

TECHNICAL MANUAL

**DIRECT SUPPORT AND
GENERAL SUPPORT MAINTENANCE**

**TRUCK TRACTOR, LINE HAUL,
50,000 GVWR, 6 X 4, M915 (NSN 2320-01-028-4395)**
**TRUCK TRACTOR, LIGHT EQUIPMENT TRANSPORTER
(LET), 56,000 GVWR, 6 X 6, W/WINCH
M916 (NSN 2320-01-028-4396)**
**TRUCK TRACTOR, MEDIUM EQUIPMENT TRANSPORTER
(MET), 75,000 GVWR, 8 X 6, W/WINCH
M920 (NSN 2320-01 -028-4397)**
**TRUCK CHASSIS, 75,000 GVWR, 8 X 6,
FOR 20-TON DUMP TRUCK,
M917 (NSN 3805-01-028-4389)**
**TRUCK CHASSIS, 56,000 GVWR, 6 X 6,
FOR BITUMINOUS DISTRIBUTOR TRUCK,
M918 (NSN 3895-01-028-4390)**
**TRUCK CHASSIS, 75,000 GVWR, 8 X 6,
FOR CONCRETE-MOBILE[®] MIXER TRUCK,
M919 (NSN 3895-01-028-4391)**

This copy is a reprint which includes current
pages from Change 1.

TECHNICAL MANUAL
No. 9-2320-273-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
 WASHINGTON, DC, 19 December 1980

DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL

TRUCK TRACTOR, LINE HAUL, 50,000 GVWR, 6 X 4, M915 (NSN 2320-01-028-4395)

TRUCK TRACTOR, LIGHT EQUIPMENT TRANSPORTER (LET), 56,000 GVWR, 6 X 6, W/WINCH
M916 (NSN 2320-01-028-4396)

TRUCK TRACTOR, MEDIUM EQUIPMENT TRANSPORTER (MET), 75,000 GVWR, 8 x 6,
W/WINCH M920 (NSN 2320-01-028-4397)

TRUCK CHASSIS, 75,000 GVWR, 8 X 6, FOR 20 TON DUMP TRUCK, M917
(NSN 3805-01-026-4389)

TRUCK CHASSIS, 56,000 GVWR, 6 X 6, FOR BITUMINOUS DISTRIBUTOR TRUCK, M918
(NSN 3895-01-028-4390)

TRUCK CHASSIS, 75,000 GVWR, 8 X 6, FOR CONCRETE-MOBILE MIXER TRUCK, M919
(NSN 3895-01-028-4391)

REPORTING ERRORS AND
RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this publication direct to: US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

	Paragraph	Page
CHAPTER 1 INTRODUCTION		
Section I General	1-1 -1-4	1-1
Section II Description and Data	1-5- 1-7	1-1
CHAPTER 2 MAINTENANCE INSTRUCTIONS		
Section I Repair Pans, Special Tools, and Equipment	2-1 -2-3	2-1
Section II Troubleshooting	2-4	2-1
Section III General Maintenance	2-5- 2-9	2-27
Section IV Removal and Installation of Major Components.	2-10-2-17	2-31
CHAPTER 3 REPAIR OF FUEL SYSTEM	3-1-3-11	3-1

		Paragraph	Page
CHAPTER 4	REPAIR OF COOLING SYSTEM		
Section I	Radiator Assembly	4-1,4-2	4-1
Section II	Fan Clutch Assembly	4-3-4-8	4-3
CHAPTER 5	REPAIR OF ELECTRICAL SYSTEM		
Section I	Alternator and Transformer-Rectifier.	5-1-5-7	5-1
Section II	Starting Motor	5-8-5-14	5-30
CHAPTER 6	REPAIR OF ENGINE COMPONENTS		
Section I	Introduction	6-1	6-1
Section II	Maintenance Procedures	6-2-6-5	6-1
CHAPTER 7	REPAIR OF TRANSMISSION		
Section I	Introduction	7-1	7-1
Section II	Ratio Selector	7-2-7-6	7-4
Section II 1	Transmission Case	7-7-7-20	7-47
CHAPTER 8	REPAIR OF TRANSFER ASSEMBLY	8-1-8-7	8-1
CHAPTER 9	REPAIR OF M915 FRONT AXLE	9-1 - 9-8	9-1
CHAPTER 10	REPAIR OF M916/M920 FRONT AXLE	10-1 -10-9	10-1
CHAPTER 11	REPAIR OF M915 REAR TANDEM AXLE		
Section I	Forward Rear Axle	11-1 - 11-12	11-1
Section II	Rear Rear Axle	11-13-11-19	11-48
CHAPTER 12	REPAIR OF M916/M920 REAR TANDEM AXLE		
Section I	Forward Rear Axle	12-1-12-11	12-1
Section II	Rear Rear Axle	12-12-12-17	12-27
CHAPTER 13	REPAIR OF PUSHER AXLE	13-1, 13-2	13-1
CHAPTER 14	REPAIR OF AIR COMPRESSOR AND BRAKES		
Section 1	Air Compressor	14-1 - 14-8	14-1
Section II	Air Governor	14-12	14-36
Section III	Brake Shoes		
Section III.1	Brake Drum	14-12.1	14-42.1
Section IV	Spring Brake Air Chamber	14-13-14-17	14-43
Section V	Trailer Handbrake Valve Maintenance.	14-18,14-22	14-50
CHAPTER 15	REPAIR OF WHEELS AND TIRES.	15-1 -15-3	15-1
CHAPTER 16	REPAIR OF STEERING SYSTEM COMPONENTS		
Section I	Steering Gear	16-1-16-8	16-1
Section II	Hydraulic Steering Pump and Reservoir Assembly	16-5-16-11	16-4
Section III	Power Steering Assist Cylinder.. . . .	16-12-16-15	16-11
CHAPTER 17	REPAIR OF FIFTH WHEEL		
Section I	M915 Fifth Wheel.	17-1 -17-4	17-1
Section II	M916 & M920 Fifth Wheel	17-5 -17-9	17-5

	Paragraph	Page
Section II M916 & M920 Fifth Wheel	17-5 -17-9	17-5
Section III M916 & M920 Compensator Plate...	17-11-17-16	17-9
CHAPTER 18 REPAIR OF SUSPENSION		
Section I Front Springs	18-1 -18-5	18-1
Section II Rear Springs	18-6 - 18-11	18-5
Section III Equalizer Beams	18-12 - 18-16	18-10
CHAPTER 19 REPAIR OF CAB AND BODY		
Section I Cab	19-1 -19-3	19-1
Section II Hood	19-4, 19-5	19-15
Section III Windshield and Sliding Rear Window	19-6, 19-8	19-16
Section IV bats	19-9 - 19-11	19-20
Section V Doors and Windows	19-15	19-28
CHAPTER 20 REPAIR OF WINCH ASSEMBLY.. . . .		
		20-1- 20-14 20-1
CHAPTER 21 REPAIR OF POWER TAKEOFF AND ADAPTER.		
		21-1-21-15 21-1
CHAPTER 22 REPAIR OF HEATER		
		22-1 -22-5 22-1
CHAPTER 23 REPAIR OF WINTERIZATION KIT		
		23-1 -23-8 23-1
CHAPTER 24 REPAIR OF FRAME		
		24-1 -24-3 24-1
APPENDIX A REFERENCES		
		A-1
B EXPENDABLE SUPPLIES AND MATERIALS LIST		
		B-1
INDEX		INDEX 1

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

a. This technical manual contains instructions for Direct Support and General Support maintenance of the M915, M916, and M920 truck tractor and chassis of M917, M918, and M919 vehicles.

b. Appendix A contains a list of current references, including supply manuals, forms, technical manuals, and other available publications applicable to the M915 series vehicles.

c. Appendix B contains a list of all supplies and materials needed to perform the maintenance specified in this manual.

1-2. Maintenance Forms and Records. Equipment maintenance forms and procedures for their use are contained in TM 38-750, the Army Maintenance Management System (TAMMS).

1-3. Reporting Equipment Improvement Recommendations (EIR). EIR's will be prepared using DA Form 2407, Maintenance Request. Instructions for preparing E I R's are provided in TM 38-750, The Army Maintenance Management System. E I R's should be mailed directly to: Commander, U.S. Army, Tank-Automotive Command, ATTN: DRSTA-MBA, Warren, Michigan 48090. A reply will be furnished directly to you.

1-4. Destruction of Army Materiel to Prevent Enemy Use. Procedures outlined in TM 750-244-6 (Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use) are applicable to this equipment.

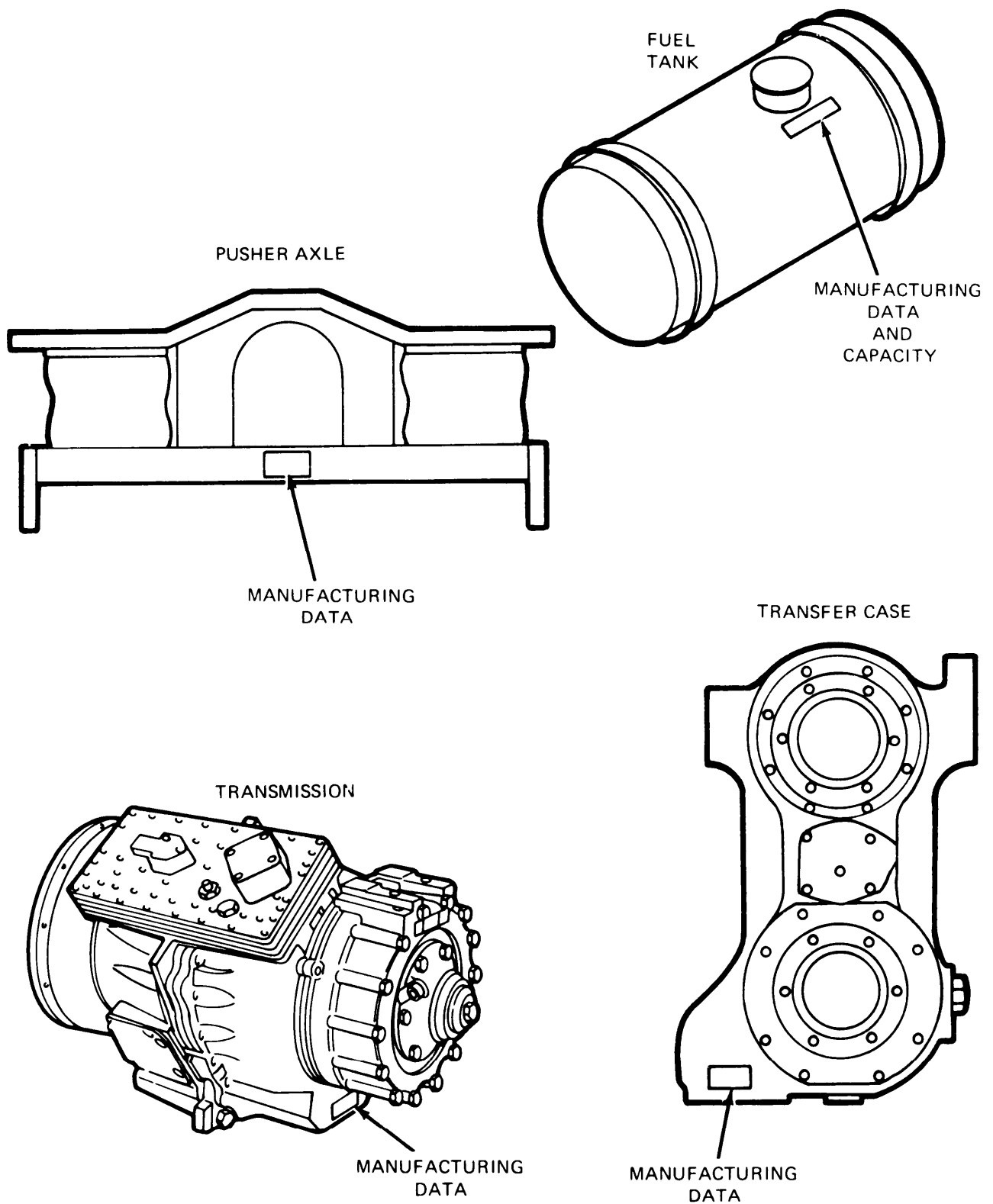
Section II. DESCRIPTION AND DATA

1-5. Description. This manual contains descriptions of the components serviced at Direct Support and General Support maintenance. Vehicle description can be found in TM 9-2320-273-20, chapters 1 and 2.

1-6. Tabulated Data. Vehicle tabulated data, including major components can be found in TM 9-2320-273-20, Approximate coolant, fuel, lubricant, and hydraulic capacities are as follows:

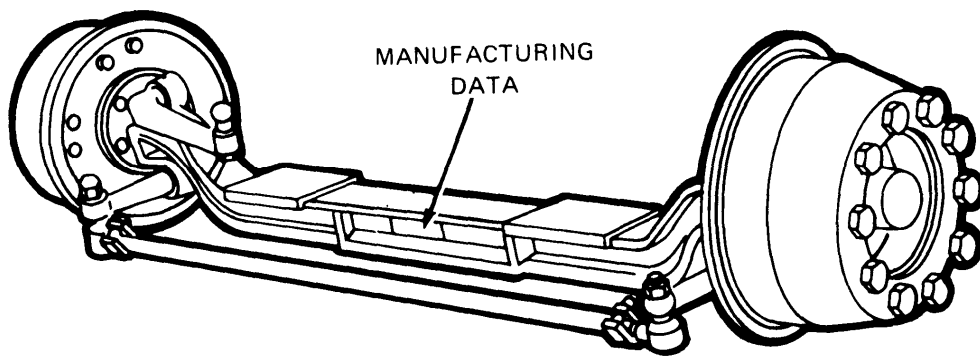
	<u>REFILL</u>	<u>DRY</u>
a. Engine Cooling System	65 qts /62 l)	69 qts (65 l)
b. Engine Lubricating System (Including Engine and Bypass Filter)	46 qts (44 l)	46 qts (44 l)
c. Fuel Tank	110 gals (416 l) (useable)	118gals. (447 l)
d. Transmission (with clutch housing drained)	22 qts (21 l)	22 qts (21 l)
e. Front Axle (M916 thru M920)	35 pts (17 l)	35 pts (17 l)
f. Forward Rear Axle (M916 thru M920)	34 pts (16 l)	34 pts (16 l)
g. Rear Rear Axle (M916 thru M920)	28 pts (13 l)	28 pts (13 l)
h. Forward Rear Axle (M915)	40 pts (19 l)	40 pts (19 l)
i. Rear Rear Axle (M915)	36 pts (17l)	36 pts (17l)
j. Power Steering	2 qts (2 l)	2 qts (2 l)
k. Winch Hydraulic Reservoir (M916 and M920)	42 gals (159 l)	42 gals (159 l)
l. Winch Drum (M916 and M920)	2 qts (2 l)	2 qts (2 l)

1-7. Data and Instruction Plates. Data and instruction plates with operator-type information are described and illustrated in TM 9-2320-273-10. Additional data and instruction plates are shown in figure 1-1.

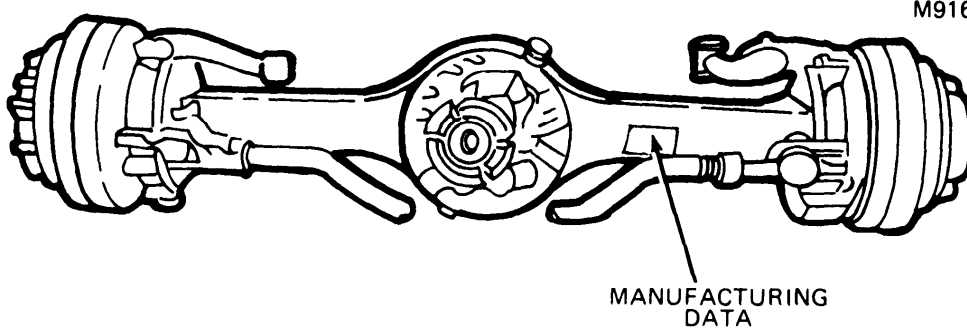


TA 073952

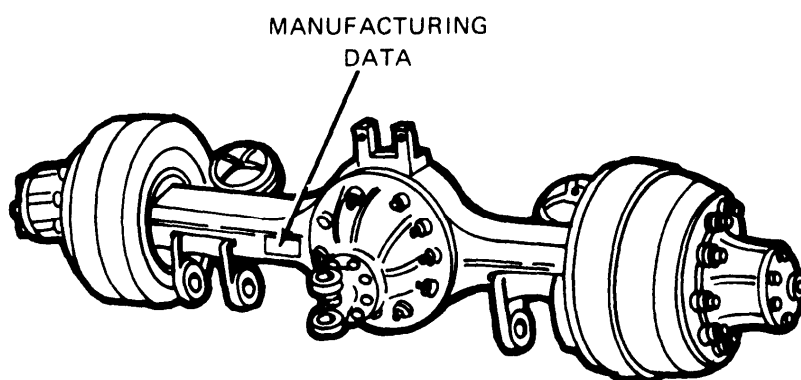
Figure 1-1. Data and instruction Plates (Sheet 1 of 2).



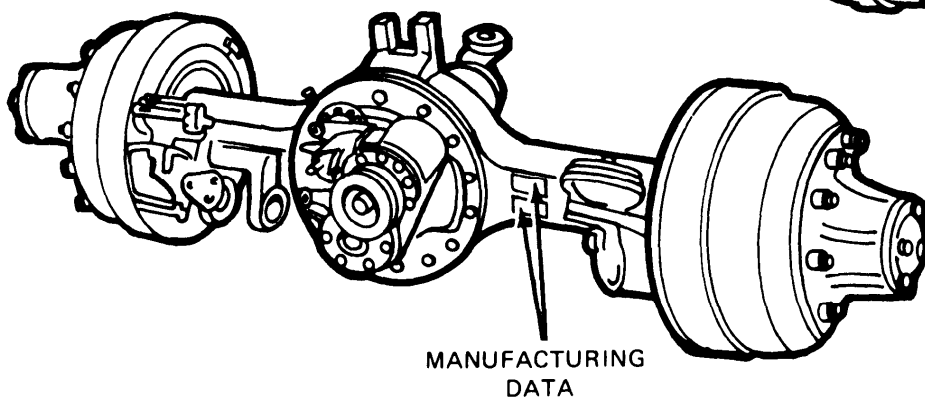
M915 – FRONT



M916 THRU M920 – FRONT



REAR REAR AXLE



FORWARD REAR AXLE

TA 073953

Figure 1-7. Data and instruction Plates (Sheet 2 of 2).

CHAPTER 2

MAINTENANCE INSTRUCTIONS

Section 1. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

2-1. Special Tools and Equipment. Special tools and equipment specified for use in this manual are listed in TM 9-2320-273-34P, Direct Support and General Support Repair Parts and Special Tools List.

2-2. Repair Parts. Repair parts are listed and illustrated in the Repair Parts and Special Tools list covering Direct Support and General Support Maintenance, TM 9-2320-273-34P.

2-3. Fabricated Tools and Equipment. (See Table 2-1.)

Table 2-1. Fabricated Tools and Equipment

	DESCRIPTION	USE	MATERIALS AND DETAIL DRAWING
1.	Adjustment Gage	Starter Adjustment	Fig. 5-39
2.	Timing Gage	Starter Timing	Fig. 5-39
3.	Test Set	Transmission Testing	Fig. 7-54
4.	Bushing Removal/ Installation Tool	Replace Steering Knuckle Bushings	Fig. 9-7

Section II. TROUBLESHOOTING

2-4. Introduction. This section provides procedures to troubleshoot vehicle systems, assemblies, and components for which repairs are authorized at Direct Support and General Support maintenance level. These procedures supplement the following troubleshooting procedures for the M915 series vehicles.

- a. Operator/crew level (TM 9-2320-273-10)
- b. Organizational level (TM 9-2320-273-20)
- c. Engine Direct Support and General Support level (TM 9-2815-222-34 & P)

To assist in isolating a problem, see one of the following procedures in this section:

PROCEDURE	TABLE
Alternator	2-2
Transmission and Shift Controls	2-3
Transfer Assembly	2-4
M916/M920 Front Axle	2-5
M915 Rear Axle	2-6
M916/M920 Rear Axle	2-7
Brakes	2-8
Steering System	2-9
Winch	2-10
Power Takeoff	2-11

Table 2-2. Alternator Troubleshooting Procedures.

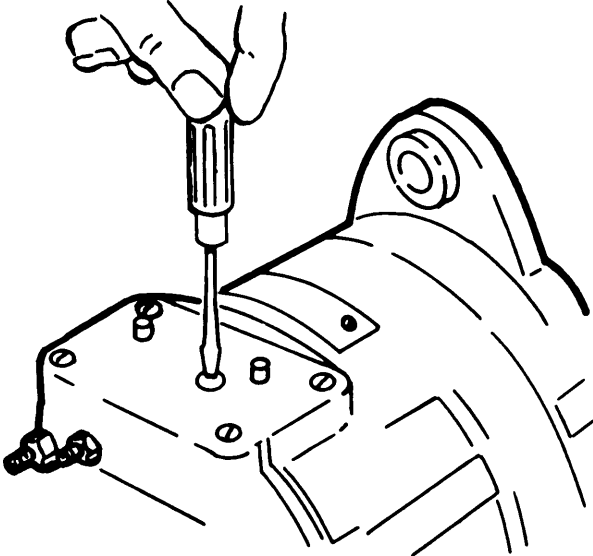
MALF	STEP	INSTRUCTION	INDICATION	YES	NO	REMARKS
		NOTE The procedures in this table may be accomplished on the vehicle or on a test stand. Before performing troubleshooting procedures on the vehicle, check to see that the drive belts are not slipping and the associated wiring is not defective. These are common problems that will invalidate the alternator tests. ALTERNATOR DOES NOT CHARGE. NOTE Determine if problem is the alternator or regulator.				
	1.	Connect voltmeter across battery with engine stopped.				Record voltmeter indication.
	2.	Start engine.	1000 rpm	Go to step 3.		
	3.	Remove plastic cap from regulator and turn adjusting screw back and forth as shown below.	13.6V to 14.2V			If indication is high and cannot be lowered by adjustment screw, regulator is bad. Replace regulator. If the output voltage is low and cannot be raised, either the alternator, regulator, or diode trio may be at fault. Go to step 4.
						

Table 2-2. Alternator Troubleshooting Procedures (Continued).

MALF	STEP	INSTRUCTION	INDICATION	YES	NO	REMARKS
	4.	With engine running at 1000 rpm, connect one end of a short jumper to the negative alternator output terminal and connect the other end to a short, stiff piece of wire at least 1-1/2 in. long. (A piece of paper clip wire is suitable.) Insert this wire into the small hole in the end of the brush holder so that it firmly contacts the outer brush terminal as shown below.	a. Rising voltmeter indication. b. No raise in voltmeter indication.	Alternator is okay. Go on to step 5.		Fault is in regulator or diode trio. Remove diode trio (para 5-3b (6)) and test (para 5-4c). If diode trio is ok, retest regulator (para 5-2).

A line drawing showing a hand holding a wire and inserting it into a small hole in the end of an alternator brush holder. The wire is intended to make contact with the outer brush terminal. The alternator housing and other components are shown in a simplified, schematic-like style.