

Operation & Maintenance Manual

PC88MR-8

HYDRAULIC EXCAVATOR

SERIAL NUMBERS PC88MR-8 A90001 and up

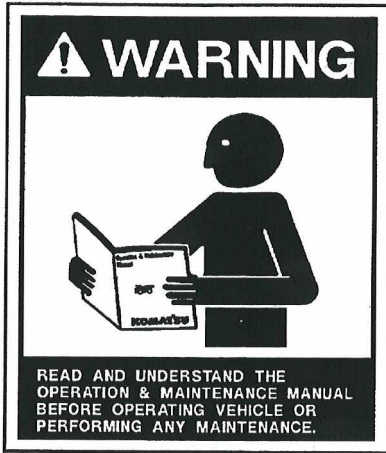
ENGINE 4D95LE-5

This material is proprietary to Komatsu America Corp. and is not to be reproduced, used, or disclosed except in accordance with written authorization from Komatsu America Corp.

It is our policy to improve our products whenever it is possible and practical to do so. We reserve the right to make changes or improvements at any time without incurring any obligation to install such changes on products sold previously.

Due to this continuous program of research and development, revisions may be made to this publication. It is recommended that customers contact their distributor for information on the latest revision.

Copyright 2016 Komatsu
Printed in U.S.A.
Komatsu America Corp.



! WARNING

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who come in contact with it.

California

Proposition 65 Warning

This machine may contain mercury in two areas:

- a.) The display monitor contains mercury if it has a mercury label attached.
- b.) Optional HID bulbs contain mercury (if the machine is so equipped).

There is no risk of exposure unless the bulbs are broken.

However, the monitor and/or lamps must be reused, recycled or properly disposed of in accordance with Local, State and Federal Laws at the end of their useful lives.

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

CALIFORNIA

Proposition 65 Warning

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer, birth defects and reproductive harm. Wash hands after handling.

INTRODUCTION

INTRODUCTION

FOREWORD

This manual provides rules and guidelines which will help you use this machine safely and effectively. The precautions in this manual must be followed at all times while operating or performing maintenance. Most accidents are caused by the failure to follow fundamental safety rules for the operation and maintenance of machines. Accidents can be prevented by knowing beforehand conditions that may cause a hazard when performing operation and maintenance.

WARNING

Operators and maintenance personnel must always do as follows before beginning operation or maintenance.

- Always be sure to read and understand this manual thoroughly before performing operation and maintenance.
- Read the safety messages given in this manual and the safety labels affixed to the machine thoroughly and be sure that you understand them fully.

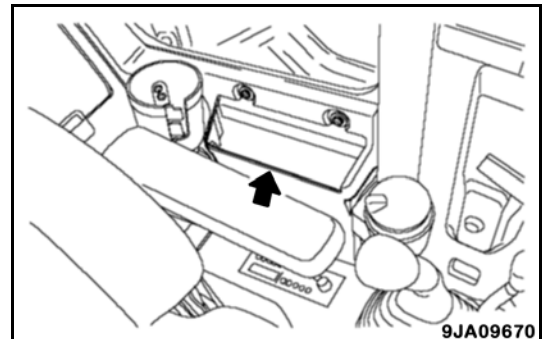
Keep this manual in the storage location for the Operation and Maintenance Manual given below, and have all personnel read it periodically.

If this manual has been lost or has become dirty and cannot be read, request a replacement manual immediately from Komatsu or your Komatsu distributor. If you sell the machine, be sure to give this manual to the new owners together with the machine.

Komatsu delivers machines that comply with all applicable regulations and standards of the country to which it has been shipped. If this machine has been purchased in another country or purchased from someone in another country, it may lack certain safety devices and specifications that are necessary for use in your country. If there is any question about whether your product complies with the applicable standards and regulations of your country, consult Komatsu or your Komatsu distributor before operating the machine.

Storage location for the Operation and Maintenance Manual:

Storage box on the left side of the operator's seat.





SAFETY INFORMATION


To enable you to use this machine safely, safety precautions and labels are given in this manual and affixed to the machine to give explanations of situations involving potential hazards and of the methods of avoiding such situations.

Signal Words

The following signal words are used to inform you that there is a potentially hazardous situation that may lead to personal injury or damage. In this manual and on machine labels, different signal words are used to express the potential level of hazard.

 **DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to most extreme situations.

 **WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Example of safety message using signal word

 **WARNING**

To avoid hitting unlocked operation levers, lower equipment to ground and move SAFETY LOCK LEVER (located near seat) to LOCK position before getting up from the operator's seat.
Sudden and unwanted machine movement can cause serious injury or death.

Other Signal Words

In addition to the above, the following signal words are used to indicate precautions that should be followed to protect the machine or to give information that is useful to know.

Remark

This gives information that is useful to know.

Komatsu cannot predict every circumstance that might involve a potential hazard in operation and maintenance. Therefore, the safety messages in this manual and on the machine may not include all possible safety precautions. If any procedures or actions not specifically recommended or allowed in this manual are used, it is your responsibility to take the necessary steps to ensure safety.

Never engage in prohibited uses or actions described in this manual.

The explanations, values, and illustrations in this manual were prepared based on the latest information available at that time. Continuing improvements in the design of this machine can lead to changes in detail which may not be reflected in this manual. Consult Komatsu or your Komatsu distributor for the latest available information of your machine or for questions regarding information in this manual.

The numbers in the illustrations correspond to the numbers in () in the text. (For example: 1 -> (1))

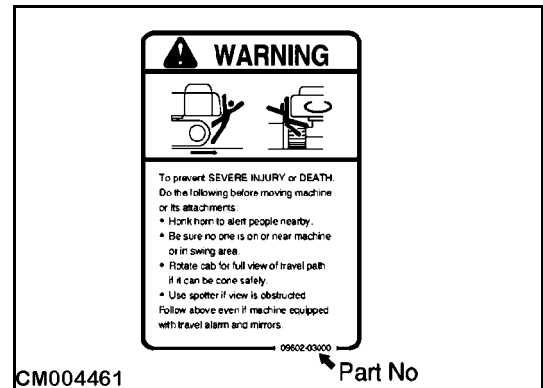
INTRODUCTION

Safety Labels

Safety labels are affixed to the machine to inform the operator or maintenance personal of a hazardous or unsafe condition while performing their duties.

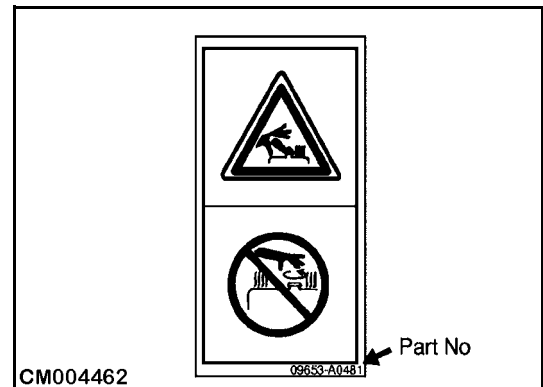
This machine uses “Safety labels using words” and “Safety labels using pictograms” to indicate safety hazards and procedures to follow.

Safety Label Using Words



Safety Label Using Pictogram

Safety pictograms use a picture to express a level of hazardous conditions equivalent to the signal word. These safety pictograms use pictures in order to let the operator or maintenance worker understand the level and type of hazardous conditions at all times. Safety pictograms show the type of hazardous condition at the top or left side, and the method of avoiding the hazardous condition at the bottom or right side. In addition, the type of hazardous condition is displayed inside a triangle and the method of avoiding the hazardous condition is shown inside a circle.



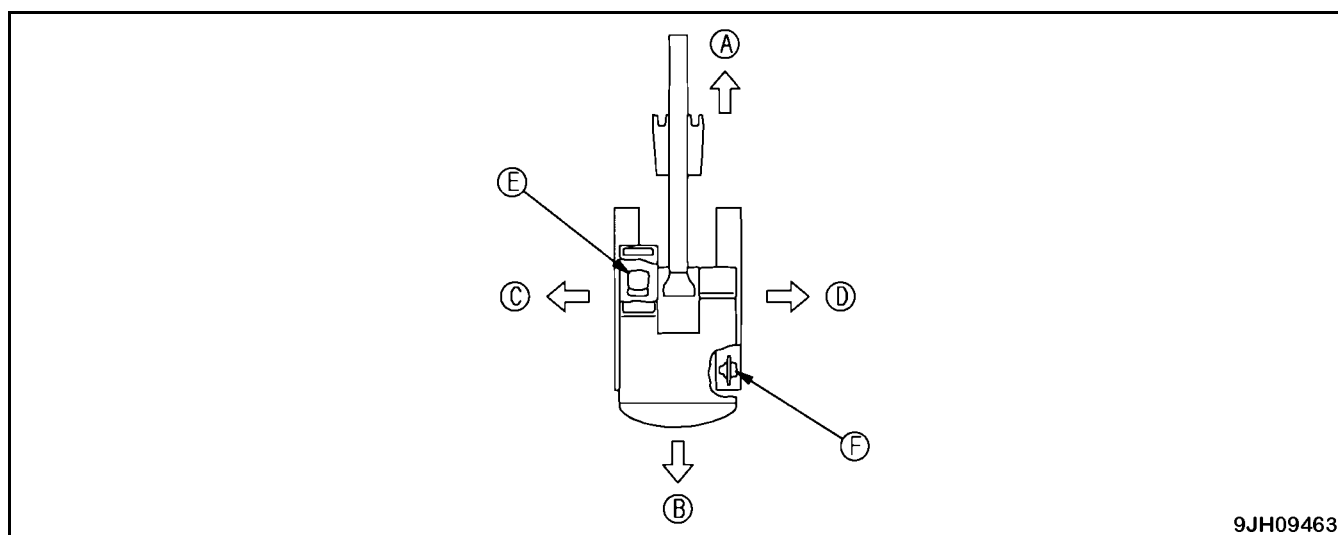
INTRODUCTION

This Komatsu machine is designed to be used mainly for the following work:

- Digging
- Leveling
- Ditching
- Loading
- Demolition

For details on operating procedures, see “RECOMMENDED APPLICATIONS” on page 2-168.

Directional Reference of Machine



All views are taken from the operators seat facing forward

- | | |
|----------|--------------------|
| A. Front | D. Right |
| B. Rear | E. Operator's seat |
| C. Left | F. Rear sprocket |

In this manual, the terms front, rear, left, and right refer to the travel direction as seen from the operator's cab when the operator's cab is facing the front and the sprocket is at the rear of the machine.

Visibility from Operator's Seat

This machine complies with the visibility standard (ISO 5006).

This machine maintains a close visibility of a height of 1.5 m (5 ft) at a point 1 m (3 ft) away from the outside surface of the machine, and a visibility for a circumference of 12 m (39 ft).

BREAKING IN THE MACHINE

Remark

Your machine has been thoroughly adjusted and tested before shipment. However, operating the machine under severe conditions at the beginning can adversely affect the performance and shorten the machine life. Be sure to break in the machine for the initial 100 hours, as indicated on the service meter.

Make sure that you fully understand the content of this manual, and pay careful attention to the following when breaking in the machine.

- Run the engine at idle for 15 seconds after starting it. During this time, do not operate the control levers or fuel control dial.
- Idle the engine for 5 minutes after starting it up.
- Avoid operating with heavy loads or at high speeds.
- Immediately after starting the engine, avoid sudden starts, sudden acceleration, unnecessary sudden stops, and sudden changes in direction except in cases of emergency.

The precautions given in this manual for operating, maintenance, and safety procedures are only those that apply when this product is used for the specified purpose. If the machine is used for a purpose that is not listed in this manual, Komatsu cannot bear any responsibility for safety. All consideration of safety in such operations is the responsibility of the user.

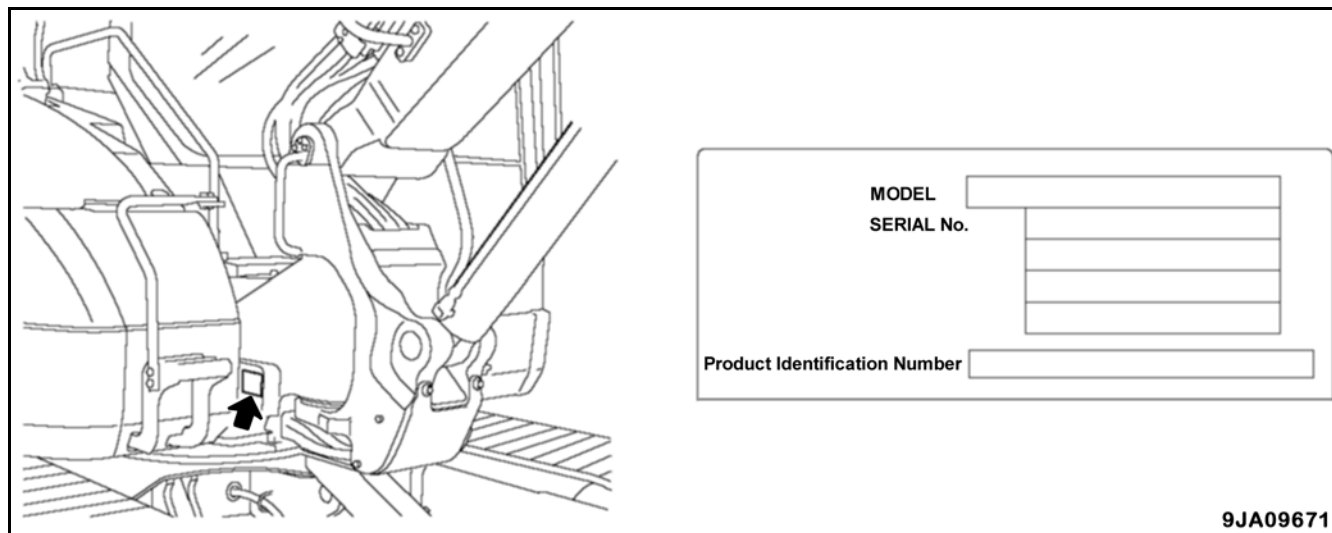
Operations that are prohibited in this manual must never be performed under any circumstances.

PRODUCT INFORMATION

When requesting service or ordering replacement parts, please inform your Komatsu distributor of the following items.

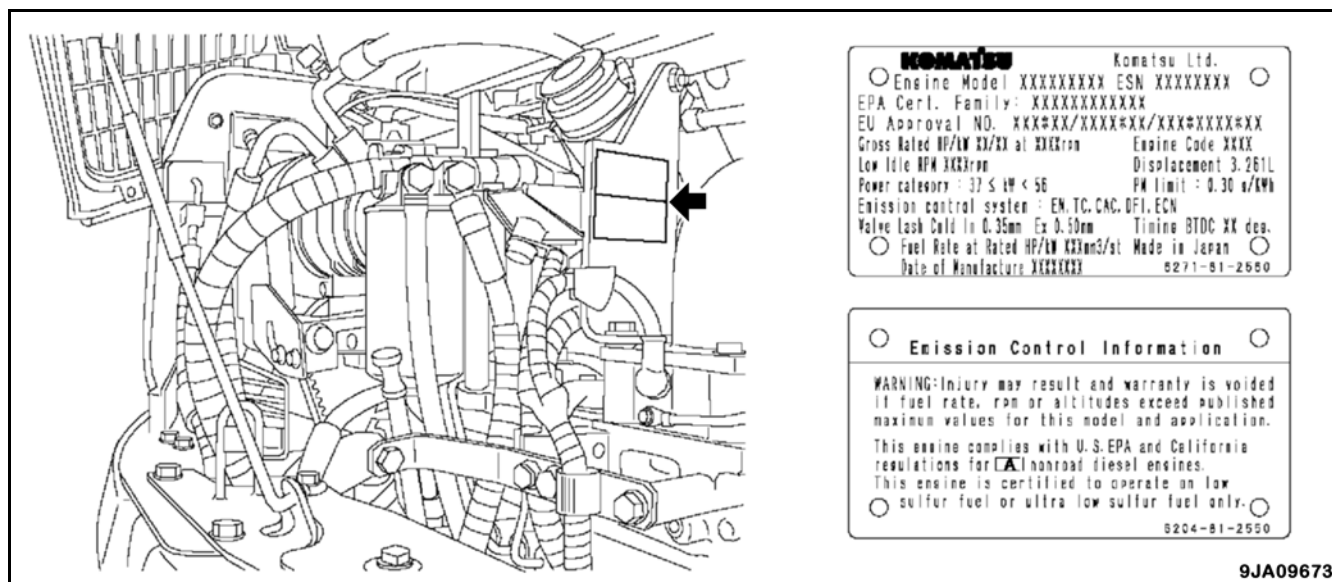
Product Identification Number (PIN) - Machine Serial No. Plate

- ★ This is on the left side of the swing bracket mount.
- ★ The design of the nameplate differs according to the territory.



EPA* Regulations, Engine Serial Number Plate and its Location

- ★ This is on the side face of the air intake pipe.

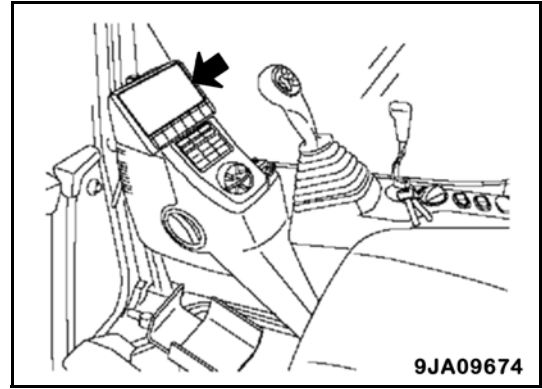


*EPA: Environmental Protection Agency, U.S.A.

INTRODUCTION

Service Meter Location

- ★ On top of the machine monitor.



Your Machine Serial Numbers and Distributor

Machine Serial No.	
Engine Serial No.	
Product Identification Number (PIN)	
Distributor Name	
Address	
Service Personal	
Phone/Fax	

TABLE OF CONTENTS

INTRODUCTION

FOREWORD	0-2
SAFETY INFORMATION	0-3
Signal Words	0-3
Other Signal Words	0-3
Safety Labels	0-4
Safety Label Using Words	0-4
Safety Label Using Pictogram	0-4
INTRODUCTION	0-5
Directional Reference of Machine	0-5
Visibility from Operator's Seat	0-5
BREAKING IN THE MACHINE	0-6
PRODUCT INFORMATION	0-7
Product Identification Number (PIN) - Machine Serial No. Plate	0-7
EPA* Regulations, Engine Serial Number Plate and its Location	0-7
Service Meter Location	0-8
Your Machine Serial Numbers and Distributor	0-8
TABLE OF CONTENTS	0-9

SAFETY

SAFETY AND WARNING DECALS	1-2
Location of Safety Decals	1-3
GENERAL SAFETY RULES AND PRECAUTIONS	1-10
General Safety Rules	1-10
General Safety at Job Site	1-11
Working on Loose Ground	1-11
Safety Features	1-12
Personal Protective Equipment	1-12
Fire and Explosion Prevention	1-13
Fire Caused by Fuel or Oil	1-13
Fire Caused by Accumulation of Flammable Material	1-13
Fire Coming From Electric Wiring	1-14
Fire Coming From Hydraulic Line	1-14
Windshield Washer Fluid	1-14
Action if Fire Occurs	1-14
Fire Extinguisher and First Aid Kit	1-14
Fire Prevention and Suppression	1-15
Fire Prevention Steps	1-15
Fixed Fire Detection System	1-15
Fixed Fire Suppression System	1-15
Fire Prevention Procedures	1-15
Dust Hazard Precautions	1-16
Keep Operator's Cab Clean	1-16
Unauthorized Modifications	1-16
Leaving Operator's Compartment	1-17

INTRODUCTION

Mounting and Dismounting	1-18
Crush or Pinch Point Dangers	1-18
Inside Operator's Compartment	1-19
Precautions When Using ROPS	1-19
Protection Against Falling or Flying Objects	1-20
Precautions for Attachments	1-21
Quick Coupler Attachment	1-21
Large Attachments	1-21
PRECAUTIONS BEFORE STARTING OPERATIONS	1-22
Pre-Operational Checks	1-22
Seat Belt Inspection	1-23
Starting Your Work Operations	1-24
Work Site Hazards	1-24
Avoiding Dangerous Situations	1-25
Working Clearances	1-29
Operations on Slopes	1-30
Operating on Snow or Icy Surfaces	1-30
Asbestos Hazard Alert	1-30
RULES FOR ROAD TRAVEL	1-31
Precautions When Traveling	1-31
Traveling with Carriage Reversed	1-31
Travel on Slopes	1-32
Parking the Machine	1-34
PRECAUTIONS DURING MAINTENANCE OPERATIONS	1-35
Warning Tags	1-35
Equipment Storage	1-35
Working Under the Machine	1-36
Using Drop Lamps	1-36
Keeping the Machine Clean	1-36
Performing General Maintenance Procedures	1-37
Running the Engine During Maintenance	1-38
Proper Tools	1-38
Engine System High-Voltage	1-38
Welding, Grinding or Cutting	1-39
Adjusting Track Tension	1-39
DO NOT Disassemble Recoil Springs	1-39
When Using Hammer	1-39
Refueling the Machine	1-40
Cooling System Precautions	1-40
Battery Precautions	1-41
Starting the Machine	1-42
High-Pressure Hoses	1-42
Handling High-Pressure Hoses	1-42
Precaution for High Fuel Pressure	1-43
High Temperatures Areas	1-43
Disposal of Waste Materials	1-43
Accumulator	1-44
Critical Parts	1-44
TRANSPORTING THE MACHINE	1-45

Loading and Unloading a Trailer	1-45
Loading the Machine	1-46
Securing the Machine	1-48
TOWING	1-49
Safety Rules for Towing	1-49

OPERATION

MACHINE VIEW ILLUSTRATIONS	2-2
Overall Machine View	2-2
Controls and Gauges	2-3
Machine Monitor	2-4
DETAILED CONTROLS AND GAUGES	2-5
Monitoring System	2-5
Basic Operation of Machine Monitor	2-6
Starting Engine When Situation is Normal	2-6
Stopping Engine When Situation is Normal	2-7
If There Is Abnormality When Starting Engine	2-8
If Any Abnormality Occurs During Operation	2-8
Emergency Monitors	2-10
Engine Coolant Temperature Monitor	2-10
Hydraulic Oil Temperature Monitor	2-10
Engine Oil Pressure Monitor	2-11
Caution Monitors	2-12
Engine Coolant Temperature Monitor	2-12
Hydraulic Oil Temperature Monitor	2-13
Fuel Level Monitor	2-13
Charge Level Monitor	2-13
Basic Check Monitors	2-14
Maintenance Interval Monitor	2-14
Meter Display Portion	2-15
Pilot Display	2-15
Engine Pre-heating Monitor	2-15
Swing Lock Monitor	2-16
Wiper Monitor	2-16
Auto-deceleration Monitor	2-16
Working Mode Monitor	2-16
Travel Speed Monitor	2-17
Air Conditioner Monitor	2-17
Message Monitor	2-17
Idle Stop Guidance	2-17
Gauges and Meter	2-18
Engine Coolant Temperature Gauge	2-18
Hydraulic Oil Temperature Gauge	2-19
Fuel Gauge	2-19
Service Meter, Clock	2-20
ECO Gauge	2-21
Monitor Switches Portion	2-22
Working Mode Selector Switch	2-22

INTRODUCTION

Auto-deceleration Switch	2-25
Travel Speed Selector Switch	2-26
Wiper Switch	2-27
Window Washer Switch	2-28
Buzzer Cancel Switch	2-28
Function Switches	2-29
Air Conditioner Switch	2-29
Handling Function Switches	2-30
Service Meter/Clock Display Selector Switch	2-31
Maintenance Selector Switch	2-32
Operations on Maintenance List Screen	2-33
Operations on Maintenance Interval Reset Screen	2-34
User Mode Selector Switch	2-35
Breaker/Attachment Setting	2-37
Message Display	2-50
Adjusting Screen	2-52
Clock Adjustment	2-55
Language Selection	2-61
Adjusting Economy Mode	2-63
Switches	2-65
Ignition Switch	2-65
Fuel Control Dial	2-66
Cigarette Lighter	2-66
1st-Line Attachment Proportional Switch	2-67
Breaker Operation Switch	2-67
Horn Switch	2-67
Room Lamp Switch	2-67
Emergency Pump Drive Switch	2-68
Swing Parking Brake Release Switch	2-68
Revolving Warning Lamp Switch (If Equipped)	2-68
Lamp Switch	2-69
Quick Coupler Switches	2-69
Control Levers and Pedals	2-70
Lock Lever	2-71
Travel Levers	2-72
Work Equipment Control Lever	2-73
Blade Control Lever	2-74
Swing Lock Cover	2-74
Boom Swing Control Pedal	2-74
SUN ROOF	2-75
WINDSHIELD	2-76
Opening	2-76
Closing	2-80
Removing Lower Windshield	2-82
SLIDING DOOR	2-83
EMERGENCY ESCAPE HAMMER	2-84
COVER WITH LOCK	2-85
Opening and Closing Covers with Lock	2-85
Opening the Cover	2-85

Locking the Cover	2-85
ENGINE HOOD	2-86
MUD COVER	2-88
BATTERY INSPECTION COVER	2-89
AIR CONDITIONER CONTROLS	2-90
Air Conditioner Control Panel	2-90
OFF Switch	2-90
Fan Switch	2-91
Temperature Control Switch	2-91
Vent Selector Switch	2-92
Auto Switch	2-93
FRESH/RECIRC Selector Switch	2-93
Display Monitor	2-93
Air Conditioner Switch	2-94
Sunlight Sensor	2-94
Method of Operation	2-95
Automatic Operation	2-95
Stopping Automatic Operation	2-96
Manual Operation	2-96
Stopping Manual Operation	2-98
Operation with Cold Air to Face and Warm Air to Feet	2-98
Defroster Operation	2-100
Use Air Conditioner with Care	2-102
Ventilation	2-102
Temperature Control	2-102
Inspection and maintenance of Air Conditioner Equipped Machine	2-102
RADIO	2-104
Control Panel	2-104
Power Switch, Volume Control Knob, Balance Control Knob	2-104
Sel Button	2-104
FM/AM Selection Button (AM/FM)	2-104
Display Selection Button (TIME)	2-104
AS/PS button	2-105
Preset Station Buttons (1, 2, 3, 4, 5, 6)	2-105
Display	2-105
Time Reset Button	2-105
Tuning Button (TUNING)	2-105
Controls of Radio	2-106
Method of Setting with Preset Button	2-106
Method of Tuning	2-106
Method of Operating Mode	2-106
Setting Correct Time	2-107
Antenna	2-107
Use Radio with Care	2-107
FUSE	2-108
Fuse Capacities and Circuit Names	2-108
Fusible Link	2-109
AUXILIARY ELECTRIC POWER	2-110
CONTROLLERS	2-111
PC88MR-8	0-13

INTRODUCTION

OPERATION MANUAL STORAGE	2-112
CUP HOLDER	2-112
TOOL BOX	2-112
GREASE PUMP HOLDER	2-112
ASHTRAY	2-113
FIRE EXTINGUISHER (IF EQUIPPED)	2-113
MACHINE OPERATIONS AND CONTROLS	2-114
Before Starting Engine	2-114
Walk-Around Checks	2-114
Checks Before Starting	2-115
Check Coolant Level, Add Coolant	2-115
Check Oil Level in Engine Oil Pan, Add Oil	2-116
Check Fuel Level, Add Fuel	2-118
Check Oil Level in Hydraulic Tank, Add Oil	2-120
Check Dust Indicator	2-121
Check for Water and Sediment in Water Separator, Drain Water	2-122
Check Electric Wiring	2-124
Check Working Lamp Switch	2-124
Check Function of Horn	2-124
Adjustments	2-125
Seat Adjustment	2-125
Rear View Mirrors	2-126
Wind-in Type Seat Belt	2-128
Operations Before Starting Engine	2-129
STARTING ENGINE	2-132
Normal Starting	2-132
Starting Engine in Cold Weather	2-134
Turbo protect function	2-136
Breaking-in the New Machine	2-136
AFTER STARTING ENGINE	2-137
Checking Engine Startability and Noise	2-137
Checking Engine Acceleration and Deceleration	2-137
Engine Warm Up	2-138
Hydraulic Equipment Warm Up	2-140
Operation After Completion of Warm-Up Operation	2-146
STOPPING THE ENGINE	2-148
MACHINE OPERATION	2-149
Preparations for Moving the Machine	2-149
Moving Machine Forward	2-150
Moving Machine Backward	2-151
Stopping Machine	2-152
STEERING THE MACHINE	2-153
Steering	2-153
Steering the Machine When Stopped	2-153
Changing Direction of the Machine	2-154
Counter-rotation Turn (Spin Turn)	2-154
SWINGING	2-155
WORK EQUIPMENT CONTROLS AND OPERATIONS	2-156
WORKING MODE	2-158

PROHIBITED OPERATIONS	2-160
Operations Using Swing Force	2-160
Operations Using Travel Force	2-160
Prohibition of Operations Using Hydraulic Cylinders to Stroke Ends	2-160
Operations Using Bucket Dropping Force	2-161
Operations Using Machine Dropping Force	2-161
Digging Hard Rocky Ground	2-161
Prohibition of Lifting Operation	2-162
Sudden Lever or Pedal Shifting High Speed Travel	2-162
Support Blade on Both Sides	2-162
GENERAL OPERATION INFORMATION	2-163
Traveling	2-163
High Speed Travel	2-163
Folding in Work Equipment	2-163
Avoid Hitting Blade	2-164
Blade During Backhoe Operations	2-164
Permissible Water Depth	2-164
TRAVELING ON SLOPES	2-165
Traveling Downhill	2-166
Engine Stopped on Slope	2-166
Cab Doors on Slope	2-166
ESCAPE FROM MUD	2-167
Track on One Side Stuck	2-167
Tracks on Both Sides Stuck	2-167
RECOMMENDED APPLICATIONS	2-168
Backhoe Work	2-168
Shovel Work	2-168
Ditching Work	2-168
Loading Work	2-169
Refill and Finishing Work	2-169
Side Ditching Work	2-169
BUCKET REPLACEMENT AND INVERSION	2-170
Replacement	2-170
Inversion	2-171
PARKING MACHINE	2-174
MACHINE INSPECTION AFTER DAILY WORK	2-176
Before Stopping Engine	2-176
After Stopping Engine	2-176
LOCKING	2-176
ROAD LINERS AND RUBBER SHOES	2-177
Road Liners and Rubber Shoes Information	2-177
Warranty for Road Liners and Rubber Shoes	2-177
Using Road Liners and Rubber Shoes	2-178
Prohibited Works	2-178
Long Life Operations	2-178
MACHINE READY FOR ATTACHMENT	2-182
Locations	2-182
Selector Valve	2-182
1st-Line Attachment Proportional Switch	2-183

INTRODUCTION

Breaker Operation Switch	2-183
Breaker Circuit Additional Oil Filter	2-183
Accumulator (For Low Pressure)	2-183
Hydraulic Circuit	2-184
Hydraulic Circuit Connection	2-184
Attachment Removal And Installation	2-186
Attachment Installation	2-186
Attachment Removal	2-188
Attachment Operations	2-190
When Using Breaker	2-190
When Using General Attachment Such As Crusher	2-192
Long Term Storage	2-192
Hydraulic Specifications	2-192
TRANSPORTATION	2-192
Transportation Procedure	2-192
Loading and Unloading with Trailer	2-193
Loading	2-194
Securing Machine	2-195
Unloading	2-196
LIFTING MACHINE	2-199
COLD WEATHER OPERATION	2-200
Fuel and Lubricants	2-200
Cooling System Coolant	2-200
Battery	2-201
After Daily Work Completion	2-202
After Cold Weather Season	2-202
LONG TERM STORAGE	2-203
Before Storage	2-203
During Storage	2-203
After Storage	2-203
Starting Machine After Long-term Storage	2-203
TROUBLES AND ACTIONS	2-204
Running Out of Fuel	2-204
Phenomena That Are Not Failures	2-204
Towing the Machine	2-205
Severe Job Condition	2-205
Discharged Battery	2-206
Battery Removal and Installation	2-207
Battery Charges	2-208
Starting Engine with Booster Cables	2-209
Connecting and Disconnecting Booster Cables	2-209
Booster Cable Connection	2-210
Starting the Engine	2-210
Booster Cable Disconnection	2-210
TROUBLESHOOTING	2-212
Electrical System	2-212
Chassis	2-213
Engine	2-214
Electronic Control System	2-216

Point of Contact to Telephone when Error Occurs 2-216

MAINTENANCE

GUIDES TO MAINTENANCE 3-2

- Check Service Meter 3-2
- Komatsu Genuine Replacement Parts 3-2
- Komatsu Genuine Oils 3-2
- Always Use Clean Washer Fluid 3-2
- Always Use Clean Oil and Grease 3-2
- Checking Foreign Materials in Drained Oil and on Filters 3-2
- Fueling 3-2
- Welding Instructions 3-2
- Do Not Drop Things Inside Machine: 3-2
- Dusty Work Sites 3-3
- Avoid Mixing Oil 3-3
- Locking Inspection Covers 3-3
- Bleeding Air From Hydraulic Circuit 3-3
- Precautions When Installing Hydraulic Hoses 3-3
- Checks After Inspection and Maintenance 3-3

OUTLINES OF SERVICE 3-4

- Handling Oil, Fuel, Coolant, and Performing Oil Clinic 3-4
 - Oil 3-4
 - Fuel 3-4
 - Coolant and Water for Dilution 3-5
 - Grease 3-5
 - Performing KOWA (Komatsu Oil Wear Analysis) 3-6
 - Storing Oil and Fuel 3-7
 - Filters 3-7
- Outline of Electric System 3-7

WEAR PARTS LIST 3-8

RECOMMENDED FUEL, COOLANT, AND LUBRICANT 3-9

USE OF FUEL, COOLANT AND LUBRICANTS 3-10

- Selection According to Ambient Temperature 3-10
- Recommended Brands, Recommended Quality for Products other than Komatsu Genuine Oil . 3-11

STANDARD TIGHTENING TORQUES FOR BOLTS AND NUTS 3-12

- Torque List 3-12

PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS 3-14

- Safety Critical Parts 3-14

REGULAR SCHEDULED MAINTENANCE 3-16

- Maintenance Schedule Chart 3-16

MAINTENANCE INTERVAL FOR HYDRAULIC BREAKER 3-17

WHEN REQUIRED 3-18

- Check, Clean and Replace Air Cleaner Element 3-18
 - Checking 3-18
 - Cleaning Outer Element 3-18
 - Replacing Element 3-20
- Clean Inside of Cooling System 3-22
 - Mixing Rate of Water and Antifreeze 3-23

INTRODUCTION

Check and Tighten Track Shoe Bolts	3-25
Method for Further Tightening of Steel Shoe	3-25
Method for Further Tightening of Road Liner	3-25
Order for tightening	3-25
Check and Adjust Track Tension	3-26
Checking	3-26
Adjustment	3-26
Increasing Track Tension	3-26
Loosening Track Tension	3-27
Check Road Liners or Rubber Shoes	3-28
Lug Height	3-28
Rubber Shoe Steel Code Cuts	3-28
Rubber Shoe Core Separations	3-29
Rubber Shoe Tension	3-29
Rubber Shoe Cracks	3-29
Check and Adjust Rubber Shoe Tension	3-30
Checking	3-30
Adjustment	3-30
Increasing Track Tension	3-30
Loosening Track Tension	3-31
Replace Road Liners	3-31
Replace Rubber Shoes	3-32
Rubber Shoes Removal	3-32
Rubber Shoes Installation	3-33
Change Steel Shoes or Road Liner to Rubber Shoes	3-34
Changing from Steel Shoes or Road Liners to Rubber Shoes	3-34
Changing from Rubber Shoes to Steel Shoes or Road Liners	3-34
Replace Bucket Teeth (Vertical Pin Type)	3-35
Replace Bucket Teeth (Horizontal Pin Type)	3-38
Adjust Bucket Clearance	3-40
Check Window Washer Fluid Level, Add Fluid	3-41
Check and Maintenance of Air Conditioner	3-42
Check Level of Refrigerant (Gas)	3-42
Inspection During Off Season	3-42
Inspection and Maintenance Items	3-42
Check, Clean and Lubricate Cab Slide Door Rail and Roller	3-43
Checking	3-43
Cleaning	3-43
Greasing	3-43
Replace Breaker Circuit Additional Oil Filter Element	3-44
Wash Washable Floor	3-45
Method of Washing	3-45
Method of Setting Machine at Angle	3-46
Check Gas Spring	3-48
Bleeding Air From Hydraulic System	3-49
CHECK BEFORE STARTING	3-52
EVERY 100 HOURS MAINTENANCE	3-53
Lubricating	3-53
Check Swing Machinery Case Oil, Add Oil	3-54

EVERY 250 HOURS MAINTENANCE	3-55
Check Oil Level in Final Drive Case, Add Oil	3-55
Check Level of Battery Electrolyte	3-55
When Checking Electrolyte Level from Side of Battery	3-56
When it is Impossible to Check Electrolyte Level from Side of Battery	3-57
When it is Possible to Use Indicator to Check Electrolyte Level	3-57
Check and Adjust Cooling Fan Belt Tension	3-58
Checking	3-58
Adjustment	3-59
Check Air Conditioner Compressor Belt Tension, Adjust	3-60
Checking	3-60
Adjustment	3-61
EVERY 500 HOURS MAINTENANCE	3-62
Lubricating	3-62
Change Oil In Engine Oil Pan, Replace Engine Oil Filter Cartridge	3-64
Replace Fuel Pre-Filter Cartridge	3-65
Check Swing Pinion Grease Level, Add Grease	3-67
Lubricate Swing Circle	3-67
Clean and Inspect Radiator Fins, Oil Cooler Fins, After Cooler Fins, Fuel Cooler Fins, and Air Conditioner Condenser Fins	3-68
Clean Air Conditioner Fresh/Recirc Filters	3-69
Cleaning Recirculated Air Filter	3-69
Cleaning Fresh Air Filter	3-69
Replace Breather Element In Hydraulic Tank	3-70
EVERY 1000 HOURS MAINTENANCE	3-71
Change Oil in Swing Machinery Case	3-71
Change Oil in Final Drive Case	3-72
Replace Hydraulic Oil Filter Element	3-73
Replace Fuel Main Filter Cartridge	3-75
Check All Tightening Points of Engine Exhaust Pipe Clamps	3-77
Check Oil Level in PTO Gear Case, Add Oil	3-77
EVERY 2000 HOURS MAINTENANCE	3-78
Check Alternator, Starting Motor	3-78
Check Engine Valve Clearance, Adjust	3-78
Checking Charge Pressure of Nitrogen Gas in Accumulator (For Control Circuit)	3-78
Function of Accumulator	3-78
Checking Function of Accumulator	3-79
Method of Releasing Pressure In Hydraulic Circuit	3-81
EVERY 4000 HOURS MAINTENANCE	3-82
Check Water Pump	3-82
Replace Accumulator (For Control Circuit)	3-82
EVERY 5000 HOURS MAINTENANCE	3-83
Change Oil in Hydraulic Tank, Clean Strainer	3-83

SPECIFICATIONS

SPECIFICATIONS	4-2
----------------	-----

INTRODUCTION

OPTIONS, ATTACHMENTS

ATTACHMENTS AND OPTIONS - GENERAL INFORMATION	5-2
Safety First	5-2
Attachment Installation	5-3
BUCKET WITH HOOK	5-4
Hook Condition	5-4
Prohibited Operations	5-4
Operations with Care	5-4
CHANGING MACHINE CONTROL PATTERN (IF PATTERN CHANGE VALVE EQUIPPED) .	5-5
Control Pattern Change Procedure	5-5
Machine Control Patterns	5-6
HYDRAULIC QUICK COUPLER PIPING	5-7
Locations	5-7
Operation	5-8
To Release a Bucket or Attachment	5-8
To Pick Up a New Bucket or Attachment	5-8
POWER ANGLE BLADE	5-9
Blade Control Lever	5-9
Lifting Control	5-9
Angling Control	5-9
Maintenance	5-10
When Required	5-10
Every 500 Hours Service	5-10
Wear Parts List	5-11
Specifications	5-11
ATTACHMENT GUIDE	5-12
Attachment Combinations	5-12
Track Shoes Selection	5-13
RECOMMENDED ATTACHMENT OPERATIONS	5-14
Hydraulic Breaker	5-14
Main Applications	5-14
Prohibited Works	5-16
Greasing	5-19
Crusher	5-20
Main Applications	5-20
Prohibited Works	5-20
HANDLING MACHINES EQUIPPED WITH KOMTRAX	5-24
Basic Precautions	5-24

SAFETY



WARNING!

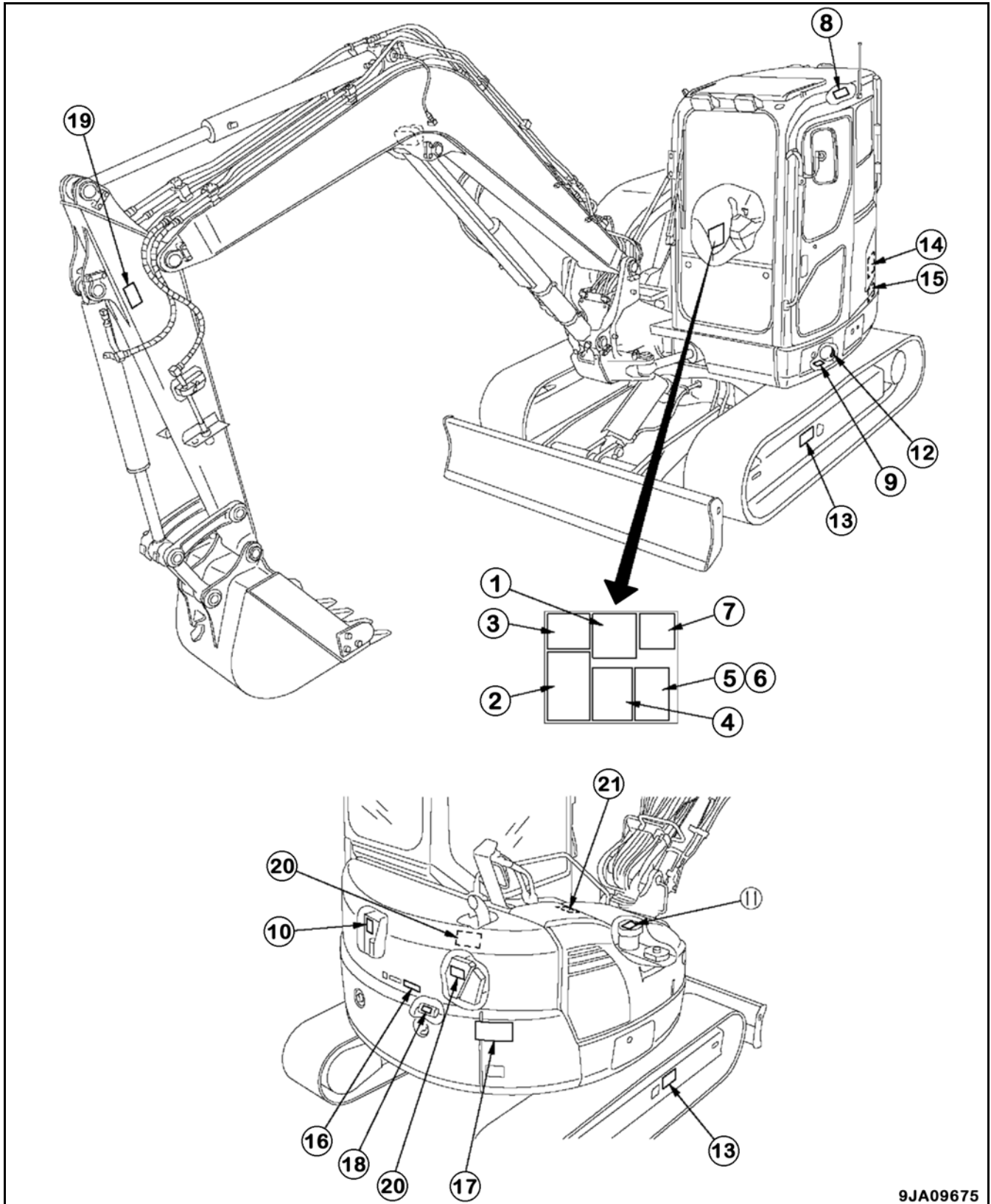
Read and follow all safety precautions. Failure to do so may result in serious injury or death.

This safety section also contains precautions for optional equipment and attachments.

SAFETY

SAFETY AND WARNING DECALS

It is important that all safety and warning decals are in place, not damaged, covered up or removed. It is also important for the operator to be aware of the decal content and locations on the machine as shown in the view below.

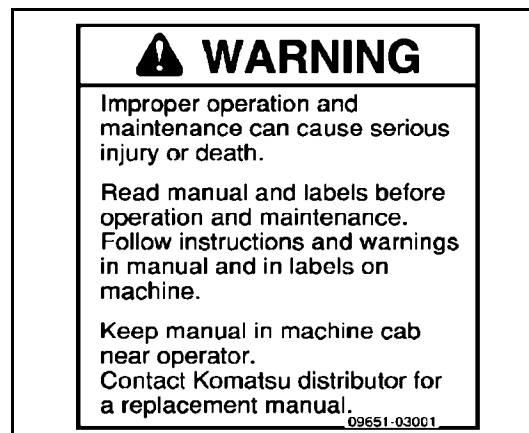


9JA09675

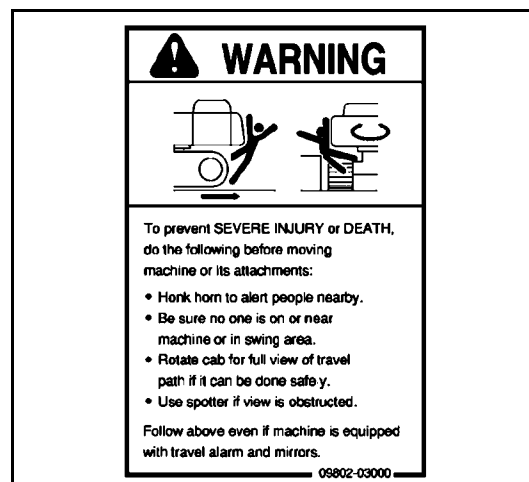
Location of Safety Decals

- Your Komatsu dealer can supply you with new replacement decals if the ones on the machine are damaged or missing.
- When replacing damaged or missing decals, be sure they are placed in the proper location and always keep them clean.
- When cleaning them, do not use organic solvents or gasoline. These may cause the labels to peel off.
- Additional safety or warning decals may be added to your machine if desired.

1. Caution before operating or maintaining machine (09651-03001)
Improper operation and maintenance can cause serious injury or death.
Read manual and labels before operation and maintenance. Follow instructions and warnings in manual and in labels on machine.
Keep manual in machine cab near operator,
Contact Komatsu distributor for replacement manual.



2. Caution before operating (09802-03000)
To prevent SEVERE INJURY or DEATH, do the following before moving machine or its attachments:
 - Honk horn to alert people nearby.
 - Be sure no one is on or near machine or in swing area.
 - Rotate cab for full view of travel path if it can be done safely.
 - Use spotter if view is obstructed.
 Follow above even if the machine is equipped with travel alarm and mirrors.



3. Caution for leaving operator's seat (09654-03001)
To avoid hitting unlocked operation levers, lower equipment to ground and move LOCK LEVER (located near seat) to LOCK position before standing up from the operator's seat.
Sudden and unwanted machine movement can cause serious injury or death.



SAFETY

4. Caution for going close to electric cables (09801-03002)
 Hazard voltage hazard.
 Serious injury or death can occur if machine or attachments are not kept safe distance away from electric lines.

DANGER

Electrocution Hazard

Serious injury or death will occur if machine or attachments are not kept away from electric lines.
 Maintain a minimum clearance in accordance with this chart.

VOLTAGE	MIN. DISTANCE
50 kV or Less	3.1 m (10 ft)
50 kV to 200 kV	4.6 m (15 ft)
200 kV to 350 kV	6.1 m (20 ft)
350 kV to 500 kV	7.7 m (25 ft)
500 kV to 750 kV	10.7 m (35 ft)
750 kV to 1,000 kV	13.8 m (45 ft)

09801-03002

5. Caution for operating pattern (09822-03000)
 Standard machine
 In order to prevent an accident resulting in injury or death caused by error-operation, confirm the machine motion and indicated operating pattern, when operating machines. Pay attention to the circumference and operate slowly when confirming the machine motion.

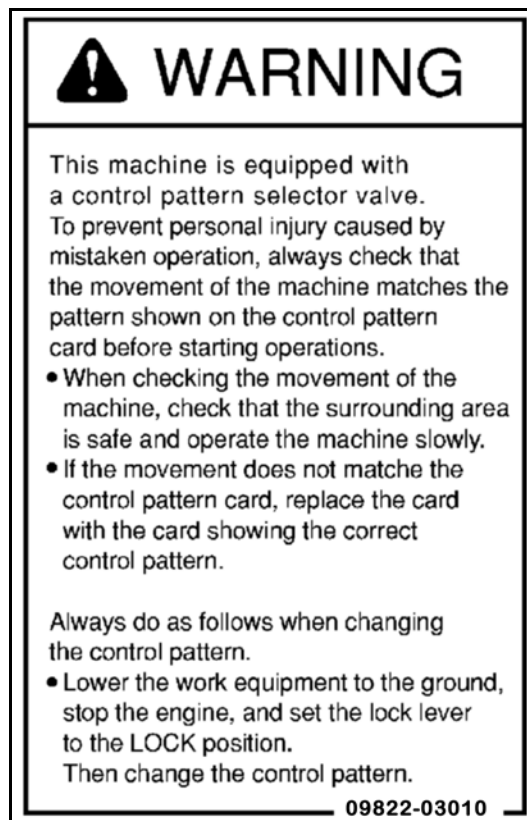
WARNING

In order to prevent an accident resulting in injury or death caused by error-operation, confirm the machine motion and indicated operating pattern, when operating machines. Pay attention to the circumference and operate slowly when confirming the machine motion.

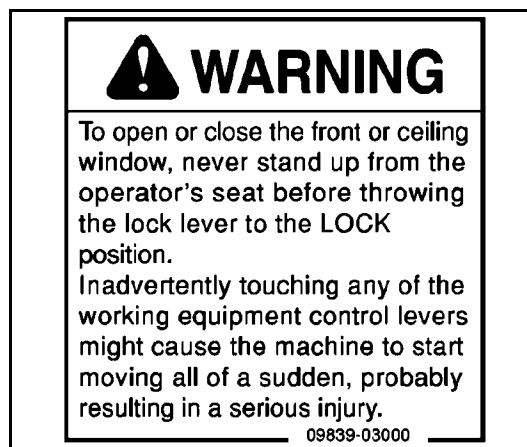
ISO pattern

09822-03000

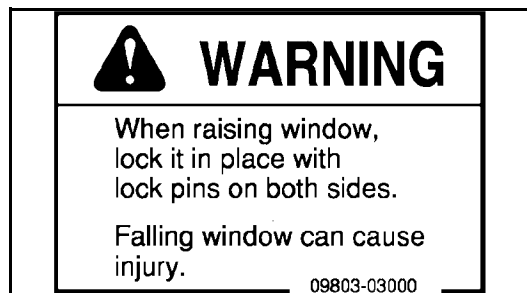
6. Caution for operating pattern (if equipped) (09822-03010)
 Machine equipped with operating pattern selector valve
 This machine is equipped with a control pattern selector valve.
 To prevent personal injury caused by mistaken operation, always check that the movement of the machine matches the pattern shown on the control pattern card before starting operations.
- When checking the movement of the machine, check that the surrounding area is safe and operate the machine slowly.
 - If the movement does not match the control pattern card, replace the card showing the correct control pattern.
- Always do as follows when changing the control pattern.
- Lower the work equipment to the ground, stop the engine, and set the lock lever to the LOCK position. Then change the control pattern.



7. Caution when opening or closing front window (09839-03000)
 To open or close the front or ceiling window, never stand up from the operator's seat before throwing the lock lever to the LOCK position.
 Inadvertently touching any of the working equipment control levers might cause the machine to start moving all of a sudden, probably resulting in a serious injury.



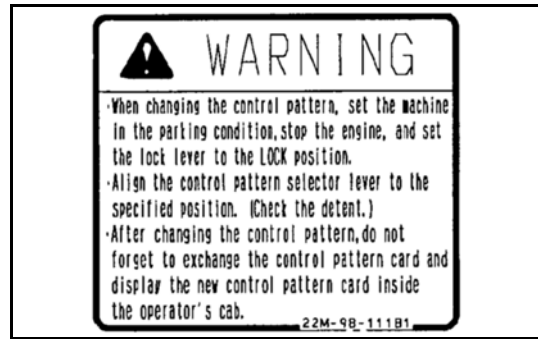
8. Caution when stowing front window (09803-03000)
 When raising window, lock it in place with lock pins on both sides.
 Falling window can cause injury.



SAFETY

9. Caution when switching operating pattern (22M-98-11181)
Machine equipped with operating pattern selector valve (if equipped)

- When changing the control pattern, set the machine in the parking condition, stop the engine, and set the lock lever to the LOCK position.
- Align the control pattern selector lever to the specified position. (Check the detent.)
- After changing the control pattern, do not forget to exchange the control pattern card and display the new control pattern card inside the operator's cab.



10. Caution with high-temperature coolant (09668-03001)
Hot water hazard.

To prevent hot water from spurting out:

- Turn engine off.
- Allow water to cool.
- Slowly loosen cap to relieve pressure before removing.



11. Caution with high-temperature hydraulic oil (09653-03001)
Hot oil hazard.

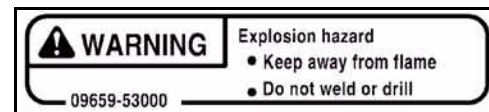
To prevent hot oil from spurting out:

- Turn engine off.
- Allow oil to cool.
- Slowly loosen cap to relieve pressure before removing.



12. Caution when handling accumulator (09659-53000)
Explosion hazard

- Keep away from flame.
- Do not weld or drill.



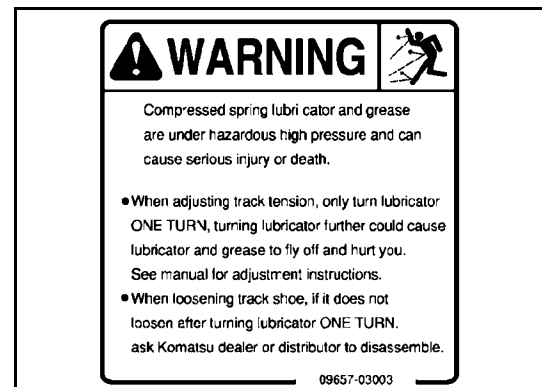
13. Caution when adjusting track tension (09657-03003)
Compressed spring lubricator and grease are under hazardous high pressure and can cause serious injury or death.

- When adjusting track tension, only turn lubricator ONE TURN, turning lubricator further could cause lubricator and grease to fly out and hurt you.

See manual for adjustment instructions.

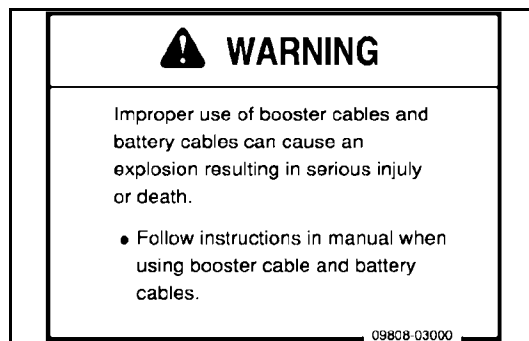
- When loosening track shoe, if it does not loosen after turning ONE TURN.

Ask Komatsu dealer or distributor to disassemble.



14. Caution when handling cable (09808-03000)
Improper use of booster cables and battery cables can cause an explosion resulting in serious injury or death.

- Follow instructions in manual when using booster cable and battery cables.



15. Caution when handling battery (09664-30011)



EXPLOSIVE GASES

Cigarettes, flames or sparks could cause battery to explode. Always shield eyes and face from battery. Do not charge or use jumper cables or adjust post connections without order instruction and training.

KEEP VENT CAPS TIGHT AND LEVEL POSISON

Causes severe burns contains sulfuric acid in event of accident flush with water and call a physician immediately.

KEEP OUT OF REACH OF CHILDREN

16. Stop rotation during inspection and maintenance (09667-03001)

While engine is running:

1. Do not open cover.
2. Keep away from fan and fan-belt.



17. Prohibition to enter swing range (09133-23000)

Keep off swing area



SAFETY

18. Jump start prohibited (09842-A0481)

This safety label is fixed to the engine starting motor.
 Start the engine only after sitting down in the operator's seat.
 Do not attempt to start the engine by short-circuiting the engine starting circuit. Such an act may cause a serious bodily injury or fire.



Start the engine only after sitting down in the operator's seat.

Do not attempt to start the engine by short-circuiting the engine starting circuit. Such an act may cause a serious bodily injury or fire.

19. Caution for work equipment (09134-A0881)

Sign indicates a hazard of being hit by the working device of the machine.
 Keep away from machine during operation.



Sign indicates a hazard of being hit by the working device of the machine.

Keep away from machine during operation.

20. Caution with high-temperature parts (09817-A0753)

Sign indicates a burn hazard from touching heated parts, such as engine, motor, or muffler during or right after operation.
 Never touch when hot.



Sign indicates a burn hazard from touching heated parts, such as engine, motor, or muffler during or right after operation.

Never touch when hot.

09817-A0753

This as a preview PDF file from best-manuals.com



Download full PDF manual at best-manuals.com