

# CHAPTER 2

## MAINTENANCE CONCEPTS, SCHEDULING, AND DOCUMENTATION

### Section 2-1. Maintenance Concepts

#### 2-1. GENERAL.

**2-2. NAVAL AVIATION MAINTENANCE PROGRAM.** All maintenance and inspection actions upon Aviation Life Support Systems (ALSS) equipment shall be made as part of the Naval Aviation Maintenance Program in accordance with OPNAVINST 4790.2 Series.

**2-3. LEVELS OF MAINTENANCE.** Maintenance of ALSS equipment shall be performed at the established level of maintenance in accordance with OPNAVINST 4790.2 Series.

**2-4. QUALIFIED PERSONNEL.** Refer to OPNAVINST 4790.2 Series for qualifications of personnel authorized to perform maintenance actions on ALSS equipment.

### Section 2-2. Maintenance Scheduling

#### 2-5. GENERAL.

**2-6. INSPECTION CYCLES.** Scheduled maintenance requirements for aircraft and man-mounted equipment are published in the applicable aircraft maintenance requirement cards and this manual.

#### NOTE

To meet unusual situations and facilitate workload scheduling, refer to OPNAVINST 4790.2 Series for authorized deviations to scheduled phase inspection intervals.

### Section 2-2A. Accident Evaluation

#### 2-6A. AIRCRAFT ACCIDENT REPORT INSPECTION.

2-6B. Any Aviation Life Support System Equipment along with related subassemblies or equipment which have been recovered following use in an emergency ditching/bailout or ejection (refer to NAVAIR 13-1-6.2 for personnel and drogue parachutes) will be returned to the nearest Naval Supply Activity for shipment via traceable means to: Code 4.6.3.3, Naval Air Warfare Center Aircraft Division, Bldg 2187, 48110 Shaw Rd., Unit 5, Patuxent River, MD 20670-1906.

#### NOTE

Under no circumstances will any piece of Aviation Life Support System equipment which has been subjected to ditching/bailout or ejection be returned to service.

2-6C. Stencil outside of container in 1 inch letters as follows: THIS EQUIPMENT HAS BEEN USED IN AN EMERGENCY. These items of equipment are required for evaluation and determination of design deficiency and to establish requirements for product improvement.

### Section 2-3. Maintenance Documents

#### 2-7. GENERAL.

**2-8. DOCUMENTING MAINTENANCE ACTIONS.** Upon completion of any maintenance action (e.g., inspections, repairs, modifications), appropriate entries shall be made on applicable maintenance records, in accordance with OPNAVINST 4790.2 Series. The entries by the Aircrew Survival Equipmentman shall provide a systematic record of equipment history and the

documentation of all maintenance actions performed on the equipment.

**2-9. MAINTENANCE DOCUMENTS.** Refer to OPNAVINST 4790.2 Series for documents used to record history or to document maintenance actions or for additional information for completion of maintenance records. These records are designed to provide continuous configuration and inspection records throughout the service life of ALSS assemblies and their components.

## Section 2-4. Illustrated Parts Breakdown Information

### 2-10. GENERAL.

2-11. This section explains the Illustrated Parts Breakdown (IPB) for ALSS equipment. The IPB can be found at the end of each chapter where applicable. The IPB should be used during maintenance when requisitioning and identifying parts.

**2-12. SYMBOLS AND ABBREVIATIONS.** Symbols and abbreviations used in the Illustrated Parts Breakdown are as follows:

Symbol	Definition
---*---	Closure (end) of attaching parts
#	Selected part, only one used
x	By (used in dimensions 12 in. x 6 in.)
&	And
Abbreviation	Definition
AR or A/R	As Required
CAGE	Commercial and Government Entity
COML	Commercially available
FIG, Fig	Figure
GAPL	Group Assembly Parts List
GFE	Government Furnished Equipment
IPB	Illustrated Parts Breakdown
L.H.	Left Hand
MAINT	Maintenance
NHA	Next Higher Assembly
No.	Number
RECOVER, RECY	Recoverability
REF	Reference
R.H.	Right Hand
SM&R	Source, Maintenance and Recoverability
Spec. Cont.	
Dwg. or SCD	Specification Control Drawing

### 2-13. GROUP ASSEMBLY PARTS LIST.

2-14. The Group Assembly Parts List (GAPL) contains illustrations and parts lists for each major assembly. These illustrations and accompanying lists show how the major assemblies are disassembled into subassemblies and detail parts. Each item illustrated is indexed for identification purposes. Each illustration is accompanied by a parts list providing a part number, descrip-

tion, and quantity for each item. The list is arranged in disassembly order. Through the use of a system of indentation, the relationship of the detail parts to the subassemblies and the relationship of the subassemblies to the main assembly, is shown.

### 2-15. FIGURE AND INDEX NUMBER COLUMN.

The figure and index number of each item shown on the corresponding illustration appears in the Figure and Index Number Column, with the exception of assemblies and subassemblies which are not illustrated in assembled form. In these cases, the assemblies or subassemblies are listed but not indexed. The component parts thereof are both listed and indexed.

**2-16. PART NUMBER COLUMN.** This column contains the contractor's drawing number, government standard number, vendor drawing number or identifies the part as being commercial hardware (COML). Government standard parts are listed using the applicable MS, AN, AF, NAF, MIL, or JAN part number. Where the part number is controlled by a military specification, this specification number is listed in the Description Column.

**2-17. DESCRIPTION COLUMN.** This column lists the item name plus those modifiers necessary to identify the item. The description of a vendor-supplied item includes a five-digit number which identifies the manufacturer. This is the Commercial and Government Entity (CAGE) code. To correlate this CAGE code to the manufacturer's name, refer to the cataloging handbook H4/H8. CAGE codes may be omitted for prime manufacturer's parts and for government standard parts. When applicable, contractor's control drawing numbers and reference designations of electronic parts are also listed for general reference. When a separate exploded view is used to show the detail parts of an assembly or subassembly the Description Column contains an appropriate figure cross-reference in parenthesis following the description. This cross-reference appears both in the listing where the assembly is first described, and in the listing which the assembly is broken down. In the latter case, the abbreviation REF will appear in the Units Per Assembly column. Commercial hardware items (COML) are fully described so that they may be procured from normal commercial sources. Parts stocked in kits are identified with kit component code in this column, i.e., KD.

**2-18. Indentation.** The indentations headed “1” through “7” in the Description Column are provided to show the relationship of assemblies and their detail parts. The detail parts are indented one space to the right and listed below the assembly to which they belong. Determine the next higher assembly (NHA) of any detail part by locating, in the next space to the left (excluding attaching parts) the first item above the detailed part.

1 2 3 4 5 6 7

- ARTICLE (or MAIN ASSEMBLY)
  - . Detailed parts for ARTICLE (or MAIN ASSEMBLY)
  - . ASSEMBLY
    - (ATTACHING PARTS)
    - . ATTACHING PARTS FOR ASSEMBLY
      - \*---
      - . . Detailed parts for ASSEMBLY
      - . . SUBASSEMBLY
        - (ATTACHING PARTS)
        - . . ATTACHING PARTS FOR SUBASSEMBLY
          - \*---
          - . . . Detailed parts for SUBASSEMBLY
          - . . . SUB-SUBASSEMBLY
            - (ATTACHING PARTS)
            - . . . ATTACHING PARTS FOR SUB-SUBASSEMBLY
              - \*---
              - . . . . Detailed parts for SUB-SUBASSEMBLY

**2-19. Attaching Parts.** Attaching parts are items used to attach parts or assemblies to each other and follow immediately after the part to be attached. The attaching parts have the same indentation as the part attached. The caption “(ATTACHING PARTS)” is placed on the line immediately above the listing of attaching parts. The separation symbol ---\*--- appears on the line immediately under the last attaching part. Quantities of attaching parts are listed per unit. For example, if two fittings are required for each assembly and one bolt is required to attach each fitting, the correct listing would be:

- . FITTING ASSEMBLY, Hinge ..... 2
  - (ATTACHING PARTS)
  - . BOLT ..... 1
    - \*---

**2-20. UNITS PER ASSEMBLY COLUMN.** This column shows the quantity of an item required in the next higher assembly. The abbreviation AR indicates when the quantity is “As Required”.

**2-21. USABLE ON CODE COLUMN.** Usable on codes are used to indicate part usage where various models and serial numbers of the equipment or similar parts within the equipment use different parts. A code is assigned to each variation of the equipment and entered into the GAPL when a part is used only in a specified variation. Where no code is entered, the part is used on all units covered by the GAPL or when no variations from the original equipment exist.

**2-22. NUMERICAL INDEX.**

2-23. The numerical index which follows each GAPL contains all the part numbers listed in that GAPL, arranged in alphabetical-numerical sequence.

**2-24. PART NUMBER COLUMN.** This column contains the part numbers of the parts and assemblies. Part number arrangement starts at the extreme left-hand position and continues left to right, one position at a time, according to the following order or precedence:

Space	(blank column)
Diagonal	(Slant)
Point	(period)
Dash	(hyphen)
Letters	A through Z
Numerals	0 through 9

**NOTE**

Spaces, diagonals, points, and dashes do not appear in the extreme left-hand position of the part numbers. However, they may be used in the second and succeeding positions and take precedence over letters and numbers as indicated above.

**2-25. FIGURE AND INDEX NUMBER COLUMN.** In this column, the digits preceding the dash refer to the figure in which the parts are illustrated. The digits following the dash are the index numbers.

**2-26. SOURCE, MAINTENANCE AND RECOVERABILITY (SM&R) CODE COLUMN.** The five digit SM&R codes, assigned by Naval Air Systems Command Representatives are reflected in the SM&R code column. The code format is composed of three parts consisting of a two-position Source Code, a two-position Maintenance Code and a one-position Recoverability Code. See table 2-1 for basic information.

**NOTE**

For more complete information on Uniform SM&R Codes, refer to NAVSUPINST 4423.29, OPNAVINST 4410.2A, and NAVSUP P-719.

Table 2-1. Source, Maintenance, and Recoverability (SM&R) Code Definitions

SOURCE			MAINTENANCE				
1st POS	2nd POSITION		3rd POSITION		4th POSITION		
MEANS OF ACQUIRING SUPPORT			USE: LOWEST LEVEL AUTHORIZED TO REMOVE/ REPLACE THE ITEM.		REPAIR: LOWEST LEVEL WITH CAPABILITY AND RESOURCES TO PERFORM COMPLETE REPAIR ACTION.		
P	A	ITEM: STOCKED	O	ORG/UNIT	O	ORG/UNIT	
	B	ITEM: STOCKED, INSURANCE					
	C	ITEM: STOCKED, DETERIORATIVE					
	D	ITEM: SUPPORT, INITIAL ISSUE OF OUTFITTING & STOCK ONLY FOR ADDITIONAL INITIAL ISSUE	2	MINESWEEPER SUBMARINES AUX/AMPHIB DESTROYER, FFG CRUISER/CARRIER	2	MINESWEEPER SUBMARINES AUX/AMPHIB DESTROYER, FFG CRUISER/CARRIER	
	E	EQUIPMENT: SUPPORT, STOCKED FOR INITIAL ISSUE OR OUTFITTING OF SPECIFIED MAINTENANCE ACTIVITIES	3				
	F	EQUIPMENT: SUPPORT, NONSTOCKED, CENTRALLY PROCURED ON DEMAND	4				
	G	ITEM: STOCKED FOR SUSTAINED SUPPORT. UNECONOMICAL TO PRODUCE AT A LATER TIME	5				
	H	ITEM: STOCKED, CONTAINS HAZMAT. HMIS/MSDS REPORTING REQUIRED	6	F	I/AFLOAT	F	I/AFLOAT
	R	TERMINAL OR OBSOLETE, REPLACED					
Z	TERMINAL OR OBSOLETE, NOT REPLACED						
K	D	ITEM: DEPOT O/H & MAINTENANCE KITS	H	I/ASHORE	H	I/ASHORE	
	F	ITEM: MAINTENANCE KIT, PLACE AT O, F, H, L					
	B	ITEM: IN BOTH DEPOT REPAIR AND MAINT. KITS					
M	O	MFR OR FAB AT UNIT LEVEL	K	CONTRACTOR FACILITY	K	CONTRACTOR FACILITY	
	F	MFR OR FAB AT INTERMEDIATE/DS LEVEL					
	H	MFR OR FAB AT INTERMEDIATE/GS LEVEL					
	L	MFR OR FAB AT SPECIALIZED REPAIR ACTIVITY (SRA)					
	G	MFR OR FAB AT ASSEMBLED AFLOAT OR ASHORE					
D	MFR OR FAB AT DEPOT MAINTENANCE LEVEL						
A	O	ITEM: ASSEMBLED AT ORG/UNIT	L	INTERMEDIATE SRA	L	INTERMEDIATE SRA	
	F	<del>ITEM: ASSEMBLED AT INTERMEDIATE LEVEL - AFLOAT</del>					
	H	ITEM: ASSEMBLED AT INTERMEDIATE LEVEL - ASHORE					
	L	<del>ITEM: ASSEMBLED AT SRA</del>					
	G	ITEM: ASSEMBLED AFLOAT OR ASHORE					
D	ITEM: ASSEMBLED AT DEPOT MAINTENANCE LEVEL						
X	A	ITEM: REQUISITION NEXT HIGHER ASSEMBLY	Z	REF ONLY	Z	NON-REPAIRABLE	
	B	ITEM: NOT PROCURED OR STOCKED, AVAILABLE THRU SALVAGE, REQ. BY CAGE/PART NUMBER					
	C	INSTALLATION DRAWING, DIAGRAM, INSTRUCTION SHEET, IDENTIFY BY CAGE/PART NUMBER					
	D	NON-STOCKED, OBTAIN VIA LOCAL PURCHASE			B	RECONDITION	

RECOVERABILITY		SERVICE OPTION CODE	
5th POSITION		6th POSITION	
DISPOSITION: WHEN UNSERVICEABLE OR UNECONOMICALLY REPAIRABLE, CONDEMN OR DISPOSE.		ASSIGNED TO SUPPORT ITEMS TO CONVEY SPECIFIC INFORMATION TO THE SERVICE'S LOGISTICS COMMUNITY/OPERATING FORCES.	
O	ORG/UNIT	1	I-LEVEL 1ST DEGREE
F	I/AFLOAT	2	I-LEVEL 2ND DEGREE
G	ASHORE AND AFLOAT	3	I-LEVEL 3RD DEGREE
H	I/ASHORE	6	COMMERCIAL ITEM, ORGANICALLY MFR'D
K	DLR; CONTRACTOR FACILITY	8	NON-CONSUMABLE; 2ND DEGREE ENGINE I-LEVEL
		9	NON-CONSUMABLE; 3RD DEGREE ENGINE I-LEVEL
L	INTERMEDIATE SRA LEVEL	E	END TO END TEST
		J	INTER-SERVICE DLR REPAIRABLE BELOW D-LEVEL
D	DLR; CONDEMN OR DISPOSE AT DEPOT	P	PROGRESSIVE MAINTENANCE
Z	NON-REPAIRABLE	R	GOLD DISC REPAIR
A	NON-REPAIRABLE BUT REQUIRES SPECIAL HANDLING	T	TRAINING DEVICES