

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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TECHNICAL MANUAL

DIRECT AND GENERAL SUPPORT

MAINTENANCE MANUAL

LIGHTER, AMPHIBIOUS (LARC-LX)

SELF-PROPELLED,

DIESEL STEEL, 60 TON, 61 FT. DESIGN 2303

NSN 1930-00 -392-2981

Approved for public release. Distribution is unlimited.

This manual supersedes TM 55-1930-203-34, 6 April 1971, including change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY
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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 21 March 1988

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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope

These instructions cover the amphibious lighter (LARC-LX). They provide information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available at the organization maintenance level.

1-2. Forms and Records

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by DA Pam 738-750.

1-3. Reporting of Errors

You can help improve this manual. If you find any mistake 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 directly to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

Section II. DESCRIPTION AND DATA

1-4. Description

For a complete description of the LARC.LX refer to TM 55-1930-203-10 and TM 55-1930-203-20.

1-5. Difference in Models

For any information relative to difference in models, refer to TM 55-1930-203-20.

1-6. Tabulated Data

The tabulated data listed gives dimensions, tolerances and clearances, nut and bolt torque, and pertinent data necessary for direct and general support maintenance personnel to properly adjust, repair, or overhaul the equipment.

a. General

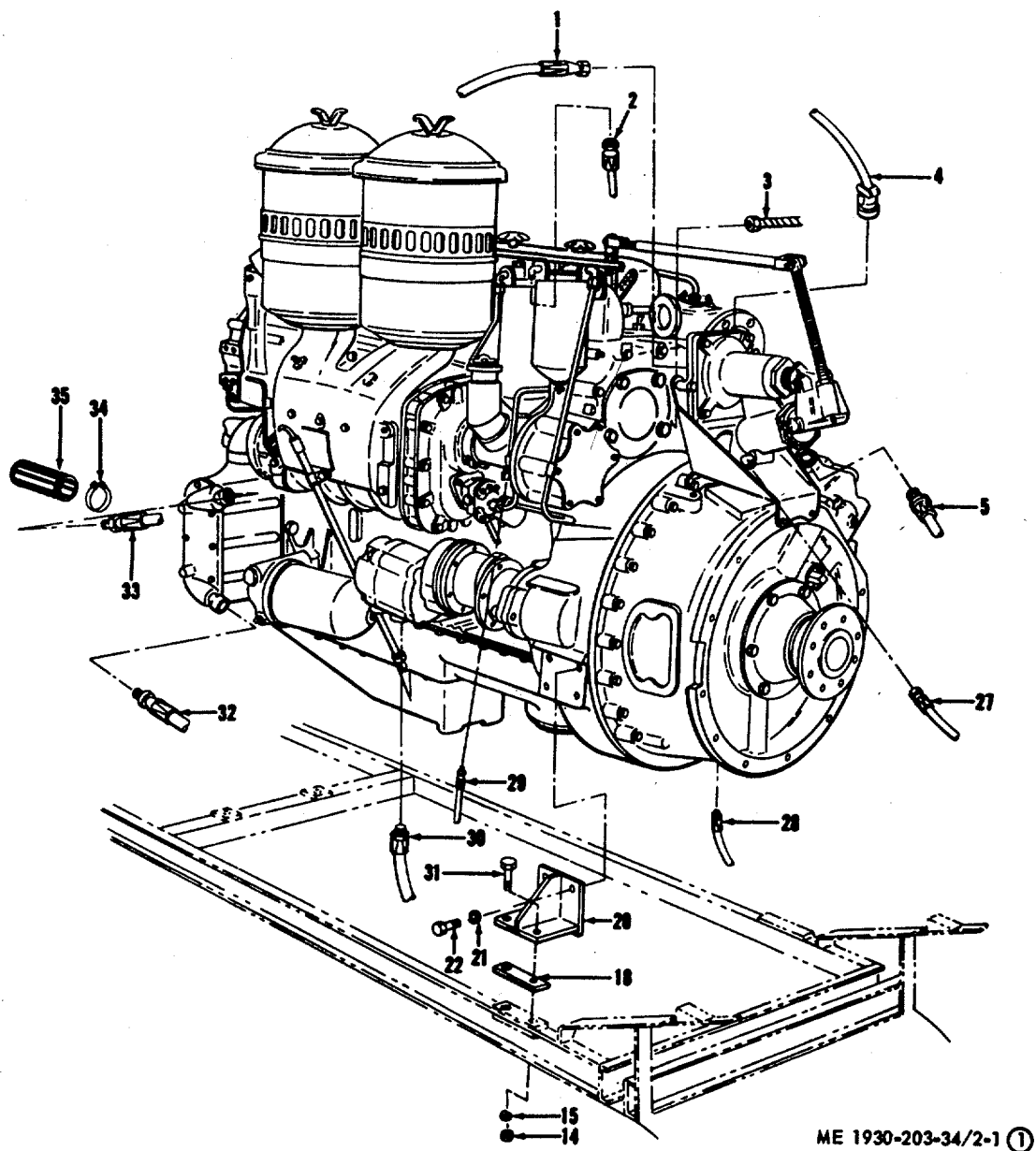
Nomenclature	Lighter, Amphibious (LARC-LX), Self-Propelled, Diesel, Steel 60 Ton, 61 Ft., Design 2303, FSN 1930-392-2981
Ambient temperature range	125° F to -25° F
Gradeability	60 % slope
Hull construction	Welded Steel
Overall length	62 ft. 6½ in.
Overall height	19 ft. 6 in.
Overall width	26 ft. 7 in.
Wheel base	28 ft. 6 in.
Dry weight (approx)	194,000 lbs.
Curb weight (approx)	199,000 lbs.
Performance:	
Land operation:	
Forward speed. Empty	15.2 mph
Forward speed, 60 ton lead	14 mph
Forward speed, 100 ton load	12.75 mph
Reverse speed, 60 ton load	2.85 mph

Turning radius	75 ft
Water operation:	
Forward speed empty	7.5 mph
Forward speed, 60 ton load	7 mph
Forward speed, 100 ton load	6.5 mph
b. Diesel Engines.	
(1) Engine (starboard side forward and portside aft).	
Manufacturer	Detroit Diesel Engine Div of GMC
Model	6080 RA
Series	6-71
Type	Industrial
No. of cylinders	6
Cycle	2
Bore and stroke	4¼ in. x 5 in.
Displacement	425.6 cu. in.
Compression ratio	17:1
Minimum compression pressure at 600 rpm	400
Maximum premissible variation between cylinder	25 psi at 600 rpm
Rating	165 hp cont. at 2100 rpm
Governed speed	2100 rpm
Maximum rpm (no load)	2120 rpm
Idle speed	550 rpm
Crankshaft rotation (from flywheel end)	CCW
Firing order	1-5-3-6-2-4
Starting method	Compressed air
Lubrication system	Forced feed
Fuel	Diesel oil
Fuel system	Unit injectors
Cooling system:	
Marine operation	Cooling coils
Land operation	Radiator
New weight, dry (approximate)	2610 lbs.

over rocker arms and push rods. Lubricate engine, torque converter, and transmission as directed in LO 55-1930-203-12.

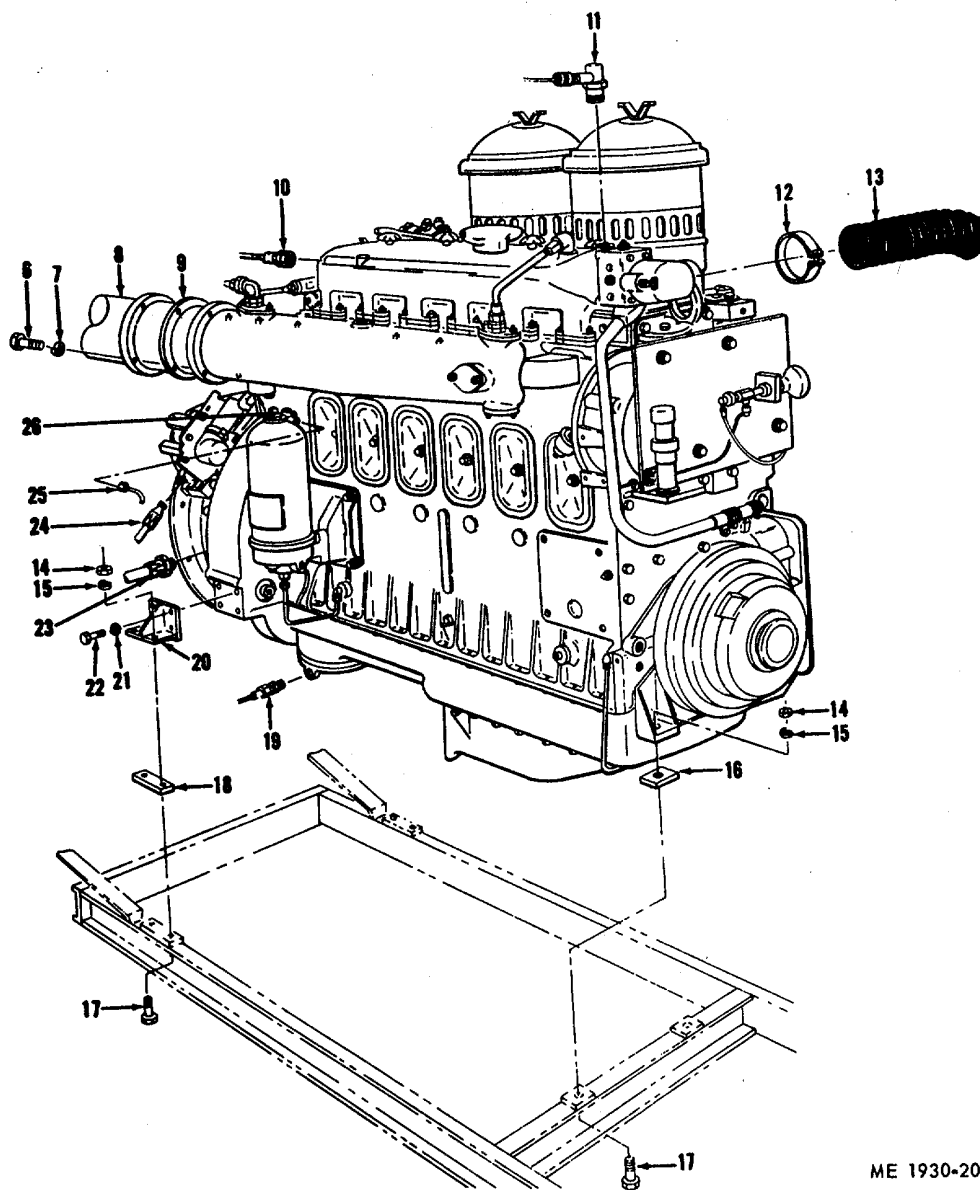
(4) Start engine (TM 55-1930-203-10) and check for leaks.

(5) Allow engine to warm up and adjust governor idling and overspeed settings as outlined in TM 55-1930-203-20.



ME 1930-203-34/2-1 ①

Figure 2-1. Engine removal (sheet 1 of 2).



ME 1930-203-34/2-1 (2)

Key to figure 2-1 (sheets 1 and 2)

- | | |
|--|---|
| 1 Hose, actuator positioner-to-engine cutout valve | 19 Oil temperature sensing bulb |
| 2 Hose, fuel supply | 20 Engine mounting bracket |
| 3 Flexible shaft | 21 Lockwasher |
| 4 Tachometer generator electrical connection | 22 Bolt, machine |
| 5 Hose, torque converter pump-to-transmission selector valve | 23 Hose, torque converter-to-filter |
| 6 Bolt | 24 Hose, torque converter pump-to-transmission selector valve |
| 7 Lockwasher | 25 Tubing, low oil pressure sending unit-to-pressure gage |
| 8 Exhaust piping | 26 Low oil pressure sending unit |
| 9 Gasket, exhaust piping-to-exhaust manifold | 27 Hose, actuator positioner-to-relay air valve |
| 10 Water temperature sensing element | 28 Hose, seal drain, torque converter-to-transmission |
| 11 Water temperature sending unit | 29 Hose, fuel return |
| 12 Clamp | 30 Hose, starting air supply |
| 13 Hose, water manifold-to-expansion tank | 31 Bolt, machine |
| 14 Nut | 32 Hose, oil cooler-to-transmission |
| 15 Lockwasher | 33 Hose, filter-to-oil cooler |
| 16 Shim, mounting | 34 Clamp |
| 17 Bolt, fitted mounting | 35 Hose, water inlet |
| 18 Shim, mounting bracket | |

Figure 2-1. Engine removal (sheet 2 of 2).

2-12. Torque Converter

a. General

(1) The Allison Torqmatic Converter Model TC-654 is used on hulls 5 through 18. Converter Model TC-554 is used on hulls 19 through 60. Model TC-654 can be replaced with Model TC-554 on hulls 5 through 18 whenever replacement of a converter assembly is necessary.

(2) Two different Model TC-554 converters are used on the LARC-LX. Assembly number 6758244 is a four-element converter with two stator members; while assembly number 6830815 is a three-element converter with one stator member. Both of the converters are completely interchangeable, though some of the internal parts are different. (fig. 2-2, 2-3, & 2-4).

b. Removal. Refer to figure 2-5 and proceed as follows:

- (1) Remove engine (para 2-11).
- (2) Remove most accessible 1 inch pipe plug (13) in flywheel housing (12).
- (3) Slowly rotate engine clockwise, using bolt in vibration damper end of crankshaft, until 1 of the 12 capscrews (1) is visible through pipe plug hole in flywheel housing (12).
- (4) Remove capscrew through pipe plug hole in flywheel housing.

CAUTION

Take care not to drop capscrews into the flywheel housing as it may prevent rotation of the flywheel.

- (5) Repeat steps 3 and 4 above until all 12 capscrews are removed.
- (6) Install a lifting eye (5) in top of torque converter housing.
- (7) Attach a suitable lifting sling and hoist to lifting eye and take up slack in hoist.
- (8) Remove capscrews (7) and lockwashers (6), and pull torque converter (4) clear of flywheel housing.
- (9) Remove capscrews (3) and remove flexible flywheel disk assembly (2) from crankshaft.
- (10) Remove lifting sling, hoist, and lifting eye from torque converter.

c. Installation (fig. 2-5).

- (1) If a new torque converter is to be installed, remove 12 capscrews (1) and remove flexible disk assembly (2) from torque converter (4).

NOTE

New torque converters have flexible disk assembly attached to them.

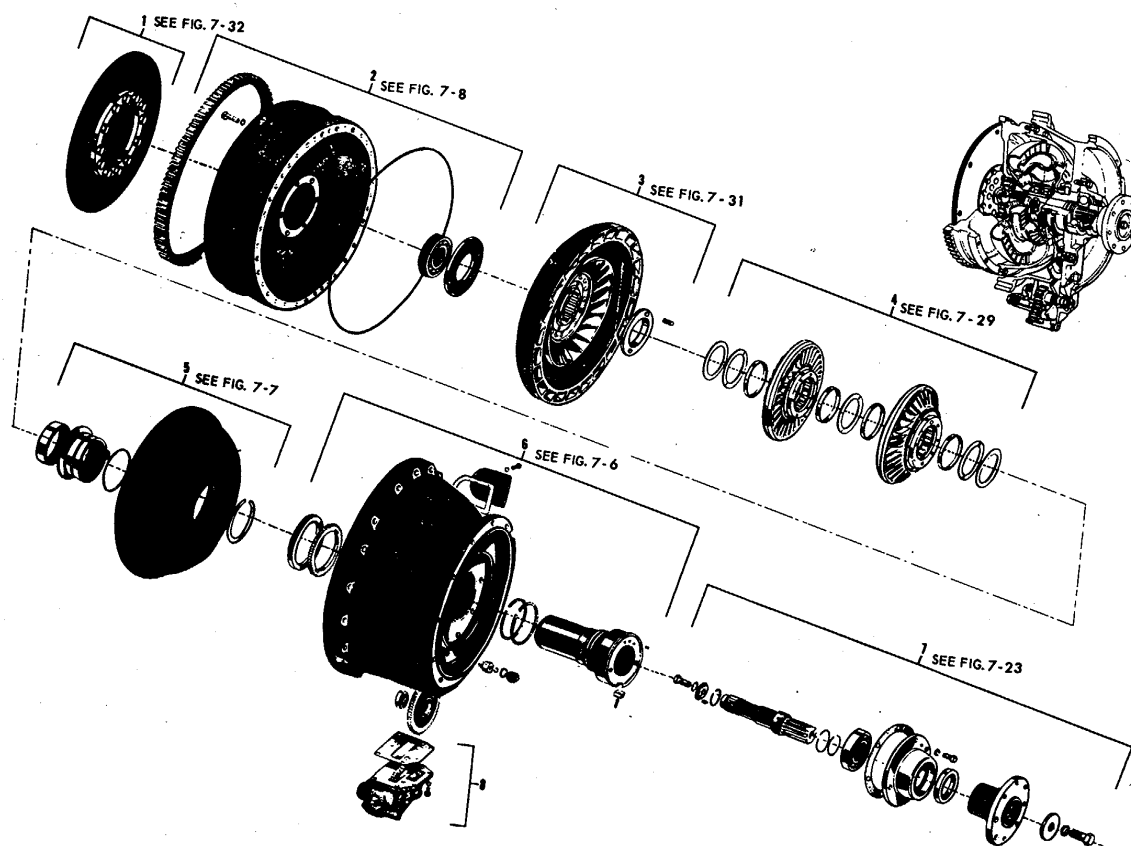
- (2) Position flexible flywheel disk assembly on crankshaft in flywheel housing (12), making certain that dowel pins on crankshaft align with corresponding holes in flexible flywheel disk assembly.

- (3) Install six capscrews (3). Tighten capscrews to a torque of 150 to 160 foot-pounds.

NOTE

If drilled head capscrews are used secure with lockwire.

- (4) Install lifting eye (5) in top of torque converter housing.
- (5) Attach a suitable lifting sling and hoist to lifting eye and hoist torque converter.
- (6) Position torque converter on flywheel housing, aligning bolt holes on torque converter housing and flywheel housing.
- (7) Install all capscrews (7) and lockwashers (6) loosely, then tighten capscrews to a torque of 42 to 50 foot-pounds.
- (8) Remove bolts (11) and lockwashers (10) securing converter housing cover (9) and gasket (8).
- (9) Lift off converter housing cover and gasket and place a 3/8 inch socket wrench through opening on an accessible pump to flywheel capscrew to prevent flywheel from turning when crankshaft is rotated.
- (10) Slowly rotate engine clockwise, using bolt in vibration damper end of crankshaft, until holes in flywheel and flexible flywheel disk assembly are lined up as viewed through pipe plug (13) opening in flywheel housing.
- (11) Working through pipe plug opening, install 1 of 12 capscrews (Do not tighten capscrews.)
- (12) Remove 3/8 inch socket wrench from access hole in torque converter housing and repeat steps (10 and (11) above until all 12 capscrews are installed.
- (13) Rotate engine and tighten all 12 capscrews to a torque of 70 to 75 foot-pounds, working through pipe plug opening in flywheel housing.
- (14) Install converter housing cover (9) and gasket (8), using bolts (11) and lockwashers (10).
- (15) Install pipe plug (13) in flywheel housing.
- (16) Remove lifting sling, hoist, and lifting eye from torque converter.
- (17) Install engine (para 2-11).



- 1 Flexible flywheel disk assembly
- 2 Flywheel assembly
- 3 Turbine assembly
- 4 Stator assembly

- 5 Converter pump and hub assembly
- 6 Housing assembly
- 7 Output shaft and flange assembly
- 8 Charging oil pump assembly

ME 1930-203-34/2-2

Figure 2-2. Torque converter (model TC-654)