SEN06574-07

Shop Manual

COMPACT
HYDRAULIC
EXCAVATOR

PC45MR-5
PC55MR-5

SERIAL NUMBERS PC45MR-30001 and up
PC55MR-20001

KOMATSU®

MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publication SEN06574-07

Order the manual at mid-west-tech.com >

INDEX

00 INDEX AND FOREWORD 00-1
ABBREVIATION LIST 00-11
FOREWORD, SAFETY, BASIC INFORMATION 00-17
HOW TO READ THE SHOP MANUAL 00-17
SAFETY NOTICE FOR OPERATION 00-19
PRECAUTIONS TO PREVENT FIRE 00-27
ACTIONS IF FIRE OCCURS 00-29
PRECAUTIONS FOR DISPOSING OF WASTE MATERIALS 00-30
PRECAUTIONS FOR HANDLING HYDRAULIC EQUIPMENT 00-31
PRECAUTIONS FOR DISCONNECTION AND CONNECTION OF PIPINGS 00-34
PRECAUTIONS FOR HANDLING ELECTRICAL EQUIPMENT 00-41
PRECAUTIONS FOR HANDLING FUEL SYSTEM EQUIPMENT 00-43
PRECAUTIONS FOR HANDLING INTAKE SYSTEM EQUIPMENT 00-44
PRACTICAL USE OF KOMTRAX 00-45
DISCONNECT AND CONNECT PUSH-PULL TYPE COUPLER 00-46
PRECAUTIONS FOR DISCONNECTION AND CONNECTION OF CONNECTORS 00-50
METHOD FOR DISCONNECTING AND CONNECTING DEUTSCH CONNECTOR 00-54
METHOD FOR DISCONNECTING AND CONNECTING SLIDE LOCK TYPE CONNECTOR 00-55
METHOD FOR DISCONNECTING AND CONNECTING CONNECTOR WITH LOCK TO PULL 00-57
METHOD FOR DISCONNECTING AND CONNECTING CONNECTOR WITH LOCK TO PUSH 00-58
METHOD FOR DISCONNECTING AND CONNECTING CONNECTOR WITH HOUSING TO ROTATE 00-60
HOW TO READ ELECTRICAL WIRE CODE 00-61
EXPLANATION OF TERMS FOR MAINTENANCE STANDARD 00-65
STANDARD TIGHTENING TORQUE TABLE 00-68
CONVERSION TABLE 00-75
01 SPECIFICATIONS 01-1
CONTENTS 01-2
ABBREVIATION LIST 01-3
SPECIFICATIONS 01-9
SPECIFICATION DRAWING 01-9
WORKING RANGE DRAWINGS 01-13
SPECIFICATIONS 01-15
WEIGHT TABLE 01-23
TABLE OF FUEL, COOLANT, AND LUBRICANTS 01-27
10 STRUCTURE AND FUNCTION 10-1
CONTENTS 10-2
ABBREVIATION LIST 10-4
BOOT-UP SYSTEM 10-10
LAYOUT DRAWING OF BOOT-UP SYSTEM 10-10
SYSTEM OPERATING LAMP SYSTEM 10-12
BATTERY DISCONNECT SWITCH 10-14
ENGINE SYSTEM 10-15
LAYOUT DRAWING OF ENGINE SYSTEM 10-15
ENGINE CONTROL SYSTEM 10-16
AUTO-DECELERATION SYSTEM 10-20
OVERHEAT PREVENTION SYSTEM 10-22
AUTOMATIC IDLE STOP SYSTEM 10-24
COMPONENT PARTS OF ENGINE SYSTEM 10-26
COOLING SYSTEM 10-27
LAYOUT DRAWING OF COOLING SYSTEM 10-27
CONTROL SYSTEM 10-29
LAYOUT DRAWING OF CONTROL SYSTEM 10-29
MACHINE MONITOR SYSTEM 10-30
KOMTRAX SYSTEM 10-31
COMPONENT PARTS OF CONTROL SYSTEM 10-32

MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

HYDRAULIC SYSTEM 10-48
LAYOUT DRAWING OF HYDRAULIC SYSTEM 10-48
CLSS 10-50
ENGINE AND PUMP COMBINED CONTROL SYSTEM 10-53
COMPONENT PARTS OF HYDRAULIC SYSTEM 10-56
WORK EQUIPMENT SYSTEM 10-118
LAYOUT DRAWING OF WORK EQUIPMENT SYSTEM 10-118
STRUCTURE OF VALVE CONTROL 10-122
PPC LOCK SYSTEM 10-124
WORK EQUIPMENT AND TRAVEL AUTOMATIC LOCK SYSTEM 10-126
OIL FLOW ADJUSTER SYSTEM FOR ATTACHMENT 10-127
COMPONENT PARTS OF WORK EQUIPMENT SYSTEM 10-129
SWING SYSTEM 10-145
LAYOUT DRAWING OF SWING SYSTEM 10-145
COMPONENT PARTS OF SWING SYSTEM 10-146
TRAVEL SYSTEM 10-156
LAYOUT DRAWING OF TRAVEL SYSTEM 10-156
TRAVEL CONTROL SYSTEM DIAGRAM 10-158
COMPONENT PARTS OF TRAVEL SYSTEM 10-160
UNDERCARRIAGE AND FRAME 10-171
LAYOUT DRAWING OF UNDERCARRIAGE 10-171
IDLER CUSHION 10-172
WORK EQUIPMENT 10-173
STRUCTURE OF WORK EQUIPMENT 10-173
FUNCTION OF WORK EQUIPMENT 10-174
WORK EQUIPMENT CLEARANCE ADJUSTMENT SHIM 10-175
CAB AND ITS ATTACHMENTS 10-176
ROPS CAB 10-176
TILT TYPE FLOOR 10-177
20 STANDARD VALUE TABLE 20-1
CONTENTS 20-2
ABBREVIATION LIST 20-3
STANDARD VALUE TABLE FOR ENGINE 20-9
STANDARD VALUE TABLE FOR ENGINE: PC45MR-5 20-9
STANDARD VALUE TABLE FOR ENGINE: PC55MR-5 20-11
STANDARD VALUE TABLE FOR MACHINE 20-13
STANDARD VALUE TABLE FOR MACHINE: PC45MR-5 20-13
STANDARD VALUE TABLE FOR MACHINE: PC55MR-5 20-25
MACHINE POSTURE AND PROCEDURE FOR MEASURING PERFORMANCE 20-37
30 TESTING AND ADJUSTING 30-1
CONTENTS 30-2
ABBREVIATION LIST 30-5
RELATED INFORMATION ON TESTING AND ADJUSTING 30-11
TOOLS FOR TESTING AND ADJUSTING 30-11
SKETCH OF TOOLS FOR TESTING AND ADJUSTING 30-15
ENGINE AND COOLING SYSTEM 30-17
TEST ENGINE SPEED 30-17
TEST EXHAUST GAS COLOR 30-19
TEST AND ADJUST VALVE CLEARANCE 30-21
TEST COMPRESSION PRESSURE 30-23
TEST ENGINE OIL PRESSURE 30-25
BLEED AIR FROM FUEL SYSTEM 30-27
TEST FUEL CIRCUIT FOR LEAKAGE 30-29
HANDLE CYLINDER CUT-OUT MODE OPERATION 30-30
TEST AND ADJUST ALTERNATOR BELT TENSION 30-31
TEST AND ADJUST AIR CONDITIONER COMPRESSOR BELT TENSION 30-32
POWER TRAIN 30-34
TEST SWING CIRCLE BEARING CLEARANCE 30-34

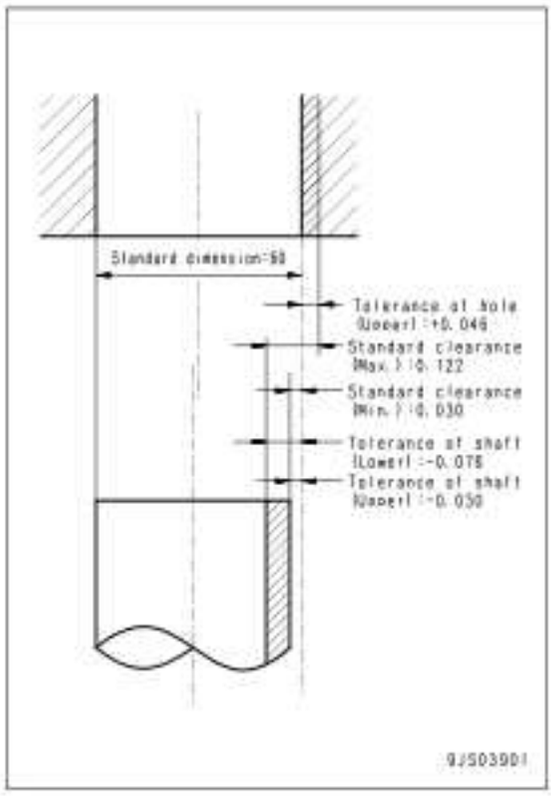
MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

UNDERCARRIAGE AND FRAME 30-35
TEST AND ADJUST TRACK TENSION 30-35
HYDRAULIC SYSTEM 30-37
RELEASE REMAINING PRESSURE FROM HYDRAULIC SYSTEM 30-37
TEST AND ADJUST OIL PRESSURE IN WORK EQUIPMENT, TRAVEL, AND BOOM SWING CIRCUITS 30-43
TEST AND ADJUST SWING AND BLADE CIRCUIT OIL PRESSURE 30-54
TEST AND ADJUST OIL PRESSURE OF CONTROL CIRCUIT 30-61
ADJUST OIL PRESSURE IN PUMP PC CONTROL CIRCUIT 30-65
TEST AND ADJUST OIL PRESSURE IN PUMP LS CONTROL CIRCUIT 30-67
TEST OUTLET PRESSURE OF SOLENOID VALVE 30-71
TEST PPC VALVE OUTLET PRESSURE 30-74
ADJUST WORK EQUIPMENT AND SWING PPC VALVES 30-79
TEST SWING PARKING BRAKE RELEASE PRESSURE 30-80
TEST AND ADJUST TRAVEL DEVIATION 30-82
TEST THE PARTS CAUSING HYDRAULIC DRIFT IN WORK EQUIPMENT 30-85
TEST OIL LEAKAGE 30-87
BLEED AIR FROM HYDRAULIC CIRCUIT 30-90
PRESSURIZE HYDRAULIC TANK 30-93
CAB AND ITS ATTACHMENTS 30-94
METHOD FOR OPENING AND CLOSING FLOOR UNIT 30-94
ELECTRICAL SYSTEM 30-104
SET AND OPERATE MACHINE MONITOR 30-104
METHOD FOR STARTING UP KOMTRAX TERMINAL 30-155
HANDLE VOLTAGE CIRCUIT OF ENGINE CONTROLLER 30-160
TEST DIODES 30-161
40 TROUBLESHOOTING 40-1
CONTENTS 40-2
ABBREVIATION LIST 40-6
RELATED INFORMATION ON TROUBLESHOOTING 40-12
GENERAL TROUBLESHOOTING POINTS 40-12
SEQUENCE OF EVENTS IN TROUBLESHOOTING 40-13
CHECKS BEFORE TROUBLESHOOTING 40-15
INSPECTION PROCEDURE BEFORE TROUBLESHOOTING 40-17
TESTING IN ACCORDANCE WITH TESTING PROCEDURE 40-19
ELECTRICAL SYSTEM TROUBLESHOOTING - PREPARATION 40-53
PROCEDURE FOR TESTING AND TROUBLESHOOTING 40-56
SYMPTOMS OF FAILURE AND TROUBLESHOOTING NUMBERS 40-59
INFORMATION DESCRIBED IN TROUBLESHOOTING TABLE 40-63
CONNECTORS LIST AND LAYOUT 40-65
CONNECTOR CONTACT IDENTIFICATION (FOR 4D88E-7 ENGINE) 40-81
T-BRANCH BOX AND T-BRANCH ADAPTER TABLE 40-85
FUSE LOCATION TABLE 40-91
FAILURE CODES TABLE 40-95
TROUBLESHOOTING BY FAILURE CODE (DISPLAY OF CODE) 40-105
FAILURE CODE [989L00] 40-105
FAILURE CODE [989M00] 40-106
FAILURE CODE [989N00] 40-107
FAILURE CODE [AQ20R1] 40-108
FAILURE CODE [B@BCNS] 40-109
FAILURE CODE [D19JKZ] 40-110
FAILURE CODE [D811MC] 40-113
FAILURE CODE [D862KA] 40-114
FAILURE CODE [D8ALKA] 40-115
FAILURE CODE [D8ALKB] 40-117
FAILURE CODE [D8AQKR] 40-119
FAILURE CODE [DAF0KT] 40-121
FAILURE CODE [DAF0MB] 40-122

MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

Standard clearance and standard value

- The clearance made when new parts are assembled is called the standard clearance, which is indicated by the range from the minimum clearance to the maximum clearance.
- When some parts are repaired, the clearance is generally adjusted to the standard clearance.
- The values indicating performance and function of new products or equivalent are called "standard value", which is indicated by a range or a target value.
- When some parts are repaired, the value of performance/ function is set to the standard value.



Standard interference

- When the diameter of a hole of a part shown in the given standard dimension and tolerance table is smaller than that of the shaft to be inserted, the difference between those diameters is called "interference".
- Subtract the maximum dimension of the hole from the minimum dimension of the shaft and call it (A). Subtract the minimum dimension of the hole from the maximum dimension of the shaft and call it (B). The range between (A) and (B) is "standard interference".
- After repairing or replacing some parts, measure the dimension of their hole and shaft and check that the interference is in the standard range.

Repair limit and allowable value or allowable dimension

- The dimension of parts changes due to the wear or deformation while they are used. When the dimension changes exceeding certain value, parts cannot be used any longer. This value is called "repair limit".
- If a part is worn to the repair limit, it must be replaced or repaired.
- The performance and function of products lower while they are used. A value with which the product can be used without causing a problem is called "allowable value" or "allowable dimension".
- A product whose dimension is out of the allowable value, must be repaired. However, since the allowable values are generally estimated through various tests or experiences in most cases, the judgment must be made in consideration of the operating condition and customer's requirement.

Allowable clearance

- Parts can be used until the clearance between them is increased to a certain limit. The limit at which those parts cannot be used is called "allowable clearance".
- If the clearance between the parts exceeds the allowable clearance, they must be replaced or repaired.

Allowable interference

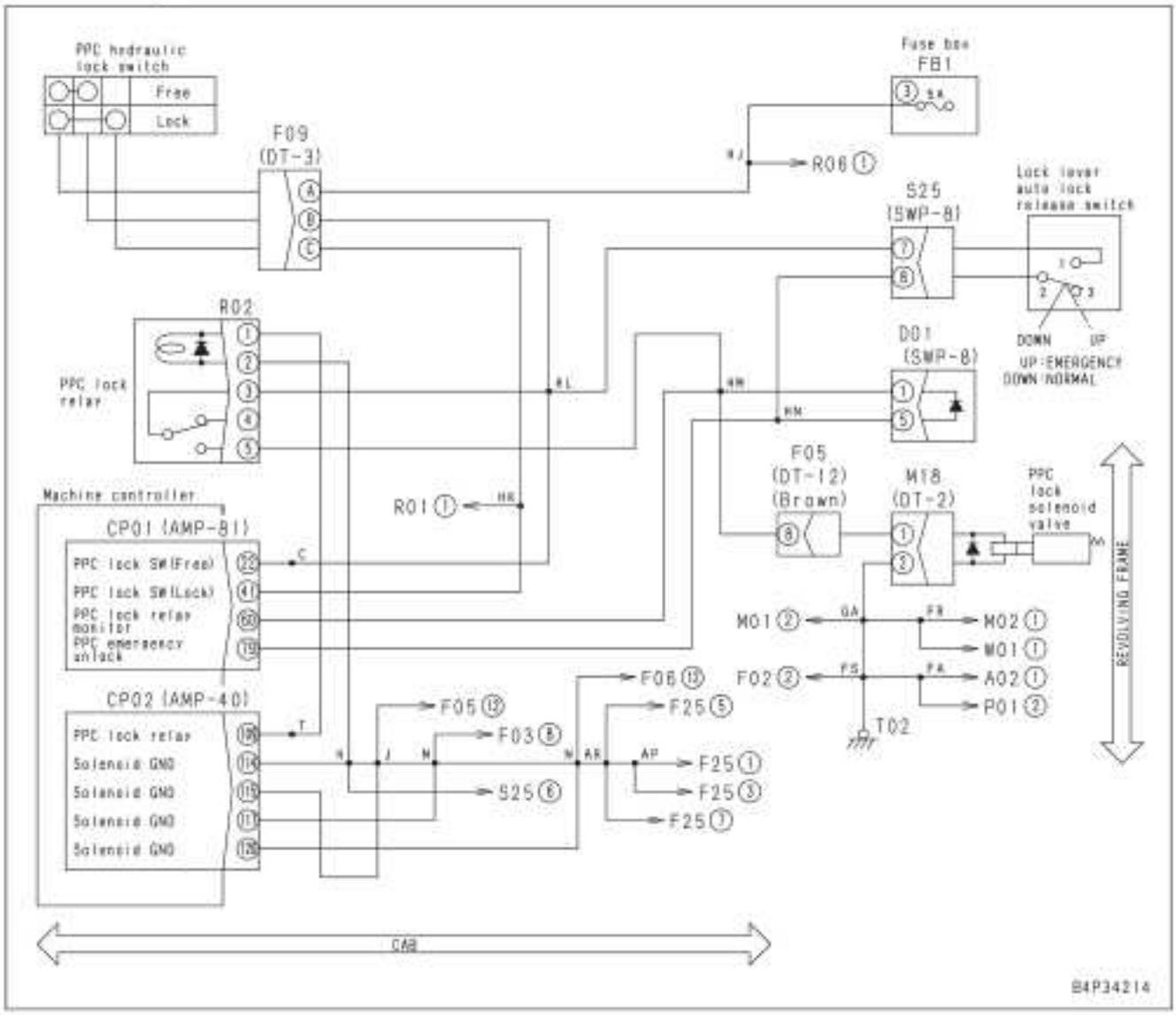
- The allowable maximum interference between the hole of a part and the shaft of another part to be assembled is called "allowable interference".
- The allowable interference shows the repair limit of the part of smaller tolerance.

MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

Failure code	Failure (Displayed on screen)	Applicable component	Action level	History category	Remarks
#B1146	FAILURE CODE [#B1146] Injector Drive Circuit (Bank1) Short Circuit	ENG	L03	Electrical system	*1
#B1149	FAILURE CODE [#B1149] Injector Drive Circuit (Bank2) Short Circuit	ENG	L03	Electrical system	*1
#B1192	FAILURE CODE [#B1192] Oil Pressure Switch Open Circuit	ENG	L01	Electrical system	*1
#B1198	FAILURE CODE [#B1198] Oil Pressure Low Error Alarm	ENG	L03	Mechanical system	*1
#B1231	FAILURE CODE [#B1231] Ambient Pressure Sensor Characteristic Error	ENG	L03	Electrical system	*1
#B1262	FAILURE CODE [#B1262] Injector of 1st Cylinder Short Circuit	ENG	L03	Electrical system	*1
#B1265	FAILURE CODE [#B1265] Injector of 2nd Cylinder Short Circuit	ENG	L03	Electrical system	*1
#B1268	FAILURE CODE [#B1268] Injector of 3rd Cylinder Short Circuit	ENG	L03	Electrical system	*1
#B1271	FAILURE CODE [#B1271] Injector of 4th Cylinder Short Circuit	ENG	L03	Electrical system	*1
#B1341	FAILURE CODE [#B1341] Cam Angle Offset Error	ENG	L01	Electrical system	*1
#B1404	FAILURE CODE [#B1404] EGR Voltage Low Error	ENG	L03	Electrical system	*1
#B1405	FAILURE CODE [#B1405] Short Circuit Between the EGR Motor Coils	ENG	L03	Electrical system	*1
#B1409	FAILURE CODE [#B1409] EGR Feedback Error	ENG	L03	Electrical system	*1
#B1410	FAILURE CODE [#B1410] EGR High Temperature Thermistor Error	ENG	L03	Electrical system	*1
#B1411	FAILURE CODE [#B1411] EGR Low Temperature Thermistor Error	ENG	L03	Electrical system	*1
#B1420	FAILURE CODE [#B1420] Ash Cleaning Request 2	ENG	L03	Electrical system	*1
#B1421	FAILURE CODE [#B1421] Stationary Regeneration Standby	ENG	L03	Electrical system	*1
#B1424	FAILURE CODE [#B1424] Backup Mode	ENG	L04	Electrical system	*1
#B1426	FAILURE CODE [#B1426] KDPF InterTemperature High Error (Post-injection)	ENG	L03	Electrical system	*1
#B1427	FAILURE CODE [#B1427] KDPF Inlet Temperature Sensor Error (Low Voltage)	ENG	L03	Electrical system	*1
#B1428	FAILURE CODE [#B1428] KDPF Inlet Temperature Sensor Error (High Voltage)	ENG	L03	Electrical system	*1
#B1434	FAILURE CODE [#B1434] KDPF Intermediate Temperature Sens Error(HighVolt)	ENG	L03	Electrical system	*1
#B1435	FAILURE CODE [#B1435] KDPF Intermediate Temperature Sens Error (LowVolt)	ENG	L03	Electrical system	*1

MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

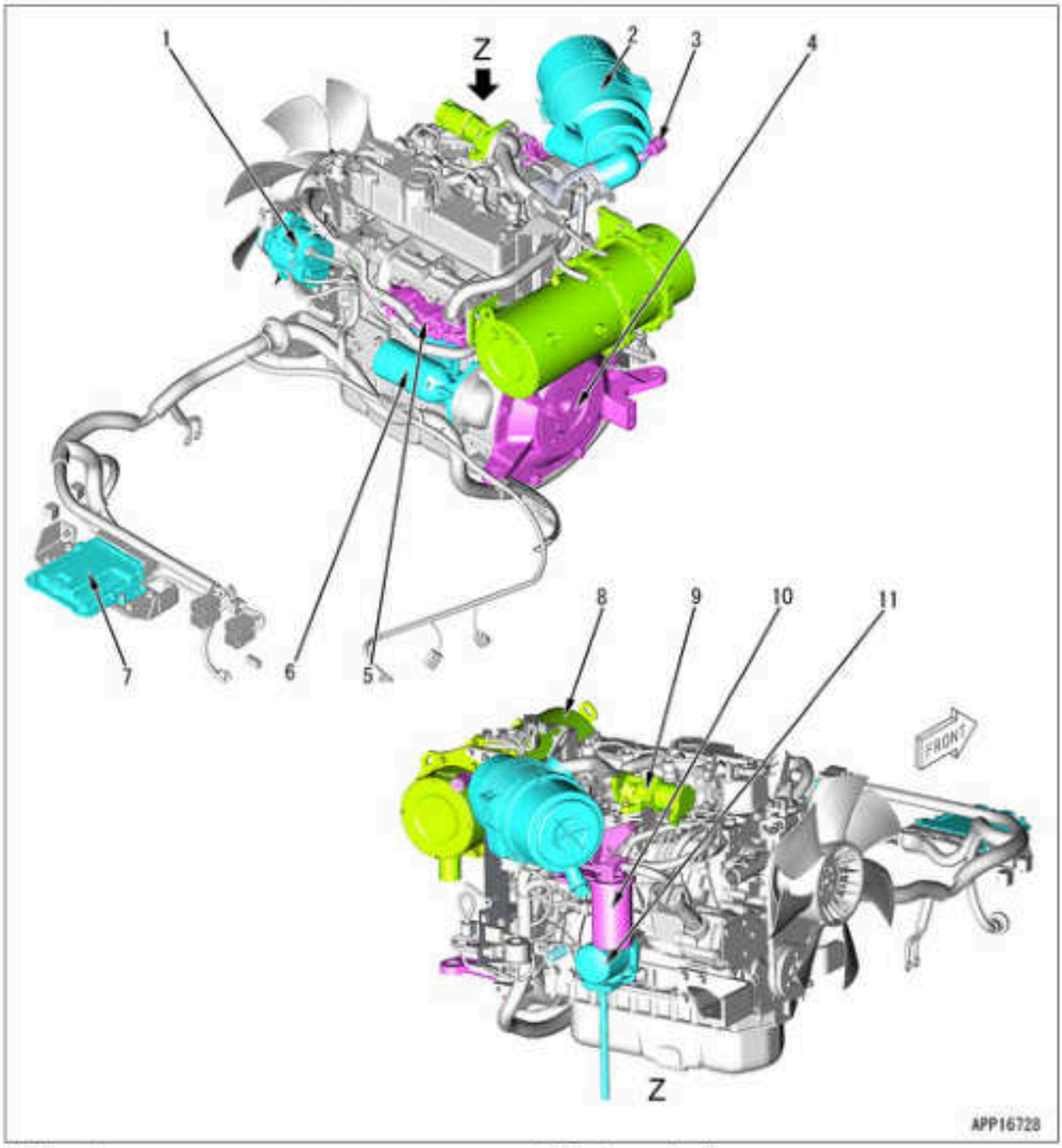
Circuit diagram related to PPC lock switch



MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

ENGINE SYSTEM

LAYOUT DRAWING OF ENGINE SYSTEM



1: Alternator
2: Air cleaner
3: Dust indicator
4: Flywheel
5: EGR cooler
6: Starting motor
7: Engine controller
8: KDPF
9: EGR valve
10: Fuel filter
11: Engine oil filter

MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

CAB AND ITS ATTACHMENTS

ROPS CAB

ROPS

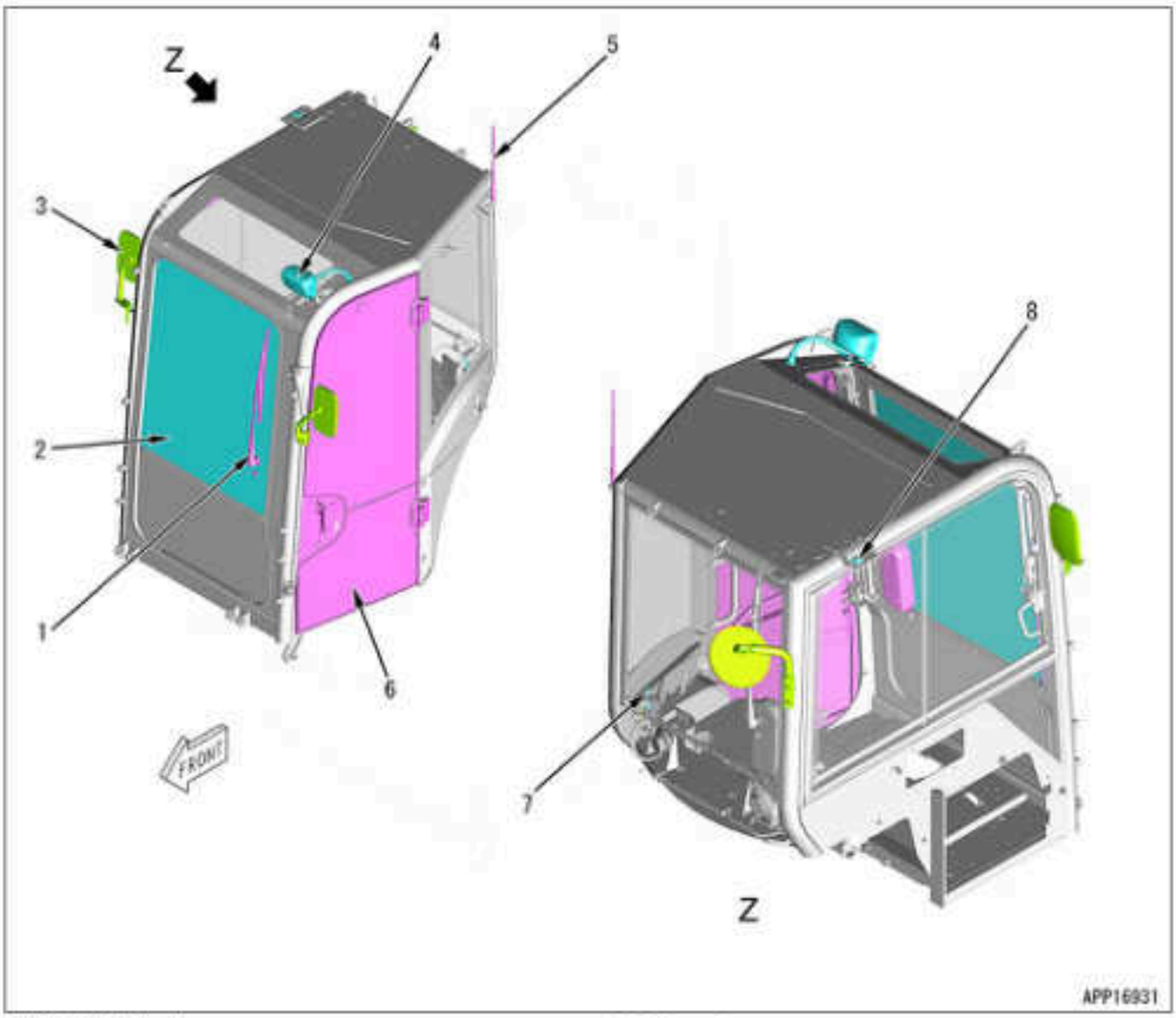
Abbreviation for Roll-Over Protective Structure

STRUCTURE OF ROPS CAB

REMARK

The figure shows the cab specifications.

General view



1: Windshield wiper
2: Front window
3: Mirror
4: Head lamp
5: Radio antenna
6: Door
7: KOMTRAX communication antenna
8: KOMTRAX GPS antenna

FUNCTION OF ROPS CAB

ROPS cab protects the operator wearing seat belt from being crushed when the machine rolls over.

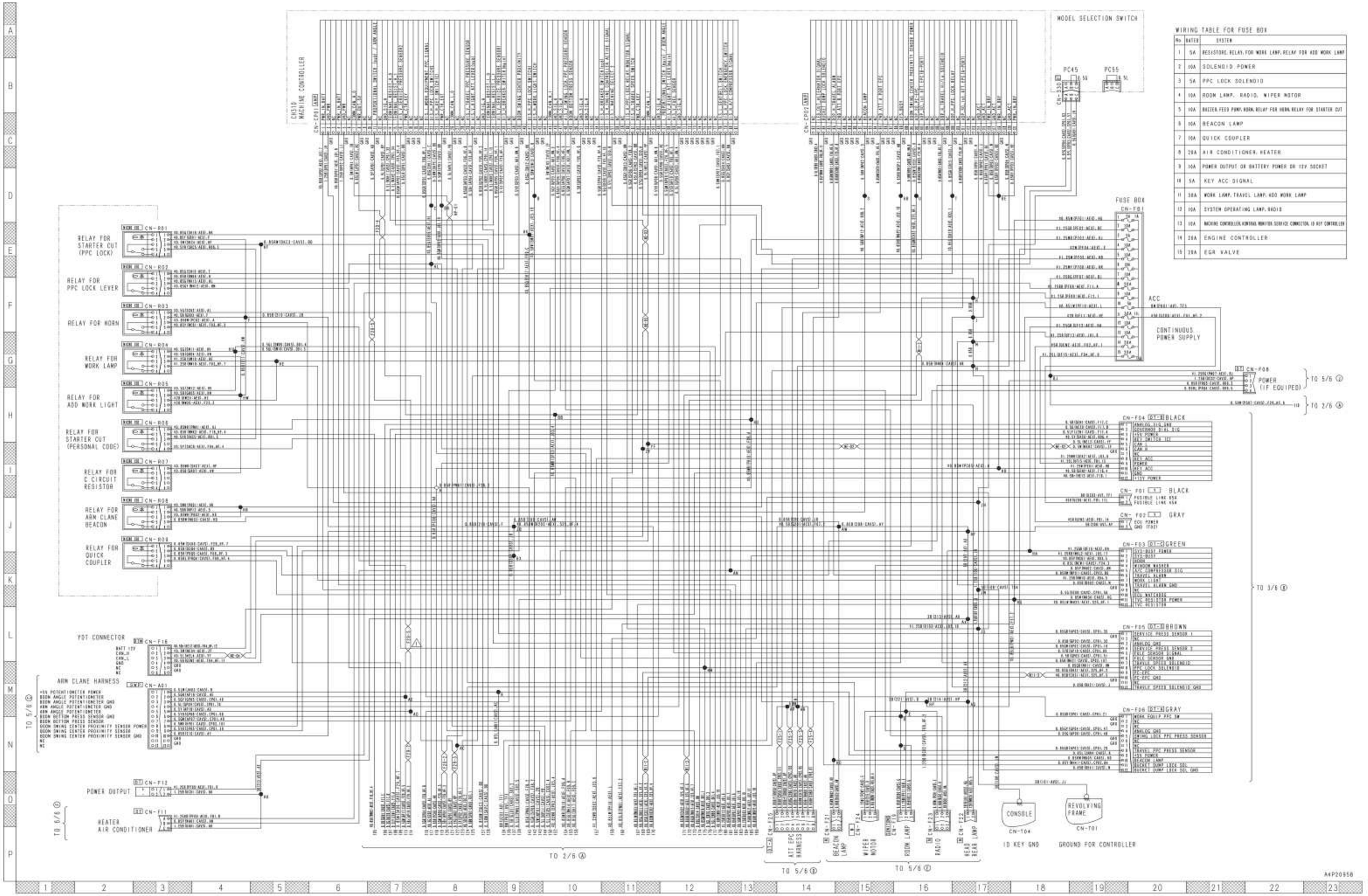
MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publ... Order the manual at mid-west-tech.com >

ELECTRICAL CIRCUIT DIAGRAM (CAB SPECIFICATIONS, QUICK COUPLER SPECIFICATIONS) (1/6)

PC45MR-5, PC55MR-5

REMARK

This figure covers the equipment and devices that are unavailable as optional items in some areas.



MidWestTech | Komatsu PC45MR-5, PC55MR-5 Mini Excavator Service Manual | Publication SEN06574-07

Order the manual at mid-west-tech.com >