Collins Aerospace

OWNER'S MANUAL

FA-AV( ) Series Liferaft

MFG-526

Collins Aerospace

FA-AV( ) Series Liferaft

Owner's Manual

This manual includes coverage of the following equipment:

WINSLOW Liferaft Models		FAA Part Number	Rated Capacity	Overload Capacity
46	FA-AV(SL)	46FASL	4	6
46	FA-AV(UL)	46FAUL	4	6
46	FA-AV(PSA)	46FPSA	4	6
46	FA-AV(SA)	46FASA	4	6
46	FA-AV(LU)	46FSLU	4	6
57	FA-AV(SL)	57FASL	5	7
57	FA-AV(UL)	57FAUL	5	7
57	FA-AV(PSA)	57FPSA	5	7
57	FA-AV(SA)	57FASA	5	7
57	FA-AV(LU)	57FSLU	5	7
69	FA-AV(SL)	69FASL	6	9
69	FA-AV(UL)	69FAUL	6	9
69	FA-AV(PSA)	69FPSA	6	9
69	FA-AV(SA)	69FASA	6	9
69	FA-AV(ESA)	69EFASA	6	9
69	FA-AV(LU)	69FSLU	6	9
69	FA-AV(AD)	69FAAD	6	9
710	FA-AV(SL)	710FASL	7	10
710	FA-AV(UL)	710FAUL	7	10
710	FA-AV(PSA)	710FPSA	7	10
710	FA-AV(SA)	710FASA	7	10
710	FA-AV(LU)	710FSLU	7	10
812	FA-AV(SL)	812FASL	8	12
812	FA-AV(UL)	812FAUL	8	12
812	FA-AV(PSA)	812FPSA	8	12
812	FA-AV(SA)	812FASA	8	12
812	FA-AV(LU)	812FSLU	8	12

Winslow LifeRaft Company, a part of Collins Aerospace
Lake Suzy, FL 34269, USA
CAGE Code: 1T3K6

WINSLOW Liferaft Models		FAA Part Number	Rated Capacity	Overload Capacity
913	FA-AV(SL)	913FASL	9	13
913	FA-AV(UL)	913FAUL	9	13
913	FA-AV(PSA)	913FPSA	9	13
913	FA-AV(SA)	913FASA	9	13
913	FA-AV(LU)	913FSLU	9	13
1015	FA-AV(SL)	1015FASL	10	15
1015	FA-AV(UL)	1015FAUL	10	15
1015	FA-AV(PSA)	1015FPSA	10	15
1015	FA-AV(SA)	1015FASA	10	15
1015	FA-AV(LU)	1015FSLU	10	15
1116	FA-AV(SL)	1116FASL	11	16
1116	FA-AV(UL)	1116FAUL	11	16
1116	FA-AV(PSA)	1116FPSA	11	16
1116	FA-AV(SA)	1116FASA	11	16
1116	FA-AV(LU)	1116FSLU	11	16
1218	FA-AV(SL)	1218FASL	12	18
1218	FA-AV(UL)	1218FAUL	12	18
1218	FA-AV(PSA)	1218FPSA	12	18
1218	FA-AV(SA)	1218FASA	12	18
1218	FA-AV(ESA)	1218EFASA	12	18
1218	FA-AV(LU)	1218FSLU	12	18
1320	FA-AV(SL)	1320FASL	13	20
1320	FA-AV(UL)	1320FAUL	13	20
1320	FA-AV(PSA)	1320FPSA	13	20
1320	FA-AV(SA)	1320FASA	13	20
1320	FA-AV(LU)	1320FSLU	13	20
1421	FA-AV(UL)	1421FAUL	14	21
1421	FA-AV(PSA)	1421FPSA	14	21
1421	FA-AV(SA)	1421FASA	14	21
1522	FA-AV(UL)	1522FAUL	15	22
1522	FA-AV(PSA)	1522FPSA	15	22
1522	FA-AV(SA)	1522FASA	15	22

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TABLE OF CONTENTS

This is not a service manual. The contents of this Owner's Manual are not intended to be used for the servicing of Winslow liferafts. The contents presented in this Owner's Manual have been designed to provide the liferaft owner with information about the product, its specifications, storage, and use during overwater emergencies.

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OWNER'S MANUAL

1. Introduction

   A. This Owner's Manual provides information to the liferaft owner regarding the liferaft specifications, Survival Equipment Package (SEP) configurations, storage, service, and operation for the Winslow model liferaft FA-AV( ) manufactured by WINSLOW LifeRaft Company. This includes the liferaft series listed below. Refer to Paragraph 9., "Liferaft Part Number Explanation" for more information on specific liferaft part numbers.

Super Light	Single Arch	Extended Single Arch	Ultra Light	Ultima Light	Air Drop
46FA-AV(SL)	46FA-AV(SA) / 46FA-AV(PSA)		46FA-AV(UL)	46FA-AV(LU)	
57FA-AV(SL)	57FA-AV(SA) / 57FA-AV(PSA)		57FA-AV(UL)	57FA-AV(LU)	
69FA-AV(SL)	69FA-AV(SA) / 69FA-AV(PSA)	69FA-AV(ESA)	69FA-AV(UL)	69FA-AV(LU)	69FA-AV(AD)
710FA-AV(SL)	710FA-AV(SA) / 710FA-AV(PSA)		710FA-AV(UL)	710FA-AV(LU)	
812FA-AV(SL)	812FA-AV(SA) / 812FA-AV(PSA)		812FA-AV(UL)	812FA-AV(LU)	
913FA-AV(SL)	913FA-AV(SA) / 913FA-AV(PSA)		913FA-AV(UL)	913FA-AV(LU)	
1015FA-AV(SL)	1015FA-AV(SA) / 1015FA-AV(PSA)		1015FA-AV(UL)	1015FA-AV(LU)	
1116FA-AV(SL)	1116FA-AV(SA) / 1116FA-AV(PSA)		1116FA-AV(UL)	1116FA-AV(LU)	
1218FA-AV(SL)	1218FA-AV(SA) / 1218FA-AV(PSA)	1218FA-AV(ESA)	1218FA-AV(UL)	1218FA-AV(LU)	
1320FA-AV(SL)	1320FA-AV(SA) / 1320FA-AV(PSA)		1320FA-AV(UL)	1320FA-AV(LU)	
	1421FA-AV(SA) / 1421FA-AV(PSA)		1421FA-AV(UL)		
	1522FA-AV(SA) / 1522FA-AV(PSA)		1522FA-AV(UL)		

   B. All liferafts covered by this manual have been manufactured in compliance with Federal Aviation Administration-Technical Standard Order, TSO-C70a, Type I.

   C. Revisions to technical data, design changes and modifications shall be issued via a Service Bulletin as required for compliance with FAR Part 145.109.

2. Liferaft Description

   A. The liferafts covered by this manual have been manufactured by WINSLOW LifeRaft Company, 11700 Winslow Drive, Lake Suzy, FL 34269.

   B. All FA-AV(SL), FA-AV(UL), FA-AV(SA), FA-AV(PSA), FA-AV(ESA), FA-AV(LU), and FA-AV(AD) liferafts are intended to be used on aircraft during over water emergencies. The FA-AV(AD) liferaft can also be air-dropped if the liferaft has been packed in the specialized canister that has been designed for air drops.

C. The liferafts are composed of two (2) identical buoyancy tubes mounted one above the other.

D. An automatically inflatable arch system supports the self-erecting canopy.

E. The FA-AV(SL), FA-AV(UL), FA-AV(LU), and FA-AV(AD) liferafts feature an inflatable double floor that provides insulation in cold water or arctic conditions. The double floor is ideal for tropical conditions, when deflated.

F. The inflatable floor allows for the pooling of water to allow for easier bailing.

G. The canopy can be opened into two different positions, 'Sail or 'Convertible', as shown in Figure 1 and Figure 2, below. The canopy can also be completely closed to keep water outside the liferaft, as shown in Figure 3, below.

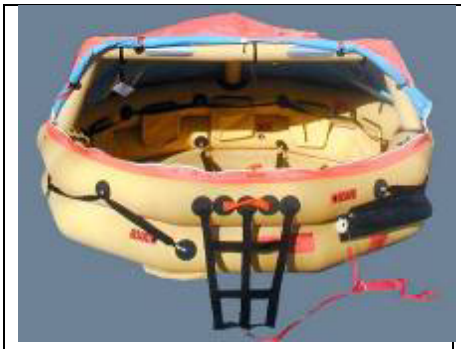

Figure 1, Canopy in 'Sail' Position

Figure 2, Canopy in 'Convertible' Position

Figure 3, Closed Canopy

H. A Pentagonal Ballast System ^{TM} is installed under the floor for added stability. Each of the five (5) ballast bags provides 79.2 lbs. (36.0kg) of ballast at 39^{o}F (3.9°C), in fresh water.

I. A righting line, as required by TSO-C70a, is provided in case the liferaft inflates in an inverted position. Instructions for righting the liferaft are printed on the lower tube.

J. Two (2) boarding ladders, one at either end of the liferaft, are provided for ease of entering the liferaft from the water. In addition, an 'Inside-the-Liferaft' assist-boarding ladder provides additional assistance in boarding the liferaft.

K. A liferaft knife is provided at the main entrance of the liferaft to cut the mooring line for emergency release from the aircraft. The liferaft knife is tethered to the upper buoyancy tube to avoid loss.

L. A self-deploying sea anchor is provided at the trailing end of the liferaft to reduce drift and stabilize the liferaft in heavy seas.

M. A heaving trailing line with a floating handle is attached to the liferaft to help in pulling survivors to the liferaft.

N. Water-activated survivor locator lights are located on the inside of the liferaft canopy and on the outside of the canopy system in order to assist survivors/rescuers in locating the liferaft at night. The FASA and FPSA series liferafts have only the survivor locator light on the outside.

O. Survival equipment is packed inside the liferaft for a standard packed liferaft. Other pack configurations may have some or all of the survival equipment packed in an attached ditch kit.

P. Liferafts are equipped with a single Carbon Dioxide and Nitrogen cylinder/valve assembly that feeds both buoyancy tubes and the canopy arch system through independent check valves. Each tube is capable of supporting the overload capacity of the liferaft alone if one tube were to become permanently damaged.

Q. Manual inflation valves are incorporated in the buoyancy tubes and arch for adding air due to pressure loss from temperature fluctuations or leaks. The FA-AV(SL), FA-AV(UL), FA-AV(LU), and FA-AV(AD) liferafts feature an inflatable floor that is manually inflated through the valve. A transfer valve isolates the arch tube canopy support system in the event of pressure loss from the upper buoyancy tube.

R. One (1) pressure relief valve (PRV) is incorporated in each buoyancy tube to prevent over-pressurization during inflation and temperature fluctuations.

3. SEP Configurations & Components

A. Refer to Paragraph 9., "Liferaft Part Number Explanation" for the specific liferaft part number SEP kit descriptions.

B. A SEP inventory list is included in the documents pouch on the liferaft.

4. Stowage (On Aircraft)

A. Refer to the Original Equipment Manufacturer (OEM) Aircraft Maintenance Manual (AMM) for aircraft stowage recommendations.

B. The cavity dimensions for liferaft stowage must allow for clearance in all dimensions (length, width, and depth) to allow for easy liferaft removal. A 0.5 in. (1.3 cm) clearance in all dimensions is ideal. (See Figure 4)

C. The stowage area must be between -22^{o}F (-30°C) and 150°F (65.5°C). Exposing the liferaft to temperatures more than 150°F (65.5°C) can cause inflation cylinder overpressure and release of gas.

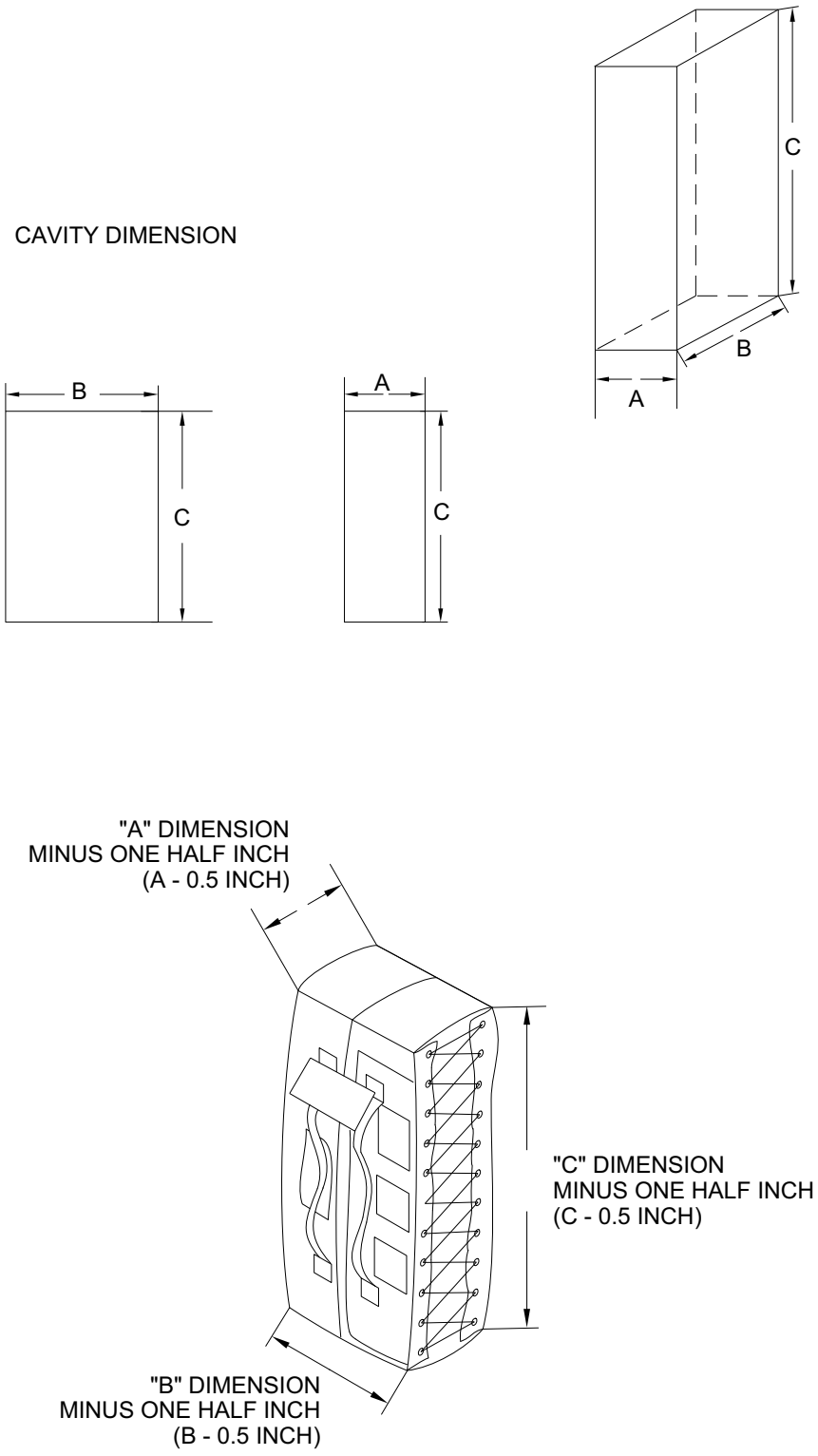

Figure 4
Clearance

5. Storage (Off Aircraft)

   A. The liferaft should be stored off the floor in an area that is clean, dry, and free from grease, oil, hydraulic fluid, or jet fuel.

   B. The storage area should be free of sharp objects that may puncture or cut the liferaft.

   C. Do not place items on top of the liferaft or stack liferafts on top of each other.

   D. Do not use a forklift to lift the liferaft unless the liferaft is placed on a pallet. The forks of the forklift can puncture the liferaft fabric and damage the liferaft.

   E. The storage area must be between -22°F (-30°C) and 150°F (65.5°C). Exposing the liferaft to temperatures more than 150°F (65.5°C) can cause inflation cylinder over-pressure and release of gas.

6. Periodic Check

   A. Visually check the exterior of the liferaft for damage or deterioration on an annual basis.

   B. Damaged or deteriorated liferafts must be returned to a Winslow approved repair facility for detailed inspection and repair.

   C. Liferafts exposed to temperatures more than 150°F (65.5°C) must be returned to a Winslow approved repair facility for detailed inspection and possible repair.

7. Service

   A. Refer to Table 1 below for a summary of service intervals.

Table 1. Service Intervals

	Liferaft Initial Service	Liferaft Second Service	Liferaft Service Interval Thereafter
Vacuum Packed (FA-AV(SL), FA-AV(UL), FA-AV(SA), FA-AV(PSA), FA-AV(LU), FA-AV(AD))	3 years	3 years	3 years
Vacuum Packed FA-AV(ESA)	5 years	5 years	5 years
Non-Vacuum Packed (FA-AV(SL), FA-AV(UL), FA-AV(SA), FA-AV(PSA), FA-AV(LU), FA-AV(AD))	1 year	1 year	1 year

   B. Liferafts should be serviced before the next service date if the liferaft has been exposed to uncommon practices, such as hazardous chemicals, extreme temperatures, or if there is evidence of alterations, tampering, or damage to the container/valise.

   C. Service of Winslow liferafts shall be performed by a Winslow approved repair facility.

   D. For a listing of Winslow approved repair facilities, please contact WINSLOW LifeRaft Company. Contact information is listed on page 3.

8. Operation

NOTE: Individual procedural preferences differ. The following is meant only to illustrate a possible sequence of events in a typical ditching situation.

A. When an overwater emergency occurs and ditching appears imminent, a designated person removes the liferaft from its stowage location and secures the liferaft to an exit.

B. Open the Velcro painter/mooring line cover on top of the valise or on the side of the hard pack, and release the snap-hook from the snap-hook loop and snap onto any solid anchor point adjacent to the door or window from which the liferaft will be launched. (Older style will require removal of snap hook on loop located under painter cover.)

C. Pull the red loop to remove painter and snap the snap-hook onto any solid anchor point adjacent to the door or window from which the liferaft will be launched. (Newer style will not have a snap-hook loop attachment.)

D. Throw out packed liferaft clear of aircraft. The liferaft will float.

E. Pull on the painter/mooring line until all of the painter/mooring line has been removed. A strong, quick pull will then inflate the liferaft.

F. The painter/mooring line is attached to the liferaft to keep the liferaft from drifting away. After the liferaft inflates, survivors pull the liferaft into position at the exit for boarding.

G. If survivors are in the water, the liferaft may be inflated quickly (without removing all of the painter/mooring line) by pulling the inflation ripcord handle.

H. If the liferaft should inflate in the inverted position, right the liferaft in accordance with the righting instructions printed on the lower tube adjacent to the inflation cylinder.

I. Board the liferaft at either end by using the boarding ladder and handles attached to the liferaft.

J. After boarding the liferaft, look for other survivors and assist them in reaching the liferaft using the heaving-trailing line with floating handle if necessary.

K. If the liferaft is equipped with an ELT, use the instructions on the ELT to immediately activate the ELT.

NOTE: This step is not necessary for the DME SRB-406 (ELT Code 6). The DME SRB-406 ELT will activate automatically when the liferaft is deployed.

L. The liferaft knife located in the sheath at the main entrance may be used to cut the painter/mooring line and free the liferaft from the aircraft before the aircraft submerges.

M. Water inside the liferaft may be removed using the bailer and the sponge in the equipment pack.

N. If the liferaft is equipped with an inflatable floor, use the hand pump for inflation. An inflated floor will keep the liferaft warm. An uninflated floor will keep the liferaft cool.

O. Carefully read the instructions in the survival manual to assist with survival.

9. Liferaft Part Number Explanation

A. With this part numbering system, every liferaft has a part number that identifies the characteristics below:

(1) The nominal capacity of the liferaft.

(2) The overload capacity of the liferaft.

(3) The Winslow model designation of the liferaft.

(4) The type of emergency locator transmitter (ELT) installed on the liferaft.

(5) The type of SEP for the liferaft.

(6) The configuration of the SEP.

(7) The pack configuration of the liferaft.

B. The first set of characters represents the basic model of the liferaft. The model is the first part of all part numbers. In the example **1116FAUL-H30-1-100**, the liferaft model is a WINSLOW 1116FA-AV(UL) liferaft. That is, 11 person capacity, 16 person overload capacity; and it is an FAA approved design.

(1) If these characters had been "46FASA", for example, it would mean that the liferaft model is a 4 person capacity, 6 person overload capacity, and it is a FAA approved FA-AV(SA) design.

(2) If these characters had been "46FPSA", for example, it would mean that the liferaft model is a 4 person capacity, 6 person overload capacity, and it is a FAA approved FA-AV(PSA) design.

C. The next three characters represent the ELT and SEP code, shown in Table 2., below.

Table 2. ELT and SEP Codes

ELT CODE	TYPE	SEP CODE	SEP KIT DESCRIPTION
1	No ELT	K0	EASA AR-OPS/FAR PART 135/CAR
2	500-1 Dual Frequency	30	FAR PART 135
3	TechTest 500-12Y	J3	EASA AR-OPS
4	GPS Triple Frequency	K1	EASA AR-OPS/FAR PART 135/CAR
5	GPS Triple Frequency w/Voice	K2	EASA AR-OPS/FAR PART 135/CAR MINIMUM
6	DME SRB-406	31	FAR PART 135 MODIFIED
7	VHF Radio and SRB-406	32	FAR PART 135 MINIMUM
8	TechTest with GPS 500-27	K4	EASA AR-OPS/FAR PART 135/CAR MINI
9	Aqualink View	34	FAR PART 135 MINI
A	DME SRB-406G	J0	EASA AR-OPS
B	TechTest 500-32-2Y	J1	EASA AR-OPS MODIFIED
F	VHF Radio and SRB-406G	K5	EASA AR-OPS/FAR PART 135/CAR MICRO
H	TechTest 500-32-2Y-HA	J2	EASA AR-OPS MINIMUM
J	TechTest 500-32-2Y-GA	C0	TRANSPORT CANADA CAR
		90	FAR PART 91
		C1	TRANSPORT CANADA CAR MODIFIED
		92	FAR PART 91 MODIFIED
		91	FAR PART 91 MINIMUM
		3G	FAR PART 135
		JU	BRAZIL JUNGLE KIT
		9R	FAR PART 91 MODIFIED
		95	DESERT - JUNGLE KIT
		00	NO SURVIVAL EQUIPMENT
		47	B747-8 FREIGHTER
		3C	FAR PART 135
		0B	FAR PART 29/91/135 BASIC
		0M	FAR PART 135/EASA AR-OPS MINIMUM
		1B	AR-OPS BASIC
		3B	AR-OPS BASIC
		3M	AR-OPS MINIMUM
		CB	TRANSPORT CANADA CAR BASIC
		CM	TRANSPORT CANADA CAR MINIMUM
		F5	FAR PART 135 FULL
		UB	UNIVERSAL BASIC (FAR PART 29/91/135, EASA AR-OPS, CAR)
		UM	UNIVERSAL MINIMUM (FAR PART 29/91/135, EASA AR-OPS, CAR)
		GA	GULFSTREAM AEROSPACE (MINIMUM FAR PART 91/135, EASA AR-OPS, CAR)
		14	FAR PART 121
		15	EASA AR-OPS
		16	EASA AR-OPS

NOTE: Other SEP kits may be added as necessary.

D. In the above example, 1116FAUL-**H30**-1-100, the "H30" means that the liferaft contains a TechTest 500-32-2Y-HA ELT and a WINSLOW FAR Part 135 SEP kit. If these numbers were "231" instead, it would mean that there was a TechTest 500-1 Dual Frequency ELT and a Modified FAR Part 135 SEP kit. The Modified Survival Equipment Package contains less than the WINSLOW FAR Part 135 SEP kit, but still exceeds the requirements of FAR Part 135. If the part number had a "HK0" instead, it would mean that the liferaft contained a TechTest 500-32-2Y-HA ELT and WINSLOW EASA AR-OPS/FAR PART 135/CAR SEP kit.

E. The next digit designates the packing configuration of the SEP. Those designations are as follows:

(1) **-1** means that the SEP is packed entirely inside the liferaft.

(2) **-2** means that the liferaft has additional equipment packed in a separate soft pack pouch.

(3) **-3** means that part of the SEP is packed inside the liferaft and part of the SEP is packed in a ditch kit.

(4) **-4** means that the SEP is packed entirely in the ditch kit, except for the manual inflation pump, liferaft knife, and ELT.

(5) **-5** means that the liferaft has additional equipment and SEP kit packed in a separate soft pack pouch.

(6) **-6** means that the SEP including the ELT is completely packed in an external ditch kit, the only remaining equipment packed in the liferaft is the manual inflation pump and the liferaft knife.

F. In the above example, 1116FAUL-H30-**1**-100, the "1" means that the SEP is packed entirely inside the liferaft. If the part number had a "4" instead of a "1", it would mean the SEP is packed entirely in a ditch kit, except for the manual inflation pump, liferaft knife, and ELT.

G. Liferaft Pack Configurations

(1) The last three digits represent the pack configuration of the liferaft. Liferafts are packed either in a hard pack or a soft valise. The hard pack and soft packs come in various sizes and shapes. Each series has or could have multiple pack configurations represented as the next consecutive number such as 601, 602, 603, 604 and so forth.

(a) **100** Series designates rectangular pack in a valise. The -100 is a standard pack dimension and custom pack sizes start with the number -101.

(b) **200** Series designates a Wedge pack.

(c) **300** Series designates a Hard pack.

(d) **600** Series designates a Hard pack.

(e) **700** Series designates a Hard pack.

(f) **800** Series designates a Hard pack.

(g) **900** Series designates a Hard pack.

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