SAFETY MARINE AUSTRALIA PTY LTD
ROARING FORTIES
SMA8000
ATSO C70A approved
AVIATION LIFE RAFT
Operators Manual

RECORD OF CHANGE TO Manual Template

ORIGINAL DATE –Sep-09

No	Signature	Date	DESCRIPTION OF CHANGE

Document Approved by

1/05/2014

X 

Signed by: Simon Oakley

CONTENTS:

OPERATOR'S MANUAL

04-11 PERSON LIFE RAFTS

PART NUMBERS LIF8000 Series

SECTION 1. **INTRODUCTION**

1.1.1 This manual has been prepared as a guide to the operations of the "Roaring forties" Aviation 4 to 11 person liferafts.

1.1.2 NOTE only Technicians holding current certificates from Safety Marine Australia Pty Ltd are permitted to carry out any test, inspection, survey or service on or to any Roaring Forties, Safety Marine Australia or Dentrac Industries manufactured inflatable product. These activities are to be performed at approved premises by Safety Marine Australia Pty Ltd.

1.1.3 The location of approved premises can be obtained by contacting our sales office on Melbourne +6139555-5211

SECTION 2. **DESCRIPTION**

2.1.1 Our range of liferafts are designed to conform to the standards and regulations of CASA ATSO C70a the rafts will accommodate 4 – 11 persons

2.1.2 The 4 to 11 person liferafts are similar in design and all consist of circular twin buoyancy chambers each capable of supporting the full complement of personnel.

2.1.3 An arch tube supports a single skin protection canopy, which is automatically erected by the inflation of the liferaft. The canopy has been designed with two door entry for the 4 to 11 person liferafts The canopy is constructed in a highly visible colour with all weather protective closures.

2.1.4 All liferafts are fully supplied with lifelines, sea anchor and other necessary items of equipment to the required scale. Major items in a typical emergency pack are shown in Table 1. The maximum life of perishable Emergency Items are set out in the replacement schedule.

2.1.5 A safety knife is positioned inside the liferafts, attached to the buoyancy tube at a convenient position. This knife is to be used to cut the operating cord.

2.1.6 The complete liferaft assembly when deflated and folded is then packed into a rigid container or valise, sized accordingly to usage requirements.

SECTION 3. **DESCRIPTION**

3.1 Proofed Fabrics

The fabric used in the manufacture of the life rafts is of a tough and durable type, being single ply nylon, rubber proofed, resistant to abrasion, bacteria and other marine attack.

3.2 Buoyancy Chambers and Arch

There are two buoyancy chambers inflated from one gas cylinder. The arch tube is inflated by gas passing from the upper chambers. The chambers and arch tube are made from a number of nylon rubber compound panels joined together with a self- curing rubber adhesive. The arch tube forms a support for the canopy when fully inflated. All rafts are equipped with topping-up bellows as part of the standard equipment supplied.

3.3 Canopy

The canopy is constructed from a single skin urethane coated nylon fabric, highly visible in colour. The canopy is attached to the arch tube using a rubber adhesive. The join is achieved by bonding the lower edges of the canopy to the top buoyancy chamber.

3.4 Flooring

The floor is constructed from a single ply nylon material with a rubber compound outer proofing. Attached to the underside of the floor are lead ballast stabilizer pockets, gas cylinder and battery pockets. A double skinned inflatable floor quilted in a circular pattern is available as an option.

3.5 Boarding Ladder and Ramp

3.5.1. A webbing boarding ladder and a hauling in line are provided as standard equipment at each entrance. A rescue line is attached to an internal lifeline loop inside one door entrance. An inflatable boarding ramp is fitted to the entrance opposite the gas cylinder.

3.6 Inflation System

3.6.1 The CO_2/N_2 inflation system consists of a cylinder containing a charge Carbon Dioxide and Nitrogen connected by a high-pressure hose to an inflation tee-piece or tandem valve assembly, which in turn is connected by an inflation valve separately to each buoyancy chamber.

3.6.2 The gas cylinder is fitted with a Sparklet or S.E.I. operating head and a remote control, which consists of a looped cable coupled to the operating line of the life raft.

3.7 Valves

3.7.1 Buoyancy Chamber Valves

The following valves are fitted to the buoyancy:

3.7.1.1. One topping up valve is fitted externally to each buoyancy chamber. The inflation and test adaptor fits into the valve. The valve is also used for deflation.

3.7.1.2. One Halkey Roberts or Leafield relief valve is fitted externally to the lower buoyancy chamber and to the arch tube (Brown spot 2.5 PSI). A further two units are fitted on the top buoyancy. One between the top buoyancy chamber and the arch tube to act as a transfer valve for arch inflation (Blue spot 2.0 PSI) and one externally (White spot 2.75 PSI).

3.7.2. Buoyancy Chamber Valves

3.7.2.1 One inflation valve of the six-port type or Leafield gas inlet type is fitted externally to each buoyancy chamber. Connecting both inflation valves is a tee-piece or tandem banjo bolt for Leafield type enabling a common supply of gas to both buoyancy chambers.

3.7.2.2. A topping up valve is fitted internally between the lower buoyancy chamber and the inflatable boarding ramp to act as a one-way valve for inflation purposes. As of April 2003 on all new rafts the topping up valve has been replaced with a Leafield blue spot valve.

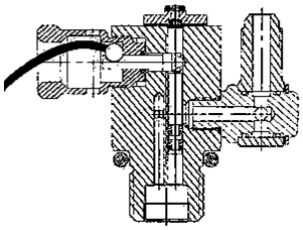
3.7.5. S.E.I. Operating Head

The S.E.I. Model IVA inflation valve is a high performance, highly reliable, lanyard actuated valve, designed for rapid and consistent inflation. The valve is easily field serviceable, and is designed for a five-year duty cycle

.

Information on servicing SEI operating heads is available in the SEI Service manual

Fig. 3.
SEI OPERATING HEAD



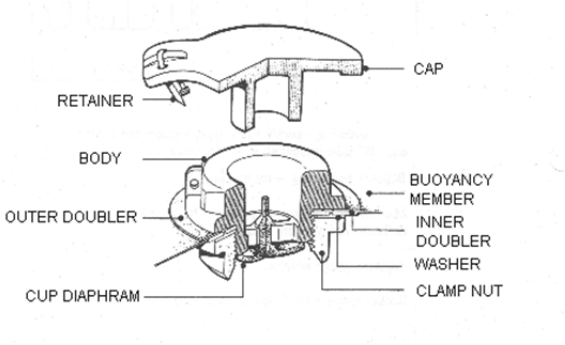


Figure 1

A8 Inflation valve VALV431

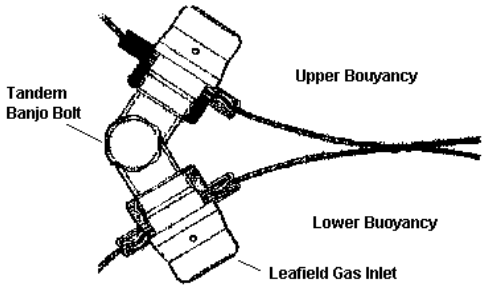


Figure 2

Leafield Inflation valve system VALV300

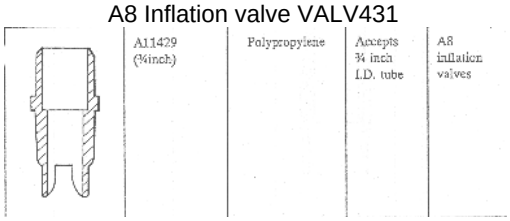


Figure 3

A8 Manometer Probe/Deflate Key DEF126

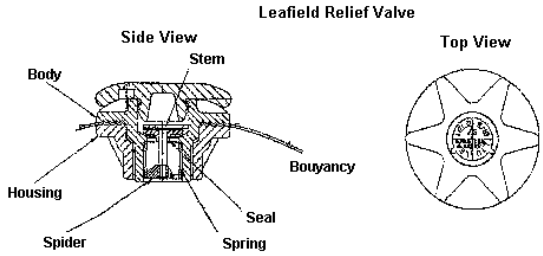


Figure 4

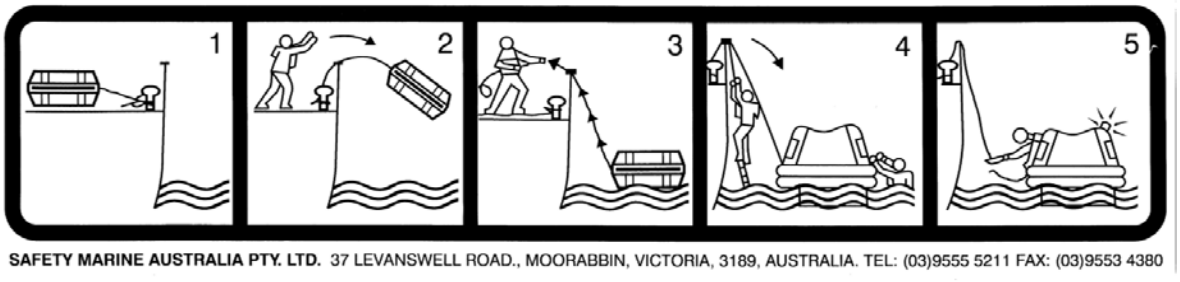
Leafield relief valve

SECTION 4. **LIFE RAFT SPECIFICATIONS**

Life rafts Packed with Standard Equipment Only	
Soft Pack (Valise)	**Hard Pack (Fibreglass Container**
4 Person	**4 Person**
Weight: Approximately 21 kg Dimension: 640 x 400mm Dia	Weight: Approximately 31KG 320 x 590 x 840mm
Life Raft Floor Surface Area: in excess of 1.5m²	Life Raft Floor Surface Area: in excess of 1.5m²
6 Person	**6 Person**
Weight: Approximately 25 kg Dimension: 800 x 400mm Dia	Weight: Approximately 35KG 320 x 590 x 840mm
Life Raft Floor Surface Area: in excess of 2.3m²	Life Raft Floor Surface Area: in excess of 2.3m²
8 Person	**8 Person**
Weight: Approximately 32 kg Dimension: 800 x 420mm Dia	Weight: Approximately 42KG 385 x 590 x 840mm
Life Raft Floor Surface Area: in excess of 3.0m²	Life Raft Floor Surface Area: in excess of 3.0m²
11 Person	**11 Person**
Weight: Approximately 38 kg Dimension: 920 x 420mm Dia	Weight: Approximately 48KG 385 x 590 x 840mm
Life Raft Floor Surface Area: in excess of 3.72m²	Life Raft Floor Surface Area: in excess of 3.72m²

SECTION 5. **OPERATION**

NOTE: The following operational procedure illustrates one possible evacuation method since individual operators may develop procedures tailored to their specific modes of operation.



5.1 RAFT

5.1.1 Deployment

5.1.2 After the decision to leave the craft the liferaft needs to be deployed Bring the craft to a complete stop.

5.1.3 Take care to ensure that no sharp objects that could puncture the inflating raft are in the area.

5.1.4 Ensure the liferaft operating/painter line is secured to the craft or to evacuation co-ordinator.

5.1.5 Throw liferaft into the water

5.1.6 Pull out approximately 9 metres of slack lanyard until taught, and then pull firmly until inflation occurs. The valise will open and the buoyancy tube will inflate in approximately 10 to 30 seconds.

5.1.7 After the raft is inflated, utilize the retaining line to position the raft for boarding.

5.1.8 CHECK THE PROPER FUNCTIONING OF THE LIFERAFT.

Check that the top and bottom buoyancy and centre strut, or arch tube, are inflated.

5.2 GET AWAY FROM SINKING CRAFT

Use paddles. Also use drogue by rolling into a ball and throw in direction required. Then haul on drogue line.

5.2.1 Look for and rescue survivors.

Use rescue line and quoit.
Throw to survivor or pass quoit over arm and swim to survivor.
Lift unconscious survivor under armpits and slide backwards into liferaft

5.2.2 Collect useful items.

Clothing, blankets, etc.
Haul in emergency pack if it is not inside the liferaft.

5.2.3 Keep all liferafts together.

To reach other liferafts use paddles and drogue as described above.

5.2.4 Activate EPIRB if available

5.3 SUBSEQUENT ACTION

5.3.1 Tend injured survivors

Keep them as warm and dry as possible. If an emergency pack is fitted a first aid kit will be inside.

5.3.2 **Dry the liferaft floor**. Use baler and sponge pads.

5.3.3 **Inflate floor in cold conditions.** If inflatable floor is installed inflate floor through valve with bellows.

5.3.4 Adjust doorway/s to suit conditions.

Details on last pages

5.3.5 **Stream drogue** If not in use pull rolled drogue from ties. Throw into sea.

5.3.6 **Open emergency pack.** Familiarise yourself with the contents**.**

5.3.7 Check the canopy light.

If it is not alight check the connection of the cell. The cell life is about 14 hours. Save current during daylight hours by pushing the activator switch in.

5.3.8 **Ensure adequate ventilation at all times.** Yawning and lack of energy indicate the need for fresh air.

5.3.9 **Stability**

Keep the raft balanced by distributing occupants evenly. No one should stand up in the raft. In case of capsizing keep life vests on (if available). In rough water, keep at least one occupant tied to the raft with a minimum of ten feet of line (if available) so that in the event of capsizing at least one person can easily retrieve and right the raft, then retrieve the other persons. Children should always be tied to an adult.

5.3.10 **Keeping Warm**

Use the bailing bucket and sponge (if available) to keep the raft dry and clean since sitting in water soon creates water sores that are painful and can infect easily. Dry your clothes off as best as possible by wringing and airing since wet clothing will detrimentally reduce body heat in cold weather. Be sure to restore and secure equipment immediately after use since items are easily lost overboard, especially in rough water. Be especially careful with items that could puncture or tear the raft. Do not throw anything away since you may find a need for used items somewhere down the line. For example, empty cans and plastic bags can hold rain water, and metal bands from opened cans may be utilized as fish books.

Maintain protection from the elements as much as possible. Keep your clothing on even if it's hot. Rest as much as you can, especially in the hot part of the day. Exercise daily in your limited space by isotonic ally flexing muscles and wiggling fingers and toes. Be optimistic and keep a sense of humour.

5.3.11 **Food and water Rationing**

Water is the key to survival at sea. Body water loss through sweating, urinating, and vomiting is as important as drinking water. Therefore, do as little as possible during hot hours, work at a slow pace when necessary, and take immediate action against seasickness by stretching out on the raft deck and being as still as possible. DO NOT RATION WATER. Drink as much as you need when you're thirsty, then RATION YOUR SWEAT. You need enough water to remain at a good energy level to help yourself, and sipping water weakens you much faster through dehydration.

5.3.12 **Care of the raft**

The pressure in the raft flotation tube will fluctuate with the temperature. In hot weather, extra pressure will be relieved by the pressure relief valves on the exterior of the raft. In cool weather and at night the raft pressure can be increased by utilizing the hand pump at the inflation valve. Normally, sharks may investigate your raft and go away without bothering you. Do not dangle hands and/or feet in the water or dispose of raw vomit or body wastes in the water since these may attract and excite sharks. Plastic bag (if possible) vomit and/or body wastes and throw them away from the raft.

Search and rescue teams are looking for you. Normally rescue teams will locate you within 12 to 24 hours. When they do arrive, do what they tell you and let them take care of you. They know what to do and will be more aware of your condition than you will.

SECTION 6. **EQUIPMENT**

STANDARD EQUIPMENT (Cruising Pack)		
ITEM	QUANTITY	
Seasick Bags	1 Per Person	
Bailer	1	The bailer is fabricated of nylon. Use the bailer to remove water from the raft as required to keep it as dry as possible.
Air Bellows	1	The hand pump is a dual action pump and is used for topping off the flotation tubes in the event of pressure loss during temperature changes or extended use. Push the pump fitting into the inflation valve until it is firmly attached. Pump until the tube is fully inflated (no wrinkles), close inflation valve.
Rescue Signal Card	1	
Sea Drogue(Sea Anchor)	1	The sea anchor is attached to the lifeline on the raft and helps to keep an empty raft from being capsized by wind. Although you want to be far enough away from the craft so that neither will damage the raft, you want to remain in the immediate area in order that rescue searchers can find you sooner. If you have to speed up drift to get to a survivor or an object in the water, pull in the sea anchor, then throw it back out after you have drifted the necessary distance
Heliograph (Signal Mirror)	1	Use the signal mirror when you are in doubt about a craft's ability to see your signal flare. It can be used indefinitely. Mirror flashes can be seen about 20 miles, so the mirror should be in constant use during daylight, sunny hours. Sweep the horizon, flashing the mirror. Each person should take a turn at this. Keep the mirror surface as clean and fingerprint free as possible.
Fishing Kit	1	
Adhesive Repair Kit	1	
Immediate Action Leaflet	1	
Rescue Line & Quoit (Throwing Ring)	1	
Paddles	1 pair	The hand paddles can be used to paddle the raft close to retrievable persons in the water or to paddle toward land or rescue craft.
Sponges	1 Per Person	The dehydrated/compressed sponge takes up very little space in the equipment kit and can be used along with the bailing bucket to keep the raft floor dry.
Leak Stoppers	1 set	
Torch & Batteries with spare bulb	1	The flashlight can be seen about 3nm on an open sea. During the first night flash SOS (3 short, 3 long, 3 short), sweeping the sky. For nights after

		the first, use the flashlight signal only when you hear an aircraft or see a ship's lights.
Rescue Whistle	1	The whistle is used to signal other rafts, survivors, and assist rescue searchers in locating you at night or in the fog. Use it to signal SOS (3 short, 3 long, 3 short) when visibility is limited. Rotate this responsibility among the raft occupants

SECTION 7. **LIMITATIONS**

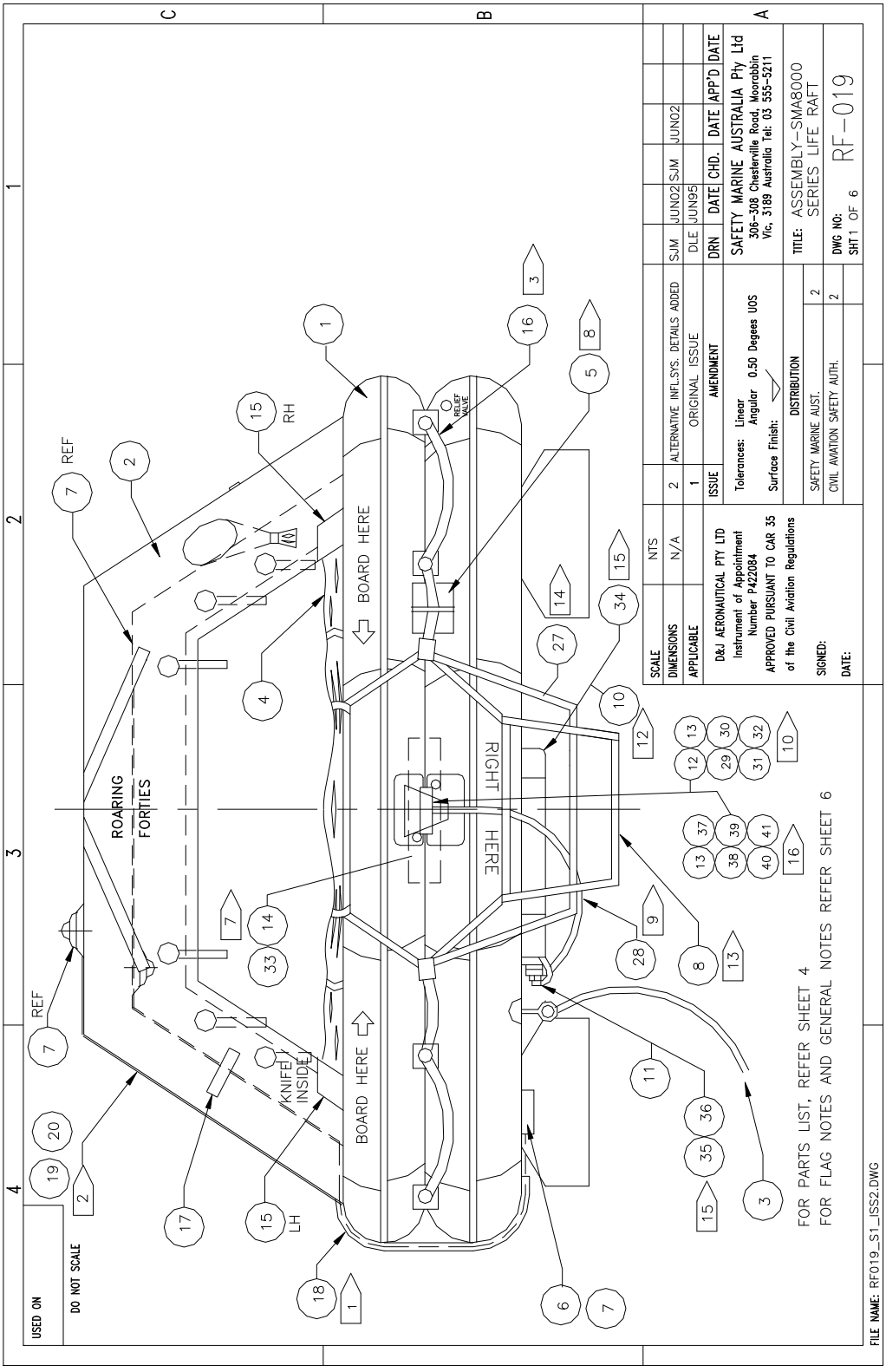
All rafts shall be stowed in a clean dry, contaminant free area away from any heat source. Contaminants such as petroleum solvents, fuel, grease, oil, or hydraulic fluids may have a detrimental effect on the fabrics and consequently on the life and performance of the raft. The stowage area should be at least equal in size to the complete raft assembly.

Following are storage and operational temperature limits for the rafts:

OPERATING and/or STORAGE -15 C to +60 C

Under normal conditions, life rafts shall be removed from their container/valise and inspected in accordance with Safety Marine Australia's Service Manual at regular intervals not to exceed 24 months from new and 12 months thereafter.

Inspection consists of removing the raft from its container, conducting an pressure test, weight checking the CO2 inflation system cylinder, visually checking the raft for tears, cuts, punctures, abrasions, and deterioration, and then repacking the raft. Safety equipment (if included) shall be removed and inspected and visually checking each item for condition and life limitation. Cylinder hydro test is required every five years at which time the valve is overhauled and the cylinder then freshly charged.


BOARD HERE
RIGHT HERE
ROARING FORTIES
REF
RH
LH
KNIFE INSIDE
RELIEF VALVE
FOR PARTS LIST, REFER SHEET 4
FOR FLAG NOTES AND GENERAL NOTES REFER SHEET 6
SCALE NTS
DIMENSIONS N/A
APPLICABLE
ISSUE AMENDMENT DRN DATE CHD. DATE APP'D DATE
2 ALTERNATIVE INFL.SYS. DETAILS ADDED SJM JUN02 SJM JUN02
1 ORIGINAL ISSUE DLE JUN95
Tolerances: Linear Angular 0.50 Degees UOS
Surface Finish:
D&J AERONAUTICAL PTY LTD
Instrument of Appointment
Number P422084
APPROVED PURSUANT TO CAR 35
of the Civil Aviation Regulations
DISTRIBUTION
SAFETY MARINE AUST. 2
CIVIL AVIATION SAFETY AUTH. 2
SIGNED:
DATE:
SAFETY MARINE AUSTRALIA Pty Ltd
306-308 Chesterville Road, Moorabbin
Vic, 3189 Australia Tel: 03 555-5211
TITLE: ASSEMBLY-SMA8000
SERIES LIFE RAFT
DWG NO: RF-019
SHT 1 OF 6
USED ON
DO NOT SCALE
FILE NAME: RF019_S1_ISS2.DWG