

TM 9-1765A

WAR DEPARTMENT

TECHNICAL MANUAL



ORDNANCE MAINTENANCE

**AXLES, PROPELLER SHAFTS AND WHEELS
FOR BOMB SERVICE TRUCK M6 (CHEVROLET)**

DECEMBER 15, 1942

ORDNANCE MAINTENANCE

AXLES, PROPELLER SHAFTS AND WHEELS FOR BOMB SERVICE TRUCK M6 (CHEVROLET)

Prepared under the direction of
the Chief of Ordnance

(with the cooperation of the Chevrolet Motor Division, General Motors Corporation)

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Chapter 1

INTRODUCTION

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1. SCOPE.

a. This manual is published for the information of ordnance maintenance personnel. It contains detailed instructions for inspection, disassembly, assembly, maintenance and repair of the Bomb Service Truck M6 (Chevrolet), supplementary to those in the field and technical manuals prepared for the using arms. Additional descriptive matter and illustrations are included to aid in providing a complete working knowledge of the materiel.

2. ARRANGEMENT OF MANUAL.

a. The chapters of this manual cover the maintenance operations of the following main assemblies: front axle, rear axle, propeller shafts and universal joints, wheels, wheel bearings, tires. Each chapter is broken into sections which cover the removal of the assembly, disassembly, inspection, repairing and reassembling of the main assembly. The section index covers the paragraphs of the various operations within the section.

3. IMPORTANCE OF GOOD REPAIRS.

a. It is important that the mechanic repairing the vehicle use every precautionary measure possible to make sure that the repairs he is performing are of a high quality. This is important when dealing with army units, as much confusion and delay can result from "break-downs" on the road. Success is dependent upon fresh troops, ammunition, and supplies arriving at their destination on time. A systematic and careful check should be made as the various repair operations are being performed in order to prevent failures occurring again after repairs are performed.

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Chapter 2

FRONT AXLE REPAIR OPERATIONS

Section I

FRONT AXLE

	Paragraph
Description	4
Data	5
Reference to second echelon	6
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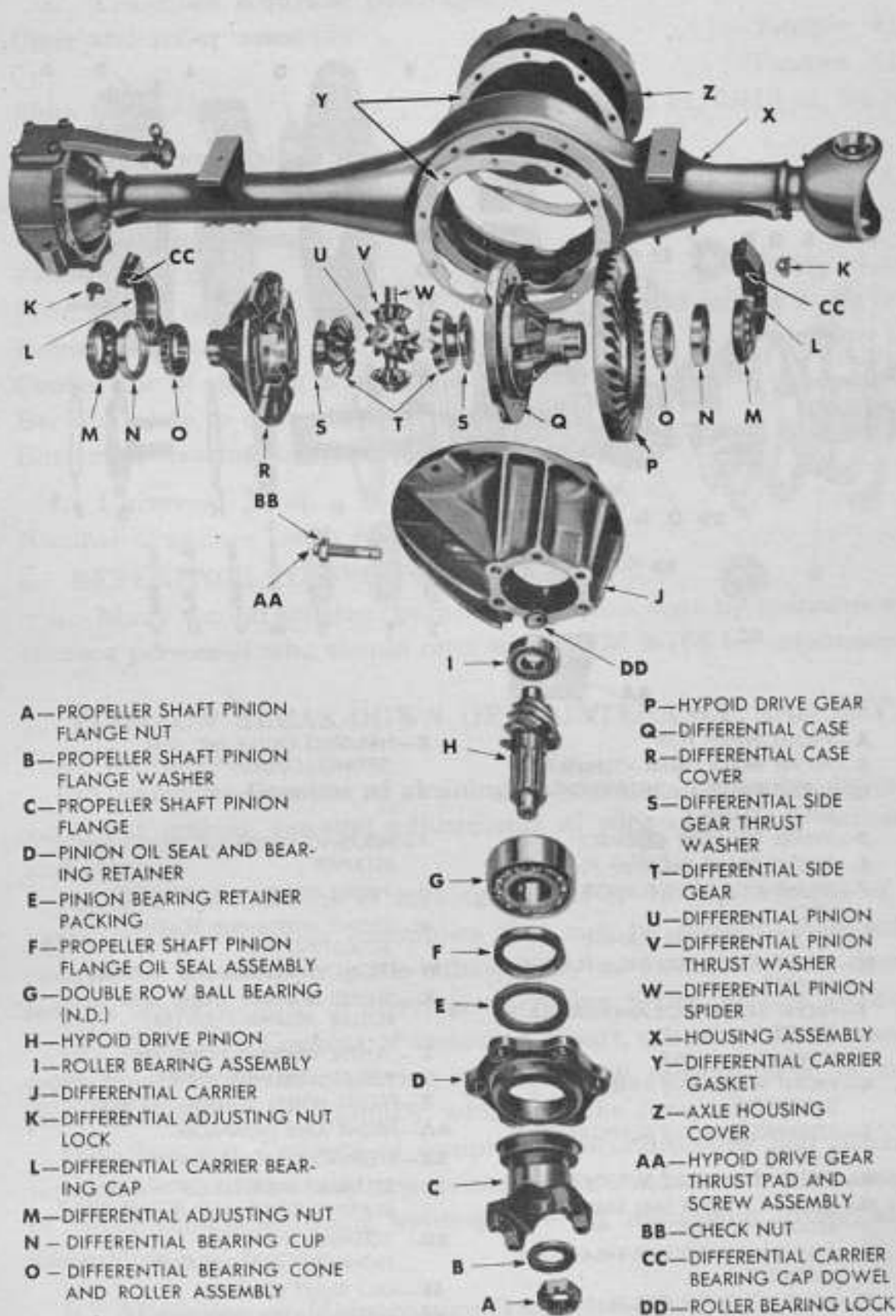
4. DESCRIPTION.

- a. A differential carrier assembly is mounted on the inside of the banjo housing in the same manner as in the rear axle, except that the pinion shaft points toward the rear instead of the front and the pinion is above the center line of the housing, while on the rear axle it is below the center line.
- b. The differential carrier assembly in the front axle is identically the same as the assembly in the rear axle and its parts are interchangeable with the carrier assembly on the rear axle.
- c. The differential housing cover is interchangeable with the one on the rear axle. The cover has two filler plug holes in it but it can be installed only in the correct position.

5. DATA.

- a. Differential.
Housing type Banjo
Drive Through the springs (Hotchkiss)
Drive type Hypoid
Gear ratio 6.67 to 1
Differential bearing Hyatt A-11820-Z
Inner pinion bearing Hyatt U-1306-TAM
Outer pinion bearing New Departure H-5310-A
- b. Wheel Bearing.
Cone and roller assembly (inner) Timken 33275
Cup (inner) Timken 33472
Cone and roller assembly (outer) Timken 399-A
Cup (outer) Timken 394-A

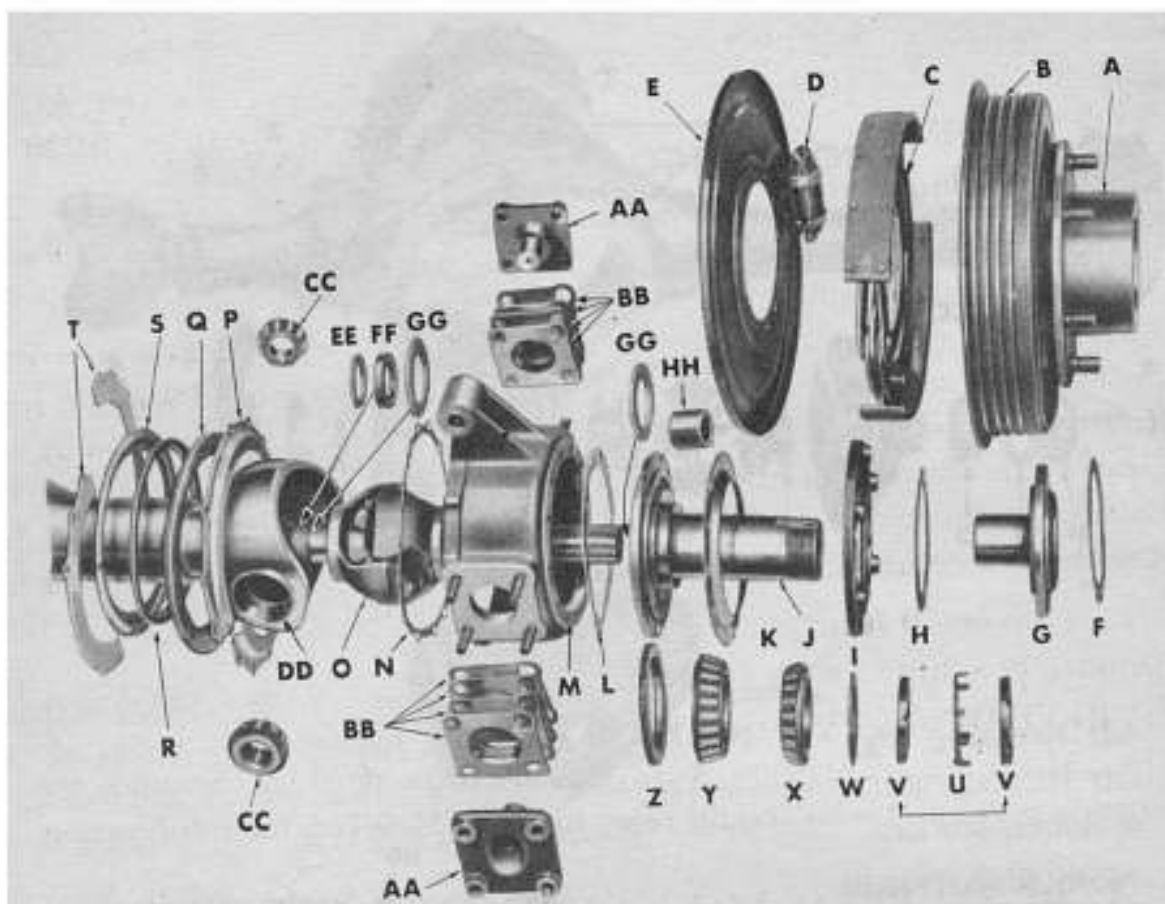
FRONT AXLE



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Figure 1—Front Axle and Differential

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- | | |
|--|---|
| A —FRONT WHEEL HUB | R —HOUSING OUTER END SEAL (SPRING LOADED) |
| B —FRONT BRAKE DRUM ASSEMBLY | S —OIL SEAL RETAINER |
| C —FRONT BRAKE ANCHOR PLATE AND SHOE ASSEMBLY | T —HOUSING OUTER END SEAL INNER RETAINER |
| D —WHEEL CYLINDER ASSEMBLY | U —FRONT WHEEL HUB NUT LOCK |
| E —FRONT BRAKE BACKING PLATE | V —FRONT WHEEL HUB BEARING ADJUSTING NUT |
| F —FRONT AXLE DRIVE FLANGE BOLT LOCK | W —FRONT WHEEL HUB NUT WASHER |
| G —FRONT AXLE DRIVE FLANGE | X —WHEEL BEARING CONE AND ROLLER ASSEMBLY (OUTER) |
| H —FRONT WHEEL HUB DRIVE FLANGE GASKET | Y —WHEEL BEARING CONE AND ROLLER ASSEMBLY (INNER) |
| I —FRONT BRAKE SHOE ANCHOR PLATE SPACER | Z —FRONT WHEEL BEARING OIL SEAL |
| J —STEERING KNUCKLE | AA —FRONT AXLE TRUNNION |
| K —FRONT WHEEL HUB INNER OIL DEFLECTOR | BB —STEERING KNUCKLE BEARING SHIM |
| L —STEERING KNUCKLE SUPPORT GASKET | CC —STEERING KNUCKLE TRUNNION BEARING CONE AND ROLLER ASSY |
| M —STEERING KNUCKLE SUPPORT | DD —STEERING KNUCKLE TRUNNION BEARING CUP |
| N —HOUSING OUTER END SEAL RETAINER GASKET | EE —AXLE SHAFT OIL SEAL |
| O —AXLE SHAFT AND UNIVERSAL JOINT ASSEMBLY | FF —AXLE SHAFT OIL SEAL SHIM |
| P —HOUSING OUTER END SEAL RETAINER | GG —THRUST WASHER |
| Q —HOUSING OUTER END SEAL | HH —STEERING KNUCKLE BUSHING |
| | |

RA BD 55801

Figure 2—Front Wheel Hub and Steering Knuckle Parts

FRONT AXLE**c. Trunnion Knuckle Bearings.**

Cone and roller assembly.....Timken 41125
 CupTimken 41286
 Shim thickness.....0.002 in., 0.005 in., 0.010 in., 0.030 in.

d. Turning Radius Stop Screw.

Maximum angle of inner wheel..... 28 deg + 1 deg — 0 deg

e. Steering Geometry.

Front wheel camber..... ½ deg to 1 deg
 Front wheel caster .. 1 deg 30 min to 2 deg 0 min
 Front wheel toe-in 0 in. to ⅛ in.
 Center line of steering arm ball to center line of spring 4½ in.
 Backing plate to center line of tie rod bolt..... 3 19/64 in.
 Bottom of steering arm to top of axle housing..... 1¾ in.

f. Universal Joint.

Number of splines (each end) 10

6. REFERENCE TO SECOND ECHELON.

a. Many second echelon operations are often done by ordnance maintenance personnel who should refer to the TM 9-765 for information.

7. ECHELON BREAK-DOWN OF MAINTENANCE AND REPAIR.**a. Definitions.**

(1) **SERVICE.** Consists of cleaning, lubricating, tightening bolts and nuts, and making external adjustments of subassemblies or assemblies and controls.

(2) **REPAIR.** Consists of making repairs to, or replacement of such parts, subassemblies or assemblies that can be accomplished without completely disassembling the subassembly or assemblies and does not require heavy welding or riveting, machining, fitting, and/or alining.

(3) **REPLACE.** Consists of removing a part, subassembly or assembly from the vehicle and replacing it with a new, reconditioned or rebuilt part, subassembly or assembly, whichever the case may be.

(4) **REBUILD.** Consists of completely reconditioning and placing in serviceable condition any unserviceable part, subassembly or assembly of motor vehicle including welding, riveting, machining, fitting, alining, assembling and testing.

b. Allocation of Maintenance Operations.

	Echelons 2nd, 3rd, 4th
Front axle assembly—replace	x
Front axle assembly—minor repairs	x
Front axle assembly—rebuild	x

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	Echelons		
	2nd, 3rd, 4th		
Drive flange—replace	x		
Front hub—replace	x		
Wheel bearings—adjust or replace	x		
Retracting springs—replace	x		
Anchor plate—replace	x		
Brake flange plate—replace	x		
Brake shoes—replace	x		
Brake shoes—reline		x	
Wheel cylinders—replace	x		
Wheel cylinders—repair		x	
Steering knuckle—replace	x		
Steering knuckle—repair or rebush		x	
Axle shaft—replace	x		
Axle shaft—repair			x
Trunnion knuckle bearings—replace		x	
Steering knuckle support—replace		x	
Tie rod bushing—replace		x	
Outer end seal—replace	x		
Third member—replace	x		
Third member—rebuild			x
Universal joint—replace	x		
Universal joint—repair			x
Turning radius stop screw—adjust			x
Caster—adjust			x
Camber—adjust			x
Toe-in—adjust	x		

Section II**TROUBLE SHOOTING**

	Paragraph
General	8
Trouble shooting	9

8. GENERAL.

a. In checking the front axle, practically all troubles can be located through a good visual inspection and a thorough road test of the vehicle. In some cases it may be necessary to raise the front end of the vehicle with a suitable jack. This will take the load off the front axle and make it easier to inspect the wheel bearings, tie rod, etc. In cases of misalignment of the front end, it will be necessary to check the caster, camber and steering geometry with front end alinement equipment.

9. TROUBLE SHOOTING.**a. Hard Steering.**

Probable Cause	Probable Remedy
Lack of lubrication.	Lubricate tie rod ends, steering gear and steering connecting rod.
Steering gear out of adjustment.	Adjust steering gear (TM 9-765, par. 161).
Improper toe-in.	Adjust toe-in at end of tie rod (par. 29 c (11)).
Low tire pressure.	Inflate tires to 55 pounds.
Bent frame.	Straighten and aline frame.
Incorrect front end alinement.	Aline front end.
Unevenly worn or cupped tires.	Aline front end.
Spring leaf or leaves broken.	Repair springs.
Spring center bolt broken and spring shifted on axle.	Replace spring center bolt and line up spring with axle.
Bent axle housing.	Replace or straighten axle housing (par. 29 c (12)).

b. Lubricant Leaks.

Leak at steering knuckle support.	Replace housing outer end seal and gasket (par. 28 b (5)).
Leaks at differential cover.	Replace cover gasket (par. 48 b (6)).
Leak between third member and banjo housing.	Replace gasket (par. 28 b (2)).