

TECHNICAL MANUAL

**UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT
MAINTENANCE REPAIR PARTS AND
SPECIAL TOOLS LISTS**

FOR

**CRANE, WHEEL-MOUNTED: 4-TON,
SELF-PROPELLED FOR AIRCRAFT
MAINTENANCE AND POSITIONING
(SCAMP)**

**GROVE MANUFACTURING COMPANY
MODEL RT 41AA**

(NSN 3810-01-144-4885)

This manual supersedes TM 5-3810-302-24P, dated 20 February 1987.

Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

29 MAY 1992

**UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT
MAINTENANCE REPAIR PARTS AND
SPECIAL TOOLS LISTS
FOR
CRANE, WHEEL-MOUNTED: 4-TON,
SELF-PROPELLED FOR AIRCRAFT
MAINTENANCE AND POSITIONING
(SCAMP)**

**GROVE MANUFACTURING COMPANY
MODEL RT 41AA
(NSN 3810-01-144-4885)**

Current as of 6 December 1991

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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.

Approved for public release; distribution is unlimited.

TABLE OF CONTENTS

	Page	Illus Fig
SECTION I. INTRODUCTION	1	
SECTION II. REPAIR PARTS LIST	1-1	
GROUP 01 ENGINE		
0100 - ENGINE ASSEMBLY	1-1	
ENGINE AND MOUNTING	1-1	1
0101 - CRANKCASE, BLOCK, CYLINDER HEAD	2-1	
ENGINE BLOCK ASSEMBLY	2-1	2
CYLINDER HEAD ASSEMBLY	3-1	3
0102 - CRANKSHAFT	4-1	
CRANKSHAFT ASSEMBLY	4-1	4
VIBRATION DAMPENER AND PULLEY	5-1	5

* This manual supersedes TM 5-3810-302-24P dated 20 February 1987.

TABLE OF CONTENTS (Con't)

	Page	Illus Fig
0103 - FLYWHEEL ASSEMBLY.....	6-1	
FLYWHEEL AND HOUSING	6-1	6
0104- PISTONS AND CONNECTING RODS	7-1	
PISTON, ROD, AND BEARING	7-1	7
0105 - VALVES, CAMSHAFTS, AND TIMING SYSTEM	8-1	
CAMSHAFT ASSEMBLY	8-1	8
VALVES AND GUIDES	9-1	9
GEAR HOUSING	10-1	10
0106 - ENGINE LUBRICATION SYSTEM		
OIL FILTER ASSEMBLY	11-1	11
OIL PAN AND ADAPTER	12-1	12
OIL PUMP ASSEMBLY	13-1	13
OIL COOLER	14-1	14
0108 - MANIFOLDS	15-1	
INTAKE AND EXHAUST MANIFOLDS..	15-1	15
 GROUP 03 FUEL SYSTEM		
0301 - CARBURETOR, FUEL INJECTOR	16-1	
FUEL NOZZLE AND HOLDER	16-1	16
0302- FUEL PUMPS	17-1	
FUEL INJECTION PUMP	17-1	17
0304- AIR CLEANER	18-1	
AIR CLEANER	18-1	18
0306- TANKS, LINES, FITTINGS, HEADERS..	19-1	
FUEL TANK	19-1	19
FUEL LINES AND FITTINGS	20-1	20
0309- FUEL FILTERS	21-1	
FUEL FILTERS	21-1	21
0311 - ENGINE STARTING AIDS	22-1	
COLD STARTING AID	22-1	22
0312- ACCELERATOR, THROTTLE, OR CHOKE CONTROLS	23-1	
ACCELERATOR PEDAL AND CONTROL	23-1	23
Throttle	24-1	24
 GROUP 04 EXHAUST SYSTEM		
0401 -MUFFLER AND PIPES	25-1	
MUFFLER AND PIPES	25-1	25
 GROUP 05 COOLING SYSTEM		
0501 - RADIATOR, EVAPORATIVE COOLER, OR HEAT EXCHANGER	26-1	
RADIATOR ASSEMBLY AND HOSES..	26-1	26
0503- WATER MANIFOLD, HEADERS, THERMOSTATS, AND HOUSING GASKET	27-1	
THERMOSTAT HOUSING	27-1	27
0504 - WATER PUMP	28-1	
WATER PUMP AND FAN ASSEMBLY..	28-1	28
 GROUP 06 ELECTRICAL SYSTEM		
0601 -GENERATOR, ALTERNATOR	29-1	
ALTERNATOR ASSEMBLY	29-1	29

TABLE OF CONTENTS (Con't)

	Page	Illus Fig
0603 - STARTING MOTOR	30-1	
STARTING MOTOR	30-1	30
0607 -INSTRUMENT OR ENGINE CONTROL PANEL	31-1	
INSTRUMENTS AND LIGHTS	31-1	31
FRONT INSTRUMENT PANEL	32-1	32
0608 - MISCELLANEOUS ITEMS	33-1	
BOOM AND CARRIER WIRING	33-1	33
EXTERIOR LIGHT WIRING	34-1	34
ENGINE WIRING	35-1	35
0609 - LIGHTS	36-1	
HEADLIGHT AND FLOODLIGHT MOUNTING	36-1	36
HEADLIGHT ASSEMBLY	37-1	37
FLOODLIGHT ASSEMBLY	38-1	38
EXTERIOR LIGHT MOUNTING	39-1	39
STOP TAIL, AND TURN SIGNAL LIGHT ASSEMBLY	40-1	40
REAR BLACKOUT LIGHT ASSEMBLY	41-1	41
FRONT TURN SIGNAL ASSEMBLY	42-1	42
BLACKOUT HEADLIGHT ASSEMBLY	43-1	43
0610-SENDING UNITS AND WARNING SWITCHES	44-1	
SPEEDOMETER SENSOR	44-1	44
ENGINE SWITCHES AND SENDING UNITS	45-1	45
OIL SAMPLING VALVES	46-1	46
0611 -HORN, SIREN	47-1	
HORN AND BACKUP ALARM	47-1	47
0612 -BATTERIES, storage	48-1	
BATTERY AND SLAVER ECEPTACLE	48-1	48
0613 -HULL OR CHASSIS WIRING HARNESS	49-1	
INSTRUMENTS AND LIGHTS HARNESS ASSEMBLY	49-1	49
BOOM HARNESS ASSEMBLY	50-1	50
CAB INTERIOR HARNESS ASSEMBLY	51-1	51
CARRIER HARNESS ASSEMBLY	52-1	52
GROUP 07 TRANSMISSION		
0705 -TRANSMISSION SHIFTING COMPONENTS	53-1	
TRANSMISSION SHIFTER AND CONTROLS	53-1	53
TRANSMISSION SHIFTER TWO LEVER CONTROL ASSEMBLY	54-1	54
AKLESHIFTER AND CONTROLS	55-1	55
AXLE SHIFTER TWO LEVER CONTROL ASSEMBLY	56-1	56
TRANSMISSION BOTTOM ENTRY ASSEMBLY	57-1	57
0708 -TORQUE CONVERTER OR FLUID COUPLING	58-1	
CONVERTER GROUP	58-1	58
0710- TRANSMISSION ASSEMBLY AND ASSOCIATED PARTS	59-1	
TRANSMISSION AND MOUNTING	59-1	59
CLUTCH AND GEAR GROUP	60-1	60
TRANSMISSION CASE	61-1	61
CLUTCH ASSEMBLY	62-1	62
AXLE DISCONNECT ASSEMBLY	63-1	63
0714 - SERVO UNIT	64-1	
TRANSMISSION CONTROL VALVE ASSEMBLY	64-1	64
0721 -COOLERS, PUMPS, MOTORS... ..	65-1	
TRANSMISSION OIL COOLING LINES	65-1	65
GROUP 09 PROPELLER, PROPELLER SHAFTS, UNIVERSAL JOINTS, COUPLER, AND CLAMP ASSEMBLY		
0900 - PROPELLER SHAFTS	66-1	
FRONT AND REAR DRIVE SHAFTS	66-1	66

TABLE OF CONTENTS (Con't)

	Page	Illus Fig
GROUP 10 FRONT AXLE		
1000 - FRONT AXLE ASSEMBLY	67-1	
FRONT AXLE AND MOUNTING	67-1	67
FRONT AXLE ASSEMBLY	68-1	68
1002 - DIFFERENTIAL	69-1	
FRONT DIFFERENTIAL CARRIER	69-1	69
1004 -STEERING AND LEANING WHEEL MECHANISM	70-1	
TOWING LINK	70-1	70
FRONT STEERING PARTS	71-1	71
GROUP 11 REAR AXLE		
1100- REAR AXLE ASSEMBLY	72-1	
REAR AXLE AND MOUNTING	72-1	72
REAR AXLE ASSEMBLY	73-1	73
1102 - DIFFERENTIAL	73-1	
REAR DIFFERENTIAL CARRIER	74-1	74
1104 - STEERING, SIDESHIFT AND WHEEL LEANING MECHANISM	75-1	
REAR STEERING INDICATOR	75-1	75
REAR STEERING PARTS	76-1	76
GROUP 12 BRAKES		
1201 - HANDBRAKES	77-1	
PARKING BRAKE AND MOUNTING	77-1	77
PARKING BRAKE ASSEMBLY	78-1	78
1202 - SERVICE BRAKES	79-1	
FRONT AND REAR SERVICE BRAKE PARTS	79-1	79
1204 - HYDRAULIC BRAKE SYSTEM	80-1	
SERVICE BRAKE AND MOUNTING	80-1	80
BRAKE LINES AND FITTINGS	81-1	81
MASTER CYLINDER ASSEMBLY	82-1	82
HYDRAULIC BOOSTER ASSEMBLY	83-1	83
GROUP 13 WHEELS AND TRACKS		
1311 - WHEEL ASSEMBLY,	84-1	
WHEEL ASSEMBLY .,	84-1	84
1313 - TIRES, TUBES, TIRE CHAINS...	85-1	
TIRE AND TUBE ASSEMBLY	85-1	85
GROUP 14 STEERING		
1401 -MECHANICAL STEERING GEAR ASSEMBLY	86-1	
STEERING WHEEL ASSEMBLY.....	86-1	86
141 0- HYDRAULIC PUMP OR FLUID MOTOR ASSEMBLY	87-1	
STEERING PUMP ASSEMBLY	87-1	87
1412 -HYDRAULIC OR AIR CYLINDERS	88-1	
FRONT AND REAR AXLE STEERING CYLINDER	88-1	88
FRONT AND REAR AXLE STEERING CYLINDER ASSEMBLY	89-1	89

TABLE OF CONTENTS (Con't)

	Page	Illus Fig
1414- STEERING SYSTEM VALVES	90-1	
STEERING CONTROL ASSEMBLY	90-1	90
GROUP 15 FRAME, TOWING ATTACHMENTS, DRAWBARS, AND ARTICULATION SYSTEMS		
1501- FRAME ASSEMBY	91-1	
FRAME	91-1	91
1503- PINTLES AND TOWING ATTACHMENTS.	92-1	
PINTLE HOOK AND MOUNTING	92-1	92
1504 - SPARE WHEEL CARRIER AND TIRE LOCK.	93-1	
SPARE TIRE MOUNTING BRACKET	93-1	93
1507- LANDING GEAR, LEVELING JACKS.	94-1	
OVERSIZE OUTRIGGER PAD	94-1	94
GROUP 18 BODY, CAB, HOOD, AND HULL		
1801 -BODY, CAB, HOOD, AND HULL ASSEMBLIES	95-1	
ENGINE HOOD AND MOUNTING	95-1	95
CONSOLE AND FRONT COVER	96-1	96
CAB ASSEMBLY AND WEATHERSTRIP	97-1	97
1802- FENDERS, RUNNING BOARDS WITH MOUNTING AND ATTACHING PARTS, OUTRIGGERS, WINDSHIELD, GLASS, ETC.	98-1	
WINDOWS	98-1	98
FRONT AND REAR OUTRIGGERS,	99-1	99
FENDERS AND MOUNTING	100-1	100
1806 - UPHOLSTER- SEATS, AND CARPETS	101-1	
SEATS, SEATBELTS, AND MOUNTING	101-1	101
1808 - STOWAGE RACKS, BOXES, STRAPS, CARRYING CASES, CABLE REELS, HOSE REELS, ETC	102-1	
TOOLBOX AND MOUNTING	102-1	102
GROUND MANEUVERING WHEELS STORAGE BRACKET AND MOUNTING	103-1	103
GROUP 22 BODY, CHASSIS, AND HULL ACCESSORY ITEMS		
2202 - ACCESSORY ITEMS	104-1	
CAB ACCESSORY ITEMS	104-1	104
TOWBAR MOUNTING BRACKET	105-1	105
HEATER AND MOUNTING	106-1	106
HEATER ASSEMBLY	107-1	107
2210 -DATA PLATES AND INSTRUCTION HOLDERS	108-1	
LOAD CHART MOUNTING PLATE	108-1	108
GOVERNMENT-FURNISHED EQUIPMENT	109-1	109
DECALS	110-1	110
GROUP 24 HYDRAULIC AND FLUID SYSTEMS		
2401 - PUMP AND MOTOR	111-1	
HOIST MOTOR ASSEMBLY	111-1	111
HANDPUMP STOWAGE	112-1	112
HYDRAULIC PUMP ASSEMBLY	113-1	113
2402- MANIFOLD AND/OR CONTROL VALVES	114-1	
HOLDING VALVE ASSEMBLY	114-1	114
BRAKE VALVE ASSEMBLY	115-1	115

TABLE OF CONTENTS (Con't)

	Page	Illus Fig
2402 - MANIFOLD AND/OR CONTROL VALVES (Con't)		
CONTROL LEVER LOCKOUT VALVES AND MOUNTING	116-1	116
OUTRIGGER SELECTOR VALVE ASSEMBLY	117-1	117
CONTROL VALVE ASSEMBLY (A20)	118-1	118
INLET SECTION (A20)	119-1	119
OUTRIGGER VALVE SECTION	120-1	120
TELESCOPE VALVE SECTION	121-1	121
SWING VALVE SECTION	122-1	122
CONTROL VALVE ASSEMBLY (A36)	123-1	123
INLET SECTION (A36)	124-1	124
HOIST VALVE SECTION	125-1	125
LIFT VALVE SECTION	126-1	126
REAR STEERING VALVE SECTION	127-1	127
2403- HYDRAULIC CONTROLS AND/OR MANUAL CONTROLS	128-1	
CONTROL LEVERS	128-1	128
CONTROL VALVES AND LINKAGE	129-1	129
2406 - STRAINERS, FILTERS, LINES, AND FITTINGS, ETC.	130-1	
TELESCOPE CYLINDER HYDRAULIC LINES	130-1	130
SUPPLY PRESSURE, AND RETURN HYDRAULIC LINES	131-1	131
FRONT STEERING HYDRAULIC LINES	132-1	132
OUTRIGGER HYDRAULIC LINES	133-1	133
REAR STEERING HYDRAULIC LINES.	134-1	134
NONFREE SWING HYDRAULIC LINES.	135-1	135
LIFT CYLINDER HYDRAULIC LINES	136-1	136
HOIST HYDRAULIC LINES	137-1	137
HANDPUMP HYDRAULIC LINES	138-1	138
LEVER LOCKOUT HYDRAULIC LINES.	139-1	139
HYDRAULIC FILTER ASSEMBLY	140-1	140
2407 - HYDRAULIC CYLINDERS	141-1	
TELESCOPE CYLINDER ASSEMBLY.	141-1	141
LIFT CYLINDER MOUNTING	142-1	142
LIFT CYLINDER ASSEMBLY	143-1	143
OUTRIGGER CYLINDER ASSEMBLY	144-1	144
2408- LIQUID TANKS OR RESERVOIRS.	145-1	
HYDRAULIC TANK MOUNTING	145-1	145
GROUP 47		
GAGES (NONELECTRICAL) , WEIGHING AND MEASURING DEVICES		
4701-INSTRUMENTS	146-1	
TACHOMETER DRIVE ASSEMBLY	146-1	146
GROUP 74		
CRANES, SHOVELS, AND EARTHMOVING EQUIPMENT		
7411 - CRANE DRAGLINE OR CLAMSHELL ATTACHMENTS	147-1	
BOOM MOUNTING	147-1	147
BOOM ASSEMBLY	148-1	148
BOOM ELEVATION INDICATORS	149-1	149
HOOK BLOCK ASSEMBLY	150-1	150
ANTITWO BLOCK AND MOUNTING	151-1	151
LIMIT SWITCH ASSEMBLY	152-1	152
CABLE REEL ASSEMBLY	153-1	153
7417 - HOISTS	154-1	
HOIST MOUNTING	154-1	154
HOIST ASSEMBLY	155-1	155

TABLE OF CONTENTS (Con't)

	Page	Illus Fig
7418 - TRANSMISSION ASSEMBLY	156-1	
MOTOR, BRAKE, AND REDUCER ASSEMBLY	156-1	156
PLANETARY GEAR REDUCER ASSEMBLY	157-1	157
TURNTABLE BRAKE ASSEMBLY	158-1	158
ORBIT MOTOR ASSEMBLY	159-1	159
7419 - TURNTABLE	160-1	
TURNTABLE, LOCKPIN, AND MOUNTING	160-1	160
POSITIVE SWING STOP AND MOUNTING	161-1	161
TURNTABLE DRIVE ASSEMBLY AND MOUNTING	162-1	162
GROUP 94 REPART KITS		
9401 - REPAIR KITS	KIT-1	
REPAIR KITS	KIT-1	
GROUP 95 GENERAL USE STANDARDIZED PARTS		
9501 - BULK MATERIEL	BULK -1	
BULK MATERIEL	BULK-1	
SECTION III. SPECIAL TOOLS (NOT APPLICABLE)		
SECTION IV. CROSS-REFERENCE INDEXES		
NATIONAL STOCK NUMBER INDEX.....	I-1	
PART NUMBER INDEX	I-32	
FIGURE AND ITEM NUMBER INDEX.....	I-97	

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LISTS

SECTION I. INTRODUCTION

1. Scope.

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of Unit, Direct support, and General Support Maintenance of the Self-Propelled Crane for Aircraft Maintenance and Positioning (SCAMP). It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

2. General.

In addition to Section I. Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. *Section II. Repair Parts List.* A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number. Bulk materials are listed in item m-mm. Repair kits are listed separately in their own functional group within Section II. Repair parts for reparable special tools are also listed in the section. Reins listed are shown on the associated

b. *Section III. Special Tools List.* A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) Information in DESCRIPTION AND USABEL ON CODE column) for the performance of maintenance.

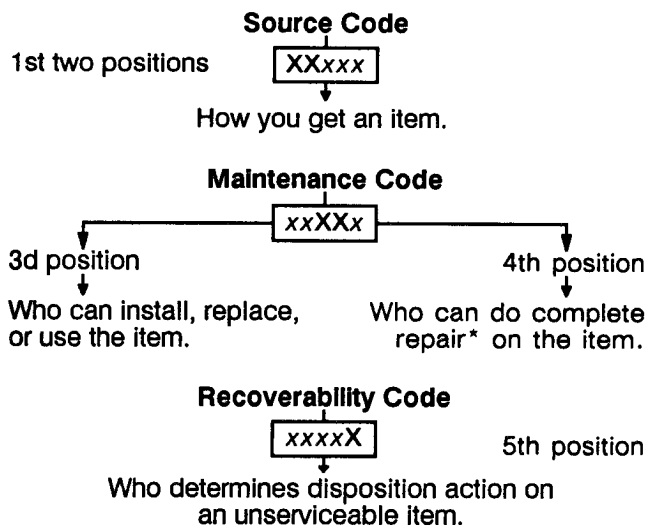
c. *Section IV. Cross-reference Indexes.* A list, in National Item Identification Number (NIIN) sequence, of all National stock numbered items stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration/figure and item number appearance. The fig-

ure and item number index lists figure and item numbers in alphanumeric sequence and cross-references NSN, CAGE, and part numbers.

3. Explanation of Columns (Sections II and III).

a. *ITEM NO. (Column (1)).* Indicates the number used to identify items called out in the illustration.

b. *SMR CODE (Column (2)).* The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instructions, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) *Source Code.* The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows: