TECHNICAL MANUAL

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST FOR

DRILLING SYSTEM, WELL, ROTARY, TRUCK MOUNTED, AIR TRANSPORTABLE, 600-FOOT CAPACITY MODEL LP-12 NSN 3820-01-246-4276

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

* This manual supersedes TM 5-3820-256-24P-2, dated 24 January 1991.

HEADQUARTERS, DEPARTMENT OF THE ARMY
26 FEBRUARY 1993

TECHNICAL MANUAL
NO **5-3820-256-24P-2**

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 26 FEBRUARY 1993

Unit, Direct Support and General Support Maintenance
Repair Parts and Special Tools List
for

DRILLING SYSTEM, WELL, ROTARY, TRUCK MOUNTED, AIR TRANSPORTABLE, COO-FOOT CAPACITY MODEL LP'12, NSN 3820-01-246-4276

Current • s of 8 January 1M7

This manual is printed in four volumes as follows: Volume 1, TM 5-3820-256-24P-1, consisting of Table of Contents, Section I, Section II (Functional Group 01), and Section IV.
Volume 2, TM 5-3820-256-24P-2, consisting of Table of Contents, Section I, Section II (Functional Group 02), and Section IV.
Volume 3, TM 5-3820-256-24P-3, consisting of Table of Contents, Section I, Section II (Functional Group 03), and Section IV.
Volume 4, TM 5-3820'256-24P-4. consisting of Table of Contents, Section I, Section II (Functional Group 04 and 99), Section III and Section IV.
The Table of Contents and Section I are identical in all volumes. Each volume contains indexes specific to that volume.

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 these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located m the back of this manual directly to: Commander. US Army Aviation and Troop Command. ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <mpmt%avma28@st-louis-emh7.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

DISTRIBUTION STATEMENT A: Approved for public release: distribution is unlimited

TABLE OF CONTENTS

	Page	Illus/ Figure
Section I INTRODUCTION	1	
Section II REPAIR PARTS LIST	1-1	
Group 01 Drilling Machine		
0101 Mast Lighting **Assembly**	1-1	1
0102 Discharge Piping Assembly	2-1	2
010201 Shear Relief Valve	3-1	3
010202 Ball Valve (1500 through 3000 PSI WP)	4-1	4
Ball Valve (750 through 2000 PSI WP)	5-1	5
0103 Mast Assembly	6-1	6

* **This manual supersedes TM 5-3820-256-24P-2 dated 24 January 1991.**

		Page	Illus/ Figure
010301	Crown Block Assembly	7-1	7
010302	Chain Feed Sprocket Assembly	8-1	8
010303	Chain Pulldown Assembly	9-1	9
0104	Mast Raising Cylinder Assembly	10-1	10
	Mast Cylinder	11-1	11
0105	Mud Pump Drive Assembly	12-1	12
010501	Mud Pump Drive Clutch	13-1	13
0106	Mud Pump Assembly	14-1	14
0107	Air Compressor Drive Assembly	15-1	15
010701	Air Compressor Assembly	16-1	16
010701	Shaft Seal Assembly	17-1	17
010702	Compressor Drive Clutch	18-1	18
010703	Air Compressor	19-1	19
	Air Filter Assembly	20-1	20
	Air Filter	21-1	21
	Inlet Throttle Assembly	22-1	22
	Air/Oil Separator Assembly	23-1	23
010702	Oil Cooler Assembly	26-1	24
01070201	Compressor Oil Filter	25-1	25
01070203	Thermostatic Bypass Valve	26-1	26
	Cooling Fan Motor	27-1	27
0108	Subdrive Assembly	28-1	26
010801	Driveshaft Assembly	29-1	29
010802	Driveshaft Assembly	30-1	30
010903	Power Take-Off Assembly	31-1	31
010804	Hydraulic Gear Pump Assembly	32-1	32
010806	Displacement Pump Assembly	33-1	33
070806	Hydraulic Pump Assembly	34-1	34
0109	Drawworks Assembly	35-1	35
010901	Bevel Gearbox Assembly	36-1	36
010902	Driveshaft	37-1	37
010903	Hoist/Auxiliary Drum Brake Assembly	38-1	38
010904	Third Drum Brake Assembly	39-1	39
010905	Third Drum Clutch Control	40-1	40
010906	Hoist/Auxiliary Drum Assembly	41-1	41
01090601	Rotorseal Assembly	42-1	42
01090602	Hoist/Auxiliary Drum Clutch Assembly	43-1	43
010907	Third Drum Assembly	44-1	44
01090701	Third Drum Clutch	45-1	45
0110	Hydraulic Piping	46-1	46

		Page	Illus/ Figure
011001.	Hydraulic Oil Filter	47-1	47
0111.	Water and Foam Injection Assembly	48-1	48
011101.	Water Injection Drive Motor	49-1	49
011102.	Water Injection Pump	50-1	50
011103.	Foam Pulse Pump	51-1	51
	Water Injection Relief Valve	52-1	52
0112.	Lubricator Assembly	53-1	53
011201.	Force Feed Lubricator	54-1	54
0113.	Breakout Tong Assembly	55-1	55
0114.	Hydraulic Breakout Assembly	56-1	56
011401.	Breakout Cylinder	57-1	57
0115.	Rotary Table Drive Assembly	58-1	58
011501.	Rotary Table Driveshaft	59-1	59
011502.	Hydrostatic Motor	60-1	60
011503.	Manifold Valve Assembly	61-1	61
011504.	Rotary Table Transmission	62-1	62
	Transmission Shifter	63-1	63
0116.	Dust Deflector Assembly	64-1	64
0117.	Transfer Cylinder Assembly	65-1	65
0118.	Rotary Table Assembly	66-1	66
0119.	Rotary Table Sliding Base	67-1	67
0120.	Pulldown Transmission Control	68-1	68
0121.	Chain Feed Drive Assembly	69-1	69
012101.	Chain Feed Drive Motor	70-1	70
012102.	Pulldown Transmission	71-1	71
0122.	Instrument Panel	72-1	72
012201.	Compressor Panel	73-1	73
0123.	Air Piping Assembly	74-1	74
012301.	Pilotair Control Valve	75-1	75
012302.	Controlair Control Valve	76-1	76
012303.	Air Line Conditioner Unit	77-1	77
01230301.	Air Line Filter	78-1	78
01230302.	Air Line Lubricator	79-1	79
01230303.	Air Regulator	80-1	80
0124.	Throttle Control Assembly	81-1	81
0125.	Frame Lighting Assembly	82-1	82
0126.	Splash Guard Assembly	83-1	83
0127.	Drill Platform Assembly	84-1	84
0128.	Jacks and Mounting Assembly	85-1	85
012801.	Leveling Jack Assembly, Rear	86-1	86

		Page	Illus/ Figure
	012802. Leveling Jack Assembly, Front	87-1	87
	0129. Drill Frame Assembly	88-1	88
	0130. Winch Assembly	89-1	89
	0131. Winch Motor	90-1	90
	0132. Control Valve	90-1	90
	0133. Power Take-Off	91-1	91
	0134. Hydraulic Pump	92-1	92
	0135. Hand Jack	93-1	93
	Hand Tools	94-1	94
	Operating Equipment	95-1	95
	Swivel Assembly	96-1	96
	Mud Mixing Hopper	97-1	97
	Desander Unit	98-1	98
	Mud Testing Laboratory	99-1	99
	Hoisting Plug	100-1	100
Group 02.	Drilling Machine Truck		
	0201. Cab Group	101-1	101
	020101. Cab Trim, Exterior	101-1	101
	020102. Cab Trim, Interior	102-1	102
	020103. Windshield Wiper Installation	103-1	103
	020104. Heater/Defroster Connections	104-1	104
	0202. Driver Seat Assembly	105-1	105
	0203. Brake Pedal Assembly	106-1	106
	0204. Clutch Pedal Installation	107-1	107
	0205. Accelerator Pedal Installation	108-1	108
	0206. Shift Lever Installation	109-1	109
	0207. Steering Installation	110-1	110
	0208. Cab Electrical Installation	111-1	111
	Instrument Cluster	112-1	112
	0209. Steering Gear	113-1	113
	0210. Engine Cover Installation	114-1	114
	0211. Exhaust System Installation	115-1	115
	0212. Radiator	116-1	116
	021201. Radiator Hose Installation	116-1	116
	Deaeration Tank Installation	117-1	117
	Radiator Installation	118-1	118
	0213. Steering Pump	119-1	119
	Steering Pump Installation	119-1	119
	Steering Pump Installation	120-1	120
	Steering Pump Assembly	121-1	121

		Page	Illus/ Figure
	Power Steering Pump	122-1	122
0214.	Alternator	123-1	123
	Alternator Mounting	123-1	123
	Alternator Assembly	124-1	124
0215.	Engine Wiring Installation	125-1	125
021501.	Starting Motor	126-1	126
0216.	Diesel Engine Assembly	127-1	127
021601.	Air Cleaner and Mounting	127-1	127
	Ether Start Installation	128-1	128
021602.	Turbocharger Piping	129-1	129
	Turbocharger Assembly	130-1	130
021603.	Fuel Pump Access Cover	131-1	131
	Fuel Pump Access Cover	132-1	132
	Fuel Pump Linkage	133-1	133
	Fuel Pump Solenoid	134-1	134
	Fuel Injection Piping	135-1	135
	Fuel Supply Pump	136-1	136
021604.	Fuel Injection Pump Aneroid	137-1	137
021605.	Fuel Injection Pump Governor	138-1	138
	Fuel Injection Pump	139-1	139
021606.	Air Compressor Mounting	140-1	140
	Air Compressor Governor	141-1	141
	Air Compressor	142-1	142
	Air Compressor Strainer	143-1	143
	Engine Mounting	144-1	144
021607.	Water Pump and Fan Drive	145-1	145
	Idler Pulley and Mounting	146-1	146
	Oil Filter and Connection	147-1	147
021508.	Oil Cooler and Coolant Filter	148-1	148
021609.	Intercooler Mounting and Piping	149-1	149
021610.	Exhaust Manifold	150-1	150
021611.	Oil Pan	151-1	151
021612.	Oil Pump	152-1	152
021613.	Crankcase Front Cover	153-1	153
	Fuel Injection Nozzle	154-1	154
	Hydraulic Head	155-1	155
021614.	Cylinder Head Group	156-1	156
021615.	Camshaft and Related Parts	157-1	157
021616.	Piston and Connecting Rod	158-1	158
021617.	Crankshaft and Related Parts	159-1	159

		Page	Illus/ Figure
021618.	Crankcase Vent	160-1	160
	Crankcase and Related Parts	161-1	161
0217.	Transmission Assembly	162-1	162
0218.	Driveshaft-Transmission/Transfer Case	163-1	163
0219.	Driveshaft-Transfer Case/Front Axle	164-1	164
0220.	Transfer Case	165-1	165
	Transfer Case Valve	165-1	165
	Transfer Case Installation	166-1	166
	Transfer Case Assembly	167-1	167
0221.	Clutch Assembly	168-1	168
0222.	Air Brake Piping	169-1	169
	Parking Brake Control Valve	170-1	170
	Double Check Valve	171-1	171
	Quick Release Valve	172-1	172
	Air Brake Chamber-Forward Rear	173-1	173
	Air Brake Chamber-Rear Rear	174-1	174
	Air Tanks and Mounting	175-1	175
0223.	Front Wheel, Hub and Drum	176-1	176
0224.	Rear Wheel, Hub and Drum	177-1	177
0225.	Front Brakes	178-1	178
	Left Front Brake Assembly	178-1	178
	Right Front Brake Assembly	179-1	179
0226.	Rear Brakes	180-1	180
	Left Forward Rear Brake Assembly	180-1	180
	Right Forward Rear Brake Assembly	181-1	181
	Left Rear Rear Brake Assembly	182-1	182
	Right Rear Rear Brake Assembly	183-1	183
0227.	Driveshaft-Transfer Case/Rear Axle	184-1	184
0228.	Driveshaft-Rear Interaxle	185-1	185
0229.	Rear Axle	186-1	186
022901.	Forward Rear Axle Assembly	186-1	186
022902.	Rear Rear Axle Assembly	187-1	187
	Rear Suspension	188-1	188
0230.	Front Axle Assembly	189-1	189
	Front Springs and Shocks	190-1	190
	Frame	191-1	191
	Fuel Tank Installation	191-1	191
	Fuel Tank Assembly	192-1	192
	Battery Box Installation	193-1	193
	Frame	194-1	194

			Page	Illus/ Figure
Group 03.	Rig Tender			
	0301.	Crane	195-1	195
	030101.	Crane Extension Boom Assembly	195-1	195
	030102.	Crane Main Boom Assembly	196-1	196
	03010201.	Extension Cylinder Assembly	197-1	197
	030103.	Crane Turret Assembly	198-1	198
	03010301.	Main Cylinder Assembly	199-1	199
	03010202.	Winch Motor Assembly	200-1	200
	03010303.	Crane Winch Assembly	201-1	201
		Crane Swivel Manifold	202-1	202
	030104.	Crane Base Assembly	203-1	203
	03010401.	Control Valve	204-1	204
	03010402.	Crane Swing Hydraulic Motor	205-1	205
		Rotation Gearbox	206-1	206
	030105.	Remote Control Assembly	207-1	207
	0302.	Welder-Generator Assembly	208-1	208
	030201.	Front Panel Assembly	209-1	209
		Selector Switch	210-1	210
		Electronic Bracket Assembly	211-1	211
		Regulator Circuit Card	212-1	212
		Weld/Idle Circuit Card	213-1	213
	030202.	Generator Assembly	214-1	214
	030203.	Engine Assembly	215-1	215
		Alternator	215-1	215
		Air Cleaner and Cooling Housing	216-1	216
		Exhaust Group	217-1	217
		Starting Motor	218-1	218
		Regulator Cover	219-1	219
		Shutdown Device	220-1	220
		Fuel Injection Pump	221-1	221
		Fuel Injection	222-1	222
		Governor	223-1	223
		Cylinder Cover	224-1	224
		Valve Drive Group	225-1	225
		Cylinder Head Group226-1	226-1	226
		Oil Filter and Dipstick	227-1	227
		Oil Pan	228-1	228
		Oil Pump	229-1	229
		Pulley and Front Cover	230-1	230
		Flanged Bearing	231-1	231

			Page	Illus/ Figure
		Camshaft and Gear	232-1	232
		Piston and Connecting Rod	233-1	233
		Crankshaft and Flywheel	234-1	234
		Balancer Shaft	235-1	235
		Crankcase Group	236-1	236
	0303.	Flood Light Assembly	237-1	237
	0304.	Cabinet Assembly	238-1	238
	030401.	Fuel Transfer Pump	239-1	239
	030402.	Fuel Nozzle	240-1	240
	030403.	Torch Assembly	241-1	241
	0305.	Water Pump Assembly	242-1	242
	030501.	Water Pump	243-1	243
	030502.	Water Pump Drive Motor	244-1	244
	0306.	Hydraulic Reservoir Assembly	245-1	245
	030601.	Control Valve Assembly	246-1	246
	030602.	Hydraulic Filter Assembly	247-1	247
	0307.	Front Mounted Winch Assembly	248-1	248
	030701.	Winch Assembly	249-1	249
	030702.	Winch Drive Motor	250-1	250
	0308.	Pump and Power Take-Off Assembly	251-1	251
	030801.	Hydraulic Pump	252-1	252
	030802	Power Take-Off	253-1	253
Group 04.	Rig Tender Truck			
	0401.	Front Sheet Metal Group	254-1	254
		Hood and Grille Installation	254-1	254
		Stone Deflector Installation	255-1	255
		Splash Guard Installation	256-1	256
	0402.	Cab Group	257-1	257
	040201.	Left Cab Door Assembly	257-1	257
		Right Cab Door Assembly	258-1	258
		Cab Interior	259-1	259
	040202.	Heater Controls	260-1	260
	040203.	Windshield Wiper and Washer	261-1	261
	040204.	Heater Assembly	262-1	262
	040205.	Driver Seat Installation	263-1	263
		Passenger Seat Installation	264-1	264
		Heater Duct	265-1	265
		Engine and Transmission Cover	266-1	266
		Rear View Mirror and Grab Handle	267-1	267
		Cab Roof Assembly	268-1	268

		Page	Illus/ Figure
	Control Console Assembly	269-1	269
	Cab Mounting	270-1	270
	Steer Column and Clutch Shaft Seal	271-1	271
0403.	Treadle and Brake Valve	272-1	272
0404.	Clutch Control	273-1	273
0405.	Accelerator Control	274-1	274
0406.	Transmission Shift Control	275-1	275
0407.	Steering Column Installation	276-1	276
0408.	Cab Electrical Components	277-1	277
	Cab Dome Light	277-1	277
	Instrument Cluster	278-1	278
0409.	Steering Gear	279-1	279
0410.	Exhaust System	280-1	280
0411.	Radiator	281-1	281
041101.	Radiator Hose Installation	281-1	281
	Deaeration Tank Installation	282-1	282
	Radiator Installation	283-1	283
0412.	Steering Pump	284-1	284
	Steering Pump Installation	284-1	284
	Steering Pump Installation	285-1	285
	Steering Pump Assembly	286-1	286
	Power Steering Pump	287-1	287
0413.	Alternator	288-1	288
041301.	Alternator Mounting	288-1	288
	Alternator Assembly	289-1	289
0414.	Engine Wiring Installation	290-1	290
041401.	Starting Motor	291-1	291
0415.	Diesel Engine Assembly	292-1	292
041501.	Air Cleaner and Mounting	292-1	292
	Ether Start Installation	293-1	293
041502.	Turbocharger Piping	294-1	294
	Turbocharger Assembly	295-1	295
041503.	Fuel Pump Access Cover	296-1	296
	Fuel Pump Access Cover	297-1	297
	Fuel Pump Linkage	298-1	298
	Fuel Injection Solenoid	299-1	299
	Fuel Injection Piping	300-1	300
	Fuel Supply Pump	301-1	301
041504.	Fuel Injection Pump Aneroid	302-1	302
041505.	Fuel Injection Pump Governor	303-1	303

		Page	Illus/ Figure
	Fuel Injection Pump	304-1	304
041506.	Air Compressor Mounting	305-1	305
	Air Compressor Governor	306-1	306
	Air Compressor	307-1	307
	Air Compressor Strainer	308-1	308
	Engine Mounting	309-1	309
041507.	Water Pump and Fan Drive	310-1	310
	Idler Pulley and Mounting	311-1	311
	Oil Filter and Connection	312-1	312
041508.	Oil Cooler and Coolant Filter	313-1	313
041509.	Intercooler Mounting and Piping	314-1	314
041510.	Exhaust Manifold	315-1	315
041511.	Oil Pan	316-1	316
041512.	Oil Pump	317-1	317
	Crankcase Front Cover	318-1	318
041513.	Fuel Injection Nozzle	319-1	319
	Hydraulic Head	320-1	320
041514.	Cylinder Head Group	321-1	321
041515.	Camshaft and Related Parts	322-1	322
041516.	Piston and Connecting Rod	323-1	323
041517.	Crankshaft and Related Parts	324-1	324
041518.	Crankcase Vent	325-1	325
	Crankcase and Related Parts	326-1	326
0416.	Transmission Assembly	327-1	327
0417.	Driveshaft Transmission/Transfer Case	328-1	328
0418.	Driveshaft-Transfer Case/Front Axle	329-1	329
0419.	Transfer Case	330-1	330
	Transfer Case Valve	330-1	330
	Transfer Case Installation	331-1	331
	Transfer Case Assembly	332-1	332
0420.	Clutch Assembly	333-1	333
0421.	Air Brake Piping	334-1	334
	Parking Brake Control Valve	335-1	335
	Double Check Valve	336-1	336
	Quick Release Valve	337-1	337
	Air Brake Chamber Forward Rear	338-1	338
	Air Brake Chamber-Rear Rear	339-1	339
	Air Tanks and Mounting	340-1	340
0422.	Front Wheel, Hub and Drum	341-1	341
0423.	Rear Wheel, Hub and Drum	342-1	342

			Page	Illus/ Figure
0424.	Front Brakes		343-1	343
		Left Front Brake Assembly	343-1	343
		Right Front Brake Assembly	344-1	344
0425.	Rear Brakes		345-1	345
		Left Forward Rear Brake Assembly	345-1	345
		Right Forward Rear Brake Assembly	346-1	346
		Left Rear Rear Brake Assembly	347-1	347
		Right Rear Rear Brake Assembly	348-1	348
0426.	Driveshaft-Transfer Case/Rear Axle		349-1	349
0427.	Driveshaft-Rear Interaxle		350-1	350
0428.	Rear Axle		351-1	351
042801.		Forward Rear Axle Assembly	351-1	351
042802.		Rear Rear Axle Assembly	352-1	352
		Rear Suspension	353-1	353
0429.	Front Axle		354-1	354
		Front Axle Assembly	354-1	354
		Front Springs and Shocks	355-1	355
		Frame	356-1	356
		Fuel Tank Installation	356-1	356
		Fuel Tank Assembly	357-1	357
		Battery Box Installation	358-1	358
Group 99.	Bulk Materials List		Bulk-1	
Section III.	SPECIAL TOOLS LIST (Not Applicable)			
Section IV.	CROSS REFERENCE INDEXES (Each volume contains indexes specific to that volume.)		I-1	
	NATIONAL STOCK NUMBER INDEX		I-1	
	PART NUMBER INDEX		I-14	
	FIGURE AND ITEM NUMBER INDEX		I-72	

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

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 600-Foot Well Drilling System. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

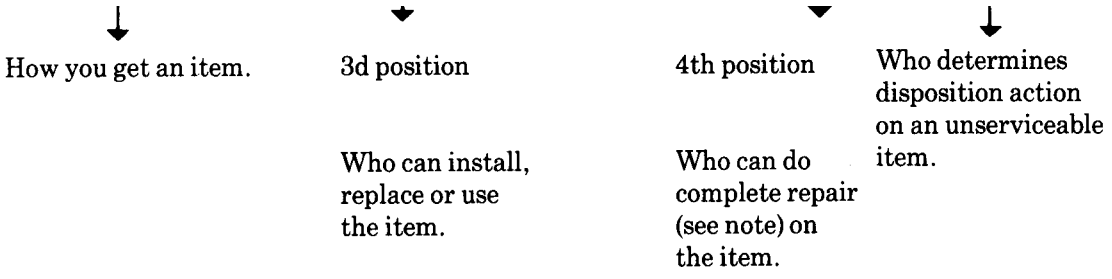
2. GENERAL. In addition to this section, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. This 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 sequence. Bulk materials are listed in item name sequence. Repair parts kits are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in this section. Items are shown in the associated illustration(s)/figure(s).

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 USABLE ON CODE column) for the performance of maintenance.

c. Section IV. Cross-references Indexes. A list, in National Item Identification Number (NIIN) sequence, of all National 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 figure and item number index lists figure and item number in alphanumeric sequence and cross references NSN, CAGEC and part number.

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 instruction, as shown in the following breakout: