown (engines running), shipboard	2-35	
After landing	2-35	
Rotor shutdown	2-35	
Rotor engagement and before takeoff	2-35	
Rotor Engagement (ice)	9-5	
Rotor Engagement on Water	2-36	
Rotor Engagement With APU Inoperative	7-6	
Rotor Limitations	5-7	
Overspeeds	5-7	
Rotor Overspeeds	5-7	
Rotor Shutdown, shipboard	2-35	
Rotor Shutdown and Engagement (Engines Running), shipboard	2-35	
Rotor Shutdown On Water	2-40	
Rotor Systems	1-16	
BIM blade indicator	F1-20	
Brake	1-22	
Brake caution light	1-22	
Brake cylinder and lever	1-22	
Brake lever	F1-25	
Brake pressure gage	1-22	
Main rotor system	1-16	
Tail rotor	1-21	
Running Landing	2-25	
Running Instrument Takeoff	9-1	
Running Takeoff	F2-22, 2-21	
Running Takeoff from the Water	2-37	

S

Safety Lever	4-82
Safety Margin and Load Factors	5-8
Salt Water Operation	2-41

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
S (Continued)	
Scramble Checklist	2-44
Searchlight	4-44
Seat Forward and Aft Adjustment Lever	1-72
Seat Height Adjustment Lever	1-72
Secure Speech System, KY-28	4-30
Security of Cocked Helicopter	2-43
Sensor Group, AN/APN-175(V)	4-35
Service Ceiling Charts	FA-40, A-7
Service Ceiling - Maximum Continuous Power - Two Engines	FA-40
Service Ceiling - Military Power - One Engine	FA-41
Servicing Diagram	1-73
Servo Hydraulic Pressure Failure	3-21
Servo Hydraulic Pressure Indicators	1-58
Servo Switches	1-58
Servo Unit Malfunction	3-20
Shipboard Operating Techniques	2-31
Before leaving the helicopter	2-34
Deck handling	2-31
Landing	2-31
Landing and go-around	2-32
Takeoff	2-31
Shortening the Anchor Line	F2-40
Shoulder Harness Lock Lever	1-72
Shutdown	7-7
Shutdown With Tail Takeoff Free Wheel Unit Inoperative	3-22
Signal Light	4-74
Simulated AFCS Malfunctions	3-22
Simultaneous Fires In Both Engine Compartments	3-11
Single Engine Capability Chart	FA-54, A-8
Single Engine Capability Military Power - One Engine	FA-54
Single Engine Flight Characteristics	3-4
Single Engine Failure	3-3
Single Engine Failure During Normal Flight	3-4
Single Internal Tank Auxiliary Fuel System Diagram	F1-37
Single Engine Landing	F3-14, 3-13
Single Engine Take-off From Water	3-3
Single Engine Water Landing	3-13
Slope Landing	2-30
Slope Landing Limitations	5-12
Smoke, Fume, And Odor Elimination	3-11
Spare Lamps	4-74
Speed Selectors (Engine Speed Selector Levers)	1-13
Stalls	6-2
Blade stall	6-2
eliminating roughness caused by blade stall	6-3
Stalls, Engine Compressor	3-3
Starter Abort Switch	1-15

Subject	Page Figure, Table Number
S (Continued)	
Starter Buttons	1-15
Starting APU Engine (cold weather)	9-11
Starting and Rotor Engagement Procedures with APU Inoperative	7-5
Starting Emergencies	3-2
Battery	3-2
Emergency fuel control lever	3-2
Starting Procedure, APU	4-48
Starting System	1-15
Abort switch	1-15
Buttons, starting	1-15
Diagram	F1-14
Starting System Diagram	F1-14
State of Sea	F2-4
Stopping of Engine (cold weather)	9-12
Stopping Engines (desert)	9-14
Summary, Mountain and Rough Terrain Flying	2-29
Symptoms of Hydraulic Servo System Malfunctions	3-20
System Emergencies	3-17
Automatic Flight Control System (AFCS). Malfunction	3-22
Power supply failure	3-22
Simulated malfunctions	3-22
Electrical System Failure	3-18
Alternating current system	3-18
Direct current system	3-19
Generator failure	3-19
both generators	3-18
one generator	3-18
Engine Oil System Malfunction	3-18
Flight Control Hydraulic Servo System Failure	3-20
Auxiliary servo system	3-20
blocked return line	3-20
hydraulic hardover	3-20
system pressure loss or blocked system line	3-20
Corrective action for servo mal- function	3-21
Flight control servo unit malfunction	3-20
Main rotor damper malfunction	3-21
Primary servo system	3-20
blocked return line	3-20
hydraulic hardover	3-20
system pressure loss or blocked pressure line	3-20
Servo hydraulic pressure failure	3-21
Servo unit malfunction	3-20
Symptoms of hydraulic servo system malfunctions	3-20
Fuel Control System Failure	3-17
Failure of fuel control flex shaft	3-18
Failure of P3 sensing	3-18
Fuel Quantity Gage Failure	3-18

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
S (Continued)	
Fuel Supply System Failure	3-17
Boost pump failure	3-17
Engine driven fuel pump failure	3-17
Fuel filter bypass caution lights	3-17
Impending Tail Rotor Drive System Failure	3-23
Main Gear Box Failure	3-22
Main gear box oil system failure	3-23
Yaw kick	3-22
Shutdown With Tail Takeoff Free Whell Unit Inoperative	3-23
Utility Hydraulic System Failure	3-19
System Pressure Loss or Blocked Pressure Line (Aux System)	3-20
System Pressure Loss or Blocked Pressure Line (Primary System)	3-20
Systems Operation	7-1
AFCS Ground Checks	7-13
Advisory light panel indication chart	7-14, F7-15
AFCS hardover check (pitch, roll, collective and yaw)	7-13
Caution light panel indication chart	F7-14
Engine	7-1
Bottoming	7-1
Cold hangup	7-2
Compressor stalls	7-2
Control system	7-1
Droop	7-2
Fuel control scheduling	7-1
Fuel control system operation	7-5
Governing range	7-2
Idling	7-6
deceleration to idle	7-7
decreasing engine load	7-7
idle to operating (N_f governing) range	7-7
increasing engine load	7-7
Maximum power available and topping ..	7-2
emergency fuel control lever	7-5
maximum N_f governing	7-3
maximum power available check ...	7-2
topping adjustments	7-3
topping chart	FA-38
Shutdown	7-7
Starting	7-5
engine starter drop-out	7-6
engine starting with battery	7-6
engine starting with external power ..	7-6
normal start	7-5
paralleling batteries	7-6
rotor engagement with APU inoperative	7-6
starting and rotor engagement pro- cedures with APU inoperative ..	7-5
Temperature limits	7-2
Topping governor	7-1

Subject	Page Figure, Table Number
S (Continued)	
Engine Compressor Deterioration	7-7
Alternate fuels	7-8
Engine compressor stall margin check ..	7-7
Example N_g/T_5 relationship check ...	F7-16
N_g/T_5 relationship check	7-7
Fuel System	7-8
Fuel dumping systems procedures	2-46
internal auxiliary fuel tanks dumping (jettisoning) system	2-46
manual fuel dumping system	2-46
rapid fuel dumping system	2-46A
to stop fuel dump	2-46A
Fuel system management	7-8
external auxiliary fuel tanks	7-11
forward and aft main tanks	7-8
fuel crossfeed procedures	7-12
fuels for T-58-GE-5 engines	F7-9
internal auxiliary fuel tanks	7-11
operation of fuel system table	F7-4

T

TACAN, AN/ARN-118(V)	4-28
TACAN, AN/ARN-65	4-27
Operation	4-28
TACAN and ILS Approaches	F9-6, F9-7, 9-5
Tachometer, APU	4-47
Tachometers, Triple (N_f and N_r)	1-16
Tail Gear Box	1-22
Tail Rotor	1-21
Tail Rotor Buzz	6-5
Tail Rotor Drive Shaft Vibrations	6-5
Tail Rotor Drive System Failure	3-9
Approach and landing	3-10
During cruise	3-9
During takeoff or landing approach	3-9
While hovering	3-9
Tail Rotor Drive System Failure During Take-off or Landing Approach	3-9
Tail Rotor Drive System Failure During Cruise	3-9
Tail Rotor Drive System Failure While Hovering	3-9
Tail Rotor Effectiveness	6-6
Tail Rotor Flight Control System	1-56
Pedal adjustment knobs	1-56
Pedals	1-56
Tail Rotor Pedal Adjustment Knobs	1-56
Tail Rotor Pedals	1-56
Tail Rotor System Failures	3-9
Control system failure	3-10
Tail Shake	6-4
Takeoff and Landing Data (TOLD) Card ..	2-10, A-10
Takeoff Charts	FA-28, A-6
Take-off, Emergency Procedures	3-2
Takeoff (desert)	9-13
Takeoff from a Hover	2-19

ALPHABETICAL INDEX (Continued)

Subject	Figure, Table Number	Page
T (Continued)		
Takeoff from the Water.....	2-37	
Takeoff (ice)	9-5	
Takeoff, Normal Procedures	2-19	
From a hover.....	2-19	
Normal	F2-20	
Maximum performance	F2-21, 2-19	
Running.....	F2-22, 2-21	
To a hover	2-19	
Without hover	F2-20, 2-19	
Takeoff Procedure (night).....	9-9	
Takeoff, Shipboard	F2-32, 2-31	
Takeoff (snow)	9-12	
Takeoff to a Hover	2-19	
Takeoff Without Hover	F2-20, 2-19	
Taxing (ice)	9-5	
Taxing Instructions (desert).....	9-13	
Taxing Instructions (snow)	9-11	
Taxing on the Water	2-36	
Temperature Limits	7-2	
 Test Light (C-6280(P)/APX).....	4-25	
The Helicopter.....	1-1	
Dimensions	1-4	
Exterior diagram, General arrangement ..	F1-5	
Foreign object deflector (FOD).....	1-4	
Interior diagram, General arrangement, ..	F1-6	
Main difference table	F1-2	
Thru-Flight Checklist	2-2	
Tie-down Devices	4-50	
Tie-down Fittings.....	F4-53, 4-50	
Time Interval	8-4	
T5 Indicators	1-16	
TOLD Card, Sample	A-15	
TOLD Card Use in Mission Planning	A-10	
Topping Adjustments	7-3	
Topping Chart	FA-38	
Topping Governor	7-1	
Topping Limits, Mission Planning	A-12	
Torquemeters	1-15	
Torque Required to Hover for Takeoff, Mission Planning	A-11	
Torque Required to Hover, Zero Wind - Two Engines	FA-24, A-4	
Torque Vs Fuel Flow Chart	FA-20, A-3	
To Stop Fuel Dump	2-46A	
Total Fuel Used, Mission Planning	A-11	
Touch and Go Landings	2-25	
Transfer Switch, AN/ALE-20(V)	4-88	
Transformer - Rectifiers, DC	1-45	
Transformer - Rectifier Switches	1-52	
Transponder Computer, KIT-1A/TSEC	4-24	
Transponder Control, C-6280(P)/APX	4-25	

Subject	Figure, Table Number	Page
T (Continued)		
Transparent Indicator, Load Adjuster	4-78	
Transponder Set Test Set TS-1843/APX	4-24	
Transponder System Operation, AN/UPN-25.	4-27	
Transmission Chip Detector Lights	1-22	
Transmission Limitations	5-7	
Main gear box oil pressure.....	5-7	
Main gear box oil temperature	5-7	
One engine operating	5-7	
Two engines operating.....	5-7	
Transmission Oil System.....	1-27	
Transmission System	1-21	
Chip detector lights	1-22	
Intermediate gear box	1-22	
Main gear box	1-21	
Rotor brake	1-22	
caution light	1-22	
cylinder and lever	1-22	
lever.....	F1-25	
pressure gage	1-22	
Tail gear box	1-22	
Trigger	4-82	
Triple Tachometers, N _t and N _r	1-16	
Troop Carrying Equipment	4-69	
Troop Seats	F4-70, F4-72, 4-69	
True Airspeed Correction.....	A-2	
True Airspeed Transmitter, AN/APN-175(V).	4-38	
Turbulence and Thunderstorms.....	9-8	
Lightning strikes	9-9	
Turbulent Air Flight Techniques	2-27	
Turning Radius and Ground Clearance.....	F2-14	
Turn Rate Switches	1-63	
Two-Engine Failure at High Power	3-8	
Two-Engine Failure at High Power and High Speed	3-8	
Two-Engine Failure at High Power and Low Speed	3-8	
Two-Engine Failure at High Speed and Low Altitude	3-9	
Two Engine Failure During Flight (Autorotative Landing).....	3-6	
Two-Engine Failure During Take-off and Climb (Below 60 KIAS).....	3-6	
Two Engine Failure While Hovering	3-6	
Two Engines Operating.....	5-7	
Two Thirds (2/3) Times Main Rotor Speed ...	6-4	
Typical Navigation System Radar Mission ..	F4-40	

U

UHF Command System	4-16
AN/ARC-34B UHF Command Set.....	4-16D
Operation	4-17
AN/ARC-34C, UHF Command Set.....	4-17
AN/ARC-108, Backup UHF Command Set ..	4-17
Operation	4-17
Uncocking Checklist	2-43

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
U (Continued)	
Use of Emergency Fuel Control Lever to Assist Starting	3-2
Utility Hydraulic Pressure Indicator	1-53
Utility Hydraulic Supply System	F1-54, 1-53
Utility Hydraulic System Failure	3-18

V

Variable Speed Winch	4-58
Velocity Steering Indicator(VSI), AN/APN-175(V)	4-38
Ventilating System	4-4
Vertical Velocity Indicator	1-63
VHF Command Set (VHF-101)	4-18
Operation	4-19
VHF Direction Finder (AN/ARA-25)	4-20
Voltmeter and Voltmeter Selector	1-53
VOR/ADF Range Approach	F9-3, 9-2
VOR-101	F4-32, 4-31
Control panel	4-31
Nav/Comm system	F4-33
VOR/TACAN selector switches	4-31

W

Warm-up and Ground Tests	9-11
Water Autorative Landings	3-14
Water Clearance	F2-35
Water Operations	2-35
After landing	2-41
After takeoff	2-37
Anchoring the helicopter	2-39
Approach to a hover	2-38
Beaching	2-40
Before landing	2-38
Before leaving the helicopter	2-41
Before starting engines	2-36
Before takeoff	2-37
Before taxiing	2-36
Cruise	2-38
Docking	2-40
Engine Shutdown	2-41
Engine starting procedure	2-36
Forward speed landing from hover	2-38
Forward speed landing with high rate of sink	2-39
Landing	2-38
Lateral and rearward taxiing	2-37
Rotor engagement	2-36
Rotor shutdown	2-40
Running takeoff	2-37
Salt water operation	2-41
engine compressor efficiency/performance	2-41

Subject	Page Figure, Table Number
W (Continued)	
hovering	2-42
post flight check	2-43
State of sea	F2-41
Shortening the anchor line	F2-40
Takeoff	2-37
Taxiing	2-36
Water clearance	F2-35
Weighing anchor	2-40
Weapon System	4-81
7.62MM machine gun	F4-82, 4-81
aft gun mount	4-81
aft gun platform	4-81
ammunition storage containers	4-84
armament fields of fire	F4-86
armament system (HH-3E 24 ▶ 25)	F4-83
armament system (HH-3E 25 ▶)	F4-85
armor protection	F4-87, 4-84
barrel lock lever	4-81
cocking handle	4-81
forward gun mounts	4-81
gun stations	4-82
latch lever	4-81
safety lever	4-82
trigger	4-82
Flare ejector set, AN/ALE-20	4-88
AN/ALE-17 flare set	4-92
burst interval selector	4-90
busrt selector	4-90
burst remaining counter	4-90
case assembly	4-92
cyclic stick flare release switch	4-91
fast train switch	4-88
flare case manual jettison lever	4-91
flare ejector set power panel	4-92
flight mechanic's flare release panel ..	4-91
junction box reset switch and reset lights	4-90
left side flare release panel	4-91
power and automatic signal switches ..	4-88
program-in-progress	4-88
programming control panel	4-88
programming control panel and power panel	F4-90
ramp observer flare release panel	4-91
release switch	4-88
reset lights	F4-91
reset switch	F4-91, 4-90
RH empty light	4-90
transfer switch	4-88
KB-18 strike cameras	4-84
operating controls	4-84
operating procedures	4-84
Weather Data, Mission Planning	A-10
Weighing Anchor	2-40
Weight and Balance	2-1
Weight Limitations	5-8
Winch Control Panel	4-61

ALPHABETICAL INDEX (Continued)

Subject	Page Figure, Table Number
---------	---------------------------------

Subject	Page Figure, Table Number
---------	---------------------------------

W (Continued)

Winch Controls	F4-62
Winch Installation	4-58
Wind Direction and Velocity	2-26
Wind Effect in a Confined Area	F2-28
Wind Effect on Ridgeline Approach	2-27
Wind Flow In Valley or Canyon	F2-29
Wind Flow Over and Around Peaks	F2-28
Wind Flow Over Gorge or Canyon	F2-29
Windshield Antic-ice Switch	4-6
Windshield Anti-icing System	4-6
Windshield Defogger	4-6
Windshield Washer	4-76
Windshield Wiper System	4-74
Washer	4-76

Y