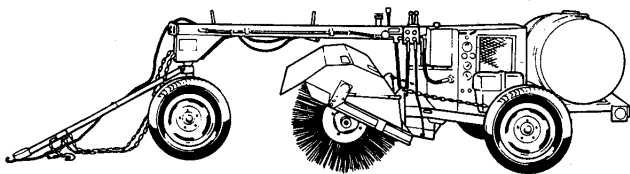


TECHNICAL MANUAL**OPERATOR'S, UNIT, DIRECT SUPPORT AND GENERAL
SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)**

**SWEEPER, ROTARY TOWED
MODEL 53MH
NSN 3825-01-314-2926**

Approved for public release;
distribution is unlimited.

INTRODUCTION	1-1
OPERATING INSTRUCTIONS	2-1
OPERATOR MAINTENANCE INSTRUCTIONS	3-1
UNIT MAINTENANCE INSTRUCTIONS	4-1
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS	5-1
REFERENCES	A-1
MAINTENANCE ALLOCATION CHART	B-1
EXPENDABLE SUPPLIES AND MATERIALS LIST	E-1
REPAIR PARTS AND SPECIAL TOOLS LIST	F-1
ILLUSTRATED LIST OF MANUFACTURED ITEMS	G-1
SCHEMATICS	H-1

HEADQUARTERS, DEPARTMENT OF THE ARMY

20 APRIL 1992

TECHNICAL MANUAL

No. 5-3825-230-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 20 April 1992OPERATOR, UNIT, DIRECT SUPPORT AND
GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

SWEEPER, ROTARY TOWED
53MH (3825-01-314-2926)

You can help improve this manual. 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 manual direct to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA -MB, Warren, MI 48397-5000. A reply will be furnished to you.

TABLE OF CONTENTS

	Page
CHAPTER 1 <u>INTRODUCTION</u>	1-1
Section I General Information	1-1
Section II Equipment Description and Data	1-4
Section III Technical Principles of Operation	1-8
CHAPTER 2 <u>OPERATING INSTRUCTIONS</u>	2-1
Section I Description and Use of Operator's Controls and Indicators	2-1
Section II Operator Preventive Maintenance Checks and Services (PMCS)	2-7
Section III Operation Under Usual Conditions	2-14
Section IV Operation Under Unusual Conditions	2-28
CHAPTER 3 <u>OPERATOR MAINTENANCE INSTRUCTIONS</u>	3-1
Section I Lubrication Instructions	3-1
Section II Troubleshooting	3-8
Section III Maintenance Procedures	3-14
CHAPTER 4 <u>UNIT MAINTENANCE INSTRUCTIONS</u>	4-1
Section I Repair Parts, Special Tools, Test, Measurement and Diagnostic Equipment, and Support Equipment	4-3
Section II Service Upon Receipt	4-4
Section III Unit Preventive Maintenance Checks and Services (PMCS)	4-5
Section IV Troubleshooting	4-9
Section V Unit Maintenance Procedures	4-16
Section VI Preparation For Storage Or Shipment	4-228

Approved for public release; distribution is unlimited.

TABLE OF CONTENTS (CONT)

	Page	Illus/ Figure
CHAPTER 5 <u>DIRECT SUPPORT/GENERAL SUPPORT</u>		
<u>MAINTENANCE INSTRUCTIONS</u>	5-1	
Section I Repair Parts, Special Tools, Test, Measurement and Diagnostic Equipment and Support Equipment.....	5-2	
Section II Troubleshooting	5-2	
Section III Maintenance Procedures.....	5-4	
APPENDIX A <u>REFERENCES</u>	A-1	
APPENDIX B <u>MAINTENANCE ALLOCATION CHART</u>	B-1	
APPENDIX C COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST	C-1	
APPENDIX D ADDITIONAL AUTHORIZATION LIST	D-1	
APPENDIX E <u>EXPENDABLE SUPPLIES AND MATERIALS LIST</u>	E-1	
APPENDIX F <u>UNIT, DIRECT, AND GENERAL SUPPORT MAINTENANCE</u>		
<u>REPAIR PARTS AND SPECIAL TOOLS LIST</u>	F-1	
Section I Introduction	F-1	
Section II Repair Parts List.....	F-8	
Group 01 Engine		
0100 Engine Assembly.....	1-1	1
0101 Cylinder and Crankcase Assembly	2-1	2
0101 Cylinder Head Assembly	3-1	3
0101 End Plate Assembly	4-1	4
0102 Crankshaft Assembly.....	5-1	5
0103 Flywheel Assembly.....	6-1	6
0104 Piston and Connecting Rod Assembly	7-1	7
0105 Rocker Cover Assembly	8-1	8
0105 Rocker Arm Assembly	9-1	9
0105 Camshaft Assembly.....	10-1	10
0106 Oil Cap Assembly.....	11-1	11
0106 Oil Filter Assembly	12-1	12
0106 Oil Pump Assembly	13-1	13
0106 Oil Pan Assembly.....	14-1	14
0108 Intake Manifold Assembly.....	15-1	15
0109 Hydraulic Pump Drive Assembly	16-1	16
0109 Alternator Drive Pulley.....	17-1	17
Group 03 Fuel System		
0301 Injector Assembly	18-1	18
0302 Injector Pump Assembly.....	19-1	19
0302 Fuel Pump Assembly.....	20-1	20
0304 Air Cleaner and Vapor Separator Assembly.....	21-1	21
0306 Fuel Lines and Fittings	22-1	22
0306 Fuel Tank Assembly	23-1	23
0308 Governor and Governor Lever Assemblies	24-1	24
0308 Throttle Control Lever Assembly.....	25-1	25
0309 Fuel Filter Assembly.....	26-1	26
0311 Glow Plug Assembly.....	27-1	27

TABLE OF CONTENTS (CONT)

	Page	Illus/ Figure
Group 04 Exhaust System		
0401 Muffler and Pipe Assembly	28-1	28
Group 05 Cooling System		
0502 Shrouds and Guards.....	29-1	29
Group 06 Electrical System		
0601 Alternator Installation.....	30-1	30
0603 Starter Motor Assembly	31-1	31
0607 Instrument Panel Assembly	32-1	32
0608 Wire Harness Mounting Parts	33-1	33
0608 Junction Box and Jumper Wire Assemblies	34-1	34
0609 Lights and Light Mounts.....	35-1	35
0610 Sending Units and Warning Switches	36-1	36
0612 Battery Installation.....	37-1	37
0613 12V, 24V, Rear Tail Light, and Broom Head Wire Harnesses	38-1	38
0613 Starter Relay, Engine, and Fuel and Glow Plug Wire Harnesses	39-1	39
Group 12 Brakes		
1201 Hand Brake Assembly	40-1	40
1201 Hand Brake Lever Assembly	41-1	41
Group 13 Wheels and Tracks		
1311 Wheel and Hub Assembly	42-1	42
1311 Wheel, Hub, and Drum Assembly.....	43-1	43
1313 Tires.....	44-1	44
Group 15 Frame, Towing Attachments, and Drawbars		
1501 Main Frame Assembly.....	45-1	45
1503 Tow Pole and Strut Assembly.....	46-1	46
Group 18 Body, Cab, Hood, and Hull		
1801 Engine Enclosure	47-1	47
Group 22 Body, Chassis, or Hull and Accessory Items		
2210 Decals	48-1	48
Group 24 Hydraulic Lift Components		
2401 Hydraulic Pump Assembly.....	49-1	49
2401 Hydraulic Motor Assembly	50-1	50
2402 Hydraulic Control Valve Assembly.....	51-1	51
2406 Hydraulic Pressure Lines and Fittings.....	52-1	52
2406 Hydraulic Return Lines and Fittings	53-1	53
Group 47 Gages (non-electrical) Weighing and Measuring Devices		
4701 Tachometer and Tachometer Drive	54-1	54
Group 71 Sweeping Equipment Components		
7111 Dirt Deflector Assembly	55-1	55
7111 Brush Frame Assembly	56-1	56
7111 Hydraulic Core and Brush Kit Assembly.....	57-1	57
7113 Hydraulic Cylinder Assembly	58-1	58
7114 Spray Pump Assembly	59-1	59
7114 Spray System Installation	60-1	60
Group 94 9401 Repair Kits.....	Kits-1	
Group 95 9501 Bulk Materials.....	Bulk-1	



TABLE OF CONTENTS (CONT)

	Page	Illus/ Figure
Section III Special Tools List		
Group 26 Tools and Test Equipment		
2604 Engine Special Tools.....	61-1	61
Section IV Cross-reference Indexes	I-1	
National Stock Number Index.....	I-1	
Part Number Index.....	I-10	
Figure and Item Number Index.....	I-30	
APPENDIX G <u>ILLUSTRATED LIST OF MANUFACTURED ITEMS</u>	G-1	
APPENDIX H <u>SCHEMATICS</u>	H-1	

HOW TO USE THIS MANUAL

This manual is designed to help operate and maintain the 53MH Rotary Towed Sweeper, NSN 3825-01-314-2926. Listed below are some of the special features that have been included to help locate and use the needed information:

A front cover Table of Contents is provided for quick reference to chapters and sections that will be used often.

Warning, caution and note headings, subject headings, and certain other essential information are printed in bold type to make them easier to see.

The maintenance tasks describe what must be done to the sweeper before starting the task, and what must be done to return the sweeper to operating condition after the task is finished.

The appendixes are located at the end of the manual. They contain a reference guide to other manuals, guidelines to reading the Maintenance Allocation Chart (MAC), a list of expendable supplies and materials, and other material for maintaining the sweeper.

In addition to text, there are exploded-view illustrations showing you how to take the part off and put it on.

Cleaning and inspection procedures are also included, when required.

Chapters 1 and 2 of this manual are directed at the crew/operator of the sweeper. These chapters include an overall description of the sweeper and discuss the controls and indicators, their location and use, and the instructions for operation of the sweeper under different circumstances.

Chapter 3 of this manual covers crew/operator lubrication, preventive maintenance checks and services, and basic troubleshooting. Crew/operator maintenance is also covered in this chapter.

Chapter 4 of this manual covers unit maintenance including troubleshooting and maintenance procedures.

Chapter 5 of this manual covers direct support and general support maintenance including troubleshooting and maintenance procedures.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL:

The operator must read through this manual and become familiar with the contents before attempting to operate the sweeper.

Read all WARNINGS and CAUTIONS before performing any procedure.

The **equipment conditions** listed at the start of a maintenance procedure and any equipment conditions required for those equipment conditions should be performed before the primary maintenance task. The mechanic may be able to perform only certain steps within a procedure to accomplish the equipment condition.

The **follow-on maintenance** tasks listed at the end of a maintenance procedure, and any follow-on tasks listed at the end of those procedures should be performed to return the sweeper to an operational condition.

"Brush" and "broom" are interchangeable and indicate the same component on the sweeper.

v/(vi blank)

CHAPTER 1 INTRODUCTION

Para	Contents	Page
1-1	Scope	1-1
1-2	Maintenance Forms, Records, and Reports	1-1
1-3	Destruction of Army Materiel To Prevent Enemy Use	1-3
1-4	Reporting Equipment Improvement Recommendations (EIR)	1-3
1-5	Warranty Information	1-3
1-6	Abbreviations.....	1-3
1-7	Preparation For Storage Or Shipment.....	1-3
1-8	Quality Assurance/Quality Control (QA/QC).....	1-3
1-9	Safety, Care, and Handling.....	1-3
1-10	Equipment Characteristics, Capabilities, and Features.....	1-4
1-11	Location and Description of Major Components	1-4
1-12	Equipment Data.....	1-5
1-13	Mechanical System	1-8
1-14	Electrical System.....	1-9
1-15	Hydraulic System.....	1-10
1-16	Fuel System	1-11
1-17	Sprinkler System	1-12

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. *Type of Manual Operator's* Unit, Direct Support and General Support Maintenance Manual including Repair Parts and Special Tools List (RPSTL).

b. *Model Number and Equipment Name.* Rotary Towed Sweeper, Model 53MH, NSN 3825-01-314-2926, produced by M-B Company, Inc. of Wisconsin. (See figures 1-1 and 1-2).

c. *Purpose of Equipment* The Rotary Towed Sweeper, from here on referred to as the sweeper, is used to clear dirt, snow, and debris from paved surfaces.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

ROTARY TOWED SWEEPER 53 MH - LEFT FRONT VIEW

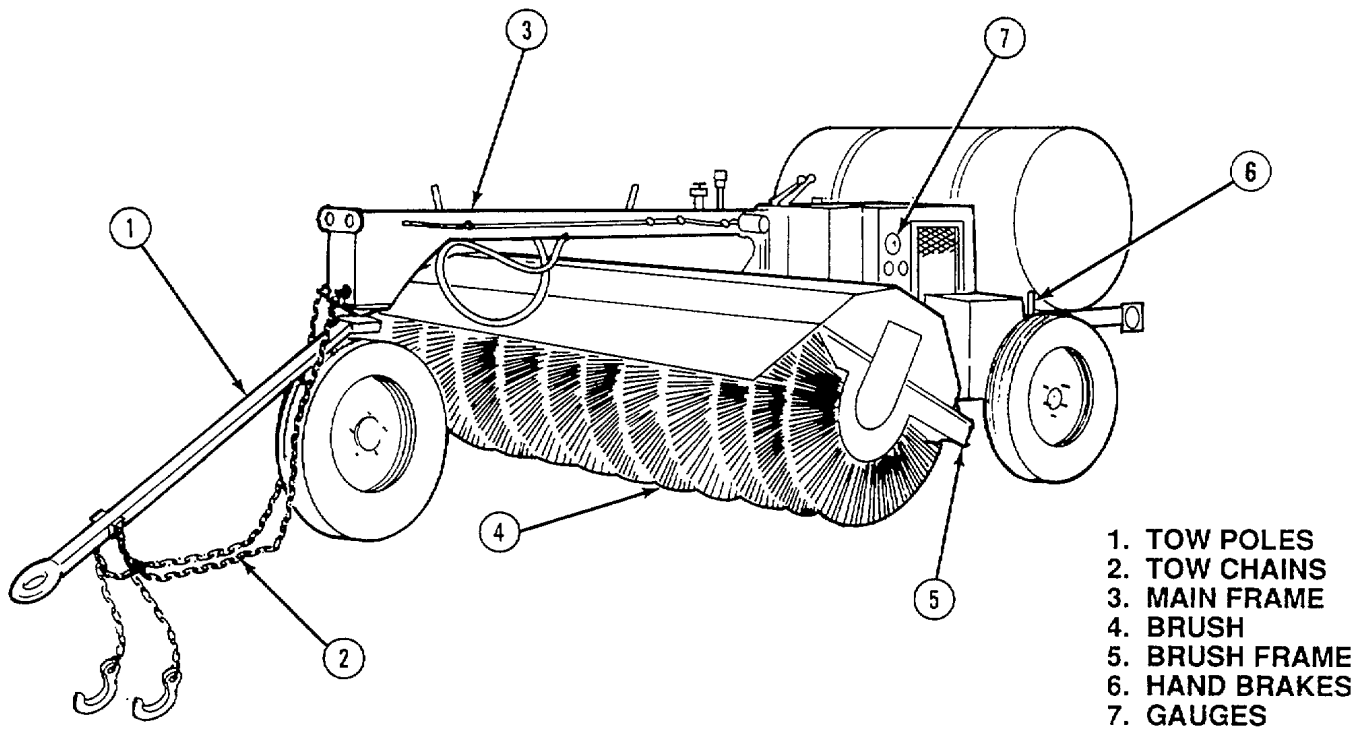


Figure 1-1. Rotary Towed Sweeper 53MH - Left Front View

ROTARY TOWED SWEEPER 53MH - RIGHT REAR VIEW

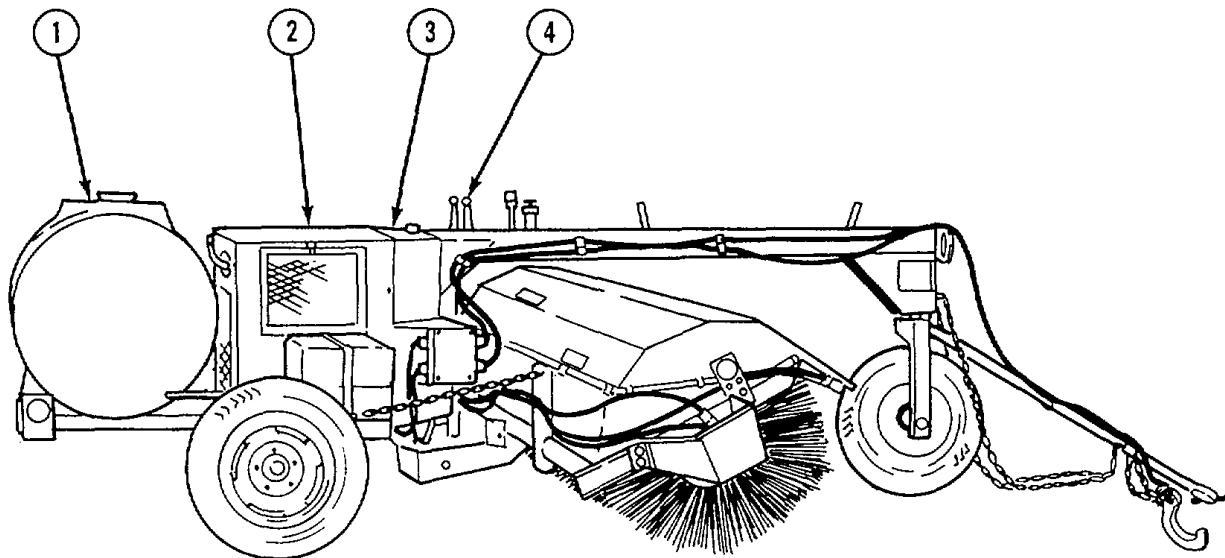


Figure 1-2. Rotary Towed Sweeper 53MH - Right Rear View