MUSTANG AVIATION COVERALL
MAC100

INSPECTION AND MAINTENANCE MANUAL
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RESPONSIBILITIES

- Each operational organization is responsible for the instruction and survival training of all aircrew and aircraft passengers in the following:
  - Operation of the suit
  - Purpose, use and operation of all accessories
  - Importance and method of inspections
- The Aviation Life Support Equipment shop is responsible for:
  - Inspection upon first issue from the supply depot or contractor
  - Periodic inspection and testing of the suit
  - Maintenance, cleaning and repair when required
  - Requisitioning and maintaining stocks of spare parts
  - Maintenance of inspection records for all MAC100 units

MAINTENANCE

GENERAL

Regular care and inspection of the aviation coveralls will help ensure that the system performs as designed in both working and emergency survival situations. Proper care of this garment is extremely important for best results and extended service. Failure to follow the procedures outlined in this document for usage, maintenance, repair and general care may void any warranties for this product.

REGULAR CARE

The suit should be hand washed in warm water (100° F) using mild soap only. Rinse thoroughly in clean tepid water and hang freely on a sturdy non-metal hanger to air dry.

CAUTION: The suit should never be placed in an electric or gas dryer. This causes irreparable damage to the buoyant interliner.

Do not stow the suit when damp or wet.

Do not use bleach, solvents or any chlorine products.

Do not iron.

After immersion in salt water, rinse the suit thoroughly in clean tepid water and hang freely to air dry.

Heavy soiling can be removed using a soft brush.

CLEANING

Mud and soil stains should be removed from the suit. Allow the mud to dry and brush off with a soft bristle brush. Alternatively, rinse the suit with fresh warm water and remove the soil with a sponge or a soft brush and mild detergent. After cleaning, the suit should be thoroughly air-dried.

Slight oil stains can be removed by gently scrubbing in tepid water with a soft brush and household detergent. After cleaning, the suit must be thoroughly air-dried.

NOTE: DO NOT DRY CLEAN. Solvent used in the dry cleaning process causes serious deterioration to the PVC foam buoyant interliner.

SERVICE

Storage

- The MAC100 Aviation Coveralls should be stored in:
  - A cool dry area, where an even temperature may be maintained.
  - An area without excessive sunlight, ozone, and ultra violet rays, and is free of petroleum products (POL), acids and other damaging contaminants.

CAUTION: Never store the suit wet.

TREATMENT AFTER IMMERSION

Fresh Water Immersion

If the suit is stained or dirty, rinse well in tepid water. Stained or heavily soiled areas may be gently scrubbed with a soft brush and household soap. Rinse well in clean fresh water until all dirt and soap are removed. Allow the suit to dry naturally, preferably by hanging the suit in the open air.

Salt Water and Chlorinated Immersion

Soak the suit in fresh water for 30 minutes. Rinse as often as necessary with clean fresh water until all dirt, salt and chlorine is removed. Allow the suit to dry naturally, preferably by hanging the suit in the open air.

Service Life

The suit's service life is determined on condition rather than age. Suits may remain in service if properly maintained and they pass all tests and inspections.

INSPECTION

Inspection Intervals

Personnel who are familiar with this type of survival equipment should conduct complete coverall inspection on a regular basis. All materials and components should be visually inspected for abrasion, material damage or missing components, and extensive soiling or stains.

The MAC100 suit should be periodically inspected.

> Every 180-240 days, depending on the environmental conditions of usage. The 180-day inspection cycle is recommended for hotter, drier environments and the 240-day cycle is for moderate climates.
>
> Whenever the integrity of the suit is in doubt.

Visual and Pre-flight Inspection

A close visual inspection should be performed prior to issue by the issuer and the individual, to whom the suit is issued.

To perform a close visual inspection, ensure:

- Fabric and construction seams have no burns, tears, separations or holes; or contamination by gas, oil, grease or acid.
- That all seams on the outer shell are intact and that no foam is visible either inside or outside the suit due to rips in the covering material.
- All metal components are intact and free from damage and corrosion.
- All slide fasteners are intact and are operating freely and smoothly.
- That the coverall system has no missing or damaged components. Major components include various storage pockets and thermal protective hood. Refer to Fig.2 for the location of major components.
- Adjustment and closure systems are operating freely and securing properly.

Periodic Inspection

A suitably trained life support technician should carry out the in-depth periodic inspection. This inspection includes all the points listed in the close visual inspection. In addition, the suit's foam should be checked for separating and thinning, especially in the buttocks area.

REPAIRS

General

The performance of this coverall system as an effective working garment and survival aid is dependent on the condition of the suit. Qualified personnel at a suitable service and repair site should perform any repairs. It is extremely important that damaged suits are handled in accordance with the following user repair requirements. These instructions provide critical information only in regards to the correct materials and procedures for suit repair by the user.

Qualified repair personnel can normally perform minor repairs, with adequate facilities. The manufacturer should do all major repairs. This section provides some information to assist with minor or emergency repairs to the suit and related components.

Limits of Repair

Small rips, tears or separations of seams, pockets, anti-abrasion patches or attachments can often be effectively repaired using suitable materials and equipment. More extensive damage, such as very large rips, tears; the original manufacturer should repair holes or abrasions.

> ***WARNING: Full suit or component replacement is necessary where damage is extensive enough that simple repair to the suit or component will not restore the item to perform as originally intended.***

Repair Materials

The full description and part numbers of the materials required for repairs are detailed in Figures 2 and 3 of this manual.

Seam Repair

Stitching can repair separated or torn seams. All stitching must be done with a Nomex® thread. Stitching must not pass through the buoyant interliner, if the interliner is not already presently attached at that location.

Fabric Repair

Stitching can often repair small rips or tears in fabric, which are not overly frayed or abraded. Where patches of material are used to repair small rips, tears or holes, the material must be Nomex® of the same weight. Refer to Figures 2 and 3 for a list of materials and components utilized in this system. Patches must be fully stitched so as not to leave any free open edges that are capable of being snagged.

Stitching

All stitching should be done with Nomex thread and be a single needle lockstitch, conforming to type 301 of CAN/CGSB 54-GP-1 or ASTM D6193. Stitching density should be eight to ten stitches per inch and all broken threads, seam ends and ends of stitching should be backstitched not less than 0.5 inch. Surge stitch the edges of the Nomex® material to avoid fraying.

The Nomex® thread should meet the requirements of federal Standard AA-50195 Type II, Size E, preferably matching the colour of the material being sewn. Most of the seam allowances are 0.5 inch.

Stitching should not catch up so much material that the resultant “fit” of the suit is affected, and should extend a minimum of one half inch beyond ends of rips or tears.

WARNING: Do not stitch through any neoprene. Hood seams have been glued and taped, and any perforation of the neoprene with stitching will result in leakage.

Patching

All patching of minor tears and holes should be carried out as follows:

The repair patches, to be made from the original material (see Figure 1), must extend by not less than one inch beyond the perimeter of the damage; i.e. if the diameter of the jagged hole is one inch, the patch should be three inches in diameter. If a straight tear is 1.5 inches long, the patch should be 3.5 inches by two inches. L-shaped tears should be treated as round holes, reckoning the distance between the ends of the tear as the “diameter”.

Figure 1. Simulated Tears and Suggested Patch Configurations (Not to Scale)

Jagged Tear Patch **Straight Tear Patch** **L-Shaped Tear Patch**

Patches should be circular or rectangular, with rounded corners.

Repair closely grouped small holes or tears with one large patch, rather than several small ones. Patches must NOT overlap one another.

Stitch all patches to the outside of the suit. The colour of the patch should preferably be a close match to the suit colour.

Firmly roll (with a suitable roller) glued areas to remove all entrapped air, channels and wrinkles achieving an adequate bond.

Buoyant Interliner Repair

The buoyant interliner consists of a fully integrated fire retardant closed-cell PVC foam. The interliner is an assembly of inserts cemented together to form a wet suit arrangement. The interliner is stitched into the coveralls at the openings of the wrists, ankles, and neck and along the slide fastener openings only.

Damage to the foam material is seriously detrimental to both buoyancy and hypothermia protection characteristics. Accordingly, the original manufacturer should do any repairs to the interliner. Other repairs must be done with extreme care, particularly:

- Do not stitch through the foam. Penetration of the foam reduces available buoyancy, and increases the potential for exposure to the elements.
- Do not remove or replace any foam material.
- Do not fold, crease or otherwise alter the foam material in any way.

Gluing

Gluing can effectively repair small rips or tears in the hood. Gluing should only be performed in a clean, dry, well-ventilated area. Repair personnel should wear protective rubber gloves and follow the adhesive supplier's guidelines for use and preparation. All neoprene foam surfaces must be clean and dry prior to gluing. Mustang PN GL1001 (Bostick 1125A) is recommended for repairs.

To glue a section of the hood's foam:

- Apply a coat of the adhesive over the full contact area using a small brush and allow drying until tacky.
- Apply a second coat of the adhesive over the full contact area and allow drying until tacky.
- Join the surfaces carefully by pressing together with the gloved fingers of both hands.
- Allow the repair area to dry for a minimum of 24 hours prior to wearing or re-issuing the suit.

- ## SUMMARY

The Mustang Survival Immersion Coverall Model MAC100 is an extended wear wet suit that protects aircrew in harsh marine environments with cold-water immersion features and inherent buoyancy. The flame resistant suit is easily donned and maintained. Qualified technicians, with proper equipment, or Mustang Survival Corp may make suit repairs. A well maintained MAC100 means survival in emergency situations for which normal clothes were not designed.

PARTS LIST

This section identifies the materials used in the construction of the Mustang Constant Wear Aviation Coverall Model MAC100. These materials are highly recommended for repairs and replacements. Item order quantity is based on their availability.

Figure 2. Mustang Survival Immersion Coverall Model MAC100 and Index Numbers

***Knee patch colour is actually sage**

Figure 3. Parts List for the Mustang Survival Model MAC100 and MAC-11

INDEX NUMBER	PART NUMBER	NOMENCLATURE	MIN ORDER QUANTITY
1	Zipper	Varies according to suit size. Please contact Mustang Survival for the correct entry zipper.	10 EA
2	VE93207	50 MM #613 SWAMP LOOP FASTENER (FIRE RETARDENT)	50 m (54.68 yd)
3	ZI950013	6 IN. NOMEX® TAPE (ZIPPER)	10 EA
4	TA102713	1 IN. GROS GRAIN RIBBON TAPE, BLACK	1 ROLL (100 yd)
5	VE91827	25 MM #613 SWAMP HOOK FASTENER (FIRE RETARDENT)	50 m (54.68 yd)
6	HD7460	WELDED STAINLESS STEEL LOOP	20 EA
7	VE91837	25 MM #613 SWAMP LOOP FASTENER (FIRE RETARDENT)	50 m (54.68 yd)
8	FA102927	SAGE GREEN GLOVE SPLIT (LEATHER) (MAC100 ONLY)	1 SKIN (10 SQ ft) (15.24 SQ m)
9	ZI950113 ZI950213	9.5 IN. NOMEX® TAPE (ZIPPER) 6.0 IN. NOMEX® TAPE (ZIPPER) Smaller suits take the 6” zipper, please measure your suit before re-ordering.	10 EA
10	FD2303	3.5 MM NEOPRENE F.R. LAMINATED 2-SIDE	1 SHEET (1.27 m x 2.25 m) (1.48 yd x 2.5 yd)
11	LC10237	OLIVE GREEN FILLER CORD LACE ON ROLLS, SPUN POLYESTER	1 ROLL (400 m) (437.45 yd)
12	HD721630	EYELET MILLED BLACK OXY SNAP	50 EA
13	HD721530	STUD, BLACK OXY SNAP	50 EA
14	HD721430	SOCKET, BLACK OXY SNAP	50 EA
15	HD721330	26 LIGNE MUSTANG SURVIVAL BLACK OXY CAP	50 EA
16	FA112527	60 IN. CALENDARED NOMEX® 6 OZ. OMNIWEAVE SAGE GREEN (MAC100 ONLY)	10 EA
17	EL100010	1 IN. Q43 WHITE ELASTIC	1 ROLL (50 m)
18	EL100210	0.5 IN. WHITE ELASTIC PT. NO. 12	1 ROLL (144 yd)
19	FA1132-27	60 IN NOMEX® IIIA, 3.25 oz SAGE GREEN	1 m (11 ft)
20	MA7102	NEOPRENE GLOVE UNIVERSAL SIZE (OPTIONAL)	1 EA

INDEX NUMBER	PART NUMBER	NOMENCLATURE	MIN ORDER QUANTITY
21	FD300110	1/8 IN. X 56 IN. X 360 IN. AIRSOFT FOAM	1 SHEET
22	TH885010	ANEFIL TEX-30, WHITE	1 CONE
23	TH886013	BLACK BONDED NOMEX® THREAD	1 CONE
24	TH88514	CSB 46 NY51 RED (MAC100 ONLY)	1 CONE
25	TH886027	SAGE GREEN BONDED NOMEX® THREAD (MAC100 ONLY)	1 CONE
26	GL1001	BOSTIK 1125A ADHESIVE GLUE	1 CAN (20 L) (5.28 galls US)