DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT

MAINTENANCE MANUAL

CRANE, WHEEL MOUNTED: 20 TON AT 10 FOOT RADIUS;

2 ENGINES, DIESEL ENGINE DRIVEN, 4X4;

AIR TRANSPORTABLE, PHASE III; W/BLADE, BULLDOZER,

EARTHMOVING; W/BLOCK, TACKLE, 20-TON; W/BOOM,

CRANE, 30 FOOT (AMERICAN HOIST AND DERRICK

MODEL 2380) FSN 3810-763-7728
(AMERICAN HOIST AND DERRICK MODEL 2385)

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DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

CRANE, WHEEL MOUNTED: 20 TON AT 10 FOOT RADIUS; 2 ENGINES, DIESEL ENGINE DRIVEN, 4x4; AIR TRANSPORTABLE, PHASE III; W/BLADE, BULLDOZER, EARTH-MOVING; W/BLOCK, TACKLE, 20-TON; W/BOOM, CRANE, 30 FOOT (AMERICAN HOIST AND DERRICK MODEL 2830) FSN 3810-763-7728 (AMERICAN HOIST AND DERRICK MODEL 2835) FSN 3810-043-5354

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual contains instructions for the use of direct and general support maintenance personnel maintaining the American Hoist and Derrick Model 2380 and Model 2385 Rough Terrain Crane as allocated by the Maintenance Allocation Chart contained in TM 5-3810-232-12. It provides information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available to operational and organizational maintenance.

b. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

1-2. Record and Report Forms

a. DA forms and procedures used for equipment maintenance will be only those prescribed by TM 38-750, The Army Maintenance Management System.

b. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to the Commanding General, U. S. Army Mobility Equipment Command, ATTN: AMSMEMPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

Section II. DESCRIPTION AND DATA

1-3. Description

A general description of the Model 2380 and Model 2385 Rough Terrain Crane and information pertaining to the identification plates are contained in TM 53810-232-12. A more detailed description of specific components and assemblies is contained in the applicable sections of this manual. Detailed descriptions of the components of the Model 2380 and Model 2385 Rough Terrain Crane are provided in the applicable maintenance paragraphs of this manual.

1-4. Tabulated Data

a. General. This paragraph contains all maintenance data pertinent to direct and general support and depot maintenance personnel. Additional data is in TM 5-3810-232-12. Wiring diagrams, figure 1-1 for Model 2380 and Model 2385 carrier, and figure 1-2 for crane, are also included.

b. Torque Data

(1) Nut and bolt torque data (carrier engine).

Part	Torque
Main bearing capscrew	(See para 3-73)
Main bearing side bolts	(See para 3-73)
Connecting rod nuts	(See para 3-71)
Vibration damper and front pulley.	200/205 foot-pounds
Crankshaft pipe plug	foot-pounds
Cylinder head capscrews	230/240 foot-pounds
Injector hold-down capscrews	30/35 foot-pounds
Valve cross-head nuts	25/30 foot-pounds
Fuel fittings	11/13 foot-pounds
Intake and exhaust manifold	30/35 foot-pounds
Oil pan drain plug (1 inch)	60/70 foot-pounds
Flywheel capscrews	200/205 foot pounds
Flywheel adapter capscrews	200/205 foot pounds
Flywheel housing capscrews (3/8 inch)	28/35 foot-pounds

(2) Nut and bolt torque data (crane engine).

Part	Torque
Cylinder Head:	
3/4-inch capscrews	400-foot-pounds
11/16-inch capscrews	260 foot-pounds
Exhaust manifold:	
7/16-inch studs (washers or lockplates under nuts)	25 foot-pounds
1/2-inch studs (washers or lockplates under nuts)	30 foot-pounds
1/2-inch studs	45 foot-pounds
3/8-inch studs	25 foot-pounds
3/8-inch capscrews	22 foot-pounds
Main bearings capscrews	(See para 4-76)
Connecting rod capscrewa	(See para 4-73)
Flywheel capscrews	100/110 foot-pounds
Injector:	
Hold-down standard	10/12 foot-pounds
Nylock	12/14 foot-rounds
Pressure Adjustment (at 140'F oil (temperature)	60 inch-pou'rds
Pressure Adjustment (at 70*F oil temperature)	48 inch-pounds
Adjusting screw nut	70 foot-pounds

Part Torque

Valve:
Adjusting screw nut ..... 70 foot-pounds
Fuel inlet and drain connections. .20/25 foot-pounds
Injector cup ..... 45 foot-pounds
Vibration damper capscrews ... 35/45 foot-pounds
Crankshaft flange ..... 130/140 foot-pounds
Cross-head adjusting screw nuts 25/30 foot-pounds
Tappet guide screws ..... 95/115 inch-pounds
Oil pan capscrew ..... 25/30 foot-pounds
Water header cover plate
capscrew .30/35 foot-pounds
Lubricating oil filter center
capscrews ..... 25/30 foot-pounds
Tappet guide plate capscrews . 18/20 foot-pounds
Gear housing capscrews ..... 30/35 foot-pounds
Vibration damper and crankshaft
pulley ..... 200/205 foot-pounds
Injector cup ..... 50/55 foot-pounds
Orifice plug ..... 6/8 inch-pounds

(3) Adjustment Data

(a) Valves (carrier engine)

(70'F oil temperature) ..... Exhaust 0.029 inches
Intake 0.016 inches
(140°F oil temperature) .....Exhaust 0.027 inches
Intake 0.014 inches

(b) Valves (crane engine).

(70'F oil temperature) .....Exhaust 0.027 inches
Intake 0.017 inches
(140'F oil temperature) .....Exhaust 0.025 inches
Intake 0.015 inches

(c) Alternator regulator adjustments.

Cutout relay air gap .....0.048 in.
Contact points .....0.035 in.
Voltagp regulator air gap .....0.084 in.
Cutout relay closing voltage ....26 volts
Voltage regulator opening
voltage ..... 29.2 volts
Current regulator maximum
amperage .....40 amperes

(4) Repair and replacement standards. Table 1-1 lists manufacturer's sizes, tolerances, desired clearances, and maximum allowable wear and clearances for the carrier and crane engines. Manufacturer's Maximum dimensions and Desired allowable tolerances clearance wear and in inches clearances

Table 1-1. Repair and Replacement Standards.

Component	Manufacturer's dimensions and tolerance in inches		Desired clearance		Maximum allowable wear and clearance
	Minimum	Maximum	Minimum	Maximum	
CRANE ENGINE:					
Cylinder block:					
Height from center of main bearing bore to top of block	15.122	15.124			15.114
Maximum amount removed in resurfacing					0.010
Liner counterbore depth	0.309	30.3105			0.3105
Maximum depth after repair					0.4023
Liner protrusion above block	0.0045	0.00675			0.0045
Main bearing cap fit in block	-0.002	-0.004			0.001
Main bearing bore	4.124	4.125			4.1255
Camshaft bushing I.D.	1.8745	1.8765			1.878
Cylinder liners I.D.	4.125	4.126			4.130
Camshaft end clearance	0.007	0.011			0.015
Camshaft thrust bushings I.D.	1.750	1.761			1.753
Cam thrust bushing Out of round at top one inch only					
Note. Liner may contact block if it does not force liner out-of-round					
Interference fit, liner and block0.0005-0.0045-0.005					
Crankshaft:					
Main journals	3.874	3.875			3.872
Rod journals	2.624	2.625			2.622
Fillet radii	O ;41	0.164			0.141
Main bearings					
Shell thickness 0.1216		0.1231	0.1286		
Journal clearance	0.0018	0.0048			0.0068
End clearance	0.004	0.015			0.022
Connecting rod bearings					
Shell thickness 0.07100		0.07225	0.07276		
Journal clearance	0.0020	0.0045			0.008
Connecting rod:					
Center to center	9.498	9.500			9.498