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AMCMS Code No. 4510.04.31.1
USATECOM Project No. 1-VG-120-151-003
Report No. APG-MT-3294

FINAL REPORT ON

PRODUCT IMPROVEMENT TEST

OF

TRUCK, UTILITY, 1/4-TON, 4X4, M151 SERIES WITH MODIFIED INDEPENDENT REAR SUSPENSION SYSTEM

BY

J. R. PRICE

JULY 1969

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SUMMARY OF DEFICIENCIES - TEST AND STANDARD VEHICLES

(NOT CHARGEABLE TO IMPROVEMENT ITEMS)

TRUCKS, 1/4 TON, 4X4, M151 SERIES

USATECOM PROJECT NOS. 1-7-4030-25/33

Failure	Frequency	Reported Classification	Final Classification	Reason for Revision
Engine exhaust valves	2	Deficiency	Shortcoming	One failure discovered at end of test; the other an isolated incident
Engine rear main seals leaking lube	3	Deficiency	Deficiency	—
Clutch disc facing torn or worn	6	Deficiency	Deficiency	
Fuel tank filler cap vent leaking fuel	1	Deficiency	Shortcoming	Isolated case
Ignition coil mounting screw broke	1	Deficiency	Shortcoming	Isolated case
Battery cable loosened - burned hole in cover	1	Deficiency	Deficiency	(safety hazard)
Ignition distributors failed	2	Deficiency	Deficiency	
Propeller shafts, front differential	5	Deficiency	Deficiency	
Front and rear axle universal joint crosses bearings, races, yokes and flanges	43	Deficiency	Deficiency	
Rear axle pinion shaft seal	1	Deficiency	Deficiency	
Rear axle differential failures	5	Deficiency	Deficiency	

Incl 1

Failure	Frequency	Reported Classification	Final Classification	Reason for Revision
Differential mounting bolt tore through chassis	1	Deficiency	Shortcoming	One failure related to abnormal course condition
Right rear wheel inner seal failed	1	Deficiency	Deficiency	
Brake warning lights on w/o application	4	Deficiency	Deficiency	
Brake shoe and lining assembly bent	2	Deficiency	Deficiency	
Suspension system coil springs M151A1C	4	Deficiency	Deficiency	
Left front lower suspension arm bent	1	Deficiency	Shortcoming	Isolated case
Left front lower suspension arm ball joint socket assy failed	1	Deficiency	Shortcoming	Isolated case
Wheel bearings failed due to contamination	2	Deficiency	Deficiency	
Alternator failed radio interference suppression requirement	1	Deficiency	Deficiency	

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND
ABERDEEN PROVING GROUND, MARYLAND 21005

AMSTE-BB

14 JUL 1969

SUBJECT: Final Reports on Product Improvement Test of Truck, 1/4-Ton, M151 Series w/Modified Independent Rear Suspension (MIRS) System, USATECOM Project Nos. 1-7-4030-25/33

Commanding General
US Army Materiel Command
ATTN: AMCCG
Washington, D. C. 20315

1. References.

a. Letter, AMCPM-GPV-TLI, Project Manager, General Purpose Vehicles, 21 June 1968, subject: Product Improvement/Safety Test M151, 1/4-Ton Trucks.

b. US Army Armor & Engineer Board Test Plan for Product Improvement Test of Truck, Utility, 1/4-Ton, 4x4, M151A1, 6 December 1968.

c. Letter, AMSTE-BB, HQ, USATECOM, 20 December 1968, subject: Safety Test on M151 with Modified Independent Rear Suspension.

d. Letter, AMCPM-GPV-TLI, Project Manager, General Purpose Vehicles, 6 February 1969, subject: Proposed AMCTC Action to Expeditiously Type Classify the M151 Series Trucks, with Modified Rear Suspension, as Limited Production (LP) w/1st Indorsement, AMSTE-BB, HQ, USATECOM, 17 February 1969.

e. Letter, AMSTE-BB, HQ, USATECOM, 18 April 1969, subject: Initial Production Tests of 1/4-Ton, 4x4, Vehicles Produced under Contract DA-AE06-C-0001, USATECOM Project Nos. 1-7-4030-23, 24, 34, 86 and 95 and 1-9-4036-03, 70.

f. Letter, USATECOM, AMSTE-BB, subject: INTERIM Report on Product Improvement Test of Truck, 1/4-Ton, M151 Series w/Modified Independent Rear Suspension (MIRS) System, USATECOM Project Nos. 1-7-4030-25/33, 13 June 1969.

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SUBJECT: Final Reports on Product Improvement Test of Truck, 1/4-Ton, M151 Series w/Modified Independent Rear Suspension (MIRS) System, USATECOM Project Nos. 1-7-4030-25/33

2. Approval Statement. The inclosed reports are approved except as noted herein.

3. Background.

a. The modified independent rear suspension (MIRS) system featuring trailing arms in place of lateral suspension arms was developed for the M151 series trucks to reduce the incidence of overturning accidents by minimizing over-steer and jack-up of the vehicle in sharp or high speed turns and increasing body roll to improve driver "feel".

b. Tests on the modified independent rear suspension system and 35 other product improvements including such items as two-speed windshield wipers, one-piece windshield, fuel pump, class "A" headlights, deep dish steering wheel, etc., were initiated by request of the Project Manager, General Purpose Vehicles, reference 1a. Testing was accomplished at Aberdeen Proving Ground (APG) and US Army Armor & Engineer Board (USAARENBD) in conformance with the procedures and plans outlined in references 1a and 1b. Suitability for air drop of the M151A1 and M151A1C was evaluated at the U.S. Army Airborne, Electronics and Special Warfare Board (USAE&SWBD).

c. Five modified vehicles were submitted for test on the dates indicated below.

M151A1	APG	4 Nov 1968
M718	APG	11 Nov 1968
M151A1C	APG	11 Dec 1968
M151A1	USAARENBD	17 Dec 1968
M151A1	USAARENBD	17 Dec 1968

d. On 20 December 1968, in compliance with instructions issued by the Deputy Commanding General, USAMC, an interim report on handling characteristics and safety was prepared, reference 1c.

e. On 6 February 1969, by reference 1d, HQ, USATECOM was requested to comment on interim acceptability of the modified rear suspension system from a durability standpoint. Inasmuch as only 22 percent of the scheduled durability testing had been completed, a suitability statement could not be provided.

SUBJECT: Final Reports on Product Improvement Test of Truck, 1/4-Ton, M151 Series w/Modified Independent Rear Suspension (MIRS) System, USATECOM Project Nos. 1-7-4030-25/33

f. On 3 June 1969, USATECOM was directed to provide an interim position on suitability for Army use of the modified independent rear suspension (MIRS) only for M151 series trucks and to complete the remainder of testing on an expedited basis. This interim position was provided by reference 1f.

g. The final USATECOM position on MIRS, provided herein, is substantially as previously reported. Additionally, positions are provided on the other product improvements.

4. Results.

a. Twenty of the 36 product improvement items submitted for test, including the independent rear suspension system, were found to be satisfactory, eleven were found to be unsatisfactory, and five were withdrawn from test by Project Manager-General Purpose Vehicles. One deficiency, inadequate tire chain clearance, was reported against the MIRS system. Ten deficiencies and 22 shortcomings were reported on the other product improvement items. Three of the deficiencies were deleted by this headquarters since two of the affected components, the collapsible steering column, and windshield hinge pins were withdrawn from the test by the Project Manager, General Purpose Vehicles. The third deficiency, failure of the windshield wiper motor to meet radio frequency interference suppression requirements was eliminated in retest by proper electrical connections. Six of the reported shortcomings were reclassified by HQ, USATECOM to deficiencies. The basis for this reclassification was that the individual items failed to meet their design objectives and were therefore deficient. The seven remaining and six reclassified deficiencies on the product improvement items are discussed further in paragraph 4f. Twenty deficiencies and 125 shortcomings, unrelated to the rear suspension system or product improved components, were reported against the test and standard vehicles. A summary of these deficiencies with regrading action, as appropriate, is at Inclosure 1. Shortcomings reported against the vehicles are listed in Appendix II of the USAARENBD report and Appendix IV of the APG report, attached.

b. Safety Tests (MIRS).

(1) Instrumented Test Results. Review of the instrumented test results provided by the developer showed that over-steer characteristics were eliminated and body roll was increased as compared to the standard M151A1. See pages 28 through 37, Appendix VI of the APG report for details.

(2) "Jury" Evaluation. In the APG "jury" evaluation, six experienced civilian test drivers made a comparison of ride and handling characteristics of the M151A1 with MIRS with those of production M151A1. After each test run with each vehicle, the driver completed a questionnaire on handling. The courses utilized during this evaluation consisted of a paved Chicane course, gravel roads, Belgian Block, Perryman No. 1 cross-country and Churchville (hill) cross-country. The vehicles were run empty, empty with trailer, with rated cross-country and highway payloads, and with trailer with rated cross-country and highway payloads. The "jury" evaluation disclosed that the ride and handling characteristics of the M151 with MIRS were predominently preferred over those of the standard vehicle.

(3) Observations During Durability Testing. Experience gained at APG during the accumulation of 58,940 durability test miles, which included additional Chicane course operations with both the M718 ambulance and the M151A1C vehicle, reaffirmed the earlier "jury" test findings. However, at the USAARENBD, after 40,000 miles of operation on the MIRS vehicles and 17,109 miles on the standard vehicle, representative military driver personnel reported no appreciable preference for the test vehicle over the standard vehicle in stability, ease of handling, steering, maneuverability or ease of ride. Based on these findings, the USAARENBD recommended that no further consideration be given to the use of MIRS system, as tested, on the M151A1. However, test personnel did report that the modified suspension provided an earlier warning of vehicle instability under certain conditions, i.e., turning at maximum safe speed. For a detailed discussion, see page 12, paragraph 2.3.4.3 of the USAARENBD report.

c. Durability and Reliability Tests (MIRS)

(1) Vehicle mileage accumulated was as follows:

Vehicle Type	APG	USAARENBD
M151A1 (MIRS)	25,276	20,000
M151A1 (MIRS)	--	20,000
M718 (MIRS)	23,563	--
M151A1C (MIRS)	10,101	--
M151A1 (Standard)	--	17,109

(2) The modified rear suspension test vehicles exhibited frequent power train failures (universal joints, transmissions, rear differentials, etc.) similar to those reported on the standard production vehicles, reference 1e. Several cracks and flaws (non-disabling) developed in the modified suspension trailing arms at both APG and USAARENBD. Operations were extended an additional 5000 miles at APG on the heavier M151A1C vehicle to further observe this condition. Magnaflux inspection of the suspension arms revealed eight additional small cracks, increase in the length of seven cracks and no change in six cracks. Although the cracks did not propogate to the point of failure, improvements in arm design and/or production techniques are warranted.

(3) Maintainability of the modified independent rear suspension was acceptable.

d. Air Drop (MIRS). The M151A1 and M151A1C with modified independent rear suspension systems were successfully dropped by parachute at the USAAE&SWBD. The M718 was not dropped since cracks were detected in the suspension arms and body prior to test which would invalidate findings. The M151A1C used in the air drop test was operated additional mileage at APG to evaluate suspension arm cracking as discussed above.

e. In addition to MIRS, the following product improvements were found suitable for Army use. Comments are included where APG and USAARENBD reported differing results.

(1) One-piece windshield

(2) Deep dish steering wheel

(3) Mechanical fuel pump

(4) Windshield washers

(5) 1/2 inch wheel studs

(6) Data plates

(7) Mild steel engine mounts

(8) Permanent lube points

(9) Full view rear window

(10) Pulleys, water pump and crank shaft

(11) Battery caution labels

(12) Starter drive

(13) Inside rear view mirror

(14) Carburetor (Codes C and D)

(15) Alternator (Code E)

(16) Rear extension, M718

(17) Rear lifting eyes

(18) Electrical windshield wipers. USAARENBD reported satisfactory performance. APG reported, as a shortcoming, failure of a motor drive rod early in test on one wiper assembly. The failure at APG is considered to be an isolated case, therefore, the overall wiper system is judged suitable.

(19) Class "A" lights. USAARENBD reported the lights satisfactory. APG reported as shortcomings a cracked turn signal (light) cover and damage to the left rear stop/taillight cover assembly caused by heat from the exhaust. Although no problems were encountered, the lack of double grounding circuits for the lights was reported as a shortcoming by APG. Overall, HQ, USATECOM considers the Class "A" lights satisfactory.

f. Eleven product improvement items are unsuitable until the reported deficiencies are corrected. These deficiencies pertain to the individual items rather than to the vehicle.

(1) Split master brake cylinder. Six cylinder failures were recorded. (Deficiency) In addition, difficulty was encountered in installation and/or removal of the cylinder because of its location and inaccessability for viewing and reaching. (Deficiency)

(2) Scissor jack. The jack was preferred by crew members over the standard jack in that it was easier, safer, and cleaner to use. However, the screw threads stripped on one jack during its operation (reclassified as deficiency). Thread design should be reviewed for adequacy.

(3) Transmissions. Transmission failures occurred on all five test vehicles. (Deficiency) The output shaft snap ring retainer installed on the M718 vehicle at APG after test initiation, failed at 9,625 miles. (Deficiency)

(4) Front seat pivot slots. While satisfactory at APG, the pivot slots wore exessively on both test vehicles at the USAARENBD. (Reclassified as deficiency)

(5) Front seat rear latches. The modified latches release allow the front seat to tilt forward creating a safety hazard, and the latch location precludes use of a padlock on the OVM compartment. (Deficiency)

(6) Front crossmember w/heavy wall spacer. The heavy wall spacer was applied to prevent loss of "shims" from the lower suspension arm assembly. However, the adjusting "shims" were lost from both test vehicles at the USAARENBD. While shims were not lost at APG, they slipped and required readjustment. (Reclassified as deficiency)

(7) Clutch cross-shaft. Binding of the shaft in the outboard bracket was experienced on two of the three vehicles at APG. (Reclassified as deficiency)

(8) Air intake hose. The hose, located between the air cleaner and carburetor developed a small hole. After repair, the hose continued to tear until failure. (Deficiency)

(9) Alternators. The cooling fan on the Code F alternator failed at low mileage on two vehicles. (Deficiency)

(10) Spare tire mount (M718). The tire mount failed on the one sample tested. (Reclassified as deficiency)

(11) Side reflectors, stick-on. Although reported satisfactory by the USAARENBD, the adhesive was inadequate at APG in that the reflective material loosened or was completely lost. (Reclassified as deficiency)

g. Product improvements withdrawn from test by PM-GPV were:

(1) Two-piece front lifting eye configuration

(2) Windshield hinge pin

(3) Dry element air cleaner

(4) Exhaust manifold (.093 thick)

(5) Collapsible steering column

5. Comments.

a. The reduced oversteer and increased body roll design characteristics of the MIRS system were sufficiently noticeable to the experienced drivers at APG to establish a preference for the MIRS vehicle over the standard vehicle. However, representative military driver personnel detected a difference only under certain conditions. The composite of all findings, i.e., design characteristics data, "jury" trials and durability and reliability experience, favors the MIRS design.

b. Three of the five vehicles were involved in five separate accidents during the durability test phase. In each instance, investigations showed that the accidents were attributable either to driver error or equipment failures not related to the modified rear suspension.

c. From the above, it can be seen that an improvement in the overall safety record of the M151A1 1/4-Ton vehicle, even with the MIRS installed, will be as dependent on driving practices and experience as on vehicle design.

6. Conclusions.

a. From a design standpoint, safety of the M151 series vehicles with MIRS is improved over the standard vehicle in that over-steer is eliminated and body roll is increased improving driver feel.

b. Durability, reliability, maintainability and parachute delivery of the modified suspension are satisfactory and at least equal to the standard system.

c. The modified rear suspension system as currently designed does not provide adequate clearance for operation with tire chains.

14 JUL 1969

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SUBJECT: Final Reports on Product Improvement Test of Truck, 1/4-Ton, M151 Series w/Modified Independent Rear Suspension (MIRS) System, USATECOM Project Nos. 1-7-4030-25/33

d. Reliability of the power train components to include rear axle drive shaft universal joints, transmissions, and differentials on both the standard and test vehicles was unsatisfactory (see reference 1f).

7. Recommendations.

a. The modified independent rear suspension and product improvements listed at paragraph 4e are suitable for Army use.

b. Action be taken to correct the deficiencies and as many as feasible of the shortcomings reported herein.

FOR THE COMMANDER:

WILLIAM H. HUBBARD
Colonel, GS
Deputy Chief of Staff

3 Incl
1. Summary of Deficiencies
2. APG Rpt MT-3294
3. USAARENBD Rpt

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USATECOM PROJECT NO. 1-VG-120-151-003

PRODUCT IMPROVEMENT TEST OF TRUCK, UTILITY, 1/4-TON, 4X4, M151 SERIES WITH MODIFIED INDEPENDENT REAR SUSPENSION SYSTEM

FINAL REPORT

BY

J. R. PRICE

JULY 1969

ABERDEEN PROVING GROUND
ABERDEEN PROVING GROUND, MARYLAND
21005

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TABLE OF CONTENTS

ABSTRACT

A product improvement test was conducted on three trucks, utility, 1/4-ton, 4X4, M151 series with modified independent rear suspension (MIRS) at Aberdeen Proving Ground, Maryland from 14 November 1968 to 27 June 1969. Test vehicles incorporated nine primary and 27 secondary product improvement items. Purpose of the test was to determine ride and handling characteristics; compliance with specified technical performance requirements; and durability and maintenance support requirements. The ride and handling characteristics of the M151 with MIRS were an improvement compared to the production M151A1. Performance of the vehicle and durability of the M151 series MIRS system were generally satisfactory. The unsatisfactory and marginally satisfactory product-improvement test items require additional development. The satisfactory product-improvement test items, incorporated in the M151 series vehicles, do not degrade durability or maintainability characteristics.

FOREWORD

Materiel Test Directorate was responsible for conducting the test and preparing the test report.

ABERDEEN PROVING GROUND
ABERDEEN PROVING GROUND, MARYLAND 21005

USATECOM PROJECT NO. 1-VG-120-151-003

FINAL REPORT ON PRODUCT IMPROVEMENT TEST OF TRUCK, UTILITY, 1/4-TON, 4X4, M151 SERIES WITH MODIFIED INDEPENDENT REAR SUSPENSION SYSTEM

14 NOVEMBER 1968 TO 27 JUNE 1969

SECTION 1. INTRODUCTION

1.1 BACKGROUND

The present M151A1 rear suspension system design has not been found totally acceptable under all driving conditions because of oversteer characteristics as well as the lack of driver feel during dynamic steering conditions, primarily associated with highway operations. The new modified independent rear suspension system is a trailing-arm design. Preliminary studies show that the oversteer and jack-up characteristics are eliminated, and the driver definitely gets some warning as to the attitude of the vehicle while turning.

Three vehicles, M151A1, M718, and M151A1C, with the new modified independent rear suspension (MIRS) system and several product-improvement items were sent to Aberdeen Proving Ground for tests.

1.2 DESCRIPTION OF MATERIEL

The test vehicles contained nine primary and 27 secondary product improvements or modifications to the M718 ambulance, M151A1C weapons carrier, and the M151A1, 1/4-ton utility vehicles as presently type-classified.

Primary product improvements incorporated on the test vehicles are listed below. A complete list of components under evaluation during test is provided in Appendix I.

a. Modified independent rear suspension system.

b. Two-speed electrical windshield wiper.

c. New 1-piece windshield with high strength glass.

d. Split bore master-brake cylinder.

e. Deep-dish steering wheel.

f. Collapsible steering column (deleted from test by letter, AMCPM-GPV-TLI, 8 May 1969, Appendix VI).

g. Mechanical fuel pump.

h. Carburetor for mechanical fuel pump.

i. Class A lights, front and rear.

1.3 TEST OBJECTIVES

The test objectives were:

a. To determine the ride and handling characteristics of the M151 with the MIRS compared to those of a standard M151A1 truck.

b. To determine compliance with specified technical performance requirements as outlined in the test directive, 3 July 1968.

c. To determine durability and maintenance requirements of the M151 series test vehicles with product improvements incorporated.

1.4 SUMMARY OF RESULTS

Jury evaluation by experienced test drivers of the ride and handling characteristics of the M151 with MIRS indicated elimination of oversteer characteristics and improved body-roll characteristics compared to the production M151A1.

The performance characteristics of the vehicle, in the areas tested, met the requirements.

The code G alternator, met conducted-interference limits under MIL-E-55301(EL), but failed to meet the requirements of MIL-STD-461/462 and revision A. This condition exists because the operating range for MIL-E-55301(EL) is from 1.5 MHz to 65 MHz while MIL-STD-461 specification limits cover the range from 150 KHz to 50 MHz. The test item exceeded the frequency limits from a range of 150 KHz through 925 KHz.

Based on results of these tests, the performance of product improvement items are rated satisfactory, unsatisfactory, or marginal as indicated in Table 1.4-I.

Table 1.4-I. Performance Ratings

Test Item	S	U	M
Engine mounts	X		
Crankshaft and water-pump pulleys	X		
Clutch cross-shaft		X	
Fuel pump			
Code A	X		
Code B	X		
Carburetor			
Code C	X		
Code D	X		
Air cleaner		X	
Tube, air cleaner to carburetor		X	
Air horn			
Lights, front and rear			X
Alternator			
Code E	X		
Code F		X	
Code G			X
Starter drive	X		
Transmission		X	
Transmission snap-ring retainers		X	
Rear suspension system	X		
Master brake cylinder		X	
Wheel studs	X		
Steering wheel	X		
Steering column		X	
Joints, steering and suspension	X		
Lifting eye, front	X		
Lifting eye, rear	X		
Windshield wipers		X	
Windshield	X		
Front seat pivot slot	X		
Front seat rear latch			X
Windshield hinge pin		X	
Crossmember, front	X		
Spare-tire mount, M718			X
Rear extension, M718	X		
Windshield washer	X		
Jack and wrench	X		
Window, rear (canvas)	X		
Mirror, inside	X		
Labels, battery	X		
Reflectors, side		X	
Data plates	X		

Three major problems were experienced that were not directly related to the M151 with MIRS product improvement test. They are as follow:

a. Rear differential.

b. Transmission transfer assembly.

c. Rear-wheel drive-shaft universal-joint failures.

1.5 CONCLUSIONS

It is concluded that:

a. The ride and handling characteristics of the M151 with MIRS are improved as compared to those of the production M151A1 truck (ref par. 2.3).

b. Vehicle performance test results were generally satisfactory, except for alternator radio-frequency interference (ref pars. 2.5 through 2.10 and 2.13).

c. The unsatisfactory and marginally satisfactory product-improvement test items, (Table 1.4-I) require additional development (ref par. 2.11.4).

d. The satisfactory product-improvement test items (Table 1.4-I), incorporated in the M151 series vehicles, do not degrade durability or maintainability characteristics of the vehicles (ref par. 2.11.4).

1.6 RECOMMENDATIONS

Not applicable.

SECTION 2. DETAILS OF TEST

2.1 INTRODUCTION

Three M151 series vehicles were received at Aberdeen Proving Ground, Maryland for test under this program. They were truck, utility, M151A1, USA Reg. No. 02C90868; truck, ambulance, M718, USA Reg. No. 02C92468; and truck, utility, M151A1C weapons carrier, USA Reg. No. 02C93068.

Testing was separated into two phases, product improvement and safety. The first phase was determination of safety characteristics of the modified vehicle. The second phase included obtaining performance, durability, and maintenance data for evaluation of test component design. Test components, if found acceptable, will affect interchangeability and logistic support; therefore, type-classification of M151 series trucks with new model designators is intended.

The first vehicle to arrive at Aberdeen Proving Ground for test was the M151A1 on 14 November 1968. Due to an urgent requirement for submission of ride-and-handling characteristics data, inspection of the vehicle on receipt was limited to those items necessary to insure safe and proper functioning of the vehicle. Upon completion of the ride-and-handling evaluation phase, a thorough initial inspection was performed. The vehicle was released for durability testing on 6 December 1968.

The M718 arrived on 12 December 1968 and tests were initiated immediately. After 1563 miles, testing was terminated on 12 January 1969, due to an accident during level, cross-country operation which damaged the vehicle beyond repair. The vehicle was returned to the manufacturer for rebuild. Testing resumed on 13 February 1969.

The M151A1C was initially subjected to 5090 miles of endurance operations, 31 December 1968 to 12 February 1969. During this time, cracks were found in the rear suspension-arm assemblies. Following aerial-delivery tests at the US Army Airborne, Electronic and Special Warfare Board, Fort Bragg, North Carolina, the vehicle was returned to APG for 5000 additional miles in an effort to further verify and develop confidence in the rear suspension-arm assembly design. Testing resumed on 26 May 1969.

2.2 INITIAL INSPECTION AND SERVICING

2.2.1 Objective

The objective was to assure that the vehicles were in satisfactory condition.

2.2.2 Method

An inspection was performed on each vehicle.

2.2.3 Results

Seventeen equipment performance reports were written during initial inspection of the M151A1. Ten were for defects detected and seven were for information. The more significant were:

a. EPR K2-10. Front suspension alignment not within specifications.

b. EPR K2-11, 12. Front suspension arm-mounting bolt torque not within specifications.

c. EPR K2-13. Valve-tappet clearance exceeded limits.

d. EPR K2-18. Rear suspension alignment undesirable.

Fourteen equipment performance reports were written during initial inspection of the original M718 and rebuilt M718 ambulances. Five were for defects on the original M718, four for defects on the rebuilt M718, and five were for information. The more significant were:

a. EPR K2-1, 17(1-2). Valve-tappet clearance exceeded limits.

b. EPR K2-4, 19(4-2). Front suspension alignment not within specifications.

c. EPR K2-6, 20(6-2). Rear suspension alignment undesirable.

Seven equipment performance reports were written during initial inspection of the M151A1C. All were for defects detected. The more significant were:

a. EPR K2-1. Front suspension alignment not within specifications.

b. EPR K2-2. Front suspension arm-mounting bolt torque not within specifications.

c. EPR K2-3. Valve-tappet clearance exceeded limits.

d. EPR K2-6. Light-switch assembly inoperative.

e. EPR K2-7. Rear suspension alignment undesirable.

2.3 PRELIMINARY OPERATION, SAFETY

2.3.1 Objective

The objective was to subjectively determine the ride-and-handling characteristics of the M151 series vehicles.

2.3.2 Method

A jury of six drivers made a comparison of ride-and-handling characteristics of the M151A1 with modified independent rear suspension with those of a production M151A1. After each driver completed a run with each vehicle under a designated load condition, he completed the questionnarie shown in Figure 2.3-1.

Truck, Utility: 1/4-Ton, 4X4, M151, USA Registration No. 2L7320 and 02C90868

Driver's Name _____
Course _____
Vehicle Load Conditions _____

	Test Vehicle	Standard Vehicle	Both Same
1. Which truck body leaned the most on curves and during steering maneuvers?			
2. Which truck gave a better feeling of confidence and control during steering maneuvers?			
3. Which truck had the best ride quality?			
4. Which truck did you like driving best?			
5. Which truck has the best cross-country mobility?			

Indicate choice by marking the appropriate block.

Remarks: _____

_____

_____

_____

_____

_____

Figure 2.3-1: Driver's Questionnaire.

2.3.3 Results

A summary of the jury questionnaire results indicated the jury liked the ride-and-handling characteristics of the M151 with MIRS better than those of the standard M151 (Appendix II-1).

An evaluation of the vehicle ride-and-handling characteristics was provided to US Army Test and Evaluation Command by letter, STEAP-MT-TU, Aberdeen Proving Ground, Recommendation for Safety Release of Truck, Utility: 1/4-Ton, 4X4, M151A1 with Modified Independent Rear Suspension, USATECOM Project No. 1-7-4030-25, 5 December 1968 (Appendix VI-1).

During durability and reliability operations, the M718 and M151A1C ride-and-handling characteristics were evaluated. The consensus of the drivers on the safety of both vehicles was found to be equivalent to the ride-and-handling characteristics obtained on the M151A1.

2.4 LOAD DISTRIBUTION

2.4.1 Objective

The objective was to determine weight distribution with and without payloads.

2.4.2 Method

Weight distribution was determined with and without payloads by means of loadometers at each wheel position.

2.4.3 Results

Load distributions were as shown in Table 2.4-I through 2.4-III.

Table 2.4-I. Load Distribution, M151A1

Location	Without Payload, lb	With Cross-Country Payload[a], lb	With Highway Payload[a], lb
Left front wheel	665	755	752
Right front wheel	694	782	795
Left rear wheel	568	870	1059
Right rear wheel	508	838	1026
Total	2435	3245	3632

[a]Weights with a payload included a 178-lb driver.

Table 2.4-II. Load Distribution, M718

Location	Without Payload, lb	With Payload[a], lb
Left front wheel	660	762
Right front wheel	715	650
Left rear wheel	655	1217
Right rear wheel	665	1011
Total	2695	3640

[a]Payload weight included 175-lb driver; two litter and two seated patients at 180 lbs each.

Table 2.4-III. Load Distribution, M151A1C

Location	Without Payload, lb	With Payload[a], lb
Left front wheel	719	802
Right front wheel	733	801
Left rear wheel	528	1294
Right rear wheel	609	1377
Total	2589	4274

[a]Payload weight included driver at 146 lbs, three crewmen at 175 lbs, 106-mm recoiless rifle at 288 lbs, spotter rifle at 29 lbs, rifle mount at 180 lbs, and six rounds of ammunition at 36 lbs.

2.5 BRAKES

2.5.1 Objective

The objective was to determine the effectiveness of the vehicle brake system.

2.5.2 Method

Stopping distance for maximum brake effort from a road speed of 20 mph was determined on a level, hard-surfaced road, using a pousometer to measure the distance the vehicle, fully equipped, including highway payload, but no towed load, traveled from the point of brake application to a complete stop.

Hill-holding effectiveness was determined independently for both the service and parking brakes by positioning the vehicle (carrying appropriate payload) in both the ascending and descending attitudes on the specified grades and applying the brakes.

2.5.3 Results

The average stopping distance was:

a. M151A1, 17 feet.

b. M718, 24 feet.

c. M151A1C, 18 feet.

Both the service and parking brakes independently held each vehicle in both attitudes on the 60% grade.

2.6 CENTER OF GRAVITY

2.6.1 Objective

The objective of this test was to locate the center of gravity of vehicle at curb weight.

2.6.2 Method

The center of gravity was located with respect to three planes: Vertically and longitudinally from suspension and laterally from weight reactions.

2.6.3 Results

The center of gravity was located as follows:

a. M151A1

1) Vertically, 21-3/8 in. above ground and 7-3/8 in. above centerline of wheels.

2) Longitudinally, 46-5/8 in. forward of centerline of rear wheels.

3) Laterally, 3/8 in. left of longitudinal centerline (between wheels).

b. M718

1) Vertically, 3 in. above front bumper.

2) Longitudinally, 61-3/16 in. from front edge of front bumper.

3) Laterally, 5/8 in. right of longitudinal centerline (between wheels).

c. M151A1C

1) Vertically, 1-1/8 in. above top edge of front bumper.

2) Longitudinally, 48 in. from centerline of rear wheels.

3) Laterally, 1 in. right of vehicle centerline.

2.7 GRADEABILITY AND SIDE SLOPES

2.7.1 Objective

The objective of this test was to determine each vehicle's ability to operate on grades up to 60% and side slopes up to 40%.

2.7.2 Method

Using a fifth wheel and road-speed indicator to determine road speed during ascension, the vehicle, with a cross-country payload and, when applicable, a cross-country towed load, was operated on grades of up to 60%.

Carrying a cross-country payload, the vehicle was operated in both directions across (and at the same time steered up and down) the side slope.

2.7.3 Results

The M151A1 vehicle successfully negotiated grades up to and including 60%. Speeds were as shown in Table 2.7-I.

Table 2.7-I. Road Speeds, M151A1

Grade, %	Road Speed, mph
60	8.5
6-1/2	[a]32.0

[a]Since no 6-1/2% grade was available, it was necessary to determine the road speed for a 6-1/2% grade from a curve - road speed (mph) vs grade (%), drawn between known speeds for the vehicle on the 5 and 10% grades.

The vehicle successfully traversed the 40% side slope in both directions.

The M718 vehicle successfully negotiated grades up to and including 60%.

Maximum sustained road speeds were as shown in Table 2.7-II.

Table 2.7-II. Road Speeds, M718

Grade, %	Road Speed, mph
60	4.0
10	31.0

The vehicle successfully traversed the 40% side slope in both directions.

The M151A1C vehicle successfully negotiated grades up to and including 50%.

Maximum sustained road speeds were as shown in Table 2.7-III.

Table 2.7-III. Road Speeds, M151A1C

Grade, %	Road Speed, mph
50	7.5
40	9.7
10	30.0

The vehicle successfully traversed the 30% side slope in both directions.

2.8 MAXIMUM AND MINIMUM SPEEDS

2.8.1 Objective

The objective was to determine the maximum and minimum road speeds of each vehicle.

2.8.2 Method

Testing was conducted on a level, hard-surfaced road, using a fifth wheel and road-speed indicator to determine road speeds.

2.8.3 Results

Sustained road speeds were as shown in Table 2.8-I.

Table 2.8-I. Sustained Road Speeds

	Maximum, mph	Minimum, mph
M151A1	59	2.5
M718	59	1.8
M151A1C	56	1.7

2.9 STEERING

2.9.1 Objective

The objective of this test was to determine the minimum turning radius of the vehicle for both right and left full 360° turns.

2.9.2 Method

Turning radii were calculated from circumferences that were measured with a fifth wheel during full 360° turns to the right and left.

2.9.3 Results

Minimum turning radii were as shown in Table 2.9-I.

Table 2.9-I. Minimum Turning Radii

Vehicle	Radius, ft
M151A1	
Right	17.2
Left	18.3
M718	
Right	17.8
Left	17.4
M151A1C	
Right	18.2
Left	18.6

2.10 FUEL AND OIL CONSUMPTION

2.10.1 Objective

The objective was to determine the rate of gasoline and oil consumption of M151A1 series vehicles with rated payloads and trailed loads under test-course conditions.

2.10.2 Method

The amount of gasoline and engine oil added were recorded on the vehicle daily test log.

A service recorder was installed in the vehicle to obtain hours of operation.

2.10.3 Results

The average rate of fuel and oil consumption obtained during test was as shown in Table 2.10-I.

Table 2.10-I. Fuel and Oil Consumption

	M151A1	M718	M151A1C
Miles per gallon	13.26	13.39	13.7
Miles per quart	1593	3143	3367
Average speed, mph	21.94	21.64	22.6
Test miles	24668	22000	9869

Fuel and oil consumption by test course and condition are summarized on page II-2.

2.11 DURABILITY TESTS

2.11.1 Objective

The objective was to operate trucks, utility, 1/4-ton, 4X4, M151A1, and 106-mm recoilless rifle, M151A1C, and truck ambulance, frontline, 1/4-ton, 4X4, M718 over various ground conditions transporting various payloads and towed loads to determine durability characteristics of the test items.

2.11.2 Method

The M151A1 was subjected to 25,000 miles of endurance operation, with rated payloads by repeating the cycle shown in Table 2.11-I five times. Rated trailed loads were towed during the first, third, and half of the fifth cycles.

Maintenance and lubrication were performed in accordance with Operations Manual TM 9-2320-218-10, Maintenance Manual TM 9-2320-218-20 and -34, Lubrication Order No. LO 9-2320-218-12, and Draft Manual Changes.

Table 2.11-I. Endurance Cycle, 25,000 Miles

Course	Miles per Cycle
Paved highway, Perryman	1050
Level cross-country, Perryman No. 1	1900
Hilly cross-country, Churchville B	1900
Belgian block, Munson course	150
Total	5000

The M718 was subjected to 25,000 miles of endurance operation by repeating the cycle shown in Table 2.11-I five times. The paylaod for the M718, par. 2.4.3, for each 5000-mile cycle was as shown in Table 2.11-II.

Table 2.11-II. Test Cycle

Cycle No.	Payload
First and fifth	Driver plus two litter and two seated patients
Second	Driver plus two empty litters
Third	Driver plus three litter patients
Fourth	Driver plus three empty litters

Note: Simulated load of 180 pounds was used for each litter of seated patient.

The M151A1C was initially subjected to 5000 miles of endurance operation, with rated payload, by completing the cycle shown in Table 2.11-III. After aerial-delivery tests, the vehicle was subjected to an additional 5000 miles utilizing the same cycle and payload.

Table 2.11-III. Endurance Cycle, 5000 Miles

Course	Miles
Paved highway, Perryman	1500
Gravel road, Munson	500
Secondary road, Perryman A	950
Belgian block, Munson	150
Hilly cross-country, Churchville B	1000
Level cross-country, Perryman No. 1	900
Total	5000

2.11.3 Results

The endurance test mileage conducted from 14 November 1968 to 27 June 1969 was 25,276, 23,563, and 10,101 miles on the M151A1, M718, and M151A1C respectively. Mileages by course is shown in Tables 2.11-IV, 2.11-V, and 2.11-VI.

Table 2.11-IV. M151A1 Endurance Mileage

Course	Specified Totals[a]	Actual	
		Without Towed Load	With Towed Load
Hard-surface, paved	5250	2855	2665
Level cross-country	9500	4752	4751

[a]Fifty per cent with payload and 50% with payload and towed load.

Table 2.11-IV (Cont'd)

Course	Specified Totals[a]	Actual Without Towed Load	Actual With Towed Load
Hilly cross-country	9500	4750	4754
Belgian block	750	374	375
Subtotal		12731	12545
Total	25000	25276	

[a]Fifty per cent with payload and 50% with payload and towed load.

Table 2.11-V. M718 Endurance Mileage

Course	Specified per Cycle	Cycle No. 1[b]	Actual by Cycle No.[a] 1	2	3	4	5
Hard-surface, paved	1050	229	1050	1081	1061	581	368
Level cross-country	1900	1184	1900	1919	1890	1886	1905
Hilly cross-country	1900	-	1900	1853	1900	1947	89
Belgian block	150	150	150	150	150	151	69
Subtotal	5000	[b]1563	5000	5003	5001	4565	2431
Total (Five Cycles)	[c]25000			23563			

[a]Payload by cycle provided in Table 2.11-II.
[b]Cycle 1 shows 1563 test miles accumulated on the initial test vehicle prior to an accident resulting in M718 rebuild.
[c]Mileage reduced by letter, AMCPM-GPV-TL1, 8 May 1969.

Table 2.11-VI. M151A1C Endurance Mileage

Course	Specified Total	With Actual Payload[a], 1685 lb Cycle No. 1	Cycle No. 2
Paved highway	1500	1582	1510
Gravel road	500	500	500
Secondary road	950	953	950
Belgian block	150	151	150

[a]Specified payload, 1650 pounds.

Table 2.11-VI (Cont'd)

Course	Specified Total	With Actual Payload[a], 1685 lb Cycle No. 1	Cycle No. 2
Hilly cross-country	1000	1000	1001
Level cross-country	900	904	900
Subtotals	5000	5090	5011
Total (Two Cycles)	10000	10101	

[a]Specified payload, 1650 pounds.

The following major problem areas were experienced with the vehicles as indicated:

a. SNL Group 01, Engine.

1) M151A1.

a) Exhaust Valve. Number 1 cyclinder exhaust valve was found to be burned at 25,276 test miles (Figure III-14).

b) Engine Wear. Piston-ring gap and side clearance, piston pins, rocker arms, and connecting-rod bearings exceeded established wear limits at 25,276 test miles.

c) Engine-oil pump, housing showed excessive wear at 25,276 test miles (Figure III-15).

2) M718. None.

3) M151A1C. None.

b. SNL Group 02, Clutch.

1) M151A1. Clutch Disk. The clutch disk was worn to the rivets and began to slip at 15,841 test miles.

2) M718. Clutch Cross-Shaft. The clutch cross-shaft (part No. 839XG4926) stuck in the outboard bracket at 22,000 test miles.

3) M151A1C.

a) Clutch Disk. The clutch disk facing on the transmission side failed at 2590 test miles.

b) Clutch-Release Bearing. The throw-out bearing was found to be dry at 7632 test miles.

c) Clutch Cross-Shaft. The clutch cross-shaft (part No. 839XG4926) stuck in the outboard bracket at 10,101 test miles.

c. SNL Group 03, Fuel System.

1) M151A1.

a) Air Cleaner. A slight seepage of dust through the dry-element air-cleaner (part No. 837XG4311) cover seal was found at 8532 test miles.

b) Convoluted Tube. The air cleaner to carburetor air-horn convoluted tube developed a small hole at 20,433 test miles which grew to a point of nonrepair at 25,276 test miles (Figure III-16).

d. SNL Group 06, Electrical System.

1) M151A1.

a) Class A Lights. Double grounding was not provided in the class A lights (part No. 839XG4954), turn signal and blackout marker, and rear stop-light assemblies as required by drawing specifications (Figure III-17).

b) Rear Taillight and Stop-Light Assembly. The left rear assembly cover melted due to heat from the exhaust tail pipe (Figure III-18).

2) M718.

a) Class A Lights. Double grounding was not provided (Figure III-17).

b) Alternator, Code F. The cooling fan broke in a concentric circle around components clamping it to the alternator shaft after 17,296 and 3856 test miles on the primary and spare alternator respectively (Figure III-19).

3) M151A1C.

a) Class A Lights. Double grounding was not provided (Figure III-17).

b) Right Front Turn-Signal Assembly Cover. Cracked allowing water to accumulate in the assembly (Figure III-20).

e. SNL Groups 07 and 08, Transmission - Transfer Assembly.

1) M151A1.

a) Reverse-Shifting Fork-Lever Pivot Bolt. Failure to clamp the lock tab to secure the pivot bolt in position allowed the bolt to loosen and fall out at 11,525 miles.

b) Parking-Brake Drum-Retaining Nut. The nut (part No. 839XG2446) came loose at 11,741 test miles and allowed transmission-drive train components to shift forward and break several teeth from the speedometer-drive gear (Figure III-21). The speedometer-drive gear was replaced and the nut tightened to 70 lb-ft. Subsequent transmission failure led to a requirement for 100 lb-ft on the retaining nut, which was applied at 24,135 vehicle test miles.

c) Output-Shaft Bearings and Seals. The transmission - transfer assembly (part no. 839XG4232) output-shaft bearings and seals (front and rear) failed at 12,242 test miles. This resulted in metal-particle contamination of the lubricant and replacement of the transmission - transfer assembly.

2) M718. Third-Speed and Countershaft-Cluster Gears. The transmission - transfer assembly, standard production type with output-shaft snap-ring retainer modification (part No. 835XG4232), third-speed, and countershaft-cluster gears failed at 9130 test miles (Figure III-22). A standard production transmission - transfer assembly was installed. Later, after 3300 additional vehicle test miles, the output-shaft snap-ring retainer modification was applied.

3) M151A1C. Output-Shaft Snap-Ring and Snap-Ring Retainer. The transmission - transfer assembly, standard production type (with snap-ring retainer modification (part No. 839XG4232), output-shaft snap-ring and snap-ring retainer failed damaging components and requiring replacement of the transmission - transfer assembly at 9625 test miles (Figure III-23).

f. SNL 09 Propeller and Propeller Shafts.

1) M151A1 Front Propeller-Drive Shaft with Universal-Joint Assembly. The yoke-to-shaft weld at the transmission end failed at 3475 test miles, whereupon a new drive shaft with universal joints was installed (Figure III-24). The replacement drive shaft broke near the yoke on the differential end 1037 miles after installation (Figure III-25). Two drive-shaft universal-joint crosses at the transmission end failed due to broken rollers at 7714 and 13,034 test miles respectively.

2) Front Propeller Shaft with Universal-Joint Assembly. At 22,000 test miles, the transmission end universal-joint cross was found with one seal missing and the rollers worn in one race. The differential-end universal-joint cross had one cracked seal.

3) M151A1C Front Propeller Shaft with Universal-Joint Assembly. The propeller shaft broke in the middle at 8247 test miles (Figure III-26).

g. SNL Group 10, Front Axle.

1) M151A1

a) Cross. One race of the left front wheel drive-shaft inboard universal joint broke and the roller bearings in one race of the right front wheel drive-shaft inboard universal joint failed at 25,276 test miles.

b) Front Suspension Lower-Arm Assembly. The left arm assembly was found to be cracked on the bottom front near the shims and the bottom near the shock-absorber mounting bracket rear hole at 25,276 test miles (Figures III-27 and III-28). The right arm assembly was found to be cracked in front of the forward shock-absorber mounting bracket hole 25,276 test miles (Figure III-29).

2) M718

a) Front Suspension Shims. The rear shims of the right front lower suspension-arm assembly were lost at 10,596 miles initially. Thereafter, one loss of shims and repeated misalignment (slipped) of the shims was experienced. The rebuilt M718 front crossmember was a standard production item and did not contain the heavy wall spacer in increased clamping (part No. 835XG1524).

b) Cross. One seal of the right front wheel-drive shaft inboard universal joint was found to be cracked at 22,000 test miles.

3) M151A1C.

a) Front Differential. Disassembly of the differential at 10,101 test miles revealed the pinion-bearing lock nut to be loose and the input tapered double-bearing cup worn due to rotation.

b) Front Suspension Shims. The front shims of both front lower suspension-arm assemblies were found to be misaligned (slipped) at 10,101 vehicle test miles.

c) Front Suspension Upper-Arm Assembly. The front upper-arm assembly, right and left, rubbed against and damaged the crossmember top front flange (Figure III-30).

d) Front Suspension Lower-Arm Assembly. A crack developed in the right front lower-suspension arm near the spring seat (Figure III-31).

h. SNL Group 11, Rear Axle.

1) M151A1.

a) Rear Differential. The pinion-shaft seal failed at 3529 test miles. Teeth broke from the pinion gear at 6930 test miles and a new differential was installed (Figure III-32). After 14,438 test miles, the right rear wheel output-flange seal failed. Disassembly of the differential at 18,341 test miles revealed the pinion-bearing lock nut loose, components worn excessively, and the ring-gear carrier (case) cracked (Figures III-33 and III-34).

b) Rear Wheel Drive-Shaft Universal Joints. Nine universal joints failed during 25,276 test miles. One, three, and five failures were contributable to a broken cross, loose or broken rollers, and broken races respectively (Figures III-35, III-36, and III-37).

c) Wheel-Spindle Assembly. At 11,701 test miles, inner and outer seals, roller bearings, and wheel-spindle yoke on all four wheels failed due to

the entry of mud into the wheel-spindle assembly through the inner seal. Excessive wear of the wheel spindle flange at the inner seal was found at the completion of test after 13,575 test miles.

d) Rear Suspension-Arm Assembly. Magnaflux examination of rear suspension-arm assemblies (part No. 839XG4675 at 20,433 test miles revealed numerous cracks or flaws. Re-examination of the arm assemblies at 25,276 test miles showed three cracks increased in length and eight additional cracks (Figures III-38 through III-42).

e) Rear-Suspension Bump Stop. The right rear bump stop (part No. 839XG4820-2) was found to be cracked at 25,276 test miles (Figure III-43).

f) Rear Shock Absorbers. Both rear shock absorbers (part No. 839XG4747) leaked fluid. The left was replaced at 13,315 test miles, the right at 17,654 test miles.

2) M718.

a) Rear Differential. The left wheel output short-side gear shaft broke at 163 test miles on the initial test vehicle (Figure III-44). On the rebuilt M718, the rear differential right output flange and seal leaked lubricant at 19,168 test miles and were replaced. The pinion-bearing lock nut was found loose upon disassembly at 22,000 test miles.

b) Rear Wheel Drive-Shaft Universal Joint. Ten universal joints failed during 22,000 test miles. One, three, and six failures were attributable to a broken cross, loose or broken rollers, and broken races respectively (Figures III-45 and III-46).

c) Wheel-Spindle-Assembly. Inner and outer seals and bearings failed on the left and right rear wheels at 9371 and 9685 test miles respectively. The right rear wheel inner and outer seals, inner bearings with cup, and yoke were replaced after an additional 7918 test miles.

d) Rear Suspension-Arm Assembly. Cracks developed in the rear suspension-arm assemblies (part No. 839XG4675) at 8307 test miles. One in the spring seat of both assemblies and one in front of the forward left rear wheel mounting flange (Figures III-47 and III-48).

Magnaflux examination of the rear suspension arms at 23,563 test miles (includes 1563 miles accumulated on the M718 prior to rebuild) showed two cracks increased in length and ten additional cracks or flaws (Figures III-38 through III-42).

e) Rear Suspension Bump Stop. The left rear bump stop (part No, 839XG4820-2) failed at 17,671 test miles (Figure III-49).

f) Rear Shock Absorbers. Both rear shock absorbers (part No. 839XG4747) leaked fluid at 12,709 test miles.

3) M151A1C

a) Rear Differential. The left output companion flange-cap screw was found 2-1/2 turns loose at 6812 test miles. The differential failed at 9625 test miles. Disassembly revealed all teeth worn from the pinion-shaft gear, the pinion beveled gear damaged, and seals hard (Figure III-50).

b) Rear Wheel Drive-Shaft Universal Joint. Six universal joints failed during 6872 test miles. One, two, and three failures were attributable to a broken cross, loose or broken rollers, and broken races respectively (Figures III-51 and III-52). At this point, an experimental axle shaft and yoke with universal joints (part No. 839XG5098) was installed on the vehicle left and right rear. After 2147 test miles, two races of the left rear wheel drive-shaft inboard universal-joint cross broke on the flange end (Figure III-53). The experimental rear wheel drive-shaft universal-joints were inspected for wear at the conclusion of test. At this time there were 3229 test miles on all the U joints except the left rear inboard which due to an earlier failure had only accumulated 1082 test miles. The inspection revealed that the press-fitted races held up better than the flange-mounted races. All press-fitted races were found serviceable and with only a trace of roller-end loading wear in the left wheel races. Flange-mounted race problems showed impending failure of all four universal joints due to broken rollers in five of the eight races (two) right outboard;two right inboard; one left outboard, and a cracked seal on the left inboard race. Race-end loading was found in all flanged-mounted races.

c) Wheel-Spindle Assembly. At 10,101 test miles, inner and outer seals and wheel spindle flanges were found excessively worn on all four wheels.

d) Rear Suspension-Arm Assembly. Cracks developed in the rear suspension-arm assemblies (part No. 839XG4675) at 5090 test miles. One in the spring seat of the left assembly and one in front of the forward right rear wheel-mounting flange (Figures III-54 and III-55). Following aerial-delivery tests, visual inspection of the arm assemblies showed both cracks increased in width. Magnaflux examination prior to initiation of the 5000 additional test miles provided data on 17 cracks or flaws. At 10101 test miles, magnaflux examination showed seven had increased in length and there were eight additional cracks (Figures III-38 through III-42).

e) Rear Suspension Bump Stop. Both rear bump stops (part No. 839XG4820-2) failed at 6872 test miles (Figures III-56 and III-57).

f) Rear Springs. Broken rear springs (part No. 839XG4263) were found as follows: Left rear coil at 5090 test miles, left rear overload at 6872 test miles, right rear coil at 10101 test miles (Figures III-58, III-59, and III-60).

g) Rear Shock Absorbers. Both rear shock absorbers (part No. 839XG4747) leaked fluid and were replaced at 5090 test miles.

i. SNL Group 12, Brakes.

1) M151A1.

a) Brake-Warning Light Valve. The initial brake-warning light valve (part No. 839XG4685) closed repeatedly, indicating a brake system failure; however, no failure could be identified. The warning light came on initially at 260 test miles and at 111 and 161 additional test miles after each repair. Stronger shuttle-valve springs were installed at 590 test miles, but proved to be no solution after only 11 test miles. A shuttle valve with a ramp to allow the warning light to light and to go out with the release of brake-pedal pressure was installed at 1420 test miles.

No futher difficulty was experienced with the brake-warning light valve.

b) Brake Shoes with Living Assembly. At 11,701 test miles, the left front wheel secondary brake-shoe anchor end was found bent to the inside (Figure III-61). The right rear wheel secondary brake shoe was found worn to the rivets and all wheel cylinders were stuck. New brakes (with lining assembly) and cylinders were installed on all four wheels. At the conclusion of test, after 13,575 test miles, the right front wheel secondary brake-shoe anchor end was found to be bent to the inside, all wheel cylinders were stuck, and all brake drums were excessively worn.

c) Brake Master Cylinder. Grooves were found in the dual, split-bore, hydraulic-brake master-cylinder (part No. 839XG4903) piston valve cups. This allowed fluid to bypass the braking system with the application of service-brake pedal pressure at 24,135 test miles (Figure III-62).

2) M718.

a) Brake-Warning Light Valve. The redesigned shuttle valve with ramp was installed at nine test miles at the same time as installation was made on the M151A1.

b) Brake Master Cylinder. The dual-brake master cylinder (part No. 839XG4903) failed at 44 test miles and was returned to the manufacturer for laboratory analysis. Excessive maintenance time (four hours) was required to remove and replace the defective master cylinder under ideal conditions due to its location, attachment to numerous components, inaccessibility and poor visibility of mounting bolts, nuts, and brackets. The rebuilt M718 brake master cylinder failed at 22,000 test miles due to causes similar to those found in the M151A1 (Figure III-62).

c) Brake Shoes with Lining Assembly. The left front secondary brake shoe was worn to replacement limits at 17,603 test miles. Both rear wheel brake drums were worn to replacement limits at 22,000 test miles.

3) M151A1C.

a) Brake Shoes with Lining Assembly. The left rear and right front brake shoes were found worn to the rivets and required replacement at 5090 test miles. At 10,101 test miles, both rear wheel brake drums were found to be excessively worn and wheel cylinders were contaminated with dirt.

b) Brake Master Cylinder. Two dual-brake master cylinders (part No. 839XG4903) failed at 5090 and 5011 test miles respectively due to causes similar to those found in the M151A1 (Figures III-62 and III-63).

j. SNL Group 14, Steering.

1) M151A1. Tie-Rod End Cover. The right tie-rod end nylon cover (part No. 839XG2440) cracked on the top rear at 25,276 test miles (Figure III-64).

2) M718. Collapsible Steering Column. The steering column (part No. 839XG4158) failed to collapse during an accident at 1563 test miles. Letter, AMCPM-GPV-TLI, 8 May 1969 deleted this item from test.

3) M151A1C. Steering and Suspension Joints. The outer edge of three joints (part No. 839XG4158) were found to be bent at 5090 test miles, due to handling during vehicle disassembly or road gravel during test operations. Four joint rubber covers were found to be cracked at 10,101 test miles (Figure III-65).

k. SNL Group 15, Frame

1) M151A1. None.

2) M718. None.

3) M151A1C. Front Lifting Shackle. Test lifting shackles (part No. 839XG4796) on the front were replaced with production-type lifting hooks prior to shipment of the vehicle for aerial-delivery tests.

l. SNL Group 16, Springs and Shock Absorbers.

1) M151A1 Front Shock Absorbers. Both lower mounting brackets were bent at 7532 test miles and one right front lower mounting bracket bolt broke at 17,744 test miles.

2) M718.

a) Front Shock Absorbers. The right front shock absorber failed at 9874 test miles and the replacement after 7968 test miles.

b) Front Suspension Crossmember. A crack was found on the left side outboard from the brake hose bracket at 22,000 miles (Figure III-66).

3) M151A1C.

a) Front Springs. The right front coil spring broke at 2459 test miles (Figure III-67).

b) Front Suspension Crossmember. A crack was found on the top left side outboard from the brake-hose bracket at 10,101 test miles (Figure III-66).

m. SNL Group 18, Body, Cab, and Hood.

1) M151A.

a) Windshield. The windshield assembly (part No. LG4908) hinge-lock pins repeatedly came out of the hinge. At 590 test miles, the windshield assembly was replaced with a like item made closer to drawing specifications. After 291 test miles, the left hinge-lock pin came out. At 1433 test miles, pins were replaced with the current production type. The windshield glass (part No. 839XG4385-3) cracked at 7942 test miles. The replacement glass, installed inside out, cracked at 2429 test miles.

b) Electric Windshield-Wiper Assembly. The electric windshield wipers (part No. 839XG4683) failed at 13,315 test miles due to a defective male connector at the motor, a loose electrical connection which precluded low-speed operation, and a missing wiper-switch knob. The right windshield-wiper arm assembly was lost during operations at 20,445 test miles.

c) Frame Assembly. The cracks listed in Table 2.11-VII developed in the frame assembly:

Table 2.11-VII. Frame Assembly Cracks

Test Miles	Item	Location	Reference, Figure
20433	Right inner frame rail	In front of rear differential mounting bolt.	III-68
23200	Left inner frame rail	In front of rear differential mounting bolt.	III-68
25276	Middle crossmember	Both ends at attachment to side panels.	-
25276	Brush guard mounting hole	Second hole from bottom.	-
25276	Firewall to cowl	Left side.	III-69
25276	Outer rails	Distress, near coil springs.	III-70
25276	Rear differential-mounting bracket	Right rear mounting hole.	III-71 and III-72

2) M718.

a) Windshield. The windshield assembly (part No. LG4908) panel cracked at the canvas top rod-bracket upper mounting screw on both sides at 19,168 test miles (Figure III-73).

b) Electric Windshield-Wiper Assembly. During rebuild of the M718 a larger snap-ring linkage to the wiper-arm assembly, was installed.

c) Spare-Tire Mounting Bracket. The spare-tire mounting bracket (part No. 839XG4776) flange cracked at 12,430 test miles (Figure III-74).

d) Front Seat Rear Latch. The right front seat rear latch handle broke at 19,168 test miles (Figure III-75).

e) Frame Assembly. The cracks shown in Table 2.11-VIII developed in the frame assembly.

Table 2.11-VIII. Frame Assembly Cracks

Test Miles	Item	Location	Reference, Figure
3677, 8753	Right and left side panels	Top flange forward the wheel well.	-
4320	Right side panel	Both top mounting bolts for fuel carrying bracket.	III-76
19168	Right inner frame rail	In front of rear differential mounting bolt.	III-68
19168	Rear end panel	Top flange near right rear litter support socket mounting bolt.	III-77
22000	Right side panel	Near point of attachment to middle cross-member.	III-78
22000	Outer rails	Distress near coil springs.	III-70

f) Rear Extension. The left mounting-bracket top weld cracked at 22,000 test miles (part No. 839XG4774) (Figure III-79).

g) Fuel Carrying Bracket. Cracks developed outside both top mounting bolts (Figure III-80).

h) Litter-Rail Support Sockets. The cracks shown in Table 2.11-IX developed in the litter-rail support sockets.

Table 2.11-IX. Cracks in Litter-Rail Support Sockets

Test Miles	Socket	Location	Reference, Figure
12430	Right rear	Inboard flanges	III-81
12430 and 6738	Left front	Mounting flange	III-82 and III-83
19168	Right front	Mounting flange	III-84
22000	Right front	Vertical flange	III-85

3) M151A1C.

a) Electric Windshield-Wiper Assembly. The electric windshield-wiper (part No. 839XG4683) motor-drive rod broke at 3182 test miles (Figure III-86).

b) Frame Assembly. The cracks shown in Table 2.11-X developed in the frame assembly.

Table 2.11-X. Cracks in Frame Assembly

Test Miles	Item	Location	Reference, Figure
833	Left side panel	Fuel carrying bracket top front mounting bolt.	III-76
5090	Rifle mount securing socket	Right rear top flange.	III-87
10101	Rifle mount securing socket	Left rear top flange.	III-87
10101	Rifle mount securing socket	Left rear bottom outboard.	-
10101	Wheel well	Left rear inboard at base.	III-88
10101	Middle crossmember	Both ends at attachment to side panels.	-

n. SNL Group 22, Accessory Items.

1) M151A1 Reflectors. The adhesive-back, stick-on, reflectors began deterioration at 12,242 test miles (Figure III-89).

2) M718.

a) Canvas Curtain. The left rear curtain zipper broke at 4492 test miles.

b) Windshield Washer. The windshield-washer (part No. EPC FM-D-6101) reservoir filler hole was found to be too large to hold the cap in place, at 7626 test miles.

3) M151A1C Reflector. The right rear adhesive-back, stick-on reflector began deterioration at 10,101 test miles (Figure III-89).

2.12 MAINTENANCE ENGINEERING

2.12.1 Objective

The objective was to collect data and analyze the maintenance requirements of the M151 series test vehicles during durability testing under military-environment conditions.

2.12.2 Method

This maintenance evaluation was made to determine if the operational capabilities of each vehicle conformed to the following:

a. "Vehicle shall require no replacement or major overhaul of any major automotive component during 20,000 miles of normal operation."

b. "The scheduled and unscheduled maintenance man-hours shall not exceed seven per cent of operational hours during 20,000 miles of normal vehicle operation. The average distance negotiated by the vehicle shall be considered to be twenty miles for each hour of operation. All required maintenance must fall within the responsibility of direct support and organizational maintenance first and second echelon respectively."

The required maintenance data were gathered from daily test logs, observations at test and maintenance areas, discussions with drivers and mechanics concerned, and a service recorder installed in the vehicle to obtain hours of operation. Time expended in vehicle recovery, transportation to maintenance areas, awaiting repair parts, and other administrative delays was not included in these calculations.

A graph was made to illustrate the ratio of maintenance man-hours used to hours of operation required at an average speed of 20 mph. The maintenance man-hours to actual operational hours ratio and the 7% maintenance goal were added for comparison.

A summary was prepared to show the amount, type, and frequency of maintenance performed during testing.

2.12.3 Results

2.12.3.1 M151A1. Based on 25,276 test miles, total maintenance man-hours consumed amounted to 152.65, 85.00 man-hours scheduled and 67.65 man-hours unscheduled, of which 14.50 were for direct support.

The 152.65 maintenance man-hours consumed amounted to 12% of the hours of operation required for 20 mph average speed and 14% (8% scheduled and 6% unscheduled) of the actual operational hours (Figure 2.12-1).

Major component failures in the M151A1 were the rear differential at 7530 odometer miles, transmission transfer assembly at 12837 odometer miles and clutch at 16436 odometer miles.

Tables V-I and V-II summarize the amount, types, and frequency of maintenance performed during durability testing.

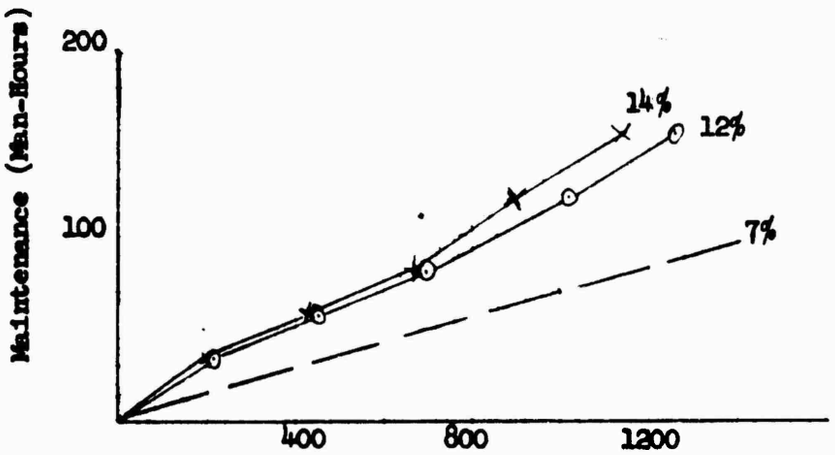
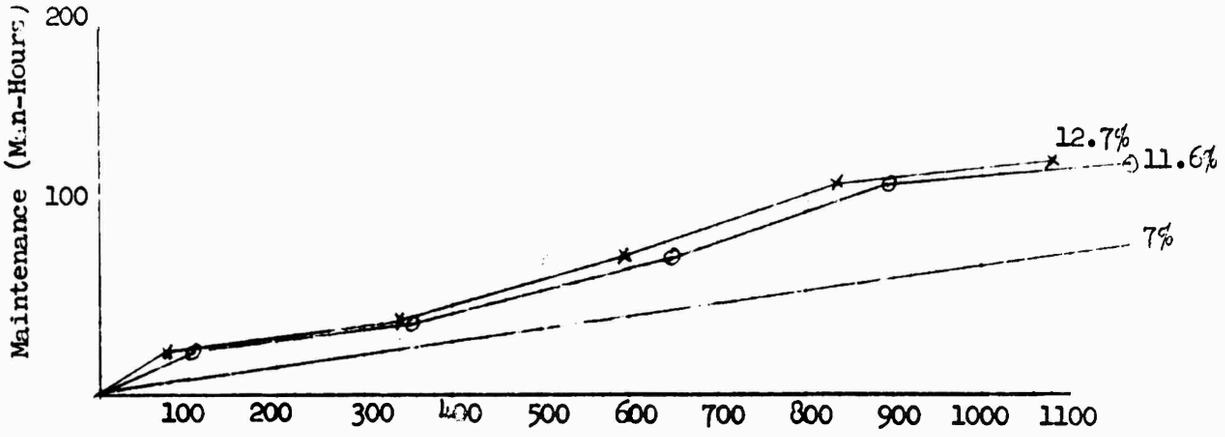


Figure 2.12-1. Maintenance versus Operation Truck Utility: 1/4-Ton, 4X4, M151A1.

2.12.4.2 M718. Based on 23,563 test miles, total maintenance man-hours consumed amounted to 136.7, 84.9 man-hours scheduled and 51.8 man-hours unscheduled, of which 19.5 were for direct support.

The 136.7 maintenance man-hours consumed amounted to 11.6% of the hours of operation required for 20 mph average road speed and 13% (8% scheduled and 5% unscheduled) of the actual operational hours (Figure 2.12-2).



x-x-x Maint vs Operation hours (actual)
o-o-o Maint vs Operation hours (Based on 20 mph)
____ Maintenance goal

Maint Engr'g Br.
Auto Div., MTD
Prepared By: W. J. Bach

Figure 2.12-2. Truck, Ambulance: Frontline 1/4-Ton, 4X4, M718.

Major component failures in the M718 were the rear differential at 701 odometer miles (original test vehicle) and transmission transfer assembly at 11539 odometer miles in the rebuilt vehicle.

Tables V-III and V-IV summarize the amount, types, and frequency of maintenance performed during durability testing.

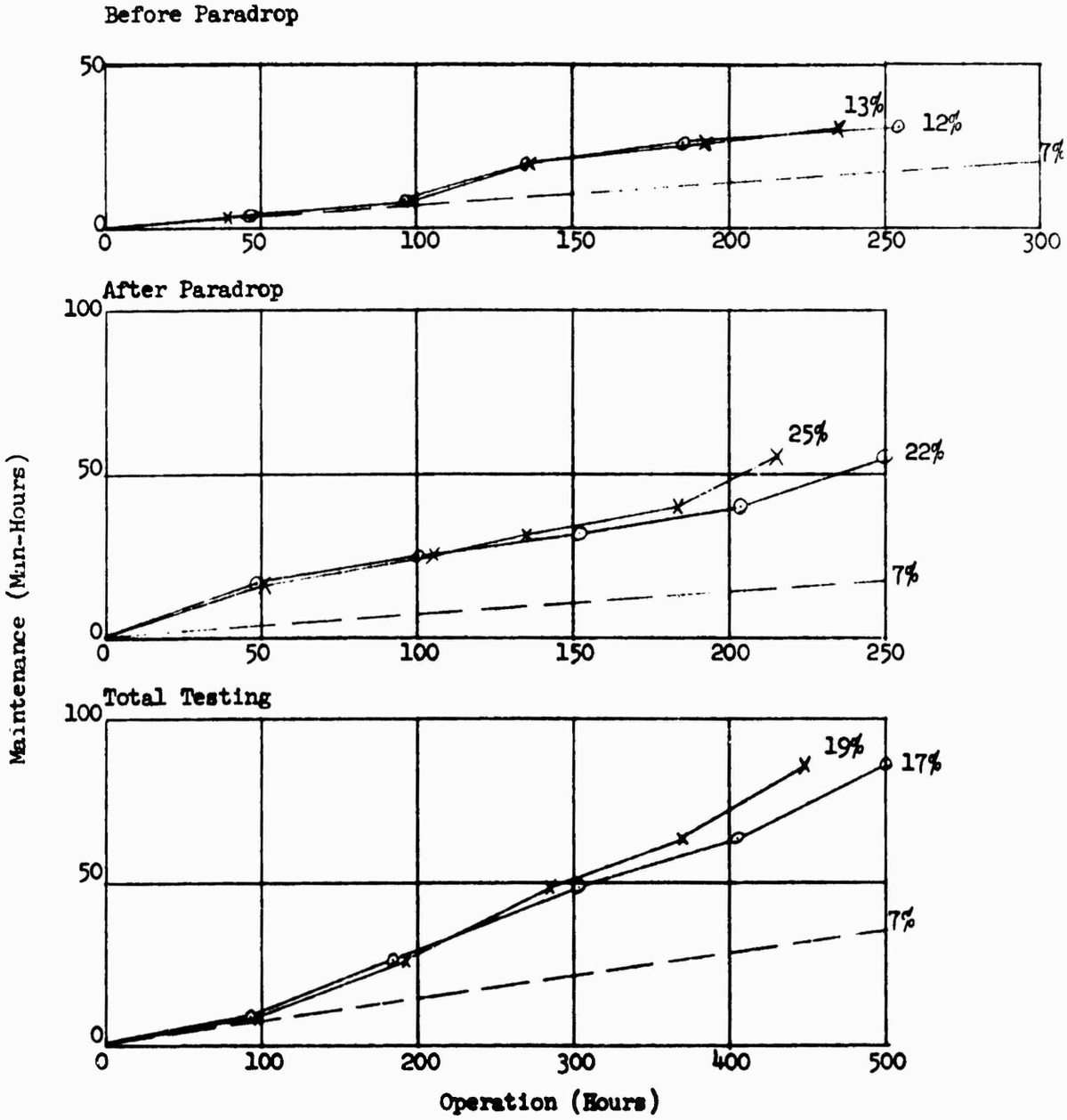
2.12.4.3 M151A1C. Maintenance evaluation of the M151A1C is provided in three parts as shown in Table 2.12-I:

Table 2.12-I. Maintenance Evaluation

	Before Aerial-Delivery Tests[a]	After Aerial-Delivery Tests[b]	Average[c]
	Maintenance		
Total man-hours consumed	31.40	54.70	86.10
Scheduled (man-hours)	16.80	15.50	32.30
Unscheduled (man-hours)	14.60	39.20	53.80
Direct-support (man-hours)	7.40	13.00	20.40
	Maintenance Ratio, %		
Calculated	12	22	17
Actual	13	25	19
Scheduled	7	7	7
Unscheduled	6	18	12

Refer to Figure 2.12-3.

Note: Test miles: a. 3090; b. 5011; c. 10,101.



Legend:
x-x-x- Maint vs. Operation hrs (actual)
o-o-o- Maint vs. Operation hrs (Based on 20 mph)
------ Maintenance goal

Maint Eng Br
Auto Div, MTD
Prep By: W. J. Bach

Figure 2.12-3. Truck, Utility: 1/4-Ton, 4X4, 106-MM Recoilless Rifle, M151A1C.

Major component failures in the M151A1C were the clutch at 3214 odometer miles, transmission transfer assembly at 10370 odometer miles, and rear differential at 10370 odometer miles.

Tables V-V and V-VI summarize the amount, types and frequency of maintenance performed during durability testing.

2.13 RADIO-FREQUENCY INTERFERENCE

2.13.1 Objective

The objective was to determine the radio-frequency interference levels of the test vehicle with its accessories.

2.13.2 Method

Truck, utility, 1/4-ton, 4X4, M151A1C, 106-mm, recoilless rifle, USA Reg. No. 02C93068 was used as the test vehicle for determination of radio-frequency interferences (RFI) levels.

For requirements of MIL-E-55301(EL), tests were conducted as outlined in TECP 700-700, MTP 2-2-613. Inside radiation tests were not required. Measurements were obtained in decibels above one microvolt per megahertz of bandwidth. Test receiver AN/URM-85 was used to measure radiated and conducted interference. Antenna couplers CU-891/URM-85 and CU-896/URM-85 were used in conjunction with the test receiver to obtain conducted interference measurements.

For requirements of MIL-STD-461/462, tests were conducted as outlined. Measurements were obtained for radiated interference in decibels above one microvolt per megahertz of bandwidth and for conducted interference in decibels above one microampere. The electromagnetic-interference measuring set (EMI) was used to measure radiated and conducted interference. Clamp on probe, model PCL-10, was used in conjunction with the test receiver to obtain conducted-interference measurements.

2.13.3 Results

The following accessories and subassemblies were identified as potential sourses of RFI to be evaluated:

a. Engine, M151 series, 4-cylinder, 4-cycle, water-cooled, gasoline.

   1) Spark plugs, 4.

   2) Ignitor, combination coil-distributor, model IDA-4401-UT.

   3) Alternator, type A0013002AC, serial No. 38786, Ord. No. 10929868, MIL-G-46795C(AT), 28-volt, 60-amp.

b. Personnel heater, model 1540, 20,000 Btu per hour, 24-volt, 4.5-amp.

c. Windshield wiper, electric, DWC No. XWWC72-0020A.

The above potential sources of RFI met the required specification limits for interference except as follows.

The electric windshield-wiper assembly failed to meet the specification limits of MIL-E-55301(EL) and Amendment 1 for radiated interference due to pulse type (switching-transient) interference from the electric windshield-wiper motor, which exceeded the limits by as much as 4 db over the frequency range from 120 to 160 megahertz. Tabulated results are included in Appendix II.

A visual examination indicated that the windshield-wiper assembly was properly bonded to its mounting bracket; however, the mounting bracket was improperly bonded to the vehicle. This condition was corrected by the application of saw-tooth type lockwashers placed under the head of two capscrews used for mounting the bracket to the vehicle. Rerun of a RFI radiation test on the electric windshield-wiper assembly indicated the radiated radio interference was attenuated to the ambient RF level which was well below allowable specification limits. Tabulated results are included in Appendix II.

The alternator, Code G, met conducted-interference limits under MIL-E-55301(EL), but failed to meet the requirements of MIL-STD-461/462 and revision A. This condition exists because the operating range for MIL-E-55301(EL) is from 1.5 MHz to 65 MHz while MIL-STD-461 specification limits cover the range from 150 KHz to 50 MHz. The test item exceeded the frequency limits from a range of 150 KHz through 925 KHz. Graphic results are included in Appendix II.

Table I-I. Test Components

SNL Group	Item No.	Test Item	Installation Part No.	Description	Mfr's Code	Vehicle M151A1	Vehicle M718	Vehicle M151A1C	Refer Fig.
01	1	Engine mounts	839XG4933	Mild steel		X	X	X	-
	2	Crankshaft and water pump pulleys	839XG4933	Spun steel		X	X	X	-
02	3	Clutch cross-shaft	839XG4926	New design		X	X	X	-
	4	Clutch throw-out bearing	839XG4933	Optional design, different source		X	X		-
03	5	Fuel pump	839XG4492	Mechanical	A	X			III-1
			839XG4493		B		X	X	
	6	Carburetor	839XG4490	Modified for use with mechanical fuel pump	C	X		X	III-1
			839XG5025		D		X		
	7	Air cleaner[a]	839XG4311	Dry element		X			-
	8	Tube, air cleaner to carburetor air horn	839XG4622 -1	Convoluted, accordion type with V shaped folds, in lieu of smooth surface		X			-
06	9	Lights, front and rear	839XG4954	Class A. Designed to meet federal and ICC requirements		X	X	X	III-2 and III-3
	10	Alternator	839XG4954	60 ampere, optional design, different source	E	X			-
					F		X		
					G			X	

[a]Deleted from test by letter, AMCPM-GPV-TLI, 8 May 1969. Refer Appendix VI.

Table I-I (Cont'd)

SNL Group	Item No.	Test Item	Installation Part No.	Description	Mfr's Code	Vehicle M151A1	Vehicle M718	Vehicle M151A1C	Refer Fig.
06	11	Starter drive	839XG4569	Commercial drive. Detents on barrel of pinion for -65°F operation removed		X	X	X	-
07 and 08	12	Transmission	839XG4232	New design, tapered roller bearing, snap ring retainer added, several snap rings eliminated, parking brake drum retaining nut in lieu of bolt		X			-
	13	Transmission snap ring retainers	839XG4232	Snap ring retainer on standard production Transmission transfer assembly			X	X	-
11	14	Rear suspension system	839XG4803	Modified independent rear suspension System of trailing arm design. New shock absorbers, bump stops, springs and hardware		X	X	X	III-4
12	15	Master brake cylinder	839XG4903	Dual, split bore, hydraulic, revised braking		X	X	X	-

Table I-I (Cont'd)

SNL Group	Item No.	Test Item	Installation Part No.	Description	Mfr's Code	Vehicle M151A1	Vehicle M718	Vehicle M151A1C	Refer Fig.
		Distribution to front and rear brake systems							
13	16	Wheel studs	839XG4927	1/2 inch in lieu of 7/16 inch		X	X	X	-
14	17	Steering wheel	839XG4158	Deeper dish		X	X	X	III-5
	18	Steering column[a]	839XG4158	Collapsible		X	X	X	III-6
	19	Joints, steering and suspension	839XG4158	Redesigned to eliminate joint wear-out Failure, pregreased, lube-for-life		X	X	X	III-7
15	20	Lifting eye, front[a]	839XG4796	New configuration		X	X	X	III-2
	21	Lifting eye, rear	839XG4761	Relocation to side of vehicle		X	X	X	III-3
18	22	Windshield wipers	LG4908	Electric, two speed		X	X	X	III-8
	23	Windshield	LG4908	One piece, high strength glass, increased visibility and area swept		X	X	X	III-2
	24	Front seat pivot slot	839XG4947	Pin angle 40°		X	X	X	III-9
	25	Front seat rear latch	839XG4797	New design, automatic seat lock		X	X	X	III-9
	26	Windshield hinge pin[a]	LG4908	New design, friction retained, eliminate special pin		X	X	X	III-5

[a]Deleted from test by letter, AMCPM-GPV-TLI, 8 May 1969. Refer Appendix VI.

Table I-I (Cont'd)

SNL Group	Item No.	Test Item	Installation Part No.	Description	Mfr's Code	Vehicle M151A1	Vehicle M718	Vehicle M151A1C	Refer Fig.
	26	Crossmember, front	839XG1524	Heavy wall spacer in lower control arm Mounting bracket to increase clamping		X	X	X	-
	29	Spare tire mount, M718	839XG4776	New design, moved tire up and out for compatibility with new lifting shackle			X		III-10
	29	Rear extension, M718	839XG4774	Mounting braces modified to clear class A lights			X		III-10
22	30	Windshield washer	EPC-FM-D-6101	With pressure relief valve		X	X	X	III-1
	31	Jack and wrench	839XG4837/8	Scissors type, lower silhouette, commercial design		X	X	X	III-11
	32	Window, rear (canvas)	839XG4786	Full rear view, increased visibility		X			III-12
	33	Mirror, inside	LG4908	Rear view, safety		X	X	X	III-3
	34	Labels, battery	839XG4954	Caution on battery hook-up		X	X	X	III-13
	35	Reflectors, side	-	Adhesive back		X	X	X	III-3
	36	Data plates	EO FM-D-5566	New information, revised spacing, updated		X	X	X	III-5

TRUCK, UTILITY: 1/4-Ton, 4x4, M151
USA Registration Nos. 02C90868 (Mod. Veh.) and 2L7320 (Std. Veh.)

Jury Voting Results

Load Condition and Course	Abbreviated Questions: Leaned More in Turns	Feeling of Confidence & Control	Best Ride Quality	Liked Best	Best Cross-Country Mobility
Empty without Trailer					
Paved (Chicane)	Mod 4/1	Mod 6/0	Mod 4/0	Mod 6/0	
Munson Gravel	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	
Belgian Block	Mod 4/1	Mod 5/0	Mod 6/0	Mod 6/0	Mod 3/0
Level Cross-Country	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Hilly Cross-Country	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Empty with Empty Trailer					
Paved (Chicane)	Mod 6/0	Mod 5/1	Mod 6/0	Mod 4/2	
Munson Gravel	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	
Belgian Block	Mod 3/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 3/0
Level Cross-Country	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Hilly Cross-Country	Mod 3/0	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Loaded without Trailer					
Paved (Chicane)	Std 2/1	Mod 6/0	Mod 4/0	Mod 6/0	
Munson Gravel	Same 3/3	Mod 5/0	Mod 6/0	Mod 3/1	
Belgian Block	Std 3/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 2/0
Level Cross-Country	Std 3/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Hilly Cross-Country	Same 3/3	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Loaded with Trailer					
Paved (Chicane)	Std 3/1	Mod 6/0	Mod 4/0	Mod 5/1	
Munson Gravel	Same 3/3	Mod 5/1	Mod 6/0	Mod 6/0	
Belgian Block	Std 3/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 2/0
Level Cross-Country	Same 2/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 5/0
Hilly Cross-Country	Std 3/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0

Note: "Both Same" votes are not included in vote count.

RADIO INTERFERENCE TEST DATA

Item: Truck, Utility, ¼ Ton, 4x4	Report No.: STEAP-MT-TF-220(a)
Model: M151 A1C	Specification: Mil-E-55301(EL) Amend. 1
USA Reg. No.: 02C93068	Engineer: R.R. Newcomb
Mfr.: Code F	Test Date: 6 January 1969
Location:	Test Area: Range 2
Mileage: 158	Test Receiver: AN/URM-85 S/N 57

CONDUCTION - DB*

Freq. Mhz	A	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0.15																		
0.35																		
1.5	35	83	68	a	39													
3	36	83	58		41													
5	36	80	65		a													
8	34	80	57		35													
12	35	74	47		39													
16	36		37		39													
20	36		a		a													
24	37				39													
	36				37													
	37				a													
35	33																	
40	35																	
45	35																	
50	34																	
55	34																	
60	34																	
65	33	↓	↓	↓	↓													

A - AMBIENT NOISE LEVEL
P - PASSING LIMIT
a - Interference noise level at or below ambient noise level.

Measured at slave receptacle.

Hand throttle in third notch.

* Decibels above one microvolt per mega hertz of bandwidth.

1- Ignition, Battery Charging Sys. & Electric Fuel Pump
2- Personnel Heater
3- Windshield Wiper Motor

RADIO INTERFERENCE TEST DATA

Item: Truck, Utility, ¼ Ton, 4X4	Report No.: STEAP-MT-TF-220(a)
Model: M151A1C	Specification: Mil-E-55301(EL)Amend.1
USA Reg. No.: 02C93068	Engineer: T. R. Newcomb
Mfr.: , Code F	Test Date: 6 January 1969
Location:	Test Area: Range 2
Mileage: 158	Test Receiver: AN/URM-85 S/N 57

RADIATION - DB*

Freq Mhz	A	P	1	2	3	4	5	6	7	8
0.15										
0.35										
1.5	60	66	a	a	a					
3	50	66								
5	50	60								
8	45									
12	51									
16	53	↓								
20	52	54								
24	42									
28	35									
	31									
32	32									
36	24									
40	30									
45	25									
50	30									
55	30				↓					
60	25				t34					
65	25				t47					
70	27				t44					
75	29				t35					
80	32				t34					
85	29				t47					
90	25				t40					
95	28				t37					
100	26	↓	↓	↓	t46					

Freq Mhz	A	P	1	2	3	4	5	6	7	8
110	27	34	a	a	t52					
120	26				t57					
130	32				t55					
140	38				t58					
150	40				t58					
160	39				t56					
170	34				t53					
180	31				t46					
190	30				t45					
200	30			↓	t50					
220	26			31	t37					
240	23			29	t32					
260	31			a	t36					
280	28			a	t35					
300	30			35	t37					
350	19			33	a					
400	26			36	a					
450	26			28	t45					
500	28			a	t41					
550	30			↓	a					
600	27				↓					
650	27									
700	27									
750	25									
800	26									
850	31									
900	37									
950	37									
1000	41	↓	↓	↓	↓					

A - AMBIENT NOISE LEVEL
P. - PASSING LIMIT
a - Interference noise level at or below ambient noise level.
"t" before number - Approx. magnitude of transient interference pulses. (Ex. t57)
Measured 5ft from front of vehicle.

*Decibels above one microvolt per megahertz of bandwidth.

1- Ignition, Battery Charging Sys. & Electric Fuel Pump
2- Personnel Heater
3- Windshield Wiper Motor (Switching Transients)

Hand throttle in third notch.

STEAP-DS Form 152a, 15 Oct 65
(Replaces STEAP-DS Form 152, 11 Feb 65)

RADIO INTERFERENCE TEST DATA

Item: ELECTRIC WINDSHIELD WIPER	Report No.: STEAP-MT-FS-220C
Model: DWG. No. XWWC12-0028	Specification: MIL-I-55301(EL) AMEND 1
USA Reg. No.:	Engineer: R. NEWCOMB - R.C. HIZER
Mfr.: Code H	Test Date: 27 JANUARY 1969
Location:	Test Area: RADIO 2
Mileage:	Test Receiver: AN/URM-85 SERIAL No. 57

RADIATION - DB*

Freq Mhz	A	P	1	2	3	4	5	6	7	8
0.15										
0.35										
1.5	65	66	a							
3	50	66								
5	50	60								
8	48									
12	56									
16	58	↓								
20	41	54								
24	45									
28	42									
30	41									
35	32									
38	23									
40	31									
45	26									
50	30									
55	26									
60	23									
65	25									
70	22									
75	26									
80	28									
85	28									
90	25									
95	30									
100	26	↓	↓							

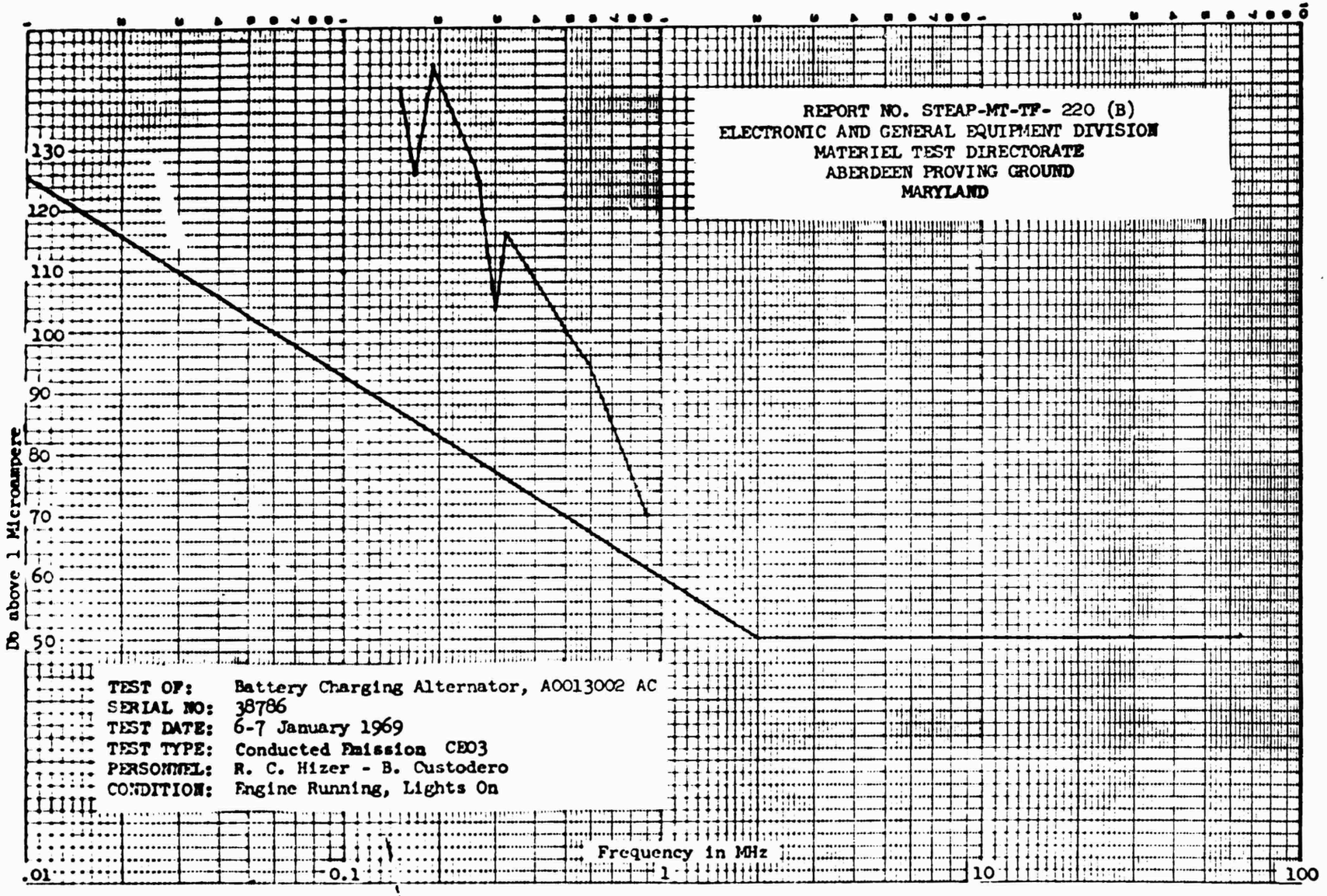
Freq Mhz	A	P	1	2	3	4	5	6	7	8
110	25	54	a							
120	26									
130	28									
140	33									
150	38									
160	33									
170	34									
180	30									
190	30									
200	28									
220	25									
240	22									
260	25									
280	27									
300	24									
350	20									
400	23									
450	24									
500	26									
550	28									
600	24									
650	24									
700	26									
750	24									
800	25									
850	30									
900	37									
950	37									
1000	36	↓	↓							

A - AMBIENT NOISE LEVEL
B - PASSING LIMIT
a - Interference noise level at or below ambient noise level.
ANTENNA PLACED 5 FEET FROM FRONT OF VEHICLE ON WHICH THE WIPER WAS MOUNTED

*Decibels above one microvolt per megahertz of bandwidth.

TEST NO.1 ELECTRIC WINDSHIELD WIPER (WITH ADDITIONAL SUPPRESSION)

STEAP-DS Form 152a, 15 Oct 65
(Replaces STEAP-DS Form 152, 11 Feb 65)


REPORT NO. STEAP-MT-TF- 220 (B)
ELECTRONIC AND GENERAL EQUIPMENT DIVISION
MATERIEL TEST DIRECTORATE
ABERDEEN PROVING GROUND
MARYLAND
Db above 1 Microampere
130
120
110
100
90
80
70
60
50
TEST OF: Battery Charging Alternator, A0013002 AC
SERIAL NO: 38786
TEST DATE: 6-7 January 1969
TEST TYPE: Conducted Emission CE03
PERSONNEL: R. C. Hizer - B. Custodero
CONDITION: Engine Running, Lights On
Frequency in MHz
.01
0.1
1
10
100

VEHICLE FUEL AND OIL CONSUMPTION

TECOM No. 1-7-403-25 TEST Product Improvement VEHICLE M1151A1 VEH. No. 02C50868

FUEL SPECS: GASOLINE _____ DIESEL N/A CITE _____ OIL SPEC. _____

ENGINE 4 Cylinder Gasoline 71 HP TRANSMISSION _____

COURSE / CONDITION	DATE BEGIN	DATE END	MILES	OPRTG HOURS	SPEED MPH	FUEL TYPE	FUEL GALS	FUEL MPG	ENGINE OIL TYPE	ENGINE OIL QTS	ENGINE OIL MPQ	REMARKS
PAVED, WET	JAN 28-2	JAN 26-1	817	22.5	36.3		43.9	18.6				W/HW PL & TL
PAVED, DRY	MAR 16-3	MAR 18-2	850	23.2	36.7		48.1	17.7				W/HW PL & W/O TL
BB & PAVED, DRY	DEC 11-3	DEC 13-3	310	17.5	17.8		24.5	12.7				W/XC PL & TL
BB & PAVED, DRY	MAR 19-2	MAR 19-1	151	6.2	24.5		10.2	14.8				W/XC PL & TL
BB & PAVED, DRY	JAN 3-2	JAN 3-1	324	10.9	30.0		23.7	13.7				W/XC PL & W/O TL
CTA B, DRY	DEC 20-2	DEC 22-2	583	30.7	19.0		55.2	10.6				W/XC PL & TL
CTA B, DRY	DEC 26-2	JAN 3-2	1317	70.6	18.7		123.5	10.7				W/XC PL & TL
CTA B, DRY	FEB 5-1	FEB 7-1	508	25.2	20.2		48.7	10.4				W/XC PL & TL
CTA B, DUSTY	FEB 17-3	FEB 20-2	610	37.1	16.4		56.2	10.9				W/XC PL & TL
CTA B, DUSTY	MAR 21-3	MAR 22-3	345	16.5	21.0		32.5	10.6				W/XC PL & TL
CTA B, MUD	JAN 31-3	FEB 2-3	474	38.2	13.8		62.3	7.6				W/XC PL & TL
CTA B, MUD	MAR 24-1	MAR 26-2	605	35.8	16.9		64.2	9.4				W/XC PL & TL
CTA B, DRY	JAN 12-3	JAN 19-1	722	36.8	19.6		57.1	12.6				W/XC PL & W/O TL
CTA B, DRY	MAR 4-3	MAR 5-1	361	40.9	21.1		31.5	12.0				W/XC PL & W/O TL
CTA B, DRY	MAR 25-2	MAR 29-2	750	43.8	19.5		66.3	14.2				W/XC PL & W/O TL
CTA B, MUD	JAN 22-1	JAN 21-2	631	34.8	17.9		65.1	9.5				W/XC PL & W/O TL

TECOM FORM 227, 11 DEC 67

VEHICLE FUEL AND OIL CONSUMPTION

TECOM No. _____ TEST _____ VEHICLE M1A1 VEH. No. _____

FUEL SPECS: GASOLINE _____ DIESEL _____ CITE _____ OIL SPEC. _____

ENGINE _____ TRANSMISSION _____

COURSE / CONDITION	DATE BEGIN	DATE END	MILES	OPRTG HOURS	SPEED MPH	FUEL TYPE	FUEL GALS	FUEL MPG	ENGINE OIL TYPE	ENGINE OIL QTS	ENGINE OIL MPQ	REMARKS
CTA B, MUD	MAR 1-3	MAR 4-3	999	42.7	23.4		91.4	10.9				w/xc PL & w/o TL
PERRYMAN "1, MUD	DEC 17-3	DEC 20-2	834	42.0	19.9		58.9	13.8				w/xc PL & TL
PERRYMAN "1, MUD	FEB 20-3	FEB 22-1	252	14.7	17.2		20.3	12.4				w/xc PL & TL
PERRYMAN "1, MUD	FEB 22-2	FEB 24-2	651	34.8	18.7		48.7	13.4				w/xc PL & TL
PERRYMAN "1, ICY	JAN 27-1	JAN 29-2	578	26.3	22.0		40.7	14.2				w/xc PL & TL
PERRYMAN "1, DRY	JAN 8-1	JAN 8-1	334	15.0	22.3		20.5	16.3				w/xc PL & w/o TL
PERRYMAN "1, DRY	JAN 14-1	JAN 15-2	435	18.3	23.7		23.0	18.9				w/xc PL & w/o TL
PERRYMAN "1, DRY	MAR 8-2	MAR 10-2	702	30.5	23.0		41.1	17.1				w/xc PL & w/o TL
PERRYMAN "1, DRY	MAR 13-3	MAR 15-3	873	37.0	23.6		48.9	17.9				w/xc PL & w/o TL
PERRYMAN "1, DRY	APR 3-2	APR 4-1	604	32.7	18.5		40.7	14.1				w/xc PL & w/o TL
TOTALS:			16,312	785.6	20.8		1291.1	12.6				

TEAP-D FORM 227, 11 DEC 67

VEHICLE FUEL AN OIL CONSUMPTION

TECOM No. 7-7-4030-25 TEST PRODUCT IMPROVEMENT VEHICLE M718 VEH. No. 02C824K68

FUEL SPECS: GASOLINE _____ DIESEL N/A CITE _____ OIL SPEC. _____

ENGINE 4 CYLINDER, GASOLINE, 71 HP TRANSMISSION _____

COURSE / CONDITION	DATE BEGIN	DATE END	MILES	OPRTG HOURS	SPEED MPH	FUEL TYPE	FUEL GALS	FUEL MPG	ENGINE OIL TYPE	ENGINE OIL QTS	ENGINE OIL MPQ	PATIENT PAYLOAD REMARKS LITTER	SEATED	
PAVED, DRY	MAR 15-2	MAR 16-3	1040	26.4	39.4		59.6	17.4				2	2	1
PAVED, DRY	APR 27-3	APR 29-1	790	19.9	39.8		39.8	19.8				3		3
BB & PAVED, DRY	FEB 17-3	FEB 19-1	257	8.9	29.0		23.0	11.2				2	2	1
BB & PAVED, DRY	MAR 16-3	MAR 17-1	113	4.2	26.9		12.0	9.4				2	2	1
BB & PAVED, DRY	MAR 17-3	MAR 19-1	313	13.8	22.6		22.2	14.1				2 EMPTY		2
BB & PAVED, DRY	APR 29-1	MAY 1-1	318	14.1	22.6		24.0	13.3				3 EMPTY		3
CTA B, SNOW & MUD	FEB 28-1	MAR 3-1	826	43.5	19.0		89.8	9.2				2	2	1
CTA B, FROZEN	MAR 4-2	MAR 7-1	764	38.6	19.8		74.8	10.2				2	2	1
CTA B, DUSTY	MAR 19-1	MAR 20-1	347	18.1	19.2		28.5	12.2				2 EMPTY		2
CTA B, DUSTY	MAR 28-1	MAR 28-3	291	13.4	21.8		18.7	15.6				2 EMPTY		2
CTA B, MUD	MAR 24-3	MAR 27-1	712	36.8	19.3		60.4	11.8				2 EMPTY		2
CTA B, MUD	APR 12-1	APR 17-1	1386	70.3	19.8		120.4	11.6				3		3
CTA B, MUD	APR 10-3	APR 11-1	213	11.8	12.8		20.6	10.3				3		3
CTA B, DRY	MAY 1-1	MAY 5-1	1358	60.0	22.5		93.7	14.9				3 EMPTY		4
CTA B, DRY	MAY 7-1	MAY 8-2	546	22.1	24.8		35.7	15.4				3 EMPTY		4
PHILLIPS & DUSTY	MAR 11-3	MAR 13-2	499	23.7	21.1		41.9	11.9				2	2	1

TECOM FORM 227 11 DEC 67

VEHICLE FUEL AND OIL CONSUMPTION

TECOM No. 1-4030-25 TEST PL VEHICLE M718 VEH. No. 02CE24G8

FUEL SPECS: GASOLINE _____ DIESEL _____ CITE _____ OIL SPEC. _____

ENGINE _____ TRANSMISSION _____

COURSE / CONDITION	DATE BEGIN	DATE END	MILES	OPRTG HOURS	SPEED MPH	FUEL TYPE	FUEL GALS	FUEL MPG	ENGINE OIL TYPE	ENGINE OIL QTS	ENGINE OIL MPQ	PATIENT PAYLOAD REMARKS LITTER	PATIENT PAYLOAD REMARKS SEATED	
PERRYMAN #1, SAND/MUD	FEB 20-1	FEB 27-1	1786	95.8	18.6		135.1	13.2				2	2	1
PERRYMAN #1, MUD	MAR 8-1	MAR 10-3	835	41.1	20.3		65.8	12.7				2	2	1
PERRYMAN #1, DRY	APR 21-2	APR 22-1	222	11.4	19.6		13.1	16.9				3		3
PERRYMAN #1, DRY	APR 23-2	APR 27-3	1204	62.7	19.2		76.7	15.7				3		3
PERRYMAN #1, DUSTY	MAY 8-3	MAY 12-2	1140	60.4	18.9		73.3	15.6				3 EMPTY		4
PERRYMAN #1, DRY	MAY 13-2	MAY 14-2	253	13.9	18.2		15.0	16.9				3 EMPTY		
AVERAGE:			15266	713.0	21.4		1144.1	13.3						

VEHICLE FUEL AN OIL CONSUMPTION

TECOM No. 1-7-4030-25 TEST PRODUCT IMPROVEMENT VEHICLE M151A1C VEH. No. 02C93068

FUEL SPECS: GASOLINE _____ DIESEL N/A CITE _____ OIL SPEC. _____

ENGINE 4 CYLINDER, GASOLINE, 71 HP TRANSMISSION _____

	COURSE / CONDITION	DATE BEGIN	DATE END	MILES	OPRTG HOURS	SPEED MPH	FUEL TYPE	FUEL GALS	FUEL MPG	ENGINE OIL TYPE	ENGINE OIL QTS	ENGINE OIL MPQ	REMARKS
✓	PAVED, DRY	FEB 6-1	FEB 11-2	13.23	36.2	36.6		32.5	16.0				W/PL
✓	PAVED, DRY	JUNE 12-2	JUNE 13-3	556	13.9	40.1		31.9	17.4				W/PL
✓	PAVED, DRY	JUNE 17-2	JUNE 21-2	840	25.3	33.3		40.3	20.9				W/PL
✓	CTA B, MUD	JAN 31-3	FEB 5-2	1009	57.1	17.5		109.9	9.1				W/PL
✓	CTA N-XC, DRY	JUNE 16-3	JUNE 17-2	227	10.8	21.0		23.6	9.6				W/PL
✓	MUNSON GRAVEL BB & PVD / DRY	JAN 15-7	JAN 18-2	698	29.4	23.8		49.0	14.2				W/PL
✓	MUNSON GRAVEL BB DRY	JUNE 11-2	JUNE 12-2	650	23.2	28.0		41.4	15.7				W/PL
✓	PERRYMAN 3, DRY	JAN 26-3	JAN 27-2	231	9.1	25.3		18.2	12.7				W/PL
✓	" "	JAN 27-2	JAN 28-1	270	12.5	21.6		20.7	13.0				W/PL
✓	" "	FEB 5-2	FEB 6-1	109	5.8	13.9		9.0	12.1				W/PL
✓	" "	MAY 31-2	MAY 31-3	203	11.2	18.1		13.6	14.9				W/PL
✓	" "	JUNE 3-3	JUNE 5-1	407	21.2	19.2		22.5	18.1				W/PL
✓	PERRYMAN 4, MUD	JAN 18-2	JAN 20-1	107	6.0	17.8		9.5	11.1				W/PL
✓	" "	JAN 20-2	JAN 21-2	273	16.4	16.7		21.1	12.9				W/PL
✓	" "	JAN 25-2	JAN 26-3	147	9.2	15.9		15.1	9.7				W/PL
✓	" "	JUNE 2-3	JUNE 3-3	270	15.3	17.7		18.7	14.4				W/PL

TEXP-D, FORM 227, 11 DEC 67

VEHICLE FUEL AND OIL CONSUMPTION

TECOM No. 1-7-4030-25 TEST PRODUCT IMPROVEMENT VEHICLE M151A1C VEH. No. 02C93068

FUEL SPECS: GASOLINE _____ DIESEL N/A CITE _____ OIL SPEC. _____

ENGINE 4 CYLINDER GASOLINE, 71 HP TRANSMISSION _____

COURSE / CONDITION	DATE BEGIN	DATE END	MILES	OPRTG HOURS	SPEED MPH	FUEL TYPE	FUEL GALS	FUEL MPG	ENGINE OIL TYPE	ENGINE OIL QTS	ENGINE OIL MPQ	REMARKS
✓ PERSIAN A, DRY	MAY 29-3	MAY 31-1	438	21.5	20.4		24.5	17.9				W/PL
TOTALS			7749	324.1			551.5					
AVERAGE					23.9			14.0				

TEAP-D FORM 227, 11 DEC 67

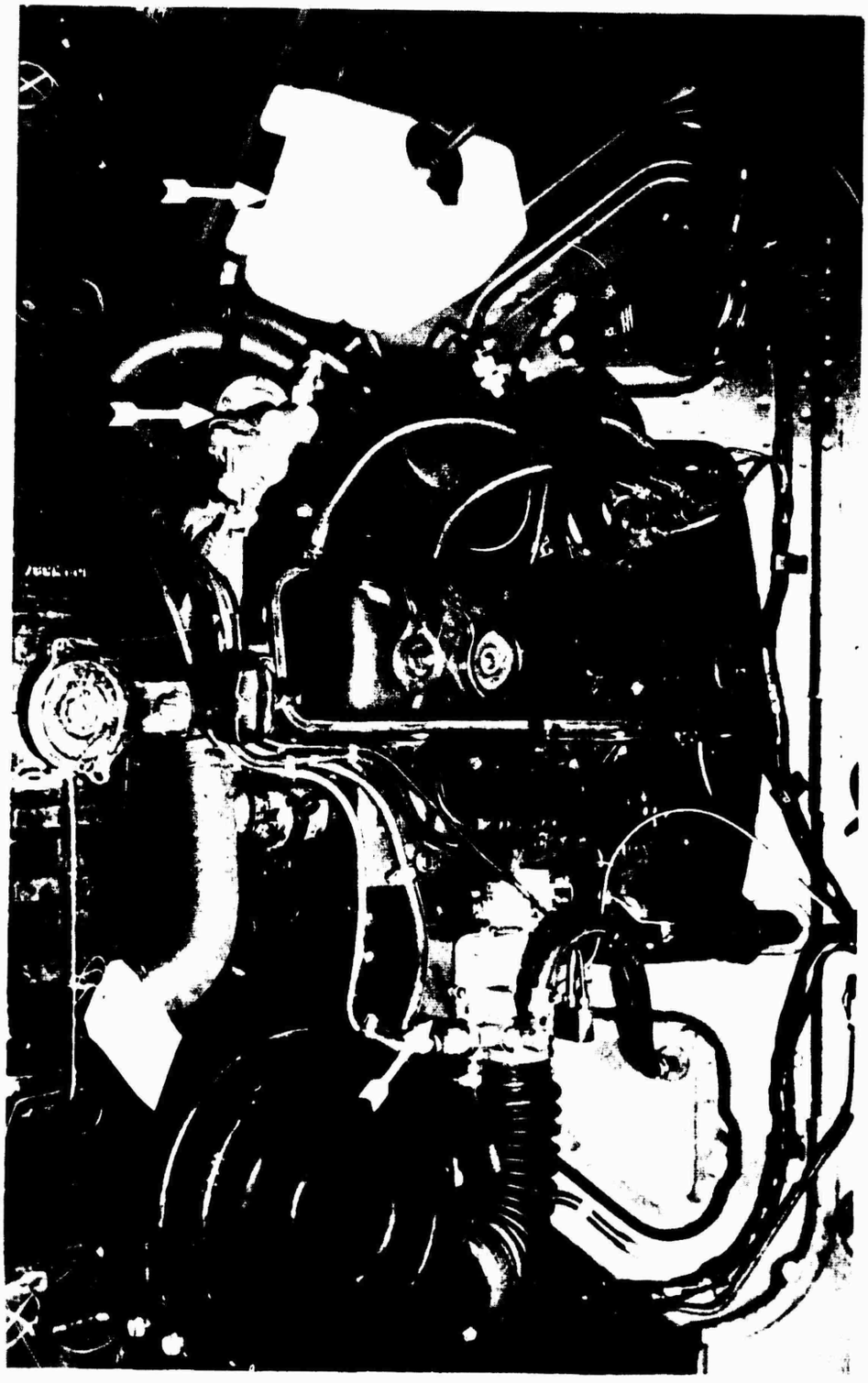


Figure III-1: Engine Assembly. Arrows Denote Fuel Pump, Carburetor and Windshield Washer.

Figure III-2: General View Showing Front Class A Lights, Front Lifting Eye and One Piece Windshield.

Figure III-3: General View Showing Rear Class A Lights, Rear Lifting Eye, Inside Rear-View Mirror, and Adhesive-Back Reflectors.

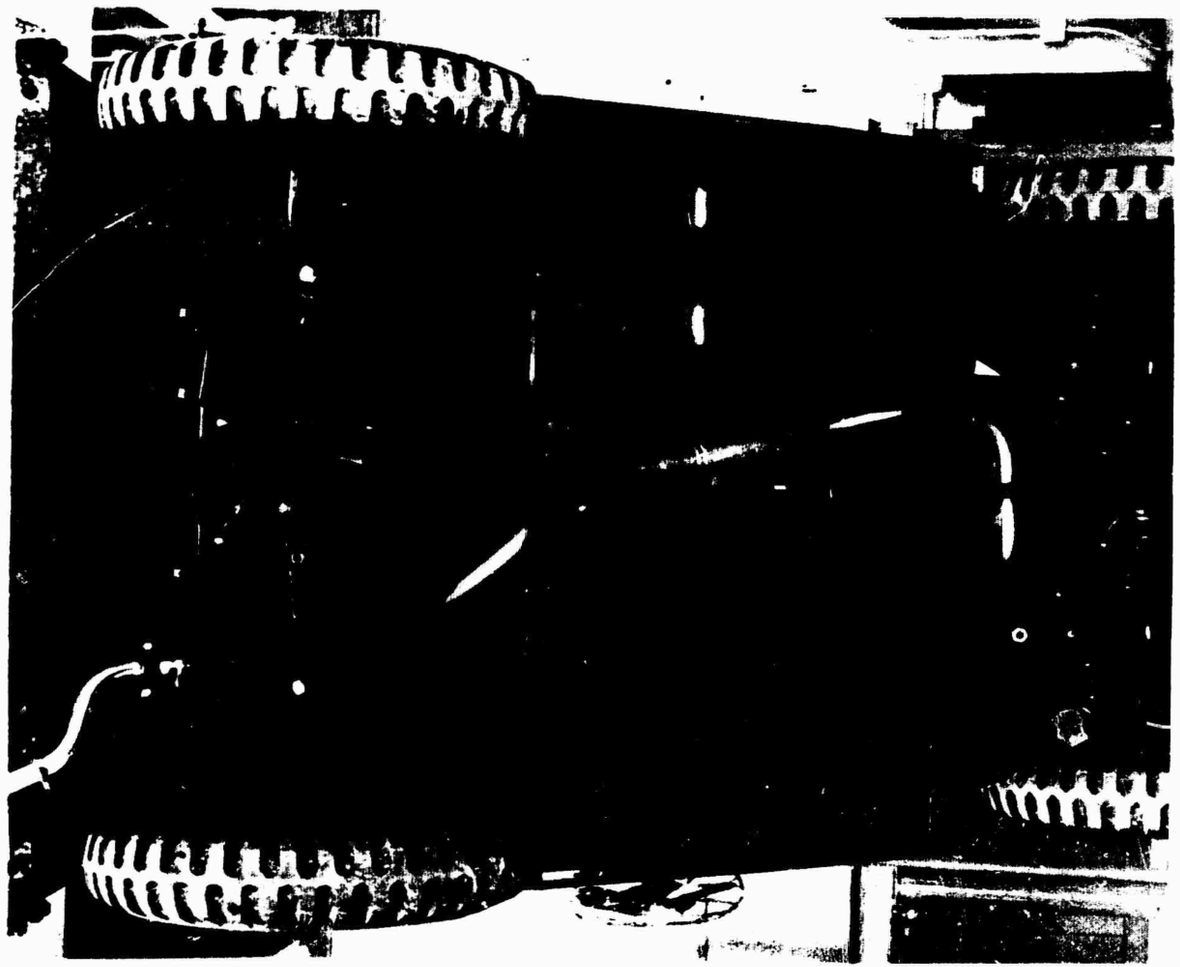


Figure III-4: Bottom View M151 Series Vehicles Showing the Modified Independent Rear Suspension System.

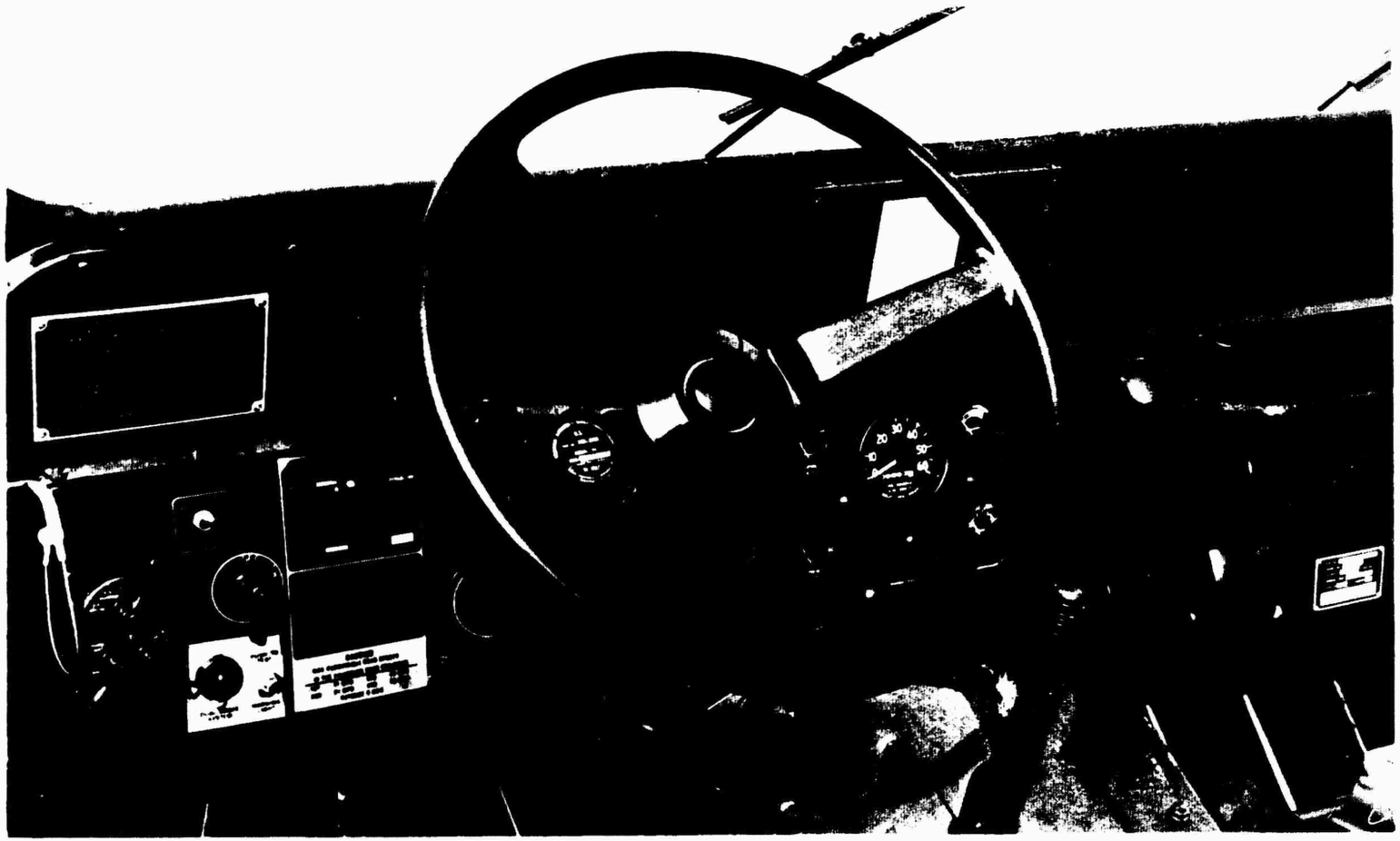


Figure III-5: Deep-Dish Steering Wheel, Windshield Hinge Pin and Data Plates.

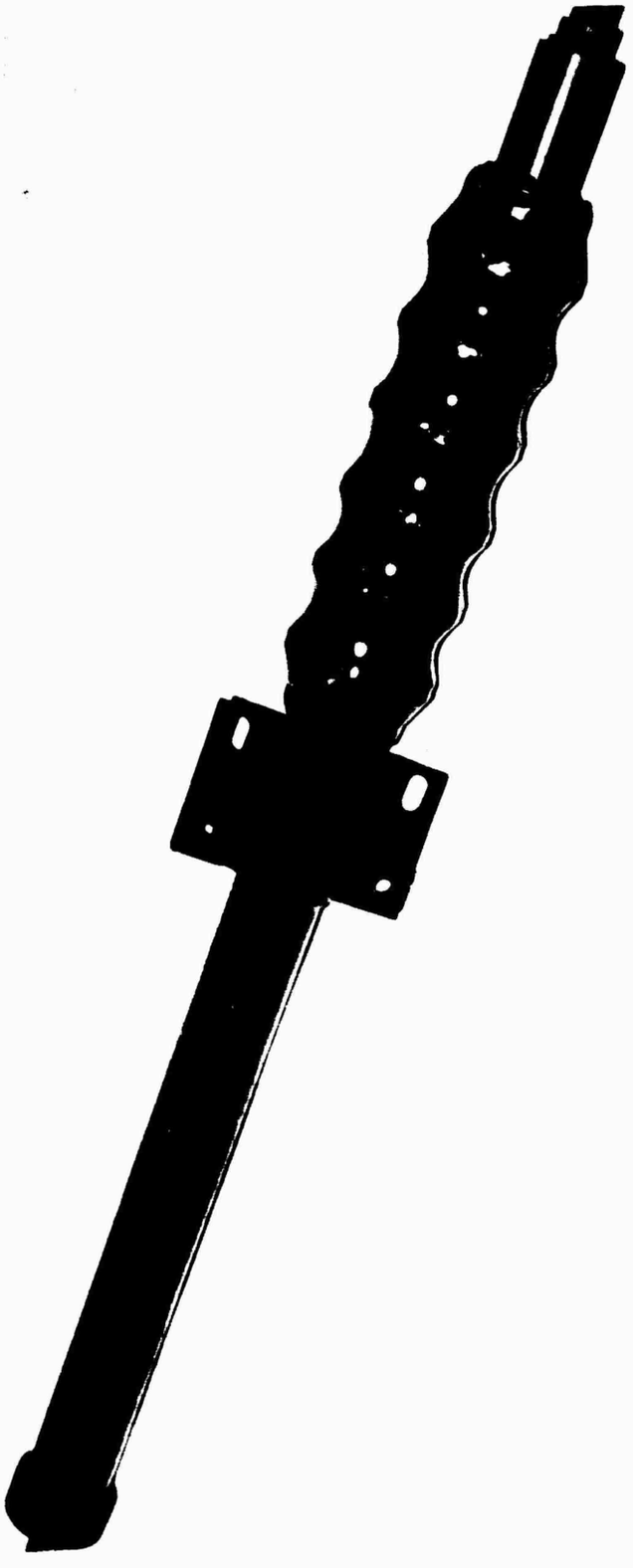


Figure III-6: Collapsible Steering Column.

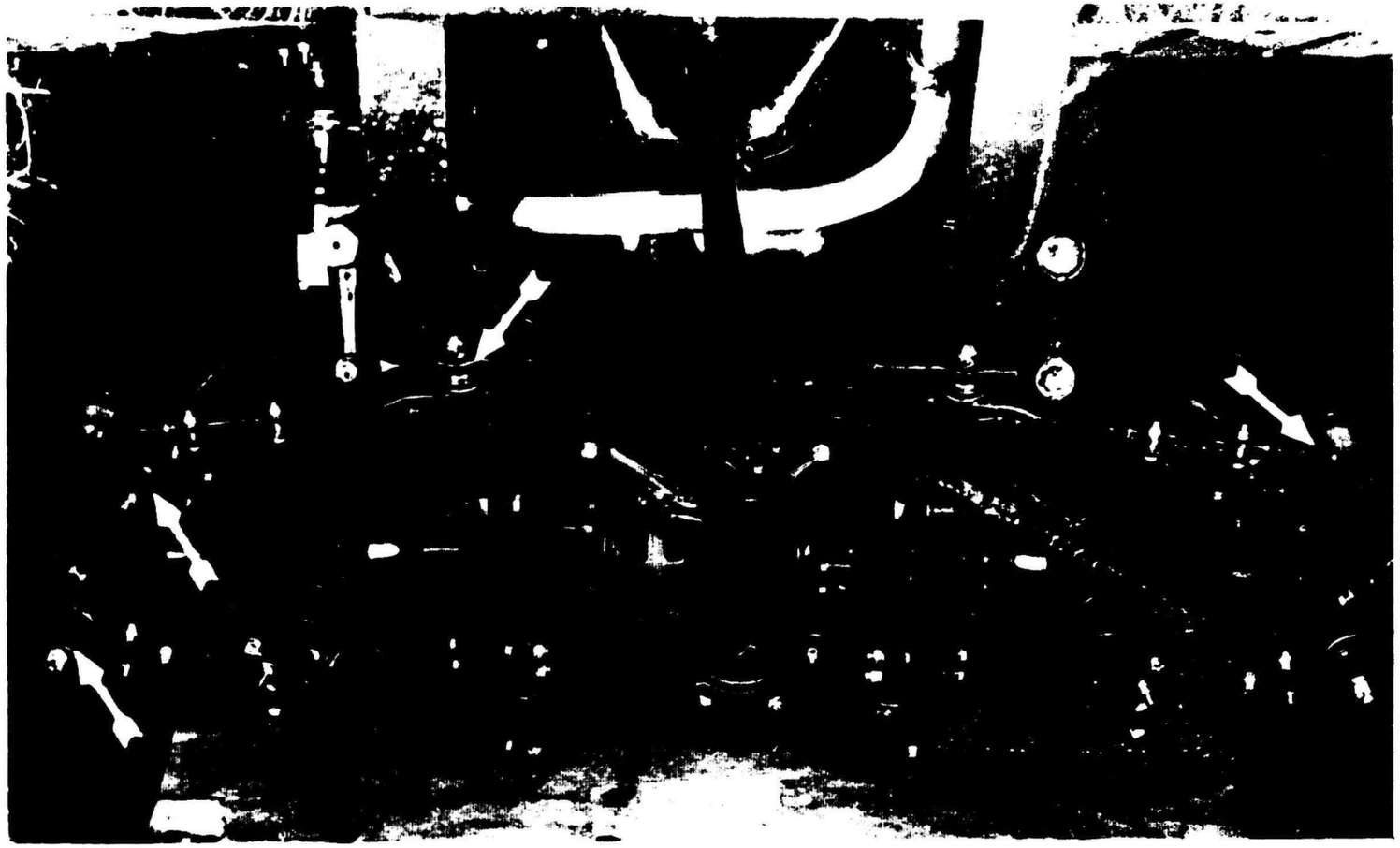


Figure III-7: Arrows Denote Pregreased (Lube-for-Life) Steering and Suspension Joints.

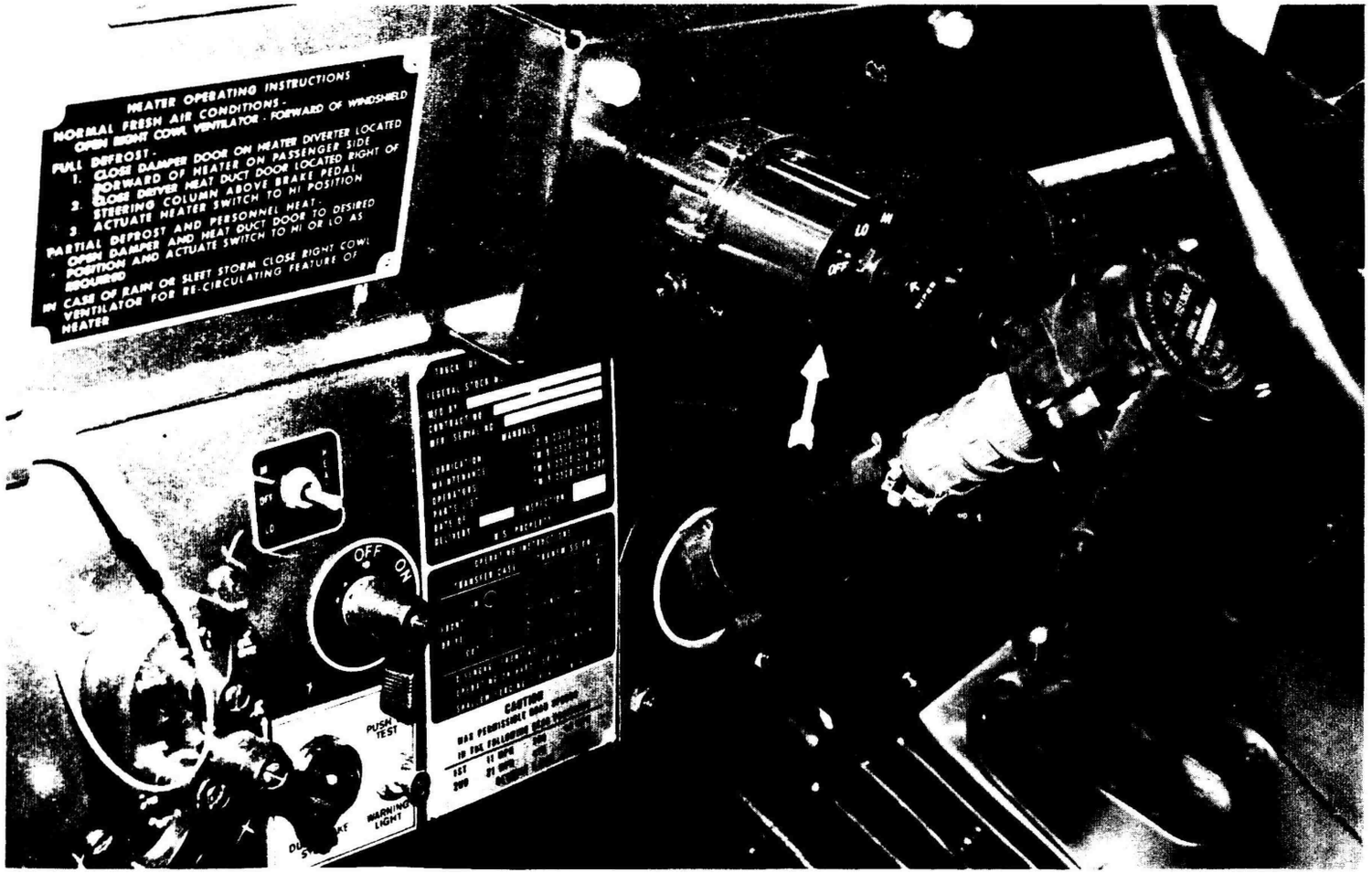


Figure III-8: Arrow Denotes 2-Speed Electric Windshield Wipers.

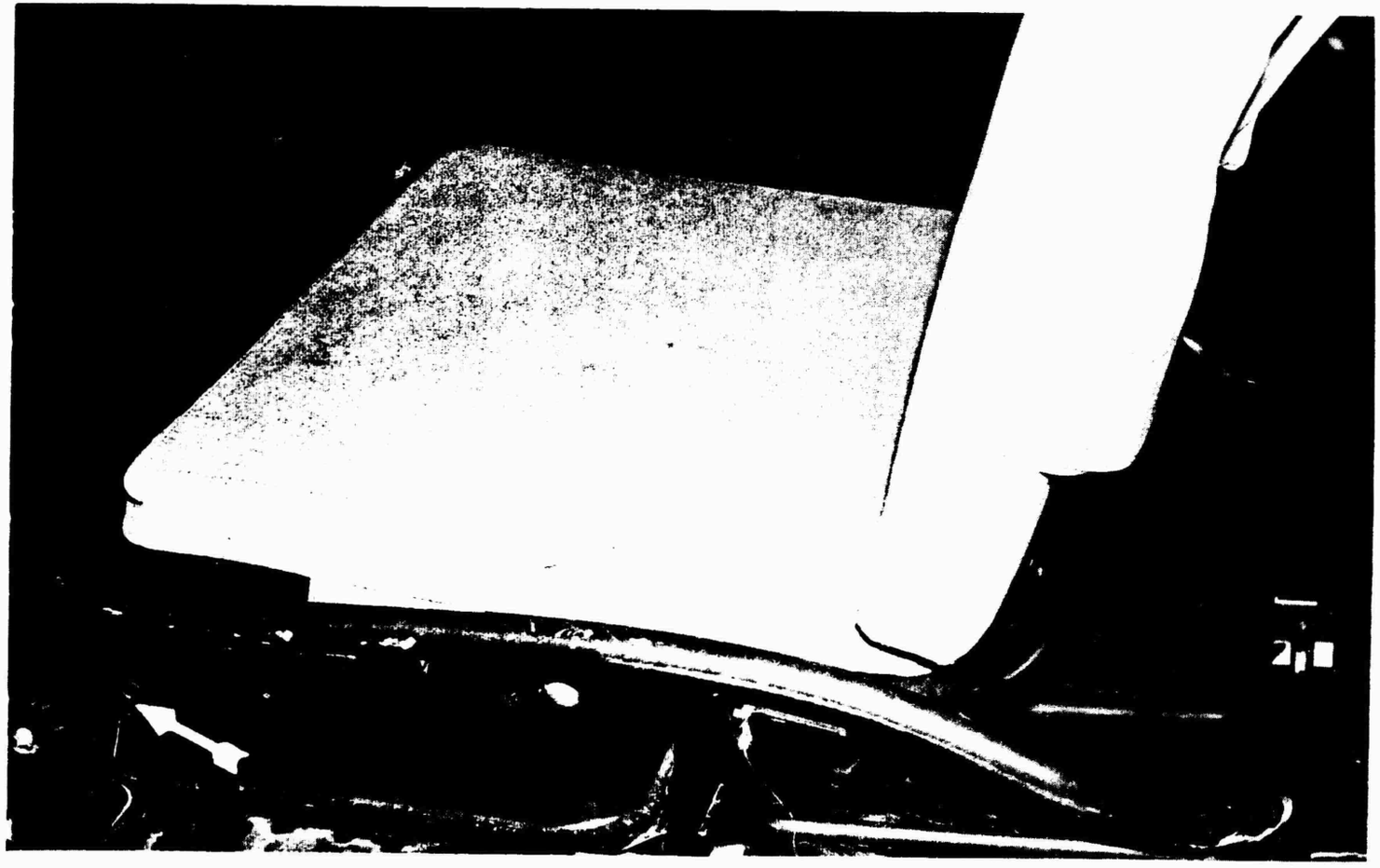


Figure III-9: White Arrow Denotes 40° Pin-Angle Slot for Seat Removal, Black Arrow Denotes Front Seat Rear Latch, Automatic Lock.

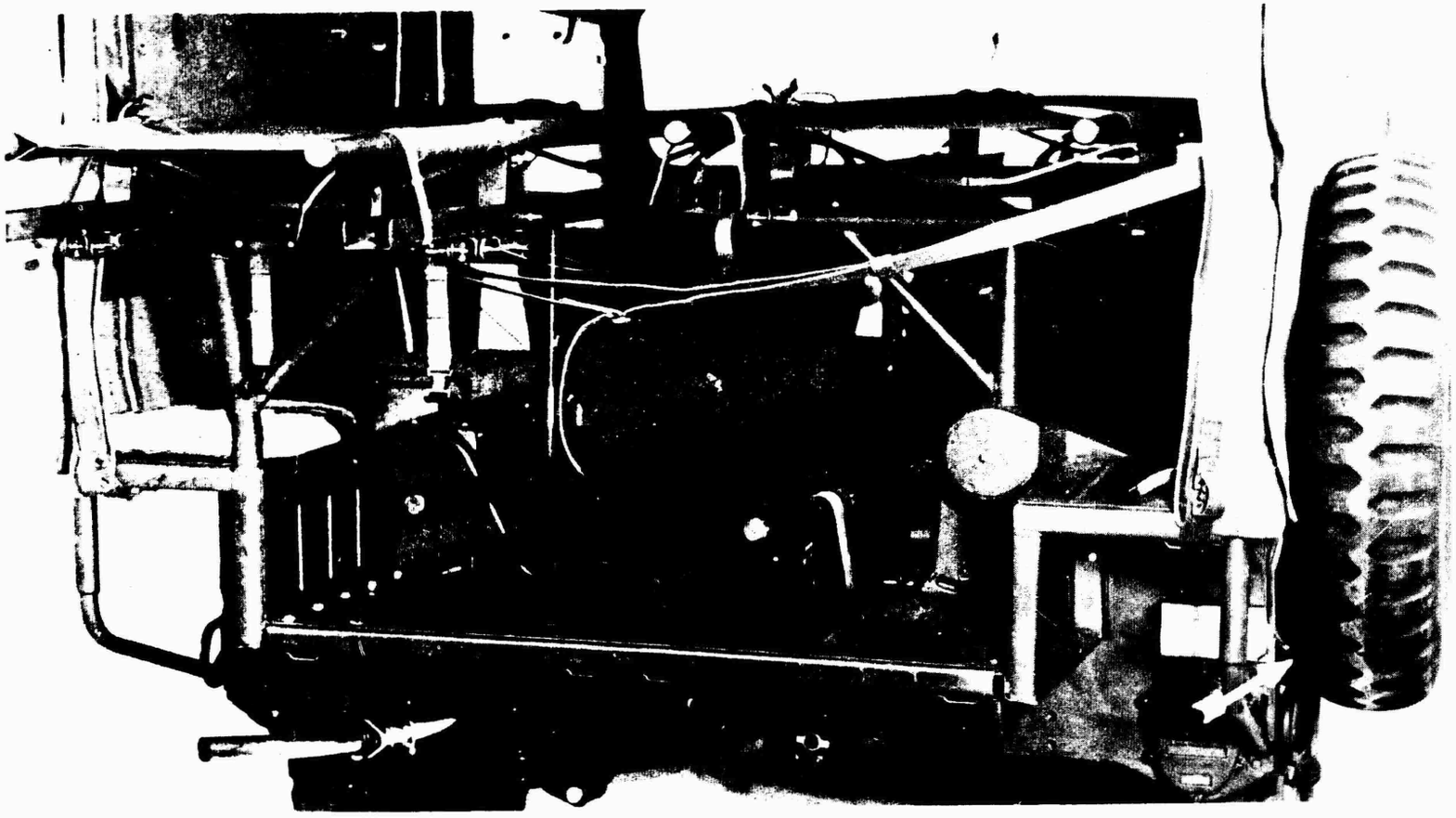


Figure III-10: Arrows Denote Modified Spare Tire Mount and Rear Extension Mounting Braces.

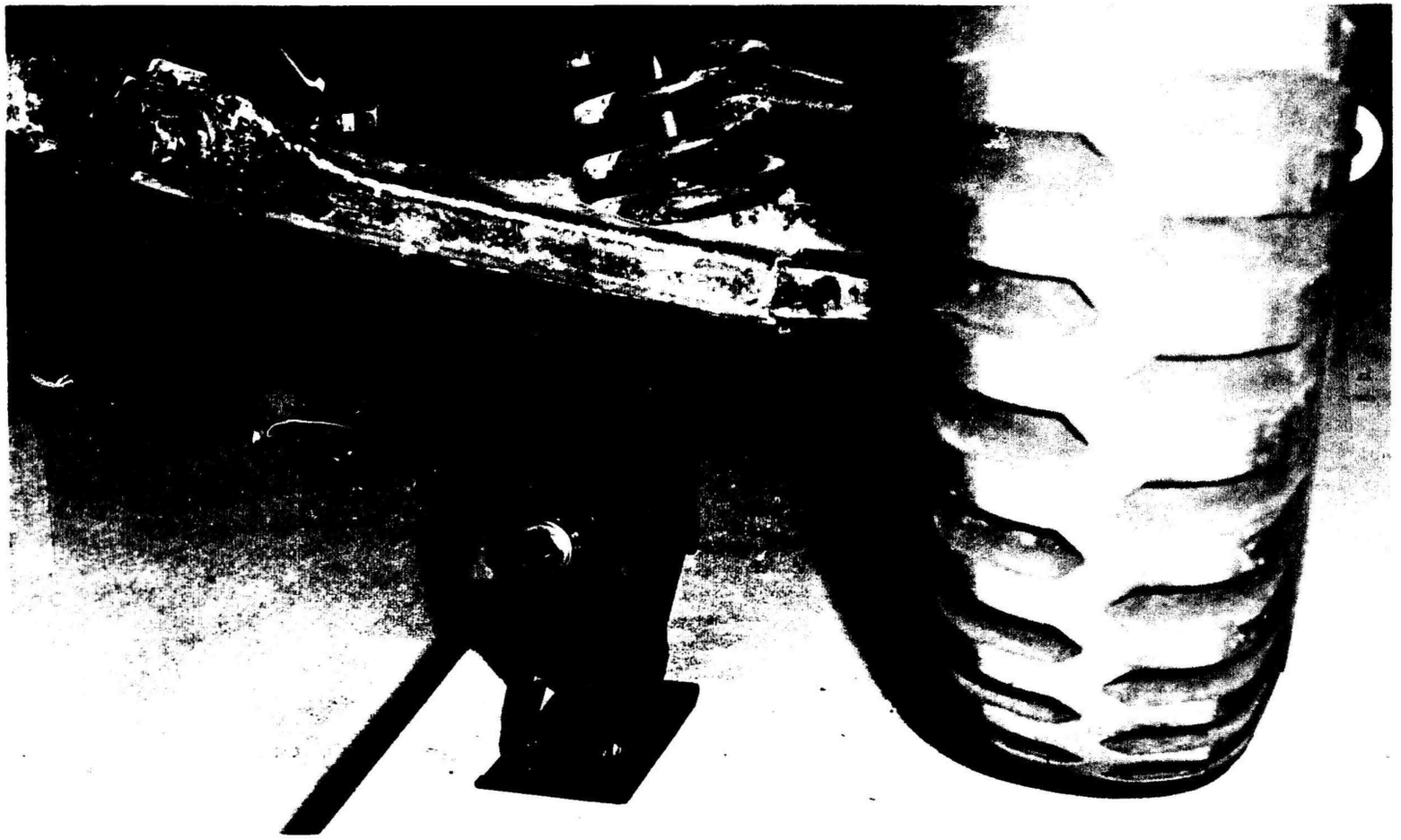


Figure III-11: Scissors-Type Jack with Wrench.

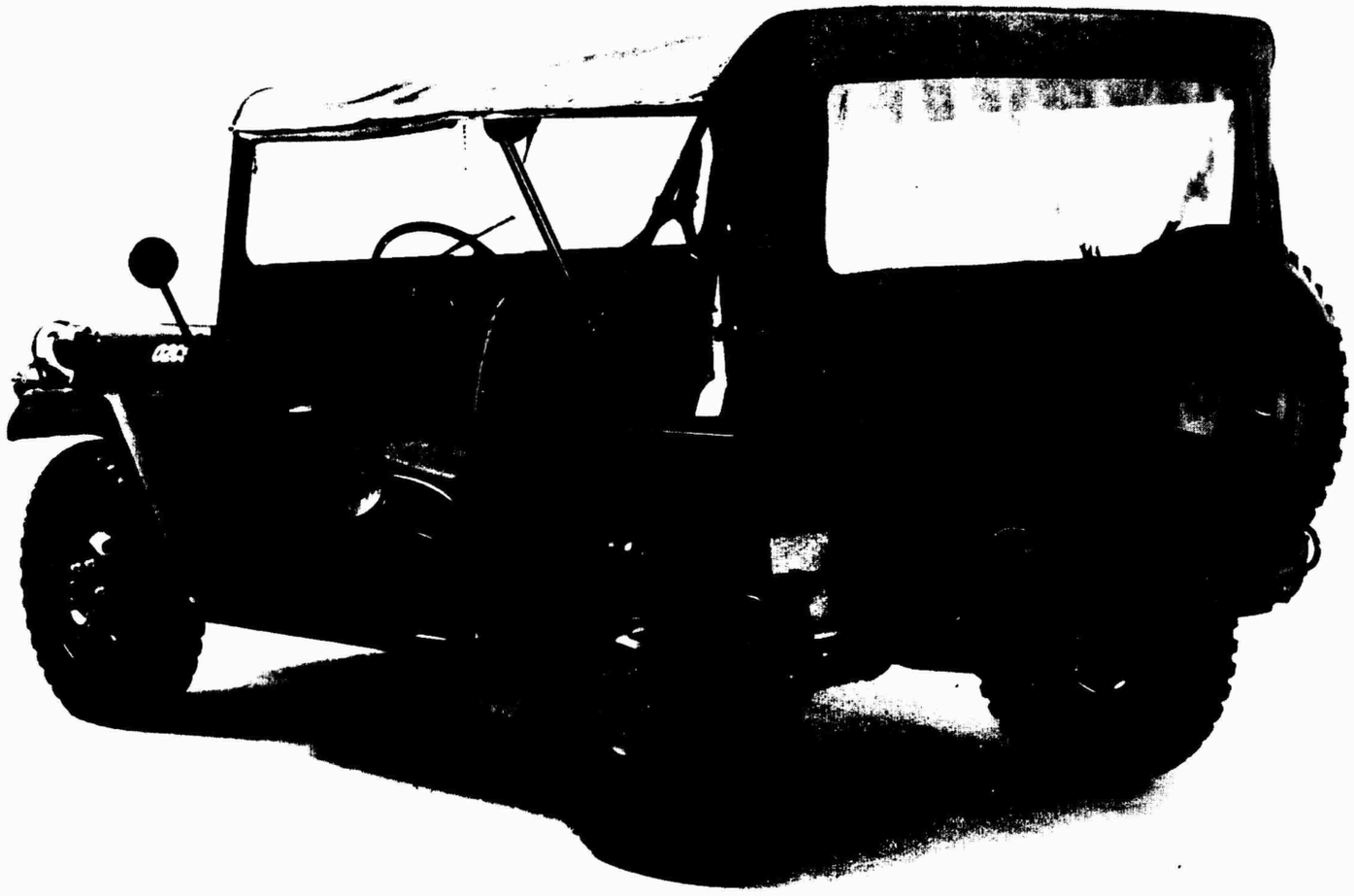


Figure III-12: Showing Full-View Rear Window of M151A1.

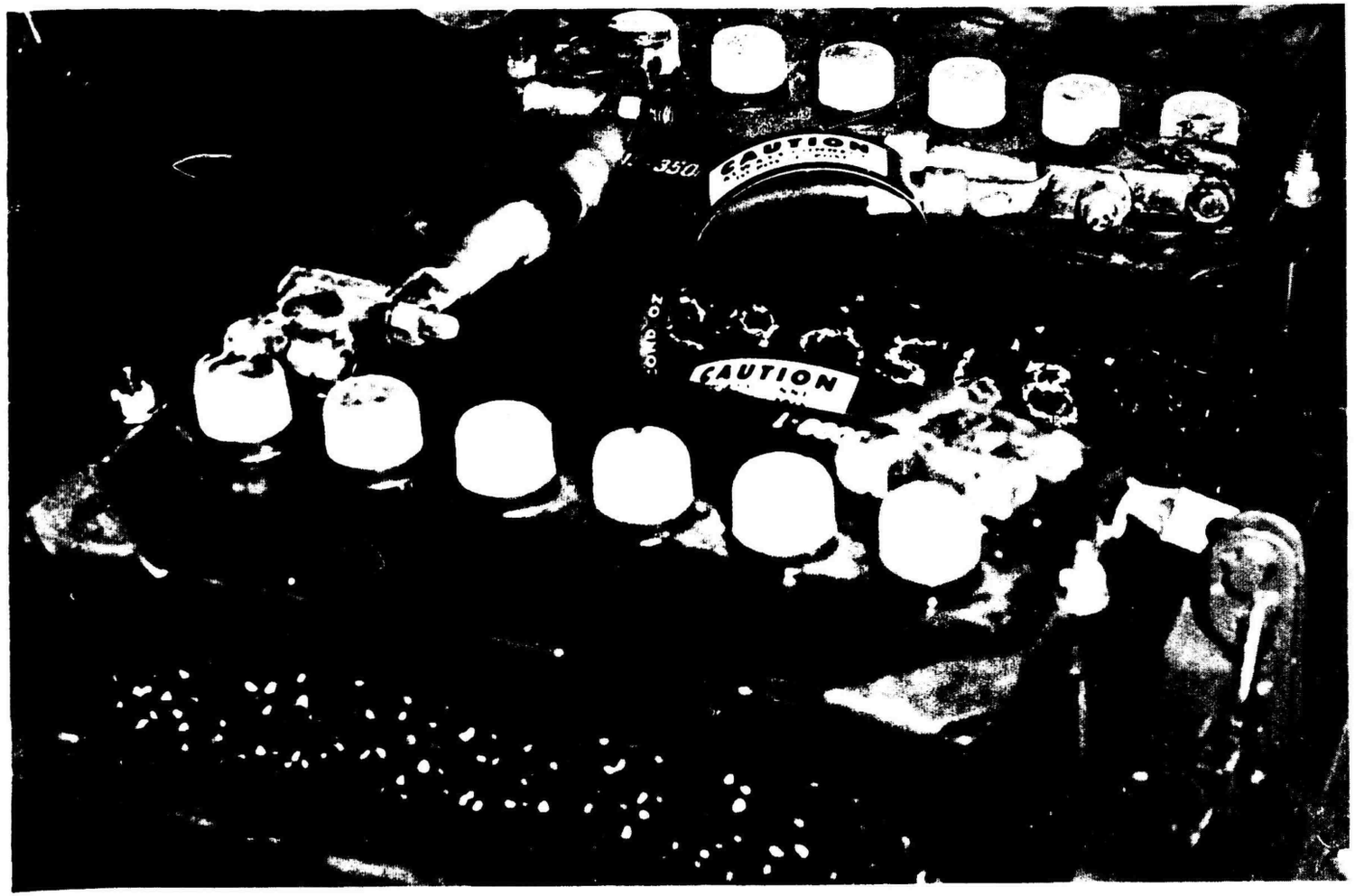


Figure III-13: Battery Caution Labels on Proper Connections.

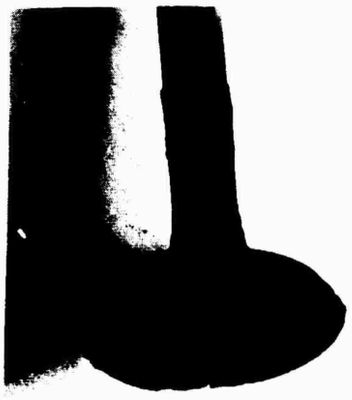


Figure III-14: Burnt Exhaust Valve, Cylinder No. 1, M151A1 after 25,276 Test Miles.

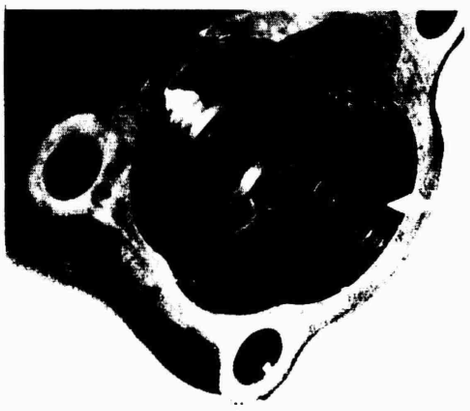


Figure III-15: Arrow Shows Worn Engine Oil Pump Housing On M151A1 after 25,276 Test Miles.

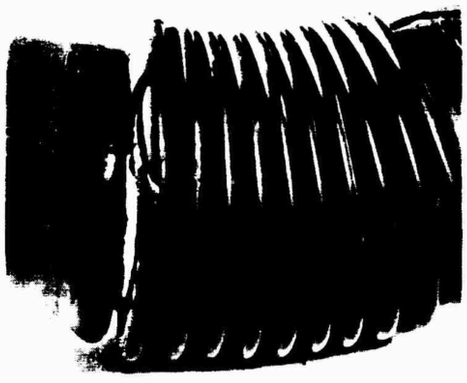


Figure III-16: Torn Air-Intake Hose (Air Cleaner to Carburetor) on M151A1 after 25,276 Test Miles.

Figure III-17: Arrow Shows One Ground Connection Missing from Front and Rear Class A Light Assemblies

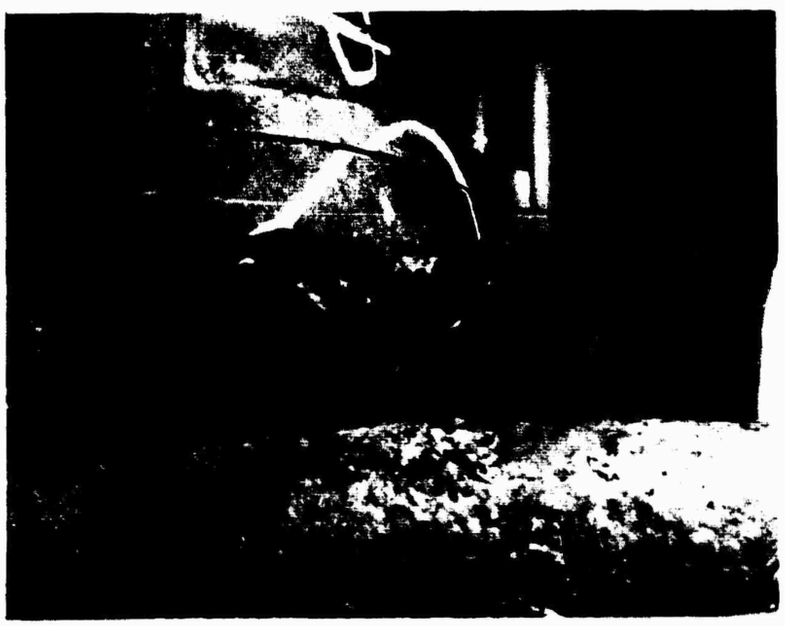


Figure III-18: Circled Area Shows Melted Left Rear Taillight and Stoplight Assembly Cover Caused by Exhaust Tail Pipe On M151A1 after 25,276 Test Miles.

Figure III-19: Alternator Fan Showing Concentric Washer Broken from the Center On M718 after 17,296 Test Miles.

Figure III-20: Right Front Turn Signal-Assembly Cover Cracked, Allowing Water to Accumulate In the Assembly On M151A1C after 10,101 Test Miles.

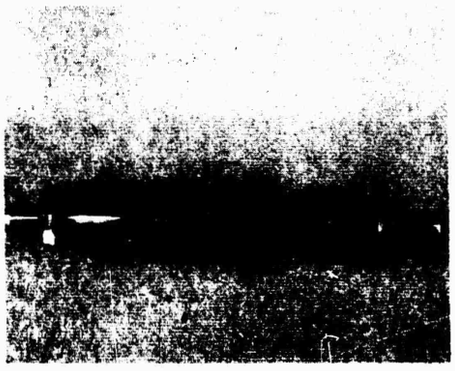


Figure III-21: Speedometer Drive Gear Failed when Parking-Brake Drum Retaining Nut Came Loose On M151A1 after 11,741 Test Miles.

Figure III-22: Arrow Shows Teeth Broken from Transmission Third Speed and Countershaft Cluster Gears On M718 after 9130 Test Miles.

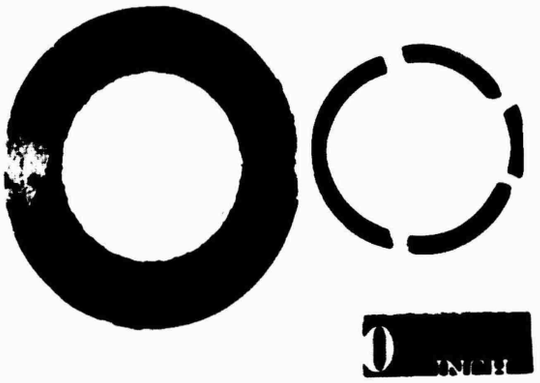


Figure III-23: Broken Transmission-Output Shaft Snap Ring and Snap-Ring Retainer On M151A1C after 9625 Test Miles.

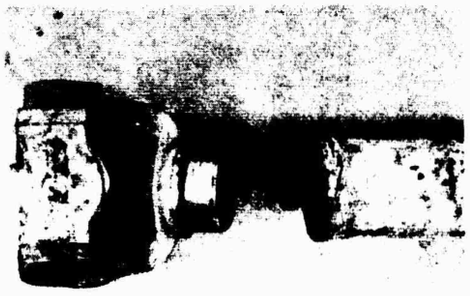


Figure III-24: Weld Failure On Front Propeller Drive Shaft On M151A1 after 3475 Test Miles.

Figure III-25: Broken Front Propeller Shaft On M151A1 after 1037 Test Miles.

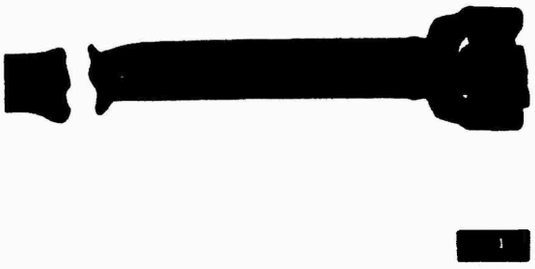


Figure III-26: Broken Front Propeller-Drive Shaft On M151A1C after 8247 Test Miles.

Figure III-27: Arrow Denotes 1/4-Inch Cracks In Bottom of Left Front Wheel Lower Suspension Arm Assembly Near Shock Absorber Mounting Bracket Rear Hole On M151A1 after 25,276 Miles.

Figure III-28: Arrow Denotes 1/2-Inch Crack On Bottom of Left Front Wheel Lower Suspension Arm Assembly On M151A1 after 25,276 Test Miles.

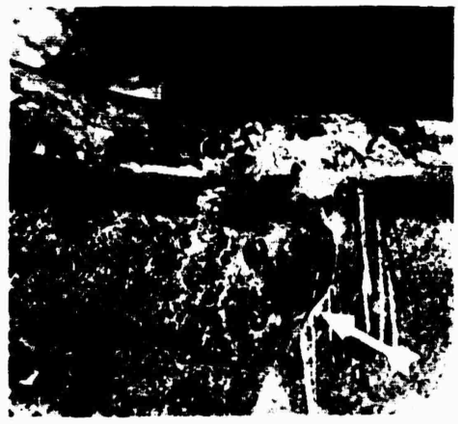


Figure III-29: Arrow Denotes 2-Inch Crack On Bottom of Right Front Wheel Lower Suspension-Arm Assembly In Front of Shock-Absorber Mounting Bracket Hole On M151A1 after 25,276 Test Miles.

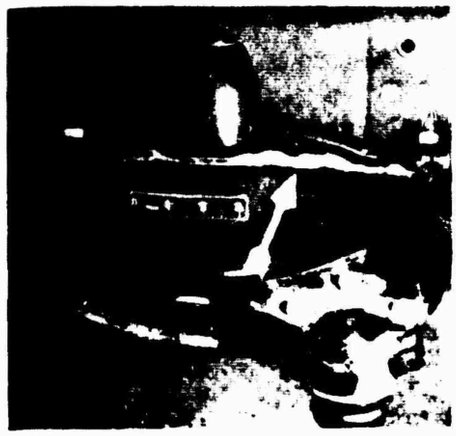


Figure III-30: Arrow Shows Left Front Crossmember Top Front Flange Damaged by Contact with Front Upper Arm Assembly On M151A1C after 5090 Test Miles.

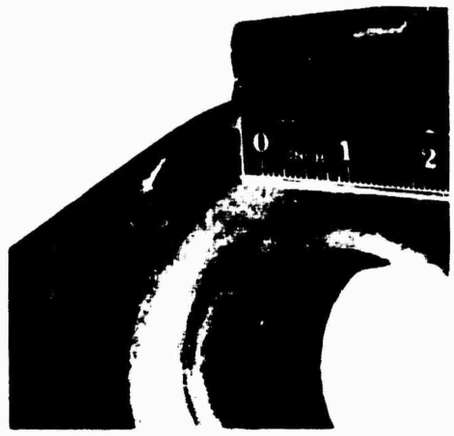


Figure III-31: Arrow Denotes Right Front Lower Suspension-Arm Crack Outboard the Spring Seat On M151A1C after 10,101 Test Miles.

Figure III-32: Broken Rear-Differential Pinion Gear On M151A1 after 6930 Test Miles.

Figure III-33: Arrow Shows Worn Rear-Differential Pinion-Gear Shaft On M151A1 after 18,341 Test Miles.

Figure III-34: Arrows Denote Cracks, 1/4-, 1-, and 1-1/4-Inches, On Rear-Differential Ring-Gear Carrier (Case) Bearing End On M151A1 after 18,341 Test Miles.

Figure III-35: Broken Right Rear Wheel-Drive Shaft Outboard Universal Joint Cross On M151A1 after 2144 Test Miles.

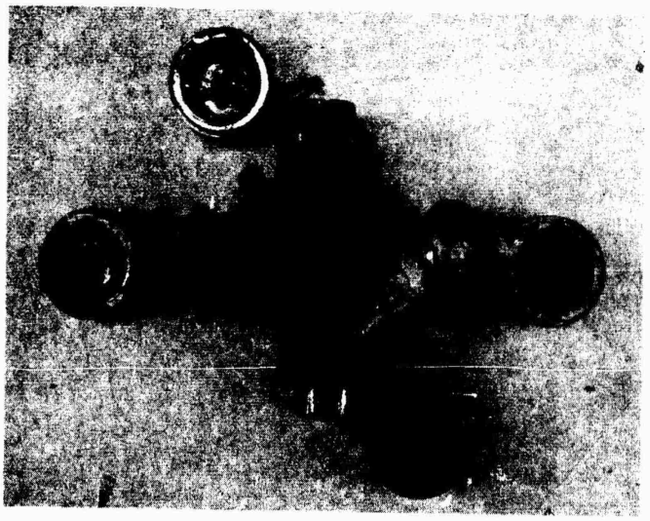


Figure III-36: Two Races of Left Rear-Wheel Drive Shaft Outboard Universal Joint Failed On M151A1 after 11,686 Test Miles.

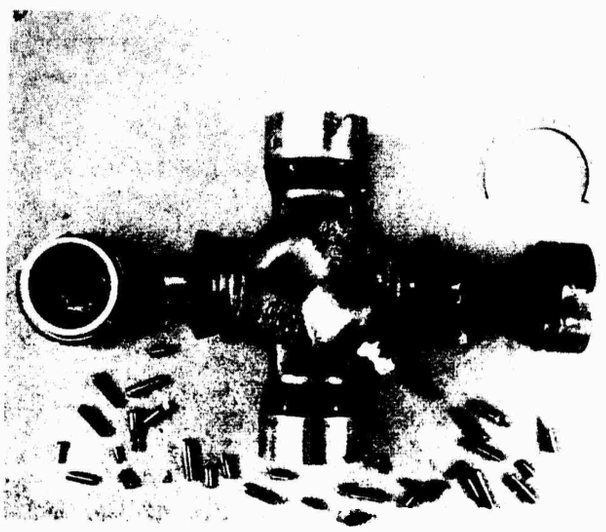


Figure III-37: Broken Race and Rollers of Right-Rear Wheel-Drive Shaft Inboard Universal Joint On M151A1 after 4155 Test Miles.

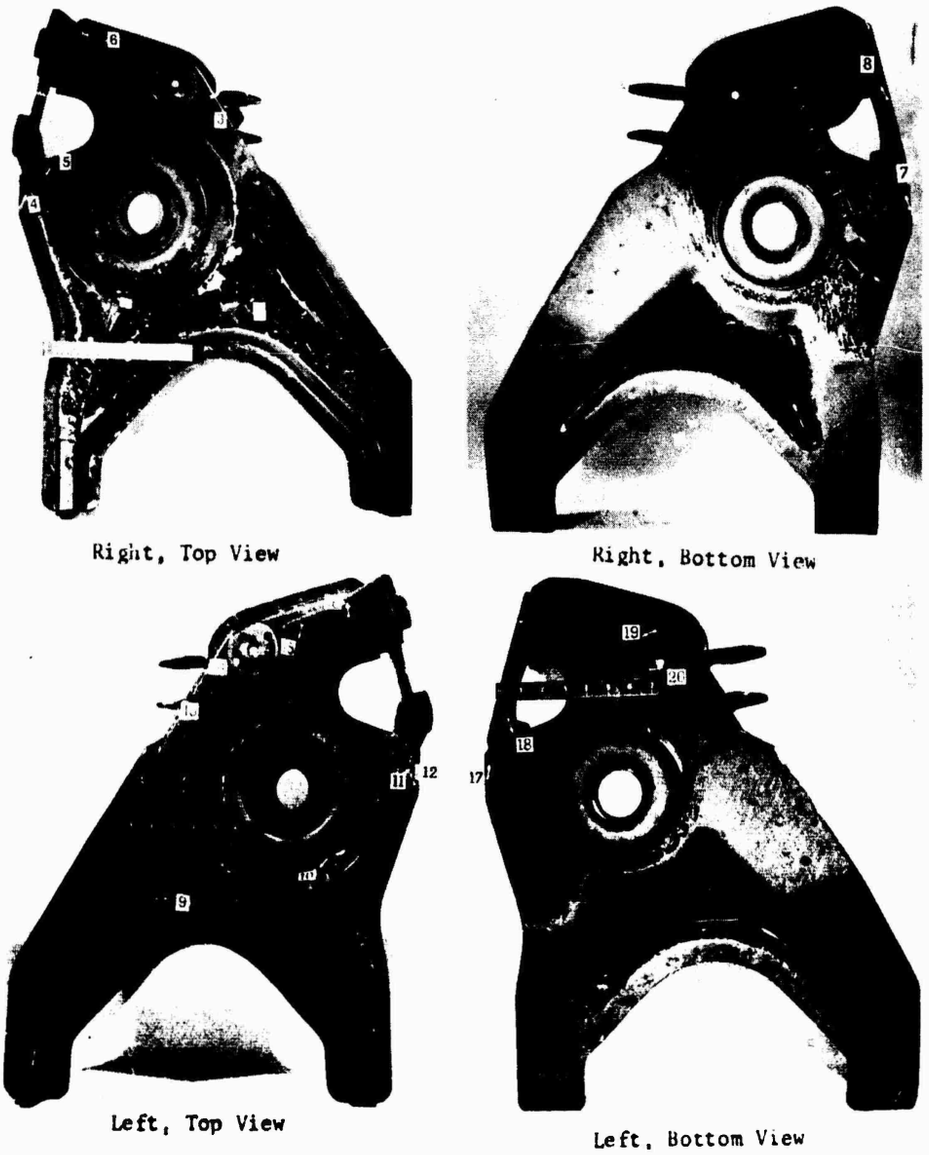


Figure III-38: A Typical Crack Pattern of the M151A1, M718 and M151A1C Rear Suspension Arms is Denoted by the Location of Numerical Numbers Shown on the Rear Suspension Arms of the M151A1C after 10101 Test Miles. Numbers 1 and 9 are Peculiar to the M151A1C. Magnaflux Examination Showed:

Vehicle	No. Cracks	Test Miles
M151A1	9	20433
	16	25276
M718	14	23563
M151A1C	17	5090
	20	10101

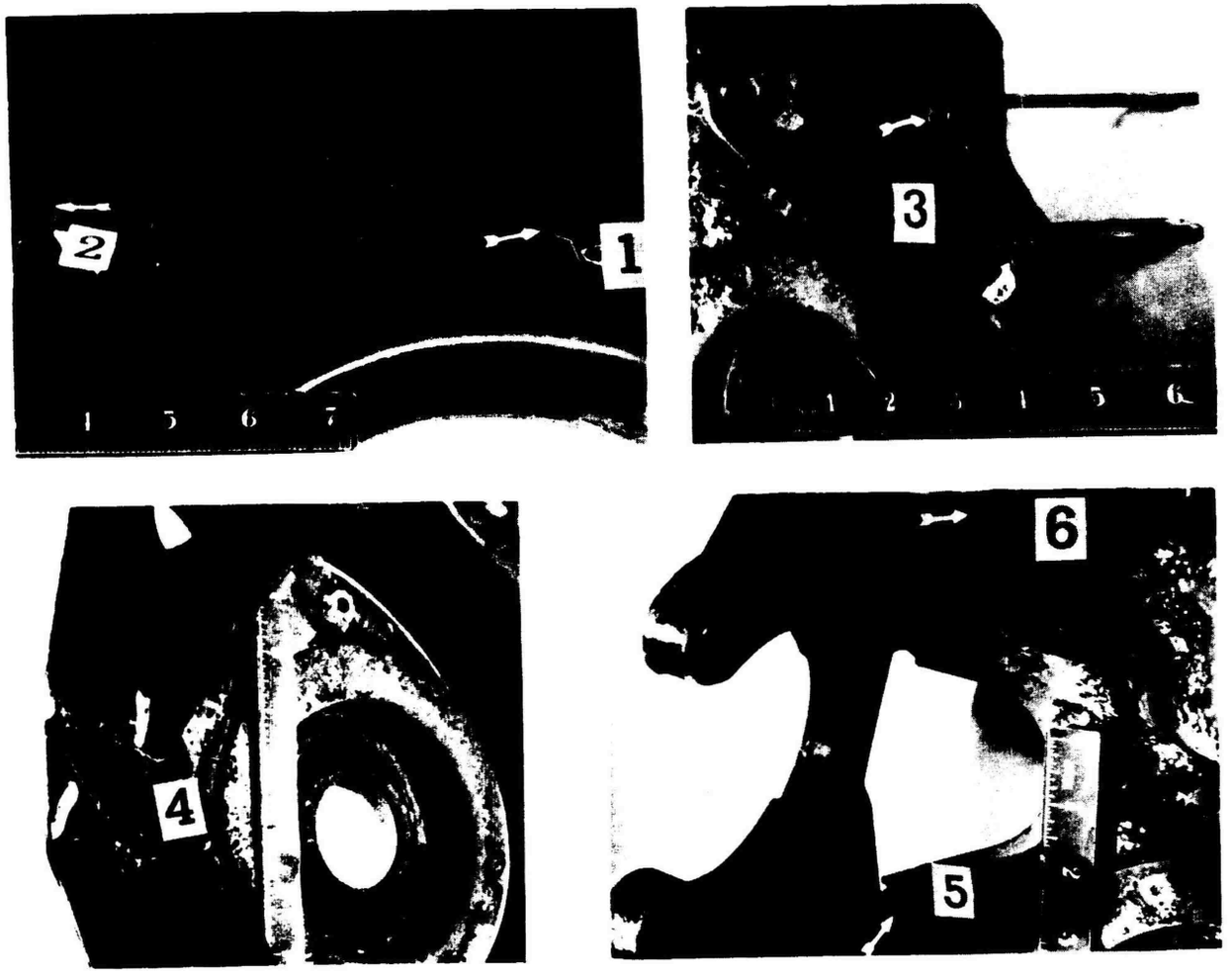


Figure III-39: Right Rear Suspension Arm (Top Detail View of Figure III-38).

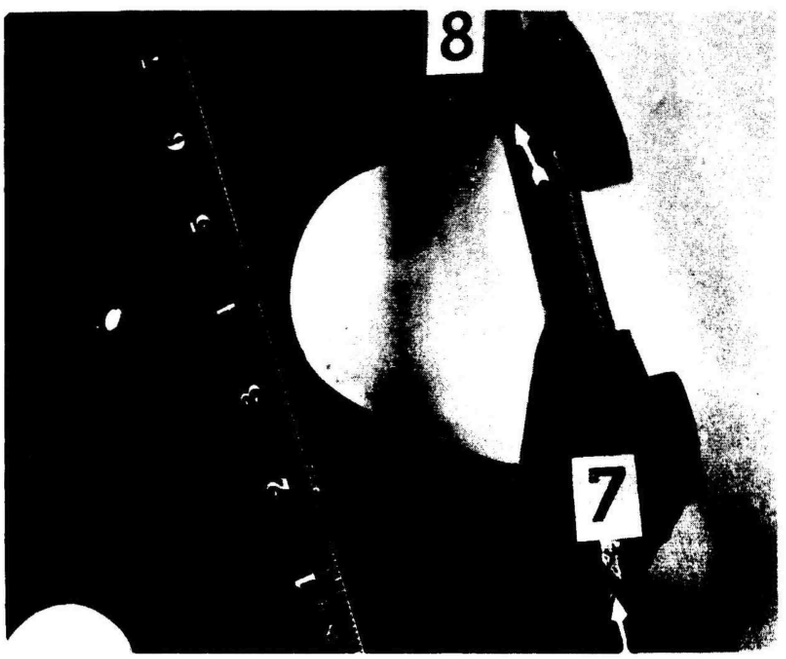


Figure III-40: Right Rear Suspension Arm Bottom Detail View of Figure III-38.

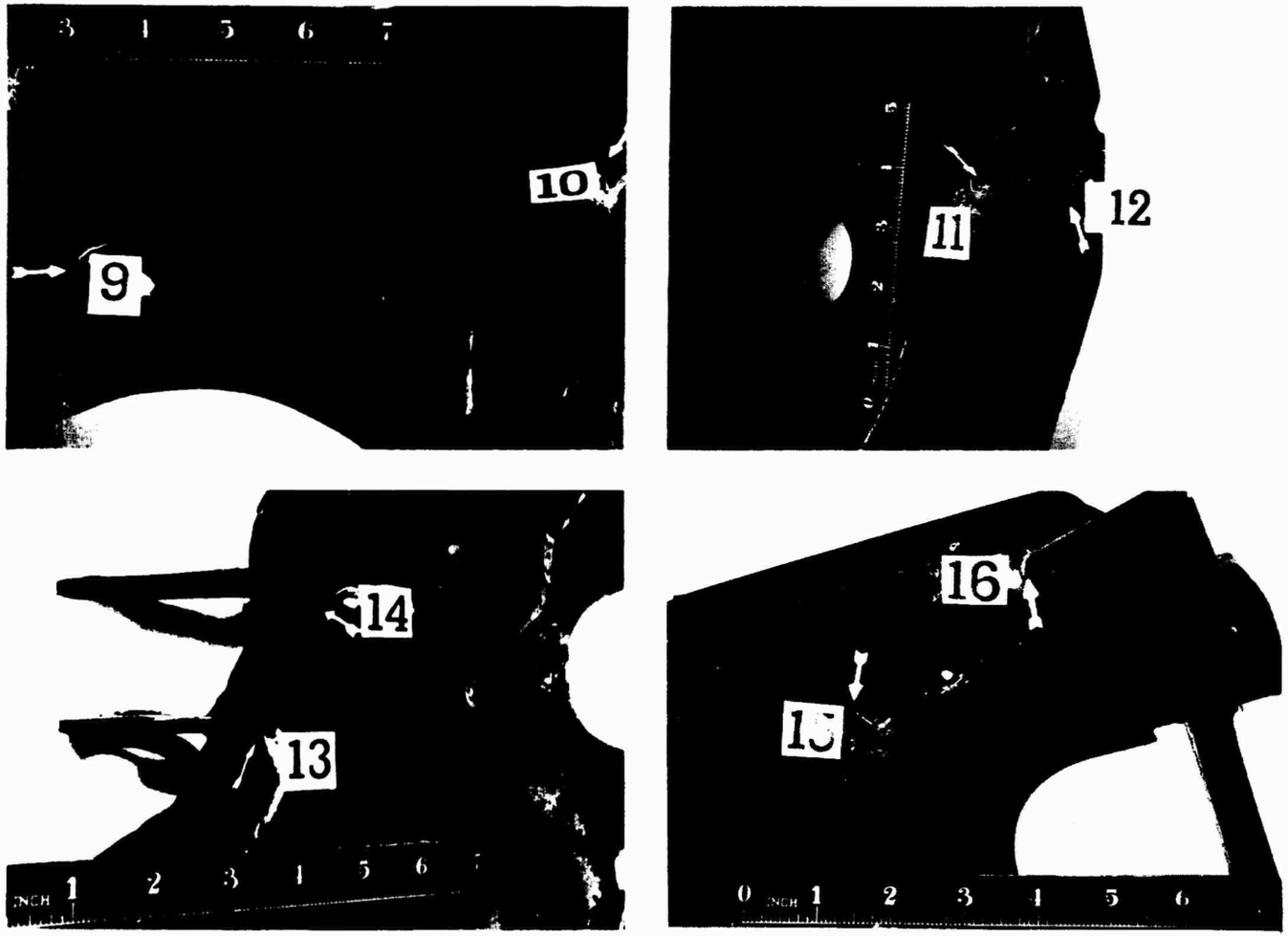


Figure III-41: Left Rear Suspension Arm. (Top Detail View of Figure III-38).

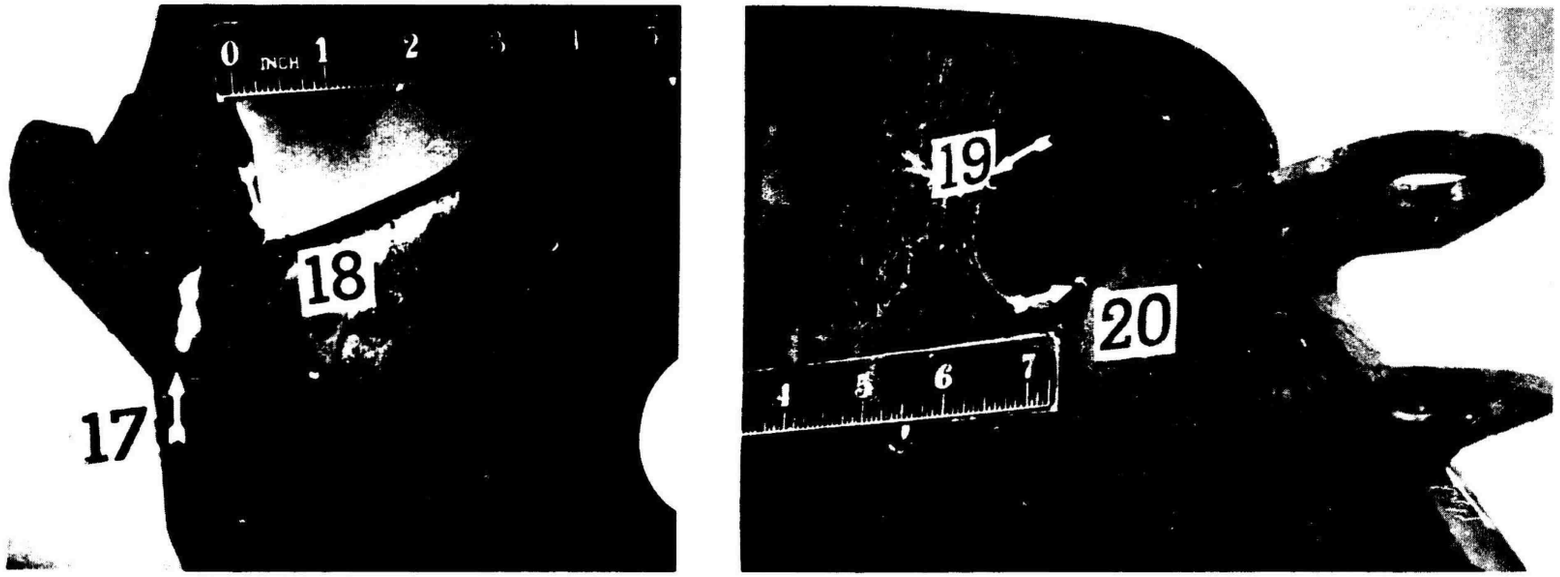


Figure III-42: Left Rear Suspension Arm. (Bottom Detail View of Figure III-38).

Figure III-43: Arrows Show Cracks, 1/2- and 1-3/4-Inch, In Right Rear Bump Stop On M151A1 after 25,276 Test Miles.

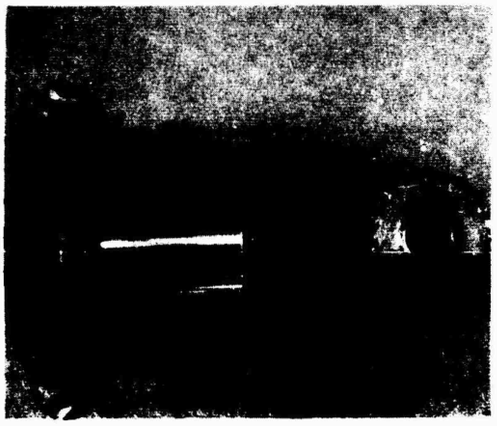


Figure III-44: Broken Rear Differential Left-Wheel Output Short-Side Gear Shaft On M718 after 163 Test Miles.

Figure III-45: Broken Left Rear Wheel Drive Shaft Inboard Universal Joint Cross On M718 after 1062 Test Miles.

Figure III-46: Arrow Denotes End-Loading Wear Found In All Four Races of Right Rear-Wheel Drive-Shaft Universal Joint On M718 after 7166 Test Miles.

Figure III-47: Arrow Denotes 1-Inch Crack In Left Rear Suspension-Arm Assembly In the Spring Seat On M718 after 8307 Test Miles.

Figure III-48: Arrow Shows 3/4-Inch Crack In Left Rear Suspension-Arm Assembly In Front of the Forward Wheel-Mounting Flange On M718 after 8307 Test Miles.

Figure III-49: Left Rear Bump Stop Failed On M718 after 17,671 Test Miles.

Figure III-50: Arrow Denotes Teeth Worn from Rear-Differential Pinion-Shaft Gear On M151A1C after 9625 Test Miles.

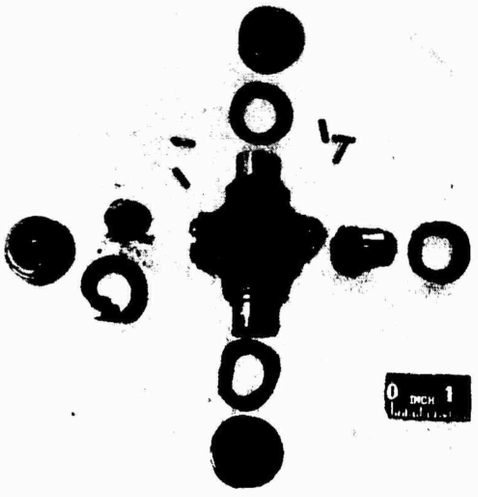


Figure III-51: Broken Left Rear-Wheel Drive-Shaft Outboard Universal-Joint Cross On M151A1C after 4189 Test Miles.

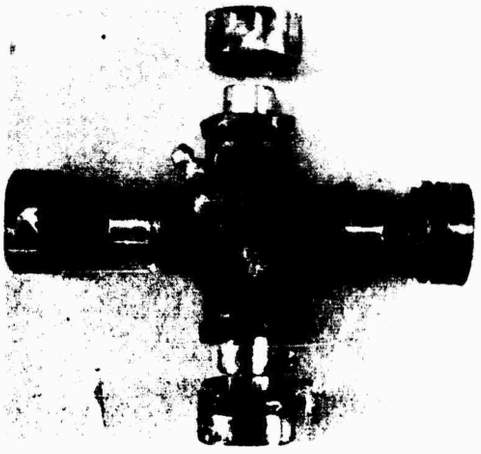


Figure III-52: Four Races of Right-Rear Wheel-Drive Shaft Inboard Universal Joint Failed On M151A1C after 3230 Test Miles.

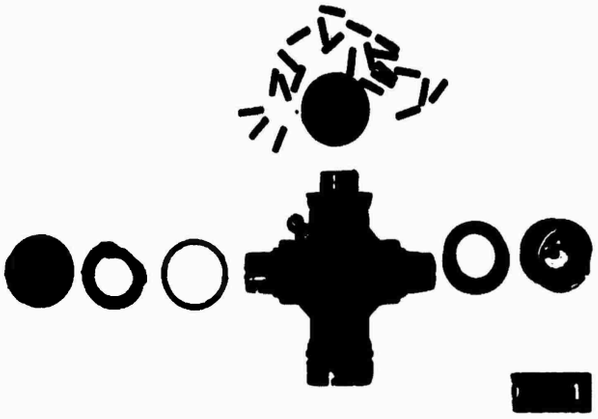


Figure III-53: Left Rear-Wheel Drive-Shaft Inboard Universal Joint (Experimental) Broken Races On M151A1C after 2147 Test Miles.

Figure III-54: Arrow Denotes 1-1/4-Inch Crack In Left Rear Suspension-Assembly Spring Seat On M151A1C after 5090 Test Miles.

Figure III-55: Arrow Denotes 1-1/2 Inch Crack in Right Rear Suspension-Arm Assembly M151A1C after 5090 Test Miles.

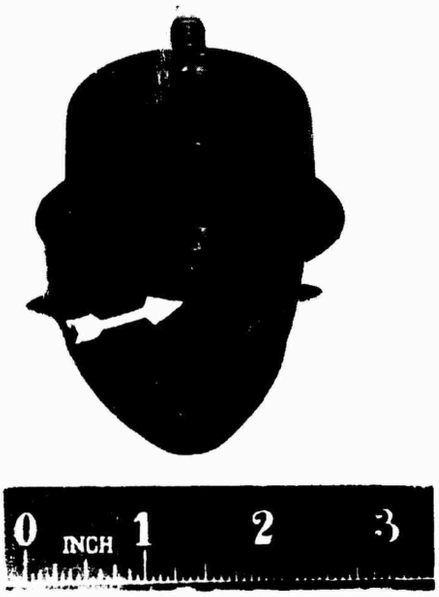


Figure III-56: Cracked Right Rear Bump Stop on M151A1C after 6872 Test Miles.

Figure III-57: Cracked Left Rear Bump Stop on M151A1C after 6872 Test Miles.

Figure III-58: Broken Left Rear Spring One Coil from Bottom on M151A1C after 5090 Test Miles.

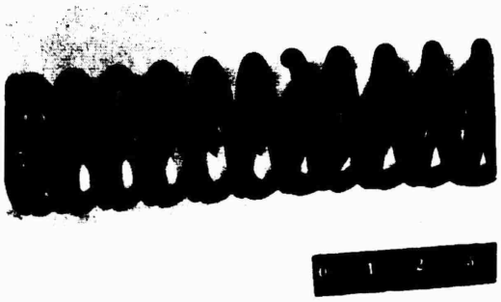


Figure III-59: Broken Left Rear Overload Spring on M151A1C after 6872 Test Miles.

Figure III-60: Right Rear Coil Spring Broke One Coil from the Top on M151A1C after 10,101 Test Miles.

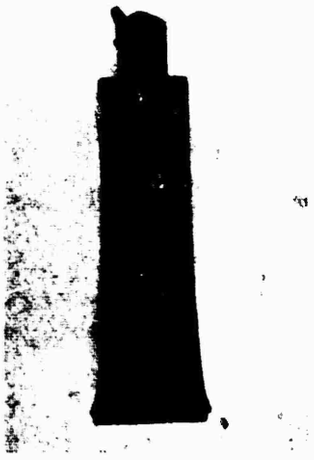


Figure III-61: Bent Anchor End of Left Front Secondary Brake Shoe on M151A1 after 11,701 Miles.

Figure III-62: Arrows Show Grooves in Brake Master-Cylinder Valves on M151A1 after 24,135 Test Miles, M718 after 44 and 22,000 Test Miles, and M151A1C after 5090 and 5011 Test Miles.

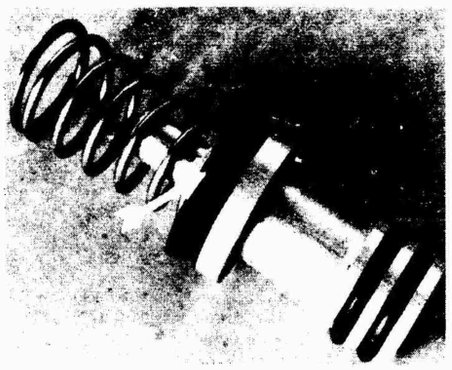


Figure III-63: Arrow Shows Groove in Brake Master-Cylinder Valve on M151A1C after 5090 Test Miles.

Figure III-64: Arrow Denotes 1/2-Inch Crack in Right Tie Rod-End Nylon Cover on M151A1 after 25, 276 Test Miles.

Figure III-65: Arrows Denote Cracked Rubber Cover on Pregreased (Lube-for-Life) Upper and Lower Arm Ball Joints of Right Front Suspension and Steering Assembly on M151A1C after 10,101 Test Miles.

Figure III-66: Arrow Denotes Crack in Front Crossmember on M718 after 22,000 Test Miles and on M151A1C after 10,101 Test Miles.

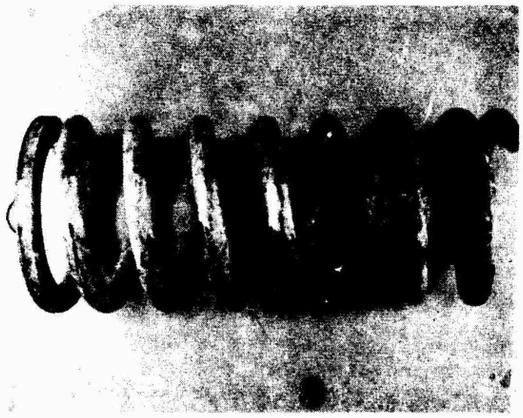


Figure III-67: Broken Right Front Spring Three Coils from Bottom On M151A1C after 2459 Test Miles.

Figure III-68: Arrows Denote Inner-Frame Rail Cracks In Front of the Rear Crossmember On M151A1 at Right Inner Rail (Top Arrow) after 20433 Test Miles and Left Inner Rail (Bottom Arrow) after 23,200 Test Miles and On M718 at Right Inner Rail (Top Arrow) Similar after 19,168 Test Miles.

Figure III-69: Circled Area Denotes Crack On Left Side of the Fire Wall to Cowl On M151A1 after 25,276 Test Miles.

Figure III-70: Frame Distress Near Rear Wheel Caused by Contact with Wheel Drive Shaft On M151A1 after 25,276 Test Miles and On M718 after 22,000 Test Miles.

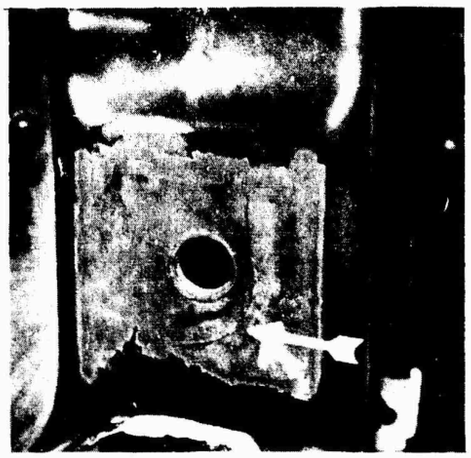


Figure III-71: Arrow Denotes 1-1/4-Inch Crack On Rear-Differential Right Rear Mounting Bracket On M151A1 after 25,276 Test Miles.

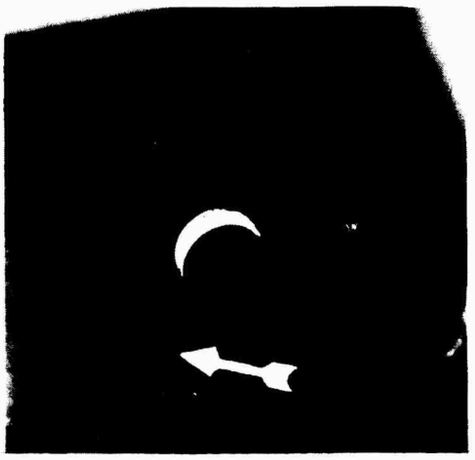


Figure III-72: Arrow Shows Inside View of Crack On Rear-Differential Right Rear Mounting Bracket On M151A1 after 25,276 Test Miles.

Figure III-73: Arrow Denotes Crack In Windshield Panel at Left Top Rod-Mounting Bracket Upper Screw On M718 after 19,168 Test Miles.

Figure III-74: Arrow Shows Cracked Spare-Tire Mounting-Bracket Flange On M718 after 12,430 Test Miles.

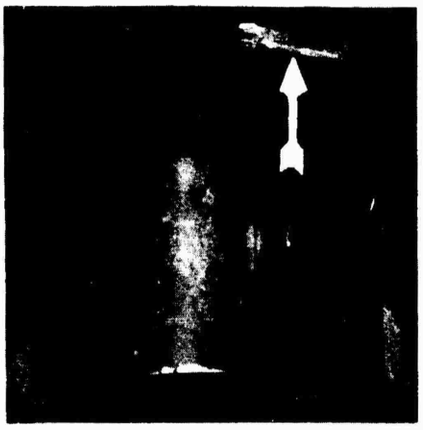


Figure III-75: Broken Left-Front Seat Rear-Latch Handle On M718 after 19,168 Test Miles.

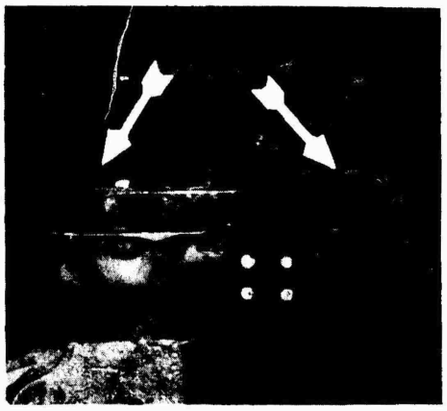


Figure III-76: Arrows Show 2-1/2-Inch Rips In Right Front Side Panel at the Fuel-Carrying Bracket Top Mounting Bolts On M718 after 4320 Test Miles. The M151A1C Left Side Panel Developed Similar Crack after 833 Test Miles.

Figure III-77: Arrow Denotes Cracks In Rear End Panel Right Side Near Right Rear Litter-Rail Support-Socket Mounting Bolt On M718 after 19,168 Test Miles.

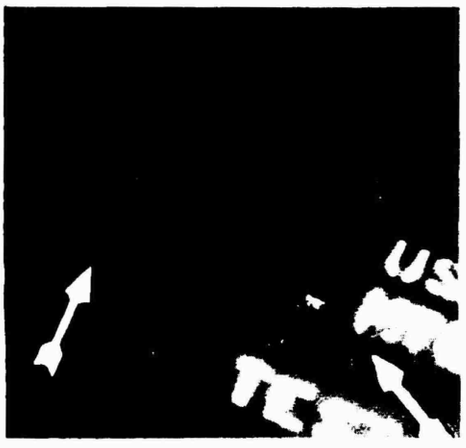


Figure III-78: Arrows Show Vehicle Right Side Panel Cracks at and Near Attachment to Middle Crossmember On M718 after 22,000 Test Miles.

Figure III-79: Top Weld of Rear Extension Left Mounting Bracket Failed On M718 after 22,000 Test Miles.

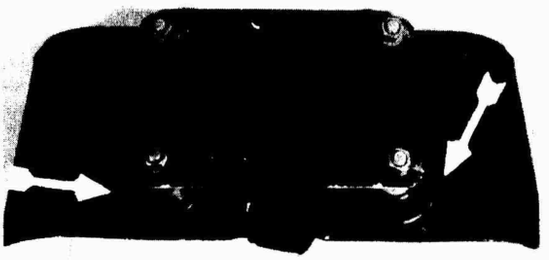


Figure III-80: Fuel-Carrying Bracket Cracked 2-1/2-Inches Outside Both Top Mounting Bolts On M718 after 22,000 Test Miles.

Figure III-81: Arrows Denote Broken Right Rear Litter-Support Socket Flanges On M718 after 12,430 Test Miles.

Figure III-82: Arrow Denotes Left Front Litter-Support Socket-Mounting Flange Crack Inboard from the Rear Mounting Bolt On M718 after 12,430 Test Miles.

Figure III-83: Arrow Shows 1-3/4-Inch Crack In Left Front Litter-Rail Support-Socket Mounting Flange On M718 after 6738 Test Miles.

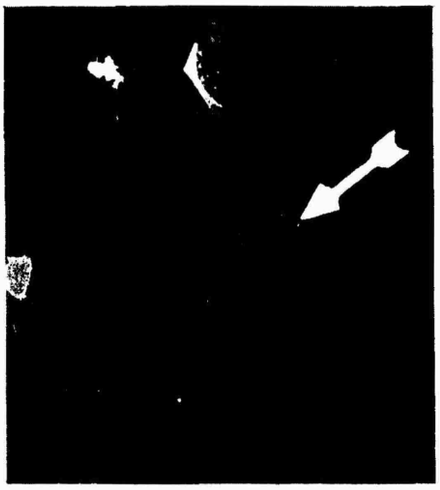


Figure III-84: Arrow Denotes Crack In Right Front Litter-Rail Support-Socket Mounting Flange On M718 after 19,168 Test Miles.

Figure III-85: Arrows Denote Right Front Litter Support-Socket Cracks On M718 after 22,000 Test Miles.

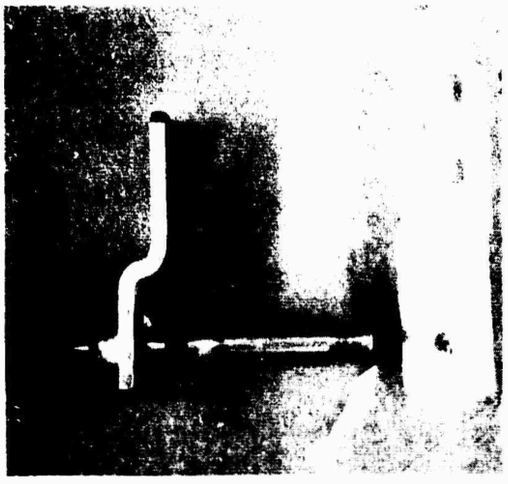


Figure III-86: Arrow Denotes Broken Drive Rod of Windshield-Wiper Electric Motor On M151A1C after 3182 Test Miles.

Figure III-87: Arrow Shows 3-Inch Crack in Top Flange of Right Rifle-Mount Leg-Securing Socket, on M151A1C after 5090 Test Miles. Similar Crack Found Left Mount after 10,101 Test Miles.

Figure III-88: Arrow Denotes Cracks in Base of Left Rear Wheel Well on M151A1C after 10,101 Test Miles.

Figure III-89: White Area Shows Left Rear (Right Rear Similar Pattern) Side Stick-On Reflector Material Worn Off Forward Lower Corner on M151A1 after 12,242 Test Miles. Deterioration of Rear Relector, M151A1C Found after 10,101 Test Miles.

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SUB GRP	VEH NO.	INCIDENT K2-1 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
01	908			ENGINE				
		13	B	Valve tappet clearance	--	590	1185	Valve tappet clearances exceeded limits by .002 to .003 inches.
		19	*	Engine ventilation system	--	590	1185	Experimental ventilation system removed and replaced by a current production system.
		60 (13-2)	B	Valve tappet clearances	--	11701	12296	Valve tappet clearances exceeded limits by .003 to .005 inches.
		100 (13-3)	B	Valve tappet clearances	--	8742	21038	Valve tappet clearance exceeded limits by .004 inches.
		102	B	Cylinder compression pressure	--	19853	21038	Engine compression pressure found to be decreasing.
		116 (13-4)	B	Valve tappet clearance	--	3692	24730	Valve tappet clearances exceed limits by .002 inch.
		117 (102-2)	B	Cylinder compression pressure	--	24135	24730	Engine compression pressure found to be decreasing.
		128 (13-5)	B	Valve tappet clearances	--	1140	25871	Valve tappet clearances exceeded limits by .001 inches.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SEQ GRP	VEH NO.	INCIDENT K-2 No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
01	908	129 (102-3)	B	Cylinder compression pressure	--	25,276	25871	Engine compression pressure found to be low in Cylinder No. 1
		136	B	Screw, cap, hexagon head	90725-57	25,276	25871	Exhaust manifold clamp bolts came loose.
		145	A	Valve	2805-678-1364	25,276	25871	No. 1 cylinder exhaust valve burnt.
		147	B	Seal, valve, intake	2805-678-1370	25,276	25871	All four intake valve seals cracked.
		153	B	Oil pump	2805-678-1387	25,276	25871	Engine oil pump housing was found worn excessively.
		157	B	Piston, ring gap	--	25,276	25871	Piston ring gap was found to be excessive.
		172	B	Engine	--	25,276	25871	Engine wear was found to exceed wear limits

STEAP-US Form 206, 29 Nov 65

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Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SRL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CMDN	REMARKS
02	908			CLUTCH				
		88	A	Clutch disk	10913204	15841	16436	Disk worn to rivets. Replaced.

IV-3

3 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPE OF INCIDENT

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SUB GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
03	908			FUEL SYSTEM				
		3	A	Cap, fuel tank: filler	96906-35645-1	--	855	Fuel was escaping through the cap vent.
		9	B	Air cleaner, dry element type		--	1185	Air cleaner dust trap and unloader valve cap for deep water fording not shipped with vehicle.
		14	B	Carburetor adjustment		590	1185	Idle speed was adjusted from 400 rpm to 500 rpm.
		21	*	Fuel filter	C5UE-9155-A4	590	1185	Fuel filter, 70 micron replaced by fuel filter, 120 micron.
		50	*	Air cleaner dry element type	839XG4311	8532	9127	Dust seeped past cover seal into fuel system.
		59	*	Carburetor	1093511	11701	12236	Main fuel inlet was inadverently cracked.
		80 (3-2)s	*	Cap, fuel tank: filler	MS-35645-1	0	14910	Different design fuel tank cap installed.
		105	B	Hose, air intake	839XG4311	20433	21038	Small hole found in air hose at carburetor end.
		114 (105-2)	B	Hose, air intake	839XG4959-1	--	23795	Air intake hose (air cleaner to carburetor) was too long.

IV-4

* STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SUBSTANDARD M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SAMPLE GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
03	908	120	B	Throttle assembly	8754130	24135	24730	The throttle handle was found missing.
		158 (105-3)s*		Hose, air intake	839XG4959 -1	25276	25871	Air intake hose (air cleaner to carburetor) was damaged beyond repair.

IV-S

5

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4x4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

SHL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
04	908			EXHAUST SYSTEM				
		58	*	Pipe assembly, rear, exhaust	839XG4829	11701	12296	Exhaust pipe was replaced.
		110	B	Coupling, half clamp grooved	8754572	21027	21622	Manifold to muffler exhaust pipe clamp found missing.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: $\frac{1}{4}$-Ton, 4x4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SNL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
06	908			ELECTRICAL SYSTEM				
		15	B	Ignition timing adjustment		590	1185	Engine ignition timing was adjusted from 40^{o}BTC to 6^{o}BTC.
		31	B	Lamp, incandescent: instrument panel	8743021	3198	3793	Left instrument panel light burnt out.
		35	B	Gage, fuel	24544-2	3529	4124	Gage indicated 3/4 tank gasoline when full.
		41	*	Alternator, 60 amp	10929868	5536	6131	Removed alternator for deep water fording by manufacturer.
		42 (41-2)	*	Alternator, 60 amp	10929868	5536	6949	Reinstalled alternator after fording by manufacturer.
		62	B	Spark plug gap	--	11111	12296	Spark plug gap exceed specifications.
		64	B	Lamp, incandescent, turn signal	35478-1683	11701	12295	Right rear turn signal light bulb burnt out.
		65	B	Lamp, incandescent, stoplight	11614157	11701	12296	Right rear taillight bulb burnt out.
		73 (41-3)	*	Alternator, 60 amp	10929868	11424	12837	Removed alternator for deep water fording by manufacturer.
		75 (41-5)	*	Alternator, 60 amp	10929868	11424	13721	Reinstalled alternator after deep water fording by manufacturer.

STEAP-DS Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

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SNL GRP	VEH NO.	INCIDENT K-2 No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
06	908	89	B	Lamp, incandescent, stoplight	11614157	16072	16667	Left rear taillight bulb burnt out.
		95	B	Transmitter: fuel level	8376496	14864	18249	A hole was found in fuel gage sending unit float.
		99	B	Ignition points	7059538	20443	21038	Ignition points pitted.
		101	B	Spark plugs	2920-287-9135	20443	21038	Four fouled spark plugs replaced.
		118	B	Switch, stoplight	7065488	24135	24730	Brake stoplight switch adjusted.
		132 (15-2)	B	Ignition timing adjustment	--	5428	25871	Engine ignition timing was found set at 10°BTC.
		137	B	Distributor, ignition system	8712398	25276	25871	Engine oil found in the distributor.
		146	C	Starter drive	839XG4569	25276	25871	Teeth of the starter drive and fly-wheel gears found damaged.
		167	B	Stoplight assy, rear	839XG4954	25276	25871	Left rear taillight and stoplight assembly cover was found melted by heat from exhaust tailpipe.
		171	B	Class A lights	839XG4954	25276	25871	Front and rear light assemblies were not double grounded.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

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SRL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
07	908			TRANSMISSION				
		8	B	Cap, transmission, top cover assembly	8754096	590	1185	Transmission transfer assembly lubricant leaked pass the gear shift retainer cap.
		37 (8-2)	B	Cap, transmission, top cover assembly	8754096	2939	4124	Transmission transfer assembly lubricant leaked pass the gear shift retainer cap.
		66	A	Nut, parking brake drum retaining	XG8392446	11741	12336	Parking brake drum retaining nut came loose.
		67	A	Pivot, transmission gear shift housing arm assembly.	10950733	11525	12120	The reverse shifting fork lever pivot bolt came loose.
		74	A	Transmission transfer assembly	839XG4232	12242	12837	Front and rear output shaft bearings damaged. Assembly contaminated with with metal particles.
		121 (66-2)	*	Nut, parking brake drum retaining	XG8392446	--	24730	Torque on the nut was increased from 90 to 100 ft-lbs.
		131	B	Boot: transmission shift lever	2540-887-1343	25276	25871	Transmission shift lever tunnel cover and housing boots ripped.
		133 (74-2)	B	Transmission transfer assembly	839XG4232	13034	25871	Teeth of reverse idler and transmission cluster gears were found damaged.

STEAP-US Form 206, 29 Nov 65

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EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

SHL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
08	908			TRANSFER ASSEMBLY				
		68	B	Seal, plain, encased: output shaft, front	10885037	12242	12837	The front output shaft seal of the transmission transfer assembly leaked lubricant.
		69	B	Seal, plain, encased: output shaft, rear	XG8394223	12242	12837	The rear output shaft seal of the transmission transfer assembly leaked lubricant.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: $\frac{1}{4}$-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

S - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SNL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
09	908			PROPELLER & PROPELLER SHAFTS				
		32	A	Shaft, propeller: w/U-joint assembly, front	7368808	3475	4086	Front propeller drive shaft broke at transmission transfer assembly end due to defective weld.
		39	A	Yoke and shaft assembly, front	7368808	10371	5123	Front propeller drive shaft broke at differential end.
		70	A	Shaft, propeller: w/U-joint assembly, front	7368808	7714	12837	Rollers in two races of the front propeller drive shaft cross broke at the transmission end.
		141 (70-2)	A	Shaft, propeller: w/U-joint assembly, front	7368808	13034	25871	Rollers in two races of the front propeller drive shaft cross were found loose at the transmission end.

STEAP-DS Form 206, 29 Nov 65

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C - SUGGESTED IMPROVEMENT * Information Only

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: $\frac{1}{4}$-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

SUB. GRP	VEH NO.	INCIDENT K-2 No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH CDOM	REMARKS
10	908			FRONT AXLE				
		6	B	Shim, front suspension	8754402	-	1127	**Left front suspension shims slipped.**
		10	B	Front suspension alignment	--	590	1185	Caster, camber and toe-in of front wheels not within specifications.
		11	B	Bolt	839XG4876 -1	590	1185	Torque on front mounting bolt for left front upper suspension arm had decreased.
		12	B	Bolt	8754892	590	1185	Torque on the forward two mounting bolts for the right front lower suspension arm had decreased.
		43	B	Bolt	8754892	6350	6949	Torque on the rear mounting bolt for the left front lower suspension arm had decreased.
		48	B	Bolt	8754892	8532	9127	Torque on the rear mounting bolt for the right front lower suspension arm had decreased.
		61 (10-2)	B	Front suspension alignment	--	11111	12296	Caster, camber and toe-in of front wheels were not within specifications.
		84	B	Bolt	839XG4876 -1	13315	14910	Torque on the rear mounting bolt for the left front upper suspension arm decreased.
		85 (48-2)	B	Bolt	8754892	5783	14910	Torque on rear mounting bolts for front lower suspension arm decreased.

12 STEAP-US Form 206, 2? Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SRL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
10	908	93	B	Bolt: 7/16 - 20	--	3339	18249	Three of eight front crossmember mounting bolts decreased torque.
		123 (93-2)	B	Bolt: 7/16 - 20	--	6481	24730	Two of eight front crossmember mounting bolts decreased torque.
		124 (10-3)	B	Front suspension alignment	--	13575	25871	Toe-in of front wheels was not within specifications.
		125	*	Bolt	839XG4876-1	24686	25871	Torque decreased on rear mounting bolt of the right front upper suspension arm.
		126 (48-3)	B	Bolt	8754892	10961	25871	Torque on the front lower suspension arm mounting bolts decreased.
		135 (93-3)	B	Bolt: 7/16 - 20	--	1141	25871	Four of eight front crossmember mounting bolts decreased torque.
		138	A	Cross	10950988	25276	25871	One race of the left front wheel drive shaft inboard universal joint cross failed.
		139	A	Cross	10950988	25276	25871	Bearings on one side of the right front wheel drive shaft inboard universal joint cross were found loose.
		144	*	Flange	8359973	25276	25871	All four front differential flanges found worn.

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: 1/4-Ton,4x4,M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB GRP	VEH NO.	INCIDENT K2-No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	908			REAR AXLE				
		16	*	Backing plate, rear braking, nut & bolt	839XG4833-1	590	1185	Rear brake backing plate components were modified.
		17	*	Rear suspension system to body modification	839XG4817-1	590	1185	Rear suspension hanger components were modified.
		18	B	Rear suspension alignment	-	590	1185	Rear wheel toe-in and camber were found undesirable.
		30	*	Rear suspension alignment	-	0	2618	Alignment measured after modification.
		34	A	Seal, plain, encased: pinion shaft	7996806	3529	4124	Rear differential pinion shaft seal front began to leak after 600 test miles and became progressively worse.
		36	*	Rear suspension alignment	-	1506	4124	Rear wheel toe-in and camber measured.
		38	A	Cross	10950988	4155	4750	Two races of the right rear wheel drive shaft inboard universal joint cross failed.
		44 (36-2)	*	Rear suspension alignment	-	2825	6949	Rear wheel toe-in and camber measured.
		45	A	Pinion & shaft assy	8754219	6930	7530	Five of the seven teeth on the rear differential pinion gear broke.
		46	A	Rollers, universal joint rear wheel drive shaft cross	5323568	6930	7532	Bearings of the left rear wheel drive shaft inboard universal joint cross were found broken.

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4x4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

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C - SUGGESTED IMPROVEMENT * Information Only

SUB GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CODE	REMARKS
11	908			REAR AXLE (Continued)				
		49 (36-3)	*	Rear suspension alignment	-	2178	9127	Rear wheel toe-in and camber measured.
		52 (38-2)	A	Cross	10950988	7531	12281	Three races of the right rear wheel drive shaft inboard universal joint cross failed.
		53	A	Cross	10950988	11686	12281	Two races of the left rear wheel drive shaft outboard universal joint failed.
		57	B	Seal, plain encased, wheel spindle, inner	7996804	11701	12296	Outer lip of inner wheel spindle seal worn out on all four wheels.
		63 (36-4)	*	Rear suspension alignment	-	3169	12296	Rear wheel toe-in and camber measured.
		77	A	Cross	10950988	13315	14910	Two races of the right rear wheel drive shaft outboard universal joint failed.
		86 (36-5)	*	Rear suspension alignment	-	2614	14910	Rear wheel toe-in and camber measured.
		91 (77-2)	A	Cross	10950988	3079	17989	Roller bearings on one side of right rear wheel drive shaft outboard universal joint cross failed.
		92 (36-6)	*	Rear suspension alignment	-	3339	18249	Rear wheel toe-in and camber measured.

15 STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

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EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

SUB. GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	908			REAR AXLE (Continued)				
		98 (77-3)	A	Cross	10950988	2144	20133	The right rear wheel drive shaft outboard universal joint cross failed.
		103 (36-7)	*	Rear suspension alignment	-	2789	21038	Rear wheel toe-in and camber measured.
		107	B	Bolt, pivot	839XG4803	19853	21038	Rear suspension inner and outer pivot bolts lost torque.
		111	B	Seal, plain, encased	7331280	14438	21968	Rear differential right rear wheel output shaft seal leaked lubricant.
		112 (46-2)	A	Cross	10950988	15015	22545	One race of the left rear wheel drive shaft inboard universal joint cross failed.
		115	B	Wheel spindle end play	-	12434	24730	Wheel spindle end play exceed allowable limits.
		119 (36-8)	*	Rear suspension alignment	-	3692	24730	Rear wheel toe-in and camber measured.
		130 (36-9)	*	Rear suspension alignment	-	1141	25871	Rear wheel toe-in and camber measured.
		140 (38-3)	A	Cross	10950988	13590	25871	Bearings on one side of the right rear wheel drive shaft inboard universal joint cross were found loose.

16 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: 1/4-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

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SRL GRP	VEH NO.	INCIDENT K-2 No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	908			REAR AXLE (Continued)				
		143	B	Nut, lock, pinion bearing	8754427	18341	25871	Pinion bearing lock nut found loose in rear differential. Components worn excessively.
		148 (57-2)	B	Yoke, universal joint, wheel spindle	7340695	13525	25871	Wheel spindle flanges were found worn on all four wheels.
		151 (57-2)	B	Bearing, roller, tapered	7536131	13575	25871	Left rear inner bearing found rusty.
		159 (143-2)	B	Case: ring gear carrier	8754056	18341	25871	Rear differential ring gear carrier (case) developed 3 cracks, 1/4, 1 and 1-1/4 inches in length, on the bearing end.

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

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EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

SUBJ GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
12	908			BRAKES				
		1	A	Warning light, brake	839XG468S	260	855	Brake warning light came on. No cause could be found.
		4 (1-2)	A	Warning light, brake	839XG468S	111	966	Brake warning light came on. No cause could be found.
		5 (1-3)	A	Warning light, brake	839XG468S	161	1127	Brake warning light came on. No cause could be found.
		7 (1-3)B	*	Warning light, brake	839XG468S	161	1185	Stronger shuttle valve springs installed in warning light valve.
		20	*	Clamp, hydraulic brake line, hold down, rear wheels	-	590	1185	Rear wheel brake line clamps replaced by wrap around clamps.
		24 (1-4)	A	Warning light, brake	839XG468S	11	1196	Brake warning light came on. No cause could be found.
		28 (1-5)	*	Warning light, brake	839XG468S	1420	2618	Shuttle valve with ramp installed.
		54	A	Brake shoe: w/lining assy	7025868	11701	12296	Left front secondary brake shoe anchor end bent 3/4 inch to inside.
		55	B	Brake shoe: w/lining assy	7025868	11701	12296	Right rear secondary brake shoe worn to replacement limits.
		56	B	Cylinder, hydraulic brake wheel	8676977	11701	12296	All four wheel brake cylinders were stuck.

18 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

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SUB GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
12	908			BRAKES (Continued)				
		96	B	Spring, helical	7025883	5953	18249	Rear brake shoe retainer and spring found missing from right front wheel brakes.
		122	A	Cylinder assy, hydraulic brake, master	839XG4903	24135	24730	Service brake pedal gave way with application of pressure.
		127	*	Brake band assy	8754237	25276	25871	Parking brake band lining found damaged by excessive heat.
		189 (56-2)	B	Cylinder, hydraulic, brake wheel	8676977	13575	25871	All four wheel brake cylinders were found contaminated with dirt.
		150 (54-2)	A	Brake shoe: w/lining assy.	7025868	13575	25871	Right front secondary brake shoe anchor end bent 3/32 inch to inside.
		152	B	Drum,brake	7025887	25276	25871	All four wheel brake drums found scored and worn excessively.

TYPES OF INCIDENTS

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EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4x4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

SNL GRP	VEH NO.	INCIDENT K-2 No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
13	908			WHEELS				
		33	B	Tire	2610-678-1363	3494	4089	Two rear tires, worn to replacement limit, replaced.
		40	B	Tire	2610-678-1363	5005	5600	Two front tires, worn to replacement limit, replaced.
		78	*	Arm assy. rear suspension system	899XG4675	13315	14910	Inspected arm assy for possible failure. No crack visible.
		87 (40-2)	B	Tire	2610-678-1363	9840	15440	Two front tires, worn to replacement limit, replaced.
		108 (78-2)	B	Arm assy, rear suspension system	899XG4675	20433	21038	Magnaflux test showed 8 cracks or flaws in rear suspension arms.
		134	B	Bumper, rubber, rear suspension	839XG4820	25276	25871	Right rear bump stop cracked.
		155	B	Arm assy: lower left	8754415	25276	25871	Two cracks found on bottom of left front wheel lower suspension arm.
		156	B	Arm assy: lower right	8754416	25276	25871	A two-inch crack developed on the bottom of the right front wheel lower suspension arm.
		170 (78-3)	B	Arm assy, rear suspension system	839XG4675	25276	25871	Magnaflux test showed 3 cracks increased in length and 8 additional cracks.

20 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

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SRL CRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
14	908	154	B	Cover, nylon, tie rod end	-	25276	25871	Right tie rod end nylon cover cracked on the top rear.

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

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SHL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
16	908			SPRINGS AND SHOCK ABSORBERS				
		76	B	Shock absorber, rear	839XG4747	13315	14910	Left rear shock absorber leaked fluid.
		94	B	Shock absorber, rear	839XG4747	17654	18249	Right rear shock absorber leaked fluid.
		97	B	Bolt, self locking	35764-432	17744	18339	Lower mounting bracket bolt of right front shock absorber broke.
		142 (97-2)	B	Bracket, bottom shock absorber	7331162	7532	25871	Both front shock absorber lower mounting brackets bent 1/8 inch.

 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

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SRL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
18	908			BODY, CAB AND HOOD				
		2	A	Pin, windshield hinge lock	-	260	855	Pins repeatedly came out of hinge.
		22	*	Windshield assy	-	590	1185	Windshield assy replaced.
		23	B	Pin, windshield hinge lock	-	0	1185	Left hinge lock pin for new windshield difficult to insert.
		25	B	Pin, windshield hinge lock	-	291	1476	Left pin came out of hinge.
		26	*	Bumperette, rear	-	1504	2099	Trailer fishtailed. Bent left rear bumperette and tailpipe.
		27	*	Mount, rear suspension hanger	-	2023	2618	Mounts modified by 5-inch reinforcement weld.
		29	*	Pin, windshield hinge lock	-	1433	2618	Pins replaced with current production type pins.
		51	B	Glass, windshield	LG 4908	7942	9127	Windshield cracked.
		79 (51-2)	*	Glass, windshield	LG 4908	7942	14910	Replaced cracked windshield.
		81	B	Knob, windshield wiper, electric	839XG4683	13315	14910	Windshield wiper switch knob lost.
		82	B	Motor, windshield wiper, electric	839XG4683	13315	14910	Loose electrical connection precluded slow speed operation.

 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: $\frac{1}{4}$-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

S - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SUB GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CHCN	REMARKS
18	908	83	B	Connector windshield wiper motor	839XG4683	13315	14910	Male power connector to motor failed.
		90 (51-3)	B	Glass, windshield	839XG4385	2429	17339	Windshield cracked.
		106	B	Frame rail, body	--	20433	21038	Right inner frame rail cracked in front of the crossmember near rear differential mounting bolt.
		109	B	Arm assembly, windshield wiper	839XG4677	20445	21040	Right windshield wiper arm assembly was lost during operation.
		113	B	Frame rail, body	--	23200	23795	Left inner frame rail cracked in front of the crossmember near rear differential mounting bolt.
		160 (106-2)	B	Frame, rail, body	--	25276	25871	Right inner frame rail cracked in front of the middle crossmember.
		161 (113-2)	B	Frame, rail, body	--	25276	25871	Left inner frame rail cracked in front of the middle crossmember.
		162	B	Crossmember, body	--	25276	25871	The middle crossmember cracked on both ends near the point of attachment to the vehicle side panels.
		163	B	Fender, body	--	25276	25871	The right and left fenders cracked at the brush guard mounting holes, second from the bottom.

DA STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SUBSTANDARD M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SEL GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CMDN	REMARKS
18	908			BODY, CAB AND HOOD (Continued)				
		164	B	Frame assy	-	25276	25871	Frame distress found near rear coil springs due to contact with wheel drive shaft universal joints.
		165	B	Frame assy	-	25276	25871	Left side of the firewall to cowl cracked 5/8 inch.
		166	B	Frame assy	-	25276	25871	Rear differential right rear mounting bracket cracked 1-1/4 inch.
		168 (102-2)s	*	Frame rail, body	-	25276	25871	Right inner frame rail crack reported by EPR K2-160(106-2) found in error.
		169 (113-2)s	*	Frame rail, body	-	25276	25871	Left inner frame rail crack reported by EPR (K2-161(113-2) found in error.

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: ¼-Ton, 4X4, M151A1

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

S - SUBSYSTEMS M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * Information Only

SUB. GRP	VEH NO.	INCIDENT K-2 No.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
				MISCELLANEOUS ACCESSORIES				
		None	*	Vehicle arrived			595	Vehicle arrived 14 Nov 68.
		None	*	Test initiated.			595	Test initiated 14 Nov 68.
		47	B	Sustained Road Speed, maximum		595	1190	Truck, Utility, M151A1, USA Reg. No. 02C90866 failed to meet the maximum sustained road speed of 60 mph by 1 mph.
		71	*	Summary		12242	12837	Summary of Deficiencies to date.
		72	B	Reflector, side stick-on	-	12242	12837	Reflector material came off forward lower corner of both reflectors.
		104	B	Data plate, driver instructions	EOFMD 5566	20433	21038	Driver instructions on instrument panel found with parts missing.
		173 (Pub)	C	MIL-T-45331D	-	-	-	Publication omits third echelon maintenance as direct support.

26 STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATACOM PROJECT NO: 1-7-4030-25

TYPE OF INCIDENT

A - [illegible] B - [illegible]

B - [illegible] H - [illegible]

C - [illegible] *Information Only

SUB GROUP	ITEM NO.	INCIDENT K2-NO.	INCIDENT TYPE	ITEM	PART NO.	PART RELEASE	VEH MILEAGE	REMARKS
01	024			ENGINE				
		1	B	Valve Tappet Clearance	--	1	539	Valve tappet clearances exceeded limits by .002 inch.
		17 (1-2)	B	Valve Tappet Clearance	--	0	2409	Valve tappet clearances exceeded limits by .002 inch.
		57	B	Gasket, Valve Rocker Arm Cover	8754182	9685	12283	Valve cover gasket leaked lubricant.
		82 (1-3)	B	Valve Tappet Clearance	--	12430	14839	Valve tappet clearances exceeded limits by .004 inch.
		63	B	Cylinder Compression Pressure	--	12430	14839	Engine compression pressure found to be decreasing.
		81 (63-2)	*	Cylinder Compression Pressure	--	15433	17842	Engine compression pressure measured.
		93 (63-3)	*	Cylinder Compression Pressure	--	19168	21577	Engine compression pressure measured.
		109 (1-4)	B	Valve Tappet Clearance	--	9570	24409	Valve tappet clearances were under specifications.
		111 (63-4)	*	Cylinder Compression Pressure	--	22000	24409	Engine compression pressure measured.

STRAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SUBSTANDARD M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB. GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CMDN	REMARKS
02	924			CLUTCH				
		123	B	Cross Shaft, Clutch	839XG4926	22000	24409	Clutch cross shaft stuck in outboard bracket.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB. GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
03	924			FUEL SYSTEM				
		2	B	Carburetor Adjustment	--	1	539	Idle speed was adjusted from 600 rpm to 500 rpm.
		116	B	Cap, Fuel Tank: Filler	MS-35645 -1	--	24409	Fuel escaped through the filler cap w/handles less than the one w/o handles.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUBJ GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH CSCM	REMARKS
06	924			ELECTRICAL				
		3	B	Ignition Timing Adjustment	--	1	539	Engine ignition timing was adjusted from 4° BTC to 6°BTC
		18 (3-2)	B	Ignition Timing Adjustment	--	0	2409	Engine ignition tmming was adjusted from 4° BTC to 6°BTC.
		21	B	Point Set	7059538	0	2409	Ignition point gap was adjusted from .014 inch to .020 inch.
		22	B	Lamp, Incandescent, Turn Signal	35478-1683	632	3041	Right front turn signal light bulb burnt out.
		24	B	Lamp, Incandescent, Directional Signal Control Handle	25231-313	1494	3903	Turn signal control handle indicator light bulb burnt out.
		29	B	Lamp, Incandescent, Brake Warning Light	1829	3677	6068	Brake warning light bulb burnt out.
		37	B	Light Switch Assembly	96906	5450	7859	The unlock switch of the light assembly was inoperative.
		38	*	Alternator, 60 Amp	10929868	5964	8373	Removed alternator for deep water fording.
		44 (38-2)	*	Alternator, 60 Amp	10929868	5964	10716	Reinstalled alternator after fording by manufacturer.
		54	B	Lamp, Incandescent, Panel	8743021	10359	12768	Right instrument panel lamp burnt out.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SUBSYSTEMIC M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB. GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART RELEASE	VEH ODOM	REMARKS
06	924	56	A	Screw, Coil, Mounting	424541	11747	14156	Coil rear mounting screw broke inside distributor base.
		57 (38-3)	*	Alternator, 60 Amp	10929868	10087	14839	Removed alternator for deep water fording by manufacturer.
		72 (38-4)	A	Alternator, 60 Amp	10929868	3856	16352	Cooling fan broke from shaft of spare alternator.
		73	A	Lead, Battery	8754752	14380	16789	The battery to battery connecting cable came loose and burnt hole in the battery cover.
		74 (38-5)	*	Alternator, 60 Amp	10929868	10087	16857	Reinstalled alternator after fording by manufacturer.
		105 (38-6)	A	Alternator, 60 Amp	10929868	17296	24065	Cooling fan broke from shaft of alternator.
		110 (3-2)	B	Ignition Timing Adjustment	--	14374	24409	Engine ignition timing was found at 4° BTC.
		133	B	Class "A" Lights	839XG4954	22000	24409	Front and rear light assemblies were not double grounded.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - MISHANDLING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB. GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
07	924			TRANSMISSION				
		46	A	Transmission Transfer Assembly	839XG4232	9130	11539	Third speed and countershaft cluster gear teeth broke.
		58	*	Retainer, Snap Ring	839XG4911		14839	Installed snap ring retainer on transmission output shaft for updating to PI type.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPE OF INCIDENT

A - DEFICIENCY B - DESIGN

B - SUBSYSTEMIC M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CMDN	REMARKS
09	924			PROPELLER AND PROPELLER SHAFTS				
		121	B	Shaft, Propeller: w/Universal Joint Assembly	7368808	22000	24409	The rollers of one race of the front propeller shaft universal joint were found worn and the seal was missing on the transmission end. One cross seal on the differential end was found cracked.

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

D - [illegible] M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

SUB GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CMDN	REMARKS
10	924			FRONT SUSPENSION AND DRIVE				
		4	B	Front Suspension Alignment	--	1	539	Caster, camber and toe-in were incorrect.
		19 (4-2)	B	Front Suspension Alignment	--	0	2409	Camber was incorrect.
		27 (4-3)	*	Front Suspension Alignment	--	3677	6086	Caster, camber and toe-in were measured and adjusted.
		28	*	Bolt	839XG4876 -1	3677	6086	Torque of rear mounting bolt for right front upper suspension arm adjusted.
		31	B	Bolt: 7/16 - 20	--	3677	6086	Five of eight front crossmember mounting bolts decreased torque.
		49	B	Bolt	8754892	9685	12288	Rear mounting bolt right front lower suspension arm decreased torque.
		59 (4-4)	B	Front Suspension Alignment	--	8753	14839	Toe-in was incorrect.
		60 (49-2)	B	Bolt	8754892	2556	14839	Rear mounting bolt for right front lower suspension arm decreased torque.
		75	B	Seal, Plain Encased, Wheel Spindle, Inner	7996804	14448	16857	Worn inner seal caused failure of left front wheel spindle assembly.
		79 (4-5)	B	Front Suspension Alignment	--	3003	17842	Caster, camber and toe-in were measured and adjusted.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - MAINTENANCE M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

INCIDENT								
SUBJ GRP	VEH NO.	K2- NO.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH MSN	REMARKS
10	924	92 (49-3)	B	Bolt	8754892	6738	21577	Rear mounting bolt for both front lower suspension arms decreased torque.
		106 (4-6)	B	Front Suspension Alignment	--	6567	24409	Caster and toe-in were not within specifications.
		107 (49-4)	B	Bolt	8754892	2832	24409	Rear mounting bolt for right front lower suspension arm decreased torque.
		118	B	Cross	10950988	22000	24409	One seal of right front wheel drive shaft inboard universal joint cross was found cracked.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATACOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - MAINTENANCE M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB. GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH HRCM	REMARKS
11	924			REAR AXLE				
		6	*	Rear Suspension Alignment	--	0	547	Alignment measured after modification.
		11	A	Gear, Side: Short, Differential	8754294	163	701	Rear differential, left wheel, output spider gear broke at the splines.
		20 (6-2)	*	Rear Suspension Alignment	--	0	2409	Alignment measured.
		23	A	Cross	10950988	1062	3471	Left rear wheel drive shaft inboard universal joint cross failed.
		25 (23-2)	A	Cross	10950988	1985	5456	Left rear wheel drive shaft inboard universal joint cross failed.
		30 (6-3)	*	Rear Suspension Alignment	--	3677	6086	Alignment measured.
		32	B	Bolt, Pivot	839XG4803	3677	6086	Rear suspension pivot bolts decreased torque.
		35	A	Cross	10950988	4511	6920	One race of right rear wheel drive shaft inboard universal joint cross broke.
		36 (23-3)	A	Cross	10950988	2034	7490	Two races of the left rear wheel drive shaft inboard universal joint cross broke.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPE OF INCIDENT

A - DEFICIENCY B - DESIGN

B - SUBSYSTEMIC M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH GROM	REMARKS
11	924	41 (6-4)	*	Rear Suspension Alignment	--	3949	10035	Alignment measured.
		47	B	Bearing, Roller, Tapered	7536131	9371	11780	Inner and outer bearing of left rear wheel failed.
		48	B	Bearing, Roller, Tapered	7536131	9685	12094	Inner and outer bearing of right rear wheel failed.
		50 (6-5)	*	Rear Suspension Alignment	--	2248	12283	Rear wheel toe-in and camber measured.
		51 (23-4)	A	Cross	10950988	4793	12283	Bearings of left rear wheel drive shaft inboard universal joint cross found loose.
		61	B	Wheel Spindle End Play	--	12430	14839	Left front wheel spindle end play was found to be .009 inch.
		64 (6-6)	*	Rear Suspension Alignment	--	2556	14839	Rear wheel toe-in and camber measured.
		66 (32-2)	B	Bolt, Pivot	839XG4803	8753	14839	Rear suspension pivot bolt torque decreased.
		78 (36-2)	A	Cross	11598996	10373	17293	One race of right rear wheel drive shaft inboard universal joint cross found broken.

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

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C - SUGGESTED IMPROVEMENT *Information Only

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATACOM PROJECT NO: 1-7-4030-25

SUB GROUP	WORK UNIT NO.	INCIDENT K2- NO.	INCIDENT TYPE	ITEM	PART NO.	PART RELEASE	VEH SERIAL NO.	REMARKS
11	924	77	B	Cross	11598996	14884	12293	One side of left rear wheel drive shaft outboard universal joint cross found worn.
		82 (6-7)	*	Rear Suspension Alignment	--	3003	17842	Rear wheel toe-in and camber measured.
		86	B	Nut, Self Locking	503357	512	18354	Front mounting bolt for rear differential loosen 1/8 inch.
		87 (23-4)	A	Cross	11598996	12522	20012	Two races of left rear wheel drive shaft inboard universal joint cross found broken.
		88 (48-2)	A	Seal, Plain Encased, Wheel Spindle, Inner	7996804	7918	20012	Right rear wheel inner seal allowed dirt to enter the spindle assembly causing damage to components.
		94 (6-8)	*	Rear Suspension Alignment	--	3735	21577	Rear wheel toe-in and camber measured.
		96	B	Seal, Plain Encased	7331280	19168	21577	Rear differential right output flange seal leaked lubricant.
		108 (61-2)	B	Wheel Spindle End Play	--	12629	24409	Left rear wheel spindle end play was found to be .014 inch.
		112 (6-9)	*	Rear Suspension Alignment		22000	24409	Rear wheel toe-in and camber measured.
		113 (86-2)	B	Nut, Self Locking	503357	6055	24409	Torque of the rear differential right rear mounting bolt decreased.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY   D - DESIGN

B - SHORTCOMING   M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SYS. GRP	VEH NO.	INCIDENT: K2- NO.	INCIDENT: TYPE	INCIDENT: ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	924	119	B	Yoke, Universal Joint, Wheel Spindle	7340695	22000	24409	The right front and the left rear wheel spindle flange were found worn excessively.
		129	B	Nut, Lock, Pinion Bearing	8754427	22000	24409	The pinion bearing lock nut in both differentials was found loose.
11	924	132 (35-2)	A	Cross	11598996	7166	24409	Several roller in one race of right rear wheel drive shaft inboard universal joint cross found broken. Wear due to end loading found in all four races.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

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SUB GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH CMDH	REMARKS
12	924			BRAKES				
		7	*	Warning Light, Brake	839XG4685	9	547	Brake warning light valve replaced with redesigned valve.
		9	A	Cylinder Assembly: Hydraulic Brake, Master	839XG4903	44	582	Brake master cylinder failed.
		10 (9-2)	A	Cylinder Assembly: Hydraulic Brake, Master	839XG4903	--	--	Excessive maintenance time (4 hours) required to replace brake master cylinder.
		89	B	Brake Shoe: W/Lining Assembly	7025868	17603	20012	Left front secondary brake shoe worn to replacement limits.
		114 (9-3)	A	Cylinder Assembly: Hydraulic Brake, Master	839XG4903	22000	24409	Service brake pedal gave way with application of pressure.
		117	B	Cylinder, Hydraulic Brake Wheel	8676977	22000	24409	All four wheel brake cylinders were found contaminated with dirt.
		124	B	Drum, Brake	7025887	22000	24409	Both rear wheel brake drums found worn excessively.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

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SUB GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
13	924			WHEELS				
		39	B	Arm Assembly: Rear Suspension, Right	839XG4675-2	9189	10035	A 3/8 inch crack was found on the right rear suspension arm assembly in the spring seat.
		40 (39-2)	B	Arm Assembly: Rear Suspension, Left	839XG4675-1	9189	10035	Two cracks found on left rear suspension arm assembly. One was one inch long in the spring seat. The other was 3/4 inch long forward of the front wheel mounting flange.
		45	B	Tire	35388-93	8308	10717	Three tires worn to replacement limits.
		55	B	Shim, Front Suspension	8754402	10596	13005	Rear shims lost from right front lower suspension arm assembly.
		76 (55-2)	B	Shim, Front Suspension	8754402	4053	17058	Rear shims of right front lower suspension arm assembly found slipped.
		80 (55-3)	B	Shim, Front Suspension	8754402	784	17842	Rear shims lost from right front lower suspension arm assembly.
		90	B	Bumper, Rubber, Rear Suspension	839XG4820-2	17671	20080	Left rear bump stop failed.
		91 (55-4)	B	Shims, Front Suspension	8754402	--	21577	Rear shim of right front lower suspension arm assembly repeatedly slipped.
		103 (45-2)	B	Tire	35388-93	12975	23692	Two rear tires worn to replacement limits.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH OMOM	REMARKS
13	924	115 (39-3)	B	Arm Assembly, Rear Suspension System	839XG4675	23563	24409	Magnaflux test showed 2 cracks increased in length and 10 additional cracks.

IV-43

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SEL GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH CSDM	REMARKS
14	924			STEERING				
		13	A	Steering Column, Collapsible	839XG4158	1563	2101	The collapsible steering column failed to collapse during an accident.
15	924			FRAME				
		130	B	Frame assy	-	22000	24409	Frame distress found near left rear coil spring caused by outboard universal joint contact in bottoming-out.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH OMDM	REMARKS
16	924			SPRINGS AND SHOCK ABSORBERS				
		53	B	Shock Absorber, Front	8359994	9874	12283	Right front shock absorber failed.
		71	B	Shock Absorber, Rear	839XG4747	12709	15113	Both rear shock absorbers leaked fluid.
		83	B	Bolt	10885150	15433	17842	Left rear shock absorber lower mounting bolt torque decreased.
		85 (53-2)	B	Shock Absorber, Front	8359994	7968	17842	Right front shock absorber found with no resistance to rebound.
		95 (83-2)	B	Bolt	10885150	19168	21577	Left rear shock absorber lower mounting bolt found worn.
		120	B	Bracket, Bottom Shock Absorber	7331162	22000	24409	Left front shock absorber lower mounting bracket middle hole insert found worn.
		122	B	Cross Member, Front	E49566	22000	24409	Front cross member cracked 3/8 inch on left side outboard from brake hose bracket.
		131	*	Cross Member, Front	E49566	22000	24409	Front cross member on rebuilt M718 found to be standard production item.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SEC GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH GROM	REMARKS
18	924			BODY				
		5	*	Mount, Rear Suspension Hanger	--	9	547	Mounts modified by 5-inch reinforcement weld.
		8	B	Pin Assembly: Litter Rail Bracket	19207	9	547	Three pin assemblies not provided with vehicle.
		33	B	Body	--	3677	6086	Top flange right and left side panel cracked forward of wheel well.
		43	B	Side Panel, Right Front, Body	--	4320	10406	Both top mounting bolts fuel carring bracket ripped 2-1/2 inch holes in side panel.
		67 (33-2)	B	Body	--	8753	14839	Top flange right and left side panels cracked forward of wheel wells.
		68	B	Bracket, Mounting, Spare Tire	839XG4776	12430	14839	Spare tire mounting bracket cracked.
		69	B	Support, Litter Rail Socket	10950920	12430	14839	Right rear litter support socket inboard flange broke.
		70	B	Support, Litter Rail Socket	1059848	12430	14839	Left front litter support socket mounting flange cracked.
		84 (26)s	*	Glass, Windshield	839XG4385 -3	3347	17842	Replaced broken windshield reported by EPR K2-26.
		97 (70-2)	B	Support, Litter Rail Socket	11598848	6738	21577	Left front litter support socket mounting flange cracked.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATACOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

SUB. GRP	VEH NO.	INCIDENT K2- NO.	TYPE	ITEM	PART NO.	PART RELEASE	VEH CODE	REMARKS
18	924	98	B	Support, Litter Rail Socket	11598836	19168	21597	Right front litter support socket mounting flange cracked.
		99	B	Frame Rail, Body	--	19168	21577	Right inner frame rail cracked near rear crossmember.
		100	B	Body	--	19168	21577	Top flange of vehicle right rear end panel cracked near right rear litter support socket mounting bolt.
		101	B	Windshield Assembly	839XG4388	19168	21577	Windshield panel cracked at canvas top rod bracket upper mounting screw.
		102	B	Latch, Front Seat, Rear	839XG4797	19168	21577	Right front seat rear latch handle found broken.
		104	B	Pin Assembly: Litter Rail	11598847	21283	23692	Four litter rail securing pin cables found broken and pins lost.
		125 (98-2)	B	Support, Litter Rail Socket	11598836	22000	24409	Right front litter support socket vertical flange cracked 1/2 inch.
		126	B	Rear Extension	839XG4774	22000	24409	Rear extension left mounting bracket top weld cracked 3/8 inch.
		127	B	Bracket, Fuel Carring	--	22000	24409	Fuel carring bracket cracked 2-1/2 inches outside both top mounting bolts.
		128 (43-2)	B	Side Panel, Right	--	22000	24409	Two cracks developed in right side panel near point of attachment to middle crossmember.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

USATACOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

D - DETERIORATE M - MANUFACTURE

C - SUGGESTED IMPROVEMENT *Information Only

SHL GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
22	924			ACCESSORY ITEMS				
		34	B	Zipper, Rear Curtain	11598850	4492	6901	Left rear canvas curtain zipper broke.
		42	B	Cap, Reservoir, Windshield Wiper	11644865	7626	10035	Filler cap for windshield washer reservoir would not stay on.
		65 (42-2)s	*	Cap, Reservoir, Windshield Wiper	11644865	7626	14839	Filler cap for windshield washer reservoir provided by manufacturer would not stay inserted.

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *Information Only

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Ambulance: 1/4 Ton, 4X4, M718

TRADOC PROJECT NO: 1-7-4030-25

SNL GRP	M718 VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART RELEASE	VEH ODOM	REMARKS
	924			MISCELLANEOUS ACCESSORIES				
		None	*	Vehicle Arrived	--		538	Vehicle arrived 12 Dec 68.
		None	*	Test Initiated	--		538	Test initiated 13 Dec 68
		12	*	Truck, Ambulance: M718	--	1563	2101	Endurance test of M718 Ambulance USA Reg. No. 02C92468, was terminated 12 Jan 69 due to an accident.
		14	B	Sustained Road Speed, Maximum	--	70	608	Truck, Ambulance, M718, USA Reg. No. 02C92468 failed to meet the maximum sustained road speed of 60 mph by 1 mph.
		15	*	Summary	--	1563	2101	Summary of deficiencies to date.
		16	*	Test Resumed	--	0	2409	Testing resumed on receipt of rebuilt M718, 13 Feb 69.
		26	*	Truck, Ambulance: M718	--	3347	5856	Vehicle damaged by accident.

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

S - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton,
PROJECT: 4X4, M151A1C

USATECOM PROJECT NO: 1-7-4030-25

SNL GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
01	930			ENGINE				
		3	B	Valve tappet clearance.	-	0	149	Valve tappet clearances exceeded limits by 0.002 inch.
		43 (3-2)	B	Valve tappet clearance.	-	5090	5714	Valve tappet clearances exceeded limits by 0.003 to 0.004 inch.
		45	B	Cylinder compression pressure.	-	5090	5715	Difference between cylinder No. 2 and 4 compression pressure varied by 10 psi.
		53 (3-3)	B	Valve tappet clearance.	-	5090	5835	Valve tappet clearances required adjustment.
		54 (45-2)	B	Cylinder compression pressure.	-	5090	5835	Engine compression pressure was found decreasing.
		84 (3-4)	B	Valve tappet clearance.	-	5011	10846	Valve tappet clearances exceed limits by 0.004 inch.
		85 (45-3)	*	Cylinder compression pressure.	-	10101	10846	Engine compression pressure measured.
		101	B	Screw, cap, hexagon head.	90725-57	10101	10846	All exhaust manifold clamp bolts found loose.
02				CLUTCH				
		16	A	Clutch, disk.	10913204	2590	3214	Clutch disk facing on transmission side failed.

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - MISUNDERSTANDING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT * INFORMATION ONLY

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton,
PROJECT: 4X4, M151A1C

USATECOM PROJECT NO: 1-7-4030-25

SUB GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
	930	91	B	Clutch cross shaft.	839XG4926	10101	10846	Clutch cross shaft stuck in outboard bracket.
		96 (16-2)	B	Bearing, clutch release.	10900422	7632	10846	Clutch throw-out bearing found dry.
03				FUEL SYSTEM				
		4	B	Carburetor adjustment.	-	0	149	Idle speed was adjusted from 400 rpm to 500 rpm.
		11	*	Rod assembly: accelerator.	8754148	805	1429	Accelerator linkage rod was found bent. Precluding idle speed and full throttle adjustments.
		22	B	Throttle assembly.	8754130	3363	4187	The throttle cable broke.
		40 (22-2)	B	Throttle assembly.	8754130	1527	5714	The throttle cable broke.
		60	B	Pump assembly: fuel tank.	839XG4611	6179	6924	Fuel outlet connector broke from mounting cover and leaked fuel.
06				ELECTRICAL SYSTEM				
		5	B	Ignition timing adjustment.	-	0	149	Engine ignition timing was adjusted from 4° BTC to 6° BTC.
		6	B	Light switch assembly.	96906	0	149	The unlock switch of light switch assembly was found inoperative.

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

S - SUBSYSTEMIC M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4, M151A1C

PROJECT:

USATECOM PROJECT NO: 1-7-4030-25

SNL GRP	VEH NO.	INCIDENT K2-NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
	930	9	A	Alternator, 60 amp.	10929868	0	168	The alternator failed to meet conducted radio frequency interference requirements.
		18	B	Lamp, incandescent, turn signal.	35478-1683	2590	3214	Left front turn signal light bulb burnt out.
		37	*	Switch assembly, horn.	10921898	5090	5714	Cable broke during removal.
		44	B	Spark plug gap.	-	5090	5714	Spark plug gaps exceeded specifications.
06		73 (37-2)	B	Switch assembly: horn.	10921898	3045	8880	Horn blew each time vehicle hit a bump in the road.
		88	B	Class A lights.	839XG4954	-	10846	Front and rear light assembilies were not double grounded.
		90	B	Class A lights.	839XG4954	10101	10846	Right front turn signal assembly cover cracked at the top.
07				TRANSMISSION ASSEMBLY				
		80	A	Transmission transfer assembly.	839XG4232	9625	10370	Transmission output shaft snap ring and snap ring retainer failed.
09				PROPELLER AND PROPELLER SHAFTS				
		76	A	Shaft, propeller: with universal joint assembly, front.	7368808	8247	9747	Front propeller drive shaft broke in the middle.

IV-51

STEAP-US Form 206, 29 Nov 65

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PROJECT: PI of Truck, Utility: 1/4-Ton, 4X4, M151A1C

USATECOM PROJECT NO: 1-7-4030-25

SNL GRP	VEH NO.	INCIDENT K2-No.	TYPE	ITEM	PART NO.	PART MILEAGE	VEH RDOM	REMARKS
10	930			FRONT AXLE				
		1	B	Front suspension alignment.	-	0	149	Caster, camber and toe-in of front wheels not within specifications.
		2	B	Bolt.	8754892	0	149	Front mounting bolt for the right front lower mounting bolt was improperly torqued.
		41 (1-2)	B	Front suspension alignment.	-	5090	5714	Front wheel caster not within specifications.
		42	B	Bolt.	8754892	2500	5714	Rear mounting bolt for the right front upper suspension arm lost torque.
		47	B	Bolt: 7/16-20	-	5090	5714	Torque decreased on four front cross-member mounting bolts.
		52 (1-3)	B	Front suspension alignment.	-	5090	5835	Camber and toe-in of front wheels were not within specifications.
		71 (2-2)	B	Bolt.	-	3045	8880	Second mounting bolt for left front lower suspension arm decreased torque.
		82 (1-4)	B	Front suspension alignment.	-	5011	10846	Caster, camber and toe-in of front wheels were not within specifications.
		83 (2-3)	B	Bolt.	9754892	5011	10846	Rear mounting bolt for left and right front lower suspension arms decreased torque.

STEAP-DS Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton,
PROJECT: 4X4, M151A1C
USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT and Information Only

SNL GRP	VEH NO.	INCIDENT K2-	TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
	930							
		97	B	Nut, lock, pinion bearing.	8754427	10101	10846	Front differential pinion bearing lock nut found loose.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,
PROJECT: M151A1C
USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN
B - SHORTCOMING M - MANUFACTURING
C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SNL GRP	VEH NO.	INCIDENT NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	930			REAR AXLE				
		7	B	Rear suspension alignment	-	0	149	Rear wheel toe-out and camber were found undesirable.
		17	*	Rear suspension alignment	-	2590	3214	Rear wheel toe-in and camber measured.
		20	A	Cross	10950988	3230	4054	Four races of the right rear wheel drive shaft inboard universal joint failed.
		21	A	Cross	10950988	3230	4054	Two races of the left rear wheel drive shaft inboard universal joint failed.
		23	A	Shaft, propeller with universal joint, wheel drive, rear	7340694	4189	4813	The left rear wheel drive shaft outboard universal joint cross and yoke broke.
		26 (17-2)	*	Rear suspension Alignment	-	5090	5714	Rear wheel toe-in and camber were measured.
		34	B	Seal, plain encased: pinion shaft	7996806	5090	5714	Lubricant leaked from rear differential input pinion shaft seal.
		35	B	Seal, plain encased	7331280	5090	5714	Lubricant seeped from rear differential right axle side gear seal.
		46 (7-2)	B	Rear suspension alignment	-	5090	5714	Rear wheel toe-in and camber were measured.
		48	B	Bolt	MS-90726-95	5090	5714	Torque decreased on five rear suspension hanger to body outer bracket bolts.

STEAP-DS Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,

PROJECT: M151A1C

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SML GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	930	49	B	Bolt, pivot	839XG4803	5090	5714	Torque decreased on the left inner rear suspension pivot bolt.
		55 (7-3)	B	Rear suspension alignment	-	5090	5835	Rear wheel camber and toe-in were measured.
		63	*	Rear axle, shaft and yoke with universal joints	839XG5098	0	7617	Experimental axle shaft and yoke with universal joints installed on vehicle left and right rear.
		64	A	Cross	10950988	6872	7617	Two races of right rear wheel drive shaft outboard universal joint cross found broken.
		65 (20-2)	B	Cross	10950988	3442	7617	Two races of right rear wheel drive shaft inboard universal joint cross found worn.
		66 (23-2)	B	Cross	10950988	2683	7617	Two races of left rear wheel drive shaft outboard universal joint cross found worn.
		67 (21-2)	*	Cross	10950988	3442	7617	Left rear wheel drive shaft inboard universal joint cross found serviceable upon removal.
		68	B	Screw, cap, universal joint flange	90727-84	6872	7617	Rear differential left output flange and screw found loose.
		72 (7-4)	B	Rear suspension alignment	-	3045	8880	Rear wheel camber and toe-in were measured.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,

PROJECT: M151A1C

USATECOM PROJECT NO: 1-7-4030-24

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SNL GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
11	930	77 (21-3)	A	Cross	839XG5098	2147	9764	Two races of left rear wheel drive shaft inboard universal joint cross (experimental) found broken on flange end.
		81	A	Differential, rear	7336140	9625	10370	Teeth broke from pinion shaft gear, pinion beveled gear damaged and seals hardened.
		86 (7-5)	B	Rear suspension alignment	-	1966	10846	Rear wheel camber and toe-in measured.
		103	B	Seal, plain encased, wheel spindle	7956804	10101	10846	Inner and outer seals and wheel spindle flanges found excessively worn on all four wheels.
		108 (77-2)	A	Cross	839XG5098	3329	10846	All four experimental rear wheel drive shaft universal joint crosses showed pending failure due broken rollers or cracked seal on flange mounted races.
12				BRAKES				
		28	A	Cylinder assembly: hydraulic brake, master	839XG4903	5090	5714	Service brake pedal gave way with application of pressure.
		33	B	Brake, shoe: with lining assembly	7025868	5090	5714	Right front and left rear brake shoes were worn to the rivets.
		69	B	Cylinder, hydraulic, brake wheel	8676977	7269	8014	Right front wheel brake cylinder stuck.

STEAP-DS Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,
PROJECT: M151A1C
USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SNL GRP	VEH NO.	INCIDENT K2 NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
12	930	78	*	Brake shoe: with lining assembly	7025868	-	10034	Installed new brake shoes with lining assembly, drums and cylinders on both front wheels to balance the system.
		94	B	Drum, brake	7025887	10101	10846	Both rear wheel brake drums found worn excessively.
		95 (28-2)	A	Cylinder assembly, hydraulic brake, master	839XG4903	5011	10846	Service brake pedal gave way with application of pressure.
		102	B	Cylinder, hydraulic, brake wheel	8676977	10101	10846	Both rear wheel brake cylinders contaminated with dirt and stuck.
13				WHEELS				
		29	B	Arm assembly: rear suspension, right	839XG4675-2	5090	5714	Right rear suspension arm cracked in front of the forward wheel mounting flange.
		30 (29-2)	B	Arm assembly: rear suspension, left	839XG4675-1	5090	5714	Left rear suspension arm assembly cracked in the coil spring seat.
		36	B	Arm assembly: front suspension upper	8754159/60	5090	5714	The right and left front upper arm assembly damaged the crossmember top front flange.
		51 (29-3)	B	Arm assembly: rear suspension	839XG4675	5090	5835	Magnaflux examination of rear suspension arms provided data in 17 cracks.
		62	B	Bumper, rubber, rear suspension	839XG420-2	6872	7617	Both rear bump stops were found cracked.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,
PROJECT: M151A1C
USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN
B - SHORTCOMING M - MANUFACTURING
C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SNL GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
13	930	75	B	Tire	35388-93	8247	8992	Right rear tire blew out and required replacement.
		79 (75-2)	B	Tire	35388-93	7289	10091	Right rear tire blew out and required replacement.
		87	B	Shims, front suspension	8754402	5011	10846	Left and right front lower suspension arm shims slipped.
		92	B	Wheel	10921860	10101	10846	Inside flange of both front wheels bent.
		100	B	Arm assembly: front suspension	8754416	10101	10846	Right front lower suspension arm cracked outboard the spring seat.
		109 (29-4)	B	Arm assembly: rear suspension	839XG4675	10101	10846	Magnaflux examination showed 7 cracks increased in length and 8 additional cracks.
14				STEERING				
		39	*	Lube-for-life suspension and steering joint	839XG4158	5090	5714	Three lube-for-life front suspension joints, outer edge, were found bent.
		98 (39-2)	B	Joint, steering and suspension	839XG4158	10101	10846	Four rubber covers for pre-greased front suspension and steering assembly joint found cracked.
15				FRAME, TOWING, ATTACHMENTS AND DRAWBARS				
		38	*	Lifting shackle; front	839XG4796	5090	5714	Modified lifting shackles were replaced with production type lifting hooks.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,
PROJECT: M151A1C
USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY D - DESIGN
B - SHORTCOMING M - MANUFACTURING
C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SWL GRP	VEH NO.	INCIDENT K2 NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
16	930			SPRINGS AND SHOCK ABSORBERS				
		15	A	Spring, helical, compression	8754263	2459	3083	Right front spring broke three turns from bottom.
		27	A	Spring, helical, compression	839XG4628	5090	5714	Left rear spring broke one turn from bottom.
		31	B	Shock absorber, rear	839XG4747	5090	5714	Both rear shock absorbers leaked fluid.
		32	B	Bushing, front shock absorber	10950859	5090	5714	Both front shock absorber lower top bushing required replacement.
		61 (27-2)	A	Spring, helical, overload	839XG4883	6872	7617	Left rear overload spring broke six coils from bottom.
		74	B	Bolt	10885150	3045	8880	Left rear shock absorber lower mounting bolt torque decrease.
		89 (27-2)	A	Spring, helical, compression, rear coil	839XG4628	10101	10846	Right rear spring broke one coil from top.
		99	B	Crossmember, front suspension system	E49566	10101	10846	Front crossmember cracked on top left side outboard from brake hose bracket.
18				BODY, CAB AND HOOD				
		8	A	Motor, electric, windshield wiper	839XG4683	0	168	The electric windshield wiper assembly failed to meet radiated radio frequency interference requirements.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4, M151A1C

PROJECT:

USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

S - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SHL GRP	VEH NO.	INCIDENT K2- NO.	INCIDENT TYPE	ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
18	930	13 (8-2)S	*	Motor, electric, windshield wiper	839XG4683	1912	2536	Grounding of windshield wiper motor resulted in meeting RFI requirements.
		19	B	Drive rod, electric windshield wiper assembly	839XG4683	3182	3808	Electric windshield wiper motor drive rod broke.
		56	B	Bracket, mounting spare tire	-	5090	5835	Spare tire mounting bracket was found bent in at top.
		57	B	Socket, rifle mount securing	-	5090	5835	Top flange of the right rifle leg securing-socket cracked 3 inches.
		58	B	Clamp, rifle pedestal	-	5090	5835	The 106-mm recoilless rifle pedestal clamp was found bent out of alignment 1 inch.
		59	B	Panel, side, left front	-	833	6668	Top front mounting bolt for fuel carrying bracket ripped a 2-1/2 inch hole in side panel.
		93 (57-2)	B	Socket, rifle mount, securing	-	10101	10846	Top flange of the left rifle leg securing socket cracked 2 inches and 1 inch at bottom.
		105	B	Body	-	10101	10846	Two cracks developed at base of left rear wheel well.
		106	B	Crossmember, body	-	10101	10846	Middle crossmember cracked at point of attachment to vehicle side panels on both sides.

STEAP-US Form 206, 29 Nov 65

EPR SUMMARY SHEET
(TECP 700-700
Interim Pam. 60-20)

PI of Truck, Utility: 1/4-Ton, 4X4,
PROJECT: M151A1C
USATECOM PROJECT NO: 1-7-4030-25

TYPES OF INCIDENTS

A - DEFICIENCY B - DESIGN

B - SHORTCOMING M - MANUFACTURING

C - SUGGESTED IMPROVEMENT *INFORMATION ONLY

SUB GRP	VEH NO.	INCIDENT K2-- NO.	INCIDENT TYPE	INCIDENT ITEM	PART NO.	PART MILEAGE	VEH ODOM	REMARKS
18	930	107	C	Pedestal, 106-mm recoilless rifle	-	10101	10846	Water accumulated in pedestal due to lack of drainage hole.
Misc				MISCELLANEOUS ACCESSORIES				
		None	*	Vehicle arrived	-	0	149	Vehicle arrived 31 December 1968.
		None	*	Test Initiated	-	0	149	Test initiated 2 January 1969.
		10	B	Maneuverability	-	344	968	Vehicle exceeded maximum turning radius requirement on left turns.
		12	B	Grade speed, 60% slope	-	825	1449	Vehicle failed to negotiate 60% slope requirement.
		14 (12-2)s	*	Grade speed, 60% slope	-	2357	2981	Vehicle negotiated 40 and 50% grades at 9.7 and 7.5 mph respectively.
		24	*	Summary	-	4849	5473	Summary of deficiencies to date.
		25	*	Endurance test completed	-	5090	5714	Test completed 12 February 1969.
		50	*	Vehicle arrived	-	5090	5835	Vehicle arrived 23 May 1969 for 5000 additional test miles. Test initiated 26 May 1969.
		70	*	Truck, utility: M151A1C	-	8129	8874	Vehicle damaged 13 June 1969 due to contact with deer during paved highway operations.
		104	B	Reflector, rear	-	10101	10846	Reflector material came off right rear adhesive back reflector.

STEAP-US Form 206, 29 Nov 65

APPENDIX V - MAINTENANCE EVALUATION

Table V-I. M151A1

	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct or General Support Maintenance Man-Hours
Replaced brake pressure warning light valve plunger.	855	.5	.5	
Replaced brake pressure warning light valve plunger.	966	.5	.5	
Replaced brake pressure warning light valve plunger.	1184	.5	.5	
Adjusted front end.	1185	1.5	1.5	
Replaced brake shuttle valve - bled brakes.	2622	.5	.7	
Adjusted service brakes.	3588	.5	.5	
Pulled left front wheel - cleaned grease from shoes - adjusted brakes.	3793	1.1	2.3	
Replaced bulb in left side of instrument panel (burned out).	3793	.1	.1	
Replaced instrument light bulb and nut that retains socket to instrument panel.	3 793	.3	.3	
Replaced front prop. shaft.	4086	.5	1.0	
Sanded glaze from brake shoes.	4086	.5	1.0	
Cleaned and honed all wheel cylinders - cleaned and sanded all brake shoes.	4132	3.0	5.0	
Replaced rear pinion seal.	4132	1.0	1.0	
Replaced right rear axle "U" joint.	4750	.5	1.0	
Replaced front prop. shaft.	5123	.5	1.0	
Replaced left rear tire (flat).	6350	.7	.7	

Table V-I (Cont'd)

	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct or General Support Maintenance Man-Hours
Replaced rear differential assembly, left rear inner axle shaft, "U" joint needle bearings broken.	7530	2.5		2.5 DS
Front tail pipe bracket had broken off, rear bracket was cracked (brazed).	8037	.5	.5	
Adjusted brakes.	8127	.5	.5	
Repaired air cleaner and cap (warped and would not seal).	9127	.6	.6	
Repaired right rear tire (flat).	11,114	.7	.7	
Adjusted clutch free travel.	11,450	.3	.3	
Replaced all brake shoes, wheel cylinders, wheel bearings, seals, driving flanges, right rear inner, left rear outer "U" joint crosses.	12,296	4.1	4.4	
Aligned front end.	12,296	1.1	1.2	
Adjusted fan belts.	12,296	.1	.1	
Adjusted valve lash.	12,296	.5	.5	
Tightened lower front shock mounts (holes ovalated in lower "A" frame).	12,296	.5	.5	
Replaced speedometer gear.	12,336	.5	.5	
Added 3-1/2 pints of GO 90 to transmission.	12,624	.2	.2	
Added 7 pints of GO 90 to transmission (3 incidents).	12,821	.6	.6	
Removed power pack and replaced transmission, replaced front prop. shaft.	12,837	4.0		8.0 DS
Replaced left rear tire.	13,157	.7	.7	
Replaced missing generator mounting bolt.	13,157	.1	.1	

Table V-I (Cont'd)

	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct or General Support Maintenance Man-Hours
Replaced terminal on windshield wiper motor wire.	14,356	.3	.3	
Replaced left rear shock.	14,910	.3	.3	
Replaced windshield (flying stone break).	14,910	2.0		4.0 DS
Replaced right rear axle outer "U" joint cross.	14,910	.5	.5	
Replaced left rear shock.	14,910	.3	.3	
Adjusted brakes.	14,910	.8	.8	
Repaired wiper motor.	14,910	.4	.4	
Replaced clutch assembly, (pressure plate, disc and throw out bearing).	16,436	4.0		8.0 DS
Repaired flat tire (right rear).	16,973	.7	.7	
Repaired flat tire (right rear).	17,248	.7	.7	
Replaced instrument light bulb.	17,529	.2	.2	
Replaced right rear outer "U" joint.	17,989	.5	1.0	
Replaced right rear shock.	18,249	.5	.5	
Replaced fuel tank sending unit.	18,249	.2	.2	
Replaced lower left front shock absorber mounting bracket, studs and rubber bushings.	18,339	.5	.5	
Replaced right rear propeller shaft and one "U" joint.	20,133	.6	.6	
Replaced distributor points, capacitor and spark plugs.	21,038	1.0	1.0	
Replaced front, exhaust manifold clamp.	21,622	.3	.3	
Replaced right rear differential output seal.	21,968	1.0	1.0	
Replaced brake line at right rear wheel.	22,406	1.5	3.0	
Replaced left rear inner "U" joint.	22,545	.5	1.00	

Table V-I (Cont'd)

	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct or General Support Maintenance Man-Hours.
Changed right front tire with spare.	22,914	.3	.3	
Repaired spare tire.	23,160	.7	.7	
Adjusted brakes.	24,730	.5	.5	
Adjusted clutch free travel.	24,730	.3	.3	
Adjusted axle end play (2 wheels).	24,730	1.0	1.0	
Adjusted valves.	24,730	.5	.5	
Replaced hand throttle cable.	24,730	.7	.7	
Adjusted rear wheel camber.	24,730	1.2	1.2	

Table V-I (Cont'd)

(Times are listed in hours)

1.	Velocity: Average test speed in miles per hour	23.06
2.	Reliability (Based on Vehicle Hours)	
	a. Time in use and maintenance (100%) - Hrs.	1266.15
	b. Time in use - Hrs.	1140.00
	c. Time in use - %	90%
	d. Time in use and scheduled maintenance - Hrs.	1217.15
	e. Time in use and scheduled maintenance - %	96%
	f. Unscheduled maintenance - Hrs.	49.00
	g. Time in unscheduled maintenance - %	4%
	h. Mean time between failures - Hrs:	
	(1) Organizational	20.72
	(2) Field	570.00
	i. Mean time between sched maintenance - Hrs:	
	(1) Organizational (driver)	2.29
	(2) Organizational (other)	32.57
3.	Amount of Maintenance (Man-Hours)	
	a. Maintenance man-hours per operating hour	.14
	(1) Organizational (driver)	.04
	(2) Organizational scheduled	.04
	(3) Organizational unscheduled	.05
	(4) Direct and general support	.01
	b. Maintenance man-hours per 100 miles	.59
4.	Maintainability (Vehicle Hours)	
	a. Average length of each stoppage:	
	(1) Organizational (driver)	.08
	(2) Organizational scheduled	1.01
	(3) Organizational unscheduled	.77
	(4) Direct and general support	3.25
	b. Total vehicle downtime per oper hour	.05
	c. Total vehicle maint hrs per operating hour (not to be confused with maintenance man-hours)	.11
5.	Test Course Mileage	
	Paved	5520
	Gravel	9503
	Hilly cross-country	9504
	Belgian block	749
	TOTAL	25,276

Table V-II. M718 Summary of Incidents.

	Odom Mileage at Time of Repair	Vehicle Hours	Maintenance Man-Hours	Direct or General Support Maintenance
Replaced inner and outer bearings and seals (right rear wheel).	12094	1.0	1.0	
Adjusted front wheel bearings.	12094	.5	.5	
Replaced left rear inner "U" joint.	12283	.5	.5	
Tightened valve cover, gasket leaking.	12283	.2	.2	
Replaced right front shock absorber.	12593	.3	.3	
Replaced instrument panel light bulb.	12768	.1	.1	
Aligned front end, replaced missing shims in right front lower control arm.	13005	1.7		2.5 DS
Replaced distributor assembly.	14156	.5	.5	
Checked toe in and camber rear wheels.	14839	1.5		2.5
Adjusted wheel end play.	14839	1.0	1.0	
Adjusted valve tappets.	14839	.5	.5	
Adjusted carburetor float level.	14839	.5	.5	
Welded spare tire carrier (cracked).	14843	.5	.5	
Replaced both rear shocks.	15118	.5	.6	
Replaced alternator.	16352	.5	.5	
Repaired shorted cable, at battery box top.	16789	.5	.5	
Replaced left front (axle) inner & outer bearings, seals and spindle assembly.	16857	1.0	1.5	
Tightened left rear shock.	16857	.2	.2	
Tightened bolts right front lower control arm (shims working out).	17058	.3	.3	
Replaced left rear axle outer "U" joint and axle assembly.	17293	.8	.8	

Table V-II (Cont'd)

	Odom Mileage at Time of Repair	Vehicle Hours	Maintenance Man-Hours	Direct or General Support Maintenance
Replaced right rear slip joint and yoke.	17293	.8	.8	
Adjusted clutch.	17502	.3	.3	
Replaced right front shock absorber.	17842	.3	.3	
Replaced cracked windshield.	17842	2.0		4.0 DS
Adjusted right rear wheel bearing end play.	18373	.5	.5	
Replaced two differential mounting bolts.	18354	.2	.2	
Replaced left and right front brake shoes and drums.	20012	1.0	2.0	
Replaced left rear inner "U" joint cross.	20012	.5	.5	
Replaced right rear wheel inner spindle, bearings and seal.	20012	1.0	1.0	
Replaced rear axle bump stop.	20080	.2	.2	
Tightened rear differential mounting bolts.	20080	.2	.2	
Tightened and aligned shims in right front suspension.	20655	.2	.2	
Tightened and aligned shims in right front suspension.	20995	.2	.2	
Tightened and aligned shims in right front suspension.	21201	.2	.2	
Tightened and aligned shims in right front suspension.	21261	.2	.2	
Tightened and aligned shims in right front suspension.	21340	.2	.2	
Replaced right rear axle output flange and seal.	21577	1.0	1.0	

Table V-II (Cont'd)

	Odom Mileage at Time of Repair	Vehicle Hours	Maintenance Man-Hours	Direct or General Support Maintenance
Replaced bottom mounting bolt in left rear shock absorber.	21575	.3	.3	
Changed flat tire.	22206	.4	.4	
Tightened cover bolts on leaking steering gear box.	23776	.2	.2	
Replaced alternator (pulley hub worn).	24066	.5	.5	

Table V-II (Cont'd)

(Times are listed in hours)

1.	**Velocity:** Average test speed in miles per hour	21.83
2.	**Reliability** (Based on Vehicle Hours)	
	a. Time in use and maintenance (100%) - Hrs.	1198.29
	b. Time in use - Hrs.	1079.39
	c. Time in use - %	90%
	d. Time in use and scheduled maintenance - Hrs.	1156.29
	e. Time in use and scheduled maintenance - %	96%
	f. Unscheduled maintenance - Hrs.	42
	g. Time in unscheduled maintenance - %	4%
	h. Mean time between unscheduled maintenance - Hrs.	
	(1) Organizational	21.16
	(2) Field	215.88
	i. Mean time between sched maintenance - Hrs:	
	(1) Organizational (driver)	2.35
	(2) Organizational (other)	34.82
3.	**Amount of Maintenance** (Man-Hours)	
	a. Maintenance man-hours per operating hour	.13
	(1) Organizational (driver)	.04
	(2) Organizational scheduled	.04
	(3) Organizational unscheduled	.03
	(4) Direct and general support	.02
	b. Maintenance man-hours per 100 miles	.58
4.	**Maintainability** (Vehicle Hours)	
	a. Average length of each stoppage:	
	(1) Organizational (driver)	.10
	(2) Organizational scheduled	1.00
	(3) Organizational unscheduled	.59
	(4) Direct and general support	2.34
	b. Total vehicle downtime per oper hour	.04
	c. Total vehicle maint hrs per operating hour (not to be confused with maintenance man-hours)	.11
5.	**Test Course Mileage**	
	Paved	4,370
	Level Cross-country	10,684
	Hilly cross-country	7,689
	Belgian block	820
	TOTAL	23,563

Table V-III. M151A1C Summary of Incidents

Before Paradrop:	Odom Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct Support Maintenance Man-Hours
Replaced light switch - inoperative.	149	.4	.4	
Replaced throttle linkage rod with used unit - bent.	1429	.5	.5	
Adjusted service brakes.	2350	.5	.5	
Replaced right front spring assembly.	3083	1.0	1.0	
Removed power pack - replaced, pressure plate, clutch disk (face torn off trans side) and throw out bearing.	3214	3.4		7.4 DS
Replaced wiper motor arm & shaft.	3810	.5	.5	
Repaired flat tire.	4000	.7	.7	
Replaced broken throttle cable.	4187	.2	.2	
Replaced rear left & right inner universal joints.	4054	1.0	1.0	
Replaced left rear axle outer "U" joint. Fixed flat tire.	4813	1.7	1.7	
Repaired flat tire right rear.	5631	.7	.7	

Table V-III (Cont'd)

After Paradrop:	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct Support Maintenance Man-Hours
Replaced left rear spring - broken.	5713	1.0	1.0	
Replaced master cylinder.	5713	4.0	4.0	
Replaced left and right rear shock absorbers.	5713	.6	.6	
Replaced left and right front, lower shock absorber bushings.	5713	.6	.6	
Replaced all brake shoes.	5713	4.0	4.0	
Adjusted camber and toe in, front and rear suspension.	5835	1.0		2.0 DS
Replaced directional light bulb.	5850	.2	.2	
Welded gun mount bracket, cracked.	5835	.5		.5 DS
Tightened leaking fuel line fitting at fuel pump.	6146	.2	.2	
Replaced missing bolt in front propeller shaft "U" joint at transmission.	6592	.2	.2	
Tightened bolts at top of gas tank, (fuel leaking).	6708	.3	.3	
Resoldered fuel line fitting in gas tank and made new gasket for top of tank.	6924	1.0	1.0	
Adjusted brakes.	7288	.5	.5	
Replaced left rear overload spring.	7617	1.0	1.0	
Repair mounting base and replaced both rear rubber bump stops, (left rear spring).	7617	.5	.5	
Replaced left rear drive shaft assembly.	7617	1.0	1.0	

Table V-III (Cont'd)

	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct Support Maintenance Man-Hours
Replaced right rear drive shaft assembly.	7617	1.0	1.0	
Replaced right front wheel brake cylinder.	8014	.6	.6	
Repaired broken rubber fuel line at fuel filter.	8146	.1	.1	
Adjusted service brakes.	8880	.5	.5	
Replaced right headlight.	8880	.2	.2	
Replaced horn button assembly.	8880	.2	.2	
Replaced right rear tire (blow out).	8992	.5	.5	
Adjusted front brakes.	9050	.5	.5	
Soldered hole in radiator top tank.	9466	.3	.3	
Adjusted rear brakes.	9694	.5	.5	
Front propeller shaft broke - removed and replaced.	9747	.5	1.0	
Removed and replaced front exhaust pipe.	9747	.4	.4	
Removed and repaired bell housing cover (bent).	9747	.3	.3	
Removed front wheels, sanded lining, replaced wheels, and adjusted brakes.	9762	1.0	1.0	
Replaced left rear inboard propeller shaft yoke and bearings.	9762	.6	.6	
Replaced left rear inner "U" joint.	9764	.5	.5	
Replaced left and right front wheel brake shoes, brake drums and left front wheel cylinder.	10134	2.0	2.0	
Replaced right rear tire, blow out.	10091	.7	.7	

Table V-III (Cont'd)

	Odometer Reading at Time of Repair	Vehicle Hours in Maintenance	Organizational Maintenance Man-Hours	Direct Support Maintenance Man-Hours
Added 1 quart of G.O. 90 to rear differential (input shaft seal leaking badly).	10268	.2	.2	
Added 1 pint of G.O. 90 to rear differential.	10332	.2	.2	
Removed power pack, replaced transmission and transfer assembly, reinstalled power pack.	10370	4.0		8.0 DS
Replaced rear differential.	10370	2.5		2.5 DS

Table V-III (Cont'd)

(Times are listed in hours)

	Before Paradrop	After Paradrop	Total Testing
1. **Velocity:** Average test speed in miles per hour	21.75	23.33	22.51
2. **Reliability** (Based on Vehicle Hours)			
a. Time in use and maintenance (100%) - Hrs.	261.40	261.96	523.36
b. Time in use - Hrs.	234.00	214.76	448.76
c. Time in use - %	90%	82%	86%
d. Time in use and scheduled maintenance - Hrs.	250.80	228.26	479.06
e. Time in use and scheduled maintenance - %	96%	87%	92%
f. Unscheduled maintenance - Hrs.	10.60	33.70	44.30
g. Time in unscheduled maintenance - %	4%	13%	8%
h. Mean time between unscheduled maintenance - hrs.			
(1) Organizational	23.40	6.32	10.20
(2) Field	234.00	42.96	74.79
i. Mean time between sched maintenance - Hrs:			
(1) Organizational (driver)	1.64	2.39	1.93
(2) Organizational (other)	46.80	42.95	44.88
3. **Amount of Maintenance** (Man-Hours)			
a. Maintenance man-hours per operating hour	.13	.25	.19
(1) Organizational (driver)	.06	.04	.05
(2) Organizational scheduled	.01	.03	.02
(3) Organizational unscheduled	.03	.12	.07
(4) Direct and general support	.03	.06	.05
b. Maintenance man-hours per 100 miles	.62	1.09	.85
4. **Maintainability** (Vehicle Hours)			
a. Average length of each stoppage:			
(1) Organizational (driver)	.10	.10	.10
(2) Organizational scheduled	.50	.90	.70
(3) Organizational unscheduled	.66	.76	.75
(4) Direct and general support	4.00	1.60	1.90
b. Total vehicle downtime per oper hour	.05	.16	.10
c. Total vehicle maint hrs per operating hour (not to be confused with maintenance man-hours)	.12	.22	.17
5. **Test Course Mileage**			
Paved	1582	1510	3092
Gravel	500	500	1000
Hilly cross-country	1000	1001	2001
Belgian block	151	150	301
Level cross-country	904	900	1804
Secondary road	953	950	1903
TOTAL	5090	5011	10,101

APPENDIX VI - CORRESPONDENCE

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND
ABERDEEN PROVING GROUND, MARYLAND 21005

AMSTE-BB
1-7-4030-25
1-7-4030-33

3 July 1968

SUBJECT: Test Directive for Product Improvement/Safety Test M151, 1/4 Ton Trucks

President, U.S. Army Armor and Engineer Board, ATTN: STEBB, Fort Knox, Kentucky 40121
Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP, Aberdeen Proving Ground, Maryland 21005

1. Reference: Letter, AMCPM-GPV-TLI, dated 21 June 1968, subject: Product Improvement/Safety Test M151, 1/4 Ton Trucks.

2. Background: The present M151A1 rear suspension system design has not been found totally acceptable under all driving conditions because of oversteer and jack-up characteristics as well as the lack of driver feel during dynamic conditions, primarily associated with highway operations. The new modified independent rear suspension system is a trailing arm design. Evaluation studies have been completed; the results of these studies show that the oversteer and jack-up characteristics are eliminated, and the driver definitely gets some warning as to the attitude of the vehicle.

3. Description of Material:

a. The pilot vehicles will contain the following component changes and/or modifications to the M718 Ambulance, M151A1C Weapon Carrier and the M151A1, 1/4 Ton utility vehicles as presently type classified:

(1) Modified independent rear suspension system.

(2) Two-speed electrical windshield wipers.

(3) New one-piece windshield with high strength glass.

(4) Split master brake cylinder.

(5) Deep dish steering wheel.

(6) Collapsible steering column.

(7) Mechanical fuel pump.

(8) Class "A" lights, front and rear.

b. Tentative shipping schedule for the vehicles is as follows:

DATE	MODEL	QUANTITY	DESTINATION
23 Sep 68	M151A1 (Pilot)	1	APG
7 Oct 68	M151A1 (Pilot)	2	Fort Knox
	M151A1 (Std)	1	Fort Knox
14 Oct 68	M718 (Pilot)	1	APG
21 Oct 68	M151A1C (Pilot)	1	APG

NOTE: APG will be responsible for furnishing a 106MM Recoilless Rifle with mount and the necessary litters required for test.

4. Objectives: The test will be separated into two categories, product improvement and safety. The first portion will determine the safety characteristics of the improved item. The second portion of the test is to evaluate the design to the modified rear suspension system and the remaining test components from a performance, durability and maintenance standpoint. Since the modification of the M151 Series of trucks effects interchangeability and logistic support, it is intended to type classify the new trucks with a new model designator, if found acceptable.

5. Responsibilities:

a. CO, APG will conduct subject tests as required under USATECOM Project 1-7-4030-25.

b. President, U.S. Army Armor and Engineer Board will conduct subject tests as required under USATECOM Project 1-7-4030-33.

6. Coordination:

a. Direct coordination with PM office authorized. Point of contact Mr. Edward Woessner (Autovon 925-2492, 925-2448). Point of contact USATECOM, LTC Grinnell, Autovon 895-3350, Extension 4008/4996.

b. Disposition of test items will be determined upon completion of testing.

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AMSTE-BB 3 July 1968
SUBJECT: Test Directive for Product Improvement/Safety Test M151, 1/4 Ton Trucks

7. Special Instructions:

a. This project will be an 02 priority.

b. Report any inability or known factors that would preclude the timely accomplishment of this mission to this headquarters without delay.

c. An outline of the testing to be conducted at APG and Fort Knox is attached as Inclosure 2. It is required that a cost estimate for the testing be forwarded to this office at the earliest possible date so the funding can be made available.

d. Maintenance evaluation will have to be made from a combination of marked up T.M. Manuals, special instruction sheets, drawings and sketches.

e. Spare parts for all of the test items and standard components not readily available in the supply system will be made available for the test. However, standard components that are readily available will be expected to be furnished by the different testing agencies.

8. Test Plan and Reports:

a. Formal Test Plans are not required.

b. A Test Outline is required from each Test Agency.

c. Comments on Adequacy of Proposed Test Outline by PM are required concerning the ability for USATECOM to issue position statement at conclusion of test. If additional testing is required, specify type and scope of test.

d. Test agencies will comply with special reports as required below.

(1) APG safety release 23 Sep 68 plus 14 working days on Pilot M151A1.

(2) All test agencies to report by TWX.

(a) At approximately 10,000 miles for iterim release for L.P. type classification.

(b) Review of test results at 15,000 miles.

COPY/si

AMSTE-BB 3 July 1968
SUBJECT: Test Directive for Product Improvement/Safety Test M151, 1/4 Ton Trucks

(c) Final Test report results at 20,000 miles.

(d) APG to report additional 5,000 miles on M151A1C and M718 upon completion.

9. Safety: CO, APG is responsible to issue safety release statement NLT 23 September 1968 plus 14 working days.

10. Security: This is an unclassified project.

FOR THE COMMANDER:

/s/ John P. Wheeler, Jr.
/t/ JOHN P. WHEELER, JR.
Colonel, GS
Dir, Arm Mat Test Dir

2 Incl
1. Letter of Request for Test
2. Test Outline

DEPARTMENT OF THE ARMY
PROJECT MANAGER, GENERAL PURPOSE VEHICLES
MICHIGAN ARMY MISSILE PLANT
WARREN, MICHIGAN 48090

IN REPLY REFER TO
AMCPM-GPV-TLI 21 June 1968

SUBJECT: Product Improvement/Safety Test M151, 1/4 Ton Trucks

Commanding General
U. S. Army Test & Evaluation Command
ATTN: AMSTE-BB
Aberdeen, Maryland 21005

1. This office is scheduling a formal product improvement/safety test on the M151, 1/4 Ton, series of trucks that has been approved and authorized by AMC. The pilot vehicles will contain the following component changes and/or modifications to the M718 Ambulance, M151A1C Weapon Carrier and the M151A1, 1/4 Ton utility vehicles as presently type classified:

a. Modified independent rear suspension system.

b. Two-speed electrical windshield wipers.

c. New one-piece windshield with high strength glass.

d. Split master brake cylinder.

e. Deep dish steering wheel.

f. Collapsible steering column.

g. Mechanical fuel pump.

h. Class "A" lights, front and rear.

2. Since the modification to the M151 Series of trucks does effect interchangeability and logistic support, it is the intent of this office to type classify the new trucks with a new model designator, if found acceptable. The test will be separated into two categories - product improvement and safety. The present design of the rear suspension system has not been found acceptable under all driving conditions because of the oversteer and jack-up characteristics as well as the lack of driver feel during dynamic conditions, primarily associated with highway operations. The new modified independent rear suspension system is a trailing arm design, and preliminary computer as well as instrumented driver evaluation studies have been completed. The results of these studies show that the oversteer and jack-up characteristics are eliminated and the driver definitely gets some warning as to the attitude of the vehicle. If the results of these studies would be of use during your evaluation, they will be made available upon your request. In order to meet the production schedule agreed upon with AMC and the Office of the Army Chief of Staff, for incorporation of the modified rear suspension system, it is necessary that your evaluation on handling characteristics be completed two weeks after the first vehicle has been received at APG. Special handling evaluation tests are only being scheduled for APG. Further, it is expected that APG will furnish a standard M151A1 vehicle for a comparison of the ride and handling characteristics.

3. The second portion of the test is to evaluate the design of the modified rear suspension system and the remaining test components from a performance, durability and maintenance standpoint. Again, in order to meet the proposed production schedule, it will be necessary to have an interim release from your Command after approximately 10,000 miles of testing for L.P. Classification, if the design has been found acceptable thus far during the test. Final type classification action will be finalized immediately following completion of

20,000 miles of testing, if the design changes are found acceptable. However, to accomplish this, it will be necessary to review the test results after approximately 15,000 miles of test so the necessary steps can be started for type classification action. Also, a USATECOM position as to the acceptability of the design by Letter Report or equivalent will be necessary within two weeks after 20,000 test miles have been accumulated. A copy of the letter from General Bunker, AMC, to Chief of Staff with a flow chart outlining the expected progress of this product improvement program is attached for your reference and use.

4. The M151A1 and M718 pilot vehicles at APG are being scheduled for 25,000 miles of durability testing, and the M151A1C vehicle is scheduled for 5,000 miles of testing. The additional 5,000 miles of testing for the M151A1 and M718 vehicles over the usual 20,000 miles will be used to facilitate a more complete evaluation of the design durability of the test components. The vehicles being tested at Fort Knox are scheduled for 20,000 miles of durability testing. Tentative shipping schedule for the vehicles is as follows:

Date	Model	QUANTITY	Destination
23 Sept 1968	M151A1 (Pilot)	1	APG
7 Oct 1968	M151A1 (Pilot)	2	Fort Knox
	M151A1 (Std)	1	Fort Knox
14 Oct 1968	M718 (Pilot)	1	APG
21 Oct 1968	M151A1C (Pilot)	1	APG

Note: APG will be responsible for furnishing a 106MM Recoilless Rifle with mount, and the necessary litters required for the test.

5. Maintenance evaluation will have to be made from a combination of marked up T.M. Manuals, special instruction sheets, drawings and sketches. There is not enough time for all

the necessary changes to be put in final form in the T.M. Manuals.

6. Spare parts for all of the test items and standard components not readily available in the supply system will be made available for the test. However, standard components that are readily available will be expected to be furnished by the different testing agencies.

7. An outline of the testing to be conducted at APG and Fort Knox is attached as Inclosure 1. It is required that a cost estimate for the testing be forwarded to this office at the earliest possible date so the funding can be made available.

8. This office will be glad to visit your installation to clarify and discuss with you any part of the test not fully understood.

FOR THE PROJECT MANAGER:

2 Incl
as

LOUIS MORTENSON
Chief, Tech Mgmt Division, GPV

Test Outline

1. The following test procedures are applicable to both APG and Fort Knox test agencies:

a. Vehicle Inspection - OPM 60-25.

b. Preliminary operations - OPM 60-30.

c. Load distribution - OPM 60-60.

d. The payload with driver and towed load for the vehicle are as follows:

	M151A1	M718	M151A1C
Rated Payload For Trucks			
Highway	1200	900	1650
Cross-Country	800	900	1650
Rated Towed Load			
Highway	2000	-	-
Cross-Country	1500	-	-

2. The testing at APG will consist of evaluating a pilot model of the M151A1, 1/4 Ton, Utility Truck; the M718 Front Line Ambulance; and the M151A1C, 106MM Weapon Carrier and the following procedures are applicable:

a. Determine the ride and handling characteristics of the pilot vehicles with the modified rear suspension system and make a direct comparison with the M151A1 vehicle presently being produced. To make this determination, it is suggested that a jury team of at least six drivers be chosen and that they drive the vehicles a sufficient number of miles over various road conditions to allow an adequate evaluation. Further, it is suggested that a portion of the test course should include a sine-wave type maneuver on paved level road to evaluate rapid changes in vehicle direction. The test should be evaluated under the extreme load conditions contained in paragraph 1d and with and without a towed load, if applicable. It is felt that this ride and handling evaluation should be made on the pilot model of all three vehicle types (M151A1, M718 and M151A1C). However, to meet the proposed schedule agreed upon with AMC and the Office of the Chief of Staff, it is necessary that the primary evaluation be conducted on the first vehicle received and conclusion made as to whether the new suspension system is acceptable from a ride and handling characteristic standpoint, as discussed in the cover letter. (The extreme load conditions are defined as empty with driver and highway payload including driver).

b. Conduct a sufficient amount of testing to determine if the following vehicle requirements are met:

(1) The truck, including cross-country payload and with cross-country towed load when applicable, shall be capable of negotiating grades up to 6-1/2 percent at a speed of 30 mph, when operated on smooth, dry, hard-surfaced roads. Without towed load, the M151A1, M718, and M151A1C trucks, including cross-country payload, shall be capable of negotiating grades up to 60 percent at a speed of 2-1/2 mph, when operated on smooth, dry, hard-surfaced roads.

(2) The M151A1 truck, including cross-country payload and with cross-country towed load, shall be capable of sustaining a speed of not less than 60 miles per hour (mph) on a level road. The M718 and M151A1C vehicles, including cross-country payload, shall be capable of sustaining a speed of not less than 60 mph and 50 mph, respectively. All vehicles shall be capable of sustaining a low speed of not more than 2-1/2 mph in low gear, when operated on smooth, dry, level, hard-surfaced roads. Drumming, shimmy or tramping shall not occur throughout any speed range.

(3) The M151A1 and M718 trucks, including cross-country payload, shall be capable of operating on side slopes of up to 40 percent, and the M151A1C truck, including cross-country payload, on side slopes up to 30 percent, sloping right or left.

(4) The vehicle shall demonstrate a maximum turning radius of 18.5 feet, measured from the centerline of the outside front wheel, when negotiating full turns to right and left.

(5) The fully equipped vehicle, including highway payload, but excluding towed load, tire chains, or modification kits, shall have the braking ability specified herein.

(a) Service brakes shall stop the vehicle within 30 feet from a speed of 20 mph, on dry, hard, relatively level, smooth road, free from loose material. Service brakes shall be able to stop and hold the vehicle on a 60 percent incline.

(b) The parking brake shall hold the vehicle on a dry concrete incline of 40 percent with highway payload; and on a dry concrete 60 percent incline with cross-country payload.

(6) With deep water fording equipment installed, and with rated cross-country payload and towed load when applicable, the vehicle shall ford a hard-bottomed, relatively level crossing in fresh or salt water to 60 inches in depth. During the fording operation, while immersed to the specified depth of 60 inches for a period of 15 minutes, the vehicle shall be halted with engine operating at idle speed for not less than 5 minutes; the engine shall be stopped and kept inoperative for 1 minute; the engine shall be restarted and shall attain normal operating capability within 1 minute from commencement of starting cycle; the engine shall be operated at an idle speed during the remainder of the 15 minute period. Seals and gaskets shall minimize entry of water into the vehicle components and accessories. When lubricants are drained and tested, they shall contain not more than 2 percent of water or water borne contamination. All vehicular instruments, components, and accessories shall function normally before, during, and after the fording cycle. Fly wheel drain plug shall be installed in the drain hole before fording. It is suggested that the fording test be conducted once at the beginning of the durability testing and only on the M151A1 pilot vehicle. Also, it is requested that the deep water fording inlet and exhaust pipes and associated bracketry be removed during durability testing.

c. Determine the Center of Gravity of the pilot vehicles for all three model designators in accordance with TECP Interim Pamphlet 60-65.

d. Conduct a radio interference suppression test on the three pilot vehicles in accordance with MIL-E-55301 and MIL-STD-461.

e. The following test cycle should be repeated five times for a total of 25,000 miles for the M151A1 and M718 pilot vehicles:

(1) Paved highway - 1050 miles.

(2) Level Cross-Country - 1900 miles.

(3) Hilly Cross Country - 1900 miles.

(4) Belgium Block - 150 miles.

f. All test operations with the M151A1 pilot vehicles will be conducted with the rated payload in accordance with paragraph 1d. In addition, the rated towed load will be used during 50% of the test mileage on each course.

g. The M718 Ambulance will be tested in accordance with the following procedure:

(1) First and Fifth Cycles - Driver plus two litter and two seated patients.

(2) Second Cycle - Driver plus two empty litters.

(3) Third Cycle - Driver plus three litter patients.

(4) Fourth Cycle - Driver plus three empty litters.

(5) A simulated load of 180 pounds will be used for each litter or seated patient.

(6) No testing will be conducted with a towed load.

h. The M151A1C truck will be tested in accordance with the following procedure:

(1) The M151A1C with weapon will be tested for a total of 5,000 miles in accordance with the following test cycle:

(a) Paved Highway - 1500 miles.

(b) Gravel Road - 500 miles.

(c) Secondary Road - 950 miles.

(d) Belgium Block - 150 miles.

(e) Hilly Cross-Country - 1000 miles.

(f) Level Cross-Country - 900 miles.

(2) No testing will be conducted with a towed load.

i. As a minimum, it is requested that the windshield wipers be activated and run for five minutes at the beginning of each driver shift and that the washers be used to wet the windshield during this same time frame. The wipers should be set on high speed operation every other time.

3. The testing at Fort Knox will consist of conducting a 20,000 mile durability test on two M151A1 pilot vehicles and a standard production M151A1 truck. The standard production truck will be used as a comparison vehicle. The testing should be conducted in accordance with the following procedures:

a. All test operations will be conducted with the rated payload in accordance with paragraph 1d. In addition, the rated towed load will be used during 50% of the test mileage for the various terrain conditions.

b. The testing should consist of the following test cycle:

(1) 20% of mileage accumulated on paved road.

(2) 40% of mileage accumulated on level cross-country terrain.

(3) 40% of mileage accumulated on hilly cross-country terrain.

c. The following evaluations should be made during the test:

(1) Maintenance Evaluation.

(2) Road mobility characteristics.

*(3) Driver evaluation on ride and handling characteristics.

(4) Cross-Country mobility.

(5) Fuel and oil consumption.

(6) Shallow water fording (21 inches of water).

(7) Reliability.

4. A complete list of the new vehicle components under test will be forwarded at a later date.

*Ride and handling characteristics will be evaluated under an empty plus driver condition and at rated payload. Further, it is suggested that this evaluation be conducted on all of the various test courses.

5. Reporting of test results:

a. Problems of difficulty will be reported as they occur by telephone to Mr. Edward Woessner or Mr. Melvin Burcz (SCAN 925-0111 Ext 2492 or 2648), teletype and Incident Data Sheets.

b. Interim reports will be periodically forwarded to this office on the progress of the testing (Distribution list is attached).

c. A formal report will be prepared within thirty days after completion of test (Distribution list is attached).

6. Testing should be conducted on a 24 hour basis, 7 days a week.

7. The shipping address for the hardware is: Code F.

It is requested that component failures affecting the design of the vehicle be returned as they occur. In addition, all failed components, spare parts and test trucks should be returned after completion of the Product Improvement/Safety Program.

Distribution List For Interim And Equipment Failure Reports

Project Manager's Office,
General Purpose Vehicles,
Michigan Army Missile Plant
Warren, Michigan 48090
ATTN: AMCPM-GPV-TLI - 10 copies

Commanding General
U. S. Army Test & Evaluation Command
Aberdeen, Maryland 21005
ATTN: AMSTE-BB - 1 copy

Distribution List For Formal Report

Project Manager's Office,
General Purpose Vehicles
Michigan Army Missile Plant
Warren, Michigan 48090
ATTN: AMCPM-GPV-TLI - 20 copies

Commanding General
U. S. Army Tank-Automotive Command
Warren, Michigan 48090
ATTN: AMSTA-RBR - 1 copy

Commanding General
U. S. Army Test & Evaluation Command
Aberdeen, Maryland 21005
ATTN: AMSTE-BB - 1 copy
ATTN: AMSTE-TA - 1 copy

Commanding Officer
Yuma Proving Ground
Yuma, Arizona 85364 - 1 copy

Commanding Officer
Aberdeen Proving Ground
Aberdeen Proving Ground, Maryland 21005
ATTN: STEAP-TL - 2 copies

Commander
HQ, Defense Documentation Center for
Scientific and Technical Information
Cameron Station
Alexandria, Virginia 22314
ATTN: Document Service Center - 20 copies

Commanding Officer
Aberdeen Proving Ground
Aberdeen Proving Ground, Maryland 21005
ATTN: STEAP-DS-TU - 2 copies

Commanding Officer
U. S. Army Armor and Engineering Board
Fort Knox, Kentucky 40121
ATTN: STEBB-GT - 2 copies

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY MATERIEL COMMAND
WASHINGTON, D.C. 20315

IN REPLY REFER TO

AMCPM-GPV

24 MAY 1968

SUBJECT: Technical Data Preparation for the M151 1/4 Ton Truck Program

Chief of Staff
U. S. Army
Washington, D. C. 20310

1. Reference is made to your letter of 13 May 1968 subject as above.

2. The plan developed by the office of the Assistant Vice Chief of Staff to reduce the time required to develop a technical data package has been compared with the best effort schedule which we have developed since program approval on 15 April 1968. The comparison is depicted on the attached chart.

3. Primary emphasis has been given to the improved safety aspect in the new rear suspension. Early in the test phase, just as soon as the improved safety aspects have been proven, we will make the production release design. At this time, we accept the risks of reduced reliability and durability and evaluate these factors during continued testing. Although we now know that a greater than previously planned amount of time is required to fabricate prototype and pilot vehicles, the earlier production release design will result in type classification and introduction into production vehicles in accordance with your proposed plan.

4. To accelerate this program, the engineering contractor has already been authorized to procure modified bodies and components and to utilize necessary overtime for design engineers. Improved class "A" directional and marker lights will be released to production concurrent with the improved rear suspension change because of their impact in the body design. Additionally, the class "A" lights provide an important "signature" with which the new model will be identified. Other product

improvement items such as dual braking system, collapsible steering column, electric windshield wipers and larger windshield glass will also be incorporated, if doing so does not delay the accelerated schedule.

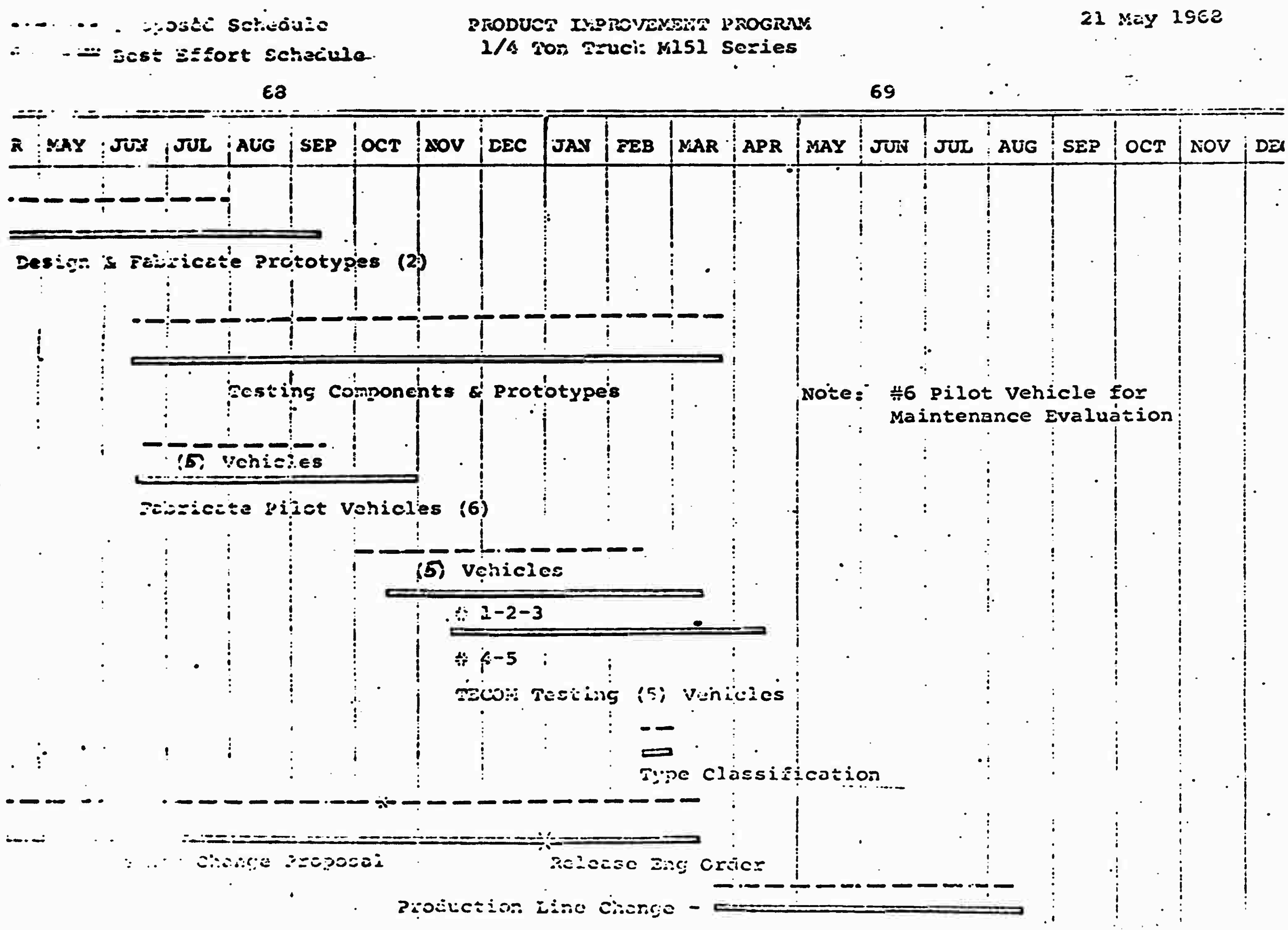
5. The introduction of the rear suspension and other product improvement items at an accelerated pace will effect approximately 5,800 vehicles that were not considered in the original request for product improvement. Additional funds will be requested to supplement procurement funds authorized for the FY69 increment on the multiyear production contract to cover costs incidental to the improvements incorporated and to offset obsolescence costs associated with the production components displaced.

1 Incl
as

WILLIAM B. BUNKER
Lieutenant General, USA
Deputy Commanding General

PRODUCT IMPROVEMENT PROGRAM
1/4 Ton Truck M151 Series

21 May 1968



Mr. Liechty/kp/3475

STEAP-DS-TU

26 JUL 1968

SUBJECT: Product Improvement/Safety Test M151, 1/4-Ton Trucks, USATECOM Project No. 1-7-4030-25

Commanding General
US Army Test and Evaluation Command
ATTN: AMSTE-BB

1. References:

a. Letter AMCPM-GPV-TLI, Hqs, USATACOM to AMSTE-BB, Hqs, USATECOM, 21 June 1968, Subject: Product Improvement/Safety Test M151, 1/4-Ton Trucks".

b. STE Form 1028, 2 July 1968, Test Directive for USATECOM Project No. 1-7-4030-25.

c. Letter AMSTE-BB, Hqs, USATECOM to CO, APG, ATTN: STEAP, 3 July 1968, Subject, "Test Directive for Product Improvement/Safety Test M151, 1/4-Ton Trucks".

2. It is estimated that the cost of conducting the tests outlined in reference 1a will be $137,000.00.

3. Mr. Liechty of this office will go to Detroit, Michigan, during September 1968 to review, with Project Manager personnel, data generated during development of the modified rear suspension of the M151. He will also observe testing of one of the new pilot vehicles at Ford Motor Company in an effort to expedite the safety release upon receipt of the first vehicle at Aberdeen Proving Ground.

4. The tests proposed in the Test Outline (Incl 1 of Reference 1a) are adequate for the purpose of making a USATECOM position statement at conclusion of the test program.

5. It is recommended that consideration be given to modifying the Project Manager's Proposed Test Outline as follows to expedite the test program.

a. Determine the turning radius of only the M151A1C as it should be the same for all three vehicles.

STEAP-DS-TU

26 JUL 1968

SUBJECT: Product Improvement/Safety Test M151, 1/4-Ton Trucks, USATECOM Project No. 1-7-4030-25

b. Conduct the deep water fording test on the M151A1C in view of the fact that all three vehicles will have the same power train components and the M151A1C is only required to complete 5,000 miles of durability operation.

c. Conduct the radio interference suppression test on one vehicle instead of three and only in accordance with MIL-STD-461 which supersedes MIL-E-55301(E).

d. Eliminate the windshield wiper and washer test on M151A1C because the durability test is only one fifth as long as those of the M151A1 and M718.

FOR THE COMMANDER:

R. P. WITT
Acting Associate Director
Development and Proof Services

COPY/si

RTTUZYUW RUEBWMA8760 3101926-UUUU--RUEBEAA.

ZNR UUUUU

R 051300Z NOV 68

FM PROJ MGR GPV WARREN MI

TO RUEBEAA/CG USATECOM ABERDEEN

INFO RUEBEAA/CO APG ATTN STEAP-MT-TU MR D LIECHTY ABERDEEN MD

BT

DATE: 6 NOV 68
ACTION: MTD

INFO: ISD
SAFETY

UNCLAS 11-4539 FROM AMCPM-GPV-TLI, MR WOESSNER FOR AMSTE-BB,

COL GRINNELL

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM

1. PER 1 NOV TELECOM BETWEEN YOUR SELF, MAJOR CAMPBELL AND MR

GORMAN, THE P. I. PILOT M151A1 (MOD) IS NOW

SCHEDULED TO ARRIVE APG NLT 13 NOV 68 FOR EVALUATION OF

HANDLING AND RIDE CHARACTERISTICS ONLY.

2. NO DURABILITY TESTING IS TO BE ACCOMPLISHED ON THIS VEHICLE UNTIL

NOTIFICATION IS RECEIVED FROM THIS OFFICE.

IT IS ANTICIPATED THAT AUTHORIZATION FOR DURABILITY TEST WILL BE

GIVEN APPROXIMATELY 2 DEC 68.

BT

NNNN

AMSTE-BB (15 November 1968) 1st Ind
SUBJECT: Product Improvement/Safety Test M151, 1/4 Ton Trucks, USATECOM Project No. 1-7-4030-25

HQ, U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, Maryland 21005 29 NOV 1968

TO: Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-MT-TU

1. For compliance.

2. Particular attention will be given to Fording Test Procedures outlined in Paragraph five.

FOR THE COMMANDER:

1 Incl
nc

JOHN P. WHEELER, JR.
Colonel, GS
Dir, Arm Mat Test Dir

DEPARTMENT OF THE ARMY
PROJECT MANAGER, GENERAL PURPOSE VEHICLES
MICHIGAN ARMY MISSILE PLANT
WARREN, MICHIGAN 48090

IN REPLY REFER TO
AMCPM-GPV-TLI

15 November 1968

SUBJECT: Product Improvement/Safety Test M151, 1/4 Ton Trucks, USATECOM Project No. 1-7-4030-25

Commanding General
U. S. Army Test & Evaluation Command
ATTN: AMSTE-BB
Aberdeen, Maryland 21005

1. Reference is made to the following:

a. Our letter, dated 21 June 1968, subject: Product Improvement/Safety Test M151, 1/4 Ton Trucks.

b. APG letter, dated 26 July 1968, subject as above.

2. This office has reviewed the recommended modification to the test plan contained in reference b above and requests that the following changes be made in the APG test plan.

a. The turning radius to be determined on the M151A1C vehicle.

b. Deep water fording tests be conducted on the M151A1C vehicle for use with optional source alternators only.

c. Conduct a radio interference suppression test on the M151A1C vehicle only in accordance with Mil-Std 461 and Mil-E-55301(E).

d. Delete the requirement for cycling the windshield wipers and washers on all three test vehicles.

3. The schedule for shipping the test vehicles to both Fort Knox and APG is as follows:

	Vehicle Serial No.	Destination	Model	Shipping Date
Pilot #1	02C90868	APG	M151A1	11 Nov 68
Pilot #2	02C92468	APG	M718	2 Dec 68
Pilot #3	02C41168	Ft. Knox	M151A1	6 Dec 68
Pilot #4	02C42668	Ft. Knox	M151A1	6 Dec 68
Pilot #5	02C93068	APG	M151A1C	18 Dec 68
Standard M151A1	02C90568	Ft. Knox	M151A1	6 Dec 68

4. In addition to the test components contained on the original test program, attached is a list of vehicle components that are on the various vehicles for confirmatory tests except the two 60 amp alternators installed on the APG vehicles. The confirmatory items have either been subjected to prior TECOM testing and ECP/EO action has been initiated for incorporation into production, or have been subjected to and completed extensive bench testing. The 60 amp alternators are installed on the vehicles to determine whether they are acceptable as optional sources from a durability standpoint.

5. To further verify this, it is requested that a deep water fording test be conducted on the alternator after 5000 miles of durability testing has been accomplished. No initial deep water fording of the alternator is required. In order not to affect the durability testing on the M718 and M151A1 test vehicles, it is requested that the M151A1C vehicle be used for the fording test. To accomplish this, the alternator will have to be removed from the two test trucks after 5000 test miles have been accumulated and until the fording tests have been completed. After the fording tests have been completed, the alternators will have to be reinstalled on the M718 and M151A1 vehicle so a minimum of 20,000 miles can be accumulated on the alternators.

AMCPM-GPV-TLI 15 November 1968

SUBJECT: Product Improvement/Safety Test M151, 1/4 Ton Trucks, USATECOM Project No. 1-7-4030-25

6. Three different sources for the mechanical fuel pump will be tested on the vehicles at Fort Knox and APG. The following is a list of the mechanical fuel pumps and the particular vehicle it is installed on:

Test Vehicle	Mfg of Fuel Pump
Pilot #1 (02C90868)	Carter
Pilot #2 (02C92468)	Airtex
Pilot #3 (02C41168)	Carter
Pilot #4 (02C42668)	AC
Pilot #5 (02C93068)	Airtex

FOR THE PROJECT MANAGER:

Louis Mortenson

1 Incl
as

LOUIS MORTENSON
Chief, Tech Mgmt Division, GPV

Copies furnished:
APG, ATTN: STEAP-MT-TU
Ft. Knox, ATTN: STEBB-AR-S

ADDITIONAL TRUCK COMPONENTS
INSTALLED ON TECOM VEHICLES TO BE TESTED AT APG AND
FORT KNOX NOT PRESENTLY IN PRODUCTION

1. Confirmatory items that have completed TECOM vehicle durability testing on prior Product Improvement trucks.

a. Windshield Washers
b. ½ Inch Wheel Studs
c. Scissors Jack and Wrench
d. Data Plates
e. Two Piece Front Lifting Eye Configuration
f. Front Seat Rear Latch
g. Windshield Hinge Pin
h. Mild Steel Engine Mounts
i. Clutch Cross-Shaft (New Design)
j. Lube-For-Life Suspension and Steering Joints
k. Full View Rear Window
l. Inside Rear View Mirror
m. Dry Element Air Cleaner
n. Spun Steel Water Pump and Crankshaft Pulleys
o. New Transmission Installed on Vehicles 02C90868, 02C41168 & 02C42668
p. .093 Inch Thick Exhaust Manifold
q. Battery Caution Labels
r. Stick-on Side Reflectors
s. Starter Drive

2. Confirmatory testing of components that successfully completed bench test evaluation.

a. Front Seat Pivot Slot
b. Front Crossmember with Heavy Wall Spacer at Lower Control Arm Mounting Bracket
c. Snap ring lock on Transfer Output Shaft. Installed on vehicles 02C92468 & 02C93068 only.
d. Aetna Mobil Clutch Throw-Out Bearing Installed on Vehicles 02C90868, 02C41168 & 02C42668.
e. New Departure Clutch Throw-Out Bearing Installed on Vehicle 02C92468.

Mr. Liechty/imb/3475

STEAP-MT-TU

5 DEC 1968

SUBJECT: Recommendation for Safety Release of Truck, Utility: 1/4-Ton, 4x4, M151 w/Modified Independent Rear Suspension, USATECOM Project No. 1-7-4030-25

Commanding General
U. S. Army Test and Evaluation Command
ATTN: AMSTE-BB

1. References:

a. Letter AMCPM-GPV-TLI, Hqs, USATACOM to AMSTE-BD, Hqs, USATECOM, 21 June 1968, Subject: "Product Improvement/Safety Test M151, 1/4-Ton Trucks".

b. STE Form 1028, 2 July 1968, Test Directive for USATECOM Project No. 1-7-4030-25.

c. Letter AMSTE-BB, Hqs, USATECOM to CO, APG, ATTN: STEAP, 3 July 1968, Subject: "Test Directive for Product Improvement/Safety Test, M151, 1/4-Ton Trucks".

2. Testing for safety release in accordance with references 1a and 1c has been conducted with the following results:

a. Instrumented Handling - Instrumented handling tests of the M151 w/modified independent rear suspension (MIRS) conducted by Ford Motor Company disclosed that the vehicle had no oversteer characteristics and contained more body roll than the production M151A1. Inclosures 1 through 4 depict the data obtained on the production M151A1, a test rig M151 w/ MIRS and the production prototype M151 w/MIRS. Inclosure 5 gives tabulated data for Inclosures 1 through 4.

b. Jury Evaluation - A jury of six drivers made a comparison evaluation of ride and handling characteristics of M151 w/MIRS with those of a production M151A1. After each driver had completed a run with each vehicle under a designated load condition, he filled out the questionnaire shown in Inclosure 6. The courses utilized during this evaluation were:

5 DEC 1968

STEAP-MT-TU

SUBJECT: Recommendation for Safety Release of Truck, Utility: 1/4-Ton, 4x4, M151 w/Modified Independent Rear Suspension, USATECOM Project No. 1-7-4030-25

(1) Paved (Chicane) Course

(2) Munson Gravel Course

(3) Belgian Block Course

(4) Perryman No. 1 Level Cross-Country Course

(5) Churchville Hilly Cross-Country B Course

The load conditions during the test were:

(1) Empty vehicle

(2) Empty vehicle with empty trailer

(3) Vehicle with rated cross-country or highway payload

(4) Vehicle and trailer with rated cross-country or highway payload and towed load.

Inclosure 7 gives a summary of the results of the Jury questionnaire which indicates that the Jury liked the ride and handling characteristics of the M151 w/MIRS better than those of the standard M151A1. Inclosure 8 gives the average road speeds during operation of the vehicles on the gravel, level cross-country, and hilly cross-country courses.

3. Safety release of the M151 w/modified independant rear suspension is recommended. However, due to the inherent bad physical characteristics (narrow tread, short wheel base, high center of gravity) of any tactical 1/4-ton military vehicle, the driver must use prudent judgement during its operation.

FOR THE COMMANDER:

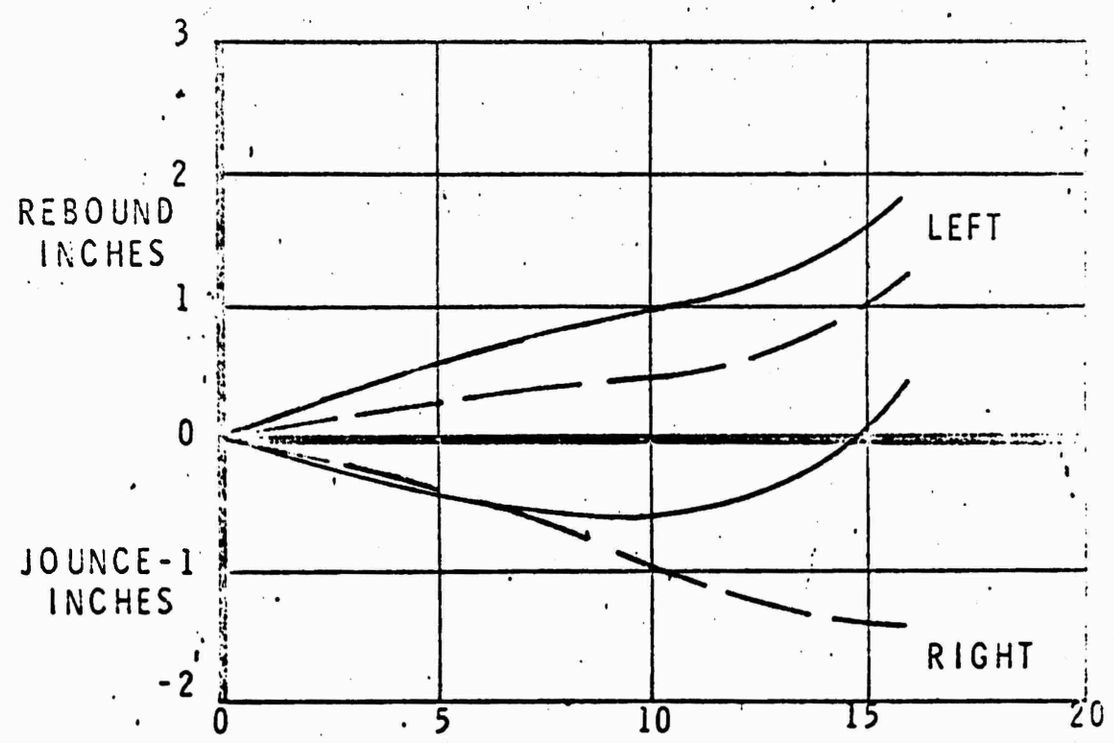
8 Incls
as

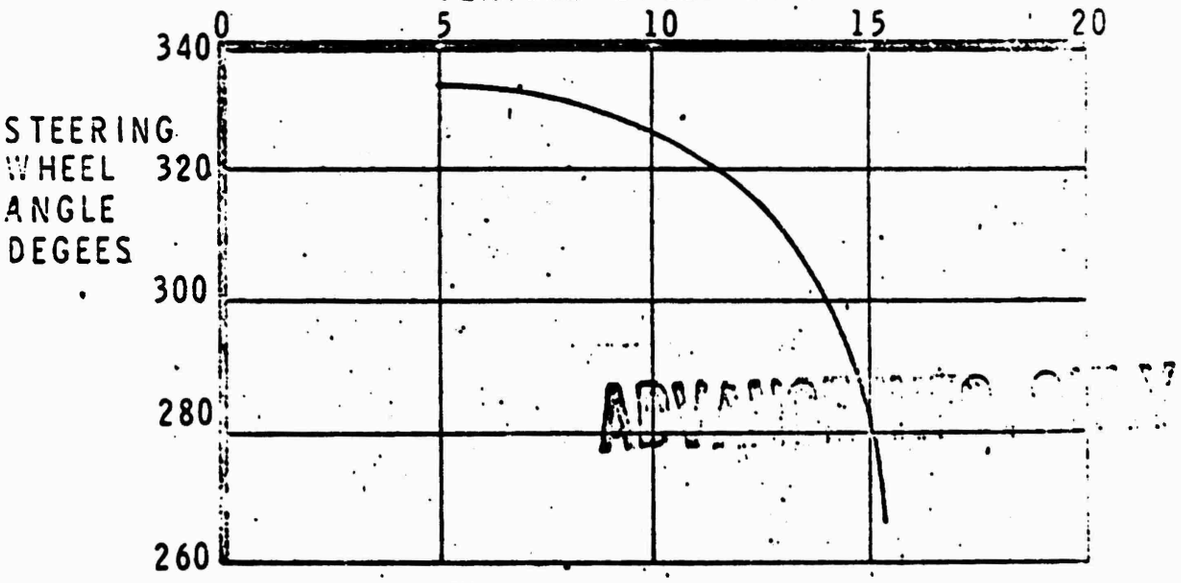
R. P. WITT
Associate Director
Materiel Test Directorate

2

10/29/68

PRODUCTION INDEPENDENT REAR SUSPENSION





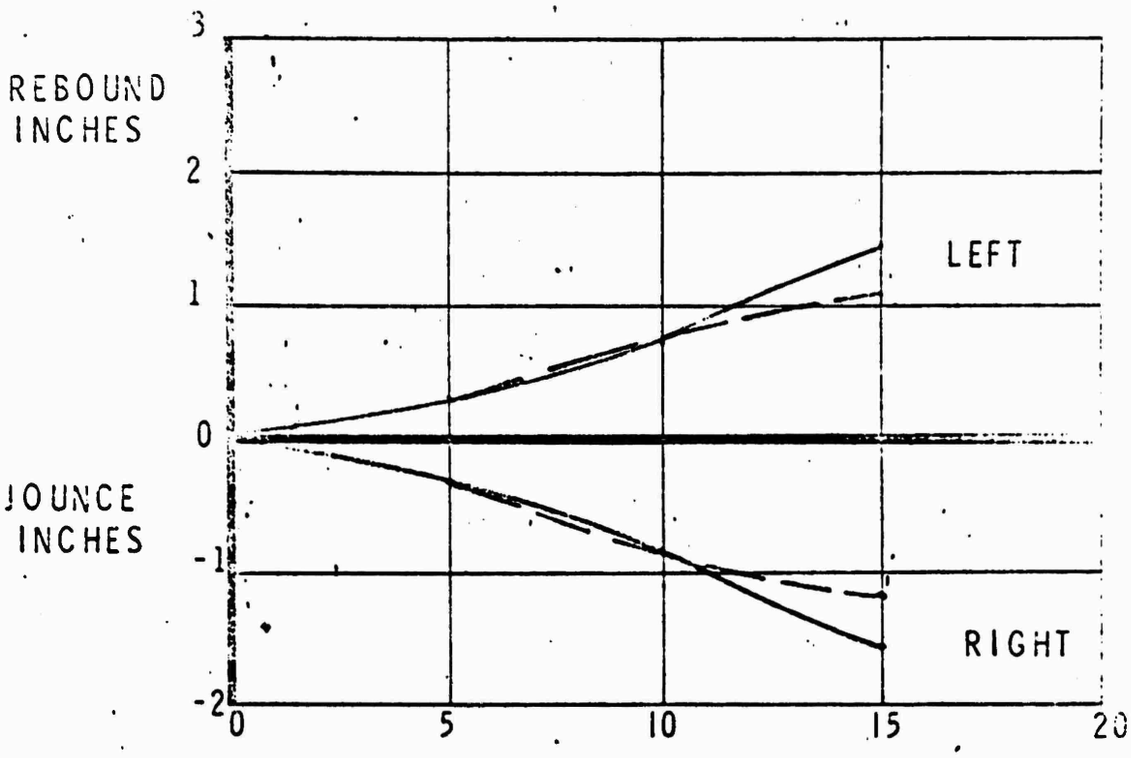
FRONT WHEELS — — —
REAR WHEELS ———

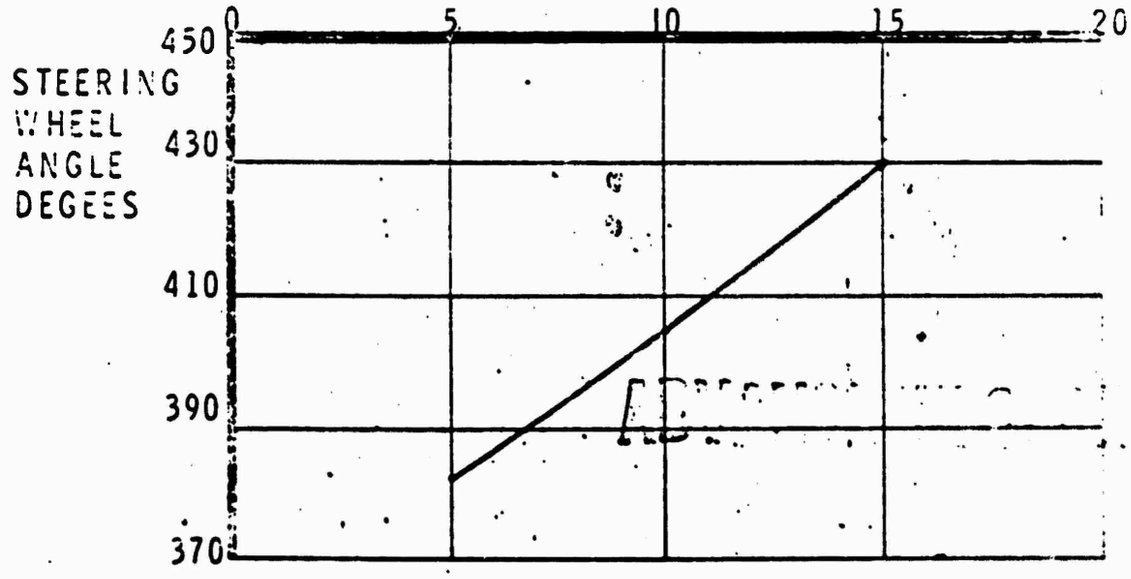
LEFT TURN
25 FT RADIUS
CURB & 350 LBS.

10/24/68

TEST RIG INDEPENDENT

REAR SUSPENSION



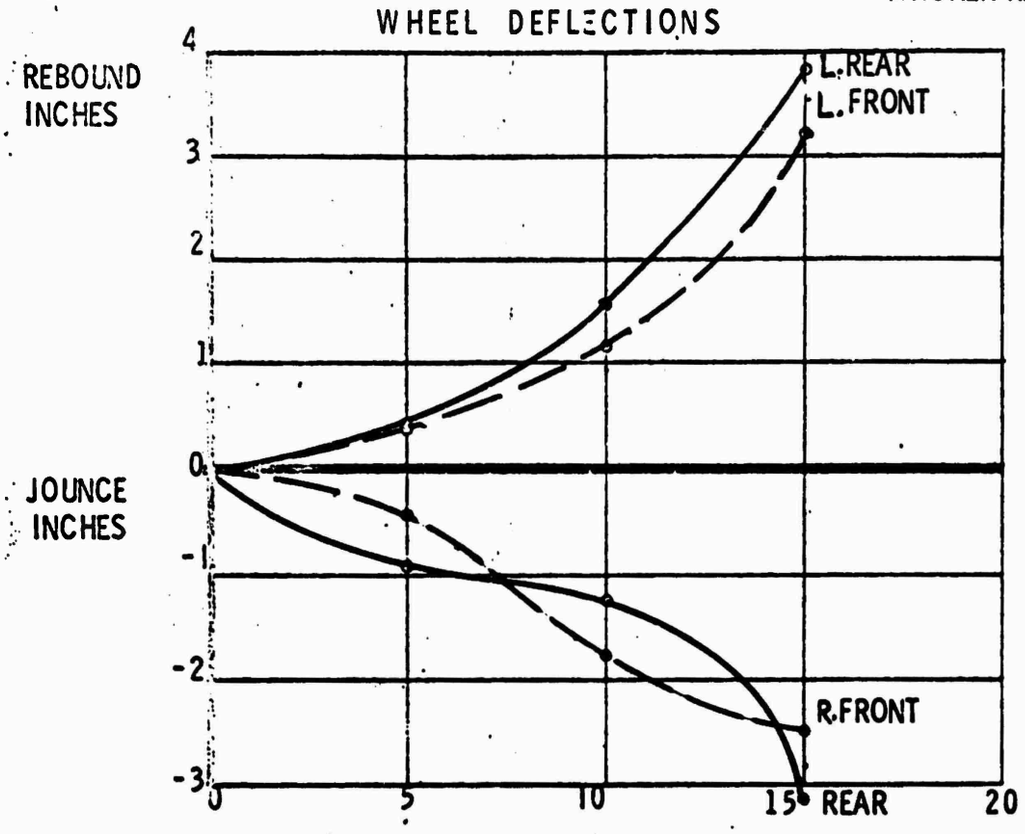


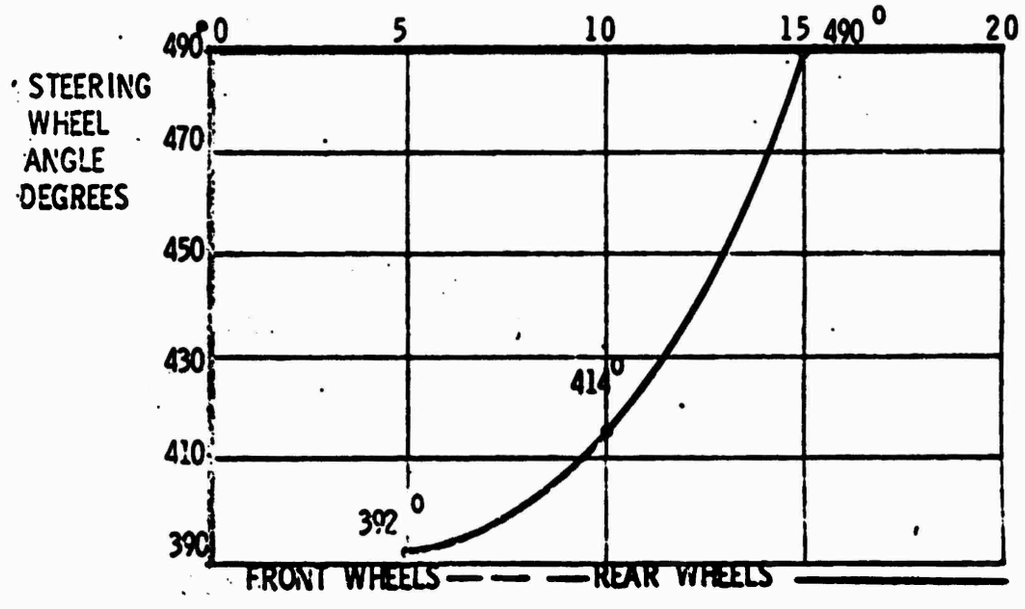
FRONT WHEELS — — —
REAR WHEELS ———

LEFT TURN
25 FT RADIUS
CURB + 350 LBS

PROTOTYPE INDEPENDENT
REAR SUSPENSION
WHEEL DEFLECTIONS

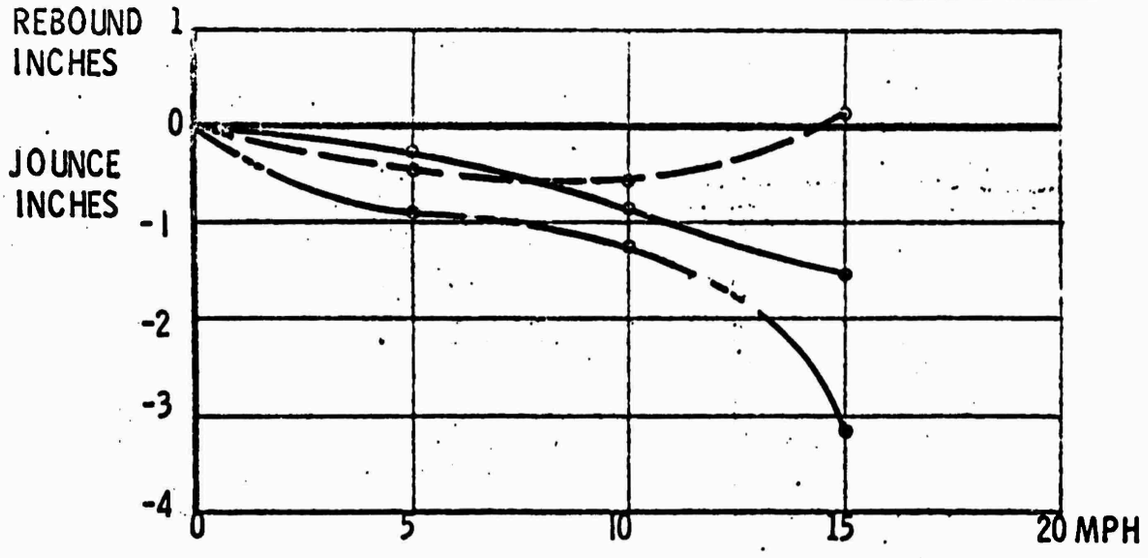
LEFT TURN
25 FT RADIUS
CURB + 350
(HIGHER RATE SPRING)

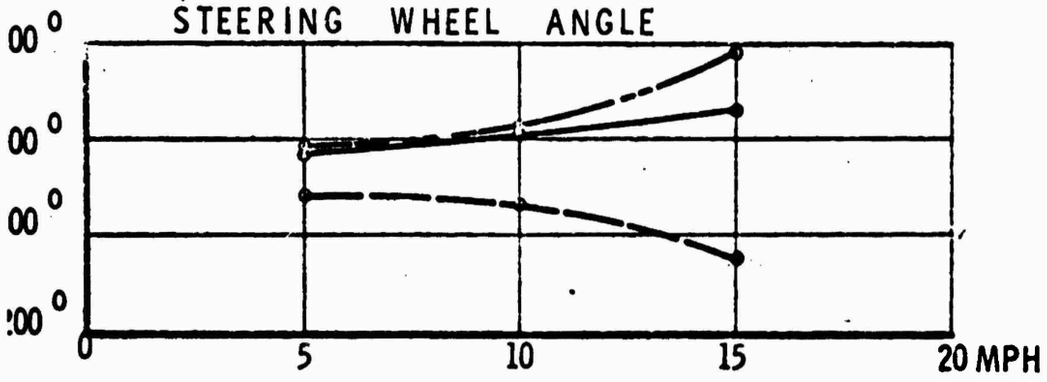


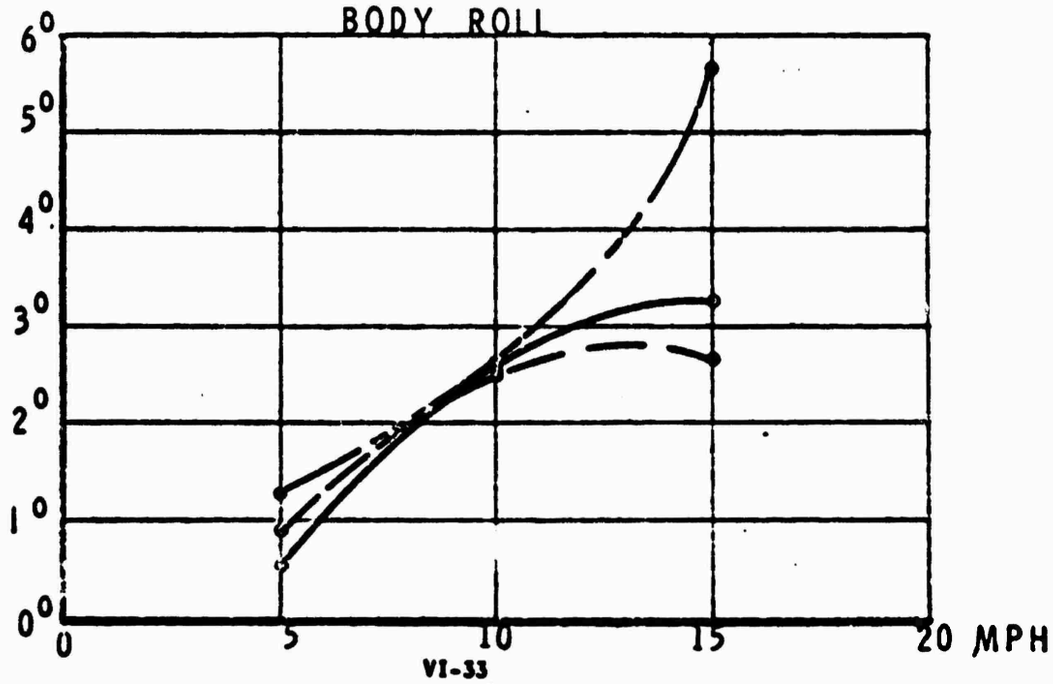


RIGHT REAR WHEEL

PRODUCTION — TEST RIG — PROTOTYPE







TABULATED DATA

Test Weight	Radius of Curve ft	Vehicle Speed mph	Left Turns: Steering Wheel Angle Degrees	Body Movement - Inches: Front Left	Front Right	Rear Left	Rear Right
M151 Production Rear Suspension							
Curb + 350 lb	25	5	335	.29	-.46	.55	-.43
		10	328	.52	-.97	.97	-.60
		15+	272	1.25	-1.32	1.85	.42
M151A Modified Rear Suspension (Test Rig)							
Curb + 350 lb	25	5.64	383	.29	-.32	.25	-.32
		10.20	405	.73	-.86	.76	-.82
		15.78	430	1.07	-1.15	1.44	-1.59
M151A Modified Rear Suspension (Prototype)							
Curb + 350 lb	25	5	392	.265	-.31	.330	-.85
		10	414	.91	-1.30	1.40	-1.15
		15	490	3.100	-1.78	3.50	-2.93

(+) Denotes jounce movement

Truck, Utility: 1/4-Ton, 4x4, M151, USA Registration No. 2L7320 and 02C90868

Driver's Name _____
Course _____
Vehicle Load Conditions _____

	Test Vehicle	Standard Vehicle	Both Same
1. Which truck body leaned the most on curves and during steering maneuvers?			
2. Which truck gave a better feeling of confidence and control during steering maneuvers?			
3. Which truck had the best ride quality?			
4. Which truck did you like driving best?			
5. Which truck has the best cross-country mobility?			

Indicate choice by marking the appropriate block.

Remarks: _____

TRUCK, UTILITY: 1/4-Ton, 4x4, M151
USA Registration Nos. 02C90868 (Mod. Veh.) and 2L7320 (Std. Veh.)

Jury Voting Results

Load Condition and Course	Abbreviated Questions: Leaned More in Turns	Feeling of Confidence & Control	Best Ride Quality	Liked Best	Best Cross-Country Mobility
Empty without Trailer					
Paved (Chicane)	Mod 4/1	Mod 6/0	Mod 4/0	Mod 6/0	
Munson Gravel	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	
Belgian Block	Mod 4/1	Mod 5/0	Mod 6/0	Mod 6/0	Mod 3/0
Level Cross-Country	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Hilly Cross-Country	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Empty with Empty Trailer					
Paved (Chicane)	Mod 6/0	Mod 5/1	Mod 6/0	Mod 4/2	
Munson Gravel	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	
Belgian Block	Mod 3/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 3/0
Level Cross-Country	Mod 4/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Hilly Cross-Country	Mod 3/0	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Loaded without Trailer					
Paved (Chicane)	Std 2/1	Mod 6/0	Mod 4/0	Mod 6/0	
Munson Gravel	Same 3/3	Mod 5/0	Mod 6/0	Mod 3/1	
Belgian Block	Std 3/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 2/0
Level Cross-Country	Std 3/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Hilly Cross-Country	Same 3/3	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0
Loaded with Trailer					
Paved (Chicane)	Std 3/1	Mod 6/0	Mod 4/0	Mod 5/1	
Munson Gravel	Same 3/3	Mod 5/1	Mod 6/0	Mod 6/0	
Belgian Block	Std 3/1	Mod 6/0	Mod 6/0	Mod 6/0	Mod 2/0
Level Cross-Country	Same 2/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 5/0
Hilly Cross-Country	Std 3/2	Mod 6/0	Mod 6/0	Mod 6/0	Mod 6/0

Note: "Both Same" votes are not included in vote count.

ROAD SPEEDS
Truck, Utility, 1/4-Ton, M151, 4x4,
USA Reg. Nos. 02C90868 (Mod.Veh) and 2L7320 (Std.Veh)

Course/ Load Condition	Average Speed, MPH			
	Individual Driver		Overall	
	Modified M151	Standard M151	Modified M151	Standard M151
Munson Gravel				
Loaded	34.0 to 38.1	34.5 to 38.6	36.47	36.84
Loaded with Loaded Trailer	32.5 to 36.5	32.6 to 36.9	34.86	34.90
Empty	30.8 to 45.4	31.4 to 42.6	34.90	35.03
Empty with Empty Trailer	28.2 to 43.2	27.7 to 40.5	34.14	32.23
Hilly Cross-Country				
Loaded	29.2 to 33.9	29.3 to 33.8	31.87	31.33
Loaded with Loaded Trailer	25.5 to 29.5	24.5 to 29.0	27.36	26.97
Empty	24.8 to 36.1	24.7 to 33.9	31.72	30.48
Empty with Empty Trailer	23.5 to 31.7	23.3 to 31.3	28.92	27.39
Level Cross-Country				
Loaded	24.0 to 40.5	24.4 to 39.5	30.83	30.79
Loaded with Loaded Trailer	17.8 to 41.8	18.5 to 36.1	26.33	25.29
Empty	18.1 to 40.5	23.6 to 39.5	27.75	27.48
Empty with Empty Trailer	24.9 to 38.0	25.0 to 33.2	31.31	28.66

COPY/am

RTTUZYUW RUEBWMA8596 3401617-UUUU--RUEBEAA.

ZNR UUUUU

12-254
6 Dec 68
ACTION: ARMOR
INFO: POD

R 042000ZHDEC 68

FM PROJ MGR GPV WARREN MICH

TO RUEBEAA/CGUSATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ABERDEEN MD ATTN STEAP-MT-TU MR D LIECHTY

BT

UNCLAS 12-4537 FROM AMCPM-GPV-TLI MR WOESSNER

FOR AMSTE-BB COL GRINNELL

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM

A REPRESENTATIVE FROM THE PRODUCTION ENGINEERING CONTRACTOR IS SCHEDULED TO VISIT APG DURING THE WEEK STARTING 2 DEC TO MAKE THE NECESSARY MODIFICATIONS TO THE M151A1 TEST VEHICLE REQUIRED BEFORE IT CAN BE RELEASED FOR DURABILITY TESTING. AFTER ALL MODIFICATIONS HAVE BEEN MADE, THE VEHICLE IS RELEASED FOR DURABILITY TEST. THE M718 TEST VEHICLE IS SCHEDULED TO ARRIVE AT APG APPROXIMATELY 6 DEC. DURABILITY TESTING CAN BEGIN AS SOON AS POSSIBLE AFTER RECEIPT OF THE M718 TRUCK. ALSO, A 500 MILE BREAK-IN HAS ALREADY BEEN ACCOMPLISHED ON THIS TRUCK.

BT

18596

COPY/am

RTTUZYUW RUEBWMA8735 3462012-UUUU--RUEBEAA.

ZNR UUUUU

R 111800Z DEC 68

12 DEC 68
ACTION: MTD
INFO: ISD
Safety

FM PROJ MGR GPV WARREN MI

TO RUEBEAA/CG USATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ATTN STEAP-MT-TU MR D LIECHTY ABERDEEN MD

BT

UNCLAS 12-4603 FROM AMCPM-GPV-TLI, MR WOESSNER FOR AMSTE-BB,

COL GRINNELL

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM

CONFIRMING TELECON BETWEEN APG AND AMCPM-GPV, DURABILITY TESTING

OF PILOT #1 MAY BEGIN IMMEDIATELY WITHOUT BRAKE WARNING LIGHT

FUNCTIONING. CORRECTIVE ACTION WILL BE INITIATED AS SOON AS

HARDWARE IS AVAILABLE TO REPLACE SHUTTLE VALVE.

BT

#8735

NNNN

COPY/am

SD--RTTUZYYY RUEBWMA/8091 3531950/RUEB/-/UUUU/--RUEBEAA/.///+//////////

RTTUZYYYRUEBWMA8091 3531950 RUEB-UUUU--RUEBEAA.

RTTUZYUW RUEBWMA8091 3531950-UUUU--RUEBEAA.

ZNR UUUUU

R 172000Z DEC 68

19 DEC 68
ACTION: MTD
INFO: Safety
ISD

FM PROJ MGR GPV WARREN MI

TO RUEBEAA/CG USATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ABERDEEN ATTN STEAP-MT-TU MR D. LIECHTY

ABERDEEN MD

BT

UNCLAS 12-4609 FROM AMCPM-GPV-TLI, MR WOESSNER FOR AMSTE-BB,

LTC GRINNELL

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM

AS A RESULT OF EVALUATING A RECENT FAILURE AT ROMEO PROVING GROUND,

IT IS SUSPECTED THAT THERE ARE SOME DEFECTIVE SPOT WELDS BETWEEN

THE INBOARD BRACKET FOR THE REAR SUSPENSION ARMS AND SUPPORT BRACKET

BETWEEN THEM. TO ASSURE THAT THESE BRACKETS ARE FASTENED, THEY WILL

BE ARC WELDED TOGETHER. REPRESENTATIVES FROM THE PEC ARE

SCHEDULED TO VISIT APG THIS WEEK TO MAKE THIS MODIFICATION TO

BOTH THE M151A1 AND M718 TEST VEHICLES. IN PRODUCTION, THESE

BRACKETS WILL BE INTEGRATED TOGETHER IN A ONE-PIECE STAMPING.

BT

#8091

COPY/am

RTTUZYUW RUEBWMA8423 0082021-UUUU--RUEBEAA.

ZNR UUUUU

R 081800Z JAN 68

DATE: 9 JAN 69
ACTION: MTD

FM PROJECT MGR GPV WARREN MI

INFO: ISD
Safety

TO RUEBEAA/CO APG ABERDEEN MD

INFO RUEBEAA/CG USATECOM ATTN AMSTE-BB ABERDEEN

BT

UNCLAS 1-4632 FROM AMCPM-GPV-TLI, MR WOESSNER FOR STEAP-MT-TU, MR D. LIECHTY

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM

THIS OFFICE AUTHORIZES THE CONTINUATION OF TESTING OF THE 60 AMP ALTERNATOR ON THE M151A1 TRUCK BEYOND 5000 MILES BEFORE REMOVING IT FOR DEEP WATER FORDING TESTING AS CONTAINED IN THE TEST PLAN. A REPRESENTATIVE FROM THE MANUFACTURER OF THE ALTERNATOR WILL ARRIVE AT YOUR INSTALLATION 9 JAN 69 WITH A SPARE ALTERNATOR TO BE USED WHILE THE FORDING TEST IS CONDUCTED ON THE TEST ALTERNATOR. THE FORDING TEST ON THE TEST ALTERNATOR WILL BE CONDUCTED IN A SUBMERSION TANK AT THE CONTRACTOR'S FACILITY.

BT

#8423

COPY/am

RTTUZYUW RUEBWMA8568 0451851-UUUU--RUEBEAA.

ZNR UUUUU

R 142000Z FEB 69

17 FEB 69
ACTION: MTD
INFO: Intell
ISD

FR PROJECT MGR GPV WARREN MI

TO RUEBEAA/CG USATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ATT STEAP-MT-TU MR D LIECHTY ABERDEEN MD

BT

UNCLAS 2-4694 FROM AMCPM-GPV-TLI, MR WOESSNER FOR AMSTE-BB

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM

A REPRESENTATIVE FROM THE PRESTOLITE CORPORATION WILL ARRIVE AT APG 14 JAN 69 TO PICK UP THE 60 AMP ALTERNATOR UNDER TEST ON THE M151A1 VEHICLE. THIS ALTERNATOR WILL BE SUBJECTED TO A DEEP WATER FORDING TEST IN A SUBMERGING TANK AT THE CONTRACTOR'S FACILITY. FOLLOWING THIS TEST, THE ALTERNATOR WILL BE RETURNED TO APG FOR DURABILITY TESTING.

BT

#8560

NNNN

AMSTE-BB (24 February 1969) 1st Ind
SUBJECT: Formal Product Improvement Program

HQ, U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, Maryland 21005 2 6 FEB 1969

TO: Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-MT-TU

For action.

FOR THE COMMANDER:

JOHN P. WHEELER, JR.
Colonel, GS
Dir, Arm Mat Test Dir

DEPARTMENT OF THE ARMY
PROJECT MANAGER, GENERAL PURPOSE VEHICLES
MICHIGAN ARMY MISSILE PLANT
WARREN, MICHIGAN 48090 Mr. Woessner/ni/2648

IN REPLY REFER TO

AMCPM-GPV-TLI 24 February 1969

SUBJECT: Formal Product Improvement Program

Commanding General, USATECOM
ATTN: AMSTE-BB
Aberdeen, Maryland 21005

1. It is requested that the M151A1C Truck, Serial No. 02C93068, with modified rear suspension system be assembled after the tear-down inspection and shipped to Fort Bragg on or before 12 March 1969 for air delivery tests. The shipping address is as follows:

President
U.S. Army Airborne, Electronics and
Special Warfare Board
ATTN: STEBF-LD, Mark for Project AB 1269
Fort Bragg, North Carolina 28307

2. Prior to shipment of the vehicle, it is requested that the front test lifting and towing eyes be replaced with ones used in present production.

FOR THE PROJECT MANAGER:

Louis Mortenson
LOUIS MORTENSON
Chief, Tech Mgt Division, GPV

Copy furnished:
USATECOM, ATTN: AMSTE-BB

COPY/si

RTTUZYUW RUEBWMA8390 0731601-UUUU--RUEBEAA.

ZNR UUUUU

R 132045Z MAR 69

17 MAR 69
ACTION: MTD
INFO: ISD
Compt

FM PROJECT MANAGER GPV WARREN MICH

TO RUEBEAA/CGUSATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ABERDEEN MD ATTN: STEAP-MT-TU MR J. PRICE

BT

UNCLAS 3-4749 FROM AMCPM-GPV-TLI MR WOESSNER FOR AMSTE-BB

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM, M718
AMBULANCE

THIS OFFICE AUTHORIZES THE CONTINUATION OF TESTING OF THE 60 AMP ALTERNATOR ON THE M718 AMBULANCE BEYOND 5,000 MILES BEFORE REMOVING IT FOR DEEP WATER FORDING TESTING AS CONTAINED IN THE TEST PLAN. A REPRESENTATIVE FROM FORD MOTOR COMPANY WILL ARRIVE AT ABERDEEN PROVING GROUND 13 MARCH 1969 WITH A SPARE ALTERNATOR TO BE USED WHILE THE FORDING TEST IS CONDUCTED ON THE TEST ALTERNATOR. THE FORDING TEST ON THE ALTERNATOR WILL BE CONDUCTED IN A SUBMERGING TANK AT THE CONTRACTOR'S FACILITY.

BT

#8390

COPY/si

RTTUZYUW RUEBWMA8634 0872121-UUUU--RUEBEAA.

ZNR UUUUU

R 282100Z MAR 69

4-21
1 Apr 69
ACTION: ARMOR
INFO: POD

FM PROJ MGR GPV WARREN MI

TO RUEBEAA/CG USATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ATTN STEAP-MT-TU MR D LIECHTY ABERDEEN MD

BT

UNCLAS 3-4780 FROM AMCPM-GPV-TLI, MR WOESSNER FOR AMSTE-BB, MR MCNEIL

SUBJECT: PRODUCT IMPROVEMENT PROGRAM ON M151 FAMILY OF VEHICLES

1. IT IS REQUESTED THAT A SNAP RING RETAINER BE INSTALLED ON THE TRANSMISSION TRANSFER SHAFT ON THE M718 TEST VEHICLE. THE SPARE TRANSMISSION PRESENTLY BEING USED WAS NEVER UPDATED TO INCLUDE THE SNAP RING RETAINER.

2. ALSO, IT IS REQUESTED THAT THE TORQUE ON THE NUT HOLDING THE PARKING BRAKE DRUM ON THE TRANSMISSION, TEST VEHICLE 02090868, BE INCREASED TO 100 LB-FT. BOTH FAILURES REPORTED DURING TECOM TESTS WITH THE IMPROVED TRANSMISSION ARE FELT TO HAVE BEEN ATTRIBUTED TO LOOSENING OF THIS NUT.

BT

#8634

NNNN

COPY/si

RTTUZYUW RUEBWMA8689 1401551-UUUUU--RUEBEAA.

ZNR UUUUU

R 191400Z MAY 69

5-829
DATE: 20 May 69
ACTION: Armor
Info: POD

FM PROJ MANAGER GPV WARREN MICH

TO RUEBEAA/CG USATECOM ABERDEEN MD

INFO RUEBEAA/CO APG ABERDEEN MD ATTN STEAP-MT-TU MR D LIECHTY

BT

UNCLAS 5-4866 FROM AMCPM-GPV-TLI MR WOESSNER

FOR AMSTE-BB

SUBJECT: FORMAL PRODUCT IMPROVEMENT PROGRAM, M151A1C
WEAPON CARRIER

AS AGREED DURING THE FINAL TEAR-DOWN INSPECTION OF THE M151A1C WITH MODIFIED REAR SUSPENSION SYSTEM, THE TEST VEHICLE IS BEING RETURNED TO APG AFTER COMPLETION OF THE AERIAL DELIVERY TEST FOR 5,000 MILES OF ADDITIONAL DURABILITY TESTING.

THE ADDITIONAL TESTING WAS AGREED UPON TO FURTHER VERIFY THE ADEQUACY OF THE DESIGN OF THE NEW REAR SUSPENSION ARMS AND DEVELOP CONFIDENCE IN THE DESIGN SINCE CRACKS WERE REPORTED AT THE COMPLETION OF THE INITIAL TESTING. THE VEHICLE IS SCHEDULED TO BE SHIPPED FROM FORT BRAGG 19 MAY 1969.

BT

#8689

AMSTE-BB 4030-25 (8 May 69) 1st Ind
SUBJECT: Product Improvement/Safety Test M151, ¼ Ton Trucks

HQ, U. S. Army Test and Evaluation Command, Aberdeen Proving Ground, Maryland 21005 13 MAY 1969

TO: Commanding Officer, Aberdeen Proving Ground, ATTN: STEAP-MT-TU

Forwarded for compliance in connection with USATECOM Project No. 1-7-4030-25.

FOR THE COMMANDER:

JOHN P. WHEELER, JR.
Colonel, GS
Dir, Arm Mat Test Dir

DEPARTMENT OF THE ARMY
PROJECT MANAGER, GENERAL PURPOSE VEHICLES
MICHIGAN ARMY MISSILE PLANT
WARREN, MICHIGAN 48090 Mr. Woessner/ni/925-2648

IN REPLY REFER TO
AMCPM-GPV-TLI

8 May 1969

SUBJECT: Product Improvement/Safety Test M151, 1/4 Ton Trucks

Commanding General
U. S. Army Test & Evaluation Command
ATTN: AMSTE-BB
Aberdeen, Maryland 21005

1. Reference is made to:

a. Our letter dated 21 June 1968, subject as above.

b. Our letter dated 15 November 1968, subject as above.

2. Delete the following list of test components from those contained in reference 1b:

a. Two piece front lifting eye configuration (installed on all test trucks at APG and Fort Knox).

b. Windshield hinge pin (removed from all test trucks at APG and Fort Knox).

c. Dry element air cleaner (installed on truck 02C90868 at APG only).

d. Collapsible steering column (installed on all test trucks at APG and Fort Knox).

e. 0.093" thick exhaust manifold (never installed on test trucks at APG and Fort Knox).

Note: The above items should not be considered as test components even though they were installed on the trucks as indicated. The trucks were built with components as indicated and were shipped to the various test installations before they were withdrawn as test components. These test components should not affect the testing in any way.

3. The following is a list of vehicle and test components that were removed from the M718 Ambulance, 02C92468, after the accident at 2,104 miles on odometer and used on the rebuilt M718 test truck:

839XG4675-1	Arm Assy Left Rear Suspension
839XG4675-2	Arm Assy Right Rear Suspension
839XG4682 (2)	Springs, Rear Suspension
839XG4747 (2)	Shock Absorbers
7331281 (3)	Wheel & Tire Assy
7044861	Air Cleaner
839XG4798	Front Seat, Left
839XG4967	Front Seat, Right
839XG4447-1 & 2	Front Lifting Eyes
8754670	Instrument Cluster
10950750	Heater Kit
839XG4683	W/S Wiper Motor & Bracket
8741447	Headlight Lamp Housing
8741446	Headlight Lamp Housing
5381088	Starter Switch
MS 53000-1	Dimmer Switch
8376496	Fuel Level Sending Unit
MS 39062-1 (3)	Circuit Breakers
8712356	Trailer Receptacle
11630582-1 & 2	Battery Labels

4. It is requested that the total test miles for the M718 Ambulance, 02C92468, be reduced from 25,000 miles as contained in the original test plan, reference 1a, to 22,000 test miles on the rebuilt M718 Ambulance.

AMCPM-GPV-TLI 8 May 1969
SUBJECT: Product Improvement/Safety Test M151, 1/4 Ton Trucks

5. Modify paragraph 2b(1) in the test plan referenced in paragraph 1a of this letter to reduce the maximum slope requirement for the M151A1C test vehicle from 60% to 50%.

6. Removal of the experimental ventilation system from the M151A1 test vehicle at APG, 02C90868, was authorized. The vehicle was inadvertently shipped with the experimental ventilation system.

7. The fuel filter change at the carburetor from 70 micron to a 120 micron filter on vehicle 02C90868 was authorized by this office. This up-dated the filter to what is being proposed for production with the mechanical fuel pump and to the same filter installed on all other test vehicles.

8. The installation of an experimental fuel tank cap on vehicle 02C90868 at APG, that restricts the orientation of the air vent hole, was authorized. It is requested that this fuel tank cap be removed from vehicle 02C90868 and installed on vehicle 02C92468 for additional evaluation.

FOR THE PROJECT MANAGER:

M E Prather
for LOUIS MORTENSON
Chief, Tech Mgt Division, GPV

COPY/si

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ZNR UUUUU

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FM PROJECT MGR GPV WARREN MI

TO RUEBEAA/CG USATECOM ABERDEEN MD

INFO RUEVEAA/CO APG ATTN STEAP-MT-TU ABERDEEN MD

BT

6-412
11 Jun 69
ACTION: ARMOR
INFO: POD

UNCLAS 6-4900 FROM AMCPM-GPV-TLI, MR WOESSNER FOR AMSTE-BB

SUBJECT: PRODUCT IMPROVEMENT PROGRAM, M151 VEHICLES

IT IS REQUESTED THAT THE TWO REAR WHEEL DRIVE SHAFTS WITH U-JOINTS BE INSTALLED ON THE TEST VEHICLE 02C93068 AT ABERDEEN PROVING GROUND. THIS HARDWARE REFLECTS THE LATEST ENGINEERING CHANGES BEING PROPOSED. TO FULLY EVALUATE THE ADEQUACY OF THE DESIGN, IT IS REQUESTED THAT THE HARDWARE BE INSTALLED AS SOON AS POSSIBLE.

BT

#8285

NNNN

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*

Materiel Test Directorate
Aberdeen Proving Ground, Maryland 21005

2a. REPORT SECURITY CLASSIFICATION

For Official Use Only

2b. GROUP

3. REPORT TITLE

PRODUCT IMPROVEMENT TEST OF TRUCK, UTILITY, 1/4-TON, 4X4, M151 SERIES WITH MODIFIED INDEPENDENT REAR SUSPENSION SYSTEM

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*

Final Report - 14 November 1968 to 27 June 1969

5. AUTHOR(S) *(First name, middle initial, last name)*

J. R. Price

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
July 1969	233	0

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
AMCMS Code No. 4510.04.31.1	APG-MT-3294
b. PROJECT NO. USATECOM Project No. 1-VG-120-151-003	9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*
c.	
d.	

10. DISTRIBUTION STATEMENT

This document may be further distributed by any holder only with specific prior approval of Project Manager, General Purpose Vehicles, ATTN: AMCPM-GP-TL1.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
None	USAMC

13. ABSTRACT

A product improvement test was conducted on three trucks, utility, 1/4-ton, 4X4, M151 series with modified independent rear suspension (MIRS) at Aberdeen Proving Ground, Maryland from 14 November 1968 to 27 June 1969. Test vehicles incorporated nine primary and 27 secondary product improvement items. Purpose of the test was to determine ride and handling characteristics; compliance with specified technical performance requirements; and durability and maintenance support requirements. The ride and handling characteristics of the M151 with MIRS were an improvement compared to the production M151A1. Performance of the vehicle and durability of the M151 series MIRS system were generally satisfactory. The unsatisfactory and marginally satisfactory product-improvement test items require additional development. The satisfactory product-improvement test items, incorporated in the M151 series vehicles, do not degrade durability or maintainability characteristics.

DD FORM 1 NOV 68 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Product improvement test Truck, utility, 1/4-ton, 4X4, M151 series Modified independent rear suspension Trailing arm design, rear suspension system						

Unclassified
Security Classification

DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICE
COMBAT SUPPORT & COMBAT SERVICE SUPPORT
6501 EAST 11 MILE ROAD
WARREN, MICHIGAN 48397-5000

REPLY TO
ATTENTION OF

SFAE-CSS

22 MAR 2013

MEMORANDUM FOR Defense Technical Information Center (DTIC-OQ), 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6218

SUBJECT: Change of Classification Level to 4M151 Truck Documents

1. Reference Defense Technical Information Center (DTIC) Infosec "RE: M151A2 Documents retrieval and review" direction email of 14 December 2012.

2. In accordance with the above reference, please change the classification and distribution level for the following documents:

a. Document.

(1) The DTIC AD#: ADB271644

(2) Title: M151 Transmission Clutch Hub Insert – P/N 7059129

(3) Date of Document: 29 February 1972

(4) New Distribution/Classification: Distribution A. Approved for public release; distribution is unlimited.

(5) Reason for Change: This document has been reviewed for Operations Security (OPSEC) and has been deemed to contain no OPSEC concerns. The documents are for the M151 Truck that has not been in the military inventory since the early 1980s; the vehicle and associated documents are obsolete.

(6) Date of Change: Immediately

b. Document 2.

(1) The DTIC AD#: AD0474825

(2) Title: ENGINEER DESIGN TEST OF TRUCK, UTILITY, 1/4–TON, 4X4, M151 (RIDE AND HANDLING CHARACTERISTICS)

(3) Date of Document: 15 December 1965

(4) New Distribution/Classification: Distribution A. Approved for public release; distribution is unlimited.

(5) Reason for Change: This document has been reviewed for OPSEC and has been deemed to contain no OPSEC concerns. The documents are for the M151 Truck that has not been in the military inventory since the early 1980s; the vehicle and associated documents are obsolete.

(6) Date of Change: Immediately

c. Document 3.

(1) The DTIC AD#: AD0857240

(2) Title: Product Improvement Test of Truck, Utility, 1/4–TON, 4X4, M151 Series with Modified Independent Rear Suspension System

(3) Date of Document: 27 June 1969

(4) New Distribution/Classification: Distribution A. Approved for public release; distribution is unlimited.

(5) Reason for Change: This document has been reviewed for OPSEC and has been deemed to contain no OPSEC concerns. The documents are for the M151 Truck that has not been in the military inventory since the early 1980s; the vehicle and associated documents are obsolete.

(6) Date of Change: Immediately

d. Document 4.

(1) The DTIC AD#: ADB273320

(2) Title: Bonded vs. Riveted Brake Lining Test

(3) Date of Document: 12 January 1977

(4) New Distribution/Classification: Distribution A. Approved for public release; distribution is unlimited.

(5) Reason for Change: This document has been reviewed for OPSEC and has been deemed to contain no OPSEC concerns. The documents are for the M151 Truck that has not been in the military inventory since the early 1980s; the vehicle and associated documents are obsolete.

(6) Date of Change: Immediately

e. Document 5.

(1) The DTIC AD#: AD0810372

(2) Title: Product Improvement Test of Truck, Utility, 1/4–TON, 4X4, M151 Modified with Solid Rear Axle

(3) Date of Document: March 1967

(4) New Distribution/Classification: Distribution A. Approved for public release; distribution is unlimited.

(5) Reason for Change: This document has been reviewed for OPSEC and has been deemed to contain no OPSEC concerns. The documents are for the M151 Truck that has not been in the military inventory since the early 1980s; the vehicle and associated documents are obsolete.

(6) Date of Change: Immediately

f. Document 6.

(1) The DTIC AD#: ADB271624

(2) Title: Transmission Cluster Gear (M151 Vehicle)

(3) Date of Document: 06 March 1972

(4) New Distribution/Classification: Distribution A. Approved for public release; distribution is unlimited.

(5) Reason for Change: This document has been reviewed for OPSEC and has been deemed to contain no OPSEC concerns. The documents are for the M151 Truck that has not been in the military inventory since the early 1980s; the vehicle and associated documents are obsolete.

SFAE-CSS
SUBJECT: Change of Classification Level to 4M151 Truck Documents

(6) Date of Change: Immediately

3. The Point of Contact for this action is Robert Anick, Sr, email: robert.d.anick.civ@mail.mil or COM (586) 282-8448.

Kevin M. Fahey
Program Executive Officer,
Combat Support & Combat Service Support