SEAM046100T

Operation & Maintenance Manual

KOMATSU®

PC78US-5

HYDRAULIC EXCAVATOR

SERIAL NUMBERS PC78US-5 –1001 and up

November 2001

Copyright 2001 Komatsu
DataKom Publishing Corporation

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Manual... Order the manual at mid-west-tech.com >

CONTENTS

FOREWORD

FOREWORD 1-2

SAFETY INFORMATION 1-5

INTRODUCTION 1-7
DIRECTIONS OF MACHINE 1-7

PRODUCT INFORMATION 1-8
MACHINE SERIAL NUMBER PLATE AND ITS LOCATION 1-8
ENGINE SERIAL NUMBER PLATE AND ITS LOCATION 1-8
SERVICE METER LOCATION 1-9
YOUR MACHINE SERIAL NUMBERS AND DISTRIBUTOR 1-9

SAFETY

SAFETY INFORMATION 2-2

POSITION FOR ATTACHING SAFETY LABELS 2-4
POSITION FOR ATTACHING SAFETY LABELS 2-5
SAFETY LABELS 2-6

SAFETY INFORMATION 2-10

SAFETY MACHINE OPERATION 2-19
STARTING ENGINE 2-19
OPERATION 2-21
TRANSPORTATION 2-27
BATTERY 2-29
TOWING 2-31
LIFTING OBJECTS WITH BUCKET 2-32

SAFETY MAINTENANCE INFORMATION 2-33

OPERATION

GENERAL VIEW 3-2
GENERAL VIEW OF MACHINE 3-2
GENERAL VIEW CONTROLS AND GAUGES 3-3

EXPLANATION OF COMPONENTS 3-4
MACHINE MONITOR 3-4
SWITCHES 3-10

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Man... Order the manual at mid-west-tech.com >

CONTROL LEVERS, PEDALS 3-15
CEILING WINDOW 3-18
FRONT WINDOW 3-19
SLIDING DOOR 3-22
REAR WINDOW 3-23
HAMMER FOR EMERGENCY ESCAPE 3-23
CAP, COVER WITH LOCK 3-24
ENGINE HOOD 3-25
RIGHT SIDE INSPECTION COVER 3-26
FUEL TANK FILLER COVER 3-27
FUSE 3-28
FUSIBLELINK 3-28
HANDLING AIR CONDITIONER 3-29
CAR RADIO 3-32
OPERATION AND MAINTENANCE MANUAL HOLDER 3-37
TOOL COMPARTMENT 3-37
GREASE GUN HOLDER 3-37
ASHTRAY 3-37

MACHINE OPERATIONS AND CONTROLS 3-38
BEFORE STARTING ENGINE 3-38
STARTING ENGINE 3-51
AFTER STARTING ENGINE 3-54
STOPPING THE ENGINE 3-57
CHECK AFTER SHUT OFF ENGINE 3-57
MACHINE OPERATION 3-58
STEERING THE MACHINE 3-62
SWINGING 3-64
WORK EQUIPMENT CONTROLS AND OPERATIONS 3-65
PROHIBITED OPERATIONS 3-67
GENERAL OPERATION INFORMATION 3-71
TRAVELING ON SLOPES 3-72
ESCAPE FROM MUD 3-74
RECOMMENDED APPLICATIONS 3-75
REPLACEMENT AND INVERSION OF BUCKET 3-77
PARKING MACHINE 3-81
CHECK AFTER FINISHING WORK 3-83
LOCKING 3-83
HANDLING RUBBER SHOE AND ROAD LINER 3-84

TRANSPORTATION 3-89
TRANSPORTATION PROCEDURE 3-89
LOADING AND UNLOADING WITH TRAILER 3-90
LIFTING MACHINE 3-96

COLD WEATHER OPERATION 3-98
COLD WEATHER OPERATION INFORMATION 3-98
AFTER DAILY WORK COMPLETION 3-100

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Man... Order the manual at mid-west-tech.com >

AFTER COLD WEATHER SEASON 3-101

LONG TERM STORAGE 3-102
BEFORE STORAGE 3-102
DURING STORAGE 3-102
AFTER STORAGE 3-103

TROUBLESHOOTING 3-104
AFTER RUNNING OUT OF FUEL 3-104
PHENOMENA THAT ARE NOT FAILURES 3-104
TOWING THE MACHINE 3-105
PRECAUTIONS ON PARTICULAR JOBSITES 3-105
DISCHARGED BATTERY 3-106
OTHER TROUBLE 3-111

MAINTENANCE

MAINTENANCE INFORMATION 4-2

LUBRICANTS, COOLANT AND FILTERS 4-5
OUTLINE OF OIL, FUEL, COOLANT 4-5
ELECTRIC SYSTEM MAINTENANCE 4-7
HANDLING HYDRAULIC SYSTEM 4-7

WEAR PARTS LIST 4-9

USE OF FUEL, COOLANT AND LUBRICANTS ACCORDING TO AMBIENT TEMPERATURE 4-10
PROPER SELECTION OF FUEL, COOLANT AND LUBRICANTS 4-10

TIGHTENING TORQUE SPECIFICATIONS 4-14
TIGHTENING TORQUE LIST 4-14

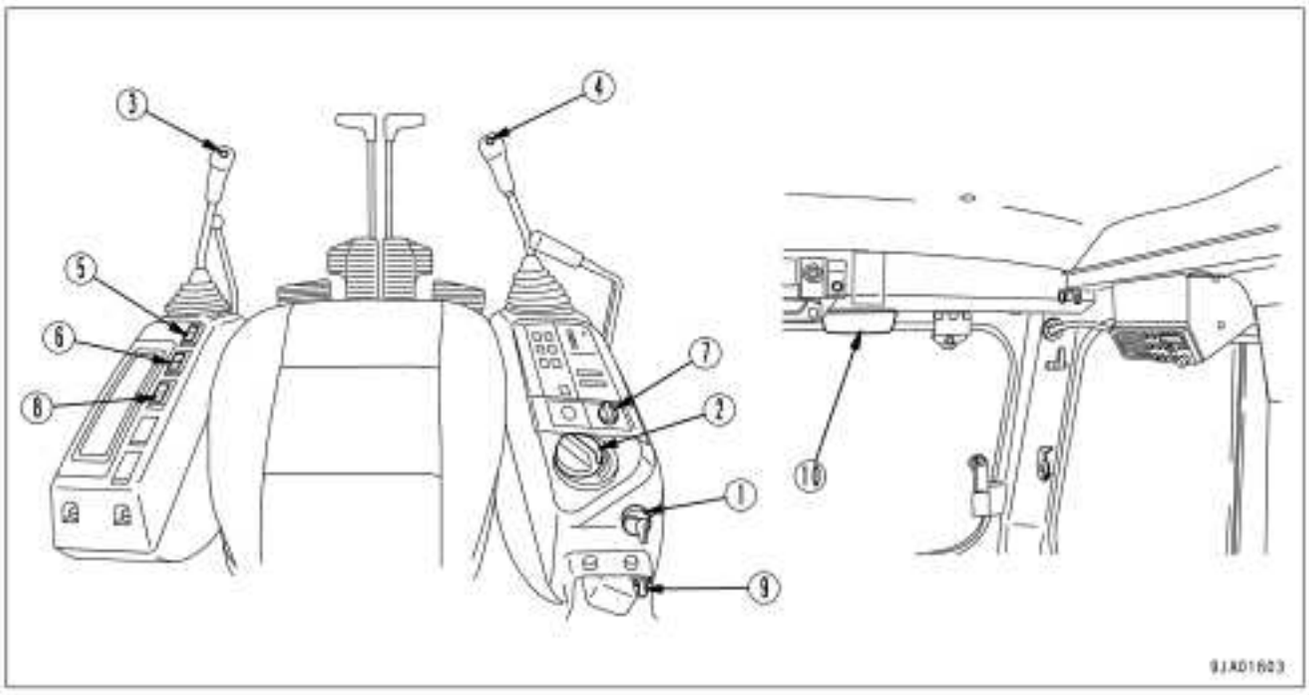
PERIODIC REPLACEMENT OF SAFETY CRITICAL PARTS 4-15
SAFETY CRITICAL PARTS 4-15

MAINTENANCE SCHEDULE 4-16
MAINTENANCE SCHEDULE CHART 4-16
MAINTENANCE INTERVAL FOR HYDRAULIC BREAKER 4-18

MAINTENANCE PROCEDURE 4-19
INITIAL 250 HOURS MAINTENANCE (ONLY AFTER THE FIRST 250 HOURS) 4-19
WHEN REQUIRED 4-20
CHECK BEFORE STARTING 4-53
EVERY 50 HOURS MAINTENANCE 4-54
EVERY 100 HOURS MAINTENANCE 4-55
EVERY 250 HOURS MAINTENANCE 4-57
EVERY 500 HOURS MAINTENANCE 4-62
EVERY 1000 HOURS MAINTENANCE 4-70
EVERY 2000 HOURS MAINTENANCE 4-72

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Man... Order the manual at mid-west-tech.com >

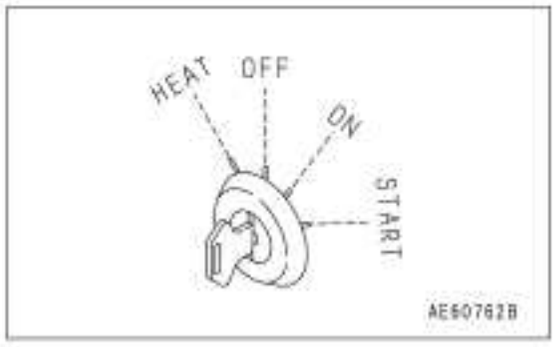
SWITCHES



(1) Starting switch
(2) Fuel control dial
(3) Swift deceleration switch
(4) Horn switch
(5) Travel speed selector switch
(6) Swing lock switch
(7) Lamp switch
(8) Wiper switch
(9) Swing brake cancel switch
(10) Room lamp switch

STARTING SWITCH

This switch (1) is used to start or stop the engine.



OFF position
The key can be inserted or withdrawn. The switches for the electric system are all turned off and the engine is stopped.

ON position
Electric current flows in the charging and lamp circuits. Keep the starting switch key at the ON position while the engine is running.

START position
This is the engine-start position. Keep the key at this position during cranking. Immediately after starting the engine, release the key. It will automatically return to the ON position.

HEAT (preheat) position
When starting the engine in winter, set the key to this position. When the key is set to the HEAT position, the pre-heating monitor lights up. Keep the key at this position until the monitor lamp flashes.Immediately after the pre-heating monitor flashes, release the key.The key automatically returns to the OFF position. Then, start the engine by turning the key to the START position.

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Man... Order the manual at mid-west-tech.com >

EVERY 2000 HOURS MAINTENANCE

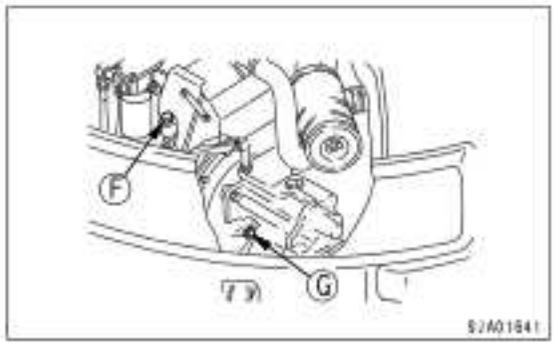
Maintenance for every 50, 100, 250, 500 and 1000 hours service should be carried out at the same time.

CHECK OIL LEVEL IN PTO GEAR CASE, ADD OIL

⚠ WARNING

- **The parts and oil are at high temperature after the engine is stopped, and may cause serious burns. Wait for the temperature to go down before starting the operation.**
- **If there is still pressure remaining inside the case, the oil or plug may fly out. Loosen the plug slowly to release the pressure.**

1. Remove oil inspection plug (G) and check that the oil is near the bottom of the check hole. If the oil level is low, add oil through oil filler (F) until the oil level is close to the bottom of the hole of plug hole.
2. Install plug (G).



CHECK ALTERNATOR, STARTING MOTOR

The brush may be worn, or the bearing may have run out of grease, so contact your Komatsu distributor for inspection or repair.

If the engine is started frequently, carry out inspection every 1000 hours.

CHECK ENGINE VALVE CLEARANCE, ADJUST

As special tool is required for removing and adjusting the parts, you shall request Komatsu distributor for service.

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Man... Order the manual at mid-west-tech.com >

LONG-TERM STORAGE

If the equipment is not to be used for a long period, do as follows.

- Set the stop valve to the LOCK position.
- Install the blind plugs and O-rings to the valves.
- Set the selector valve to the "when not use" position.
- Lock the lock pin to the lock position.

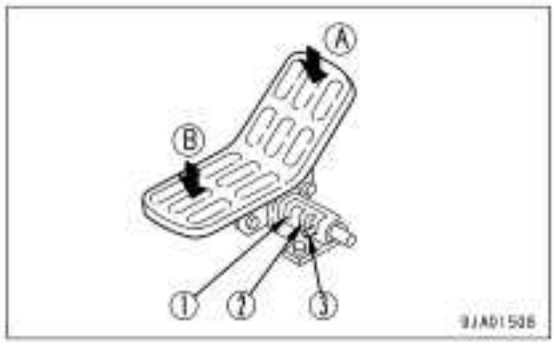
If the pedal is operated when there is no breaker or general attachment installed, it will cause overheating and other problems.

SPECIFICATIONS

Hydraulic specifications

- Flow

Lock pin position		Flow	
		A	B
1	Pedal lock	—	—
2	Half stroke	55 liters (14.52 US gal)/min	45 liters (11.88 US gal)/min
3	Full stroke	110 liters (29.04 US gal)/min	90 liters (23.76 US gal)/min



- Safety valve cracking pressure

When using breaker: 17.17 MPa (175 kg/cm^2, 2485 PSI)

When using other attachments: 25.51 MPa (260 kg/cm^2, 3692 PSI)

MidWestTech | Komatsu PC78US-5 Hydraulic Excavator Operation & Maintenance Man... Order the manual at mid-west-tech.com >