BEA18J1-02

ショップマニュアル

LEO-NXT

エンジン式フォークリフト

ショップマニュアル　LEO-AX

機　　種	適　用　号　機
AX	
FG10/14/15/18-18	M210-640001～
FG09L/10L/14L/15L/18L-18	M209-640001～
FG15H/18H-18	M211-640001～
FG10/14/15/18-18	M213-640001～
FG10L/14L/15L/18L-18	M213-640001～

KOMATSU

小松リフト
Komatsu Forklift Co., Ltd.

CONTENTS

4. ENGINE

5. TORQUE CONVERTER

6. TORQFLOW TRANSMISSION

7. DRIVE AXEL

8. STEERING SYSTEM

9. WHEEL BRAKE

10. HYDRAULIC SYSTEM

11. WORK EQUIPMENT

12. ES30/ES40 MS LIMITED FREE LIFT 2-STAGE MAST

13. ES30/ES40, E40/E50/E60/E65, EV40/EV50/EV60 FULL FREE LIFT 3-STAGE MAST

14. 35D/45D/55D MQ QUAD MAST

15. CONVERSION TABLES

APPENDIX

APPENDIX A- ELECTRICAL DIAGRAMS

NOTES:

INTRODUCTION

This Service Manual has been developed as an information resource to help the reader learn about, understand, repair and maintain the AX50 Series forklift trucks, and the various equipment, systems, inspections, sensors, diagnostic procedures and diagnostic equipment utilized to maintain, adjust and troubleshoot these systems. Although reference is made to maintenance procedures necessary to perform servicing of this vehicle, you should refer to the applicable *Operation and Maintenance Manual* for these lift trucks for more complete maintenance information.

Komatsu is involved in a concentrated and highly technical program of designing and developing cleaner burning, more efficient and more powerful engines for use in the industrial truck market. As a result, new computerized sensors, systems and diagnostic monitors have been created to make the job of maintaining and repairing these systems simple and easy.

Read this manual carefully, refer to it often and learn the repair, testing and adjustment procedures to the best of your ability. Please note that some illustrations are generic and may not look exactly like your unit in every detail.

Ensure that, when you are working on or around industrial trucks, **Safety is priority Number One**. Read, understand and obey all **WARNINGS** and **CAUTIONS**.

Follow the instructions and procedures presented in this manual when working on these lift trucks and their systems. Damage to the equipment, and possible injury to yourself or others, may result if these procedures are not adhered to carefully.

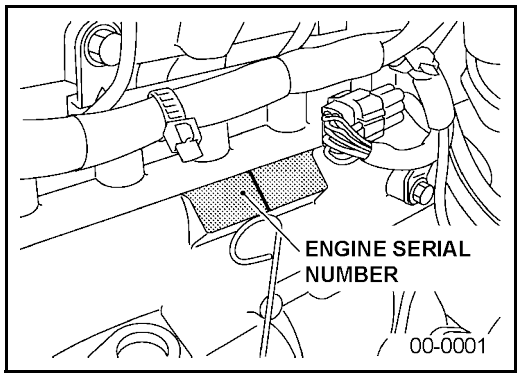
Keep this manual nearby and accessible for use when necessary. If this book becomes dirty, worn or illegible, contact Komatsu for a replacement. The procedures outlined in this manual will be updated periodically. Be sure that you have the latest revision in order to learn the newest information available. Revision dates will be clearly displayed on the lower left hand corner of the cover page.

This will aid in maintaining your equipment in excellent condition and in ensuring that these lift trucks will operate safely at maximum efficiency.

ENGINE SERIAL NUMBER LOCATION

The K21/K25 engine serial number is stamped on an angled and machined pad on the right side of the engine block in the center just beneath the valve cover.

The machined boss is split vertically by a groove. The Engine Model number is on the left pad and the Engine Serial number is on the right pad.



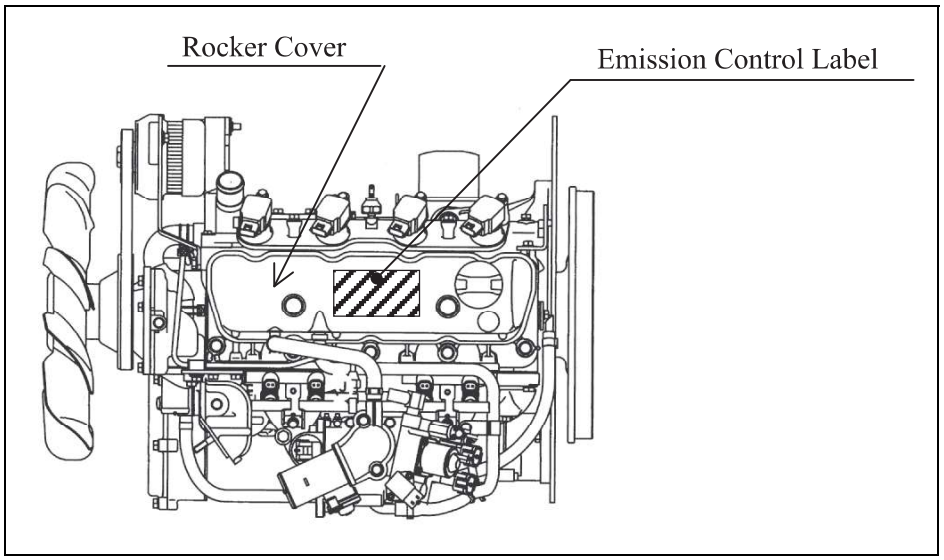
CALIFORNIA/FEDERAL EMISSION CONTROL STATEMENT FOR OFF-ROAD LSI (NON-DIESEL) ENGINES (K21 AND K25 ENGINES)

This section presents information concerning the correct labeling, warranty, parts and maintenance of K21 and K25 engines in order to comply with the EPA and CARB off-road, large-spark-ignition (LSI) engine regulations.

LABELS REQUIRED AND LABEL LOCATIONS

All “K” series engines will display the required identification label as follows.

Location on K21/K25 Series engines:



Emission compliance label (sample):

EMISSION CONTROL INFORMATION

ENGINE FAMILY:7NSXB02.548C, ENGINE DISPLACEMENT: 2.5 LITER
THIS ENGINE IS CERTIFIED TO OPERATE ON GASOLINE AND LPG.
EXHAUST EMISSION CONTROL TYPE: MPI, TBI, TWC, HO2S
USE IN VARIABLE-SPEED APPLICATIONS ONLY

IDLE SPEED	NO OTHER ADJUSTMENTS NEEDED
VALVE LASH	0.38 mm (HOT)
SPARK PLUG GAP	0.9 mm

NO OTHER ADJUSTMENTS NEEDED.
CARB EMISSION STANDARDS : HC+NOx=1.0, CO=8.3 g/bhp-hr
EPA Tier2 EMISSION STANDARDS : HC+NOx=1.3, CO=11.1 g/kW-hr

THIS ENGINE COMPLIES WITH CALIFORNIA AND U.S. EPA REGULATIONS FOR 2007 LARGE NONROAD SI ENGINES.

NISSAN MOTOR CO., LTD. K25 D

2006: SEP OCT NOV DEC
2007: JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

WARRANTY

The following statement is required to be provided by regulations of the California Air Resources Board.

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board is pleased to explain the emission control system warranty on your 2008 engine. In California, new off-road large spark-ignition (LSI) engines must be designed, built and equipped to meet the state's stringent anti-smog standards.

Komatsu Forklift U.S.A. LLC. (“KFI”) must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor, regulator or fuel-injection system, ignition system, engine computer unit (ECM), catalytic converter and air induction system.

Also included may be sensors, hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, an Authorized KFI Dealer will repair your LSI engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE

The 2008 off-road large spark-ignition engines are warranted for the time periods as listed below.

If any emission-related part on your engine is defective, the part will be repaired or replaced by an Authorized KFI Dealer.

OWNER'S WARRANTY RESPONSIBILITIES

As the off-road LSI engine owner, you are responsible for the performance of the required maintenance listed in your Operation and Maintenance Manual.

KFI recommends that you retain receipts covering maintenance on your off-road engine, but KFI cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the off-road large spark-ignition engine owner, you should however be aware that KFI may deny you warranty coverage if your off-road large spark-ignition engine or a part thereof has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on gasoline or LPG fuel. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.

You are responsible for initiating the warranty process. The ARB suggests that you present your off-road large spark-ignition engine to an Authorized KFI Dealer as soon as a problem exists.

The warranty repairs should be completed by the Dealer as expeditiously as possible.

If you have any questions regarding your warranty rights and responsibilities, you should contact KFI's Product Support Department at 1-847-437-5800.

EMISSION CONTROL WARRANTY - 36 MONTHS or 2,500 HOURS FOR GENERAL PARTS

For the first 2,500 operating hours or for a period of thirty-six months from the date of the first use by the original purchaser from an Authorized KFI Dealer, whichever occurs first, KFI warrants the following emission-related parts.

- Oxygen sensor
- Water temperature sensor
- LPG injector
- LPG solenoid
- Throttle chamber
- Crankshaft position sensor
- Spark plugs
- Gasoline fuel hose
- PCV valve
- Gasoline injector
- LPG pressure sensor
- Mass air flow sensor
- Ignition coil
- Camshaft position sensor
- Exhaust tube from manifold to catalytic converter
- Gasoline fuel cap