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AD. NO.
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ARMY CONCEPT TEAM IN VIETNAM
APO 147, San Francisco, California

ACTIV-GM

114 pages 11, 19 November 1963,

SUBJECT: [Weldments - M113 Armored Personnel Carriers in Vietnam] [E].

TO: See Distribution

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1. (U) Forwarded herewith as Inclosures 1-3 are graphic reports of certain M113 armored personnel carriers destroyed by mines in the Republic of Vietnam *per 220*

2. (C) Careful examination of the vehicles shown in each report reveals evidence of a lack of weld penetration at the juncture of the hull plates. A clean separation of the hull plates at the welded joints has been characteristic of each of the mine incidents, discussed.

3. (C) Portions of the hull shown in Inclosure 3 have been transported by air to Aberdeen Proving Ground, Maryland, for analysis to determine whether or not the weldments meet specifications. [C] ←

4. (C) If it is found that the weldments conform to specifications, it is recommended that the specifications be reviewed to determine whether or not they should be modified to afford added strength to the hull.

3 Incl
as

Thomas O. Blakeney
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FEB 20 1964

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M113 Armored Personnel Carrier Destroyed on 2 January 1963 (C)

The M113 Armored Personnel Carrier shown in Figures 1 through 3, following, was destroyed during an operation in the Delta region (IV Corps) of Vietnam. The vehicle ran over what was suspected to be a factory-made, 11-pound pressure mine. The damage assessment indicates that it is quite possible that the pressure mine was used in conjunction with a larger homemade mine. The mine was buried in a dike in a rice paddy area. Four men were killed and two were wounded. There was extensive damage to the vehicle floor, ramp, and suspension components. The clean separation of the floor from the right side and from the rear cross member indicates a definite lack of weld penetration. The vehicle was evacuated and salvaged.

Incl 1

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(C) FIGURE 1
Arrow indicates weld beads that join the box beam to the floor plate.

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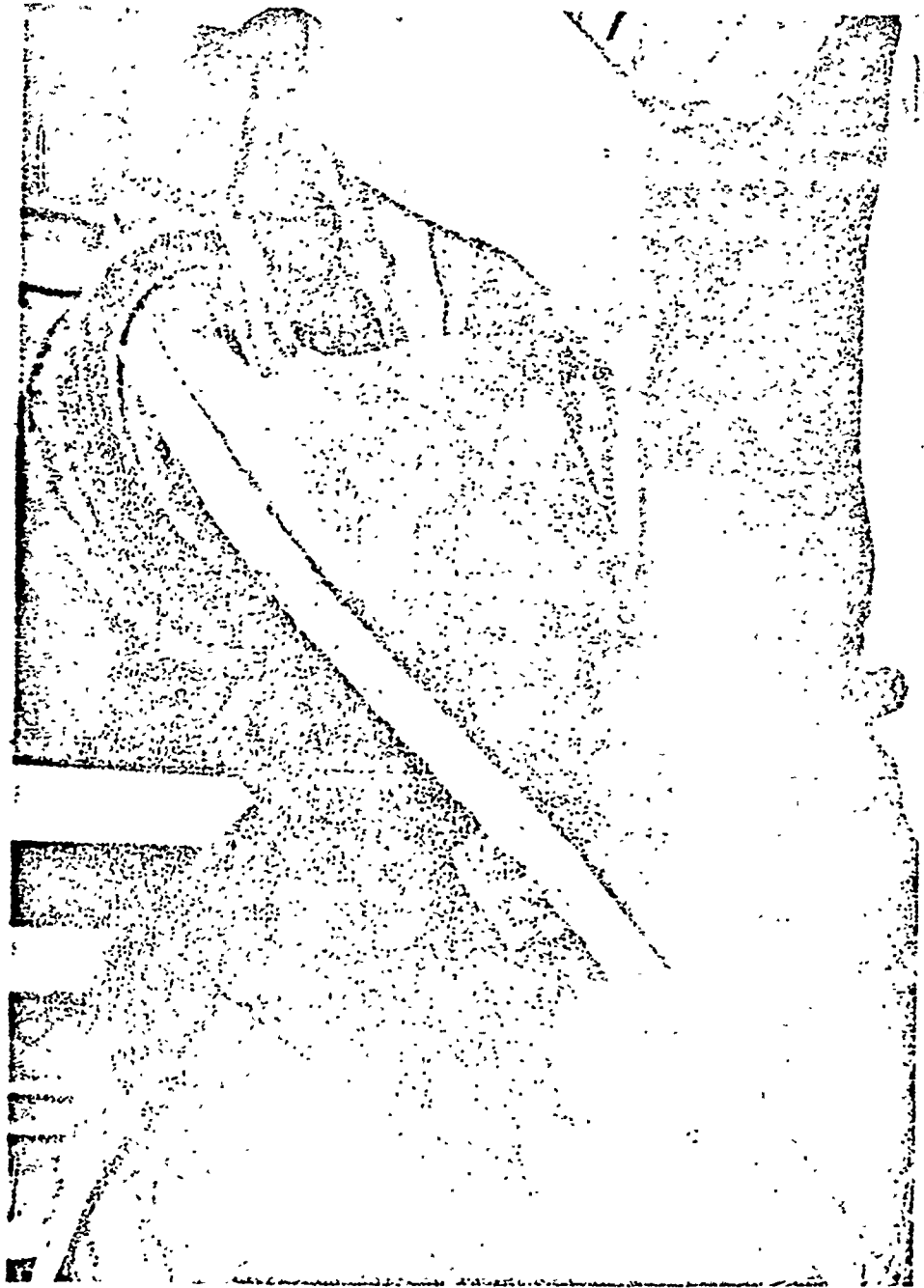
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(C) FIGURE 2
View of ruptured hull floor showing the separation of the floor from the right box beam and
rear cross member

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(C) FIGURE 3
Close-up view of weld formation on floor plate. Note clean separation.

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M113 Armored Personnel Carrier Destroyed on 11 February 1963 (C)

This M113 Armored Personnel Carrier (Figures 4 and 5) was destroyed in the III Corps area of Vietnam. The vehicle was traveling in column on a dirt road in a heavily forested area. The mine was buried in 4-5 inches of loose soil in the center of the road. It was homemade, contained an estimated 20 lb of explosive, and was electrically detonated, producing a crater in the road 3.5 feet in diameter and 1.5 feet deep. Six ARVN soldiers riding in the vehicle were injured. The vehicle hull floor suffered a conical deformation approximately 40 inches in diameter and 7 inches deep. The vehicle torsion bars, cross beams, ramp cylinder, and fuel line were also extensively damaged. A clean separation, approximately 2 feet in length, occurred at the welded joint between the hull floor and box beam on the right side of the vehicle. The vehicle was evacuated and salvaged.

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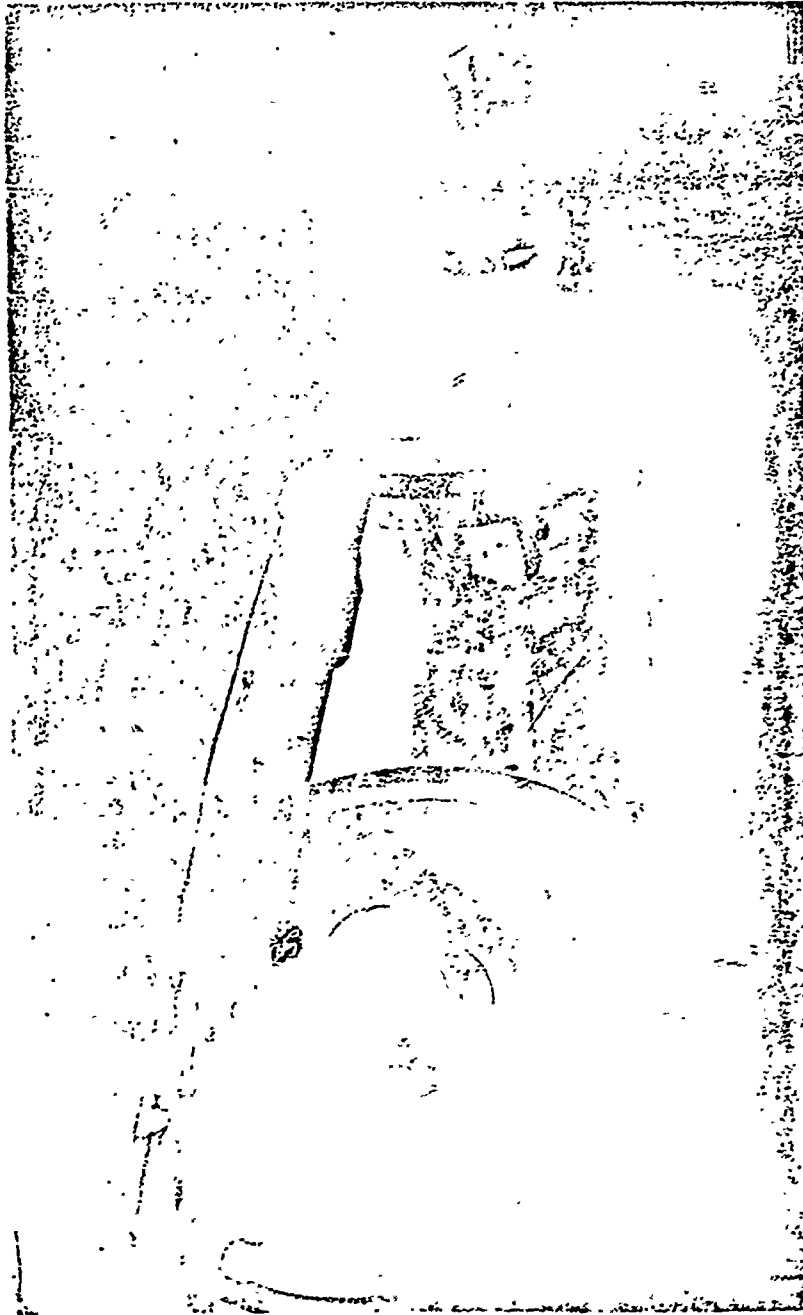


(C) FIGURE 4
Deformation in the floor plate of the M113.

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(C) FIGURE 5
Photo depicts rupture on the right side of the vehicle at the welded seam between the floor plate and the box beam.

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M113 Armored Personnel Carrier Destroyed on 9 September 1963 (C)

This M113 armored personnel carrier (Figures 6 through 15) was destroyed during a combat operation in the MEKONG Delta (IV Corps) area of Vietnam. It was the lead vehicle in a column of 12 M113s traveling over a gravel surfaced road. Three actions occurred almost simultaneously:

1. A mine was electrically detonated directly in front of the vehicle. No known vehicular damage occurred.
2. A mine was electrically detonated under the left rear of the vehicle, damaging the road wheel, track, and sponson.
3. The vehicle was struck by a 57mm HEAT round which penetrated the engine compartment access door.

The troop commander, riding in the 4th vehicle in column, ordered the damaged vehicle moved into a rice paddy adjacent to the road. The vehicle moved unassisted approximately 35 meters into the paddy. A gasoline fire started in the rice paddy outside the vehicle and spread quickly to the sponson. The troop commander immediately ordered the burning vehicle cleared of personnel. Before the vehicle could be cleared, the fire spread to the interior of the vehicle. While escaping, the men in the vehicle were burned to various degrees. Within 3-5 minutes after the fire started, several explosions literally tore the vehicle apart. The roof, floor plate, and engine compartment access door were completely blown from the vehicle. The ramp was blown into the open position. Sides were splayed out at a 45 degree angle. The M113 burned for approximately one hour thereafter. The vehicle was subsequently further dismantled by ARVN soldiers using TNT blocks. Evacuation was by 2 1/2-ton truck. The pieces were taken to the 80th Ordnance Rebuild Depot in Saigon, steam cleaned, and examined.

An examination of the destroyed vehicle by the unit advisor and qualified ordnance personnel resulted in the following conclusions:

1. The mine that detonated directly in front of the vehicle did not contribute to the destruction of the vehicle.
2. The 57mm HEAT penetration did not immobilize the M113 nor contribute to the fire.
3. The mine detonated under the vehicle damaged the fourth road wheel and the track above the road wheel. A hole in the left sponson indicates that a small fragment from the mine or the damaged track penetrated the sponson and ruptured the gas tank. The gasoline from the ruptured gas tank ignited.

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4. The vehicle destruction was caused by a combination of explosion of the gas tank and detonation of the ammunition within the vehicle. Listed below are the types and quantities of ammunition believed to have been stored inside the vehicle:

- a. Cal .50 MG - 1800 rounds
- b. Cal .30 MG - 2400 rounds
- c. Cal .30 M1 - unknown
- d. Cal .30 Carbine - unknown
- e. BAR - 1000 rounds
- f. M-26 grenades - 50

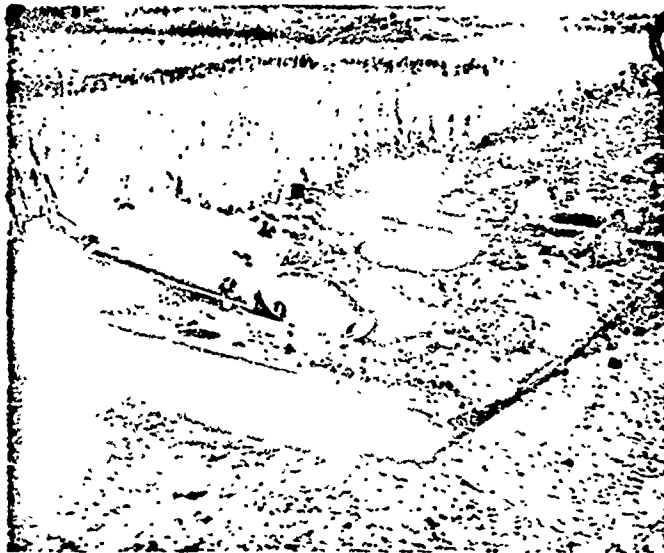
5. The clean separation of the hull joints caused by the explosion of the gas tank and the stowed ammunition indicates a lack of weld penetration.

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(C) FIGURE 6

Road wheel and track damage caused by the mine. A piece of the mine or track penetrated the sponson above the damaged area.



(C) FIGURE 7

The roof was blown intact from the vehicle.

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(C) FIGURE 8

The floor was blown from the vehicle. Note the position of the torsion bars in relation to the floor. The ramp was blown into the open position.



(C) FIGURE 9

The sponson was penetrated, rupturing the gasoline tank.

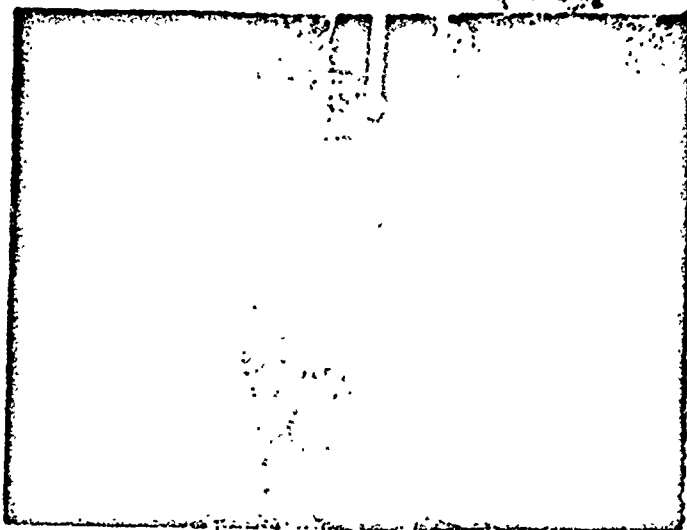
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(C) FIGURE 10

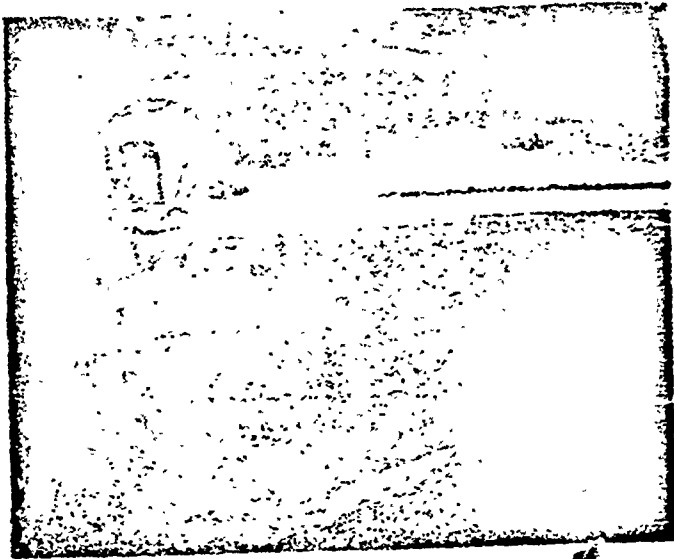
The vehicle side plates separated at the welded joints and splayed out at 45° angle. The engine compartment door was completely blown from the vehicle.



(C) FIGURE 11

View of the roof and side plate showing clean weld separation.

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(C) FIGURE 12
Clean separation of the roof from the side plate. View
of the roof as it separated from the side plate.



(C) FIGURE 13 .
View of weld separation (see arrow).



(C) FIGURE 14

Clean separation between box beam and floor plate on right side of the vehicle.



(C) FIGURE 15

Weld separation of floor from box beam.

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