SEN06576-01

Shop Manual

BULLDOZER

D85EXi -18
D85PXi -18

SERIAL NUMBERS 22083 and up

KOMATSU®

MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publication SEN06576-01

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

INDEX

00 INDEX AND FOREWORD 00-1
ABBREVIATION LIST 00-22
FOREWORD, SAFETY, BASIC INFORMATION 00-27
HOW TO READ THE SHOP MANUAL 00-27
SAFETY NOTICE FOR OPERATION 00-29
PRECAUTIONS TO PREVENT FIRE 00-37
ACTIONS IF FIRE OCCURS 00-39
PRECAUTIONS FOR DISPOSING OF WASTE MATERIALS 00-40
ACTIONS TAKEN TO MEET EXHAUST GAS REGULATIONS 00-41
PRECAUTIONS FOR DEF 00-42
STORE AdBlue/DEF 00-43
PRECAUTIONS FOR HANDLING HYDRAULIC EQUIPMENT 00-44
PRECAUTIONS FOR DISCONNECTION AND CONNECTION OF PIPINGS 00-46
PRECAUTIONS FOR HANDLING ELECTRICAL EQUIPMENT 00-52
PRECAUTIONS FOR HANDLING FUEL SYSTEM EQUIPMENT 00-54
PRECAUTIONS FOR HANDLING INTAKE SYSTEM EQUIPMENT 00-55
PRACTICAL USE OF KOMTRAX 00-56
DISCONNECT AND CONNECT PUSH-PULL TYPE COUPLER 00-57
PRECAUTIONS FOR DISCONNECTION AND CONNECTION OF CONNECTORS 00-61
METHOD FOR DISCONNECTING AND CONNECTING DEUTSCH CONNECTOR 00-65
METHOD FOR DISCONNECTING AND CONNECTING SLIDE LOCK TYPE CONNECTOR 00-66
METHOD FOR DISCONNECTING AND CONNECTING CONNECTOR WITH LOCK TO PULL ... 00-68
METHOD FOR DISCONNECTING AND CONNECTING CONNECTOR WITH LOCK TO PUSH .. 00-69
METHOD FOR DISCONNECTING AND CONNECTING CONNECTOR WITH HOUSING TO ROTATE 00-71
HOW TO READ ELECTRICAL WIRE CODE 00-72
EXPLANATION OF TERMS FOR MAINTENANCE STANDARD 00-76
STANDARD TIGHTENING TORQUE TABLE 00-79
CONVERSION TABLE 00-86
01 SPECIFICATIONS 01-1
CONTENTS 01-2
ABBREVIATION LIST 01-3
SPECIFICATIONS 01-8
SPECIFICATION DRAWING 01-8
SPECIFICATIONS 01-11
WEIGHT TABLE 01-22
TABLE OF FUEL, COOLANT, AND LUBRICANTS 01-26
10 STRUCTURE AND FUNCTION 10-1
CONTENTS 10-2
ABBREVIATION LIST 10-6
UREA SCR SYSTEM 10-11
LAYOUT DRAWING OF UREA SCR SYSTEM 10-11
UREA SCR SYSTEM DIAGRAM 10-14
FUNCTION OF UREA SCR SYSTEM 10-15
COMPONENT PARTS OF UREA SCR SYSTEM 10-29
BOOT-UP SYSTEM 10-38
LAYOUT DRAWING OF BOOT-UP SYSTEM 10-38
SYSTEM OPERATING LAMP SYSTEM 10-39
BATTERY DISCONNECT SWITCH 10-41
ENGINE SYSTEM 10-43
LAYOUT DRAWING OF ENGINE SYSTEM 10-43
ENGINE CONTROL SYSTEM 10-45
AUTOMATIC IDLE STOP SYSTEM 10-50
COMPONENT PARTS OF ENGINE SYSTEM 10-53
COOLING SYSTEM 10-72
LAYOUT DRAWING OF COOLING SYSTEM 10-72

MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

COOLING FAN CONTROL SYSTEM ... 10-74
COMPONENT PARTS OF COOLING SYSTEM ... 10-77
CONTROL SYSTEM ... 10-94
LAYOUT DRAWING OF CONTROL SYSTEM ... 10-94
MACHINE MONITOR SYSTEM ... 10-95
KOMTRAX SYSTEM ... 10-96
COMPONENT PARTS OF CONTROL SYSTEM ... 10-97
HYDRAULIC SYSTEM ... 10-129
LAYOUT DRAWING OF HYDRAULIC SYSTEM ... 10-129
CLSS ... 10-130
COMPONENT PARTS OF HYDRAULIC SYSTEM ... 10-133
POWER TRAIN SYSTEM ... 10-190
LAYOUT DRAWING OF POWER TRAIN SYSTEM ... 10-190
OPERATION OF POWER TRAIN SYSTEM ... 10-192
TRANSMISSION, STEERING, AND BRAKE CONTROL ... 10-193
PALM COMMAND CONTROL SYSTEM ... 10-196
HSS SYSTEM ... 10-200
CENTRALIZED PRESSURE PICKUP PORT ... 10-203
COMPONENT PARTS OF POWER TRAIN SYSTEM ... 10-205
WORK EQUIPMENT SYSTEM ... 10-269
WORK EQUIPMENT CONTROL ... 10-269
LAYOUT DRAWING OF FRONT WORK EQUIPMENT ... 10-272
LAYOUT OF FIXED MULTI-SHANK RIPPER ... 10-273
COMPONENT PARTS OF WORK EQUIPMENT SYSTEM ... 10-274
ICT SYSTEM ... 10-296
LAYOUT DRAWING OF ICT SYSTEM ... 10-296
ICT CONTROL SYSTEM DIAGRAM ... 10-298
BLADE CONTROL SYSTEM ... 10-300
SMOOTH START SYSTEM ... 10-306
SLIP CONTROL SYSTEM ... 10-308
ASSIST CONTROL SYSTEM ... 10-310
COMPONENT PARTS OF ICT SYSTEM ... 10-312
UNDERCARRIAGE AND FRAME ... 10-334
MAIN FRAME ... 10-334
SUSPENSION ... 10-335
TRACK FRAME AND IDLER CUSHION ... 10-339
WORK EQUIPMENT ... 10-341
STRUCTURE OF FRONT WORK EQUIPMENT ... 10-341
STRUCTURE OF CYLINDER STAY ... 10-343
STRUCTURE OF FIXED MULTI-SHANK RIPPER ... 10-344
CAB AND ITS ATTACHMENTS ... 10-345
ROPS CAB ... 10-345
CAB MOUNT ... 10-347
20 STANDARD VALUE TABLE ... 20-1
CONTENTS ... 20-2
ABBREVIATION LIST ... 20-3
STANDARD VALUE TABLE FOR ENGINE ... 20-8
STANDARD VALUE TABLE FOR ENGINE: D85EXI-18 ... 20-8
STANDARD VALUE TABLE FOR ENGINE: D85PXI-18 ... 20-12
STANDARD VALUE TABLE FOR MACHINE ... 20-16
STANDARD VALUE TABLE FOR MACHINE: D85EXI-18 ... 20-16
STANDARD VALUE TABLE FOR MACHINE: D85PXI-18 ... 20-34
MACHINE POSTURE AND PROCEDURE FOR MEASURING PERFORMANCE ... 20-50
STANDARD VALUE TABLE FOR ELECTRICAL ... 20-53
STANDARD VALUE TABLE FOR ELECTRICITY ... 20-53
30 TESTING AND ADJUSTING ... 30-1
CONTENTS ... 30-2
ABBREVIATION LIST ... 30-6

MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

RELATED INFORMATION ON TESTING AND ADJUSTING 30-11
TOOLS FOR TESTING AND ADJUSTING 30-11
SKETCH OF TOOLS FOR TESTING AND ADJUSTING 30-19
ENGINE AND COOLING SYSTEM 30-23
TEST ENGINE SPEED 30-23
TEST BOOST PRESSURE 30-27
TEST EXHAUST GAS TEMPERATURE 30-29
TEST EXHAUST GAS COLOR 30-31
TEST AND ADJUST VALVE CLEARANCE 30-35
TEST COMPRESSION PRESSURE 30-38
TEST BLOWBY PRESSURE 30-42
TEST ENGINE OIL PRESSURE 30-45
TEST EGR VALVE AND KVGT OIL PRESSURE 30-47
TEST FUEL PRESSURE 30-49
TEST FUEL DISCHARGE, RETURN AND LEAKAGE 30-51
BLEED AIR FROM FUEL SYSTEM 30-55
TEST FUEL CIRCUIT FOR LEAKAGE 30-57
HANDLE CYLINDER CUT-OUT MODE OPERATION 30-59
HANDLE NO-INJECTION CRANKING OPERATION 30-60
TEST AND ADJUST AIR CONDITIONER COMPRESSOR BELT TENSION 30-61
CLEAN FUEL DOSER 30-63
WRITE INJECTOR COMPENSATION VALUE TO ENGINE CONTROLLER 30-66
WRITE ASH IN SOOT ACCUMULATION CORRECTION TO ENGINE CONTROLLER 30-72
TEST SCR RELATED FUNCTIONS 30-73
CLEAN AdBlue/DEF TANK 30-98
CLEAN AdBlue/DEF TANK MOUNTING PORTION 30-102
ADJUST DECELERATOR PEDAL 30-103
POWER TRAIN 30-105
TEST POWER TRAIN OIL PRESSURE 30-105
ADJUST TRANSMISSION OUTPUT SHAFT SPEED SENSOR 30-117
TEST BRAKE PERFORMANCE SIMPLY 30-119
ADJUST BRAKE PEDAL 30-120
ADJUST PARKING BRAKE LEVER 30-122
MOVE MACHINE BY RELEASING PARKING BRAKE WHEN MACHINE DOES NOT TRAVEL 30-124
UNDERCARRIAGE AND FRAME 30-127
ADJUST IDLER CLEARANCE 30-127
TEST AND ADJUST TRACK TENSION 30-129
HYDRAULIC SYSTEM 30-130
RELEASE REMAINING PRESSURE FROM HYDRAULIC SYSTEM 30-130
TEST AND ADJUST WORK EQUIPMENT AND HSS OIL PRESSURES 30-131
TEST OIL PRESSURE OF CONTROL CIRCUIT 30-136
TEST PPC VALVE OUTPUT PRESSURE 30-138
BLEED AIR FROM HSS PUMP 30-141
TEST AND ADJUST PLAY OF WORK EQUIPMENT PPC VALVE 30-142
TEST COOLING FAN SPEED 30-144
TEST COOLING FAN CIRCUIT OIL PRESSURE 30-145
BLEED AIR FROM COOLING FAN PUMP 30-147
TEST THE PARTS CAUSING HYDRAULIC DRIFT IN WORK EQUIPMENT 30-148
TEST INTERNAL OIL LEAKAGE OF WORK EQUIPMENT CYLINDER 30-150
BLEED AIR FROM WORK EQUIPMENT CYLINDERS 30-152
WORK EQUIPMENT 30-153
ADJUST WORK EQUIPMENT LOCK LEVER 30-153
CAB AND ITS ATTACHMENTS 30-154
TEST AND ADJUST OPERATOR'S CAB 30-154
ELECTRICAL SYSTEM 30-159
SETTING AND OPERATION MACHINE MONITOR 30-159
METHOD FOR STARTING UP KOMTRAX TERMINAL 30-273
ADJUST WHEN POWER TRAIN CONTROLLER IS REPLACED 30-278

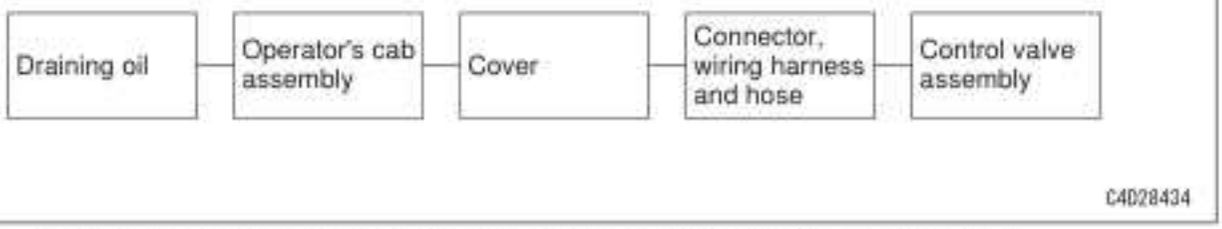
MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

SYMPTOM AND TROUBLESHOOTING NUMBERS

No.	Symptom of failure	Troubleshooting Index
	User code, failure code	
1	Action level is displayed on the machine monitor. Press function switch [F5] to display "Current Abnormality"	Perform troubleshooting for failure code
2	Failure code is displayed on mechanical system abnormality record	
3	Failure code is displayed on electrical system abnormality record	
	Symptom related to engine	
4	Engine does not start (engine does not rotate).	E-1, S-1
5	Engine does not crank when starting switch is turned to "START" position.	E-1, S-1
6	Engine cranks but no exhaust smoke comes out	S-2
7	Fuel is being injected but engine does not start (misfiring: engine cranks but does not start)	S-3
8	Engine startability is poor	S-4
9	Engine does not pick-up smoothly	S-5
10	Engine stops during operation	
11	Engine runs rough or is unstable	S-7
12	Engine lacks power	S-8
13	Exhaust gas color is black (KDPF becomes clogged soon)	S-9
14	Engine oil consumption is excessive	S-10
15	Oil becomes contaminated early	S-11
16	Fuel consumption is excessive	S-12
17	Oil is in coolant (or coolant spurts back or coolant level goes down)	S-13
18	Engine oil pressure drops	S-14
19	Fuel mixes into engine oil	S-15
20	Water mixes into engine oil (milky)	S-16
21	Coolant temperature rises too high (overheating)	S-17
22	Unusual noise is heard	S-18
23	Vibration is excessive	S-19
24	Air cannot be bled from fuel circuit	S-20
25	Active regeneration is executed frequently	S-21
26	Active regeneration takes time	S-22
27	White smoke is exhausted during active regeneration	S-23
28	Consumption of AdBlue/DEF is excessive	S-24
29	There is unusual smell (irritating odor)	S-25
30	Foreign matters enter AdBlue/DEF (AdBlue/DEF increases)	S-26
31	Manual preheating system does not work	E-2
32	Automatic preheating system does not work	E-3
33	While preheating is working, preheating monitor does not light up	E-4

MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

REMOVE AND INSTALL CONTROL VALVE ASSEMBLY



⚠ Park the machine on a level ground, and set the parking brake lever to LOCK position.

⚠ Lower the work equipment to the ground, and set the work equipment lock lever to LOCK position.

⚠ Turn the starting switch to OFF position to stop the engine.

⚠ Turn the battery disconnect switch to OFF position, and remove the key. (For details, see TESTING AND ADJUSTING, "HANDLE BATTERY DISCONNECT SWITCH".)

⚠ If you drain the radiator coolant when it is still hot, you may be scalded. Wait for the coolant temperature to drop before draining.

⚠ If you drain the hydraulic oil when it is still hot, you may be scalded. Wait for the oil temperature to drop before draining.

⚠ Check the connector numbers and installed positions before disconnecting wiring harnesses and hoses, and record them.

⚠ When disconnecting the wiring harnesses or hoses, take extreme care not to damage or deform the wiring harnesses or hoses by the clips and clamps. If the wiring harnesses and hoses may be damaged or deformed, remove the clips and clamps before disconnecting them.

METHOD FOR REMOVING CONTROL VALVE ASSEMBLY

Draining oil

1. Drain hydraulic oil from the hydraulic tank.

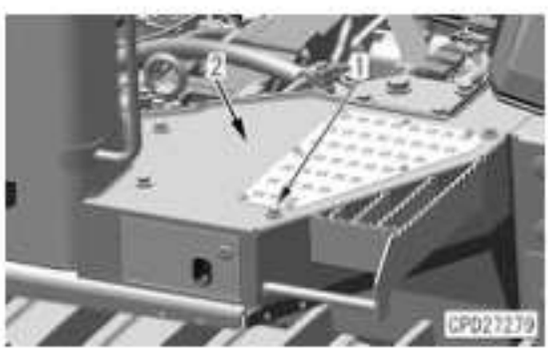
   Hydraulic tank:
   69 ℓ

Operator's cab assembly

2. Remove the operator's cab assembly. For details, see "REMOVE AND INSTALL OPERATOR'S CAB ASSEMBLY".

Cover

3. Remove mounting bolts (1) (4 pieces), and remove step cover (2) at the entrance of cab on the right side of the machine.



MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

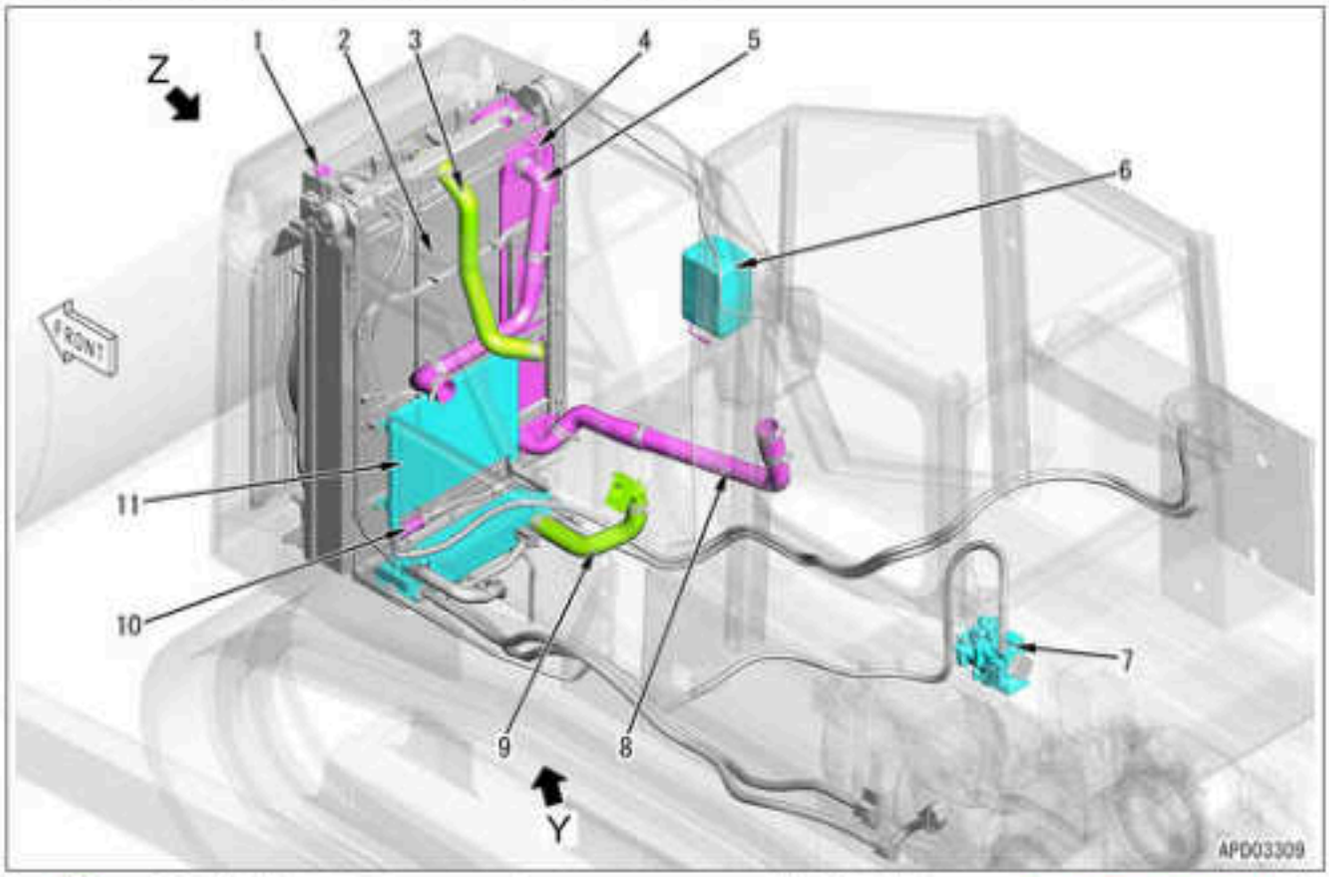
Unit: mm

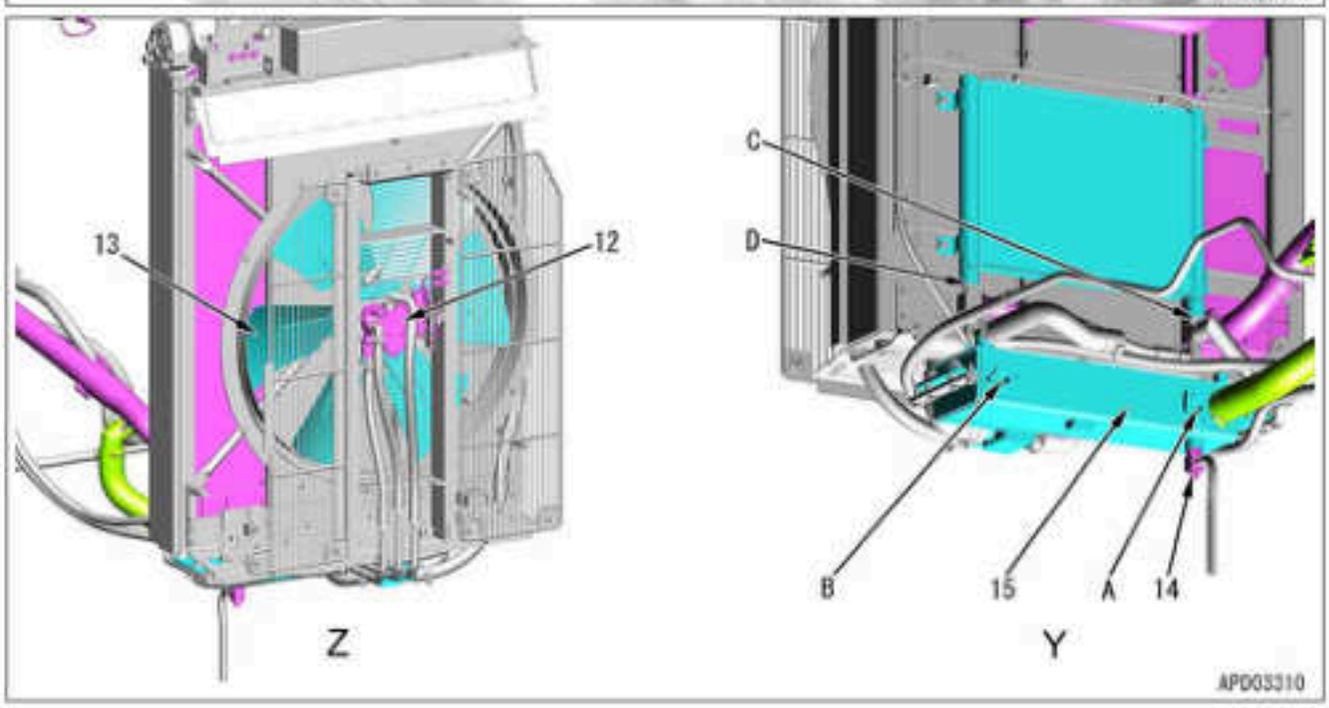
<table>
<tr><th>No.</th><th>Item</th><th colspan="4">Judgment criteria</th><th>Remedy</th></tr>
<tr><td rowspan="3">9</td><td rowspan="3">Clearance between shaft and bushing</td><td rowspan="2">Standard dimension</td><td colspan="2">Tolerance</td><td rowspan="2">Standard clearance</td><td rowspan="5">Replace</td></tr>
<tr><td>Shaft</td><td>Hole</td></tr>
<tr><td>70</td><td>-0.210
-0.260</td><td>+0.134
+0.060</td><td>0.270 to 0.394</td></tr>
<tr><td rowspan="3">10</td><td rowspan="3">Interference of outside bushing and roller</td><td rowspan="2">Standard dimension</td><td colspan="2">Tolerance</td><td rowspan="2">Standard interference</td></tr>
<tr><td>Shaft</td><td>Hole</td></tr>
<tr><td>115</td><td>+0.094
+0.040</td><td>+0.027
-0.047</td><td>0.013 to 0.141</td></tr>
<tr><td rowspan="2">11</td><td rowspan="2">End play</td><td colspan="4">Standard clearance</td></tr>
<tr><td colspan="4">0.50 to 0.75</td></tr>
<tr><td rowspan="2">12</td><td rowspan="2">Width of shaft flange</td><td colspan="2">Standard dimension</td><td colspan="2">Repair limit</td></tr>
<tr><td colspan="2">20</td><td colspan="2">-</td></tr>
<tr><td>13</td><td>Tightening torque of bolt</td><td colspan="4">157 to 255 Nm {16 to 26 kgm}</td><td>Retighten</td></tr>
</table>

MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

COOLING SYSTEM

LAYOUT DRAWING OF COOLING SYSTEM

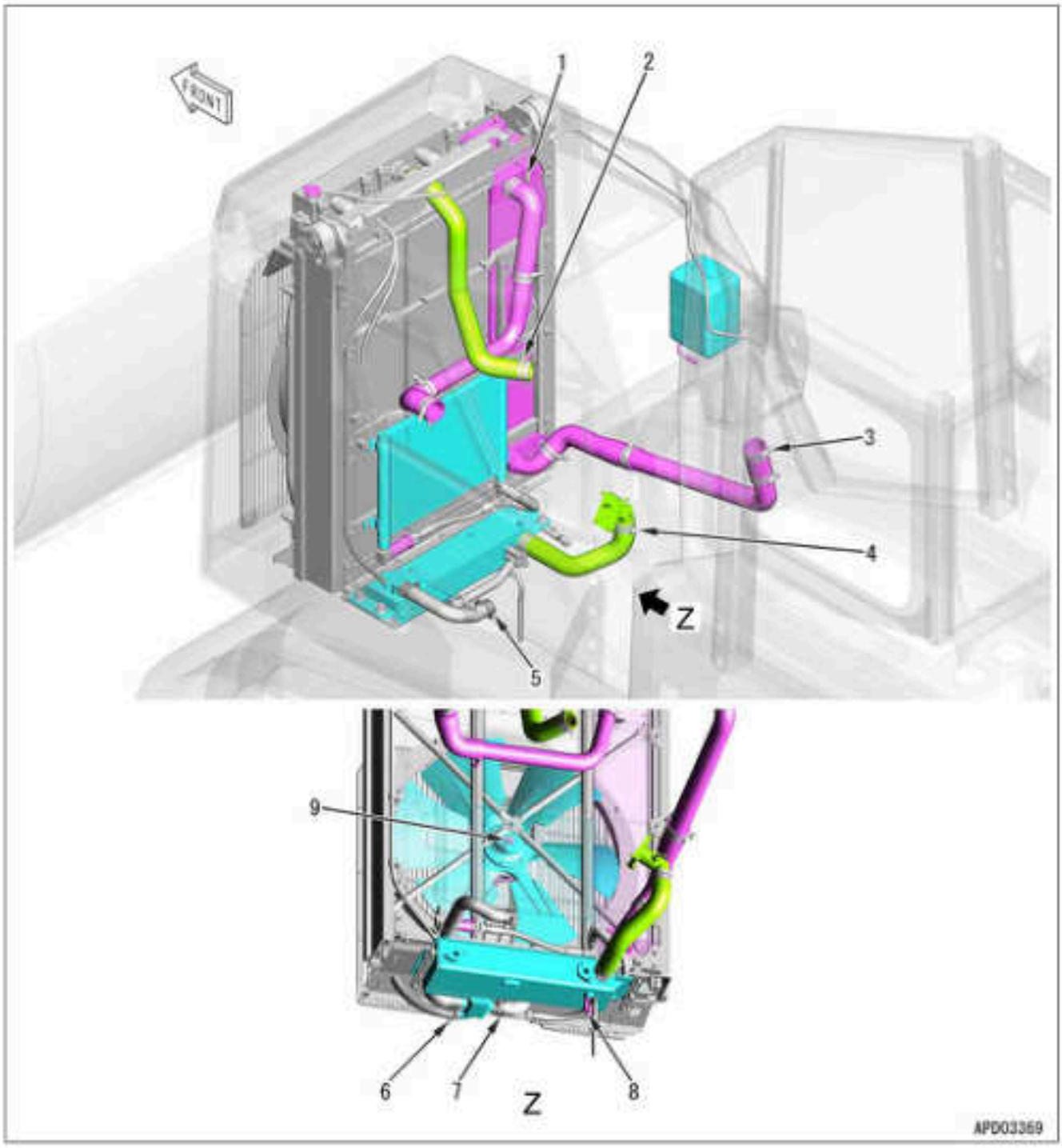




A: Power train oil cooler inlet
B: Power train oil cooler outlet
1: Radiator cap
2: Radiator
C: Hydraulic oil cooler inlet
D: Hydraulic oil cooler outlet
3: Radiator inlet hose
4: Aftercooler

MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

MAINTENANCE STANDARD OF COOLING SYSTEM



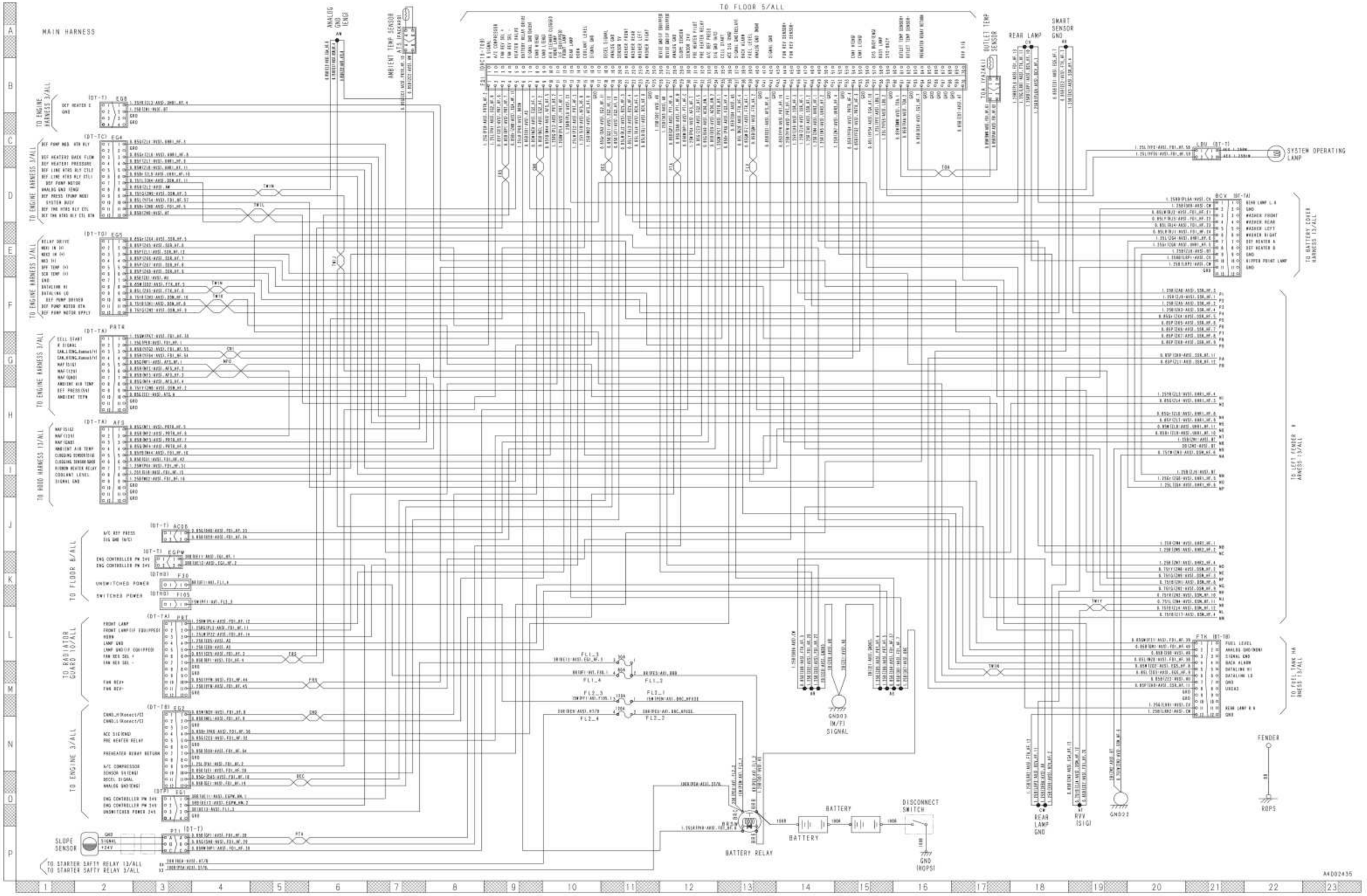
MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publicatio... Order the manual at mid-west-tech.com >

ELECTRICAL CIRCUIT DIAGRAM (9/14)

D85EXI-18, D85PXI-18

REMARK

This figure includes the equipment and device that are unavailable as optional items in some areas.



MidWestTech | Komatsu D85EXi-18, D85PXi-18 Bulldozer Service Manual | Publication SEN06576-01

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