CEAM031601

Operation & Maintenance Manual

WA320-8

WHEEL LOADER

SERIAL NUMBERS WA320-8 A38001 and UP

ENGINE D107E-3

November, 2016

KOMATSU®

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

FOREWORD 1-1
READ THIS MANUAL 1-2
SAFETY INFORMATION 1-3
INTRODUCTION 1-4
MAIN USE OF MACHINE 1-4
DIRECTIONS OF MACHINE 1-4
VISIBILITY FROM OPERATOR'S SEAT 1-4
ENGINE TECHNOLOGY TO CONFORM EXHAUST GAS EMISSION 1-5
PRODUCT INFORMATION 1-6
LOCATION OF PRODUCT IDENTIFICATION NUMBER (PIN)/MACHINE SERIAL NO. PLATE 1-6
LOCATION OF ENGINE NUMBER PLATE 1-6
SERVICE METER LOCATION 1-7
YOUR MACHINE SERIAL NUMBERS AND DISTRIBUTOR 1-7
SAFETY 2-1
SAFETY 2-2
SAFETY LABELS 2-4
LOCATION OF SAFETY LABELS 2-5
CONTENTS OF SAFETY LABELS 2-7
GENERAL PRECAUTIONS COMMON TO OPERATION AND MAINTENANCE 2-15
PRECAUTIONS BEFORE STARTING OPERATION 2-15
PREPARATIONS FOR SAFE OPERATION 2-15
PRECAUTIONS TO PREVENT FIRE 2-16
PRECAUTIONS WHEN GETTING ON OR OFF MACHINE 2-18
DO NOT GET CAUGHT 2-20
PRECAUTIONS RELATED TO PROTECTIVE STRUCTURES 2-21
UNAUTHORIZED MODIFICATION 2-21
PRECAUTIONS RELATED TO ATTACHMENTS AND OPTIONS 2-21
PRECAUTIONS WHEN RUNNING ENGINE INSIDE BUILDING 2-21
PRECAUTIONS FOR OPERATION 2-22
PRECAUTIONS FOR JOBSITE 2-22
START ENGINE 2-24
PRECAUTIONS FOR OPERATION 2-26
PRECAUTIONS FOR TRANSPORTATION 2-31
TOWING AND BEING TOWED 2-32
PRECAUTIONS FOR MAINTENANCE 2-33
PRECAUTIONS BEFORE STARTING INSPECTION AND MAINTENANCE 2-33
PRECAUTIONS FOR CHECK AND MAINTENANCE 2-36
TIRES 2-41
PRECAUTIONS FOR DEF 2-42
GENERAL CHARACTER AND PRECAUTIONS FOR HANDLING 2-42
PRECAUTIONS FOR ADDING 2-42
PRECAUTIONS FOR STORING 2-42
PRECAUTIONS FOR FIRE HAZARD AND LEAKAGE 2-42
OTHER PRECAUTIONS 2-42
OPERATION 3-1
GENERAL VIEW 3-2
MACHINE EQUIPMENT NAME 3-2
CONTROLS AND GAUGES NAMES 3-3
OTHER EQUIPMENT NAME 3-7
EXPLANATION OF COMPONENTS 3-10
EXPLANATION OF MACHINE MONITOR EQUIPMENT 3-10
SWITCHES 3-90
CONTROL LEVERS AND PEDALS 3-105
OTHER EQUIPMENT 3-108
MACHINE OPERATIONS AND CONTROLS 3-145
CHECKS AND ADJUSTMENT BEFORE STARTING ENGINE 3-145

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual |... Order the manual at mid-west-tech.com >

METHOD FOR STARTING ENGINE ... 3-170
METHOD FOR OPERATIONS AND CHECKS AFTER STARTING ENGINE ... 3-174
METHOD FOR STOPPING ENGINE ... 3-177
METHOD FOR STARTING MACHINE (TRAVEL FORWARD AND REVERSE, AND SHIFTING GEAR) AND STOPPING MACHINE ... 3-178
METHOD FOR STEERING MACHINE ... 3-186
METHOD FOR OPERATING WORK EQUIPMENT ... 3-187
PRECAUTIONS FOR OPERATION ... 3-189
RECOMMENDED APPLICATIONS ... 3-190
METHOD FOR ADJUSTING WORK EQUIPMENT POSTURE ... 3-195
REMOTE POSITIONER ... 3-195
METHOD FOR PARKING MACHINE ... 3-200
METHOD FOR CHECKING AFTER FINISHING WORK ... 3-202
LOCK ... 3-202
HANDLE TIRE ... 3-205
HANDLE AIR CONDITIONER ... 3-207
EXPLANATION OF AIR CONDITIONER EQUIPMENT ... 3-208
METHOD FOR OPERATING AIR CONDITIONER ... 3-213
HANDLE RADIO ... 3-217
EXPLANATION OF RADIO EQUIPMENT ... 3-217
METHOD FOR CONTROLLING RADIO ... 3-219
TRANSPORTATION ... 3-222
TRANSPORTATION PROCEDURE ... 3-222
LOADING AND UNLOADING WITH TRAILER ... 3-222
METHOD FOR LIFTING MACHINE ... 3-225
COLD WEATHER OPERATION ... 3-228
COLD WEATHER OPERATION INFORMATION ... 3-228
PRECAUTIONS AFTER DAILY WORK COMPLETION ... 3-229
PRECAUTIONS IN COLD WEATHER ... 3-229
AFTER COLD WEATHER SEASON ... 3-229
PRECAUTIONS FOR LONG-TERM STORAGE ... 3-230
PREPARATION FOR LONG-TERM STORAGE ... 3-230
MAINTENANCE DURING LONG-TERM STORAGE ... 3-230
STARTING MACHINE AFTER LONG-TERM STORAGE ... 3-230
TROUBLES AND ACTIONS ... 3-232
ACTIONS WHEN RUNNING OUT OF FUEL ... 3-232
PRECAUTIONS FOR TOWING MACHINE ... 3-232
PRECAUTIONS FOR DISCHARGED BATTERY ... 3-236
OTHER TROUBLE ... 3-239
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
DO NOT DROP THINGS INSIDE MACHINE ... 4-2
PRECAUTIONS FOR KDPF ... 4-2
PRECAUTIONS FOR SCR ASSEMBLY ... 4-3
DUSTY JOBSITES ... 4-3
AVOID MIXING OIL ... 4-3
LOCK INSPECTION COVERS ... 4-3
BLEED AIR FROM HYDRAULIC CIRCUIT ... 4-3
PRECAUTIONS WHEN INSTALLING HYDRAULIC HOSES ... 4-3

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual |... Order the manual at mid-west-tech.com >

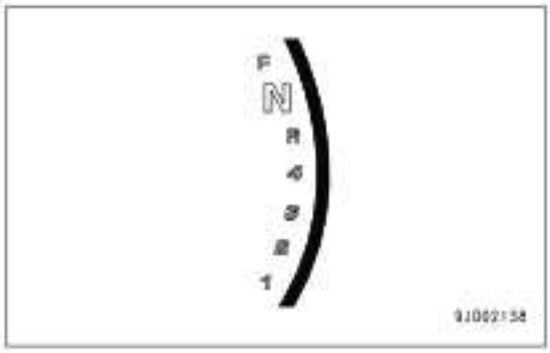
CHECKS AFTER INSPECTION AND MAINTENANCE 4-3
FUEL AND LUBRICANTS TO MATCH THE AMBIENT TEMPERATURE 4-4
CLOSE ENGINE SIDE COVER SECURELY 4-4
OUTLINE OF MAINTENANCE 4-5
HANDLE OIL, FUEL, COOLANT, AND PERFORMING OIL CLINIC 4-5
HANDLE ELECTRICAL COMPONENTS 4-9
STANDARD TIGHTENING TORQUE FOR BOLTS AND NUTS 4-10
MAINTENANCE SCHEDULE 4-12
MAINTENANCE SCHEDULE TABLE 4-12
MAINTENANCE PROCEDURE 4-14
INITIAL 10 HOURS MAINTENANCE (ONLY FOR THE FIRST 100 HOURS) 4-14
INITIAL 250 HOURS MAINTENANCE (ONLY AFTER THE FIRST 250 HOURS) 4-14
INITIAL 1000 HOURS MAINTENANCE (ONLY AFTER THE FIRST 1000 HOURS) 4-14
WHEN REQUIRED 4-14
CHECKS BEFORE STARTING 4-39
EVERY 50 HOURS MAINTENANCE 4-40
EVERY 100 HOURS MAINTENANCE 4-40
EVERY 250 HOURS MAINTENANCE 4-44
EVERY 500 HOURS MAINTENANCE 4-50
EVERY 1000 HOURS MAINTENANCE 4-54
EVERY 2000 HOURS MAINTENANCE 4-59
EVERY 4000 HOURS MAINTENANCE 4-75
EVERY 4500 HOURS MAINTENANCE 4-78
EVERY 8000 HOURS MAINTENANCE 4-78
EVERY 9000 HOURS MAINTENANCE 4-78
SPECIFICATIONS 5-1
SPECIFICATIONS 5-2
SPECIFICATIONS: WA320-8 5-2
ATTACHMENTS AND OPTIONS 6-1
BUCKET AND TIRE SELECTION 6-2
HANDLE HYDRAULIC TYPE QUICK COUPLER 6-3
EXPLANATION OF COMPONENTS ON MACHINES WITH QUICK COUPLER 6-3
METHOD FOR REMOVING ATTACHMENT 6-4
METHOD FOR INSTALLING ATTACHMENT 6-5
HANDLE FORK 6-8
EXPLANATION OF COMPONENTS ON MACHINES WITH FORK 6-8
MACHINE OPERATIONS AND CONTROLS 6-9
PCS(PROPORTIONAL CONTROL SWITCH) 6-15
LCD UNIT 6-15
METHOD FOR SETTING PCS 6-17
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
INDEX 8-1

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual |... Order the manual at mid-west-tech.com >

SHIFT LEVER POSITION DISPLAY

The shift lever position display shows the position of the directional lever or directional selector switch in enlarged letters.

The position of the selected speed range selector switch is also displayed in enlarged letters.

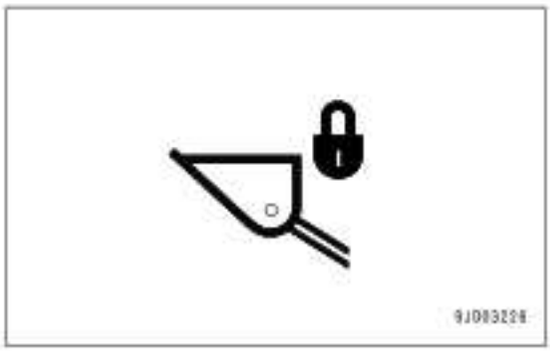


WORK EQUIPMENT LOCK PILOT LAMP

The work equipment lock pilot lamp lights up when the work equipment is locked.

This pops up on the screen when the work equipment is switched from the unlock mode to the lock mode.

For detail, see "WORK EQUIPMENT LOCK SWITCH (3-98)".



PARKING BRAKE PILOT LAMP

The parking brake pilot lamp lights up when the parking brake is applied.



ECO GUIDANCE

ECO guidance is displayed during the operation that lowers the fuel efficiency, and support energy saving operation for reducing the fuel consumption.

The details of the guidance are as follows.

REMARK

Display/Non-display of ECO guidance can be switched.
For the method of switching the display, see "SWITCH DISPLAY/NON-DISPLAY OF ECO GUIDANCE (3-56)".

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual |... Order the manual at mid-west-tech.com >

TRANSPORTATION

TRANSPORTATION PROCEDURE

When transporting the machine, choose the transportation method in reference to the weight and dimensions shown in "SPECIFICATIONS (5-2)".

Note that the "SPECIFICATIONS" (weight and dimensions) vary depending on the type of tire and bucket.

LOADING AND UNLOADING WITH TRAILER

⚠ WARNING

- **When loading or unloading the machine, run the engine at a low speed and operate the machine slowly in low travel speed.**
- **Select a flat and firm ground when loading or unloading the machine.**
  Maintain a safe distance from the road shoulder
- **Use ramps with ample width, length, thickness, and strength and install them with a maximum slope of 15 °.**

  When using piled soil, compact the piled soil fully to prevent the slope face from collapsing.
- **Remove mud from the undercarriage of the machine so that the machine will not slip sideways on the ramps.**
  In addition, remove water, snow, ice, grease, oil, etc. from the ramps.
- **Never correct your steering on the ramps. There is danger that the machine may tip over.**
  If it is necessary to change the travel direction, return to the ground or to the bed of the trailer, then change the travel direction.
- **The center of gravity of the machine shifts suddenly at the joint of the ramps and the trailer, so there is a danger of the machine losing its balance. Accordingly, pass this point slowly.**

When loading or unloading, always use ramps or a platform. Proceed as follows.

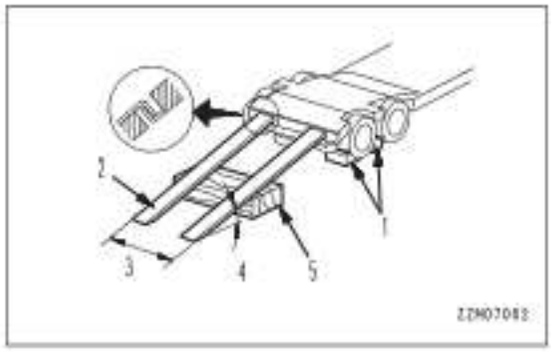
PROCEDURES FOR LOADING MACHINE

Load on a firm and level ground.

Maintain a safe distance from the road shoulder

1. Apply the brake of the trailer securely.
2. Set chocks (1) to the front and rear of the tires to secure the trailer.
3. Set right and left ramps (2) parallel to each other and equally spaced to the right and left of center (3) of the trailer. Make angle of installation (4) a maximum of 15 °.

   If the ramps bend a large amount under the weight of the machine, put blocks (5) under the ramps to prevent them from bending.
4. Set the travel direction toward the ramps and drive slowly for loading.
5. Load the machine correctly in the specified position on the trailer.



METHOD FOR SECURING MACHINE

After loading the machine onto a trailer, secure the machine as follows.

1. Lower the work equipment gently.
2. Check that the multifunction mono-lever is in "HOLD" position.

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual |... Order the manual at mid-west-tech.com >

MAINTENANCE PROCEDURE

INITIAL 10 HOURS MAINTENANCE (ONLY FOR THE FIRST 100 HOURS)

Until first 100 hours operation, perform the following maintenance every 10 hours.

- Lubrication of work equipment
- Lubrication of steering cylinder pin

For details of the method of replacement or maintenance, see EVERY 100 HOURS MAINTENANCE and EVERY 250 HOURS MAINTENANCE.

INITIAL 250 HOURS MAINTENANCE (ONLY AFTER THE FIRST 250 HOURS)

Perform the following maintenance work only after the first 250 hours of operation on new machines.

- Replace HST oil filter cartridge
- Replace hydraulic oil filter cartridge

For details of the method of replacement or maintenance. See EVERY 1000 HOURS MAINTENANCE and EVERY 2000 HOURS MAINTENANCE.

INITIAL 1000 HOURS MAINTENANCE (ONLY AFTER THE FIRST 1000 HOURS)

Perform the following maintenance work only after the first 1000 hours of operation on new machines.

- Check and adjust engine valve clearance

For details of the method of replacement or maintenance, see EVERY 2000 HOURS MAINTENANCE.

WHEN REQUIRED

METHOD FOR CHECKING, CLEANING AND REPLACING AIR CLEANER

⚠ WARNING

- **When using compressed air, there is a danger that dirt may scatter and cause personal injury. Always wear protective eyeglasses, dust mask, or other protective equipment.**
- **When removing the outer element from the air cleaner body, it is dangerous to pull it out by force. When working in high places or where the foothold is poor, be careful not to fall because of the reaction when pulling out the outer element.**

NOTICE

- **Do not clean the element before the air cleaner clogging caution lamp on the machine monitor lights up, or the yellow piston of the dust indicator laps over the peripheral red zone (7.5 kPa, {0.076 kg/cm^2, 1.08 PSI}).**

  If the element is cleaned frequently before the air cleaner clogging caution lamp on the machine monitor lights up or the yellow piston of the dust indicator laps over the peripheral red zone (7.5 kPa, {0.076 kg/cm^2, 1.08 PSI}), the air cleaner will not be able to display its performance fully, and the cleaning efficiency will also go down.

  In addition, during the cleaning operation, more dirt stuck to the element will fall inside the inner element.
- **If any dirt enters the engine, it can damage the engine. Be sure to stop the engine before checking, cleaning, or servicing the air cleaner. Do not check, clean, or service the air cleaner in strong winds, or in a dusty place.**
  In addition, during the cleaning operation, more dirt stuck to the element will fall inside the inner element.
- **Replace the outer element if it is cleaned 6 times repeatedly or used throughout a year. Replace the inner element as well at the same time.**

MidWestTech | Komatsu WA320-8 Wheel Loader Operation & Maintenance Manual |... Order the manual at mid-west-tech.com >