LEAF SUSPENSION ASSEMBLY

DATA AND SPECIFICATIONS

EN09ABC02I200001

FRONT SUSPENSION

Unit: mm {in.}

Model		HINO 145 (NA6J)	HINO 165 (NB6J)	HINO 185 (NC6J)	HINO 238 (ND8J) HINO 268 (NE8J) (NJ8J)	HINO 308 (NF8J) HINO 338 (NV8J)
Type		Taper-leaf springs with double acting shock absorber				
Dimensions of leaf springs:	Span	1,200 {47.24}	1,200 {47.24}	1,200 {47.24}	1,470 {57.88}	1,470 {57.88}
	Width	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}
	Thickness of leaves	16.76 {0.66}	16.76 {0.66}	16.76 {0.66}	20.01 {0.788}	20.01 {0.788}
		16.76 {0.66}	16.76 {0.66}	16.76 {0.66}	20.01 {0.788}	20.01 {0.788}
		—	—	—	—	20.01 {0.788}
Shock absorbers:	Type	Double acting	Double acting	Double acting	Double acting	Double acting
	Stroke	208 {8.19}	208 {8.19}	208 {8.19}	255 {10.04}	255 {10.04}
	Min. length	420 {16.53}	420 {16.53}	420 {16.53}	390 {15.35}	390 {15.35}
	Max. length	628 {24.72}	628 {24.72}	628 {24.72}	645 {25.4}	645 {25.4}
Stabilizer (opt):	Type	Torsion ber	Torsion ber	Torsion ber	—	—
	Diameter	32 {1.26}	32 {1.26}	32 {1.26}	—	—
	Length	289.5 {11.40}	289.5 {11.40}	289.5 {11.40}	—	—

REAR SUSPENSION

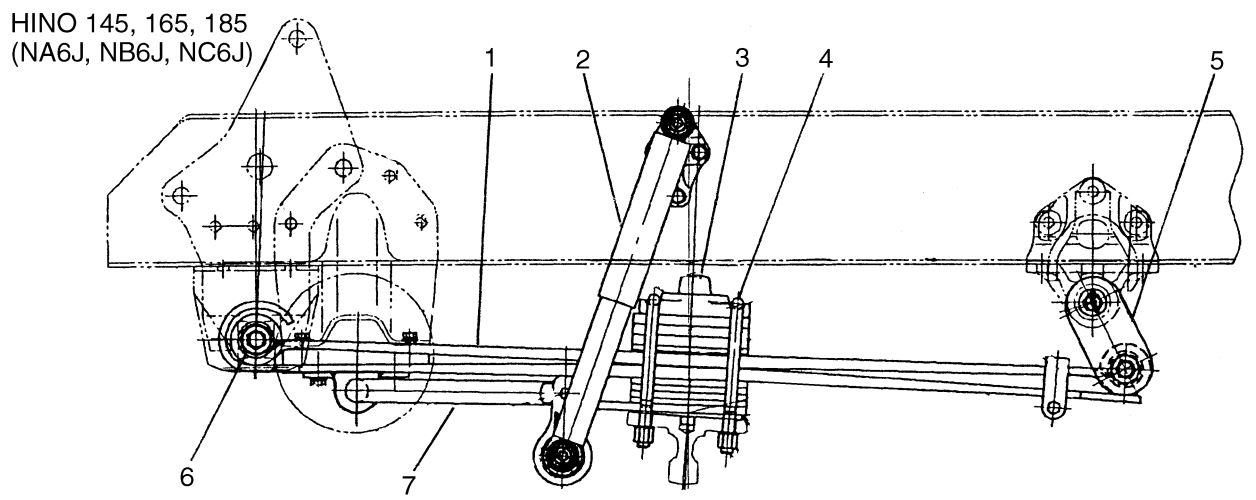
Unit: mm {in.}

Model		HINO 145 (NA6J)	HINO 165 (NB6J)	HINO 185 (NC6J)	HINO 238 (ND8J) HINO 268 (NE8J) (NJ8J)	HINO 308 (NF8J) HINO 338 (NV8J)	HINO 338 (NV8J)
Type		Semi-elliptic main and auxiliary helper-leaf spring					
Dimensions of main leaf springs:	Span	1,300 {51.18}	1,300 {51.18}	1,300 {51.18}	1,300 {51.18}	1,300 {51.18}	1,300 {51.18}
	Width	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}	76.2 {3.00}
	Thickness of leaves	10.7 {0.423}	12.0 {0.473}	13.4 {0.527}	14.17{0.558}	14.99 {0.590}	15.88 {0.625 }
		10.2 {0.401}	10.7 {0.423}	12.0 {0.473}	13.4 {0.527}	9.65{0.380}	—
		—	10.2 {0.401}	10.7 {0.423}	9.65{0.383}	10.2 {0.401}	10.2 {0.401}
		—	9.14 {0.360}	10.2 {0.401}	10.2 {0.401}	—	—
Dimensions of auxiliary leaf springs:	Span	900 {35.44}	900 {35.44}	900 {35.44}	900 {35.44}	900 {35.44}	900 {35.44}
	Width	76.2{3.00}	76.2{3.00}	76.2{3.00}	76.2{3.00}	76.2{3.00}	76.2{3.00}
	Thickness	17.83 {0.702}	17.83 {0.702}	17.83 {0.702}	17.83 {0.702}	17.83 {0.702}	17.83 {0.702}

DESCRIPTION

EN09ABC02C100001

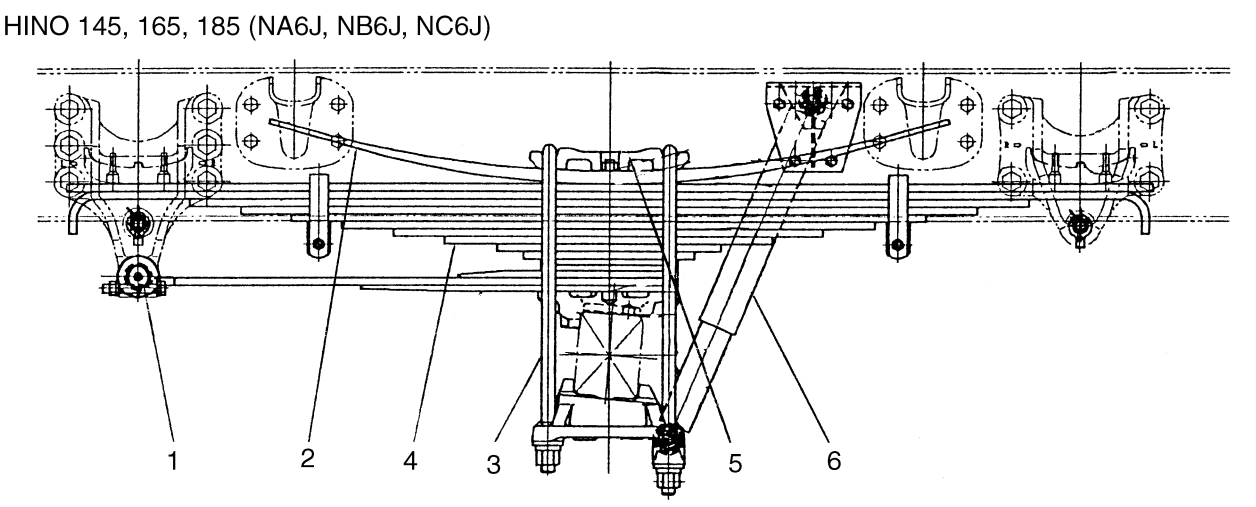
FRONT SUSPENSION



SAPH09ABC0200001

1	Leaf spring assembly	5	Shackle
2	Shock absorber	6	Spring pin
3	Spring bumper	7	Stabilizer (Opt.)
4	U-bolt		

REAR SUSPENSION



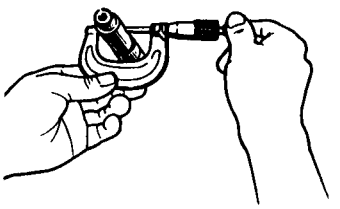
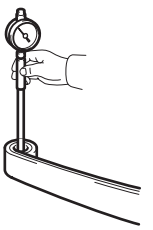
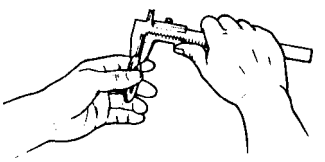
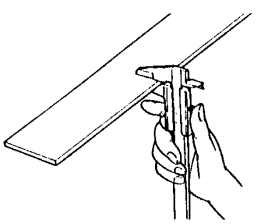
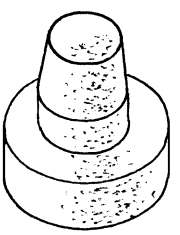
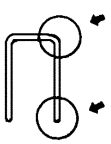
SAPH09ABC0200002

1	Spring pin	4	Main leaf spring assembly
2	Auxiliary leaf spring assembly	5	Spring pad
3	U-bolt	6	Shock absorber (Opt.)

INSPECTION AND REPAIR

EN09ABC02H300001

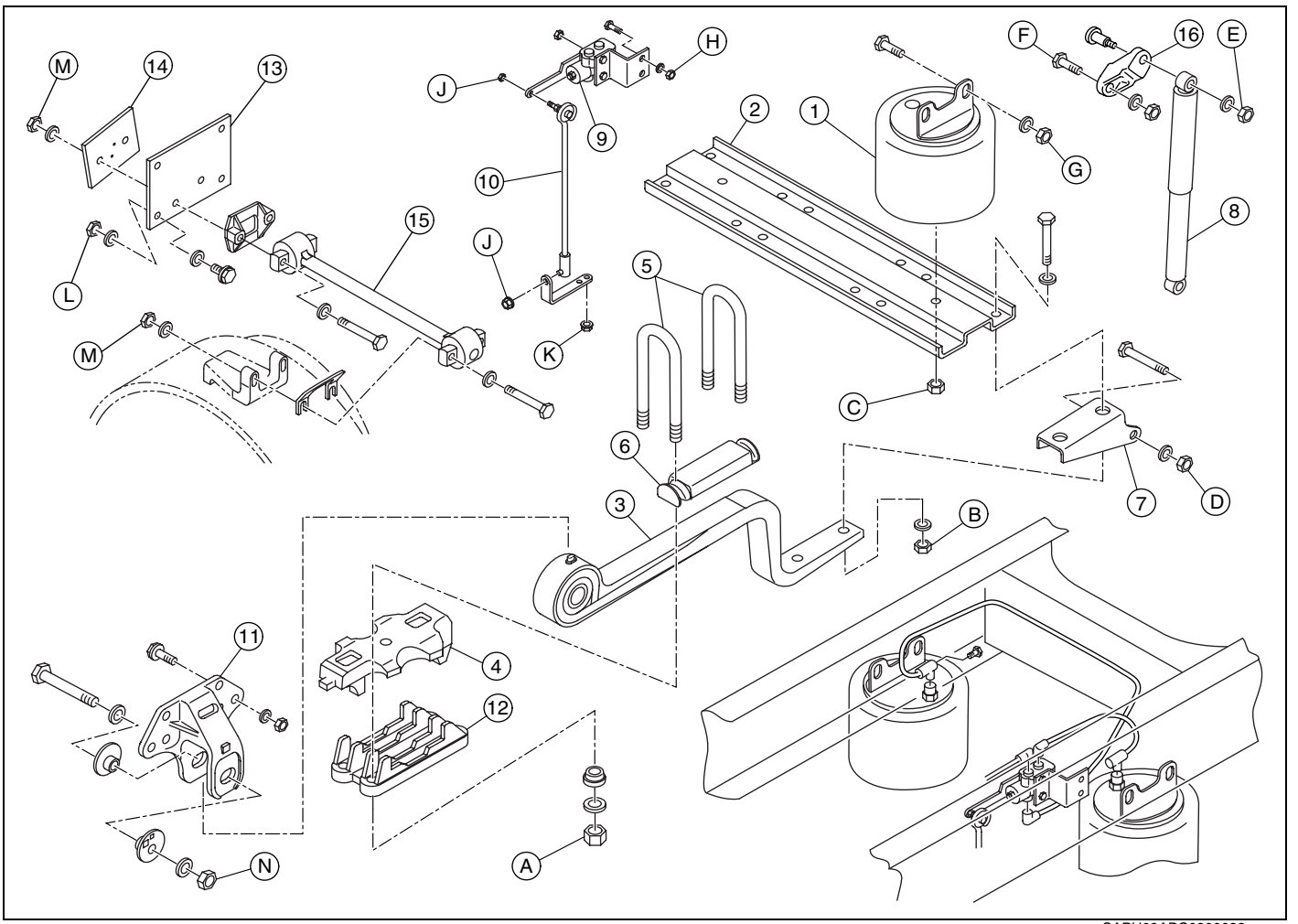
Unit: mm {in.}

Inspection item		Standard	Limit	Remedy	Inspection procedure
Spring pin: Outside diameter	Rear	31.66 {1.246}	31.30 {1.232}	Replace.	Measure 
Clearance between spring pin and eye bushing		0.125 {0.0049}	0.5 {0.0197}	Replace the pin and/or bushing.	Measure 
Thrust washer: Wear		3.0 {0.118}	2.5 {0.0984}	Replace.	Measure 
Leaf: Damage and wear		—	More than 15%	Replace.	Measure 
Spring bumper: Damage and wear		—	—	Replace, if necessary.	Visual check 
U-Bolt: Damage		—	—	Replace, if necessary.	Visual check 

COMPONENT LOCATOR

EN09ABC02D100002

REAR SUSPENSION



SAPH09ABC0200038

1	Air spring	10	Link
2	Cross channel	11	Spring hanger
3	Main support member	12	Bottom cap
4	Spring seat	13	Inner reinforcement plate
5	U-bolt	14	Outer reinfocement plate
6	Top pad	15	Transverse rod
7	Lower shock absorber bracket	16	Upper shock absorber bracket
8	Shock absorber	X	From air tank
9	Height control valve		

Tightening torque **Unit: N·m {kgf·cm, lbf·ft}**

A	545-610 {5560-6220, 400-450}	H	27-40 {275-405, 20-30}
B	355-435 {3620-4435, 260-320}	J	13-16 {133-163, 10-12}
C	27-40 {275-405, 20-30}	K	13-16 {133-163, 10-12}
D	68-95 {695-965, 50-70}	L	237-305 {2420-3110, 175-225}
E	68-95 {695-965, 50-70}	M	203-280 {2070-2835, 150-205}
F	237-305 {2420-3110, 175-225}	N	745-810 {7600-8265, 550-600}
G	355-435 {3620-4435, 260-320}		

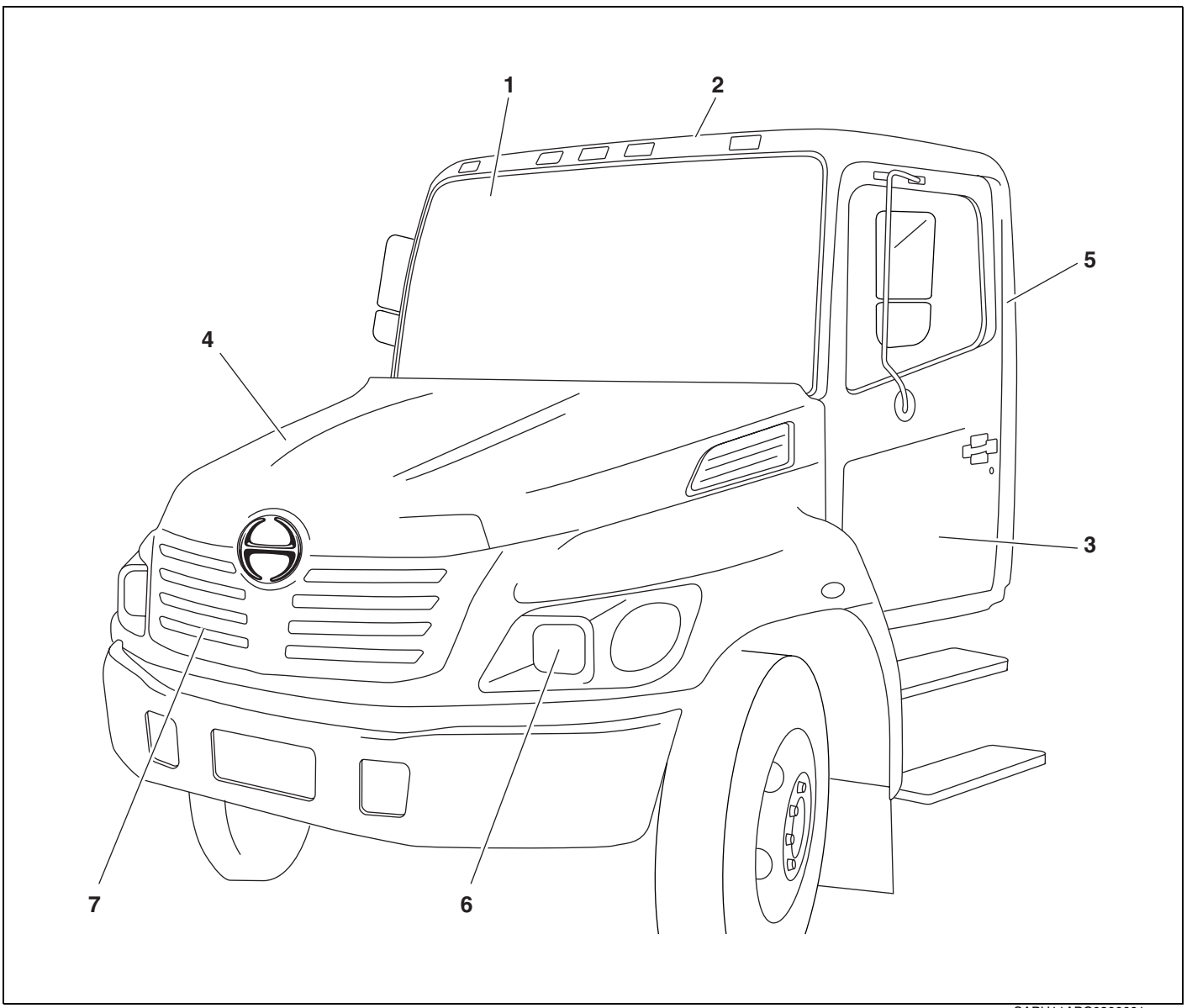
CAB ASSEMBLY

DATA AND SPECIFICATIONS

EN11ABC02I200001

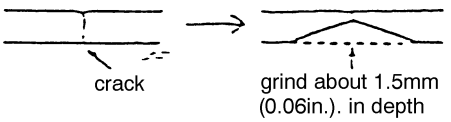
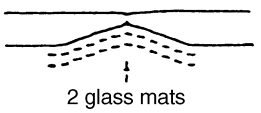
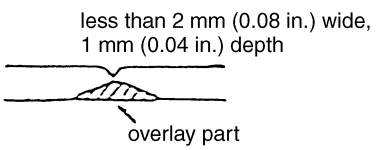
CAB

	Cabin	Engine hood
Type	**All steel welded construction, safety glass fitted to all windows**	**Tilt hood, made of FRP.**
Tilt system	**Less**	**Torsion bar**
Tilt angle	**—**	**75°**



SAPH11ABC0200001

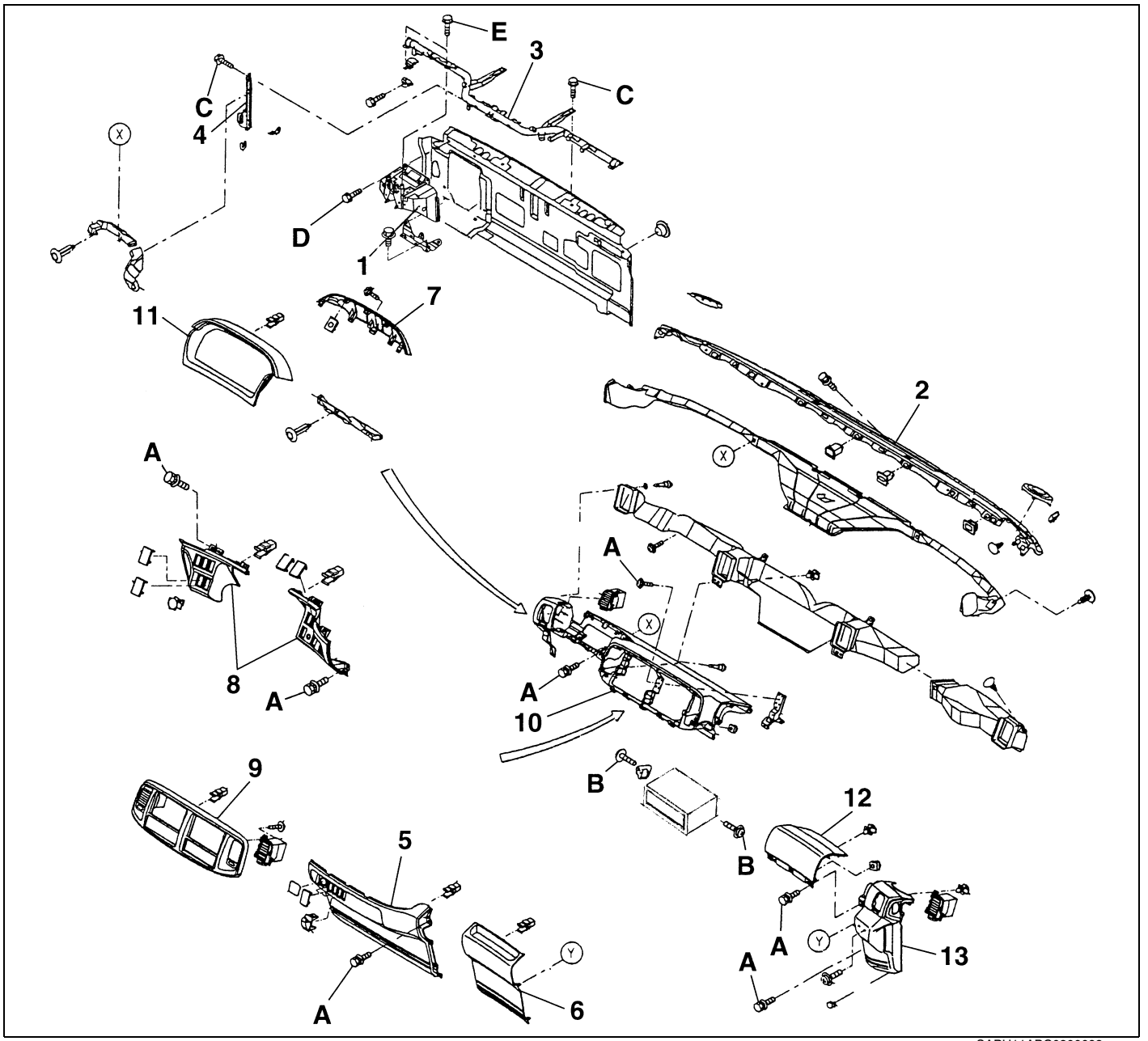
1	**Windshield glass**	**5**	**Cab body**
2	**Roof**	**6**	**Head light**
3	**Door**	**7**	**Radiator grille**
4	**Hood**		

Symptom	Repair method	Note
(2) Crack in resin	a) Back side grinding Using a hand grinder or router, grind the back side of the crack.  	Grind area as small as possible
(Overlay on the back side.)	b) Overlay Cut two glass mats larger than grinding area, impregnate perfectly with polyester resin and place it on the repair area without a wrinkle and air bubble.  	Mix hardener perfectly. Clean the repair place using acetone before overlaying.
	c) Dry resin Refer to (1)-c).	In case of improper drying, putty peels off while sanding.
	d) Grinding Grind using hand grinder or router and then sandpaper #120 to #400.	Use patch rubber to flatten repair area.
	e) If there is a pinhole or air bubble, apply methods(1)-b) to -d).	Grind using #400 sandpaper.
	f) V-groove cutting on the front side Using a hand router, cut a V-groove on the front side.  	
	g) Finish on the front side Apply methods (1)-a) to e).	

INSTRUMENT PANEL

COMPONENT LOCATOR

EN11ABC02D100004



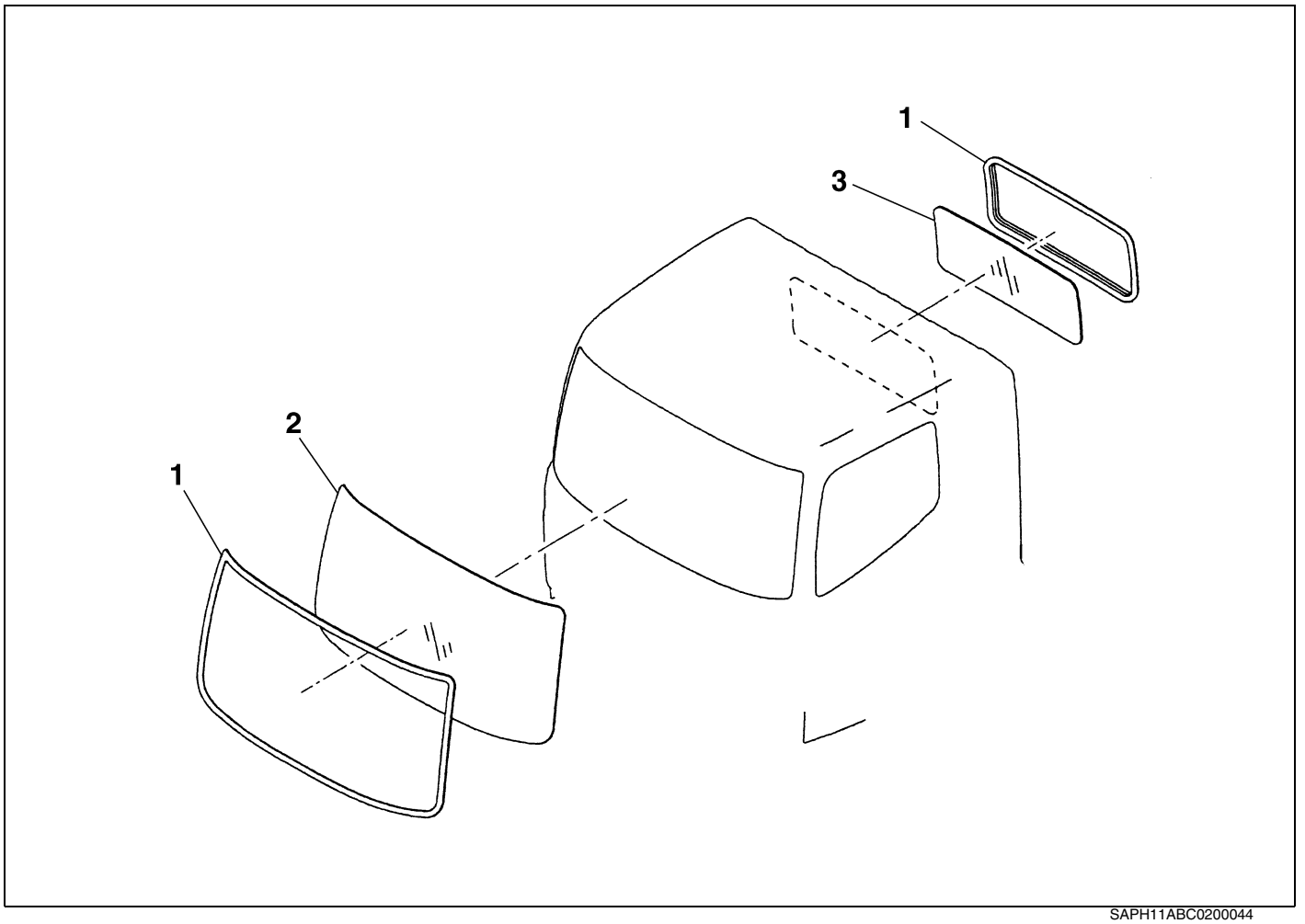
SAPH11ABC0200092

1	Pedal bracket support	8	Switch board panel
2	Upper panel	9	Cluster finish panel
3	Instrument panel cross member	10	Cluster housing
4	Gusset	11	Cluster bezel
5	Lower center cover	12	Upper right cover
6	Lower right cover	13	Side cover
7	Panel upper cover		

WINDSHIELD

COMPONENT LOCATOR

EN11ABC02D100006

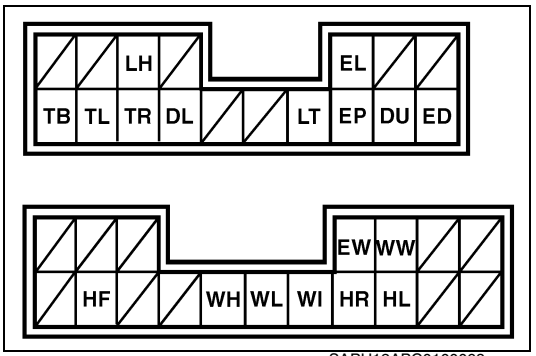


SAPH11ABC0200044

1	Weatherstrip	3	Back window
2	Windshield glass		

PARTS	INSTALLED	PARTS	INSTALLED
Back light switch (EATON MTM)	Manual transmission	Air gauge sensor front (Full air brake)	Air tank
Neutral switch (EATON MTM)		Air gauge sensor rear (Full air brake)	
Speed sensor (EATON MTM)		Low pressure switch No.1 (Full air brake)	
Neutral start switch (AISIN A450 ATM)	A450 ATM	Low pressure switch No.2 (Full air brake)	
Oil temperature switch (AISIN A450 ATM)		Van light connector	Frame, inside of the side rail RH
Solenoid temperature switch (AISIN A450 ATM)		ABS modulator (HYDRO MAX brake)	Frame, inside of the side rail LH, at cab back
SPEED SENSOR		Air drier (Full air brake)	Frame, outside of the side rail LH, at cab back
Vehicle speed sensor (AISIN A450 ATM)		Spare power source (Tail) 1	Frame, inside of the side rail RH rear
ALLISON LCT2400/2000 ATM ECU	Frame, No.3 crossmember	Spare power source (Tail) 2	Frame, inside of the side rail RH, at the 3rd crossmenber
Engine speed sensor (ALLISON LCT2400/2000 ATM)	LCT2400/2000 ATM	Modulator front LH (Full air brake)	Frame, outside of the side rail LH, at front axle
Main transmission (ALLISON LCT2400/2000 ATM)		ABS sensor front LH (Full air brake)	
Neutral start backup (ALLISON LCT2400/2000 ATM)		ABS sensor front LH (HYDRO MAX brake)	
Output speed sensor (ALLISON LCT2400/2000 ATM)		Modulator rear LH(Full air brake)	Frame, outside of the side rail LH, at rear axle
Turbine speed sensor (ALLISON LCT2400/2000 ATM)		ABS sensor rear LH (Full air brake)	
ALLISON MD3060P ATM ECU	Frame, No.3 crossmember	ABS sensor rear LH (HYDRO MAX brake)	
Engine speed sensor (ALLISON MD3060P ATM)	MD3060P ATM	Modulator front RH (Full air brake)	Frame, outside of the side rail RH, at front axle
Output speed sensor (ALLISON MD3060P ATM)		ABS sensor front RH (Full air brake)	
Transmission main (ALLISON MD3060P ATM)		ABS sensor front RH (HYDRO MAX brake)	
Differential switch	HYDROMAX unit, pedal bracket outside	Modulator rear RH (Full air brake)	Frame, outside of the side rail RH, at rear axle
Flow switch		ABS sensor rear RH (Full air brake)	
Motor pump (HYDRO MAX brake)		ABS sensor rear RH (HYDRO MAX brake)	
Motor relay (HYDRO MAX brake)			

HEAD LIGHT CIRCUIT



SAPH12ABC0100068

1. COMBINATION SWITCH INSPECTION

(1) Check the continuity between terminals.

Lighting (ON, OFF):

Switch position \ Terminals	EL	LT	LH
OFF			
TAIL	○	○	
TAIL AND HEAD	○	○	○

Lighting (HIGH, LOW):

Switch position \ Terminals	ED	DL	DU	EP
PASSING	○	○	○	○
LOW BEAM	○	○		
HIGH BEAM	○		○	

Turn signal:

Switch position \ Terminals	BT	TL	TR
LEFT	○	○	
OFF			
RIGHT	○		○

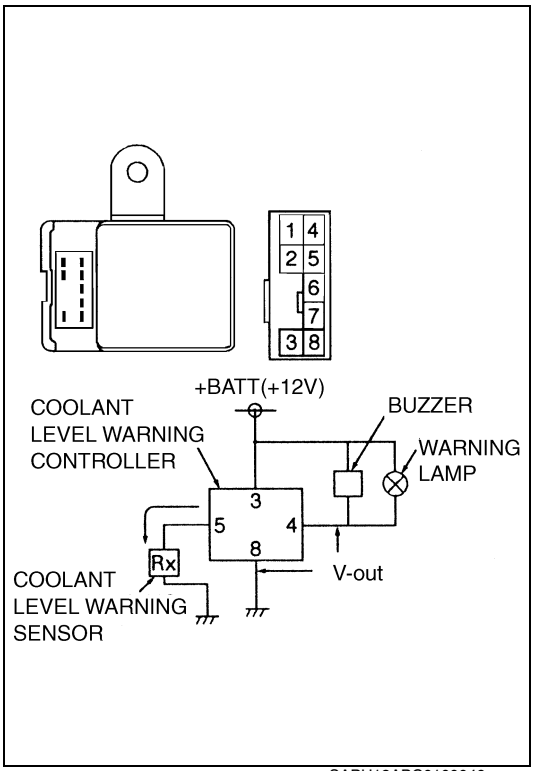
Hazard warning:

Switch position \ Terminals	HF	HL	HR	HT
OFF				
ON	○	○	○	○

Windshield wiper and washer:

Switch position \ Terminals	WW	EW	WI	WL	WH
OFF					
WIPER: INT		○	○		
LOW		○		○	
HIGH		○		○	○
WASHER: ON	○	○			

SAPH12ABC0100069



SAPH12ABC0100046

10. CHECK THE OPERATION OF THE COOLANT LEVEL WARNING CONTROLLER.

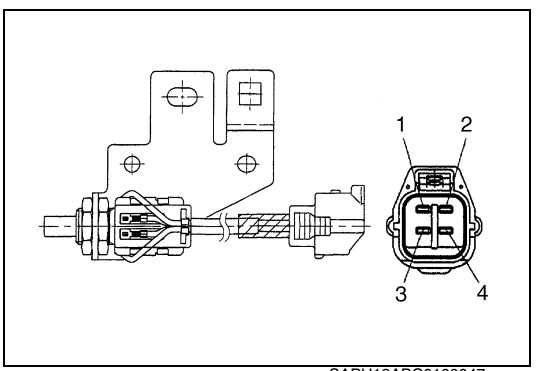
(1) When the resistance of the coolant level sensor indicates less than 10kΩ, the coolant level warning controller does not operate, and when it is more than 30kΩ, it is operational and the buzzer rings.

(2) When the voltage of the power is 12V and the temperature is 20°C — 5°C (68° — F41°F) the voltage and the resistance of sensor operates as follows, (Rx=The resistance of coolant level sensor)

- When Rx indicates infinity,Voltage (Vout) comes to less than 1.5V and the buzzer rings.
- When Rx indicates 0Ω, voltage (Vout) is nearly equal to the voltage of the power, the buzzer does not ring.

(3) When the connector of coolant level sensor is taken off, the warning lamp lights.

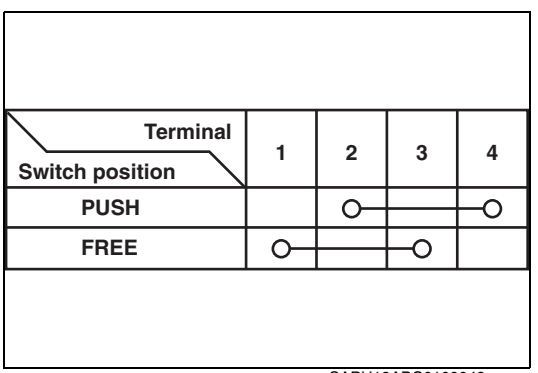
(4) When terminal No.5 is taken off and is connected to the ground, Rx indicates almost 0Ω.
Unless it is as noted above, replace the coolant level sensor.



SAPH12ABC0100047

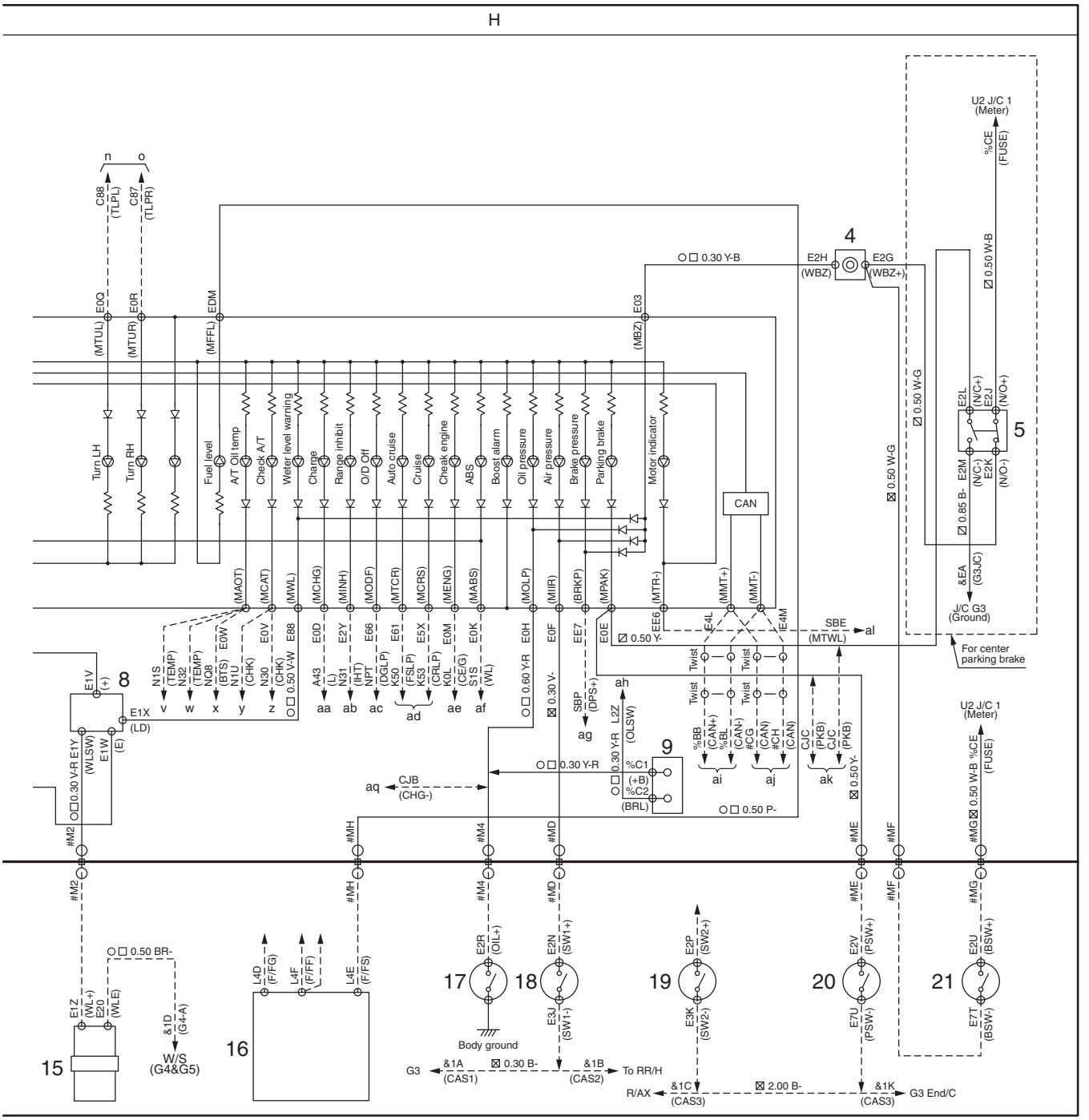
11. PARKING BRAKE SWITCH INSPECTION (EXCEPT FOR HINO 268, 338 (NJ8J, NV8J) MODEL)

(1) Check the continuity between terminals.



SAPH12ABC0100048

Circuit name		Specification symbol	Specifications	Page
X	COMMON RAIL CIRCUIT-2 (CHASSIS SIDE) : MODELS EQUIPPED WITH 4 CYLINDER ENGINE	□	Models equipped with 4 cylinder engine	EL02-52
Y	COMMON RAIL CIRCUIT-3	□	Common to all models	EL02-55
Z	COMMON RAIL CIRCUIT-4	⊞	Models equipped with ATM	EL02-57
		△	Models equipped with 4 cylinder engine and EATON FS series manual transmission	
		○	Models equipped with 6 cylinder engine and EATON FS series MTM	
AA	ABS CIRCUIT 1 (FOR FULL AIR BRAKE)	□	Models equipped with full air brake	EL02-58
AB	ABS CIRCUIT 2 (FOR HYDRO MAX BRAKE)	□	Models equipped with 4 cylinder engine and HYDRO MAX brake	EL02-60
		○	Models equipped with 6 cylinder engine and HYDRO MAX brake	
AC	HYDRO MAX BRAKE CIRCUIT	□	Models equipped with 4 cylinder engine and HYDRO MAX brake	EL02-62
		○	Models equipped with 6 cylinder engine and HYDRO MAX brake	
AD	AUTOMATIC TRANSMISSION CIRCUIT 1 : EQUIPPED WITH AISIN A450 ATM	□	Models equipped with AISIN A450 automatic transmission	EL02-64
AE	AUTOMATIC TRANSMISSION CIRCUIT 2 : EQUIPPED WITH ALLISON LCT2400/2000 ATM	○	Models equipped with ALLISON LCT2400 and 2000 ATM	EL02-66
AF	AUTOMATIC TRANSMISSION CIRCUIT 3 : EQUIPPED WITH ALLISON MD3060P ATM	□	Models equipped with ALLISON MD3060P ATM	EL02-68
AG	AIR DRIER CIRCUIT	○	Common to all models	EL02-70
AH	DIAGNOSIS MONITOR CONNECTER CIRCUIT	□	Common to all models	EL02-70
AI	DST-1 CONNECTER CIRCUIT	□	Models equipped with 4 cylinder engine	EL02-71
		○	Models equipped with 6 cylinder engine	
		△	Models equipped with AISIN A450 ATM	
AJ	CAN COMMUNICATION CIRCUIT	—	Common to all models	EL02-72
AK	WIRE-TO-WIRE CONNECTOR	—	Common to all models	EL02-73

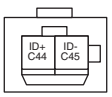


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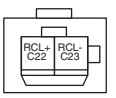
21 Buzzer off switch (For full air brake and wheel parking)

a To Fuse tail light (Power supply)
b To Auto cruising switch (Common rail)
c To A/C switch (Manual A/C)
d To Blower switch (Manual A/C)
e To Audio (Audio)
f To set resume switch (Common rail)
g To Front harness fusible link room light (Power supply)
h To DST-1 connector (DST-1 connection)
i To Fuse meter (Power supply)
j To Parking brake switch (Meter)
k To Buzzer off switch (Meter)
l To DRL ECU (Head light & tail light)
m U2 ECU (Common rail) (For grow plug only)
n To Turn LH, stop & turn controller (Stop & turn)
o To Turn RH, stop & turn controller (Stop & turn)
p To U2 ECU (Common rail)
q To ATM ECU TCM-J1 (LCT2400&2000 ATM)
r To ATM ECU-V (MD3060P ATM)
s To J/C (G4 & G5 ground)
t To U2 ECU (Common rail)

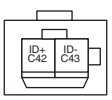
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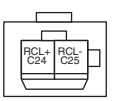
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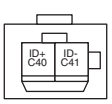
14



12

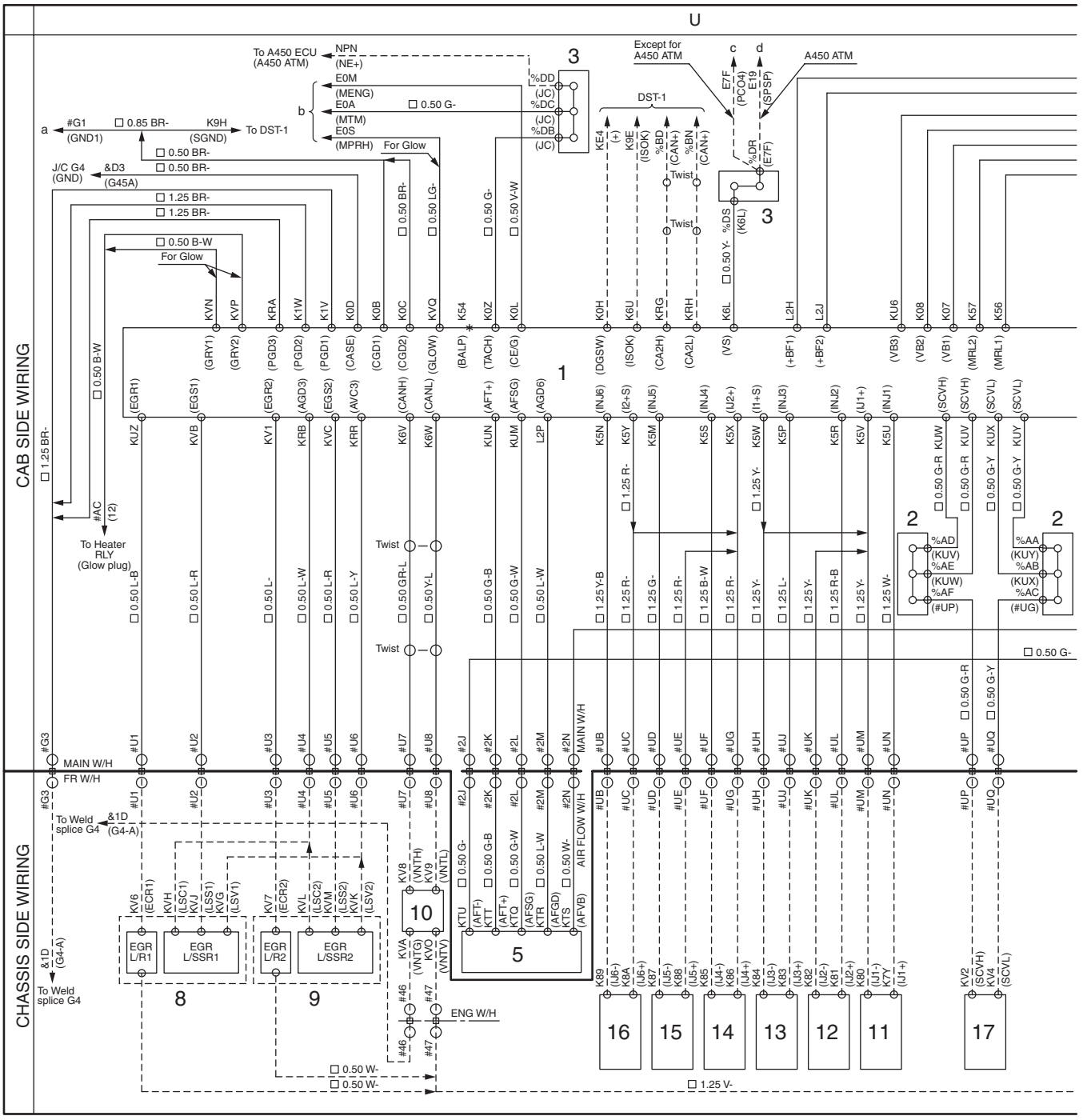


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SAPH12ABC0200022



SAPH12ABC0200033

U COMMON RAIL CIRCUIT 1 (CAB SIDE) MODELS EQUIPPED WITH 6 CYLINDER ENGINE

1 U2 ECU
2 U2 junction 1
3 U2 junction 2
4 Junction signal
5 Air flow sensor
6 Accelerator sensor
7 Idling volume
8 EGR valve 1
9 EGR valve 2
10 VNT controller
11 Injector 1
12 Injector 2
13 Injector 3
14 Injector 4
15 Injector 5
16 Injector 6
17 Suction control valve
18 Cylinder angle sensor
19 NE sensor (Engine speed sensor)
20 Water temperature sender
21 Fuel temperature sensor 1