

TM 9-1425-470-34

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT

MAINTENANCE MANUAL

FOR

TOW HEAVY ANTITANK/ASSAULT

WEAPON SYSTEM

This copy is a reprint which includes current
pages from Chapter 1

Section 1: Introduction

This document is a report on the progress of the project. It covers the period from January to March 2024. The main objectives of the project are to develop a new software application and to conduct a thorough analysis of the market.

Section 2: Methodology

The methodology used in this project is a combination of qualitative and quantitative research. The qualitative research involves interviews with experts in the field, while the quantitative research involves the analysis of market data and surveys.

Section 3: Results

The results of the project show that there is a strong demand for the new software application. The market analysis indicates that there is a significant gap in the current market, which can be filled by the proposed application.

Section 4: Conclusion

In conclusion, the project has been successful in identifying a market opportunity and in developing a viable business plan. The next steps are to secure funding and to begin development of the software application.

Section 5: Appendix

The appendix contains additional information related to the project, including a list of references and a detailed description of the software application.

Section 6: Bibliography

The bibliography lists the sources used in the project, including books, articles, and online resources.

Technical Manual)
)
 No. 9-1425-470-34)

HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 Washington, D.C., 1 April 1971

**DIRECT SUPPORT AND GENERAL SUPPORT
 MAINTENANCE MANUAL
 FOR
 TOW HEAVY ANTITANK/ASSAULT
 WEAPON SYSTEM**

		Paragraph	Page
CHAPTER	1. INTRODUCTION		
Section	I. General	1-1	1-1
	II. General and Repetitive Maintenance Procedures	1-6	1-1
CHAPTER	1.1. THEORY, BLOCK, AND FUNCTIONAL DIAGRAMS		
Section	I. General	1.1-1	1.1-1
	II. Weapon System	1.1-6	1.1-3
	III. Self-Tests	1.1-10	1.1-25
	IV. Training Set	1.1-18	1.1-43
	V. Battery Charger	1.1-21	1.1-67
CHAPTER	2. REPAIR PARTS, TOOLS, and EQUIPMENT	2-1	2-1
CHAPTER	2.1. TROUBLESHOOTING PROCEDURES		
Section	I. Weapon System	2.1-1	2.1-1
	II. TOW training Set	2.1-5	2.1-21
CHAPTER	3. REPAIR OF TRIPOD AND LAUNCH TUBE		
Section	I. Tripod	3-1	3-1
	II. Launch Tube	3-11	3-9
CHAPTER	4. REPAIR OF BATTERY ASSEMBLY	4-1	4-1
CHAPTER	5. REPAIR OF M233 MOUNTING KIT	5-1	5-1
CHAPTER	6. REPAIR OF M232 MOUNTING KIT	6-1	6-1
CHAPTER	7. REPAIR OF MOUNTING KIT (M-236) FOR 1/4-TON/MISSILE CARRIER	7-1	7-1
CHAPTER	8. REPAIR OF MOUNTING KIT (M-225) FOR 1/2-TON VEHICLE	8-1	8-1
CHAPTER	9. REPAIR OF TARGET ASSEMBLY, MOUNTING KIT, AND MISSILE SIMULATION ROUND	9-1	9-1
APPENDIX	A. REFERENCES		A-1
INDEX		Index 1

Section 1: Introduction

This document is a report on the progress of the project. It covers the period from January to March 2024. The main objectives of the project are to develop a new software application and to conduct a thorough analysis of the market.

Section 2: Methodology

The methodology used in this project is a combination of qualitative and quantitative research. The qualitative research involves interviews with experts in the field, while the quantitative research involves the analysis of market data and surveys.

Section 3: Results

The results of the project show that there is a strong demand for the new software application. The market analysis indicates that there is a significant gap in the current market, which can be filled by the proposed application.

Section 4: Conclusion

In conclusion, the project has been successful in identifying a viable market opportunity. The results of the research support the development of the new software application.

Section 5: Recommendations

Based on the findings of the project, it is recommended that the development of the new software application should proceed. It is also recommended that a thorough marketing strategy be developed to ensure the success of the application.

Section 6: Appendix

The appendix contains additional information related to the project, including a list of references and a detailed description of the software application.

Technical Manual)
)
 No. 9-1425-470-34)

HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 Washington, D.C., 1 April 1971

**DIRECT SUPPORT AND GENERAL SUPPORT
 MAINTENANCE MANUAL
 FOR
 TOW HEAVY ANTITANK/ASSAULT
 WEAPON SYSTEM**

		Paragraph	Page
CHAPTER	1. INTRODUCTION		
Section	I. General	1-1	1-1
	II. General and Repetitive Maintenance Procedures	1-6	1-1
CHAPTER	1.1. THEORY, BLOCK, AND FUNCTIONAL DIAGRAMS		
Section	I. General	1.1-1	1.1-1
	II. Weapon System	1.1-6	1.1-3
	III. Self-Tests	1.1-10	1.1-25
	IV. Training Set	1.1-18	1.1-43
	V. Battery Charger	1.1-21	1.1-67
CHAPTER	2. REPAIR PARTS, TOOLS, and EQUIPMENT	2-1	2-1
CHAPTER	2.1. TROUBLESHOOTING PROCEDURES		
Section	I. Weapon System	2.1-1	2.1-1
	II. TOW training Set	2.1-5	2.1-21
CHAPTER	3. REPAIR OF TRIPOD AND LAUNCH TUBE		
Section	I. Tripod	3-1	3-1
	II. Launch Tube	3-11	3-9
CHAPTER	4. REPAIR OF BATTERY ASSEMBLY	4-1	4-1
CHAPTER	5. REPAIR OF M233 MOUNTING KIT	5-1	5-1
CHAPTER	6. REPAIR OF M232 MOUNTING KIT	6-1	6-1
CHAPTER	7. REPAIR OF MOUNTING KIT (M-236) FOR 1/4-TON/MISSILE CARRIER	7-1	7-1
CHAPTER	8. REPAIR OF MOUNTING KIT (M-225) FOR 1/2-TON VEHICLE	8-1	8-1
CHAPTER	9. REPAIR OF TARGET ASSEMBLY, MOUNTING KIT, AND MISSILE SIMULATION ROUND	9-1	9-1
APPENDIX	A. REFERENCES		A-1
INDEX		Index 1

OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

THE UNIVERSITY OF THE STATE OF TEXAS

CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This is one of a series of technical manuals covering the operation, emplacement, and maintenance of the TOW Heavy Antitank/Assault Weapon System. Refer to TM 9-1425-470-12 and TM 9-6920-470-12 for a listing of publications indexes, administrative publications, forms and records publications, and TOW technical manuals.

b. This manual contains repair procedures for restoring defective mechanical components of the TOW weapon system to a serviceable condition. Generally, repair of an item consists of removal of the item, disassembly to the level necessary for repair or replacement of the faulty part, reassembly, and final inspection (testing). In this manual, it is understood that parts damaged beyond repair are to be replaced.

c. Exploded view illustrations used in this manual may show exploded parts that are not authorized for replacement and that are not involved with the described maintenance operation. Identification of parts on such illustrations is restricted to those parts directly involved with the described operation. The identification includes only parts that are authorized for replacement at the direct support/general support maintenance level.

1-2. Maintenance Allocation

Repair parts, common tools, and special tools are given in Chapter 2 of this manual. Maintenance allocation charts are contained in TM 9-1425-470-12 and TM 9-6920-470-12.

1-3. Nomenclature

A cross-reference index of official nomenclature and technical manual nomenclature is given in TM 9-1425-470-12 and TM 9-6920-470-12.

1-4. Forms, Records and Reports

Refer to TM 38-750 for instructions on the use and completion of all forms required for operating and maintaining the equipment.

1-5. Reporting Equipment Publication Improvements

Reports of errors, omissions, and/or recommendations for improving this publication by the individual is encouraged. Reports should be submitted on DA Form 2028 (Recommended changes to DA Publications) and forwarded direct to: Commanding General, U.S. Army Missile Command, ATTN: **AMSMI-NPM** Redstone Arsenal, Alabama 35809.

Section II. GENERAL AND REPETITIVE MAINTENANCE PROCEDURES

1-6. General

This section contains instructions for performing general and repetitive maintenance procedures which are applicable to more than one section of this manual.

1-7 Removal of Bonded Items

WARNING

Solvent used in the following step is toxic and flammable and

must be used with extreme care.

is disassembled. Personnel performing corrective

The mounting kits for the vehicles have lock rings and inserts as attaching parts. To remove lock ring, drill out to depth of counterbore and collapse the remaining portion of the lock ring with a punch and remove.

1-9. In-Process Inspection

In-process inspection, as required, will be conducted on all components undergoing repair. It consists of checking component parts for defects that become apparent only when the component

Final inspection is a quality acceptance inspection that must be performed on all materiel after repair before it can be classified as serviceable. Final inspection consists of a visual inspection and an operational test where applicable. Specific final inspection procedures for each component are contained or referenced in their respective paragraphs. General or obvious procedures are not included. When materiel is found to be defective, it should be returned to the responsible shop for correction of the defect.

Table 1-1. Materials Used in Repair

WARNING

Some materials listed in table 1-1 are toxic and/or flammable. The footnote column denotes toxicity with an A and flammability with a B.

Item No.	Name	Federal Stock No.	Footnote
1.	Acid		
2.	Adhesive	8040-270-8137	
3.	Deleted		
4.	Deleted		

Table 1-1. Materials Used in Repair (cont)

Item No.	Name	Federal Stock No.	Footnote
5.	Adhesive	8040-656-1285	
6.	Adhesive		
7.	Adhesive	8040-455-9366	
8.	Deleted		
9.	Compound	8030-067-9508	
10.	Grease	9150-656-1501	
11.	Grease	9150-985-7246	
12.	Lubricant	9150-754-0064	
13.	Paste (Putty)	8030-664-6968	A, B
14.	Paint	8010-297-0584	A, B
15.	Paint	8010-145-0147	A, B
16.	Paint	8010-598-5946	A, B
17.	Deleted		
18.	Primer		A, B
19.	Primer	8010-082-1714	A, B
20.	Primer		A, B
21.	Primer	8010-835-2114	A, B
22.	Plastisol	8030-145-0156	
23.	Sealant	8030-081-2333	
24.	Sealant	8030-081-2328	
25.	Sealant	8030-081-2338	

Table 1-1. Materials Used in Repair (cont)

Item No.	Name	Federal Stock No.	Footnote
26.	Deleted		
27.	Solvent	6810-281-2785	A, B
28.	Solvent	6810-579-8431	A, B
29.	Deleted		

CHAPTER 2 REPAIR PARTS, TOOLS, AND EQUIPMENT

2-1. General

Repair parts, tools, and equipment are supplied to support maintenance personnel in repairing the mechanical components of the TOW weapon system and training set. They are supplied in accordance with maintenance responsibilities authorized by the maintenance allocation chart.

2-2. Repair Parts

Repair parts are listed in TM 9-1425-470-35P and TM 9-6920-470-35P.

2-3. Common Tools and Equipment

Standard and commonly used tools and equipment having general application to the weapon system and/or training set are authorized for issue by tables of allowances (TA) and tables of organization and equipment (TOE).

2-4. Special Tools

Special tools required to perform repair procedures are listed in table 2-1. The list is provided for information only and is not to be used for requisitioning purposes.

Table 2-1. Special Tools

No.	Tool	Use
1	Bushing and seal removal tool, 7551048	Removal of seal, part no. 10190888 and bushing, part no. 10190887
2	Deleted	
3	Bushing removal tools, 7551049 and 7551050	Removal of flanged bushing, part no. 10225455
4	Deleted	
5	Guide pin removal tool, 7551051	Removal and reinstallation of guide pin, part no. 10084423 and sleeve, part no. 10084422
6	Bushing removal tools, 7551052 and 7551053	Removal of flanged bushing, part no. 10190532 and bushing, part no. NAS-76-12-023
7	Bushing drive pin, 7551054	Removal of short, tapered flanged bushing, part no. 10190641
8	Bushing drive pin, 7551055	Removal of flanged bushing, part no. 10189666

CHAPTER 8
REPAIR OF MOUNTING KIT FOR
1/2-TON VEHICLE

8-1. General

Repair of the mounting kit for the 1/2-ton vehicle consists of disassembly of the defective component to the required level of repair, repair or replacement of the defective part(s), and reassembly of the repaired component. Repair procedures for major subassemblies are provided in separate paragraphs. The following paragraphs give complete disassembly procedures. Perform only the necessary steps to repair or replace the defective part.

8-2. Repair of Forward Rack Assembly (Fig. 8-1)

a. Removal. Refer to TM 9-1425-470-12 for procedures for removing the forward rack assembly.

b. Disassembly.

(1) Remove 14 cotter pins (1), 14 washers (2), 14 pins (3), and 7 tie-down straps (4).

(2) Remove 12 nuts (5), 12 washers (6), 12 screws (7), and 6 retaining hooks (8).

(3) Pull 2 pins (9) to separate top rack assembly (10) and rack assembly (11).

(4) Remove 2 screws (12) and 2 lanyard assemblies (13).

(5) Remove cushion pad (14).

(6) Remove 6 cushion pads (15).

(7) Remove 2 nuts (16), 2 bolts (17), 4 washers (18), 2 washers (19), and 2 latch assemblies (20 through 22).

(8) Remove 2 rivets (20) to separate spring (21) and lever (22).

c. Assembly.

WARNING

Paint, primer, and solvent used in the following steps are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapor. Keep away from heat and open flames. Use only in a well-ventilated area.

(1) Assemble latch assembly (20 through 22) by attaching lever (22) to spring (21) using 2 rivets (20). Clean latch assembly by degreasing. Touch up paint using paint (15, table 1-1).

(2) Install 2 latch assemblies (20 through 22), 2 washers (19), 4 washers (18), 2 bolts (17), and 2 nuts (16).

CAUTION

Do not apply solvents, paints, or primers to rubber surfaces.

(3) Clean area where cushion pads install using best available solvent from table 1-1. Install 6 cushion pads (15) and cushion pad (14).

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Cotter pin (14) 2. Washer (14) 3. Pin (14) 4. Tie-down strap (7) 5. Nut (12) 6. Washer (12) 7. Screw (12) 8. Retaining hook (6) 9. Pin (2) 10. Top rack assembly 11. Rack assembly | <ol style="list-style-type: none"> 12. Screw (2) 13. Lanyard assembly (2) 14. Cushion pad 15. Cushion pad (6) 16. Nut (2) 17. Bolt (2) 18. Washer (4) 19. Washer (2) 20. Rivet (2) 21. Spring 22. Lever |
|---|--|

LEGEND FOR FIGURE 8-1

(4) Install 2 lanyard assemblies (13) and 2 screws (12).

(5) Attach rack assembly (11) to top rack assembly (10) using 2 pins (9).

(6) Install 6 retaining hooks (8), 12 screws (7), 12 washers (6), and 12 nuts (5).

(7) Install 7 tie-down straps (4), 14 pins (3), 14 washers (2), and 14 cotter pins (1).

CAUTION

Do not apply paint or primer to rubber surfaces.

(8) Touch up paint on forward rack assembly using two coats of primer (21, table 1-1) and one coat of paint (15, table 1-1).

d. Installation. Refer to TM 9-1425-470-12 for procedures for installing the forward rack assembly.

8-3. Repair of Aft Rack Assembly (Fig. 8-2)

a. Removal. Refer to TM 9-1425-470-12 for procedures for removing the aft rack assembly.

b. Disassembly.

(1) Remove 14 cotter pins (1), 14 washers (2), 14 pins (3), and 7 tie-down straps (4).

(2) Remove 12 nuts (5), 12 washers (6), 12 screws (7), and 6 retaining hooks (8).

(3) Pull 2 pins (9) to separate top rack assembly (10) and rack assembly (11).

(4) Remove 2 screws (12) and 2 lanyard assemblies (13).

(5) Remove 7 cushion pads (14).

(6) Remove 2 nuts (15), 2 bolts (16), 4 washers (17), 2 washers (18), and 2 latch assemblies (19 through 21).

(7) Remove 2 rivets (19) to separate spring (20) and lever (21).

c. Assembly.

WARNING

Paint, primer, and solvent used in the following steps are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapor. Keep away from heat and open flames. Use only in a well-ventilated area.

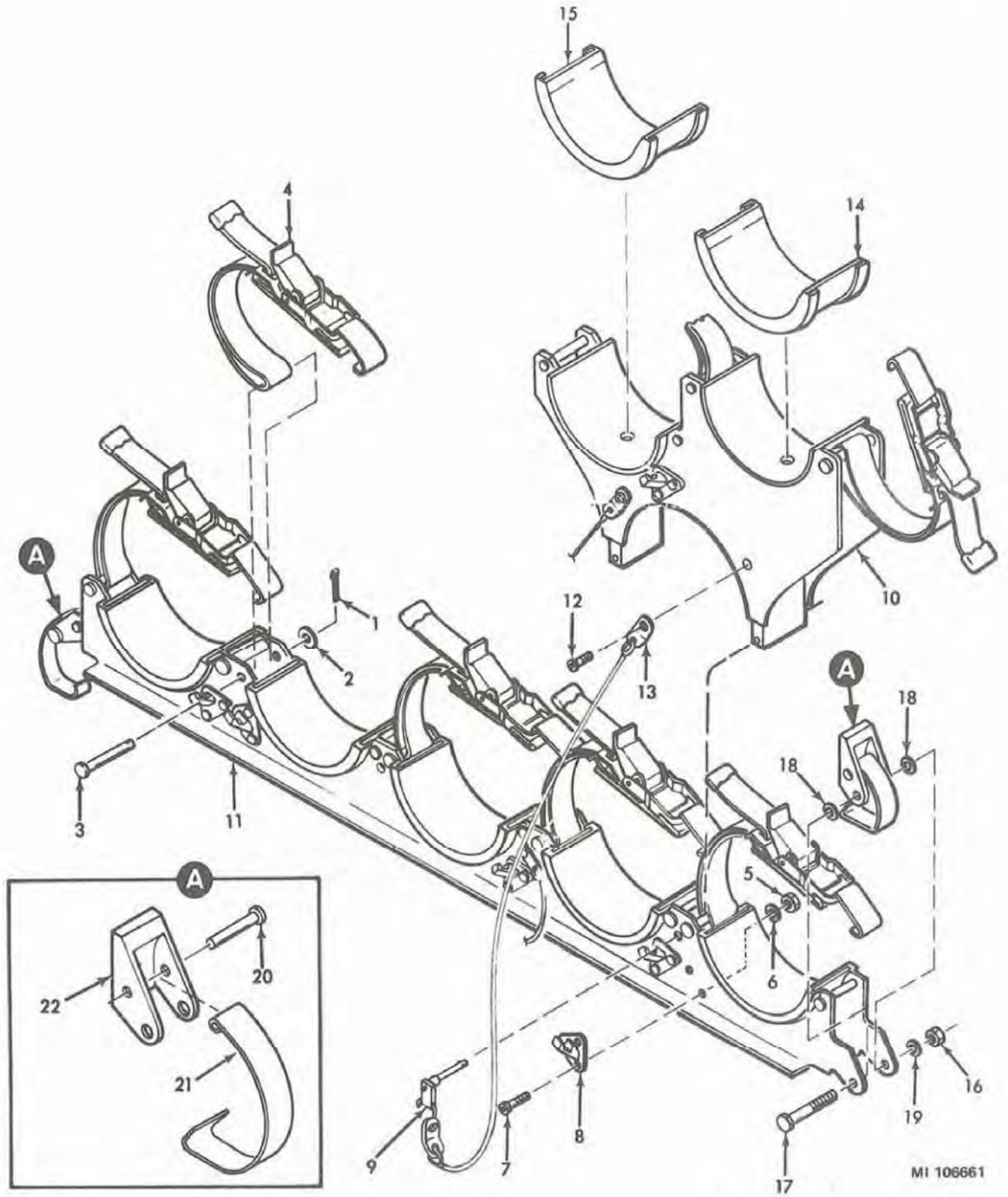


Figure 8-1. Repair of forward rack assembly

- | | |
|-----------------------|--------------------------|
| 1. Cotter pin (14) | 12. Screw (2) |
| 2. Washer (14) | 13. Lanyard assembly (2) |
| 3. Pin (14) | 14. Cushion pad (7) |
| 4. Tie-down strap (7) | 15. Nut (2) |
| 5. Nut (12) | 16. Bolt (2) |
| 6. Washer (12) | 17. Washer (4) |
| 7. Screw (12) | 18. Washer (2) |
| 8. Retaining hook (6) | 19. Rivet (2) |
| 9. Pin (2) | 20. Spring |
| 10. Top rack assembly | 21. Lever |
| 11. Rack assembly | |

LEGEND FOR FIGURE 8-2

(1) Assemble latch assembly (19 through 21) by attaching lever (21) to spring (20) using 2 rivets (19). Clean latch assembly by degreasing. Touch up paint using paint (15, table 1-1).

(2) Install 2 latch assemblies (19 through 21), 2 washers (18), 4 washers (17), 2 bolts (16), and 2 nuts (15).

CAUTION

Do not apply solvents, paints, or primers to rubber surfaces.

(3) Clean area where cushion pads install using best available solvent from table 1-1. Install 7 cushion pads (14).

(4) Install 2 lanyard assemblies (13) and 2 screws (12).

(5) Attach rack assembly (11) to top rack assembly (10) using 2 pins (9).

(6) Install 6 retaining hooks (8), 12 screws (7), 12 washers (6), and 12 nuts (5).

(7) Install 7 tie-down straps (4), 14 pins (3), 14 washers (2), and 14 cotter pins (1).

CAUTION

Do not apply paint or primer to rubber surfaces.

(8) Touch up paint on aft rack assembly using two coats of primer (21, table 1-1) and one coat of paint (15, table 1-1).

d. Installation. Refer to TM 9-1425-470-12 for procedures for installing the aft rack assembly.

8-4. Repair of Elevating Pedestal Assembly (Fig. 8-3)

a. Removal. Refer to TM 9-1425-470-12 for procedures for removing the elevating pedestal assembly.

b. Disassembly.

(1) Unlock and remove coupling clamp (1).

(2) Remove 3 setscrews (2), 3 nuts (3), and pressure bar (4).

(3) Separate outer sleeve assembly (5) from inner sleeve assembly (6).

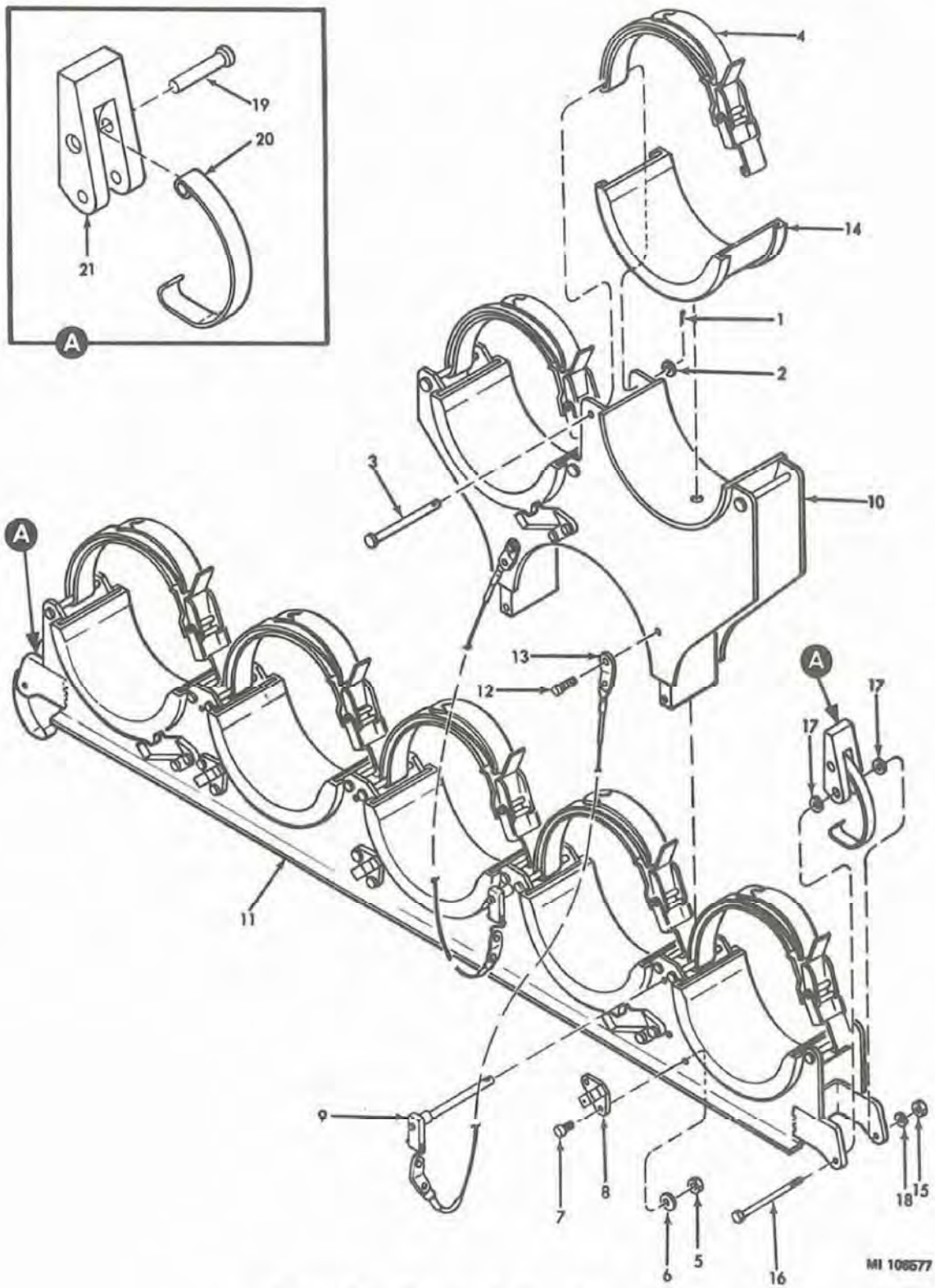


Figure 8-2. Repair of aft rack assembly

- | | |
|--------------------------|-----------------------|
| 1. Coupling clamp | 13. Bellows boot |
| 2. Setscrew (3) | 14. Screw (4) |
| 3. Nut (3) | 15. Lockwasher (4) |
| 4. Pressure bar | 16. Lifting nut |
| 5. Outer sleeve assembly | 17. Screw (2) |
| 6. Inner sleeve assembly | 18. Lockwasher (2) |
| 7. Screw (6) | 19. Actuator assembly |
| 8. Guide bar | 20. Key |
| 9. Screw (6) | 21. Setscrew |
| 10. Guide bar | 22. Screw |
| 11. Hose clamp | 23. Handle |
| 12. Hose clamp | 24. Crank |

LEGEND FOR FIGURE 8-3

NOTE

See paragraphs 8-5 and 8-6 for disassembly of inner and outer sleeve assemblies.

(4) Remove 6 screws (7) and guide bar (8).

(5) Remove 6 screws (9) and guide bar (10).

(6) Remove hose clamps (11 and 12) and bellows boot (13).

(7) Remove 4 screws (14), 4 lockwashers (15), and lifting nut (16).

(8) Remove 2 screws (17), 2 lockwashers (18), and actuator assembly (19).

(9) Loosen setscrew (21) and remove key (20) and crank assembly (21 through 24).

(10) To disassemble crank assembly, remove screw (22), handle (23), and crank (24).

c. Assembly.

(1) Lubricate handle (23). Assemble crank (24), handle (23), and screw (22). Stake screw after installation.

(2) Install key (20) and crank assembly (21 through 24). Tighten setscrew (21) to secure crank assembly to actuator (19).

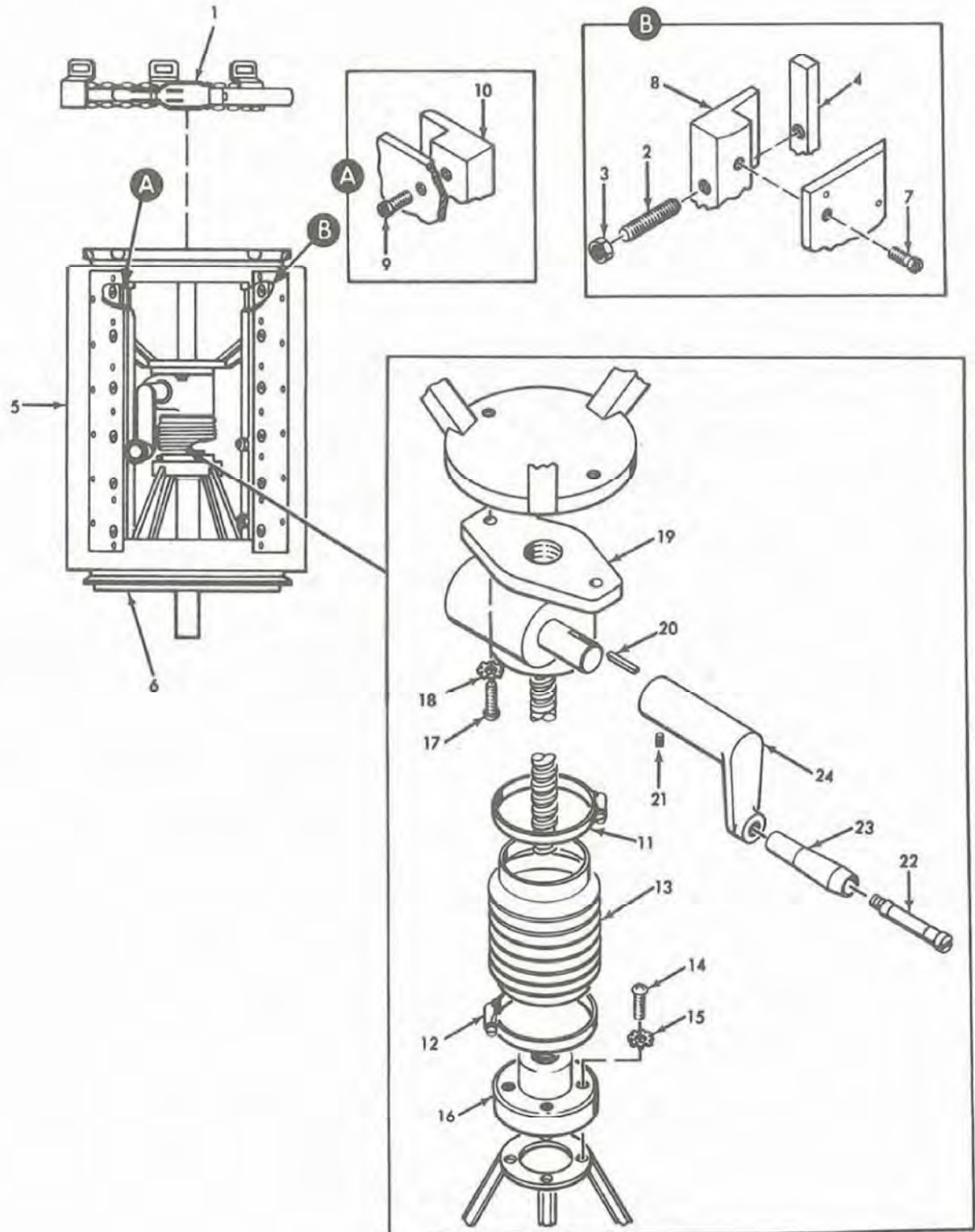
WARNING

Paint and primer used in the following step are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapor. Keep away from heat and open flame. Use only in a well-ventilated area.

(3) Touch up paint on actuator (19) using two coats of primer (21, table 1-1) and one coat of paint (15, table 1-1). Fill actuator housing with grease. Install actuator (19), 2 lockwashers (18), and 2 screws (17).

(4) Install lifting nut (16), 4 lockwashers (15), 4 screws (14), bellows boot (13), and hose clamps (11 and 12).

(5) Apply sealant (24, table 1-1) to screws (7) and screws (9). Install guide bar (10), 6 screws (9), guide bar (8), and 6 screws (7). Wipe away excess sealant.



MI 108662

Figure 8-3. Repair of elevating pedestal

- | | |
|---------------------|-----------------------|
| 1. Nylon spacer bar | 7. Spider support |
| 2. Screw (4) | 8. Screw (4) |
| 3. Lockwasher (4) | 9. Washer (4) |
| 4. Bolt (8) | 10. Screw housing |
| 5. Lockwasher (8) | 11. Guide channel (2) |
| 6. Base ring | |

LEGEND FOR FIGURE 8-4

(6) Slide inner sleeve assembly (6) into outer sleeve assembly (5). Install pressure bar (4), 3 nuts (3), and 3 setscrews (2). Tighten setscrews against pressure bar so there is no rotation of inner sleeve assembly but the inner sleeve assembly slides freely up and down.

(7) Install coupling clamp (1).

WARNING

Paint and primer used in the following step are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapor. Keep away from heat and open flames. Use only in a well-ventilated area.

(8) Touch up paint on elevating pedestal using two coats of primer (21, table 1-1) and one coat of paint (15, table 1-1).

d. Installation. Refer to TM 9-1425-470-12 for procedures for installing the elevating pedestal.

8-5. Repair of the Inner Sleeve Assembly

a. Removal (Fig. 8-3)

(1) Unlock and remove coupling clamp (1).

(2) Remove 3 setscrews (2), 3 nuts (3), and pressure bar (4).

(3) Separate outer sleeve assembly (5) from inner sleeve assembly (6).

b. Disassembly (Fig. 8-4)

(1) Remove nylon spacer bar (1) from inner sleeve assembly.

(2) Remove 4 screws (2), 4 lockwashers (3), 8 bolts (4), 8 lockwashers (5), base ring (6), and spider support (7).

(3) Remove 4 screws (8), 4 washers (9), and screw housing (10) from spider support (7).

(4) Remove 2 guide channels (11).

c. Assembly (Fig. 8-4)

(1) Install 2 guide channels (11).

(2) Assemble screw housing (10), 4 washers (9), and 4 screws (8) to spider support (7).

(3) Install spider support (7), base ring (6), 8 lockwashers (5), 8 bolts (4), 4 lockwashers (3), and 4 screws (2). Tighten bolts to 18.5 to 19 lb-in. of torque. Tighten screws to 44 to 45 lb-in. of torque.

(4) Install nylon spacer bar (1).

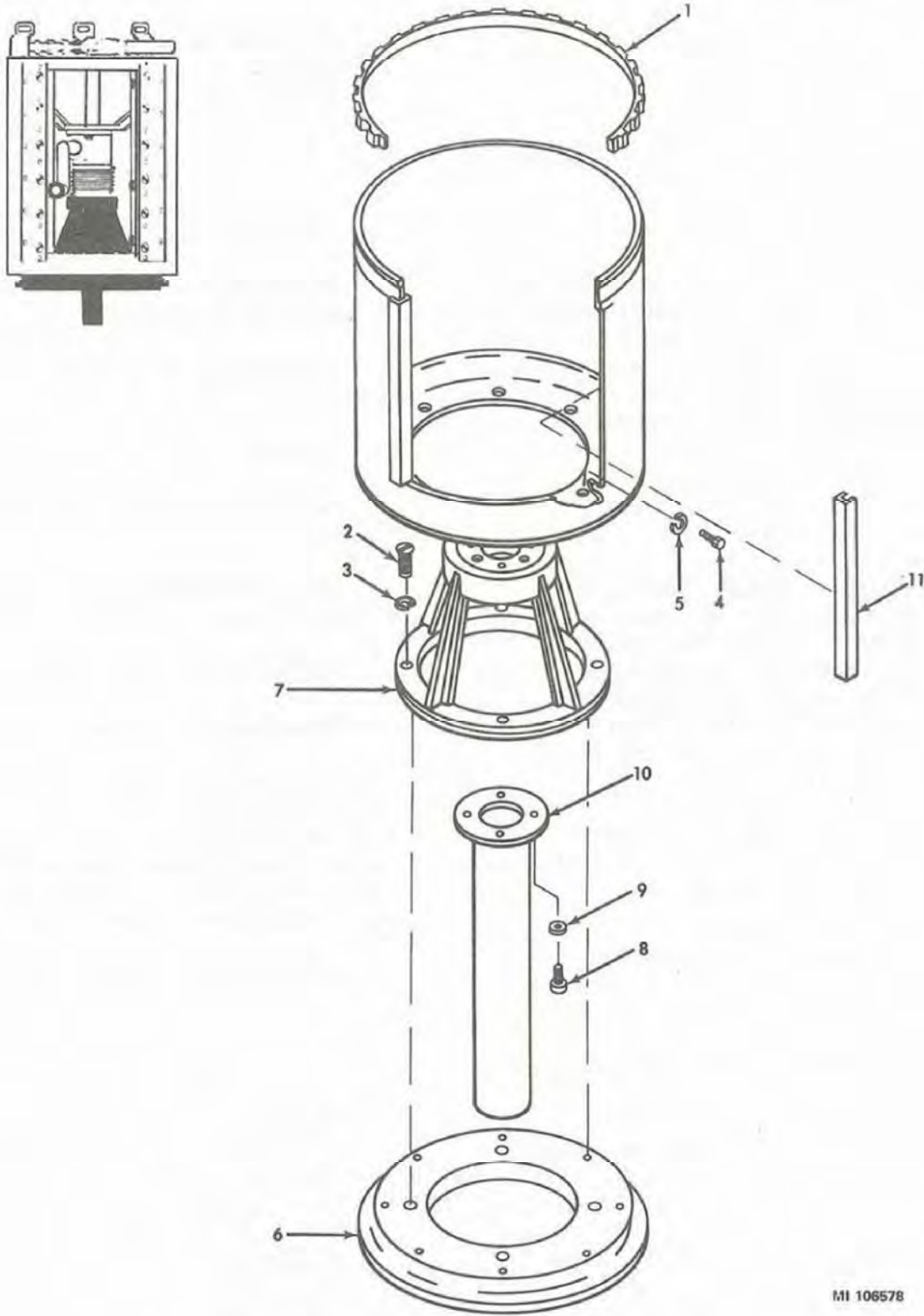


Figure 8-4. Repair of inner sleeve assembly

MI 106578

- | | |
|-------------------------|--------------------------|
| 1. Nylon spacer bar (2) | 4. Upper spider assembly |
| 2. Screw (6) | 5. Rivet (26) |
| 3. Washer (6) | 6. Guide plate (2) |

LEGEND FOR FIGURE 8-5

d. Installation (Fig. 8-3)

(1) Slide inner sleeve assembly (6) into outer sleeve assembly (5). Install pressure bar (4), 3 nuts (3), and 3 setscrews (2). Tighten setscrews against pressure bar so there is no rotation of inner sleeve assembly but the inner sleeve assembly slides freely up and down.

(2) Install coupling clamp (1).

WARNING

Paint and primer used in the following step are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapors. Keep away from heat and open flames. Use only in a well-ventilated area.

(3) Touch up paint on elevating pedestal using two coats of primer (21, table 1-1) and one coat of paint (15, table 1-1).

8-6. Repair of Outer Sleeve Assembly

a. Removal (Fig. 8-3)

(1) Unlock and remove coupling clamp (1).

(2) Remove 3 setscrews (2), 3 nuts (3), and pressure bar (4).

(3) Separate outer sleeve assembly (5) from inner sleeve assembly (6).

b. Disassembly (Fig. 8-5)

(1) Remove 2 nylon spacer bars (1).

(2) Remove 6 screws (2), 6 washers (3), and upper spider assembly (4).

(3) Remove 26 rivets (5) and 2 guide plates (6).

c. Assembly (Fig. 8-5)

(1) Install 2 guide plates (6) and 26 rivets (5).

(2) Install upper spider assembly (4), 6 washers (3), and 6 screws (2).

(3) Install 2 nylon spacer bars (1).

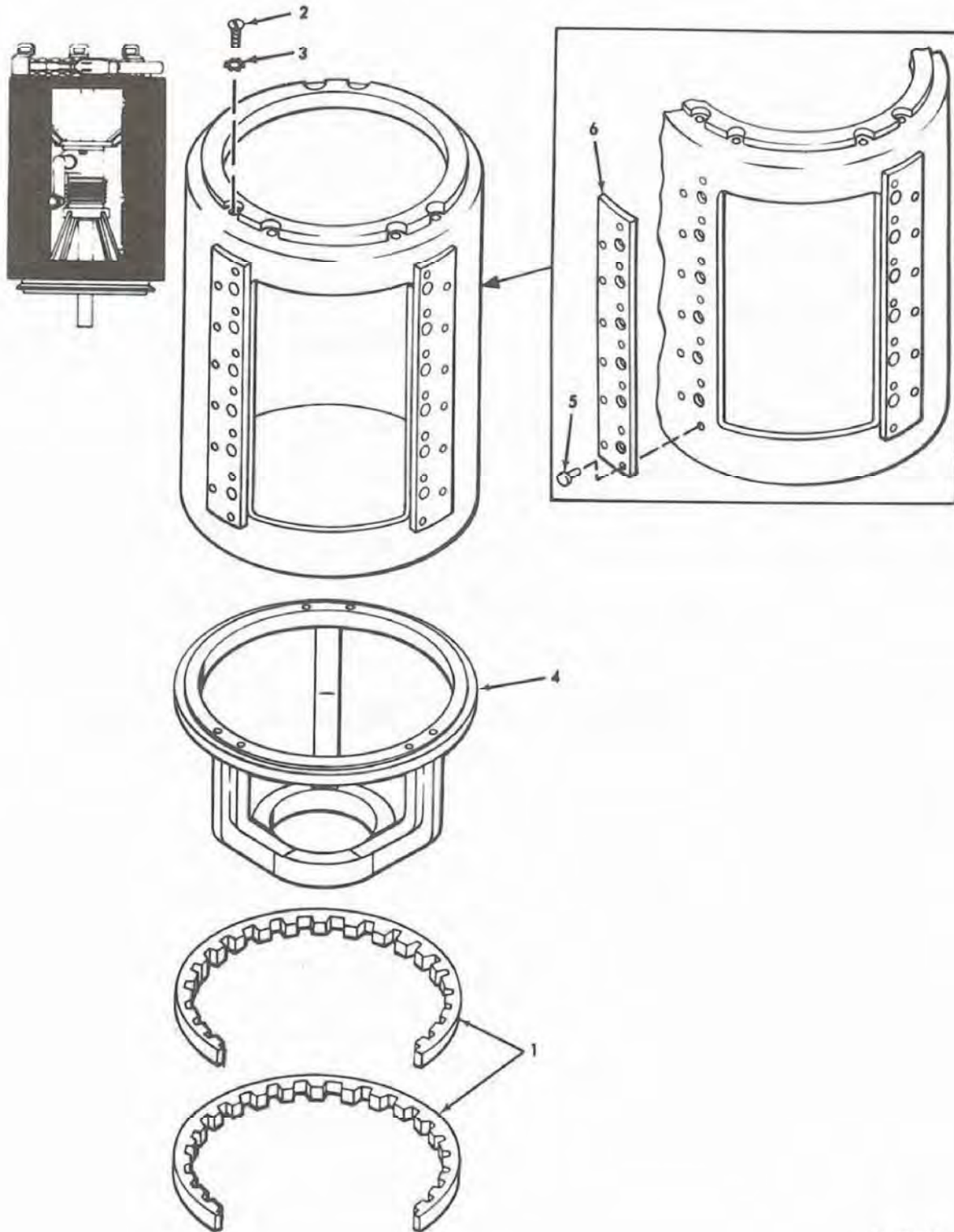
d. Installation (Fig. 8-3)

(1) Slide inner sleeve assembly (6) into outer sleeve assembly (5). Install pressure bar (4), 3 nuts (3), and 3 setscrews (2). Tighten setscrews against pressure bar so there is no rotation of inner sleeve assembly but the inner sleeve assembly slides freely up and down.

(2) Install coupling clamp (1).

WARNING

Paint and primer used in the following step are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapors. Keep away from heat and open flames. Use only in a well-ventilated area.



MI 108579

Figure 8-5. Repair of outer sleeve assembly

- | | |
|-----------------------|-----------------------|
| 1. Coupling clamp (2) | 7. Spring (3) |
| 2. Nut (3) | 8. Lever (3) |
| 3. Washer (3) | 9. Tie-down strap (2) |
| 4. Bolt (3) | 10. Screw (3) |
| 5. Washer (6) | 11. Beveled washer |
| 6. Rivet (6) | 12. Pallet assembly |

LEGEND FOR FIGURE 8-6

(3) Touch up paint on elevating pedestal using two coats of primer (21, table 1-1) and one coat of paint (15, table 1-1).

8-7. Repair of Pallet Assembly (Fig. 8-6)

a. Removal. Refer to TM 9-1425-470-12 for procedures for removing the pallet assembly.

b. Disassembly.

(1) Remove 2 coupling clamps (1) from pallet assembly (12).

(2) Remove 3 nuts (2), 3 washers (3), 3 bolts (4), 6 washers (5), and 3 latch assemblies (items 6 through 8) from pallet assembly (12).

(3) Remove 6 rivets (6) and disengage 3 springs (7) from 3 levers (8).

(4) Remove 2 tie-down straps (9) from pallet assembly (12).

(5) Remove 3 screws (10) and beveled washer (11) from pallet assembly (12).

c. Assembly.

(1) Install beveled washer (11) and 3 screws (10) on pallet assembly (12).

(2) Install 2 tie-down straps (9) on pallet assembly (12).

(3) Install 3 levers (8) and 3 springs (7) using 6 rivets (6).

(4) Install 3 latch assemblies (items 6 through 8) on pallet assembly (12) using 6 washers (5), 3 bolts (4), 3 washers (3), and 3 nuts (2).

(5) Install 2 coupling clamps (1) on pallet assembly (12).

d. Installation. Refer to TM 9-1425-470-12 for procedures for installing the pallet assembly.

8-8. Repair of Pin and Clevis Assembly (Fig. 8-7)

a. Removal. Refer to TM 9-1425-470-12 for procedures for removing the pin and clevis assembly.

b. Disassembly.

(1) Remove cotter pin (1) and headed straight pin (2).

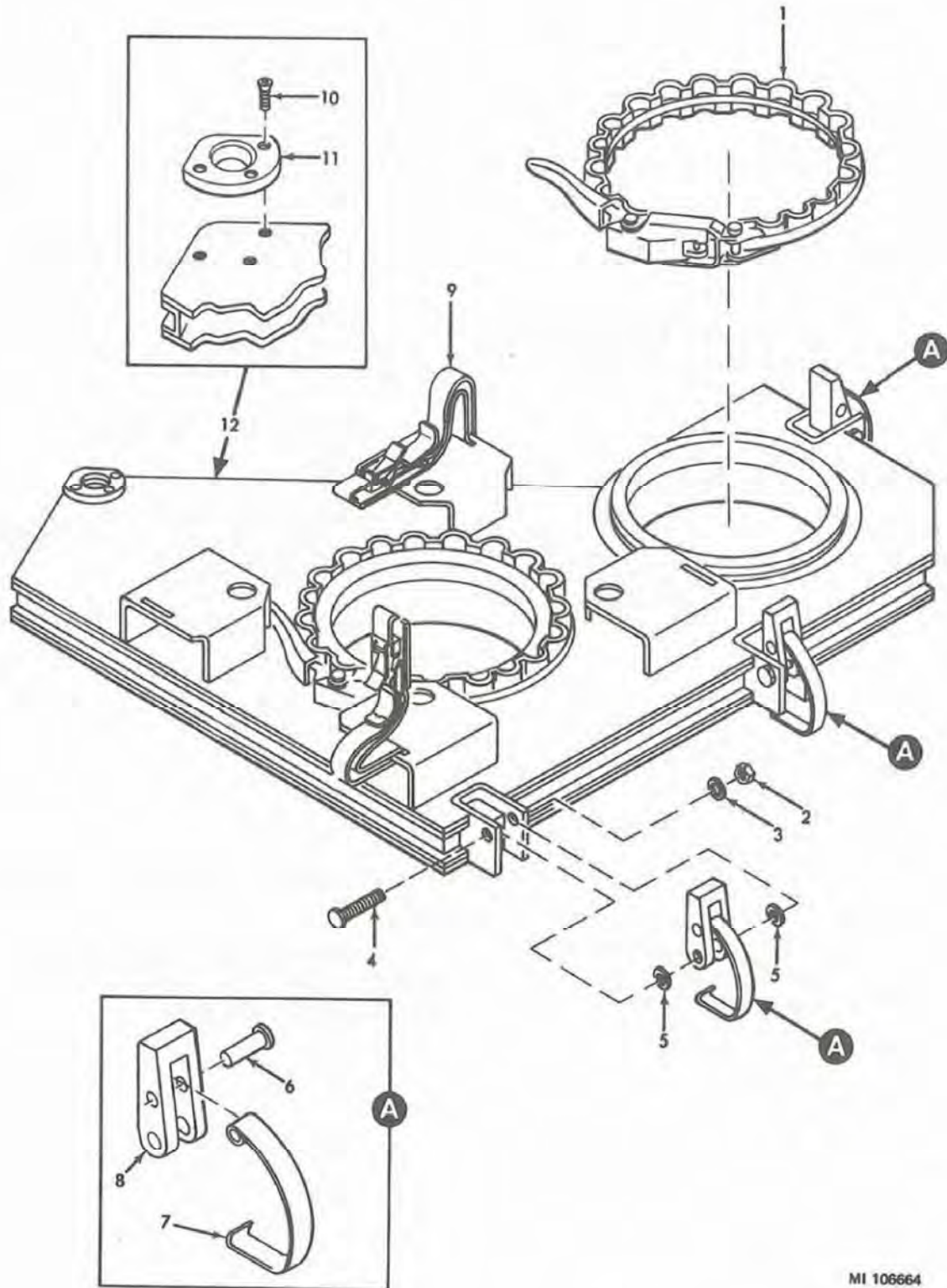
(2) Remove cotter pin (3), knurled nut (4), and clevis assembly (5) from pallet assembly (6).

c. Assembly.

(1) Install clevis assembly (5) and knurled nut (4) on pallet assembly (6).

(2) Install cotter pin (3).

(3) Install headed straight pin (2) and cotter pin (1).



MI 106664

Figure 8-6. Repair of pallet assembly

1. Cotter pin
2. Headed straight pin
3. Cotter pin
4. Knurled nut
5. Clevis assembly
6. Pallet assembly

LEGEND FOR FIGURE 8-7

d. Installation. Refer to TM 9-1425-470-12 for procedures for installing the pin and clevis assembly.

8-9. Repair of Tripod Rack Assembly (Fig. 8-8)

a. Removal. Refer to TM 9-1425-470-12 for procedures for removing the tripod rack assembly.

b. Disassembly.

(1) Pull pin (1) from leg support assembly (20).

(2) Remove cotter pin (2), washer (3), pin (4), and tie-down clip (5).

(3) Remove 2 nuts (6), 2 washers (7), 2 bolts (8), and 2 latch assemblies (items 9 through 11) from rack assembly (24).

(4) Remove rivet (9) to separate spring (10) and lever (11) in each latch assembly.

(5) Remove cotter pin (12), washer (13), pin (14), and support ring assembly (15) from rack assembly (24).

(6) Pull pin (16) from leg support assembly (20).

(7) Remove cotter pin (17), washer (18), pin (19), and leg support assembly (20) from rack assembly (24).

(8) Remove 2 screws (21) and 2 lanyard assemblies (22).

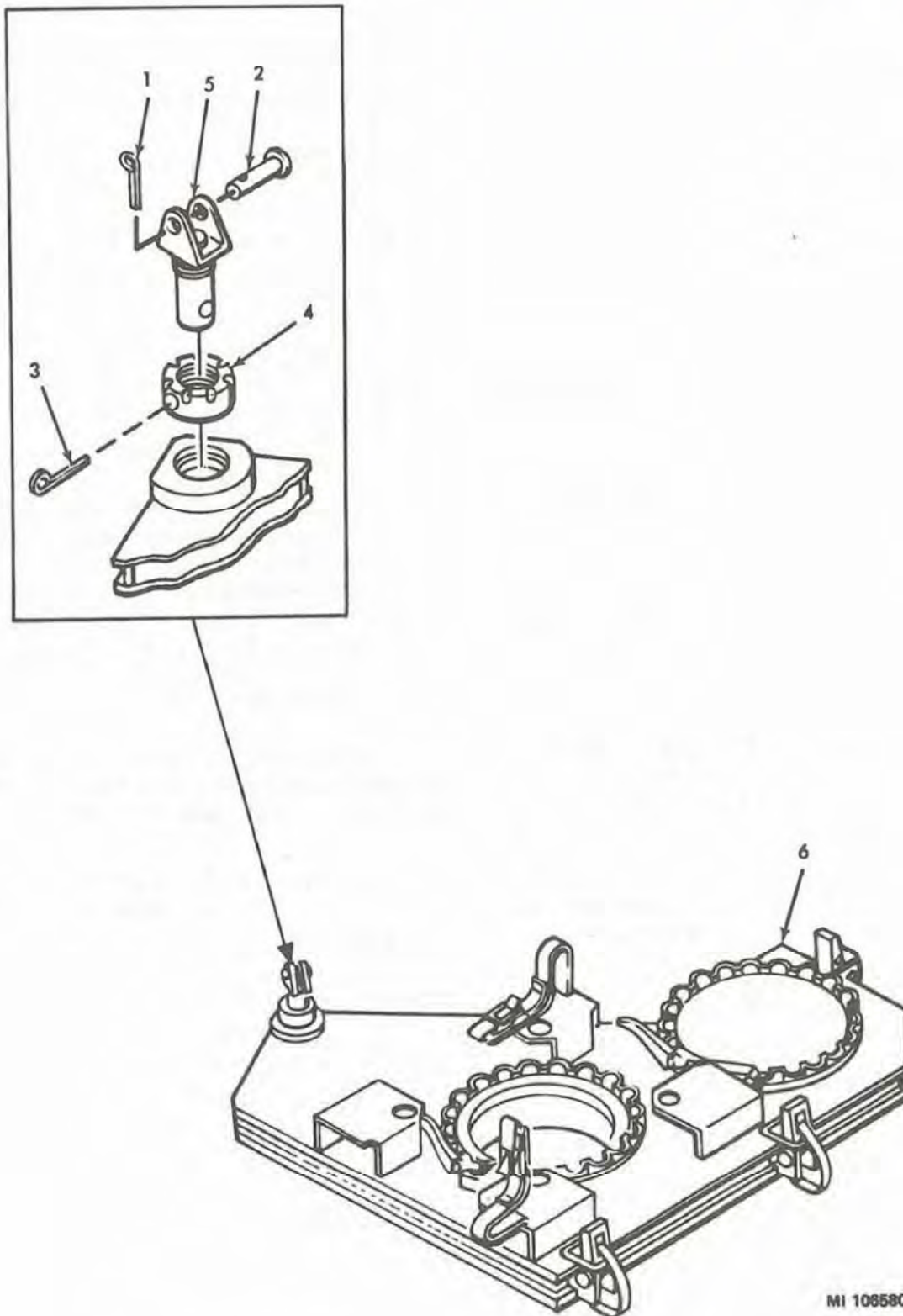
(9) Remove 4 cushion pads (23).

c. Assembly.

(1) Install 4 cushion pads (23).

(2) Install 2 lanyard assemblies (22) and 2 screws (21).

(3) Install leg support assembly (20), pin (19), washer (18), cotter pin (17), and pin (16) on rack assembly (24).



MI 106580

Figure 8-7. Replacement of pin and clevis assembly

- | | |
|------------------|---------------------------|
| 1. Pin | 13. Washer |
| 2. Cotter pin | 14. Pin |
| 3. Washer | 15. Support ring assembly |
| 4. Pin | 16. Pin |
| 5. Tie-down clip | 17. Cotter pin |
| 6. Nut (2) | 18. Washer |
| 7. Washer (2) | 19. Pin |
| 8. Bolt (2) | 20. Leg support assembly |
| 9. Rivet | 21. Screw (2) |
| 10. Spring | 22. Lanyard assembly (2) |
| 11. Lever | 23. Cushion pad (4) |
| 12. Cotter pin | 24. Rack assembly |

LEGEND FOR FIGURE 8-8

(4) Install support ring assembly (15), pin (14), washer (13), and cotter pin (12) on rack assembly (24).

(5) Assemble 2 latch assemblies by attaching lever (11) to spring (10) and installing rivet (9).

(6) Install 2 latch assemblies (items 9 through 11), 2 bolts (8), 2 washers (7), and 2 nuts (6) on rack assembly (24).

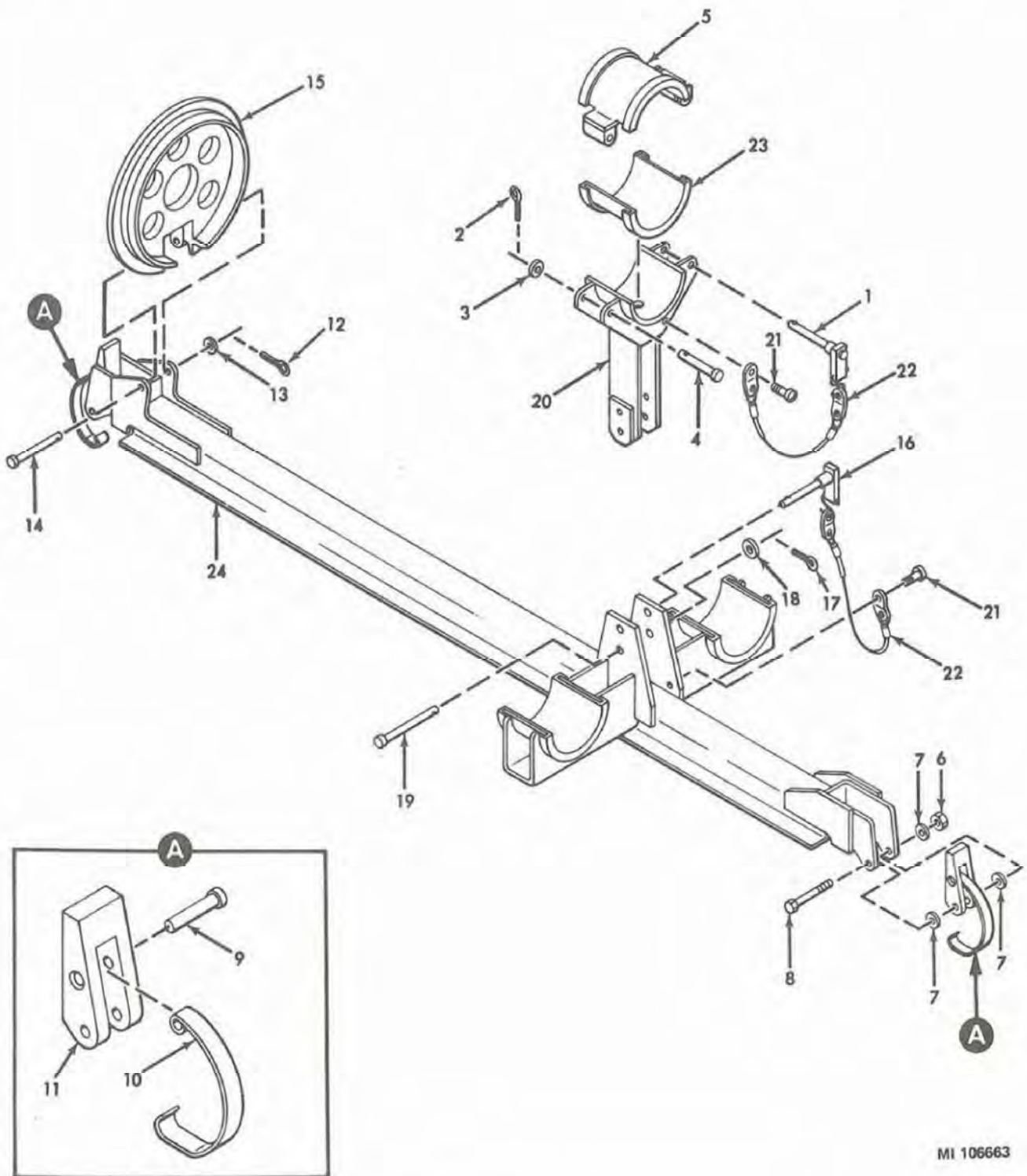
(7) Install tie-down clip (5), pin (4), washer (3), cotter pin (2), and pin (1).

WARNING

Paint and primer used in the following step are toxic and flammable and must be used with extreme care. Avoid prolonged or repeated breathing of the vapors. Keep away from heat and open flames. Use only in a well-ventilated area.

(8) Touch up paint on tripod rack assembly using 2 coats of primer (21, table 1-1) and 1 coat of paint (15, table 1-1).

d. Installation. Refer to TM 9-1425-470-12 for procedures for installing the tripod rack assembly.



MI 106663

Figure 8-8. Repair of tripod rack assembly

APPENDIX A

REFERENCES

A-1. General

Applicable publication indexes should be consulted frequently for latest change or revisions to the publications listed in this appendix, and for new publications relating to the materiel covered in this manual.

A-2. Publications Indexes

Index of Administrative Publications	DA Pam 310-1
Index of Modification Work Orders	DA Pam 310-7
Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders	DA Pam 310-4

A-3. Technical Manuals

Direct Support and General Support Maintenance Manual: Surveillance of Guided Missile Surface Attack BGM-71A and Guided Missile Practice BTM-71A (TOW Heavy Antitank/Assault Weapon by System)	TM 9-1410-470-34
DS and GS Maintenance Repair Parts and Special Tools List for Launcher, Tubular, Guided Missile M151E2, or M220; Charger Battery PP-4884 (XO-D/T); Mounting Kit, Vehicle, Guided Missile System M225; Mounting Kit, Vehicle, Guided Missile System M232E1; Mounting Kit, Vehicle, Guided Missile M236) (TOW Heavy Antitank/Assault Weapon System)	TM 9-1425-470-34P
DS, GS, and Depot Maintenance Repair Parts and Special Tools List for: Training Set, Guided Missile System M70 (TOW Heavy Antitank/Assault Weapon System)	TM 9-6920-470-34P
Equipment Serviceability Criteria for TOW Heavy Antitank/Assault Weapon System	TM 9-1425-470-ESC
Operator and Organizational Maintenance Manual: TOW Heavy Antitank/Assault Weapon System	TM 9-1425-470-12
Operator and Organizational Maintenance Manual: Training Set, Guided Missile System M70 (TOW Heavy Antitank/Assault Weapon System)..	TM 9-6920-470-12
Operator's Manual for Carrier, Personnel, Full Tracked, Armored M113A1 (2320-968-6321)	TM 9-2300-257-10
Operator's Manual for Truck, Platform Utility 1/2-ton, 4x4, M274 (2320-049-4804) M214A1 (2320-064-6373)	TM 9-2320-213-10
Operator's Manual for Truck, Utility 1/4-ton, 4x4, M151 (2320-542-4783)	TM 9-2320-218-10
Organizational Maintenance Repair Parts and Special Tools List for: Launcher, Tubular, Guided Missile M151E1, or M220; Charger, Battery PP-4884 (XO-1)/T; Mounting Kit, Vehicle, Guided Missile System M233E1; Mounting Kit, Vehicle, Guided Missile System M225; Mounting Kit, Vehicle, Guided Missile System M232E1; Mounting Kit, Vehicle, Guided Missile System M236 (TOW Heavy Antitank/Assault Weapon System)	TM 9-1425-470-20P

A-4. Forms

In addition to the forms required by TM 38-750, the following forms pertain to this materiel:

Recommended Changes to DA Technical Manuals, Parts List or Supply Manual 7, 8, or 9	DA Form 2028
Report of Damaged or Improper Shipment	DD Form 6

A-5. Other Publications

Accident Reporting and Records	AR 385-40
The Army Maintenance Management System (TAMMS)	TM 38-750
Army Safety Program	AR 385-10
Basic Cold Weather Manual	FM 31-70
Care, Handling, and Preservation of Ammunition	TM 9-1300-206
Chemical, Biological, and Radiological (CBR) Decontamination	TB 3-220
Explosives and Demolitions	FM 5-25
First Aid for Soldiers	FM 21-11
Malfunctions Involving Ammunition and Explosives	AR 700-1300-8
Painting Instructions for Field Use	TM 9-213
Safeguarding Defense Information	AR 380-5
Safeguarding Defense Information in Movement of Persons and Things .	AR 380-55
Safety	AR 385-62
Security Classification of Missile and Large Rocket Systems and Components	TB 9-380-101
Small Unit Procedures in Nuclear, Biological, and Chemical Warfare ..	FM 21-40

INDEX

	<i>Paragraph</i>	<i>Page</i>
Abbreviations	1.1-4	1.1-1
Cleaning, painting, and general maintenance procedures	1-10	1-2
Common tools and equipment	2-3	2-1
Component inspection of launch tube	3-13	3-9
Error detector cards	1.1-7c	1.1-6
Excitation generator and self-test card	1.1-7g	1.1-13
Final checks of telescoping pedestal	5-7	5-10
Final inspection	1-12	1-2
Forms, records, and reports	1-4	1-1
General maintenance procedures	1-10	1-2
Hook-up for weapon system test	2.1-2	2.1-1
How to read functional diagrams	1.1-3	1.1-1
Initial switch settings	2.1-3	2.1-1
In-process inspection	1-9	1-2
Installation of battery assembly	4-4	4-4
Installation of tripod	3-10	3-8
Instructor console	1.1-19	1.1-43
Instructor console chassis assembly	1.1-19a	1.1-43
Maintenance allocation	1-2	1-1
Materials used in repair	1-11	1-2
Missile guidance set	1.1-7	1.1-3
Missile guidance set chassis	1.1-7	1.1-4
Missile simulation round	1.1-20.1	1.1-57
Nomenclature	1-3	1-1
Optical sight	1.1-8	1.1-13
Painting, cleaning, and general maintenance procedures	1-10	1-2
Pitch command signal generator card	1.1-7e	1.1-9
Power control unit	1.1-20c	1.1-55
Power supply A4	1.1-19h	1.1-44
Power supply card	1.1-7a	1.1-3
Power supply/modulator	1.1-20h	1.1-52
Programmer output card	1.1-7d	1.1-8
Reference designations	1.1-5	1.1-2
Removal of battery assembly	4-2	4-1
Removal of bonded items	1-7	1-1
Removal of launch tube	3-12	3-9
Removal of lock rings	1-8	1-2
Removal of machine gun mount	5-23	5-47
Removal of pedestal support rail assembly	5-5	5-4
Removal of 1/4-ton/missile carrier mounting kit	7-2	7-1
Removal of tripod	3-2	3-1
Repair of aft rack assembly	8-3	8-2
Repair of APC mounting kit	5-2	5-1
Repair of battery assembly	4-3	4-1
Repair of cracked launcher tubes	3-16	3-9
Repair of elevating pedestal assembly	8-4	8-4
Repair of forward rack assembly	8-2	8-1
Repair of guide wheel	5-22	5-45
Repair of gunner's platform and associated hardware	5-8	5-12
Repair of launcher floor mount	6-3	6-3
Repair of launcher mount	6-2	6-1
Repair of launch tube supports	5-17	5-33
Repair of launch tube supports with windshield down	6-5	6-11

	<i>Paragraph</i>	<i>Page</i>
Repair of left rack assembly	7-4	7-2
Repair of lower rail support assembly	5-10	5-20
Repair of missile guidance set	2.1-4.1	2.1-8
Repair of missile guidance set support	6-9	6-18
Repair of missile simulation round (MSR)	9-6	9-9
Repair of missile racks	5-21	5-37
Repair of missile storage rack assemblies	6-4	6-4
Repair of outer sleeve assembly	8-6	8-10
Repair of pin and clevis assembly	8-7	8-12
Repair of pivot bracket support assembly	5-11	5-25
Repair of power supply/modulator	2.1-6a	2.1-21
Repair of radio and antenna support	6-8	6-16
Repair of right rack assembly	7-3	7-1
Repair of spare battery assembly container M233 mounting kit	5-19	5-37
Repair of spare battery assembly container 1/4-ton missile carrier	7-5	7-4
Replacement of forward launch tube support	0-15	0-24
Replacement of fuel can mount assembly	6-10	6-22
Replacement of fuel lines attaching hardware	5-5.1	5-5
Replacement of gunner's seat cushion	6-14	6-28
Replacement of identification plate on launch tube	3-14	3-9
Replacement of identification plate on M232 mounting kit	6-16	6-30
Replacement of identification plate on tripod	3-4	3-1
Replacement of grooved coupling clamp	3-3	3-1
Replacement of missile guidance set intercom amplifier, and radio bracket assemblies	5-15	5-27
Replacement of missile rack retainer latches and strap retainers	5-18	5-36.1/5-36.2
Replacement of pin	3-15	3-9
Replacement of radio RF and power cables	6-18	6-32
Replacement of shovel strap assemblies	6-12	6-24
Replacement of support rod	6-17	6-30
Replacement of telescoping pedestal	5-3	5-1
Replacement of tripod levels	3-5	3-1
Replacement of vehicle identification plate	5-13	5-27
Reporting equipment publication improvements	1-5	1-1
Scoring circuit No. 1 card	1.1-19d	1.1-49
Self-test and excitation generator card	1.1-7g	1.1-13
Self-test position 1	1.1-11	1.1-25
Self-test position 2	1.1-12	1.1-26

	<i>Paragraph</i>	<i>Page</i>
Self-test position 3	1.1-13	1.1-27
Self test position 4	1.1-14	1.1-29
Self-test position 5	1.1-15	1.1-30
Self-test position 6	1.1-16	1.1-31
Self-test position 7	1.1-17	1.1-32
Special tools	2-4	2-1
Target set	1.1-20	1.1-51
Target source	1.1-20a	1.1-52
Test of tripod legs	3-9	3-8
Test procedures	2.1-4	2.1-1
Timing circuit card	1.1-19c	1.1-45
Traversing unit	1.1-9	1.1-14
Yaw command signal generator card	1.1-7f	1.1-11

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

100-100000

By Order of the Secretary of the Army:

Official:

VERNE L. BOWERS,
*Major General, United States Army,
The Adjutant General.*

W. C. WESTMORELAND,
*General, United States Army,
Chief of Staff.*

Distribution:

To be distributed in accordance with DA Form 12-32, (qty rqr block No. 106) direct and general support maintenance requirements applicable to the TOW Weapon System.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1971-431-093/463

☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-525-178

TM 9-1425-470-34 TOW HEAVY ANTITANK/ASSAULT WEAPON SYSTEM--1971