Long 610

Long 610 Tractor Service Manual

For 560 & 610 Series 4 Cylinder Diesel Engines (1979-1990)

Introduction

This service manual provides comprehensive technical information and instructions for the Long 610 Diesel Tractor (4 Cylinder Engine), covering models from 1979 to 1990. It is a digitally enhanced reproduction of the original manufacturer-issued shop manual, designed for mechanics and technicians. The manual details procedures for major repairs, complete overhauls, correct disassembly, repair, and reassembly of the tractor. It serves as an invaluable resource for serious repairs or full restorations, including post-publishing updates, corrections, serial number information, and additional machine details.

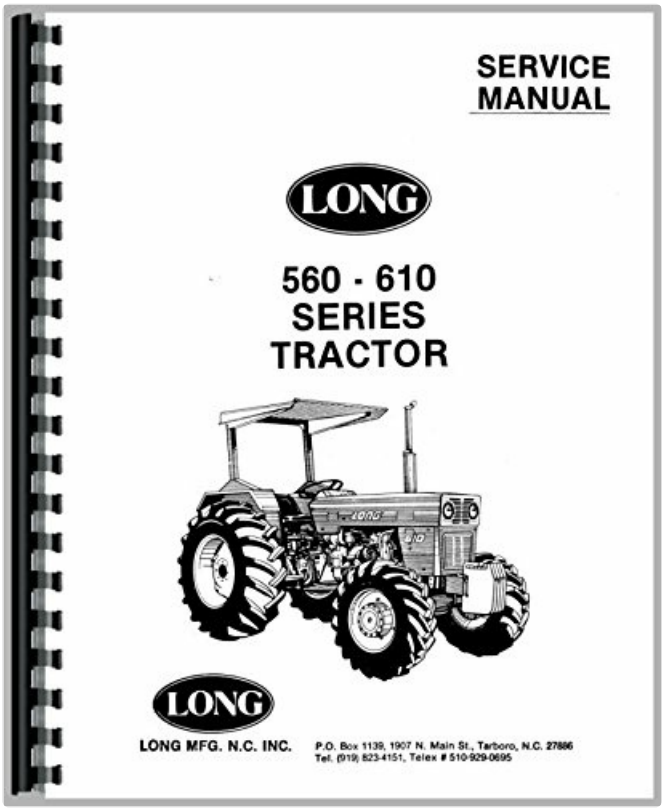


Image description: The front cover of the Long 560 & 610 Series 4 Cylinder Diesel Engine Service Manual. The cover features the 'Long' brand name prominently, along with 'Service Manual' and '560 & 610 Series 4 Cylinder Diesel Engine'. The publisher, Jensales, is also visible at the bottom.

Applicable Models

This manual is specifically applicable to the following tractor models:

- Long 560 Tractor (1975-19xx) (Diesel, 4 Cylinder Engine)
- Long 610 Tractor (1979-1990) (Diesel, 4 Cylinder Engine)

Manual Content Overview

The manual is organized into key sections to facilitate easy navigation and access to specific service procedures. The master index provides a detailed breakdown of topics covered, ensuring that users can quickly locate information pertinent to engine, power train, hydraulics, and electrical system components.

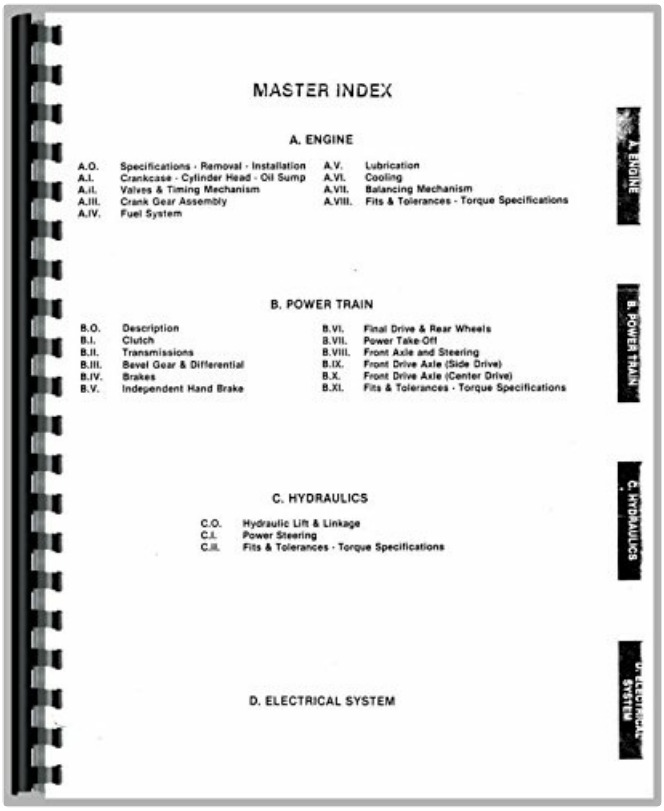


Image description: A spiral-bound page showing the 'MASTER INDEX' of the service manual. The index is divided into main sections: A. ENGINE, B. POWER TRAIN, C. HYDRAULICS, and D. ELECTRICAL SYSTEM. Each main section is further broken down into sub-sections with specific topics. For example, under A. ENGINE, topics include Specifications, Removal - Installation, Crankcase - Cylinder Head - Oil Sump, Valves & Timing Mechanism, Engine Gear Assembly, Fuel System, Lubrication, Cooling, Balancing Mechanism, and Fits & Tolerances - Torque Specifications. Similar detailed breakdowns are provided for the other main sections.

Engine Specifications

Detailed engine specifications are provided to assist with accurate diagnosis, repair, and component replacement. This section includes critical data such as engine type, number of cylinders, bore and stroke, displacement, static timing, number of main bearings, injection sequence, compression ratio, sense of rotation, and rated/idle speeds for both the 560 and 610 models.

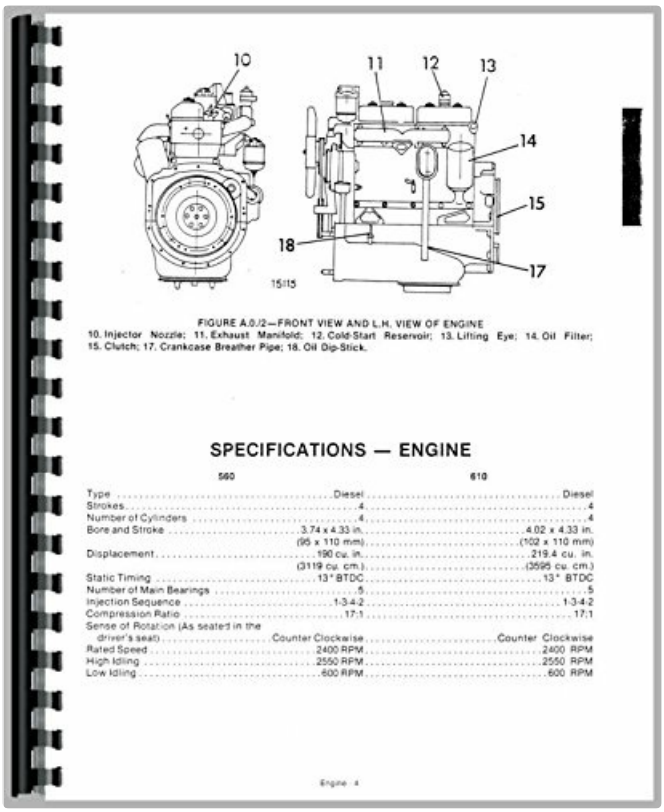


FIGURE A.0./2—FRONT VIEW AND L.H. VIEW OF ENGINE
10. Injector Nozzle; 11. Exhaust Manifold; 12. Cold-Start Reservoir; 13. Lifting Eye; 14. Oil Filter; 15. Clutch; 17. Crankcase Breather Pipe; 18. Oil Dip-Stick.

SPECIFICATIONS — ENGINE

	560	610
Type	Diesel	Diesel
Strokes	4	4
Number of Cylinders	4	4
Bore and Stroke	3.74 x 4.33 in. (95 x 110 mm)	4.02 x 4.33 in. (102 x 110 mm)
Displacement	190 cu. in. (3119 cu. cm.)	219.4 cu. in. (3595 cu. cm.)
Static Timing	13° BTDC	13° BTDC
Number of Main Bearings	5	5
Injection Sequence	1-3-4-2	1-3-4-2
Compression Ratio	17:1	17:1
Sense of Rotation (As seated in the driver's seat)	Counter Clockwise	Counter Clockwise
Rated Speed	2400 RPM	2400 RPM
High Idling	2550 RPM	2550 RPM
Low Idling	600 RPM	600 RPM

Engine - 4

Image description: A page from the service manual titled 'SPECIFICATIONS — ENGINE'. It presents a table comparing specifications for the 560 and 610 Diesel tractor engines. Key specifications listed include Type (Diesel for both), Strokes (4 for both), Number of Cylinders (4 for both), Bore and Stroke (e.g., 3.74 x 4.33 in. for 560, 4.02 x 4.33 in. for 610), Displacement, Static Timing, Number of Main Bearings, Injection Sequence, Compression Ratio, Sense of Rotation, Rated Speed, High Idling, and Low Idling. Values are provided for each model, often with both imperial and metric units.

Service Procedures

This manual provides detailed instructions for servicing various components of the Long 560 and 610 tractors. The procedures are categorized into major systems for clarity and ease of use.

A. Engine

- Specifications
- Removal - Installation
- Crankcase - Cylinder Head - Oil Sump
- Valves & Timing Mechanism
- Engine Gear Assembly
- Fuel System
- Lubrication
- Cooling
- Balancing Mechanism
- Fits & Tolerances - Torque Specifications

B. Power Train

- Description
- Clutch
- Transmissions
- Bevel Gear & Differential

- Brakes
- Independent Hand Brake
- Final Drive & Rear Wheels
- Power Take-Off
- Front Axle and Steering
- Front Drive Axle (Side Drive)
- Front Drive Axle (Center Drive)
- Fits & Tolerances - Torque Specifications

C. Hydraulics

- Hydraulic Lift & Linkage
- Power Steering
- Fits & Tolerances

D. Electrical System

- Detailed information on electrical components and wiring.

General Maintenance and Repair

The manual outlines systematic approaches to maintenance and repair, guiding technicians through each step of disassembling, inspecting, repairing, and reassembling tractor components. It emphasizes correct procedures to ensure the longevity and optimal performance of the machinery.

Troubleshooting

While not a dedicated troubleshooting section, the detailed service procedures and specifications within this manual are essential for diagnosing and resolving operational issues. By following the outlined steps for each system, technicians can effectively identify the root cause of problems and implement appropriate repairs.

Publisher Information

This service manual is published by Jensales. It is a reproduction of the original manufacturer's manual, enhanced with additional valuable content to assist in the service and restoration of your Long tractor.

For technical assistance, please refer to the detailed sections within this manual.