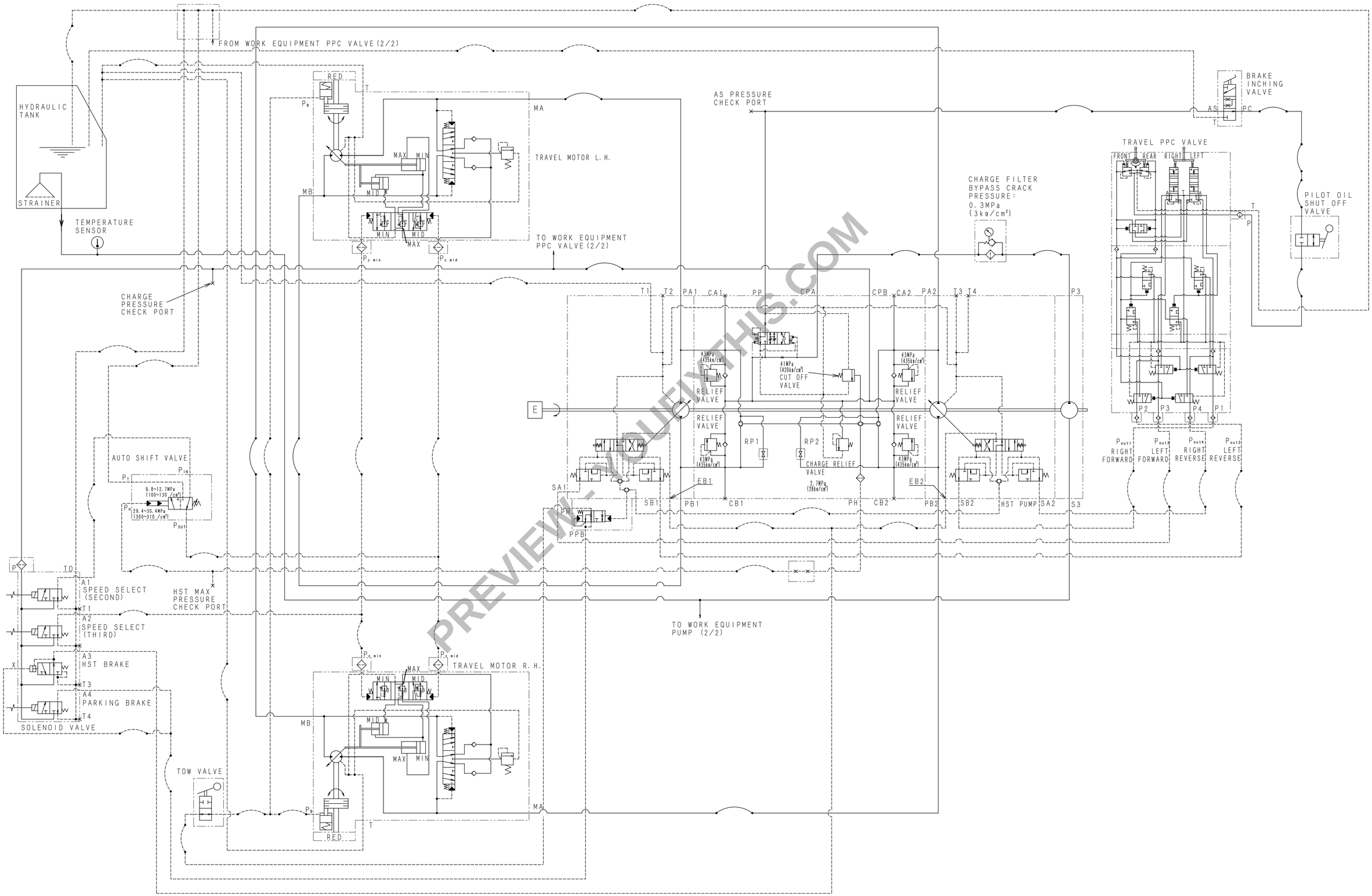
HYDRAULIC CIRCUIT DIAGRAM (1/2)

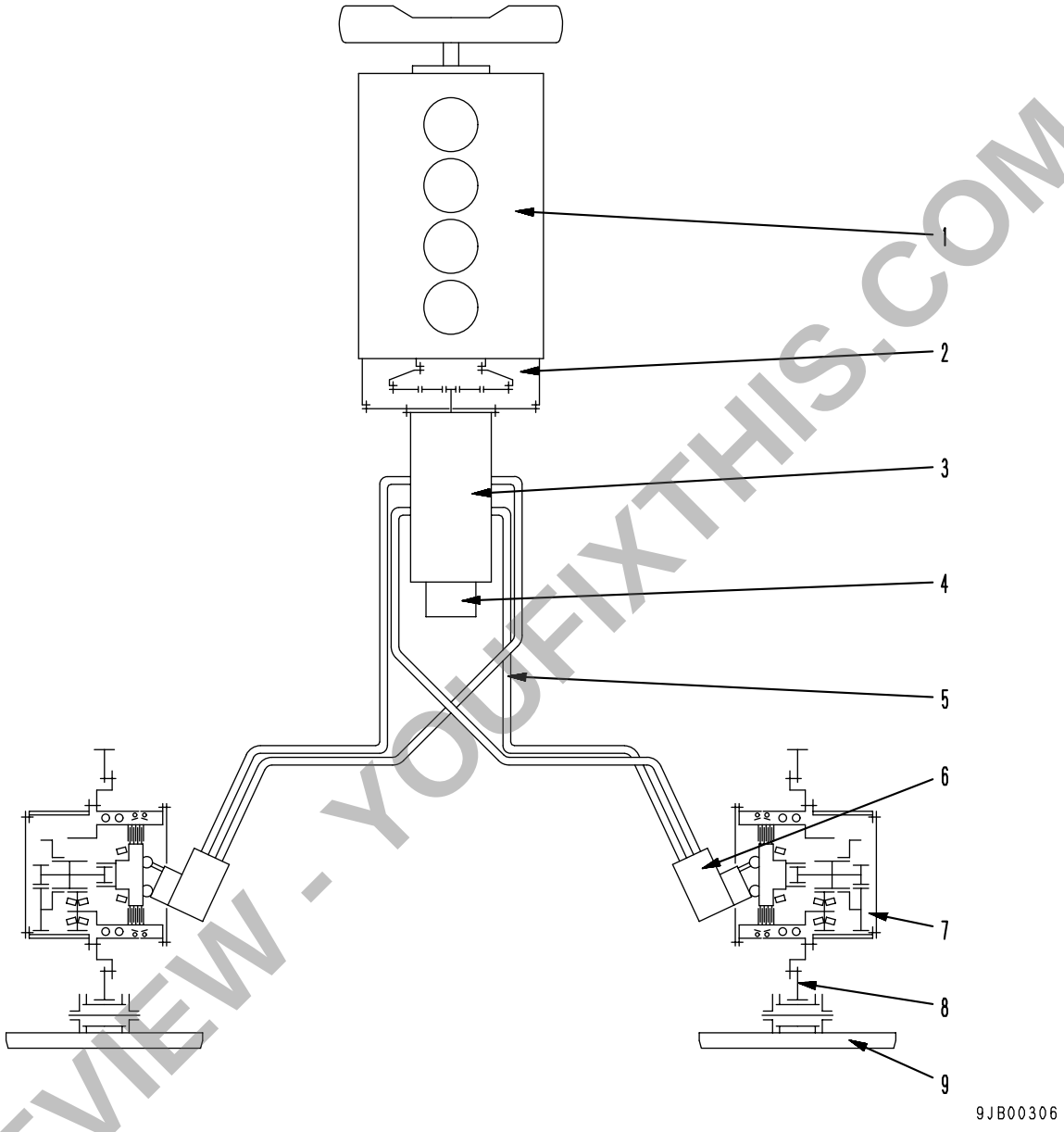
D39EX-21 Serial No. 1201 and up
D39PX-21 Serial No. 1209 and up



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

POWER TRAIN SYSTEM



1. Engine
2. Damper
3. HST pump
4. Charge pump
5. High-pressure hose
6. HST motor
7. Final drive
8. Sprocket
9. Track shoe

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

STANDARD TIGHTENING TORQUE TABLE

1. Table of tightening torques for bolts and nuts

★ Unless there are special instructions, tighten metric nuts and bolts to the torque below. (When using torque wrench)

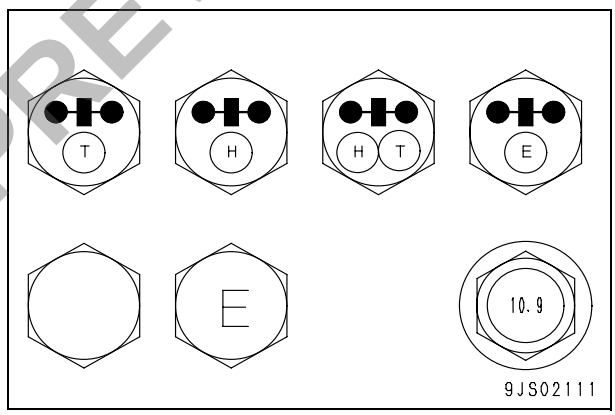
★ The following table corresponds to the bolts in Fig. A.

Thread diameter of bolt	Width across flats	Tightening torque	
mm	mm	Nm	kgm
6	10	11.8 – 14.7	1.2 – 1.5
8	13	27 – 34	2.8 – 3.5
10	17	59 – 74	6.0 – 7.5
12	19	98 – 123	10.0 – 12.5
14	22	153 – 190	15.5 – 19.5
16	24	235 – 285	23.5 – 29.5
18	27	320 – 400	33.0 – 41.0
20	30	455 – 565	46.5 – 58.0
22	32	610 – 765	62.5 – 78.0
24	36	785 – 980	80.0 – 100.0
27	41	1,150 – 1,440	118 – 147
30	46	1,520 – 1,910	155 – 195
33	50	1,960 – 2,450	200 – 250
36	55	2,450 – 3,040	250 – 310
39	60	2,890 – 3,630	295 – 370

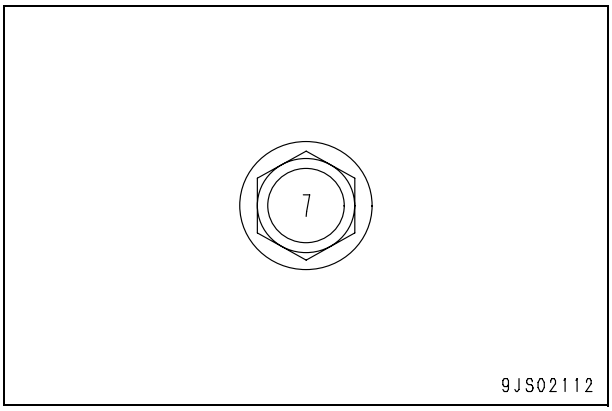
★ The following table corresponds to the bolts in Fig. B.

Thread diameter of bolt	Width across flats	Tightening torque	
mm	mm	Nm	kgm
6	10	5.9 – 9.8	0.6 – 1.0
8	13	13.7 – 23.5	1.4 – 2.4
10	14	34.3 – 46.1	3.5 – 4.7
12	27	74.5 – 90.2	7.6 – 9.2

★ Fig. A



★ Fig. B



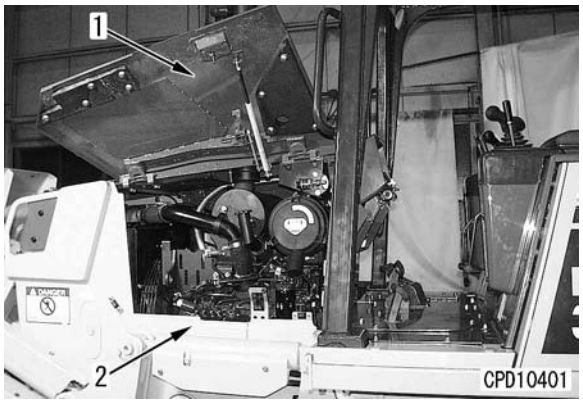
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

REMOVAL OF FUEL INJECTION PUMP ASSEMBLY

1. Open up both engine hoods (1).

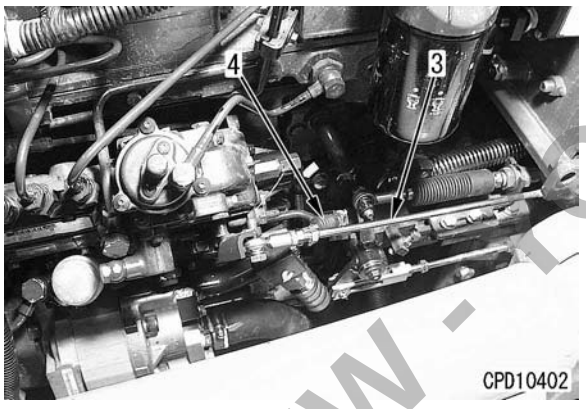
2. Remove left engine side cover (2).



3. Close the fuel stop valve.

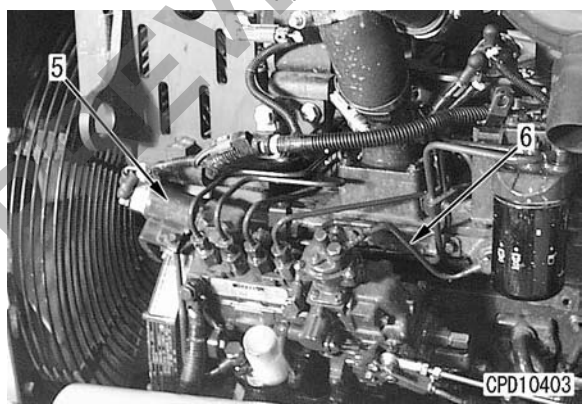
4. Disconnect fuel control linkage (3). ※ 1

5. Disconnect decelerator pedal linkage (4). ※ 2

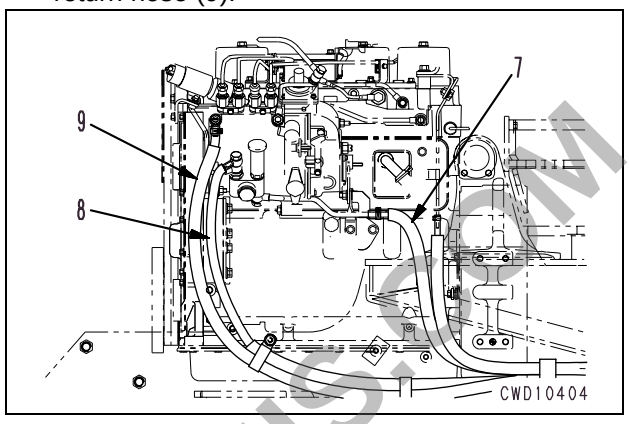


6. Remove engine stop solenoid (5). ※ 3

7. Disconnect air tube (6).



8. Disconnect fuel inlet hoses (7) and (8) and return hose (9).

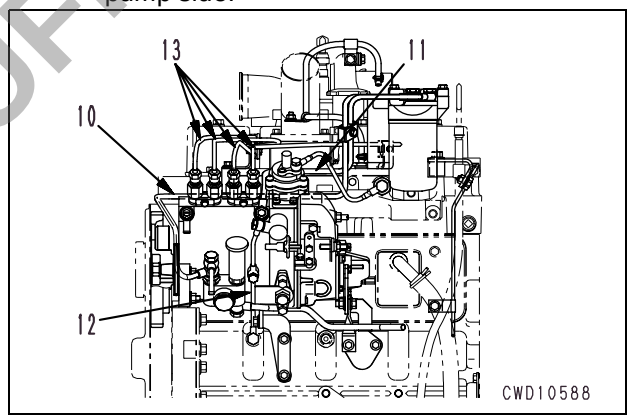


9. Remove fuel tubes (10) and (11).

10. Remove lubrication tube (12).

11. Disconnect 4 fuel injection tubes (13).

★ Disconnect the tube end on the fuel injection pump side.

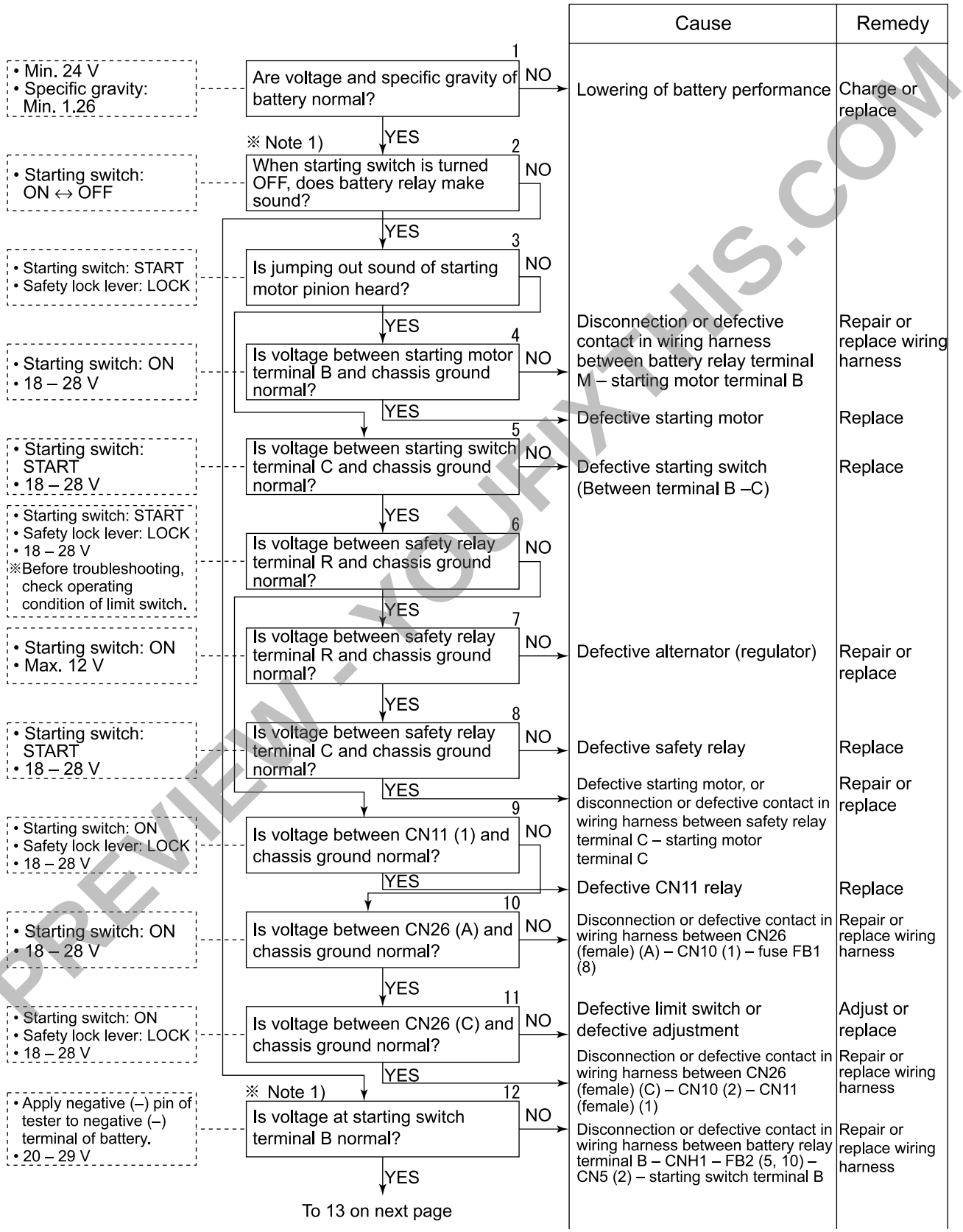


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

E-1. When starting switch is turned on, starting motor does not rotate

★ Before carrying out the troubleshooting, check that fuses FB1 No. 3 and FB2 No. 5 and fusible links CNH1 and H2 are normal.



PREVIEW - YOUFIXTHIS.COM

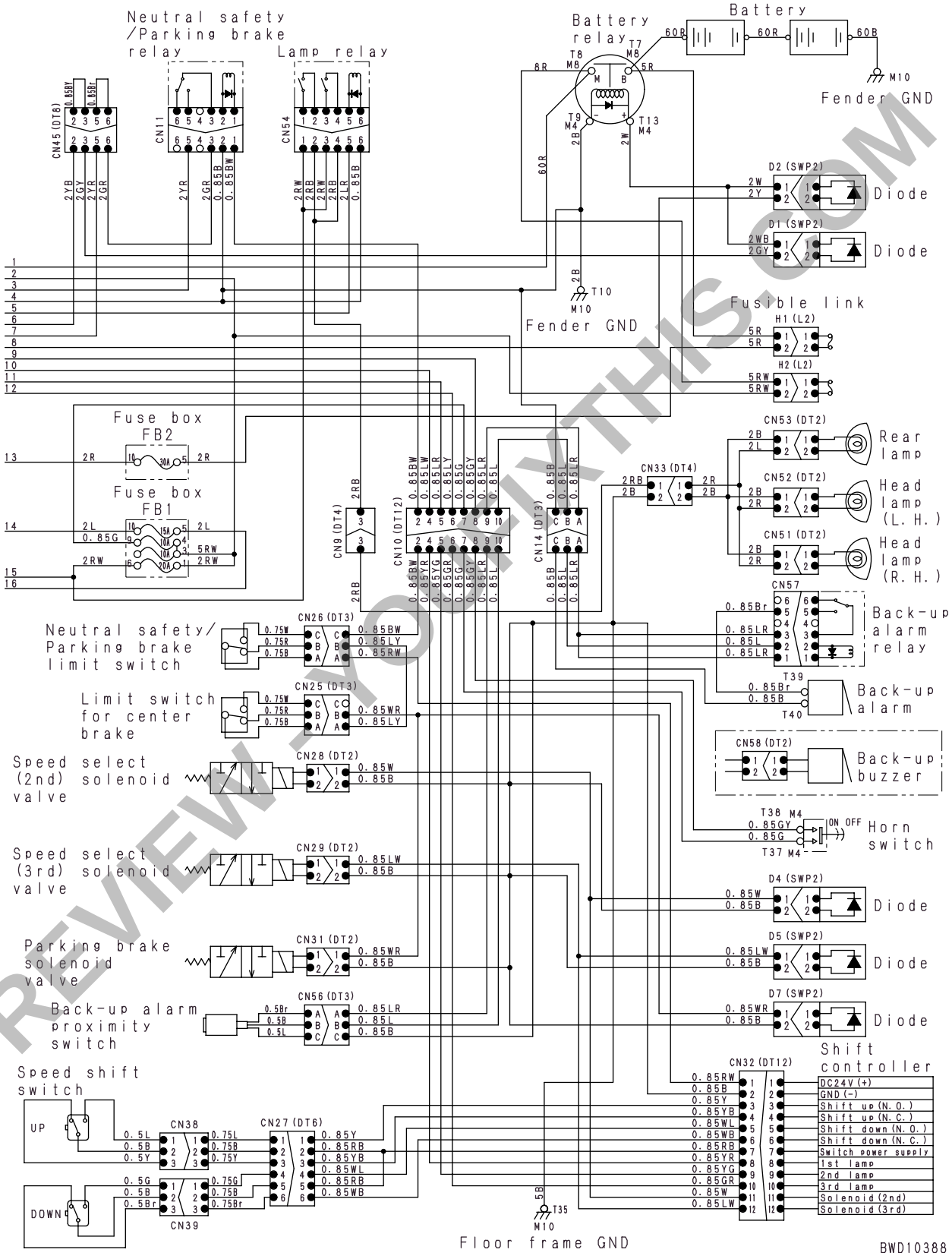
Download full manual at youfixthis.com

SPECIFICATIONS

Machine model				D39EX-21	D39PX-21	
				460 mm Single shoe	635 mm Single shoe	700 mm Swamp shoe
Serial No.				1001 – 1200	1001 – 1208	
Weight	Operating weight					
	• Bare tractor		kg	6,950	7,230	7,210
	• With power angle tiltdozer + ROPS cab		kg	8,820	9,200	9,180
	• With power angle tiltdozer + ROPS canopy		kg	8,500	8,900	8,880
Performance	Min. turning radius		m	2.6	2.8	2.8
	Gradeability		deg	30	30	30
	Stability (front, rear, left, right)		deg	35	35	35
	Travel speed	Forward 1st	km/h	4.3	4.3	4.3
		Forward 2nd	km/h	6.5	6.5	6.5
		Forward 3rd	km/h	8.5	8.5	8.5
		Reverse 1st	km/h	4.3	4.3	4.3
		Reverse 2nd	km/h	6.5	6.5	6.5
		Reverse 3rd	km/h	8.5	8.5	8.5
	Ground pressure	Bare tractor	kPa {kg/cm^2}	31.4 {0.32}	23.5 {0.24}	21.6 {0.22}
		With power angle tiltdozer + ROPS cab	kPa {kg/cm^2}	40.2 {0.41}	30.4 {0.31}	27.5 {0.28}
		With power angle tiltdozer + ROPS canopy	kPa {kg/cm^2}	38.2 {0.39}	29.4 {0.30}	26.5 {0.27}
Dimensions	Overall length	Bare tractor	mm	3,195	3,195	3,235
		Power angle tiltdozer	mm	4,200	4,200	4,220
	Overall width	Bare tractor	mm	2,110	2,425	2,490
		Power angle tiltdozer	mm	2,740	3,330	3,330
	Overall height	To tip of exhaust pipe	mm	2,775	2,775	2,795
		To top of operator's compartment	mm	2,090	2,090	2,110
		With ROPS cab installed (not including antenna)	mm	2,770	2,770	2,790
		With ROPS canopy installed	mm	2,770	2,770	2,790
	Track gauge		mm	1,650	1,790	1,790
	Length of track on ground		mm	2,360	2,360	2,360
	Width of track (standard track shoe)		mm	460	635	700
	Min. ground clearance		mm	384	384	460

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

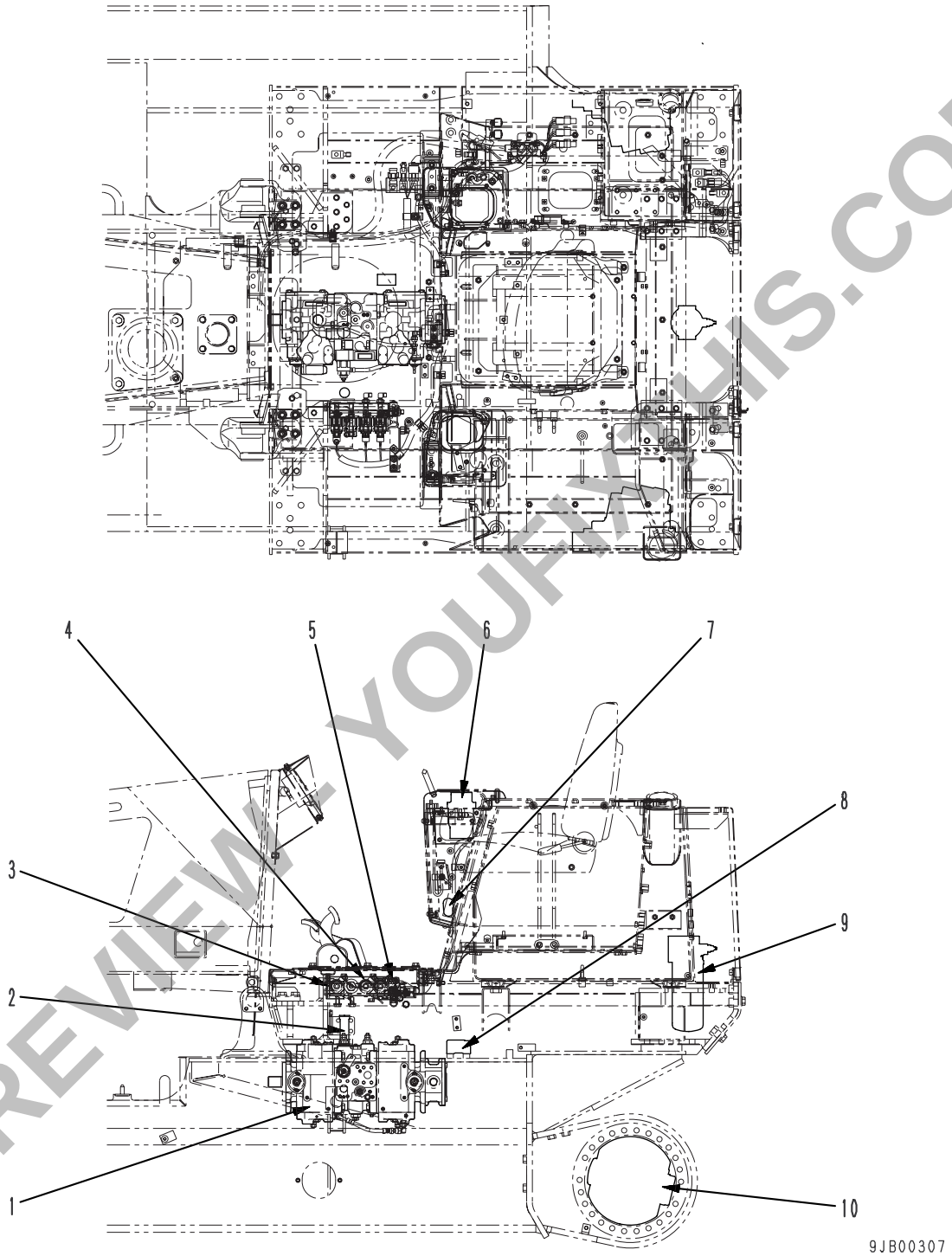


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

HST HYDRAULIC EQUIPMENT ARRANGEMENT DIAGRAM

D39EX-21 Serial No.1001 – 1155
D39PX-21 Serial No.1001 – 1166



1. HST pump
2. Towing valve
3. Inching valve
4. 4-spool solenoid valve
5. Inching valve
6. Steering and directional PPC valve
7. Shut-off valve
8. Auto gearshift valve
9. Charge pump oil filter
10. HST motor

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2. Table of tightening torques for split flange bolts

★ Unless there are special instructions, tighten split flange bolts to the torque below.

Thread diameter of bolt	Width across flats	Tightening torque	
mm	mm	Nm	kgm
10	14	59 – 74	6.0 – 7.5
12	17	98 – 123	10.0 – 12.5
16	22	235 – 285	23.5 – 29.5

3. Table of tightening torques for O-ring boss piping joints

★ Unless there are special instructions, tighten O-ring boss piping joints to the torque below.

Nominal No.	Thread diameter	Width across flats	Tightening torque Nm {kgm}	
	mm	mm	Range	Target
02	14	Varies depending on type of connector.	35 – 63 { 3.5 – 6.5}	44 { 4.5}
03,04	20		84 – 132 { 8.5 – 13.5}	103 {10.5}
05,06	24		128 – 186 {13.0 – 19.0}	157 {16.0}
10,12	33		363 – 480 {37.0 – 49.0}	422 {43.0}
14	42		746 – 1,010 {76.0 – 103}	883 {90.0}

4. Table of tightening torques for O-ring boss plugs

★ Unless there are special instructions, tighten O-ring boss plugs to the torque below.

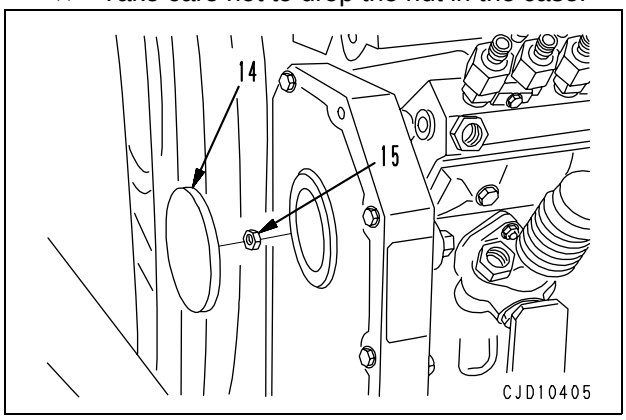
Nominal No.	Thread diameter	Width across flats	Tightening torque Nm {kgm}	
	mm	mm	Range	Target
08	8	14	5.88 – 8.82 {0.6 – 0.9}	7.35 {0.75}
10	10	17	9.81 – 12.74 {1.0 – 1.3}	11.27 {1.15}
12	12	19	14.7 – 19.6 {1.5 – 2.0}	17.64 {1.8}
14	14	22	19.6 – 24.5 {2.0 – 2.5}	22.54 {2.3}
16	16	24	24.5 – 34.3 {2.5 – 3.5}	29.4 {3.0}
18	18	27	34.3 – 44.1 {3.5 – 4.5}	39.2 {4.0}
20	20	30	44.1 – 53.9 {4.5 – 5.5}	49.0 {5.0}
24	24	32	58.8 – 78.4 {6.0 – 8.0}	68.6 {7.0}
30	30	32	93.1 – 122.5 { 9.5 – 12.5}	107.8 {11.0}
33	33	–	107.8 – 147.0 {11.0 – 15.0}	127.4 {13.0}
36	36	36	127.4 – 176.4 {13.0 – 18.0}	151.9 {15.5}
42	42	–	181.3 – 240.1 {18.5 – 24.5}	210.7 {21.5}
52	52	–	274.4 – 367.5 {28.0 – 37.5}	323.4 {33.0}

PREVIEW - YOUFIXTHIS.COM

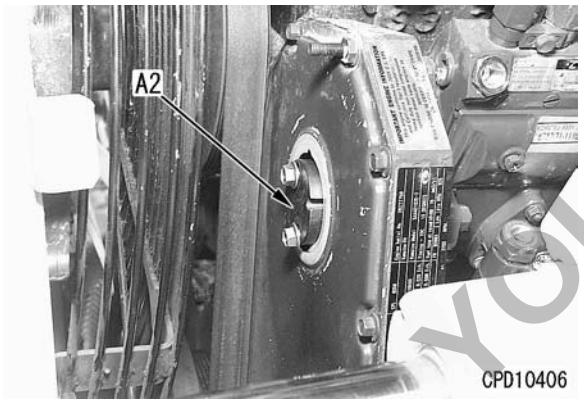
Download full manual at youfixthis.com

12. Remove cap (14). ※ 4

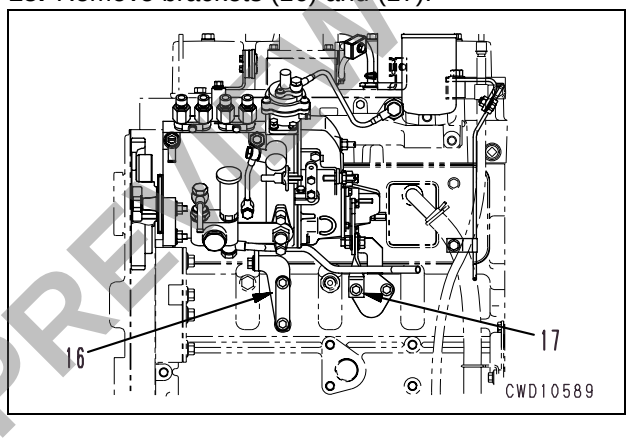
13. Remove injection pump nut (15). ※ 5
- ★ Remove with a filter wrench, etc.
- ★ Take care not to drop the nut in the case.



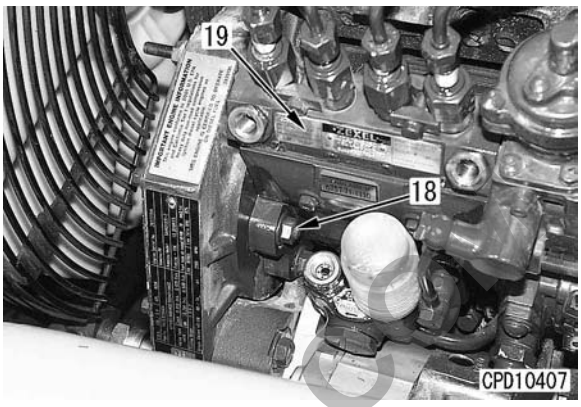
14. Using tool **A2**, disconnect the shaft and drive gear of the fuel injection pump.



15. Remove brackets (16) and (17).



16. Remove 4 mounting bolts (18) and fuel injection pump assembly (19).



PREVIEW - YOUFIXTHIS.COM

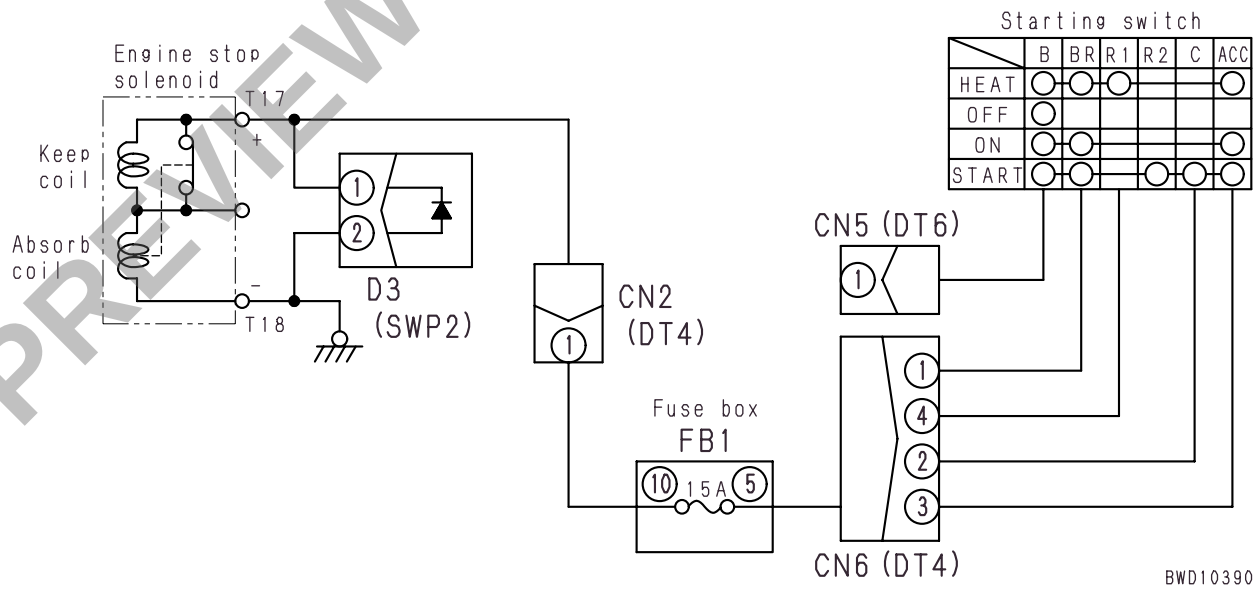
Download full manual at youfixthis.com

E-2. Engine does not start (Engine stop solenoid does not operate normally)

★ Carry out the following troubleshooting when the starting motor rotates normally.
★ Before carrying out the troubleshooting, check that fuse FB1 No. 5 is normal.

		Cause	Remedy
※See TESTING AND ADJUSTING.	1 Can defect be repaired by adjusting linkage? NO		
	YES	Defective adjustment of linkage	Adjust
• Starting switch: ON • 20 – 30 V	2 Is voltage between T17 and chassis ground normal? NO		
	YES		
• Starting switch: OFF • Max. 1 Ω	3 Is voltage between T18 and chassis ground normal? NO	Defective engine stop solenoid	Replace
	YES	Disconnection or defective contact in wiring harness between T18 – chassis ground	Repair or replace wiring harness
• Starting switch: ON • 20 – 30 V	4 Is voltage between starting switch terminal ACC and chassis ground normal? NO	Defective starting switch (Between B – ACC)	Replace
	YES	Disconnection or defective contact in wiring harness between starting switch terminal ACC – CN6 (3) – FB1 (5, 10) – CN2 (1) – T17	Replace

E-2. Related electrical circuit diagram



PREVIEW - YOUFIXTHIS.COM

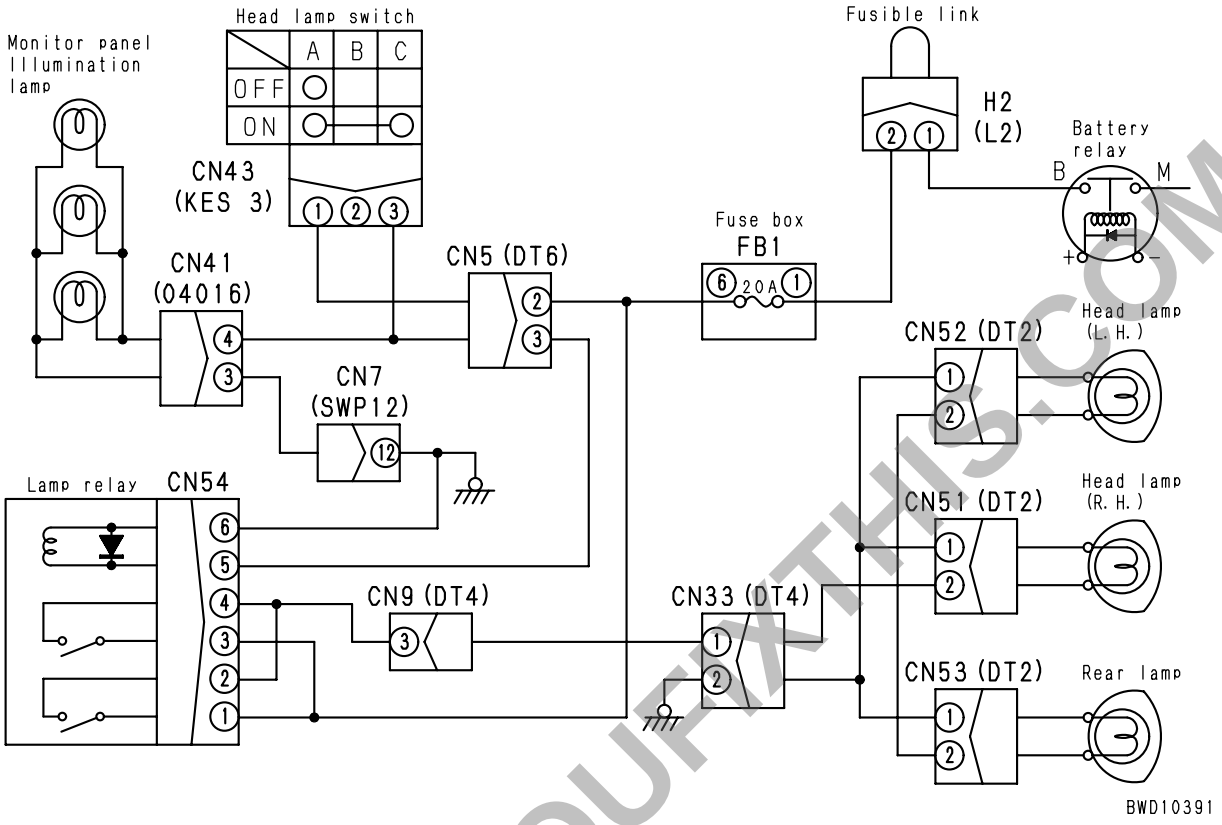
Download full manual at youfixthis.com

Machine model				D39EX-21	D39PX-21	
				460 mm Single shoe	635 mm Single shoe	700 mm Swamp shoe
Serial No.				1201 and up	1209 and up	
Weight	Operating weight					
	• Bare tractor		kg	6,950	7,230	7,210
	• With power angle tiltdozer + ROPS cab		kg	8,820	9,200	9,180
	• With power angle tiltdozer + ROPS canopy		kg	8,500	8,900	8,880
Performance	Min. turning radius		m	– (Pivot turn)	– (Pivot turn)	– (Pivot turn)
	Gradeability		deg	30	30	30
	Stability (front, rear, left, right)		deg	35	35	35
	Travel speed	Forward 1st	km/h	4.3	4.3	4.3
		Forward 2nd	km/h	6.5	6.5	6.5
		Forward 3rd	km/h	8.5	8.5	8.5
		Reverse 1st	km/h	4.3	4.3	4.3
		Reverse 2nd	km/h	6.5	6.5	6.5
		Reverse 3rd	km/h	8.5	8.5	8.5
	Ground pressure	Bare tractor	kPa {kg/cm^2}	31.4 {0.32}	23.5 {0.24}	21.6 {0.22}
		With power angle tiltdozer + ROPS cab	kPa {kg/cm^2}	40.2 {0.41}	30.4 {0.31}	27.5 {0.28}
		With power angle tiltdozer + ROPS canopy	kPa {kg/cm^2}	38.2 {0.39}	29.4 {0.30}	26.5 {0.27}
Dimensions	Overall length	Bare tractor	mm	3,195	3,195	3,235
		Power angle tiltdozer	mm	4,200	4,200	4,220
	Overall width	Bare tractor	mm	2,110	2,425	2,490
		Power angle tiltdozer	mm	2,740	3,330	3,330
	Overall height	To tip of exhaust pipe	mm	2,775	2,775	2,795
		To top of operator's compartment	mm	2,090	2,090	2,110
		With ROPS cab installed (not including antenna)	mm	2,770	2,770	2,790
		With ROPS canopy installed	mm	2,770	2,770	2,790
	Track gauge		mm	1,650	1,790	1,790
	Length of track on ground		mm	2,360	2,360	2,360
	Width of track (standard track shoe)		mm	460	635	700
	Min. ground clearance		mm	384	384	460

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

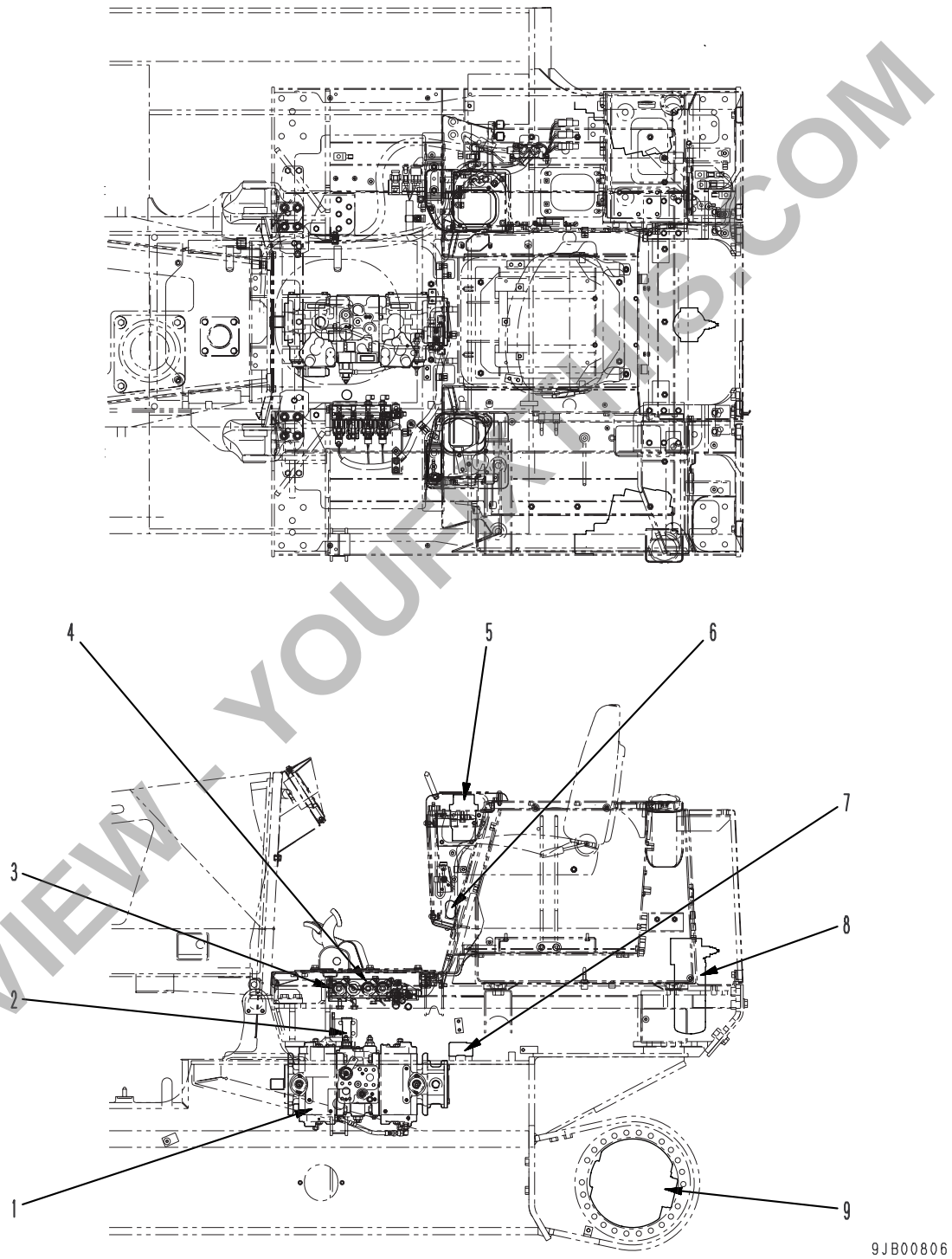
E-3. Related electrical circuit diagram



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

D39EX-21 Serial No.1156 and up
D39PX-21 Serial No.1167 and up



1. HST pump
2. Towing valve
3. Inching valve
4. 4-spool solenoid valve
5. Steering and directional PPC valve
6. Shut-off valve
7. Auto gearshift valve
8. Charge pump oil filter
9. HST motor

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5. Table of tightening torques for hoses (taper seal type and face seal type)

★ Unless there are special instructions, tighten the hoses (taper seal type and face seal type) to the torque below.

★ Apply the following torque when the threads are coated (wet) with engine oil.

Nominal No. of hose	Width across flats	Tightening torque Nm {kgm}		Taper seal	Face seal	
		Range	Target	Thread size (mm)	Nominal No. - Number of threads, type of thread	Thread diameter (mm) (Reference)
02	19	34 – 54 { 3.5 – 5.5}	44 { 4.5}	–	9/16-18UN	14.3
		34 – 63 { 3.5 – 6.5}		14	–	–
03	22	54 – 93 { 5.5 – 9.5}	74 { 7.5}	–	11/16-16UN	17.5
	24	59 – 98 { 6.0 – 10.0}	78 { 8.0}	18	–	–
04	27	84 – 132 { 8.5 – 13.5}	103 {10.5}	22	13/16-16UN	20.6
05	32	128 – 186 {13.0 – 19.0}	157 {16.0}	24	1-14UNS	25.4
06	36	177 – 245 {18.0 – 25.0}	216 {22.0}	30	1-3/16-12UN	30.2
(10)	41	177 – 245 {18.0 – 25.0}	216 {22.0}	33	–	–
(12)	46	197 – 294 {20.0 – 30.0}	245 {25.0}	36	–	–
(14)	55	246 – 343 {25.0 – 35.0}	294 {30.0}	42	–	–

6. Table of tightening torques for 102, 107 and 114 engine series (Bolts and nuts)

★ Unless there are special instructions, tighten the metric bolts and nuts of the 102, 107 and 114 engine series to the torque below.

Thread size	Tightening torque	
	Bolts and nuts	
mm	Nm	kgm
6	10 ± 2	1.02 ± 0.20
8	24 ± 4	2.45 ± 0.41
10	43 ± 6	4.38 ± 0.61
12	77 ± 12	7.85 ± 1.22
14	—	—

7. Table of tightening torques for 102, 107 and 114 engine series (Eye joints)

★ Unless there are special instructions, tighten the metric eye joints of the 102, 107 and 114 engine series to the torque below.

Thread size	Tightening torque	
mm	Nm	kgm
6	8 ± 2	0.81 ± 0.20
8	10 ± 2	1.02 ± 0.20
10	12 ± 2	1.22 ± 0.20
12	24 ± 4	2.45 ± 0.41
14	36 ± 5	3.67 ± 0.51

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INSTALLATION OF FUEL INJECTION PUMP ASSEMBLY

- Carry out installation in the reverse order to removal.

※ 1

★ Adjust the fuel control linkage. For details, see TESTING AND ADJUSTING, Adjusting fuel control linkage.

※ 2

★ Adjust the decelerator pedal linkage. For details, see TESTING AND ADJUSTING, Adjusting decelerator pedal linkage.

※ 3

★ Adjust the engine stop solenoid linkage. For details, see TESTING AND ADJUSTING, Adjusting engine stop solenoid linkage.

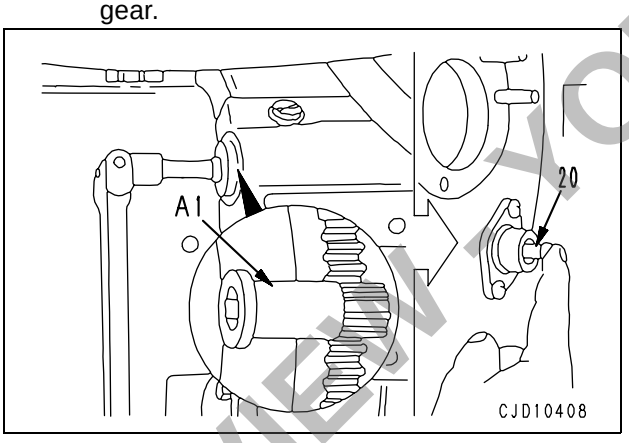
※ 4

★ Tighten the cap by turning it by 180 degrees.

※ 5

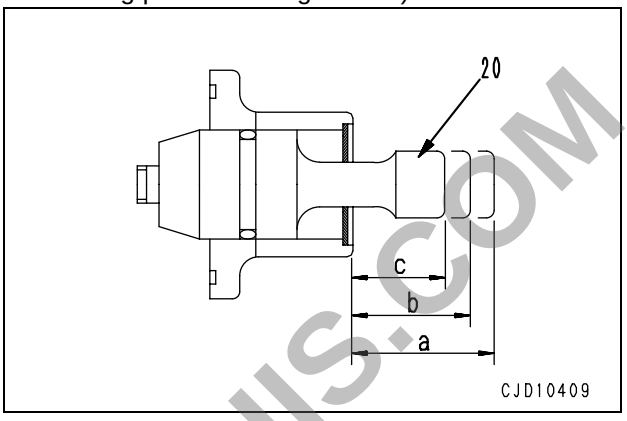
★ Install the fuel injection pump assembly according to the following procedure.

1) Using tool **A1**, crank the engine forward slowly and push No. 1 cylinder compression top dead center positioning pin (20) into the gear.

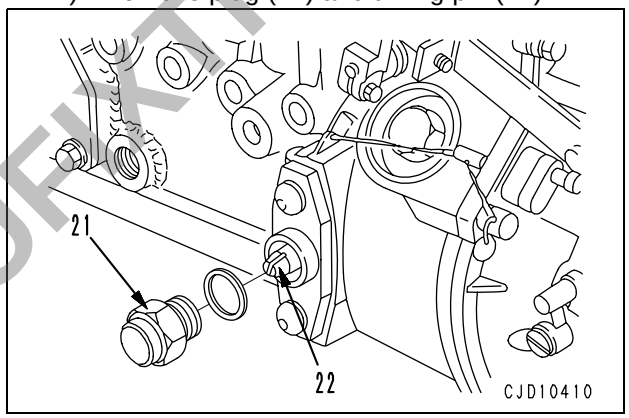


★ Referring to the following, push positioning pin (20) into the gear securely.
- Dimension "**a**" of pin in free state: 24 mm
- Dimension "**b**" of pin when it is in contact with gear: 20 mm
- Dimension "**c**" of pin when it is pushed into gear: 16 mm

★ Stop barring immediately after the positioning pin is pushed in (to prevent the positioning pin from being broken).

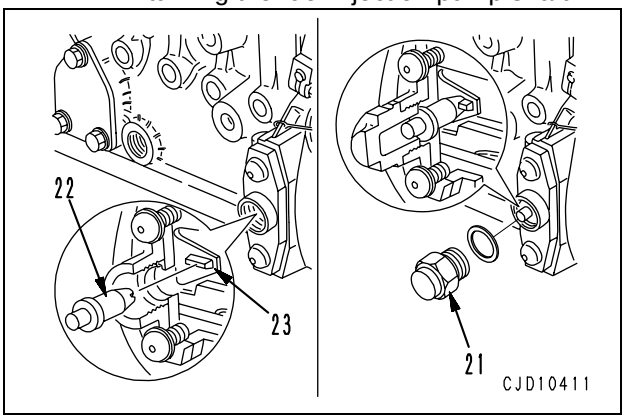


2) Remove plug (21) and timing pin (22).



3) Reverse the fitting position of timing pin (22) and match the groove of the timing pin to pointer (23) in the pump and tighten plug (21) temporarily.

★ If the tooth of pointer (23) is not matched to the hole of the timing pin, match it by turning the fuel injection pump shaft.

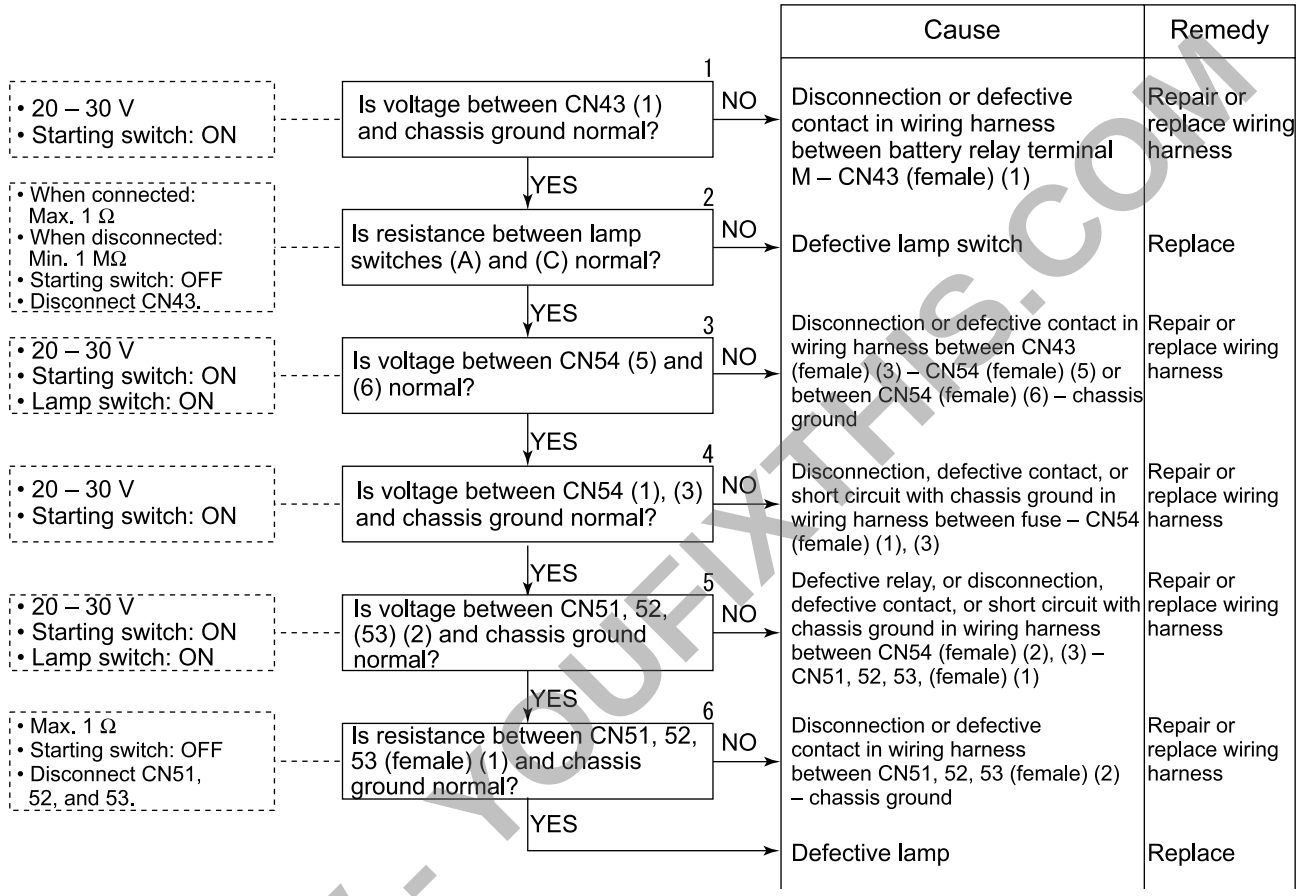


PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

E-3. Headlamp does not light up

★ Carry out the following troubleshooting when breakage of the bulb, etc. is not detected by visual inspection. (If breakage of the bulb is detected, replace the bulb.)
★ Before carrying out the troubleshooting, check that fusible link CNH2 and fuse FB1 No. 1 are normal.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Machine model				D39EX-21	D39PX-21
Serial No.				1001 and up	
Engine	Name		—	SAA4D102E-2	
	Type		—	4-cycle, water-cooled, in-line vertical type, 4 cylinders, direct injection, with turbocharger, air-cooled after cooler	
	No. of cylinders – bore x stroke		mm	4 – 102 x 120	
	Piston displacement		ℓ {cc}	3.92 {3,920}	
	Performance	Rated horsepower	kW {HP} /rpm	71 {95}/2,200	
		Max. torque	Nm {kgm} /rpm	431 {44}/1,300	
		High idling	rpm	2,400	
		Low idling	rpm	825	
		Min. fuel consumption ratio	g/kWh {g/HPh}	211 {157}	
	Starting motor		—	24 V, 4.5 kW	
	Alternator		—	24 V, 25 A	
	Battery		—	12 V, 60 Ah x 2 (75D31R)	
	Radiator core type		—	D-7	
Power train system	HST pump	Type, number	—	Variable displacement piston pump x 2, Gear pump x 1	
		Discharge amount (variable pump) (charge pump)	cm^3/rev	63 35	
		Set pressure (variable pump) (charge pump)	MPa {kg/cm^2}	41.2 {420} 2.75 {28}	
	HST motor	Type, number	—	Variable displacement piston motor (3-stage selection, with parking brake) x 2	
		Discharge amount (Max.) (Medium) (Min.)	cm^3/rev	105 68 52	
	Final drive		—	Planetary gear, 2-stage reduction type, splash type lubrication	
Undercarriage	Suspension		—	Rigid	
	Carrier roller		—	1 on each side	
	Track roller		—	6 on each side	
	Track shoe				
	• 460 mm Single shoe			Assembly type, single grouser, 39 on each side, pitch: 171.5 mm	—
	• 635 mm Single shoe			—	Assembly type, single grouser, 39 on each side, pitch: 171.5 mm
	• 700 mm Swamp shoe			—	Assembly type, special swamp shoe, 39 on each side, pitch: 171.5 mm

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 18 of 464 pages

The full manual includes:

- All 464 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Komatsu D39EX-21, D39PX-21 Shop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual