

# FITTING THE MAG-1



USAF SCHOOL OF AEROSPACE MEDICINE  
RESEARCH OPTICAL UNIT, OPHTHALMOLOGY BRANCH  
J.W. Miller, Chief  
Catherine A. Browning, SSgt., NCOIC  
Designed By: Al Young

FITTING PROCEDURES FOR MAG-1 SPECTACLES  
FOR USE WITH MCU-2/P MASK

1. Pretest the MCU-2/P mask (Fig. 1) on the subject to ensure that the mask fits properly and a seal is possible. Once this pretesting is done, proceed with fitting the individual with the MAG-1 spectacle (Fig. 2), using the frames available in the fitting kit.



Figure 1



Figure 2

2. A 6-piece fitting kit (Fig. 3) should be available to ensure the best possible frame fit and compatibility with the MCU-2/P mask. This kit contains one of each size front and two bridle sizes (Fig. 4). By interchanging different size fronts with different size bridles, many combinations are made available for just about any facial size.



Figure 3

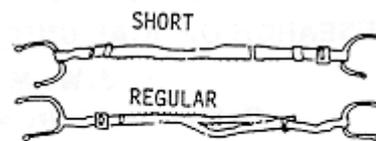


Figure 4

### 3. PRIMARY FACIAL FITTING CRITERIA

Small face	46-22, 46-25 Short Bridle
Medium face	48-22, 48-25 Short or Regular Bridle
Large face	48-22, 48-25 Regular Bridle

#### 4. FITTING PROCEDURE:

(a) From the primary facial fitting criteria (Section 3), select a frame front and bridle for initial fit. Based upon this initial fit, determine the final eyewire, bridge, and bridle sizes. Remember that the bridge piece should contact the maximum skin area of the nose and that the pupils should be as close to the geometrical center of the eyewire as possible (Fig. 5).

(b) Release tension on the bridle strap by pulling outward on both sides of the strap attachment; four or five notches should be sufficient for donning.

(c) Place the frame on the subject (Fig. 6) and adjust the strap tension to give a soft comfortable fit of the bridge piece upon the nose. Check the strap visually and with "finger feel" to ensure that the strap lies FLAT everywhere against the head.



Figure 5



Figure 6

(d) Have subject don the MCU-2P gas mask. To enhance entry into the mask, have the subject pull the mask ensemble slightly outward at the eye level area before donning the mask. Once donned, tension should be applied to all the mask straps to secure a seal.

(e) Using a penlight, observe the bridle and its attaching strap through the front faceplate of the mask. The bridle should be entirely within the seal area of the mask (Fig. 8), also be sure the frame front does not touch the faceplate of the gas mask (Fig. 7). If the bridle violates the seal area, a short bridle should be substituted.

(f) In subsequent removal of the MCU-2/P mask, the subject should again pull the mask slightly outward from the eye level and upward from the chin area to reduce the possibility of displacing the MAG-1.



Figure 7

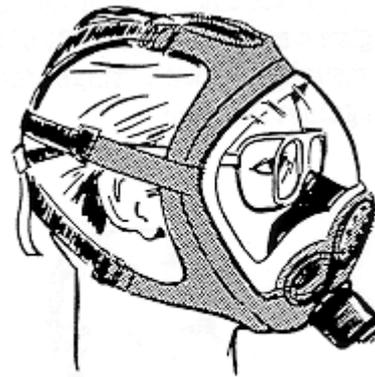


Figure 8

## OBSERVATIONS:

1. The fitting and testing of the MAG-1 with a full faceplate MCU-2/P mask should be done **ONLY** by qualified optometric personnel. It is imperative that the fitting of the MAG-1 be done with the subject's own personal mask to ensure compatibility of the two systems.
2. The MAG-1 spectacle is manufactured from DuPont Zytel Nylon resins and is highly resistant to damage, except from higher phenols and a few others. Weekly washing with detergent and water is the only maintenance needed unless it is determined different decontamination is required. The neoprene strap is handled in much the same manner as the frame.

# MCU-2/P Fitting Guide S6470-AB-MMO-010

## SECTION III

### PREPARATION FOR USE AND SHIPMENT

#### 3-1. PREPARATION FOR USE.

3-2. Unpacking. Remove mask and components from shipping container.

3-3. Checking Unpacked Original Equipment. See Figure 3-1. Inspect the equipment for damage done during shipment. Report damage to the Damage Control Officer.

3-4. Selection of Mask Size. Correct mask size selection is determined by a face length measurement. The use of any 6-inch vernier, dial or spring calipers, is required to measure the user's face length.

### WARNING

Use a caliper to measure the face length. The use of a ruler or tape measure will lead to an inaccurate reading due to the contour of the face. A leaky mask will not protect against toxic agents which can cause sickness or death.

a. Accurate location and marking of the two facial measuring points is necessary to assign correct mask size. The two points are described below and depicted in Figure 3-2. Read descriptions and study the figure carefully before attempting to locate the two points on user's face. The points can be located either by visual inspection or by feel.

(1) The upper measuring point is the point of deepest depression at top of nose, between the eyes (see Figure 3-2).

(2) The lower measuring point is located at the center of the curved part of jaw bone (tip of chin; see Figure 3-2).

b. Have the user sit erect with head held level and still, mouth closed, and teeth lightly together.

c. Carefully locate and mark upper and lower measuring points.

d. Place upper and lower tips of the caliper directly on the upper and lower points marked as directed in step c.

e. To determine the correct mask size with any 6 inch vernier, dial, or spring calipers: Refer to Figure 3-3, MCU-2/P Sizing Scale. Place caliper on the scale with one tip on the FIXED REFERENCE POINT. Align caliper with the scale and read the size where the other tip touches scale.

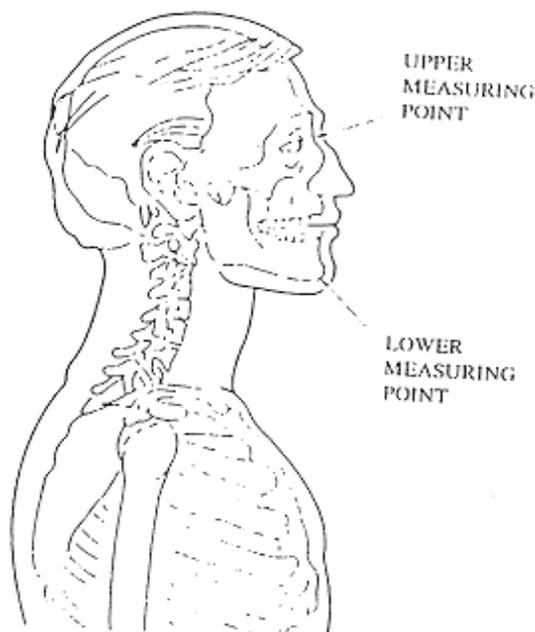
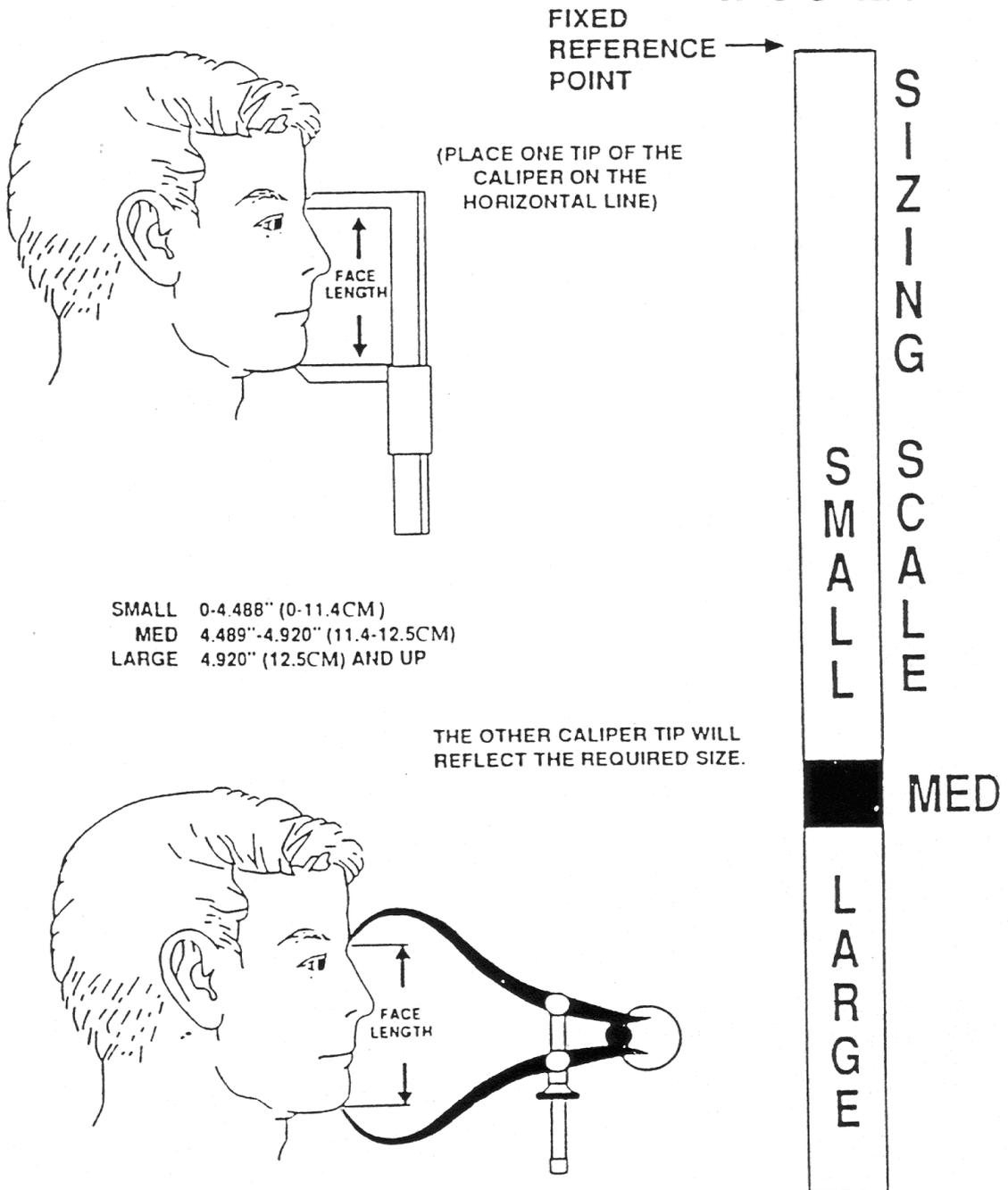


Figure 3-2 Facial Measuring Points

# MCU-2/P



- SMALL 0-4.488" (0-11.4CM)
- MED 4.489"-4.920" (11.4-12.5CM)
- LARGE 4.920" (12.5CM) AND UP

NOTE: ANY 6 INCH VERNIER, DIAL, SPRING, OR LOCALLY FABRICATED CALIPER MAY BE USED AS SIZING CALIPERS.

NOTE: REPRODUCTION OF THE SCALE SHOULD BE ON A 1 TO 1 SCALE.

Figure 3-3. MCU-2/P Sizing Scale

3-5. Mask Fitting. A correctly adjusted mask is necessary for the mask to fit properly. Leaks must be prevented and the user should be as comfortable as possible when wearing the mask. To adjust the mask the following procedures should be used:

### **WARNING**

Ensure the small rubber plug found in the intake hole of some new canisters, and the screw cap protecting the intake valve of new masks, have been removed.

### **WARNING**

Contact lenses shall not be worn with the MCU-2/P mask. Only approved MAG-1 combat spectacles may be worn with the MCU-2/P mask.

- a. Screw one canister on facepiece.
- b. Loosen straps of head harness. Be sure strap end laps are approximately 1 inch from buckles.
- c. (Optional) Remove outsert by pulling down on rubber strap under front voicemitter and lifting out and up.
- d. Reverse head harness by pulling harness over front of mask.
- e. Hold the outlet valve assembly in palm of right hand. Using left hand, push forehead hair aside. Place mask on face forcing chincup very tightly against chin. Pull head harness over head using quick-don tab.
- f. Push mask as high on face as possible. Look down at nose to be sure mask is centered. Hold in this position with right hand until temple straps are tightened.

### **WARNING**

Do not over tighten straps. Over tightened straps may distort the mask or pull it back over the hairline causing leaks of toxic chemical agents.

- g. Tighten one temple strap (Figure 3-4) with small jerks until mask feels snug on that side. Tighten other temple strap in same manner until both sides feel the same.

### **NOTE**

Tighten all straps towards rear of head.

- h. Check, that headpad is centered at the high point of rear of head. Adjust harness if necessary.

### **NOTE**

Both hands may now be used

- i. Run a finger under each temple tab front-to-back to check for snugness and to remove stray hair from sealing area.
- j. Grasp a neck strap in each hand and tighten with small jerking motions.
- k. Grasp a forehead strap in each hand and tighten in small jerking motions.

### **NOTE**

Ensure chin remains seated in chincup so the mask will fit properly

- l. Shake head quickly from side-to-side and up and down. Adjust mask straps as necessary.

### **NOTE**

The facepiece should come well up on the forehead but should not extend over the hairline at any point.

The straps should not cut into the ears.

The bottom parts of the facepiece should not cut into the throat.

The nosecup should not interfere with vision or press painfully on the nose.

For persons wearing combat spectacles, there should be no interference between the nosecup and the bridge of the spectacles.

## MAG I Optical Insert National Stock Numbers

Six sizes of combat spectacles have been standardized by the defense Medical Material Board. They are as follows:

- a. **6540-01-107-0304**; Frame, Spectacle, Nylon, Non-Reflective, Black, 46mm Eye, 22mm Bridge
- b. **6540-01-107-0305**; Frame, Spectacle, Nylon, Non-Reflective, Black, 48mm Eye, 22mm Bridge
- c. **6540-01-107-4509**; Frame, Spectacle, Nylon, Non-Reflective, Black, 50mm Eye, 22mm Bridge
- d. **6540-01-107-4510**; Frame, Spectacle, Nylon, Non-Reflective, Black, 46mm Eye, 25mm Bridge
- e. **6540-01-107-1732**; Frame, Spectacle, Nylon, Non-Reflective, Black, 48mm Eye, 25mm Bridge
- f. **6540-01-107-1733**; Frame, Spectacle, Nylon, Non-Reflective, Black, 50mm Eye, 25mm Bridge
- g. **6540-01-109-5040**; Strap, Spectacle, Neoprene, Non-Reflective, Black, Adjustable
- h. **6540-01-294-1141**; Bridle, Spectacle, Nylon, Non-Reflective, Black, Short
- i. **6540-01-294-1142**; Bridle, Spectacle, Nylon, Non-Reflective, Black, Regular

### Sources:

- 1. Criss Optical  
3M South West Street - P.O. Box 12267 - Wichita, Kansas 67277  
Telephone (316) 529-0414 - FAX (316) 529-3006
- 2. Kansas Plastics Co  
445 W Lincoln St  
Iola, KS 66749-2263  
(316) 365-8100
- 3. Integrated Health Industries Inc.  
Yonkers, NY