

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-3, dated 24 January 1991.

HEADQUARTERS, DEPARTMENT OF THE ARMY

26 FEBRUARY 1993

TECHNICAL MANUAL

NO. 5-3820-256-24P-3

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

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**

Current as of 18 December 1992

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 the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 20282 located in the back of this manual direct to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MTS, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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-3, 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	24-1	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	28
010801 Driveshaft Assembly	29-1	29
010802 Driveshaft Assembly	30-1	30
010803 Power Take-Off Assembly.....	31-1	31
010804 Hydraulic Gear Pump Assembly	32-1	32
010805 Displacement Pump Assembly	33-1	33
010806 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	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 Group	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	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-76	

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:

