

**TRIP REPORT**  
(AWC Reg 1-11)

DATE OF REPORT

11 Dec 67

EXEMPT FROM RCS  
PARA 390, AR 335-15

TO: Chief, AMSWE-RDR

FROM: David Bootzin, AMSWE-RDR

17-20

REPRESENTING: (Names of Others and their org. if a group visit)

Headquarters, Army Weapons Command

PLACE VISITED:

Hawaii, Vietnam, Philippines, Okinawa, Korea

AUTHORITY:

TO #131, 6 September 1967

DEPARTURE DATE: 10 Sept 67

RETURN DATE: 22 Oct 67

1. PURPOSE OF VISIT:

To assess the adequacy of all weapons' lubricants and cleaners in satisfying the operational needs of weapons in the field. Continued on attached sheet.

2. PERSONNEL CONTACTED:

See attached

3. DISCUSSION OR DETAILS OF VISIT:

See attached.

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## PURPOSE:

Mr. David Bootzin, formerly with the Preservation & Lubrication Research Laboratory of the Research and Development Laboratories, at RIA, currently assigned to the Research Office, Hdqrs, AWC, travelled to Southeast Asia and other points of the Pacific Theatre to assess the adequacy of the weapons lubricants and cleaners in satisfying the operational needs of weapons in the field. The trip basically consisted of visiting a large number and variety of military units in the field to determine the condition of the weapons, (small arms, combat vehicle weapons, artillery, aircraft weapons), their performance, the availability of authorized lubricants and cleaners, types of materials actually used, suitability of the material for the field operations and corrective action needed.

## PERSONNEL CONTACTED:

The attached list itemizes the itinerary, personnel and organizations contacted. In many instances names were not obtained since the taking of notes during the visits would have discouraged informal discussions.

## DISCUSSION OR DETAILS OF THE VISITS:

Introduction: During the past year weapons and lubricants in use in Vietnam were being criticized. Those mentioned included: malfunctions of the M16 Rifle, inadequacy of lubricants for the Mini Gun, corrosion of materiel, inadequacy of cleaning materials and the use of unauthorized lubricants and preserving materials. This obviously generated considerable concern. It precipitated Congressional inquiries, and related activities. Since many of the authorized weapons lubricants and cleaners are the responsibility of AWC, and its subordinate arsenals, it was recommended by HQ AWC that someone knowledgeable in the research area of weapons lubricants preservation and cleaning from R&D be sent to the field to personally observe field conditions. This individual would collect data to be used (1) as guidance for future research and development programs to improve the weapons lubricants and cleaning materials and (2) to initiate immediate corrective action.

Approach: The traveller would contact AWC or AMC personnel stationed overseas to arrange the visits to field units so as to permit personal observation of operating conditions relative to all types of weapons. Interviews with personnel at all operating levels would be conducted.

The AWC Supply & Maintenance Directorate provided guidance for such contacts in Hawaii, Vietnam, Philippines, Okinawa and Korea. At each stop a large variety of units were contacted. This provided a satisfactory sampling of conditions not only in combat areas such as Vietnam and Korea, but in garrison type installations like Hawaii, Philippines and Okinawa.

Visits to the Philippine Army and Korean Army which use American equipment and guidance also provided data on the suitability of our materials when used by other nationals. The basic information collected emphasized the following:

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## (1) Acceptability of presently authorized lubricants.

The present authorized lubricants provide adequate lubrication and preservation when used regularly and as environment and climatic conditions dictate. Under the heavy rainfall conditions experienced in Vietnam this can necessitate numerous applications of lubricants in a single day because of heat dissipation or wash off.

## (2) Field Findings.

(a) It was noted in many cases that authorized lubricants were not being used. Various substitutes such as motor oil, VV-L-820, Mil-G-46003, were being used instead.

(b) In some cases, no lubrication was noted with resulting rust and breakdown. A 155MM Howitzer was found to have a sheared guide due to a failure to lubricate.

### b. Small Arms and Aircraft Weapons.

#### M16 and M16A1 Rifle.

## (1) Acceptability of presently authorized lubricants.

Recent changes to lubrication instructions authorizing the use of Mil-L-46000 (ISA) has provided the user in tropical climates such as Vietnam, a material that gives effective lubrication and preservation even under humid and rain conditions. The Mil-L-46000 is far superior to previously used lubricants for this weapon under tropical conditions.

## (2) Field Findings.

(a) User reaction revealed a high degree of acceptability and confidence in the use of Mil-L-46000 (ISA).

(b) Where Mil-L-46000 was found to be used in accordance with instructions, weapon condition was excellent and users indicated no functioning problems were being experienced.

(c) In many cases, authorized lubricants were not being used. Various substitutes such as VV-L-820, motor oil, PL Special were used instead.

### c. Machine Guns and Aircraft Weapons.

## (1) Acceptability of presently authorized lubricants.

In the M60 machine gun, no problems were encountered when the authorized Mil-L-46000 (ISA) was employed. The units using ISA-T for the minigun were also satisfied and had confidence in the authorized lubricants.

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## 4. Maintenance:

### a. Adequacy of Maintenance.

Where personnel were familiar with their weapon, cleaned and lubricated them with authorized materials they had no problems and the weapons functioned properly. This was especially true with the M16 rifle.

### b. Field Findings.

(1) In some cases weapons were neglected and found to be full of dirt or rust from neglect or due to use of substitute unauthorized materials.

(2) Although maintenance and supply procedures are adequately covered in maintenance manuals, and similar information furnished in PS magazine, articles, training aids, special letters, etc., there is still a lack of knowledge in these areas by the user in the field.

## 5. Training and Skill of Personnel:

### a. Adequacy of Personnel

Where trained personnel were on their qualified tasks, the performance was effective.

### b. Field Findings.

Due to one year time of duty, many military personnel were inexperienced or assigned to a duty other than the one trained for so that even though highly motivated, lack of knowledge and skill was evident.

## RECOMMENDATIONS AND PROPOSED ACTION:

The report as given here did not itemize the many specific cases of field findings observed but the trip emphatically revealed that more needs to be done to support the military operation in the field.

The following recommendations and proposed actions reflect the corrective action to be taken to rectify some of the items listed in the conclusions.

This visit to the field, clearly indicated that more R&D personnel should be sent to find out exactly what field conditions are.

In addition, more effective use should be made of AWC Supply and Maintenance Directorate Equipment Specialists to obtain data from the field, disseminate information and solve trouble shooting problems.

It is recommended that the complete weapon system concept be stressed to all contributing technical groups. This means that a weapon system would require to be okayed by those concerned with design, materials, ammunition, lubrication, cleaning, use, repair, storage, etc.

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## SIDELIGHT INFORMATION

Even though the trip was concerned primarily with preservative lubricants and cleaners for weapons and weapons system, considerable information was applicable to other areas of ordnance. These sidelights are mentioned here to be brought to the attention of the appropriate agencies.

Automotive Vehicles (Jeeps, Trucks, Staff Cars etc.)

Field Findings.

a. Automotive vehicles showed extensive evidence of body rust requiring considerable maintenance.

b. Vehicles were washed or driven through streams with subsequent loss of grease in the bearings. With no relubrication, breakdowns due to rusted, pitted and broken bearings were encountered.

c. The question was raised as to why the Army hasn't gone to a multiviscosity oil since industry has been using it for some time.

ITINERARY, PERSONNEL & ORGANIZATIONS CONTACTED

HAWAII (5 days)

USARPAC, U. S. Army Pacific, Fort Shafter

CAO-AMC, GPLO-CA, APO 96558

Mr. Howard Trost - Acting Chief

Mr. Francis Marsh

G-4 Supply and Maintenance Operations Division, APO 96558

Col Kolankiewicz - Deputy

Weapons and Vehicles Branch, GPLO-SM, APO 96558

LTC A. D. Coleman - Chief

G-4 Services Division, ACOS

Mr. George N. Davies - Administrative Vehicles Fleet Manager

PACAF Hdqtrs, DMWS, APO 96553, Hickam Airforce Base

Major Swearingen

USARHAW, U. S. Army Hawaii, Schofield Barracks,

Supply and Maintenance Center HCSM, APO 96557

Col Kramer, Commander

Col Motes, Deputy

Maintenance Division

LTC Keller, Chief

Mr. J. Mahoney, Deputy

Mr. Willard Daniel, AWC Project Officer

Mr. Higa - Shop 3 Foreman - Small Arms Assembly Rebuild

Mr. Escalera - " " " " " "

Mr. Meyer - Shop 5 Foreman - Artillery and Vehicle General Support

Mr. Combra 1 - " " " " " "

Mr. Gilkey - Foreman - Weapons and Vehicles Storage Section

11th Infantry Brigade

Capt Mullins - Brigade Maintenance Officer Three Battalions

2nd Battalion of the 21st Artillery

Capt Davis - S4

VIETNAM (17 days)

AMC-CAO-V Customer Assistance Office - Saigon

Col Leeper - Chief

LTC T. Kelley - Deputy

Maj Dwight Sheldon - AWC Liaison Officer (at long Binh)

LTC P. Brady - MJCOM Liaison Officer

140th Maintenance Company (GS) - Long Binh

Mr. McNeil - AWC Equipment Specialist

218th Collection Classification & Salvage Company - Long Binh

1st Log Command - Saigon

Col Stan Gilbert - Directorate of Maintenance

Maj Dodgson - Armament Officer

Maj Evans - Assistant Armament Officer

LTC Wurschmidt - Petroleum Directorate

335th Transportation Company - Chu Lai

176th Aviation Group - Chu Lai

Sgt. Dickerson - AWC Equipment Specialist

3rd Bn of the 16th Artillery - Chu Lai

155mm Howitzer Battery

3rd Bn of the 18th Artillery - Chu Lai

175mm Gun Battery

8" Howitzer Battery

PHILIPPINES (4 days)

JUSMAG Headquarters, Quezon, APO 96528

G-4 Logistic Division of the Army Section

Col. H. E. Hutcheson - Chief

Lt. Col. F. A. MacDonald - Supply and Services Advisor

Major Nunziato - Maintenance Officer Advisor

Mr. A. Zilinskas - AWC Equipment Specialist

Fort Mag Say Say

G-1 Col. Camagoy

G-4 Capt. Bahia

G-5 Col. Esquiyo, Chf of Staff

1st Armored Cavalry Troop

Lt. Laput - Troop Commander

Lt. Pagaling - Maintenance Officer

155MM Howitzer Battery

PHILCAAG (Civic Action Group)

Col. Tucay - Chf of Staff

Capt. Rivella - Logistic Support Commander

1st Infantry Division

OKINAWA (3 days)

AMC-CAO

Major Leon A. Eskridge

Headquarters 2nd Log Command

Lt. Col. Dixon - Asst Chief of Staff

Quality Assurance Office

Mr. Les Von Pelt - Chief

Mr. Orlando Cassani - Maintenance Quality Control Specialist

Mr. Ed Stack - Preservation and Packaging

Quality Control of Supply

Mr. Queen - Chief

A&C Troops  
Sgt. Little  
Sgt. Ratte

S-4 of 7th Cavalry  
C.W.O. Wendt  
Sgt. Howell

2nd Bn 231st, Company A  
Sergeant Major Glennon

2nd Bn 9th Inf - Ung Dam  
Company A  
Lt. Strom - Company Commander

ROK Unit: 75R 3BN  
Lt. Col. Cho - Battalion Commander