NEW HOLLAND

COMPACT CRAWLER EXCAVATOR

E30BSR
E35BSR
TIER 4

SERVICE MANUAL

S5PW0029E01 EN-US

Issued 01Sep 08

NEW HOLLAND CONSTRUCTION

www.newhollandconstruction.com

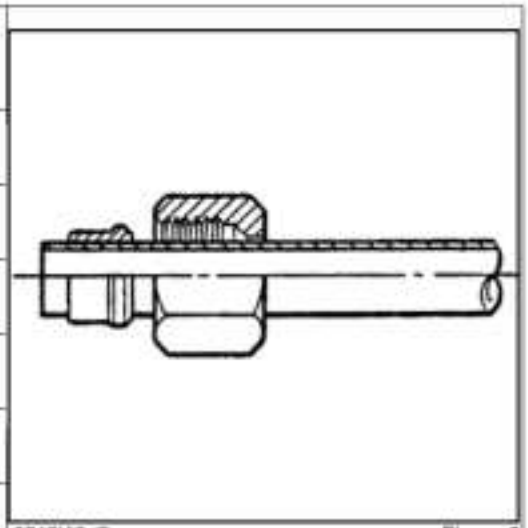
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TIGHTENING TORQUES FOR NUTS AND SLEEVES

Over tightening or under tightening of nuts and sleeves in FLARELESS JOINT may develop oil leaks through pipe connections.
Always tighten nuts and sleeves to proper torques.

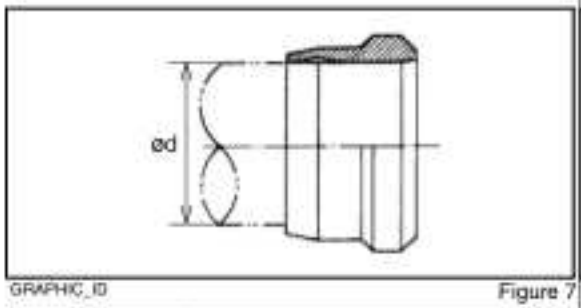
SLEEVE TYPE TUBE FITTINGS

Tube size OD × thickness mm (in)	Opposing flats (HEX) mm	Tightening torque Nm (pound-ft)
ø10×1.5 (0.394×0.059)	19	49.0±9.8 (36±7.2)
ø15×2.0 (0.591×0.079)	27	118±12 (87±8.7)
ø18×2.5 (0.709×0.098)	32	147±15 (110±11)
ø22×3.0 (0.866×0.118)	36	216±22 (160±16)
ø28×4.0 (1.10×0.157)	41	275±27 (200±20)
ø35×5.0 (1.38×0.197)	55	441±44 (330±33)


GRAPHIC_ID Figure 6

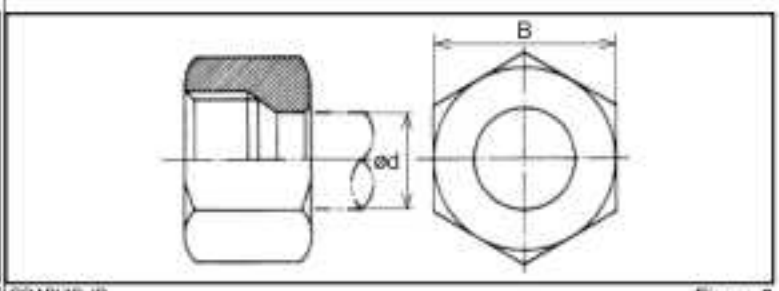
Part Number

SLEEVE



GRAPHIC_ID Figure 7

NUT



GRAPHIC_ID Figure 8

Tube size ød	Parts No.		Tube size ød	Opposing flats (HEX) mm	Parts No.	
	Ihara Koatu	Nippon A.M.C.			Ihara Koatu	Nippon A.M.C.
6	ZF93S06000	—	6	14	ZF93N06000	—
8	ZF93S08000	—	8	17	ZF93N08000	—
10	ZF93S10000	ZA93S10000	10	19	ZF93N10000	ZA93N10000
12	ZF93S12000	—	12	22	ZF93N12000	—
15	ZF93S15000	ZA93S15000	15	27	ZF93N15000	ZA93N15000
18	ZF93S18000	ZA93S18000	18	32	ZF93N18000	ZA93N18000
22	ZF93S22000	ZA93S22000	22	36	ZF93N22000	ZA93N22000
28	ZF93S28000	ZA93S28000	28	41	ZF93N28000	ZA93N28000
32	ZF93S32000	—	32	50	ZF93N32000	—
35	ZF93S35000	ZA93S35000	35	55	ZF93N35000	ZA93N35000
38	ZF93S38000	—	38	60	ZF93N38000	—

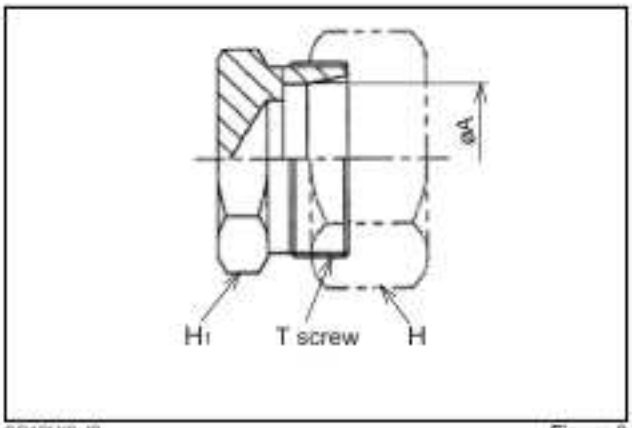
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PLUGS

PLUG FOR HYDRAULIC PIPE JOINT

1. Cap nut (Joint plug)

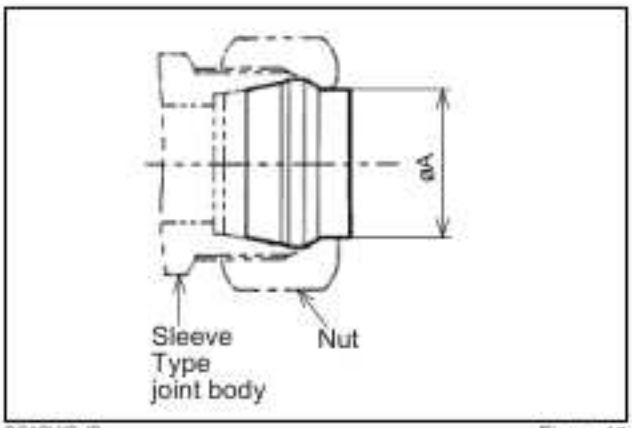
Applicable tube O.D.: A	Cap nut parts No.	T screw	Opposing flats	
			H_1	H
6	ZF83H06000	M12x1.5	14	14
8	ZF83H08000	M14x1.5	17	17
10	ZF83H10000	M16x1.5	17	19
12	ZF83H12000	M18x1.5	19	22
15	ZF83H15000	M22x1.5	24	27
18	ZF83H18000	M26x1.5	27	32
22	ZF83H22000	M30x1.5	32	36
28	ZF83H28000	M36x1.5	38	41



GRAPHIC_ID Figure 9

2. Plug (Tube plug)

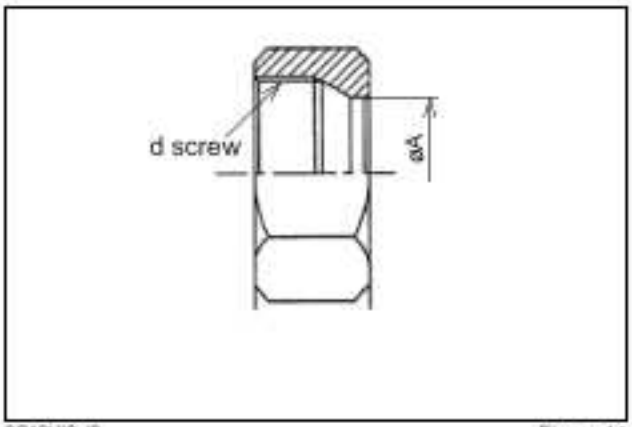
Applicable tube O.D.: A	Plug parts No.
6	ZF83P06000
8	ZF83P08000
10	ZF83P10000
12	ZF83P12000
15	ZF83P15000
18	ZF83P18000
22	ZF83P22000
28	ZF83P28000



GRAPHIC_ID Figure 10

3. Nut

Applicable tube O.D.: A	Cap nut parts No.	d screw	Opposing flats
6	ZF93N06000	M12x1.5	14
8	ZF93N08000	M14x1.5	17
10	ZF93N10000	M16x1.5	19
12	ZF93N12000	M18x1.5	22
15	ZF93N15000	M22x1.5	27
18	ZF93N18000	M26x1.5	32
22	ZF93N22000	M30x1.5	36
28	ZF93N28000	M36x1.5	41
32	ZF93N32000	M42X1.5	50
35	ZF93N35000	M45X1.5	55
38	ZF93N38000	M48X1.5	60



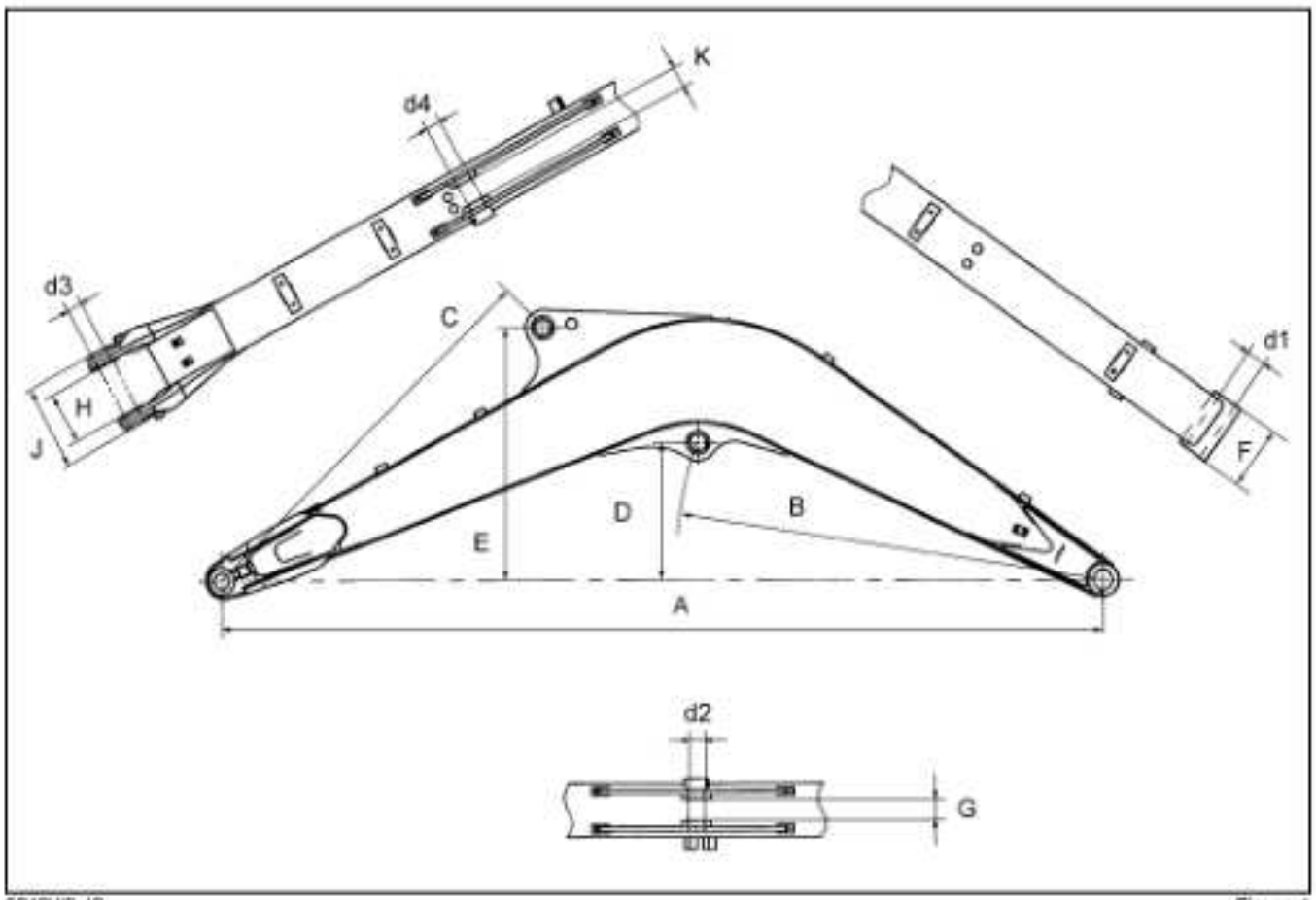
GRAPHIC_ID Figure 11

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ATTACHMENT DIMENSIONS

BOOM

Boom Dimensional Drawings



GRAPHIC_10

Figure 1

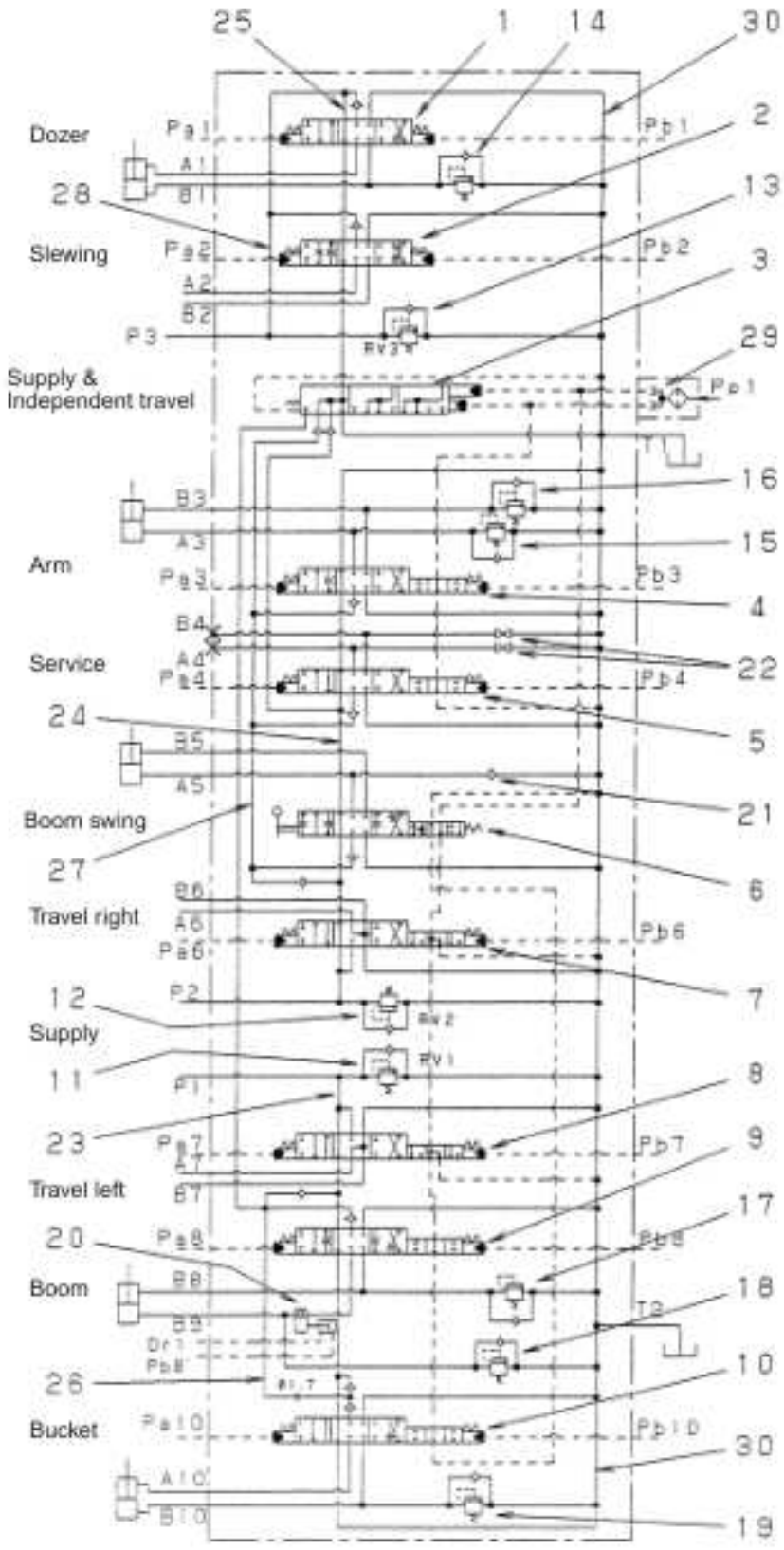
Unit : mm(ft-in)

No.	NAME	DIMENSIONS	
		E30BSR	E35BSR
A	Boom length	2300 (7ft-6.55in)	2500 (8ft-2.43in)
B	Distance between pins of boss	R1217.5 (3ft-11.93in)	R1210 (3ft-11.64in)
C	Distance between pins of bracket	R1130.5 (3ft-8.51in)	R1157 (3ft-9.55in)
D	Height of boom cylinder rod pin	420.5 (1ft-4.56in)	385.5 (1ft-3.18in)
E	Height of arm cylinder (head side) pin	764 (2ft-6.08in)	708 (2ft-3.87in)
F	Boom foot width	178 (7.01in)	←
G	Inner width of bracket for boom cylinder (rod side) mounting	61 (2.40in)	←
H	Boom end inner width	150 (5.91in)	←
J	Boom end outer width	235 (9.25in)	←
K	Inner width of bracket for arm cylinder (head side)	61 (2.40in)	←
d1	Boom foot pin dia. [Bushing outer dia.]	ø45 (1.77in) [ø55 (2.17in)]	←
d2	Boom cylinder (rod side) pin dia.	ø45 (1.77in)	←
d3	Pin dia. of arm end	ø45 (1.77in)	←
d4	Arm cylinder (head side) pin dia.	ø45 (1.77in)	←

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Hydraulic Circuit

No.	Name
1	Dozer spool
2	Slewing spool
3	Travel independent & conflux spool
4	Arm spool
5	Service spool
6	Boom swing spool
7	Travel right spool
8	Travel left Spool
9	Boom spool
10	Bucket spool
11	P1 (RV1) relief valve
12	P2 (RV2) relief valve
13	P3 (RV3) relief valve
14	B1 Overload relief valve
15	A3 Overload relief valve
16	B3 Overload relief valve
17	B8 Over load relief valve
18	B9 Overload relief valve
19	B10 Overload relief valve
20	Boom lock valve
21	Anti cavitation valve
22	Overload relief plug
23	P1 Bypass passage
24	P2 Bypass passage
25	P3 Bypass passage
26	P1 Parallel passage
27	P2 Parallel passage
28	P3 Parallel passage
29	Pp1 Pilot passage
30	Tank passage



GRAPHIC_1D

Figure 32

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CHAPTER 3

E30BSR
E35BSR
COMPACT CRAWLER EXCAVATOR
TIER 4

TROUBLESHOOTING (ENGINE)

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CAUTION

Do not operate the engine if the alternator is producing unusual sounds. Damage to the alternator will result.

0000039en

CAUTION

If the engine coolant pump must be replaced, replace the engine coolant pump as an assembly only. Do not attempt to repair the engine coolant pump or replace individual components.

0000041en

CAUTION

Use a new special O-ring between the engine coolant pump and the joint. Be sure to use the special O-ring for each engine model. Although the O-ring dimensions are the same as a commercially available O-ring, the material is different.

0000042en

CAUTION

Remove or install the high-pressure fuel injection lines as an assembly whenever possible. Disassembling the high-pressure fuel injection lines from the retainers or bending any of the fuel lines will make it difficult to reinstall the fuel lines.

0000047en

CAUTION

After marking the position of the pump drive gear, do not rotate the engine crankshaft. Rotating the crankshaft will cause the fuel injection pump to become misaligned.

0000048en

CAUTION

Do not use a high-pressure wash directly on the alternator. Water will damage the alternator and result in inadequate charging.

0000049en

CAUTION

Do not reverse the positive (+) and negative (-) ends of the battery cable. The alternator diode and stator coil will be damaged.

0000050en

CAUTION

When the battery indicator goes out, it should not come on again. The battery indicator only comes on during operation if the alternator fails. However, if an LED is used in the battery indicator, the LED will shine faintly during normal operation.

0000051en

CAUTION

Using a non-specified V-belt will cause inadequate charging and shorten the belt life. Use the specified belt.

0000052en

CAUTION

Agricultural or other chemicals, especially those with a high sulfur content, can adhere to the IC regulator. This will corrode the conductor and result in battery over-charging (boiling) and charging malfunctions. Consult Yanmar before using the equipment in such an environment or the warranty is voided.

0000053en

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CAUTION

Do not connect a load between alternator terminals L and E. Damage to the alternator will result.

0000036en

CAUTION

Do not remove the positive (+) battery cable from alternator terminal B while the engine is operating. Damage to the alternator will result.

0000037en

CAUTION

Do not turn the battery switch OFF while the engine is operating. Damage to the alternator will result.

0000038en

CAUTION

Do not operate the engine if the alternator is producing unusual sounds. Damage to the alternator will result.

0000039en

CAUTION

Do not reverse the positive (+) and negative (-) ends of the battery cable. The alternator diode and stator coil will be damaged.

0000050en

CAUTION

When the battery indicator goes out, it should not come on again. The battery indicator only comes on during operation if the alternator fails. However, if an LED is used in the battery indicator, the LED will shine faintly during normal operation.

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CAUTION

Do not use a high-pressure wash directly on the alternator. Water will damage the alternator and result in inadequate charging.

0000049en

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Symptoms and conditions of failure / Possible causes		Starting failure: Starter does not rotates: ECU failure lamp does not go on immediately after turning on the key	Starting failure: Starter does not rotates: ECU failure lamp goes on immediately (within 2 seconds) after turning on the key	Starting failure: Starter rotates: Engine does not start up (without initial ignition)	Starting failure: Starter rotates: Engine does not start up (it stops immediately after initial ignition)	Starting failure: Starter rotates: It takes longer than before to start up engine	Engine stall after start up: Smoke: None	Engine stall after start up: Smoke: Slight	Engine stall after start up: Smoke: Remarkable	Speed control error: Revolution speed cannot be changed with accelerator (stays at a constant speed)	Speed control error: No load: Cannot be set to particular speed	Speed control error: No load: Poor acceleration	Speed control error: No load: Does not smoothly return to low speed	Speed control error: No load: Hunting occurs	Speed control error: Workload: Hunting occurs	Engine output low: Smoke color: Normal	Engine output low: Smoke color: White	Engine output low: Smoke color: Black	Noise and vibration: High knocking sound at combustion time	Noise and vibration: Uneven combustion sound	Noise and vibration: Abnormal sound (other than combustion sound) from engine	Noise and vibration: Engine vibrates heavily	Lubricating oil: Too much lubricating oil consumed	Lubricating oil: Lubricating oil diluted with fuel	Lubricating oil: Lubricating oil mixed with water	Lubricating oil: Oil pressure low (oil pressure warning lamp lit)	Cooling water: Overheat (water temperature warning lamp lit)	Cooling water: Water temperature low	Intake air: Pressure low (air cleaner warning lamp lit)	Intake air: Pressure high	Exhaust gas: Workload: White exhaust gas	Exhaust gas: Workload: Black exhaust gas	Exhaust gas: Too much blow-bye	Exhaust gas: Exhaust gas temperature high	Fuel: Too much fuel consumed	Fuel: Fuel mixed with water (oil-water separator warning lamp lit)	Fuel: Fuel filter fouled shortly	Electrical parts: Battery charge error (charge lamp lit)	Electrical parts: ECU failure lamp flashes	Electrical parts: ECU failure lamp stops flashing immediately (within 2 seconds) after turning off the key	Electrical parts: Specific ECU control functions fail	Electrical parts: Fuses get blown or broken (repeatedly)	Corrective Action	Referenced page number
Electrical system	Fuse blown or broken	○	○				○																																	●	Replace the fuse.	
	Starter faulty		○	○																																				●	Repair or replace the starter.	See "Starter" (on page 11-9).
	Alternator faulty			○																																	○					Repair or replace the alternator.	See "Removing the Alternator" (on page 12-12).
	Wires disconnected	○	○	○			○																														○	○	○	○		Repair or replace the disconnected wire(s) of the harness.	
	Wires short-circuited (sheathing broken); overloaded by the power consumption by additional devices	●																																						●	Inspect, repair, or replace the harnesses and wires as needed. Reexamine the additional devices.	
	Battery voltage low		○	○																																	–					Inspect and charge the battery.	See "Inspecting the Electrolyte Level and Charging the Battery" (on page 5-23).
	Key switch faulty or disconnected	○					○																																	○		Repair or replace the harness. Replace the key switch.	
	Key switch instantly cut off				○		○																																			Replace the key switch.	
	Starter relay faulty, disconnected, or short-circuited		○																																							Repair or replace the harness. Replace the starter relay.	
	Main relay faulty (except for sticking of the contact, which is undetectable by ECU)	○																																						○		Repair or replace the harness. Replace the main relay.	
	Actuator relay faulty (contact failure undetectable by ECU)		?	?			○																																			Replace the actuator relay.	
	Start assist relay faulty (contact failure undetectable by ECU)			○		○													●												△												Replace the start assist relay.	
	Accelerator sensor signal error (an error undetectable by ECU)									○			○	○						○																							Repair or replace the accelerator sensor.	
	Water temperature sensor signal error (an error undetectable by ECU)			○		○							●	●					●																							Replace the water temperature sensor.	
	Speed sensor signal error (an error undetectable by ECU, such as caused by noise)				○	●	○						○	○						○																							Repair or replace the fuel injection pump.	Monitor the engine speed using the diagnosis tool.
	Rack position sensor signal error (an error undetectable by ECU)					●	○					●	○	○						○																							Repair or replace the fuel injection pump.	Monitor the rack position sensor signal using the diagnosis tool.
	Rack actuator malfunctioning (an error undetectable by ECU)					●	○					●	○	○						○																							Repair or replace the fuel injection pump.	Monitor the rack actuator using the diagnosis tool.
	ECU failure lamp disconnected																																							○		Replace the lamp. Repair or replace the harness.	
	ECU faulty (ECU self diagnosis failure)	○	○							○																														○	○		Replace the ECU.	

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