WHEEL LOADER

SERVICE MANUAL

HL730-7A

HYUNDAI

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(6) Engine fault codes

Fault code No.	Reason	Effect (only when fault code is active)
111	Engine control module critical internal failure - Bad intelligent device or component. Error internal to the ECM related to memory hardware failures or internal ECM voltage supply circuits.	Possible no noticeable performance effects, engine dying, or hard starting.
115	Engine magnetic crankshaft speed/position lost both of two signals - Data erratic, intermittent, or incorrect. The ECM has detected that the primary engine speed sensor and the backup engine speed sensor signals are reversed.	Fueling to injectors is disabled and the engine can not be started.
122	Intake manifold 1 pressure sensor circuit - Voltage above normal, or shorted to high source. High signal voltage detected at the intake manifold pressure circuit.	Engine power derate.
123	Intake manifold 1 pressure sensor circuit - Voltage below normal, or shorted to low Source. Low signal voltage or open circuit detected at the intake manifold pressure circuit.	Engine power derate.
124	Intake manifold 1 pressure - Data valid but above normal operational range - Moderately severe level. Intake manifold pressure has exceeded the maximum limit for the given engine rating.	Engine power derate.
131	Accelerator pedal or lever position sensor 1 circuit - Voltage above normal, or shorted to high source. High voltage detected at accelerator pedal position circuit.	Severe derate in power output of the engine. Limp home power only.
132	Accelerator pedal or lever position sensor 1 circuit - Voltage below normal, or shorted to low source. Low voltage detected at accelerator pedal position signal circuit.	Severe derate in power output of the engine. Limp home power only.
133	Remote accelerator pedal or lever position sensor 1 circuit - Voltage above normal, or shorted to high source. High voltage detected at remote accelerator pedal position circuit.	Remote accelerator will not operate. Remote accelerator position will be set to zero percent.
134	Remote accelerator pedal or lever position sensor 1 circuit - Voltage below normal, or shorted to low source. Low voltage detected at remote accelerator pedal position signal circuit.	Remote accelerator will not operate. Remote accelerator position will be set to zero percent.
135	Engine oil rifle pressure 1 sensor circuit - Voltage above normal, or shorted to high source. High signal voltage detected at the engine oil pressure circuit.	None on performance. No engine protection for oil pressure.
141	Engine oil rifle pressure 1 sensor circuit - Voltage below normal, or shorted to low source. Low signal voltage detected at engine oil pressure circuit.	None on performance. No engine protection for oil pressure.
143	Engine oil rifle pressure - Data valid but below normal operational range - Moderately severe level.	None on performance.
144	Engine coolant temperature 1 sensor circuit - Voltage above normal, or shorted to high source. High signal voltage or open circuit detected at engine coolant temperature circuit.	Possible white smoke. Fan will stay ON if controlled by ECM. No engine protection for engine coolant temperature.

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5. STEERING UNIT PRESSURE TEST

- **SPECIFICATION**

Oil temperature	45±5°C (113±9°F)
Engine speed	High idle
Relief pressure	20.5~21.5Mpa (205~215bar, 3200~3300psi)

- **GAUGE AND TOOL**

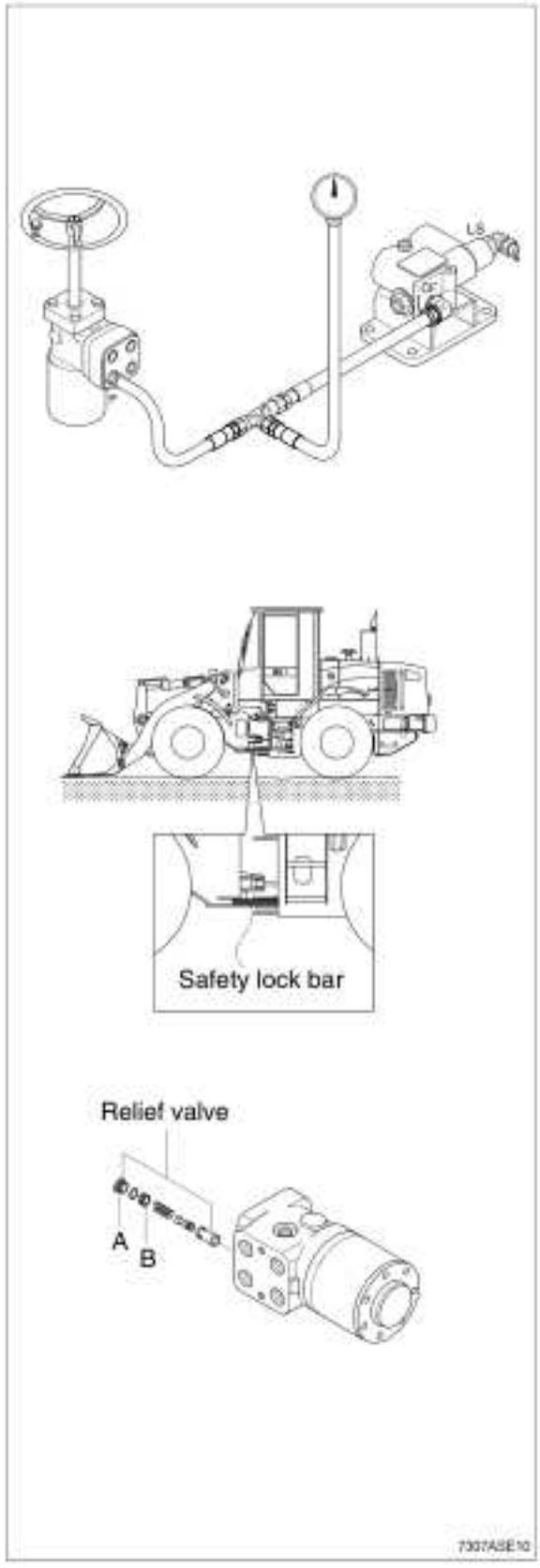
  Gauge 0~35.0Mpa(0~350bar, 0~5000psi)
  Temperature reader

1) Connect test fitting and gauge to P port on steering unit.
2) Install temperature reader.
   (See temperature installation procedure in this group.)
3) Install frame locking bar.
4) Heat hydraulic oil to specifications.(See hydraulic oil warm up procedure at page 6-52.)
5) Run engine at specifications and turn steering wheel rapidly hold approximately 22N(5lb force) pressure on wheel with frames locked.

   ※ **If steering wheel is turned slowly, it will continue to with the frames locked. This will give an incorrect pressure reading.**

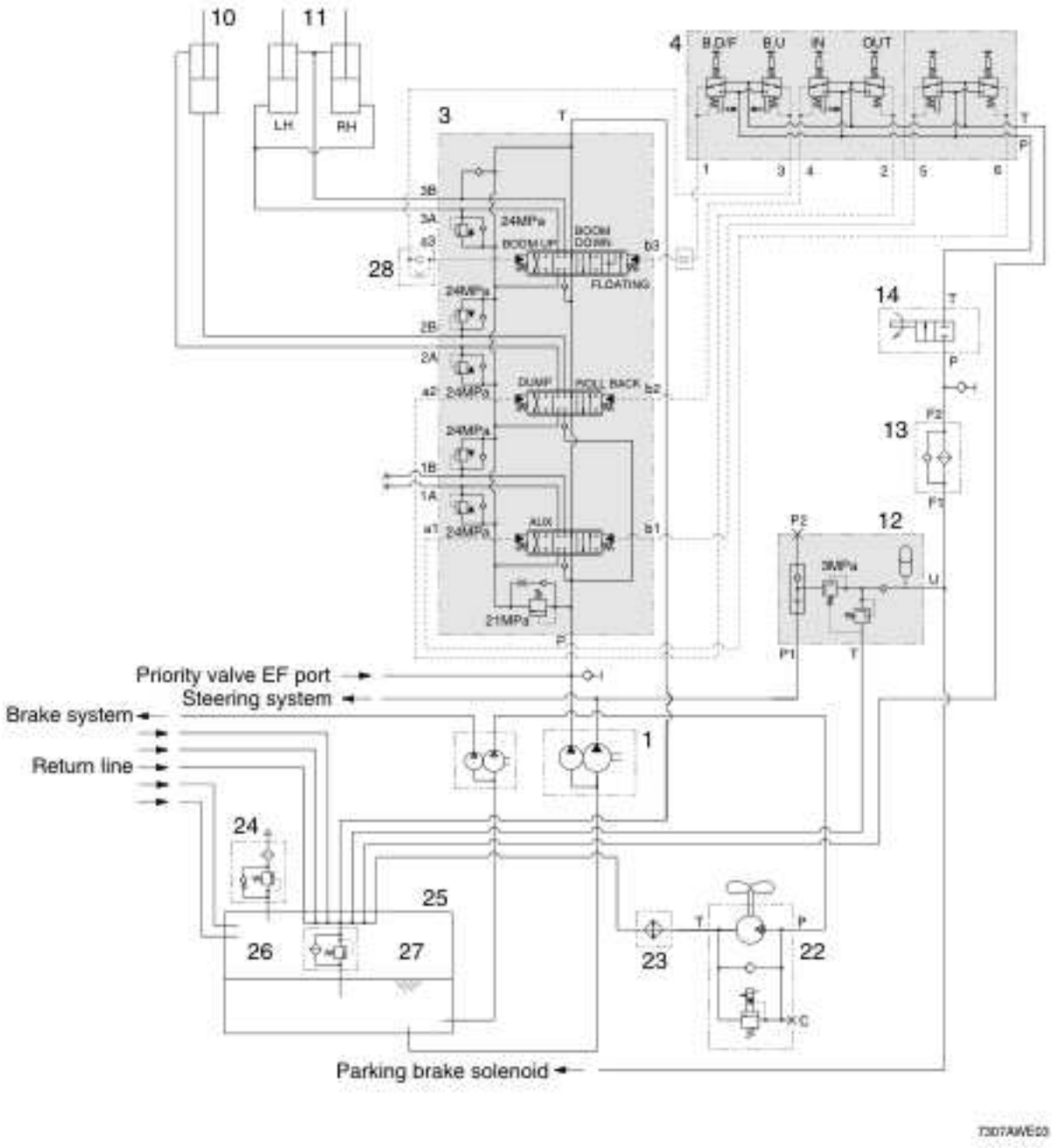
   If steering wheel continues to turn rapidly with the frames locked, steering system leakage is indicated.
6) Read pressure gauge. This is the steering unit relief pressure.
7) If pressure in not to specification, remove the plug(A) from steering unit. Turn adjusting screw(B) in relief cartridge using a hex head wrench(8mm) to adjust pressure.

   If pressure cannot be adjusted to specification, disassemble and inspect steering unit.



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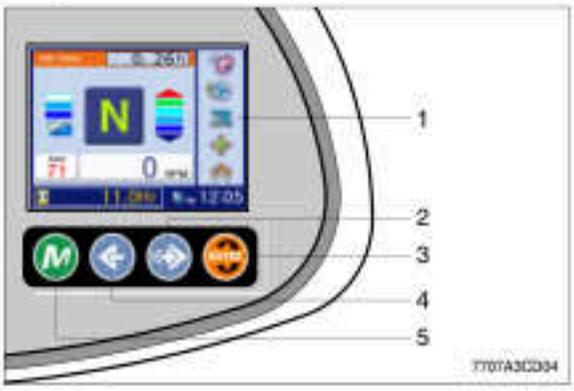
3. WORK EQUIPMENT HYDRAULIC CIRCUIT



1	Main pump	12	Pilot supply unit	24	Air breather
3	Main control valve	13	Line filter	25	Hydraulic tank
4	Remote control valve	14	Safety valve	26	Return filter
10	Bucket cylinder	22	Fan motor	27	Bypass valve
11	Boom cylinder	23	Oil cooler	28	Shockless valve

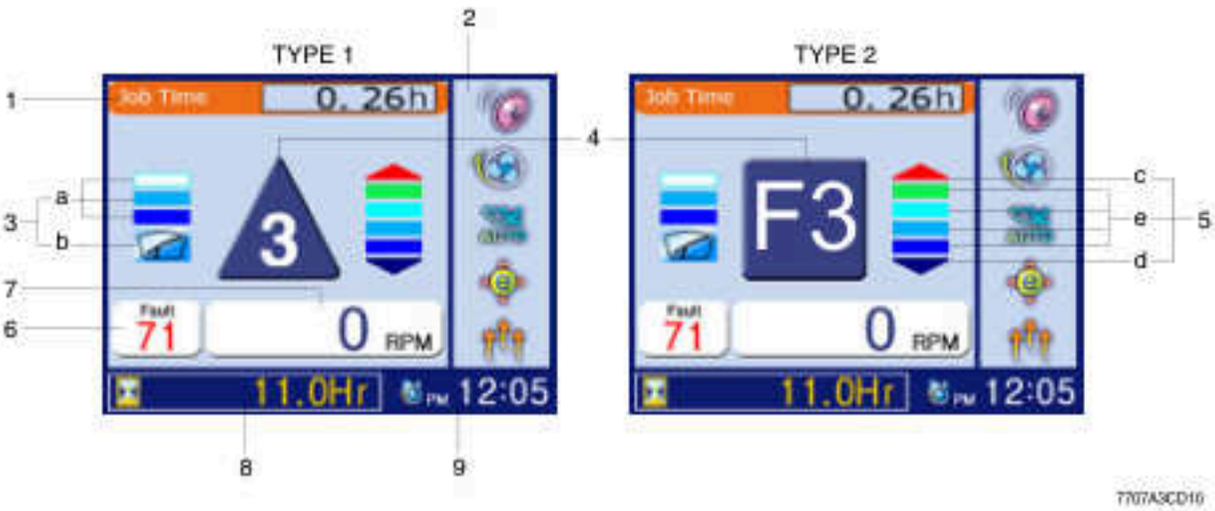
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26) LCD



1 LCD
2 ( ) Right, Buzzer stop
Move to the next selection
3 ( ) Select(Enter)
Activate the currently chosen item
4 ( ) Escape
Return to the previous menu
5 ( ) Main, Menu
- Display menu
- Return to the main display

(1) Main display

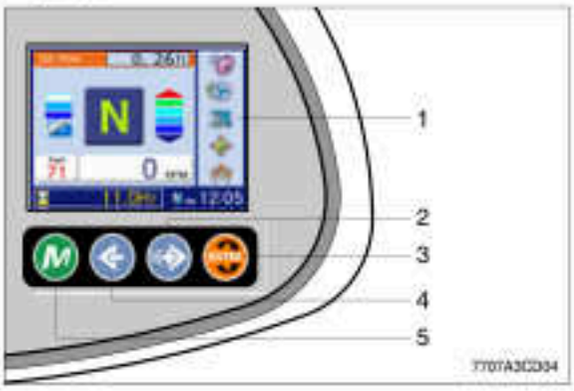


No	Symbol	Meaning	Remark		
1	Job Time 1.26h	Monitoring information	Job timer, Odometer, Hydraulic temperature, Battery voltage, Coolant temperature, T/M oil temperature.		
2		State information	Buzzer, Fan state, Ride state(option), Steering joystick(option), Warming up		
3	a	Wiper display	When operating intermittently, it shows an operating time interval		
	b		Wiper motor intermittently operating		
4	△·▽·□	Actual gear display	Forward, reverse, neutral	LCD type 1	
	F, R, N		Forward, reverse, neutral	LCD type 2	
	1, 2, 3, 4		Actual gear		
	P		Parking brake mode active		
5	c, d	Select gear display	Up and down shifting	c: Forward, d: Reverse	Automatic mode
	e		Pre-selected gear		
6	71	Fault code display	Fault code state display		
7	0 RPM	Engine rpm display	Now engine rpm state display		
8	11.0Hr	Hour meter display	Hour meter state display		
9	PM 12:05	Timer & alarm display	Now time & alarm state display		

※ Both type1 and type2 are LCD modes and they can be changed each other by operator's selection. (Adjustment/Display, see page 7-29)

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6) LCD



1 LCD
2 ( ) Right, Buzzer stop
Move to the next selection
3 ( ) Select(Enter)
Activate the currently chosen item
4 ( ) Escape
Return to the previous menu
5 ( ) Main, Menu
- Display menu
- Return to the main display

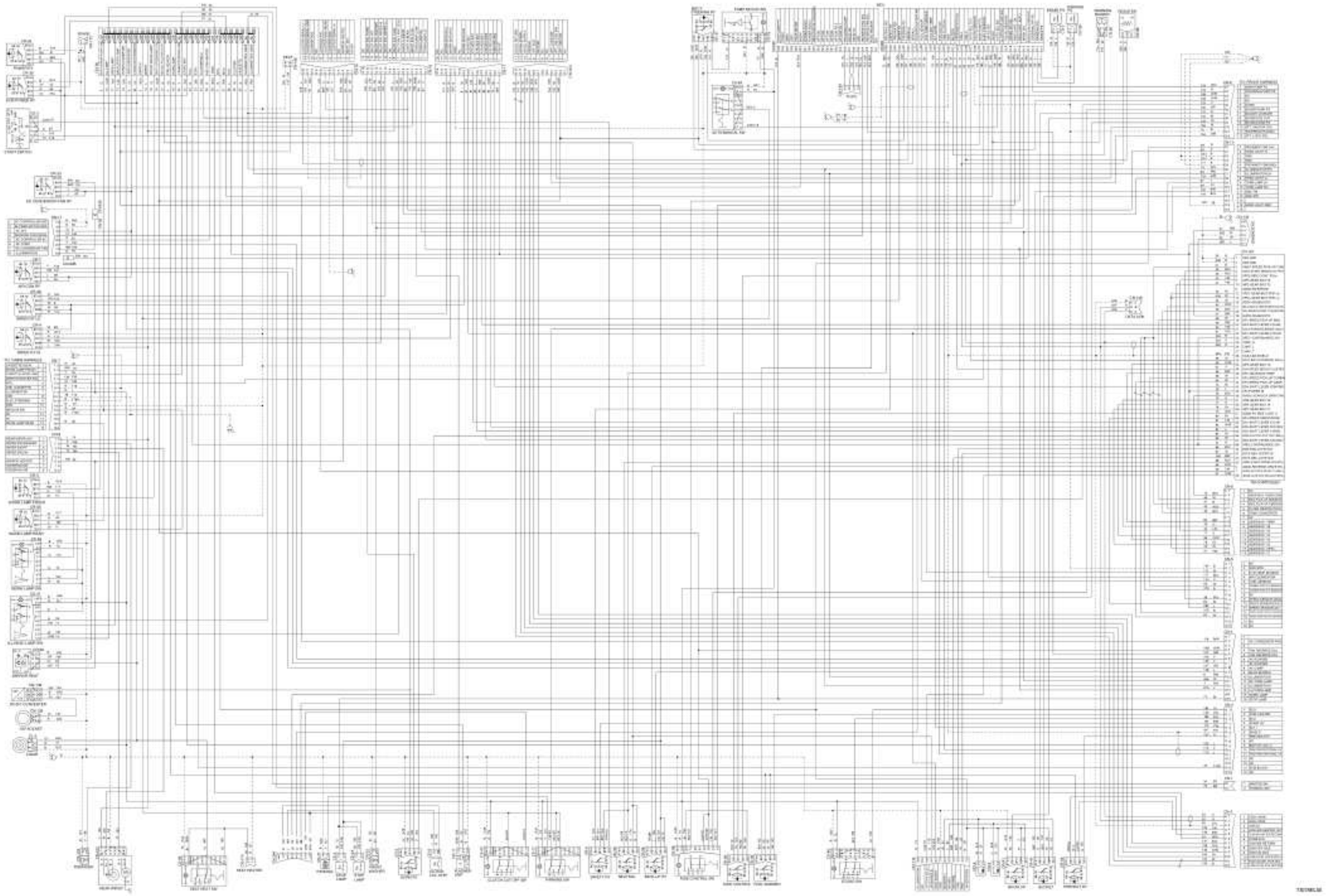
(1) Main display



No	Symbol	Meaning	Remark	
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2		State information	Buzzer, Fan state, Ride state(option), Steering joystick(option), Warming up	
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	F, R, N		Forward, reverse, neutral	LCD type 2
	1, 2, 3, 4		Actual gear	
	P		Parking brake mode active	
5	c, d	Select gear display	Up and down shifting / c: Forward, d: Reverse	Automatic mode
	e		Pre-selected gear	
6	71	Fault code display	Fault code state display	
7	0 RPM	Engine rpm display	Now engine rpm state display	
8	11.0Hr	Hour meter display	Hour meter state display	
9	PM 12:05	Timer & alarm display	Now time & alarm state display	

※ Both type1 and type2 are LCD modes and they can be changed each other by operator's selection. (Adjustment/Display, see page 3-18)

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