

TECHNICAL MANUAL

**AVIATION UNIT AND
INTERMEDIATE MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS)
FOR
HELICOPTER, ATTACK**

NSN 1520-01-168-4259	AH-1P (PROD)
1520-01-192-2478	AH-1E (ECAS)
1520-01-168-4260	AH-1F (MC)

"Approved for public release; distribution is unlimited."
--

This manual together with TM 55-1520-236-23P-1 and TM 55-1520-236-23P-3 supersedes TM 55-1520-236-23P-1, 16 April 1985, TM 55-1520-236-23P-2, 16 April 1985 and TM 55-1520-239-23P, 16 November 1983, including all changes.

HEADQUARTERS, DEPARTMENT OF THE ARMY

2 APRIL 1987

TECHNICAL MANUAL

NO. 55-1520-236-23P-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 2 Apr 1987

AVIATION UNIT AND INTERMEDIATE MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)
FOR
HELICOPTER, ATTACK

NSN 1520-01-168-4259	AH-1P	(PROD)
1520-01-192-2478	AH-1E	(ECAS)
1520-01-168-4260	AH-1F	(MC)

(Current as of 2 April 1987)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <daf2028@dmhl .stl.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

DISTRIBUTION STATEMENT A: Approved for public release; distribution unlimited.

NOTE:

This manual is printed in three volumes as follows:

TM 55-1520-236-23P-1, consisting of Table of Contents, Section I and Section II (Functional Groups 02 through 07).

TM 55-1520-236-23P-2, consisting of Table of Contents, Section II (Functional Groups 08 through 19, 50, and 60) and Section III.

TM 55-1520-236-23P-3, consisting of Table of Contents, and Section IV.

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE	ILLUSTRATION FIGURE
I.	Introduction		
	Exploded View of AH-1P/E/F Helicopter	9	1
II.	Repair Parts		
	FUNCTIONAL GROUP 02 AIRFRAME		
	Helicopter Assembly	2-1	2
	Forward Section Assembly	3-1	3
	Fuselage Assembly	4-1	4
	Wire Strike Components	4A-1	4A
	Nose Installation	5-1	5
	Fairing Installation	6-1	6
	Canopy Installation	7-1	7
	Door Installation, Gunner	8-1	8
	Door Installation, Pilot	9-1	9
	Fairing Installation	10-1	10
	Skin Installation	11-1	11
	Panel Installation	12-1	12
	Door and Access Panel Installations	13-1	13
	Skin Installation	14-1	14
	Beam Installation, LH	15-1	15
	Beam Installation, LH.	15A-1	15A
	Beam Installation, RH	16-1	16
	Beam Installation, RH	16A-1	16A
	Step and Console Installation	17-1	17
	Panel Installation	18-1	18
	Cowl Support and Engine Deck Installation.	19-1	19
	Vent and Drain Installation.. . . .	20-1	20
	Heel Rest Installation	21-1	21
	Heel Rest and Floor Installation	21A-1	21A
	Bulkhead Installation	22-1	22
	Panel Installation	23-1	23
	Support Installation	24-1	24
	Bulkhead Installation	25-1	25
	Bulkhead Installation	25A-1	25A
	Web and Guard Installation.. . . .	26-1	26
	Bulkhead Installation	27-1	27
	Floor and Bulkhead Installation	28-1	28
	Support Installation	29-1	29
	Pylon Damper Assembly	29A-1	29A
	Support Installation	30-1	30
	Closure Installation	31-1	31
	Arm Rest and Helmet Hook Installation	32-1	32
	Fairing Installation	33-1	33
	Fairing Installation	34-1	34
	Wing Installation	35-1	35

TABLE OF CONTENTS (Cont)

SECTION DESCRIPTION	PAGE	ILLUSTRATION FIGURE
Wing Installation	35A-1	35A
Gunner Seat Armor Installation	36-1	36
Pilot Seat and Armor Installation	37-1	37
Transmission Cowl Installation	38-1	38
Engine Cowl Installation	39-1	39
Fairing Assembly, Center	40-1	40
Baffle Assembly, Air	41-1	41
Fairing and Tail Pipe Installation	42-1	42
Engine Mount Installation	43-1	43
Aft Section Assembly	44-1	44
Tail Boom Installation	45-1	45
Fin Installation	46-1	46
Bulkhead Installation	47-1	47
Support and Longeron Installation	48-1	48
Spar Installation	49-1	49
Rib Installation	50-1	50
 FUNCTIONAL GROUP 03 ALIGHTING GEAR		
Landing Gear Assembly	51-1	51
Skid Shoes-Standard, Heavy Duty	51A-1	51A
 FUNCTIONAL GROUP 04 POWER PLANT INSTALLATION (See TM 55-2840-247-23P for Engine Breakdown)		
Engine and Cowl Installation	52-1	52
Particle Separator	52A-1	52A
Suppressor System Installation, IR	52B-1	52B
Kit, Exhaust, Suppression	52C-1	52C
Oil System Installation	53-1	53
Oil System Installation (MWO 1-1520-236-50-30)	53A-1	53A
Unit Assembly, Engine Oil Filter (MWO 1-1520-236-50-30)	53B-1	53B
Engine External Oil Filter (MWO 1-1520-236-50-30)	53C-1	53C
Oil Separator Lubriclone (MWO 1-1520-236-50-30)	53D-1	53D
Fan Installation	54-1	54
Turbine Fan Assembly	55-1	55
Controls Installation, Power Plant	56-1	56
Controls Installation, Droop Compensator	57-1	57
Engine Assembly	58-1	58
Starter-Generator	58A-1	58A
End Bell Assembly	58B-1	58B
Starter-Generator	58C-1	58C
Actuator, Linear	59-1	59
Actuator, Linear	61-1	61
Actuator, Linear	61A-1	61A
 FUNCTIONAL GROUP 05 ROTORS		
Pylon Installation	62-1	62
Blade Assembly, Main Rotor	63-1	63
Blade Assembly, Main Rotor	64-1	64
Hub Assembly, Main Rotor	65-1	65
Scissor and Sleeve Assembly	66-1	66
Swashplate and Support Assembly	67-1	67

TABLE OF CONTENTS (Cont)

SECTION DESCRIPTION	PAGE	ILLUSTRATION FIGURE
Tail Rotor Installation.....	68-1	68
Hub Assembly, Tail Rotor.....	69-1	69
FUNCTIONAL GROUP 06 DRIVE TRAIN		
Transmission and Mast Assembly	70-1	70
Transmission Assembly	71-1	71
Valve Installation	71 A-1	71A
Quill Assembly, Fan Drive	72-1	72
Quill Assembly, Alternator	72A-1	72A
Upper Planetary Assembly.....	73-1	73
Lower Planetary Assembly.....	74-1	74
Quill Assembly.....	75-1	75
Case Assembly	76-1	76
Quill Assembly.....	77-1	77
Case Assembly	78-1	78
Manifold Assembly	79-1	79
Quill Assembly.....	80-1	80
Drive and Sump Assembly.....	81-1	81
Quill Assembly.....	82-1	82
Quill Assembly.....	83-1	83
Quill Assembly.....	84-1	84
Case Assembly	85-1	85
Driveshaft Installation, Engine to Transmission	86-1	86
Short Shaft Assembly.....	86A-1	86A
Driveshaft Installation, Tail Rotor	87-1	87
Gearbox Assembly, 42 Degree, Tail Rotor Drive	88-1	88
Quill Assembly, 42 Degree Gearbox.....	89-1	89
Gearbox Assembly, 90 Degree, Tail Rotor Drive	90-1	90
Quill Assembly, 90 Degree Gearbox.....	91-1	91
Oil System Installation, Transmission	92-1	92
FUNCTIONAL GROUP 07 HYDRAULIC SYSTEM		
Hydraulic System Installation	93-1	93
Hydraulic System Installation	93A-1	93A
Valve Assembly.....	94-1	94
Reservoir Assembly	95-1	95
Valve, Solenoid.....	96-1	96
Module Assembly	97-1	97
Solenoid Valve.....	97A-1	97A
Hydraulic System Installation, Armament.....	98-1	98
Cylinder Assembly.....	99-1	99
Servo Cylinder	100-1	100
Cylinder and Support Assembly	101-1	101
Servo Actuator.....	102-1	102
Servovalve.....	102A-1	102A
Filter, Fluid Pressure	103-1	103
Servo Cylinder Assembly	104-1	104
Servo Cylinder Assembly	105-1	105

TABLE OF CONTENTS (Cont)

SECTION	DESCRIPTION	PAGE	ILLUSTRATION FIGURE
	FUNCTIONAL GROUP 08 INSTRUMENTS SYSTEMS		
	Tubing Installation, Instrument	106-1	106
	Panel and Glareshield Installation, Gunners	107-1	107
	Fire and Master Caution Switch	107A-1	107A
	Panel and Glareshield Installation, Pilots	108-1	108
	Indicating Panel	108A-1	108A
	Standby Compass Installation	109-1	109
	FUNCTIONAL GROUP 09 ELECTRICAL SYSTEM		
	Electrical Installation, Forward Section	110-1	110
	Electrical Installation, Forward Section	110A-1	110A
	Electrical Installation, Gunner's	111-1	111
	Panel Assembly, Gunners Miscellaneous	112-1	112
	Panel Assembly, Annunciator	112A-1	112A
	Electrical Installation, Pilot's Section	113-1	113
	Electrical Installation, Pilot's Section	113A-1	113A
	Control Panel Assembly	114-1	114
	Panel Assembly, Indicating Light	114A-1	114A
	Panel Subassembly, Indicating Light	114B-1	114B
	Circuit Card, Indicating Light	114C-1	114C
	Control Panel Assembly	115-1	115
	Panel Assembly, Circuit Breaker	116-1	116
	Panel Assembly, Circuit Breaker	116A-1	116A
	Panel Assembly, Circuit Breaker	117-1	117
	Circuit Card Assembly, Night Lighting	117A-1	117A
	Electrical Installation, Aft Compartment.	118-1	118
	Electrical Installation, Aft Compartment	118A-1	118A
	Electrical Installation, Pylon	119-1	119
	Electrical Installation, Wing	120-1	120
	Electrical Installation, Engine	121-1	121
	Electrical Installation, Armament	122-1	122
	Electrical Installation, Armament	122A-1	122A
	Electrical Installation, Aft Section	123-1	123
	Support Installation	124-1	124
	Harness Assembly, Forward Section	125-1	125
	Harness Assembly, Forward Section	125A-1	125A
	Harness Assembly, Pilot's Section	126-1	126
	Harness Assembly, Engine Electrical	127-1	127
	Harness Assembly, Armament Electrical	128-1	128
	Harness Assembly, Armament Electrical	128A-1	128A
	Equipment Installation	128B-1	128B
	FUNCTIONAL GROUP 10 FUEL SYSTEM		
	Fuel System Installation	129-1	129
	Filter Assembly, Cap and Adapter Assembly	130-1	130
	Receiver, Refueling	131-1	131
	Deleted		131A
	Deleted		132
	Deleted		133
	Fuel Pump Cartridge	133A-1	133A

TABLE OF CONTENTS (Cont)

SECTION DESCRIPTION	PAGE	ILLUSTRATION FIGURE
FUNCTIONAL GROUP 11 FLIGHT CONTROL SYSTEM		
Controls Installation, Directional System.....	134-1	134
Controls Installation, Anti-Torque	135-1	135
Controls Installation, Collective	136-1	136
Controls Installation, Longitudinal Cyclic.....	137-1	137
Controls Installation, Lateral Cyclic	138-1	138
Controls Installation, Elevator, Forward.....	139-1	139
Controls Installation, Elevator, Aft	140-1	140
Elevator Installation	141-1	141
Stick Assembly, Gunner's Cyclic.....	142-1	142
Stick Assembly, Pilot's Cyclic.....	143-1	143
Grip Assembly	143A-1	143A
Stick Assembly, Gunner's Collective.....	144-1	144
Stick Assembly, Pilot's Collective	145-1	145
Brake Assembly, Magnetic.....	146-1	146
FUNCTIONAL GROUP 12 UTILITY SYSTEMS		
Miscellaneous Installations.....	147-1	147
Mirror, Thermometer and AshTray Installation.....	148-1	148
Fire Detection Installation.....	149-1	149
FUNCTIONAL GROUP 13 ENVIRONMENTAL CONTROL SYSTEMS		
Air Distribution Installation	150-1	150
Valve, Pressure, Air.....	150A-1	150A
Valve Assembly, Air Distribution.....	150B-1	150B
Valve Assembly, Air Distribution.....	150C-1	150C
Environmental Control Unit	151-1	151
Turbine Assembly, Cooling	152-1	152
Valve Assembly	153-1	153
Valve Assembly	154-1	154
Avionics Cooling Installation, Tail Boom	155-1	155
Fan, Vaneaxial.....	156-1	156
Motor Assembly, DC	157-1	157
Avionics Cooling Installation, Forward.....	158-1	158
FUNCTIONAL GROUP 16 MISSION EQUIPMENT		
Servo Control Unit Assembly.....	159-1	159
Wiring Assembly, Printed, A2 Standby.....	160-1	160
Wiring Assembly, Printed, AI Power	161-1	161
Wiring Assembly, Printed, A3 Port	162-1	162
Resolver Assembly.....	163-1	163
Weapon's Subsystem Installation	164-1	164
Weapon's Subsystem Installation	164A-1	164A
Pylon Installation, Outboard, LH and RH.....	165-1	165
Rack Assembly, Outboard, LH and RH.....	165A-1	165A
Actuator Assembly, Armament, LH and RH.....	166-1	166
Pylon Installation, Inboard, LH and RH	167-1	167

TABLE OF CONTENTS (Cont)

SECTION DESCRIPTION	PAGE	ILLUSTRATION FIGURE
Rack Assembly.....	167A-1	167A
Ejector Assembly.....	167B-1	167B
Rack Assembly, Inboard, RH and LH.....	167C-1	167C
Rack Assembly, External Ejector	168-1	168
Receiver Installation	168A-1	168A
Hub and Mount Installation.....	168B-1	168B
M130 Chaff Dispenser Installation	168C-1	168C
Connector Bracket Installation	168D-1	168D
Pilot Dispenser Switch Installation.....	168E-1	168E
Microswitch/Test Installation	168F-1	168F
Cable Routing.....	168G-1	168G
Gunnery Dispenser Switch Installation.....	168H-1	168H
Gunnery Switch Assembly	168I-1	168I
Window Installation, Gearbox Fairing.....	168J-1	168J
Circuit Breaker Box Installation	168K-1	168K
M130 Electronic Module Installation.....	168L-1	168L
M130 Electronic Module Installation.....	168M-1	168M
Chaff Dispenser.....	168N-1	168N
AIM-1 Installation.....	168O-1	168O
Switch/Relay Installation.....	168P-1	168P
Switch/Relay Assembly	168Q-1	168Q
Cable Routing.....	168R-1	168R
IR Laser Installation.....	168S-1	168S
 FUNCTIONAL GROUP 17 EMERGENCY EQUIPMENT		
Emergency Equipment Installation.....	169-1	169
Canopy Removal System Installation.....	170-1	170
 FUNCTIONAL GROUP 18 FM COMMUNICATIONS		
Radio Communication Upgrade	171-1	171
Battery Box Installation.....	172-1	172
IFM ARN-89 Installation	173-1	173
IFM Bypass Assembly	174-1	174
Doubler, Cable Feedthru	175-1	175
Aft Disconnect Bracket	176-1	176
Fairing Installation	177-1	177
Fairing Assembly	178-1	178
Cable Routing.....	179-1	179
Cable Routing.....	180-1	180
Switch Assembly Installation	181-1	181
 FUNCTIONAL GROUP 19 COUNTERMEASURES (CM) EQUIPMENT		
AN/AVR-2 Laser Detection Set	182-1	182
Sensor and Fairing Installation.....	183-1	183
Comparator Installation	184-1	184
Cable Routing and Clamping stations.....	185-1	185

TABLE OF CONTENTS (Cont)

SECTION DESCRIPTION	PAGE	ILLUSTRATION FIGURE
FUNCTIONAL GROUP 50 KITS AND QUICK CHANGE ASSEMBLIES.....	KITS-1	
FUNCTIONAL GROUP 60 BULK MATERIALS	BULK-1	
III FUNCTIONAL GROUP 80 SPECIAL TOOLS, TEST AND SUPPORT EQUIPMENT		
Airframe Tools	A1-1	A1
Flyaway Items.....	F1-1	F1
Ground Support Items	G1-1	G1
IV NATIONAL STOCK NUMBER AND PART NUMBER INDEX	I-1	
Supplementary National Stock No. and Part No. Index C1.....	1-506	
Part No. Supplemental Index C2.....	1-511	
Supplementary National Stock No. and Part No. Index C5.....	1-547	
Part No. Supplemental Index C7.....	1-551	
National Stock No. Supplemental Index C7	1-589	
National Stock No. Supplemental Index C10	1-602A	
Supplemental National Stock No. and Part No. Index C8.....	1-603	
Supplemental National Stock No. and Part No. Index C8.....	1-625	
Supplemental National Stock No. and Part No. Index C10.....	1-639	
Supplemental National Stock No. and Part No. Index C11.....	1-641	
Supplemental National Stock No. and Part No. Index C12.....	1-643	
Supplemental National Stock No. and Part No. Index C12.....	1-655	

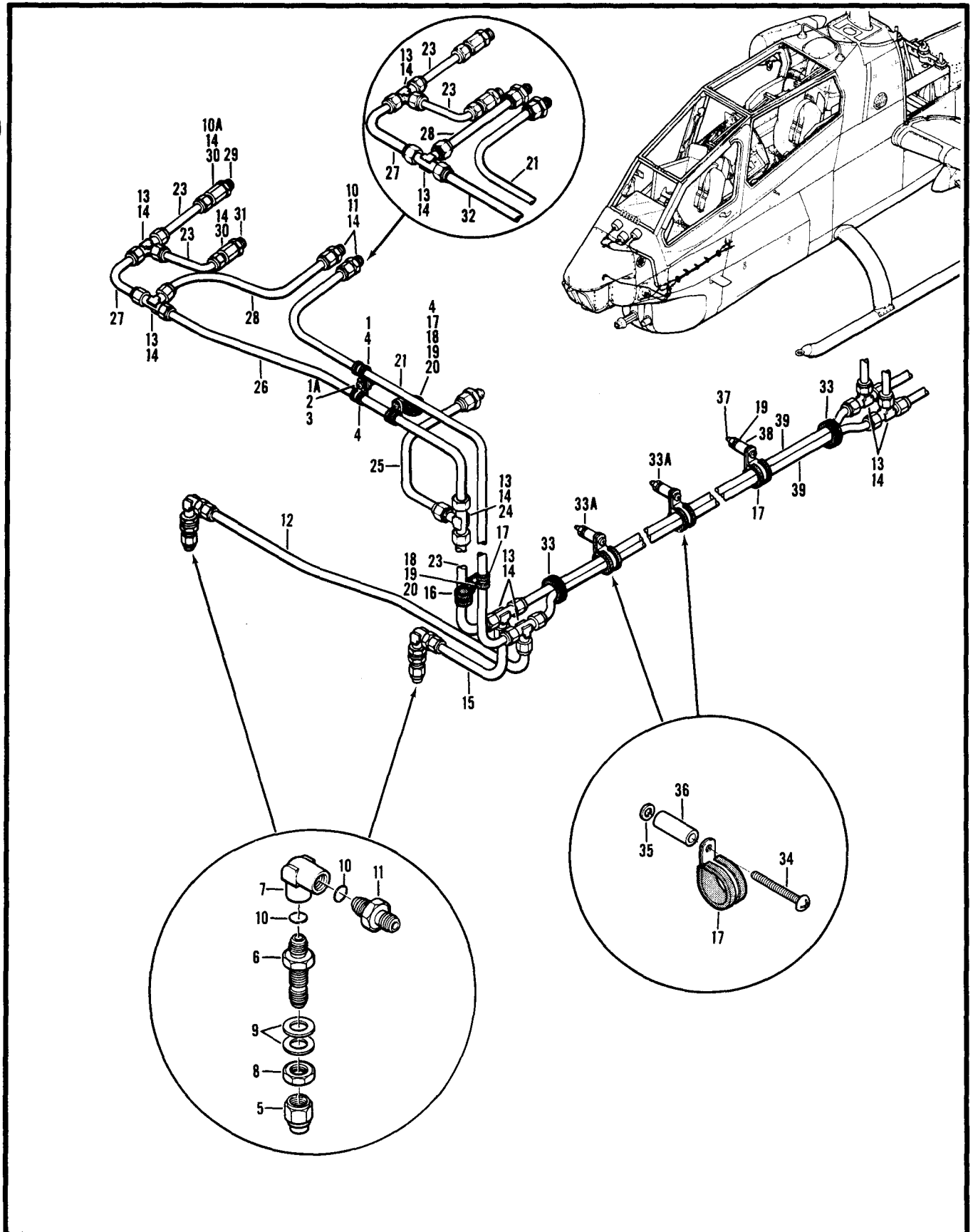


Figure 106. Tubing Installation, Instrument (Sheet 1 of 2)

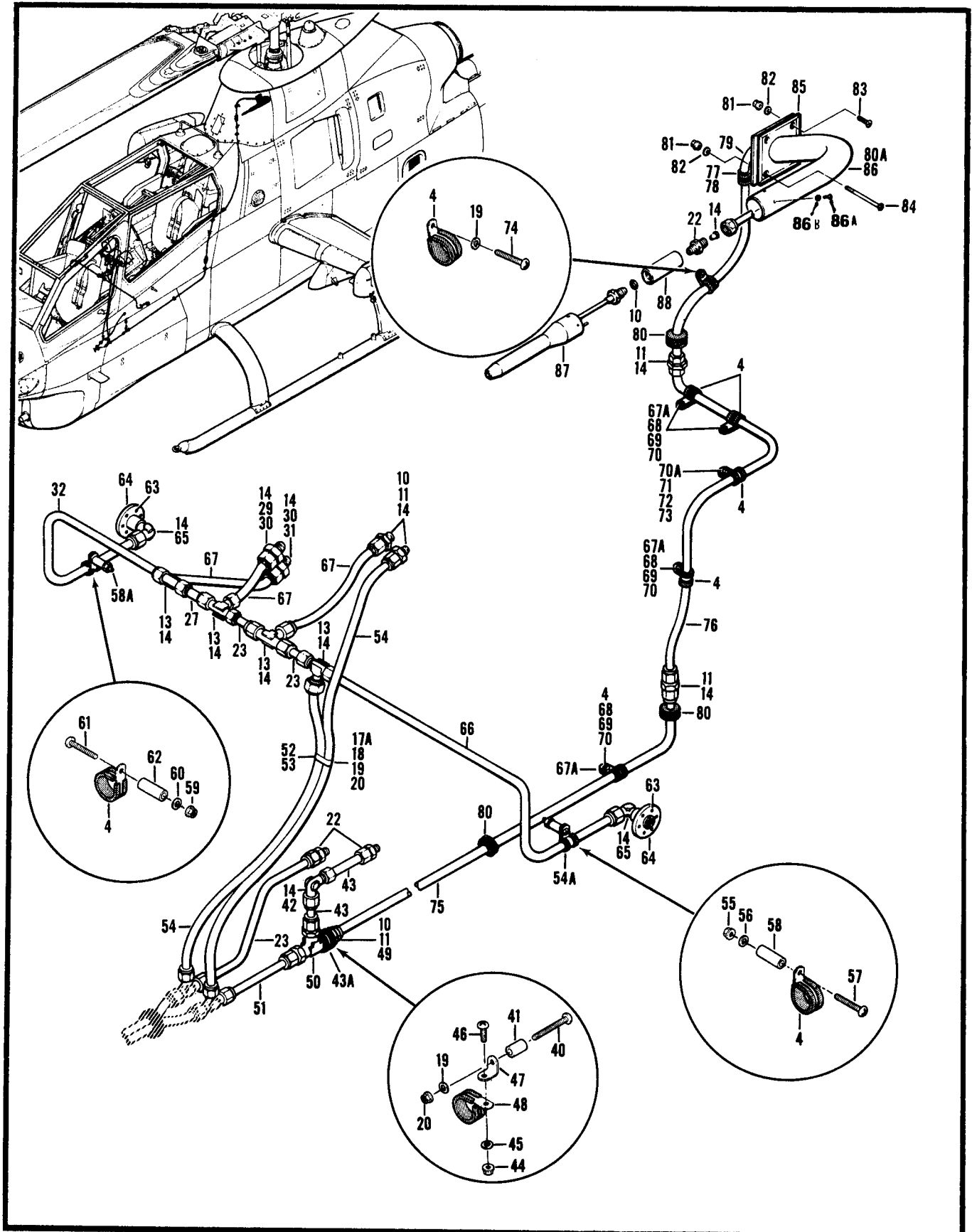


Figure 106. Tubing Installation, Instrument (Sheet 2 of 2)

SECTION II		TM55-1520-236-23P			
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
GROUP 08 INSTRUMENT SYSTEM					
FIGURE 106. TUBING INSTALLATION, IN STRUMENT					
	XCFZZ	97499	209-075-631-1	TUBING INSTL SEE FIG.3 FOR NHA UOC:A2S	1
	XCFZZ	97499	209-075-631-101	TUBING INSTL SEE FIG.3 FOR NHA UOC:A2S, A4S	1
1	XC0ZZ	97499	33-001-218-1	.SUPPORT INSTL UOC:A2S, A3S, A4S	1
1A	PA0ZZ	96906	MS21042L3	. .NUT, SELF-LOCKING, EX UOC:A2S, A3S, A4S	1
2	PA0ZZ	88044	AN960PD10L	. .WASHER, FLAT UOC:A2S, A3S, A4S	1
3	PA0ZZ	96906	MS27039-1-08	. .SCREW, MACHINE UOC:A2S, A3S, A4S	1
4	XD0ZZ	96906	MS21122-4	. CLAMP, LOOP UOC:A2S, A3S, A4S	14
5	PA0ZZ	88044	AN929-4	. CAP, TUBE UOC:A2S, A3S, A4S	2
6	PA0ZZ	96906	MS24393D4	.NIPPLE, TUBE UOC:A2S, A3S, A4S	2
7	PA0ZZ	88044	AN939D4	. ELBOW, BOSS UOC:A2S, A3S, A4S	2
8	PA0ZZ	96906	MS24400D4	. NUT, PLAIN, HEXAGON UOC:A2S, A3S, A4S	2
9	PA0ZZ	88044	AN960PD716	. WASHER, FLAT UOC:A2S, A3S, A4S	4
10	PC0ZZ	96906	MS28778-4	. PACKING, PREFORMED UOC:A2S, A3S, A4S	12
10A	PC0ZZ	96906	MS28778-6	. PACKING, PREFORMED UOC:A2S, A3S, A4S	1
11	PA0ZZ	97499	50-012-08N400	.NIPPLE, TUBE UOC:A2S, A3S, A4S	11
12	M00ZZ	97499	130-011-4N168	. TUBE, NONMETALLIC UOC:A2S, A3S, A4S	1
13	PA0ZZ	97499	50-012-15N400	. TEE, PITOT TUBE 11EA U/D PN 209- 075-631-1 AND 10EA U/O PN 209-075- 631-101 UOC:A2S, A3S, A4S	11
14	PA0ZZ	97499	50-012-01N404	.INSERT, TUBE FITTING 51 EA U/O PN 209-075-631-1 AND 47 EA U/O PN 209- 075-631-101 UOC:A2S, A3S, A4S	51
15	M00ZZ	97499	130-011-4N126	. TUBE, NONMETALLIC UOC:A2S, A3S, A4S	1
16	PA0ZZ	96906	MS21122-23	. CLAMP, LOOP UOC:A2S, A3S, A4S	1
17	PA0ZZ	96906	MS21122-7	. CLAMP, LOOP UOC:A2S, A3S, A4S	5
17A	PA0ZZ	96906	MS21919WDG7	. CLAMP, LOOP	1