KEAM077000

Operation & Maintenance Manual

D51EX-24

D51PX-24

DOZER

SERIAL NUMBERS	D51EX-24 B20001 and up D51PX-24 B20001 and up
ENGINE	4D107E-3

June 2017

KOMATSU®

MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Manual... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

FOREWORD 1-1
READ THIS MANUAL 1-2
SAFETY INFORMATION 1-4
INTRODUCTION 1-5
MAIN USE OF MACHINE 1-5
DIRECTIONS OF MACHINE 1-5
VISIBILITY FROM OPERATOR'S SEAT 1-5
ENGINE TECHNOLOGY TO CONFORM EXHAUST GAS EMISSION 1-6
PRODUCT INFORMATION 1-7
LOCATION OF PRODUCT IDENTIFICATION NUMBER (PIN)/MACHINE SERIAL NO. PLATE 1-7
LOCATION OF ENGINE NUMBER PLATE 1-7
SERVICE METER LOCATION 1-8
YOUR MACHINE SERIAL NUMBERS AND DISTRIBUTOR 1-8
SAFETY 2-1
SAFETY LABELS 2-2
LOCATION OF SAFETY LABELS 2-3
CONTENTS OF SAFETY LABELS 2-4
GENERAL PRECAUTIONS COMMON TO OPERATION AND MAINTENANCE 2-9
PRECAUTIONS BEFORE STARTING OPERATION 2-9
PREPARATIONS FOR SAFE OPERATION 2-9
PRECAUTIONS TO PREVENT FIRE 2-11
PRECAUTIONS WHEN GETTING ON OR OFF MACHINE 2-13
DO NOT GET CAUGHT IN WORK EQUIPMENT 2-14
PRECAUTIONS RELATED TO PROTECTIVE STRUCTURES 2-15
UNAUTHORIZED MODIFICATION 2-15
PRECAUTIONS RELATED TO ATTACHMENTS AND OPTIONS 2-15
PRECAUTIONS WHEN RUNNING ENGINE INSIDE BUILDING 2-15
PRECAUTIONS FOR OPERATION 2-16
PRECAUTIONS FOR JOBSITE 2-16
START ENGINE 2-19
PRECAUTIONS FOR OPERATION 2-21
PRECAUTIONS FOR TRANSPORTATION 2-25
TOWING AND BEING TOWED 2-26
PRECAUTIONS FOR MAINTENANCE 2-27
PRECAUTIONS BEFORE STARTING INSPECTION AND MAINTENANCE 2-27
PRECAUTIONS FOR CHECK AND MAINTENANCE 2-31
PRECAUTIONS FOR DEF 2-37
GENERAL CHARACTER AND PRECAUTIONS FOR HANDLING 2-37
PRECAUTIONS FOR ADDING 2-37
PRECAUTIONS FOR STORING 2-37
PRECAUTIONS FOR FIRE HAZARD AND LEAKAGE 2-37
OTHER PRECAUTIONS 2-37
OPERATION 3-1
GENERAL VIEW 3-2
MACHINE EQUIPMENT NAME 3-2
CONTROLS AND GAUGES NAMES 3-3
EXPLANATION OF COMPONENTS 3-5
EXPLANATION OF MACHINE MONITOR EQUIPMENT 3-5
SWITCHES 3-96
CONTROL LEVERS AND PEDALS 3-102
OTHER EQUIPMENT 3-109
MACHINE OPERATIONS AND CONTROLS 3-151
CHECKS AND ADJUSTMENT BEFORE STARTING ENGINE 3-151
METHOD FOR STARTING ENGINE 3-189
METHOD FOR OPERATIONS AND CHECKS AFTER STARTING ENGINE 3-194
METHOD FOR STOPPING ENGINE 3-198

MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Ma... Order the manual at mid-west-tech.com >

METHOD FOR STARTING MACHINE (TRAVEL FORWARD AND REVERSE) AND STOPPING MACHINE 3-200
SHIFT GEARS 3-204
METHOD FOR SWITCHING BETWEEN FORWARD AND REVERSE 3-208
METHOD FOR STEERING MACHINE 3-209
RECOMMENDED WORKING MODES FOR WORKS 3-213
PRECAUTIONS FOR OPERATION 3-216
PRECAUTIONS WHEN OPERATING ON SLOPE 3-217
DO NOT OPEN DOOR WHILE OPERATING MACHINE 3-217
DO NOT MODIFY CAB GLASS IN ANY WAY THAT WILL OBSTRUCT THE VIEW 3-217
PRECAUTIONS FOR FLOATING OPERATION 3-217
PRECAUTIONS FOR BLIND SPOTS CAUSED BY CAB AND ROPS STRUCTURES 3-218
RECOMMENDED APPLICATIONS 3-218
METHOD FOR ADJUSTING WORK EQUIPMENT 3-221
TIPS FOR LONGER UNDERCARRIAGE LIFE 3-223
METHOD FOR PARKING MACHINE 3-226
METHOD FOR CHECKING AFTER FINISHING WORK 3-228
LOCK 3-229
HANDLE AIR CONDITIONER 3-234
EXPLANATION OF AIR CONDITIONER EQUIPMENT 3-234
METHOD FOR OPERATING TO PREVENT DUST FROM ENTERING INTO CAB 3-235
METHOD FOR CHECKING DURING OFF SEASON 3-236
METHOD FOR REPLACING RECEIVER 3-236
HANDLE RADIO 3-237
EXPLANATION OF RADIO EQUIPMENT 3-237
METHOD FOR CONTROLLING RADIO 3-240
ANTENNA 3-242
TRANSPORTATION 3-243
TRAVEL ON ROAD 3-243
PRECAUTIONS FOR TRANSPORTING MACHINE 3-243
TRANSPORTATION PROCEDURE 3-243
REMOVE CAB 3-243
METHOD FOR REMOVING WORK EQUIPMENT 3-243
LOADING AND UNLOADING WITH TRAILER 3-244
METHOD FOR LIFTING MACHINE 3-247
COLD WEATHER OPERATION 3-249
COLD WEATHER OPERATION INFORMATION 3-249
PRECAUTIONS AFTER DAILY WORK COMPLETION 3-251
AFTER COLD WEATHER SEASON 3-251
PRECAUTIONS FOR LONG-TERM STORAGE 3-252
PREPARATION FOR LONG-TERM STORAGE 3-252
MAINTENANCE DURING LONG-TERM STORAGE 3-252
STARTING MACHINE AFTER LONG-TERM STORAGE 3-253
TROUBLES AND ACTIONS 3-254
PRECAUTIONS FOR TOWING MACHINE 3-254
PRECAUTIONS FOR DISCHARGED BATTERY 3-256
OTHER TROUBLE 3-263
MAINTENANCE 4-1
PRECAUTIONS FOR MAINTENANCE 4-2
CHECK SERVICE METER READING 4-2
KOMATSU GENUINE REPLACEMENT PARTS 4-2
KOMATSU GENUINE LUBRICANTS 4-2
ALWAYS USE CLEAN WASHER FLUID 4-2
FRESH AND CLEAN LUBRICANTS 4-2
CHECK DRAINED OIL AND USED FILTER 4-2
PRECAUTIONS FOR REFILLING OIL OR FUEL 4-2
PRECAUTIONS FOR ADDING DEF 4-2
PRECAUTIONS FOR WELDING 4-2

MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Ma... Order the manual at mid-west-tech.com >

DO NOT DROP THINGS INSIDE MACHINE 4-2
BURN PREVENTION 4-2
DUSTY JOBSITES 4-3
AVOID MIXING OIL 4-3
PRECAUTIONS FOR OPENING AND CLOSING RADIATOR GRILLE 4-3
PRECAUTIONS WHEN OPENING INSPECTION COVER 4-3
LOCK INSPECTION COVERS 4-3
BLEED AIR FROM HYDRAULIC CIRCUIT 4-3
PRECAUTIONS WHEN INSTALLING HYDRAULIC HOSES 4-3
CHECKS AFTER INSPECTION AND MAINTENANCE 4-4
FUEL AND LUBRICANTS TO MATCH THE AMBIENT TEMPERATURE 4-4
OUTLINE OF MAINTENANCE 4-5
HANDLE OIL, FUEL, COOLANT, AND PERFORMING OIL CLINIC 4-5
HANDLE ELECTRICAL COMPONENTS 4-10
HANDLE HYDRAULIC COMPONENTS 4-10
STANDARD TIGHTENING TORQUE FOR BOLTS AND NUTS 4-11
MAINTENANCE SCHEDULE 4-13
MAINTENANCE SCHEDULE TABLE 4-13
MAINTENANCE INTERVAL WHEN DIESEL FUEL MIXED WITH BIO-FUEL IS USED 4-15
MAINTENANCE PROCEDURE 4-16
WHEN REQUIRED 4-16
CHECKS BEFORE STARTING 4-52
EVERY 50 HOURS MAINTENANCE 4-53
EVERY 250 HOURS MAINTENANCE 4-54
EVERY 500 HOURS MAINTENANCE 4-60
EVERY 1000 HOURS MAINTENANCE 4-68
EVERY 2000 HOURS MAINTENANCE 4-77
EVERY 4000 HOURS MAINTENANCE 4-91
EVERY 4500 HOURS MAINTENANCE 4-95
EVERY 8000 HOURS MAINTENANCE 4-96
EVERY 9000 HOURS MAINTENANCE 4-97
SPECIFICATIONS 5-1
SPECIFICATIONS 5-2
SPECIFICATIONS: D51EX-24 5-2
SPECIFICATIONS: D51PX-24 5-3
ATTACHMENTS AND OPTIONS 6-1
GENERAL PRECAUTIONS 6-2
PRECAUTIONS FOR SAFETY 6-2
HANDLE HYDRAULIC RIPPER 6-3
GENERAL VIEW 6-3
EXPLANATION OF COMPONENTS 6-4
MACHINE OPERATIONS AND CONTROLS 6-7
TROUBLES AND ACTIONS 6-9
CHECK AND MAINTENANCE 6-10
EVERY 250 HOURS MAINTENANCE 6-10
METHOD FOR LUBRICATING 6-10
METHOD FOR CHECKING OIL LEVEL IN HYDRAULIC TANK, ADDING OIL 6-10
SPECIFICATIONS: D51EX-24 6-11
REPLACEMENT PARTS 7-1
PERIODIC REPLACEMENT OF DEFINED LIFE PARTS 7-2
DEFINED LIFE PARTS LIST 7-2
CONSUMABLE PARTS 7-3
CONSUMABLE PARTS LIST 7-3
RECOMMENDED FUEL, COOLANT, AND LUBRICANT 7-4
LUBRICATION CHART 7-5
METHOD FOR USING FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE 7-7
RECOMMENDED BRANDS AND QUALITIES OTHER THAN KOMATSU GENUINE OILS 7-8

MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Ma... Order the manual at mid-west-tech.com >

WORK EQUIPMENT LOCK LEVER

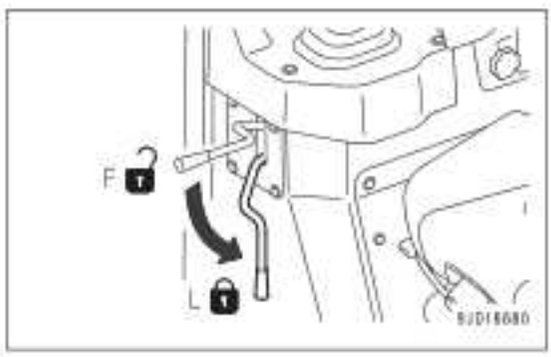
⚠ WARNING

- **When standing up from the operator's seat, set the work equipment lock lever securely to LOCK position (L).**
  If the work equipment lock lever is not at LOCK position (L) and the blade control lever is touched by mistake, it may lead to serious accident.
- **If the work equipment lock lever is not set securely to LOCK position (L), the lock may not be applied.**
  Check that the work equipment lock lever is under the state in the figure.
- **When parking the machine or performing the maintenance, always lower the work equipment to the ground, and then set the work equipment lock lever to LOCK position (L).**
- **When pulling up or pushing down the work equipment lock lever, be careful not to touch the blade control lever.**

The work equipment lock lever is a locking device of the blade.

When it is set to LOCK position (L), the TILT, RAISE, LOWER, and FLOAT operations are locked.

When the work equipment lock lever is set to LOCK position (L), the blade control lever can be moved but blade does not move since the oil pressure for controlling the blade is locked.



Position (L)

LOCK

Position (F)

FREE

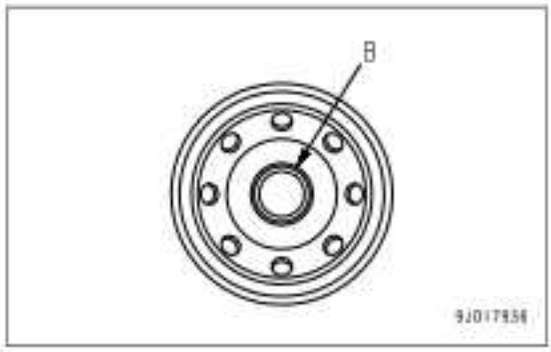
REMARK

When starting the engine, always set the work equipment lock lever to LOCK position (L) in order to secure the safety.
If the work equipment lock lever is not in LOCK position (L), the limit switch is actuated and the engine will not start.

MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Ma... Order the manual at mid-west-tech.com >

NOTICE

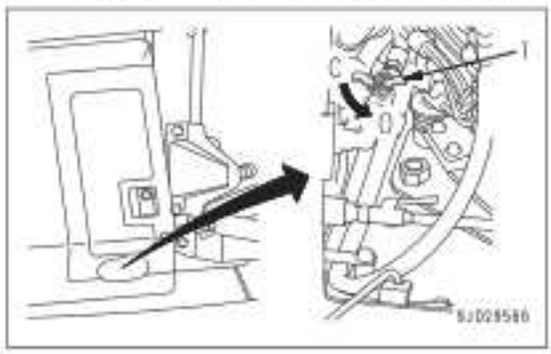
- **Do not fill the new filter cartridge with fuel.**
- **Remove the cap (B) at center and install the filter cartridge.**



6. Clean the filter head.
7. Thinly apply the oil to the packing surface of the new filter cartridge, then install the filter cartridge to the filter head.
8. After the packing surface reaches the sealing surface of the filter head, tighten the filter cartridge 3/4 turns.

   REMARK

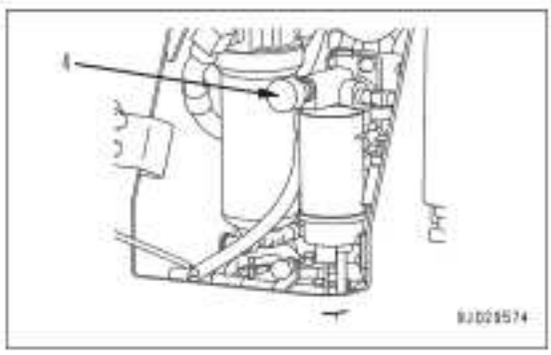
   If the filter cartridge is fastened too much, the packing will be damaged and this leads to leakage of fuel. If the filter cartridge is too loose, fuel will also leak from the packing. Be sure to observe the tightening angle.
9. Turn the fuel supply valve (1) to OPEN position (O).
10. Bleed the air.
    1) Fill up the fuel tank with fuel (to the level where the float is at the highest position).



    2) Loosen the knob of feed pump (4), pull it out, then pump it in and out until the movement becomes heavy.

       REMARK

       - It is not necessary to remove the plugs at the fuel prefilter head and at the fuel main filter head.
       - When the engine runs out of fuel, use the same procedure to operate the feed pump (4) and bleed the air.

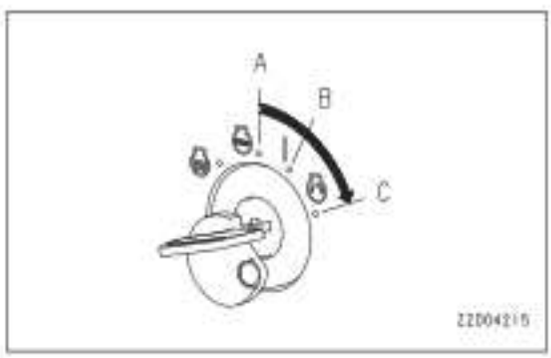


    3) After bleeding air, push in the knob of feed pump (4) and tighten it.
11. Turn the starting switch key to START position (C) and start the engine.
12. Check the filter seal surface and the mounting face of the transparent cup for fuel leakage.

    If there is any leakage of fuel, check the tightening condition of the filter cartridge.

    If the fuel still leaks, remove the filter cartridge again, and check the packing surface for damage or foreign material.

    If the packing surface is damaged or there is any foreign material on it, replace the filter cartridge with a new one, install the filter cartridge according to the preceding procedure, and then bleed air from the fuel circuit.



13. Run the engine at low idle for approximately 10 minutes.

MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Ma... Order the manual at mid-west-tech.com >

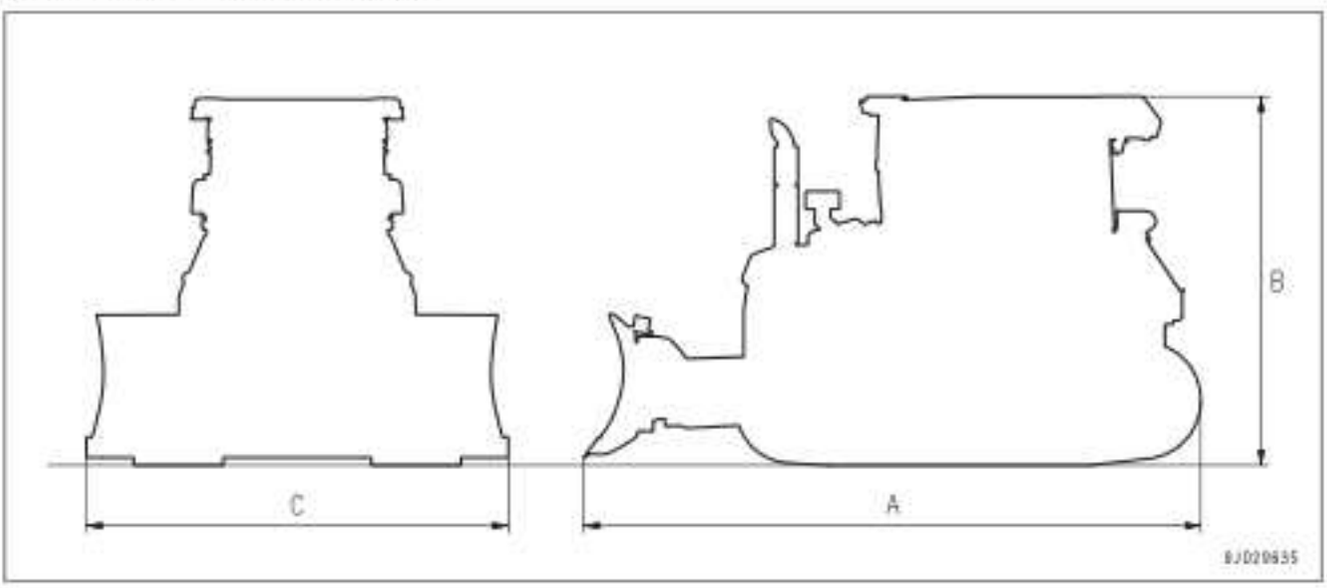
SPECIFICATIONS

SPECIFICATIONS: D51EX-24

With power angle power tilt dozer, ROPS cab

	Item		Unit	D51EX-24
	Machine weight		kg {lb}	13620 {30032} [13680 {30164}]
	Engine model		-	Komatsu SAA4D107E-3 diesel engine
	Rated horsepower	SAE J1995 (gross)	kW {HP} / min^{-1} {rpm}	99.2 {133} / 2200 {2200}
		ISO 9249 / SAE J1349 (net)		97.6 {131} / 2200 {2200}
A	Overall length		mm {ft in}	4800 {15' 9"}
B	Overall height (including KOMTRAX antenna)		mm {ft in}	3015 {9'11"}
C	Overall width		mm {ft in}	3045 {10' 0"}
	Travel speed (Quick shift mode)	Forward (1st/2nd/3rd)	km/h {MPH}	3.4/5.6/9.0 {2.1/3.5/5.6}
		Reverse (1st/2nd/3rd)	km/h {MPH}	4.1/6.5/9.0 {2.5/4.0/5.6}
	Travel speed (Variable shift mode)	Forward	km/h {MPH}	0.8 to 9.0 {0.5 to 5.6}
		Reverse	km/h {MPH}	0.8 to 9.0 {0.5 to 5.6}

[ ]: When the wide blade is installed.



MidWestTech | Komatsu D51EX-24, D51PX-24 Bulldozer Operation & Maintenance Ma... Order the manual at mid-west-tech.com >