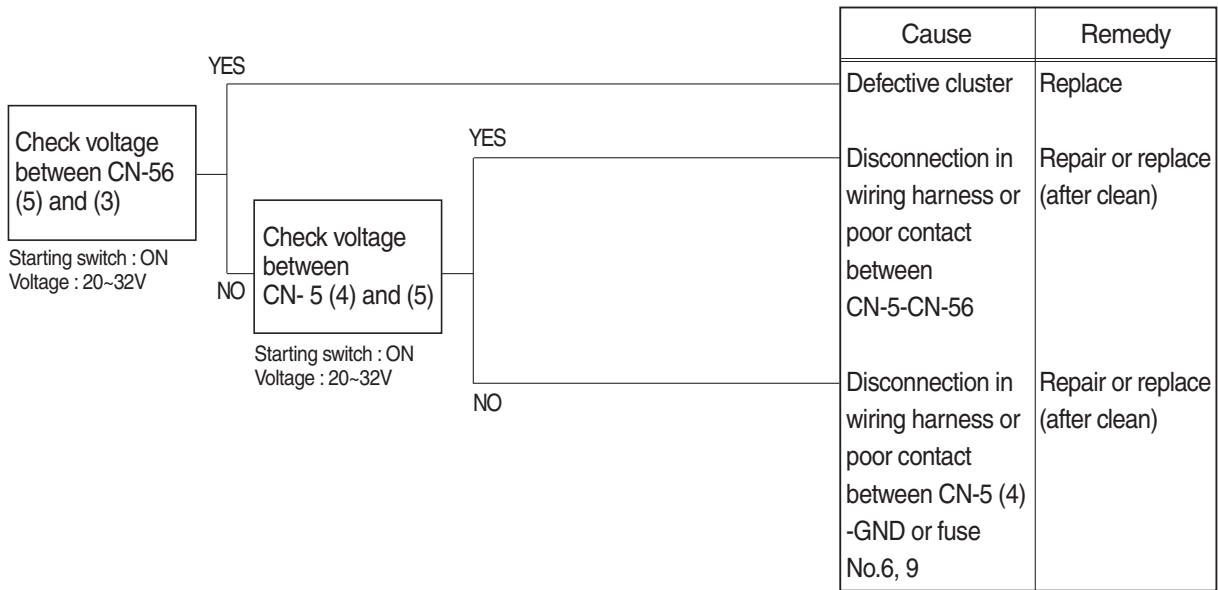


## GROUP 3 ELECTRICAL SYSTEM

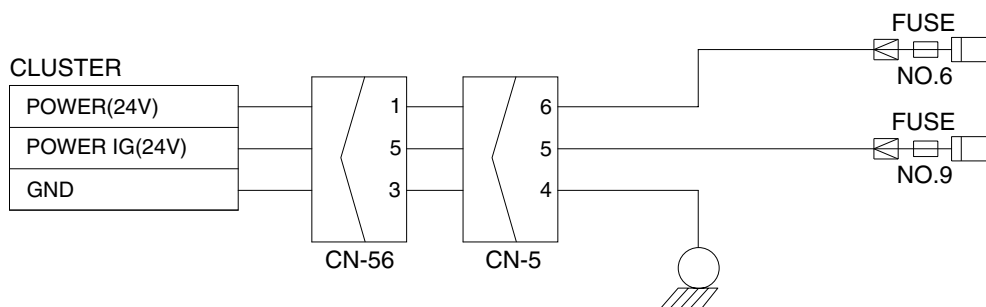
### 1. WHEN STARTING SWITCH IS TURNED ON, MONITOR PANEL DISPLAY DOES NOT APPEAR

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and fuse No.6 and 9 burnt out.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



#### Check voltage

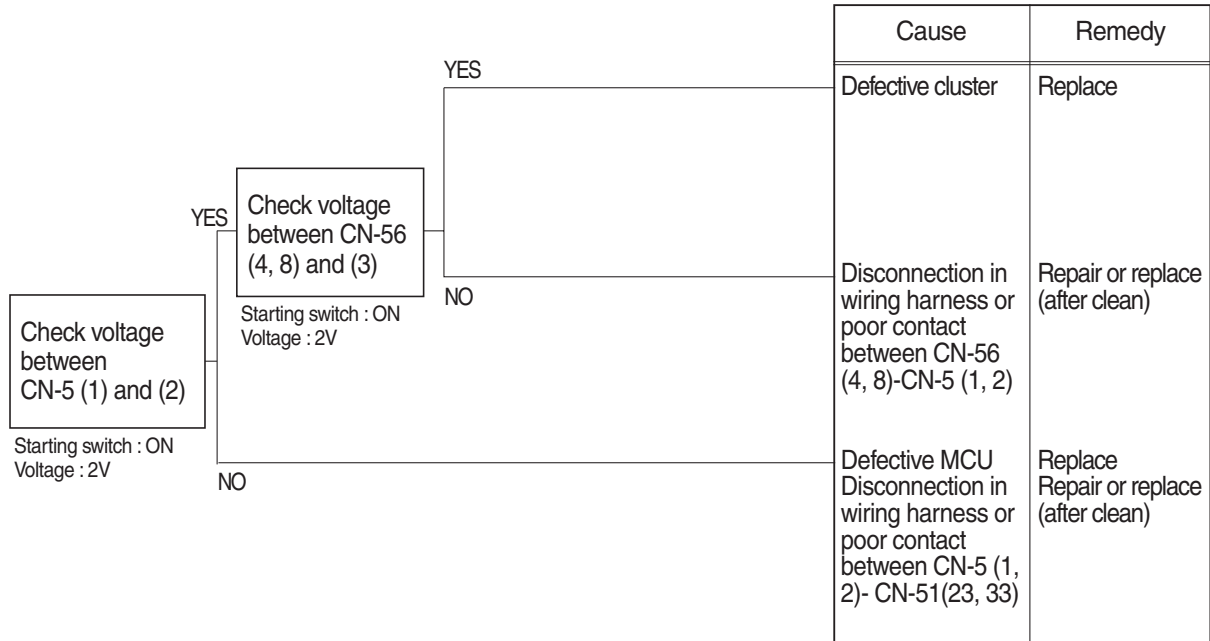
YES	20~32V
NO	0V



140Z96ES01

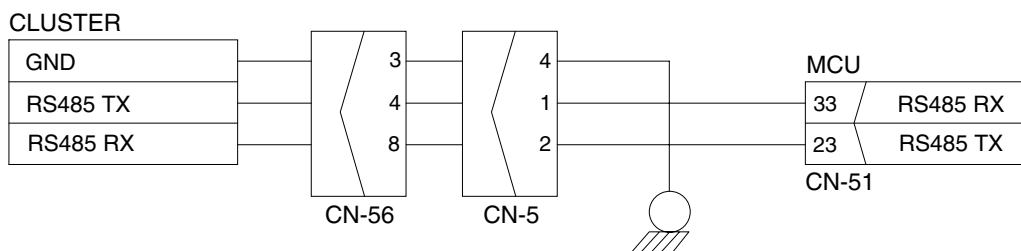
## 2. COMMUNICATION ERROR FLASHES ON THE CLUSTER (HCESPN 840, FMI 2)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



### Check voltage

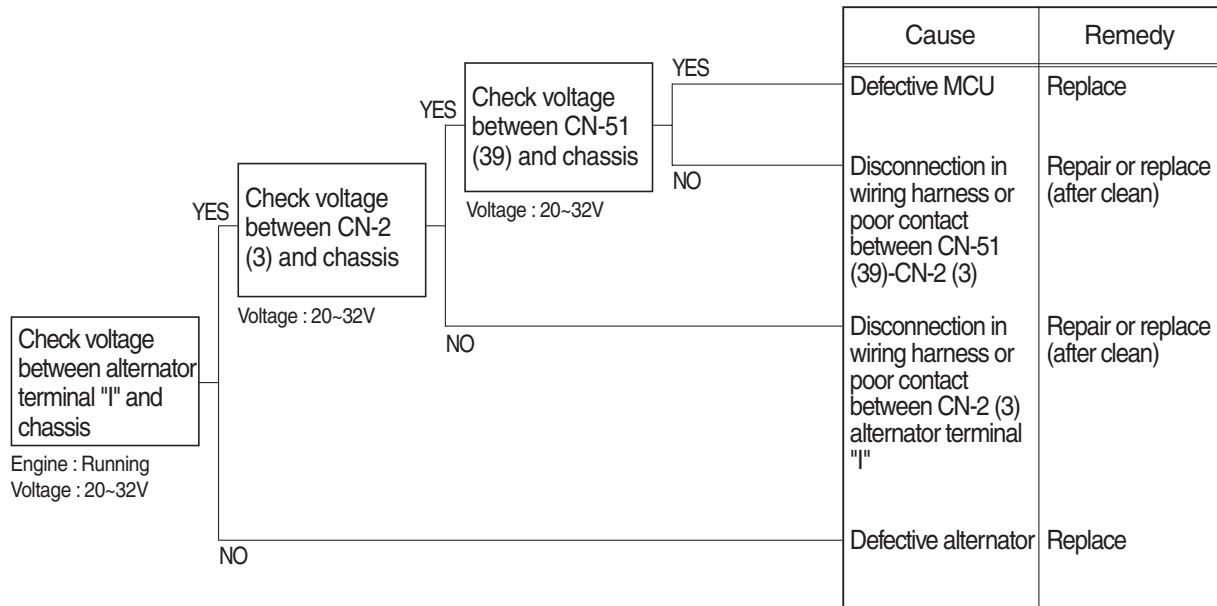
YES	2V
NO	0V



140Z96ES02

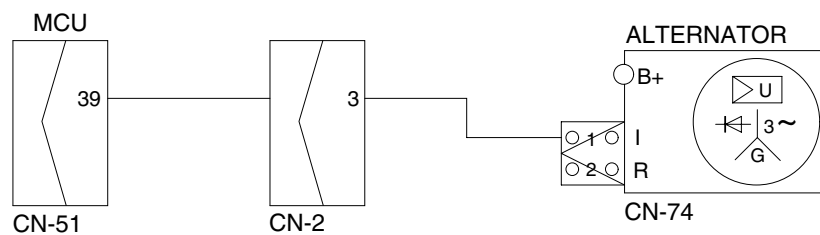
### 3. BATTERY CHARGING WARNING LAMP LIGHTS UP (Starting switch : ON)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



#### Check voltage

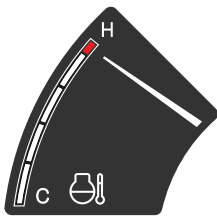
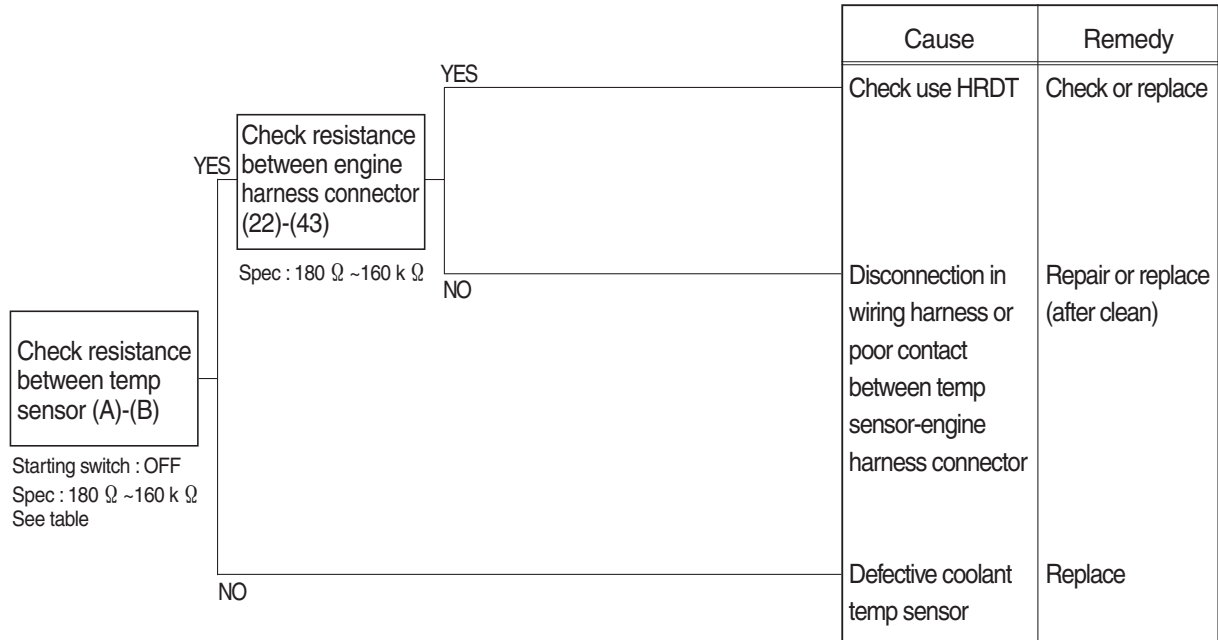
YES	20~32V
NO	0V



14096ES03

#### 4. WHEN COOLANT OVERHEAT WARNING LAMP LIGHTS UP (engine is started)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check Table

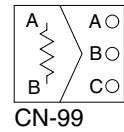
Temperature (°C)	0	25	50	80	95
Resistance (k Ω)	30~37	9.3~10.7	3.2~3.8	1.0~1.3	0.7~0.8

#### SERVICE TOOL

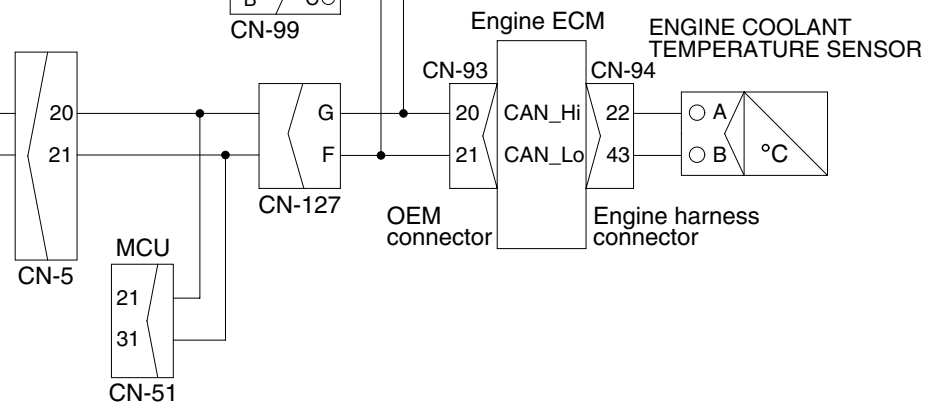
RS232 P_DUMP	A
RS232_RX	B
RS232_TX	C
GND	D
CAN A-(j1939)	E
CAN A+(j1939)	F
Data Link +	G
Data Link -	H
Batt Power B+	J

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#### RESISTOR



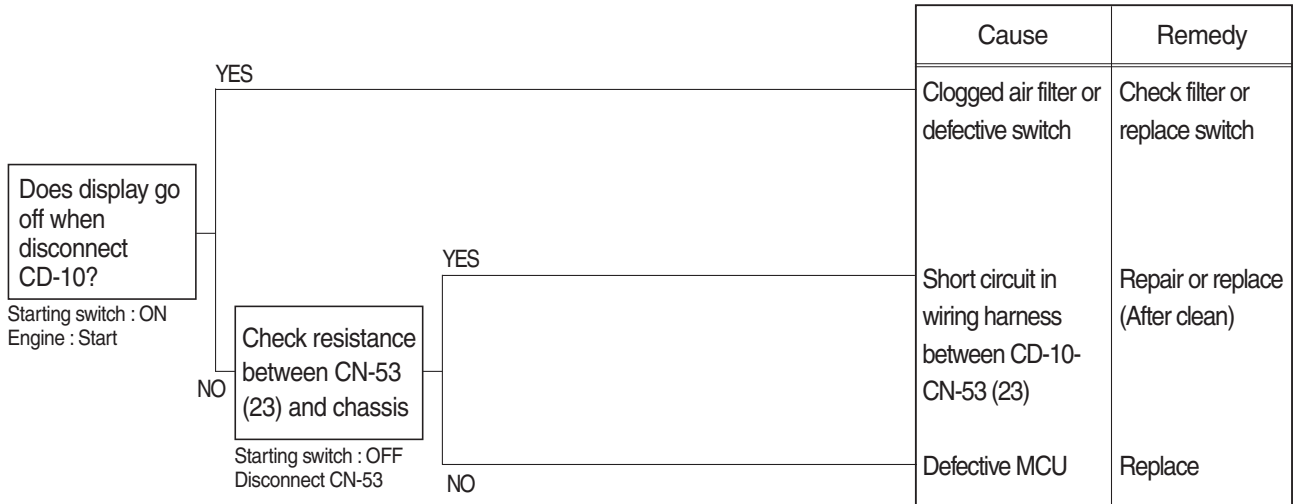
CN-99



14096ES04

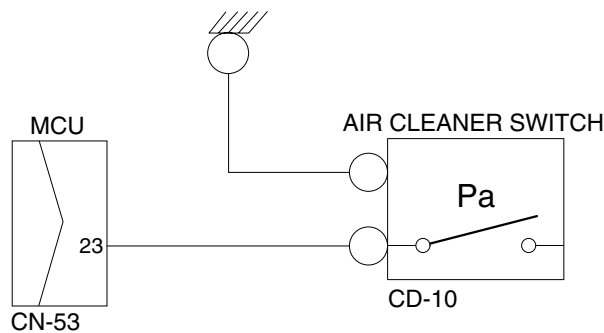
5.  **WHEN AIR CLEANER WARNING LAMP LIGHTS UP** (engine is started)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



**Check resistance**

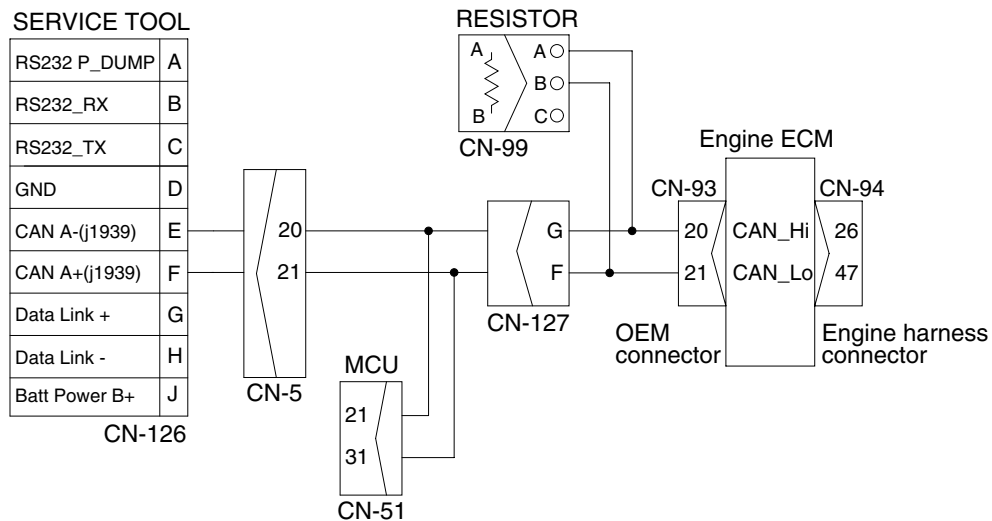
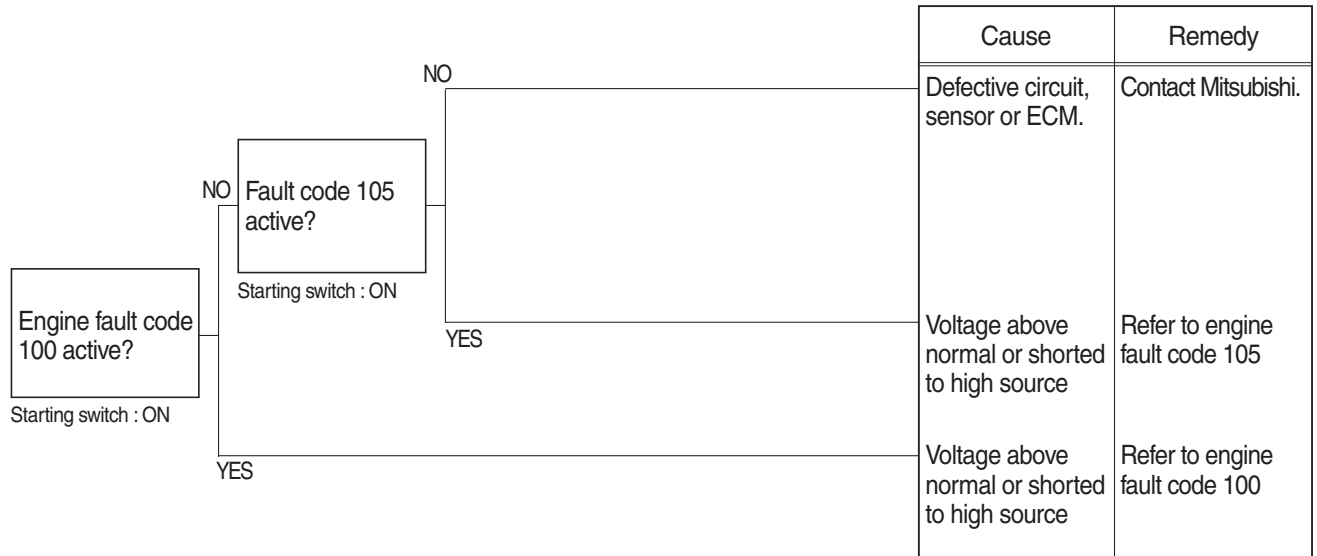
YES	MAX 1Ω
NO	MIN 1MΩ



21096ES05

## 6. WHEN ENGINE OIL PRESSURE WARNING LAMP LIGHTS UP (engine is started)

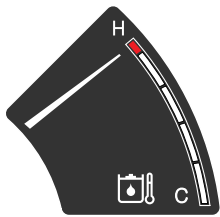
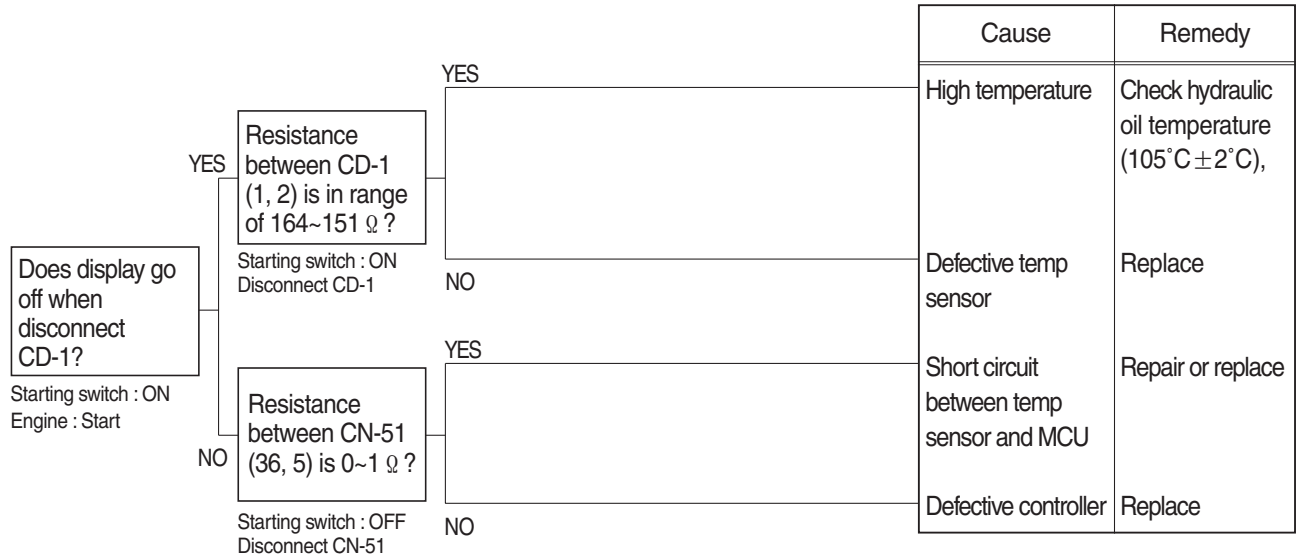
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



14096ES06

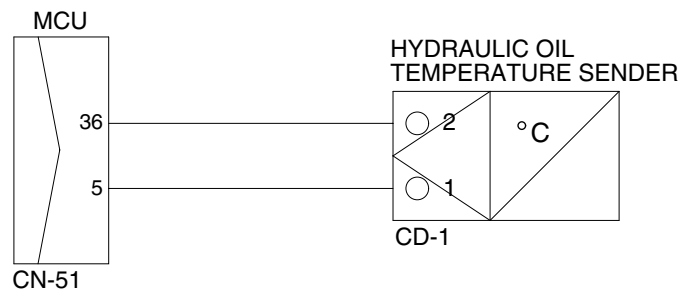
## 7. WHEN HYDRAULIC OIL TEMPERATURE WARNING LAMP LIGHTS UP (engine is started)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check Table

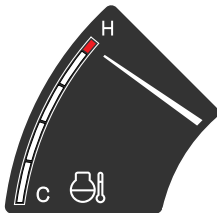
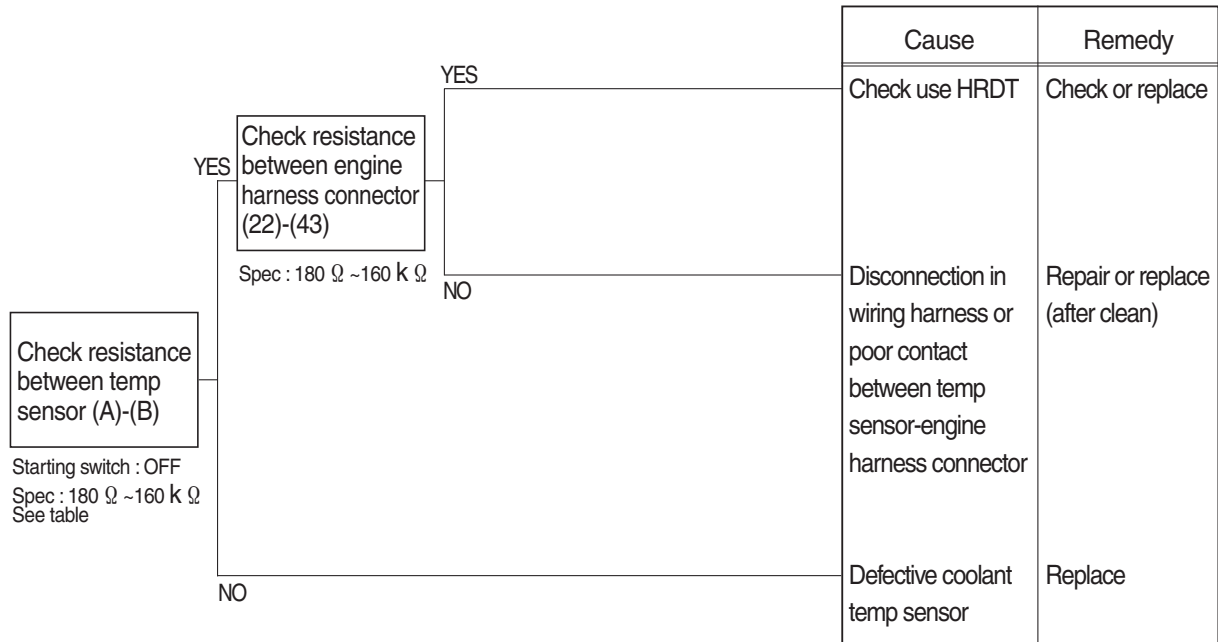
Temperature ( $^{\circ}\text{C}$ )	~ -30	~ -10	~ 0	~ 40	~ 70	~ 80	~ 90	~ 100	105~
Resistance (k $\Omega$ )	22.22 ~31.78	8.16 ~10.74	5.18 ~ 6.6	1.06 ~1.28	0.39 ~0.476	0.322 ~0.298	0.243 ~0.219	0.185 ~0.167	0.164 0.151



21096ES07

## 8. WHEN COOLANT TEMPERATURE GAUGE DOES NOT OPERATE (HCESPN 304, FMI 3 or 4)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



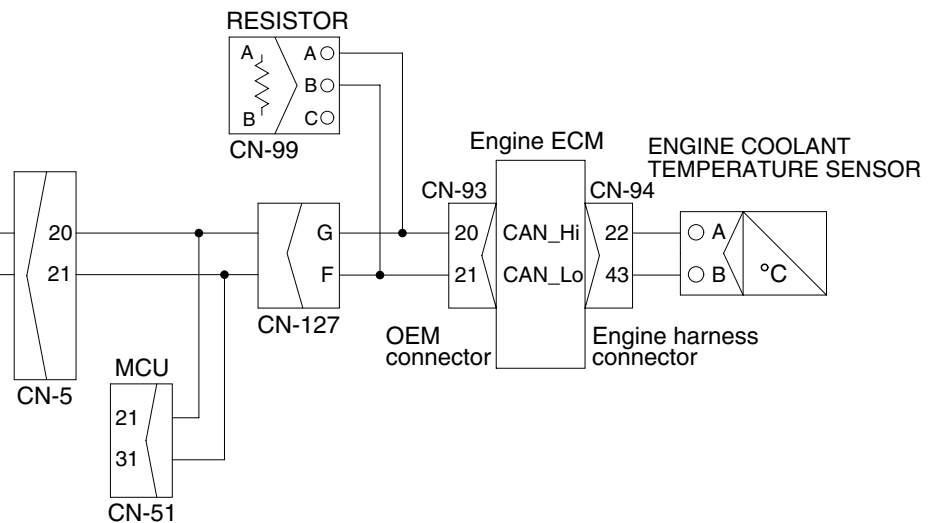
Check Table

Temperature (°C)	0	25	50	80	95
Resistance (k Ω)	30~37	9.3~10.7	3.2~3.8	1.0~1.3	0.7~0.8

### SERVICE TOOL

RS232 P_DUMP	A
RS232_RX	B
RS232_TX	C
GND	D
CAN A-(j1939)	E
CAN A+(j1939)	F
Data Link +	G
Data Link -	H
Batt Power B+	J

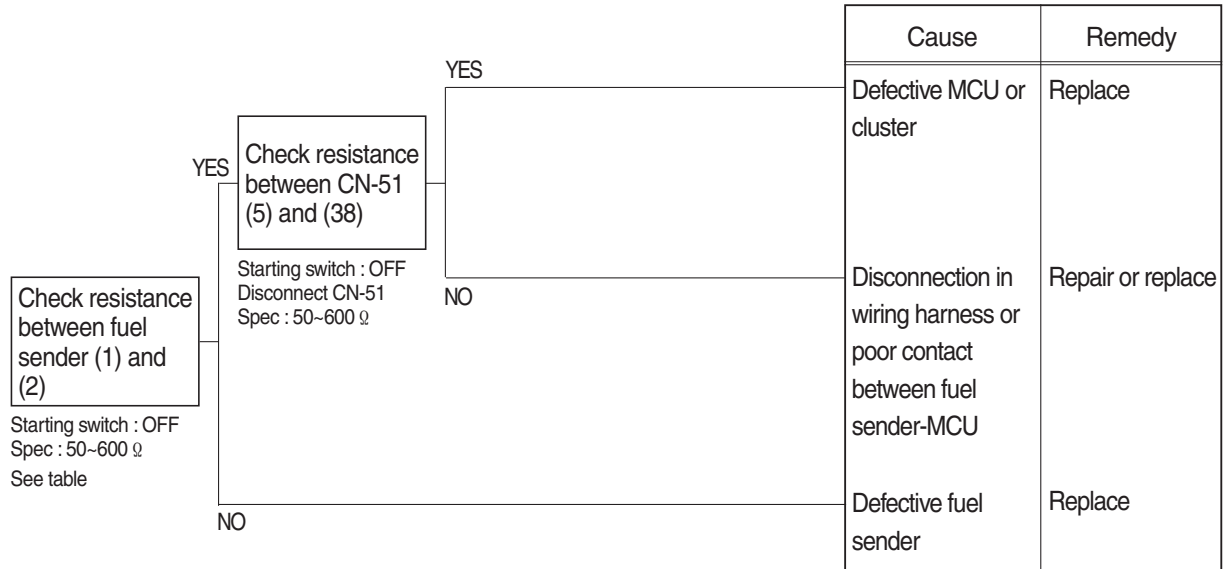
CN-126



14096ES04

## 9. WHEN FUEL GAUGE DOES NOT OPERATE(HCESPN 301, FMI 3 or 4)

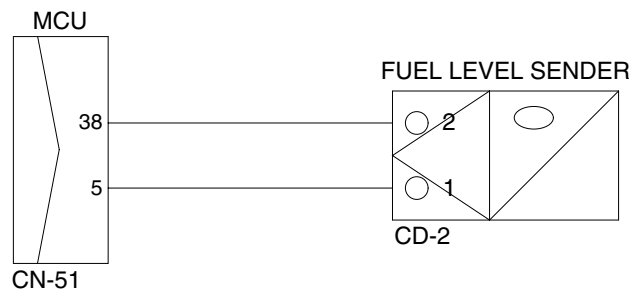
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



Check Table



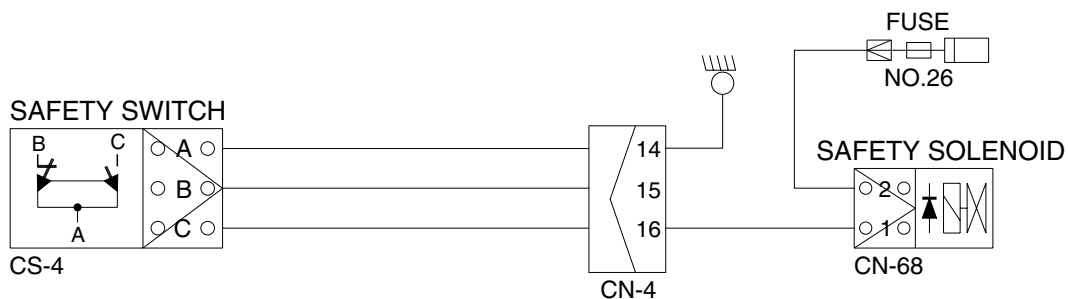
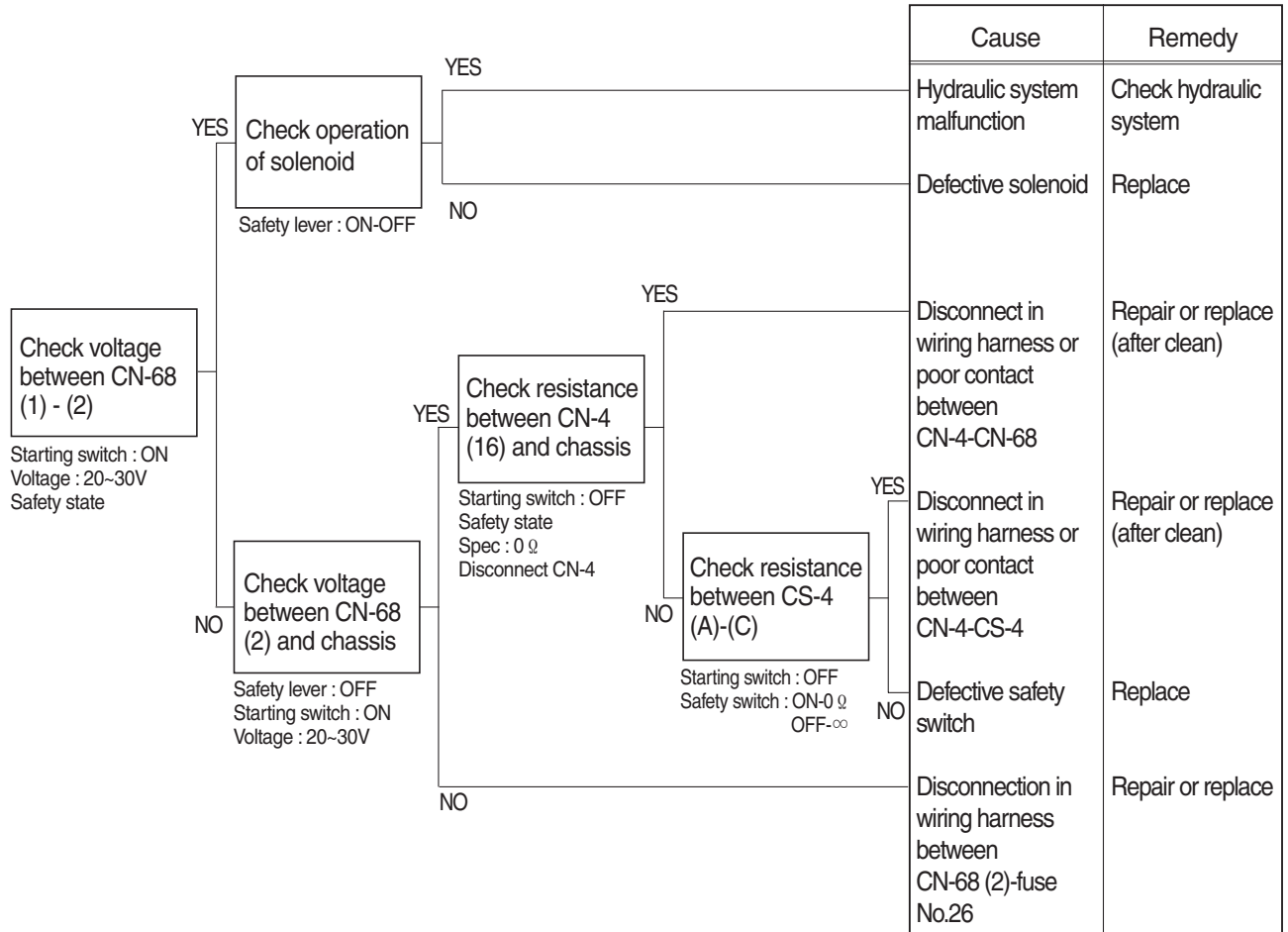
Range	Resistance ( Ω )	Range	Resistance ( Ω )
Full	50	5/12	400
11/12	100	4/12	450
10/12	150	3/12	500
9/12	200	2/12	550
8/12	250	1/12	600
7/12	300	Empty warning	700
6/12	350	-	-



21096ES09

## 10. WHEN SAFETY SOLENOID DOES NOT OPERATE

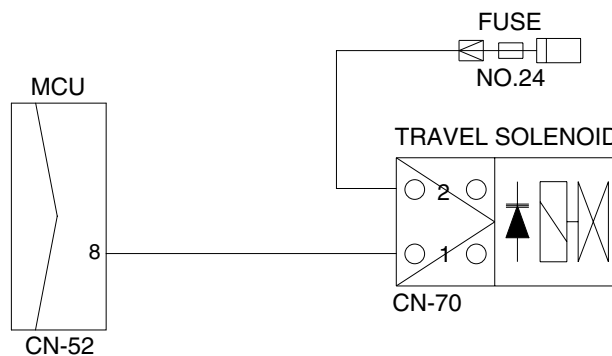
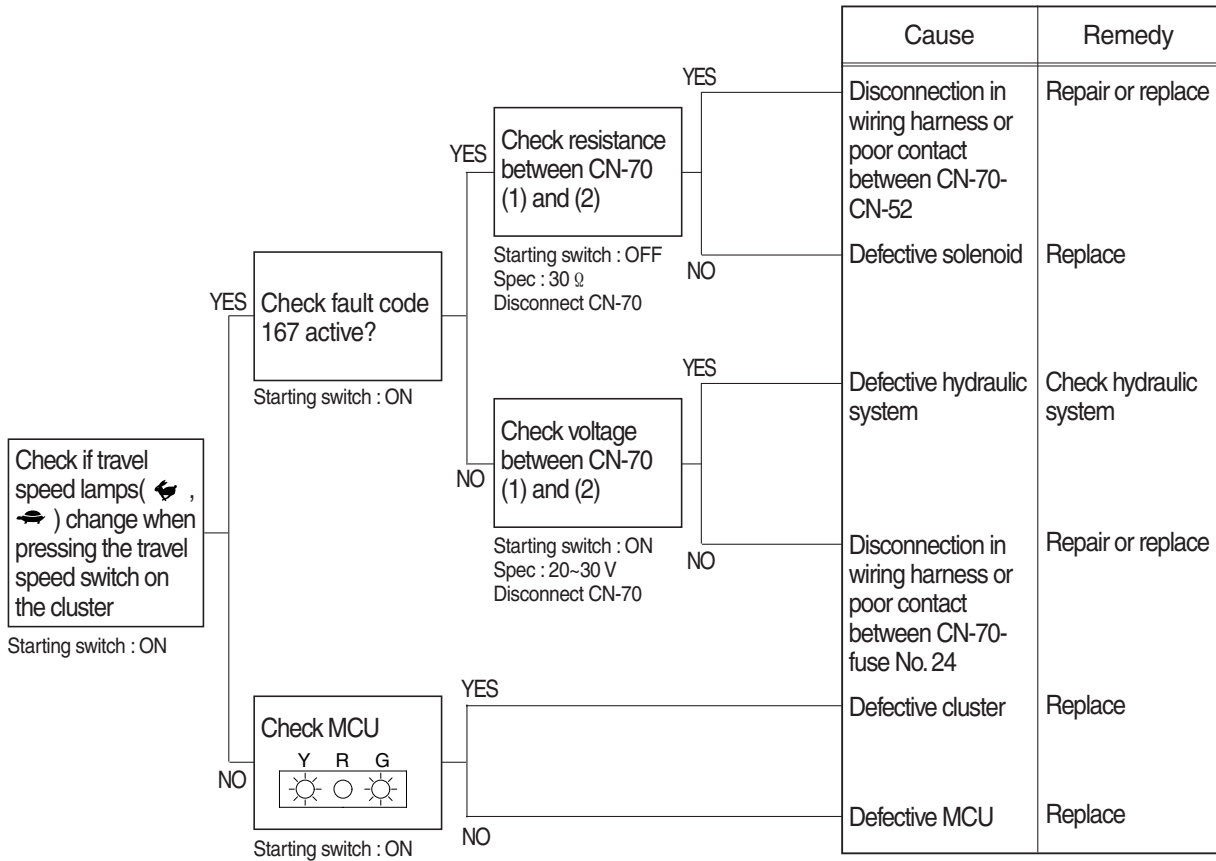
- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and fuse No.26 burnt out.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



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# 11. WHEN TRAVEL SPEED 1, 2 DOES NOT OPERATE (HCESPN 167, FMI 5 or 6)

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and fuse No.24 burnt out.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.

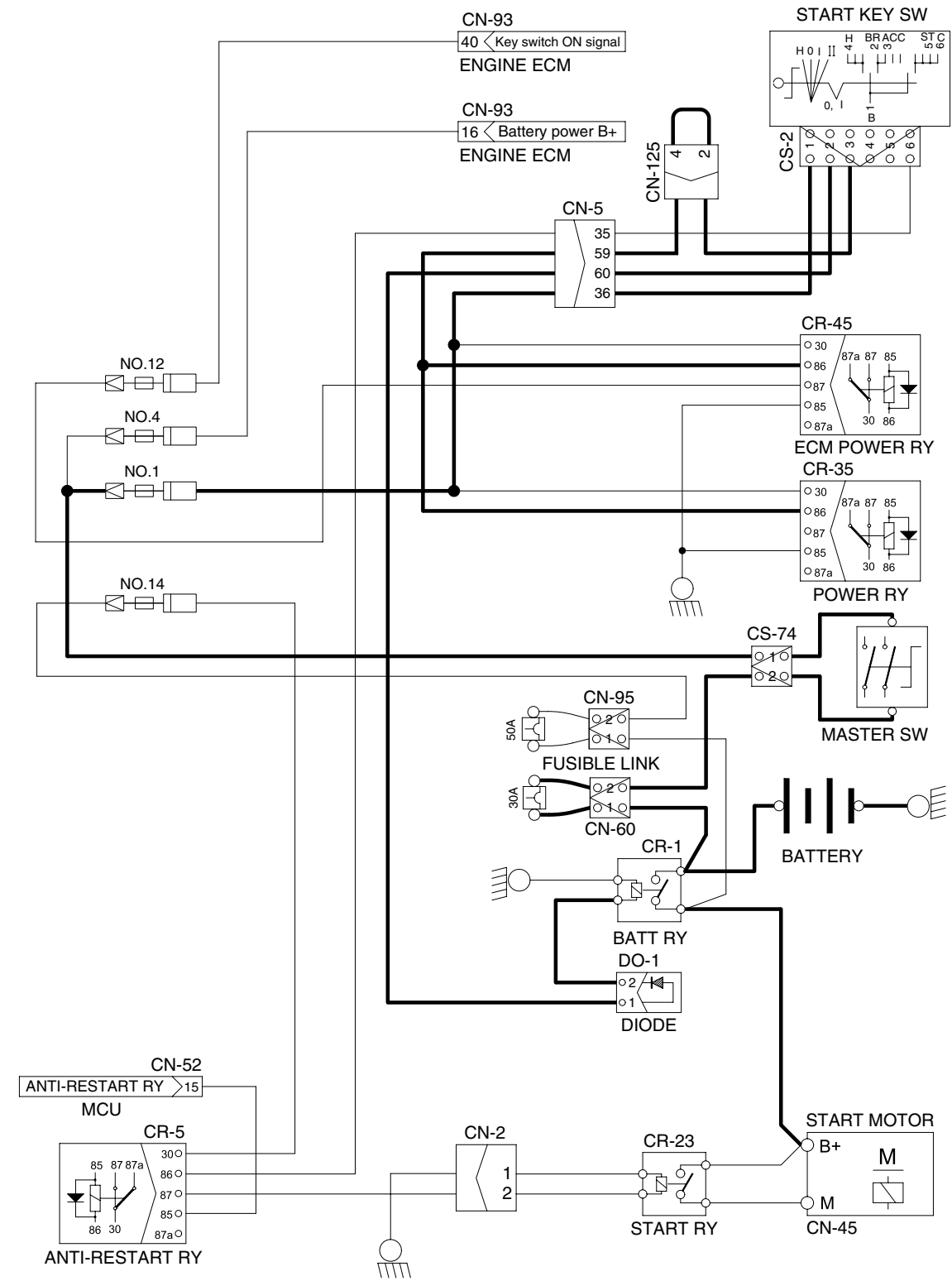
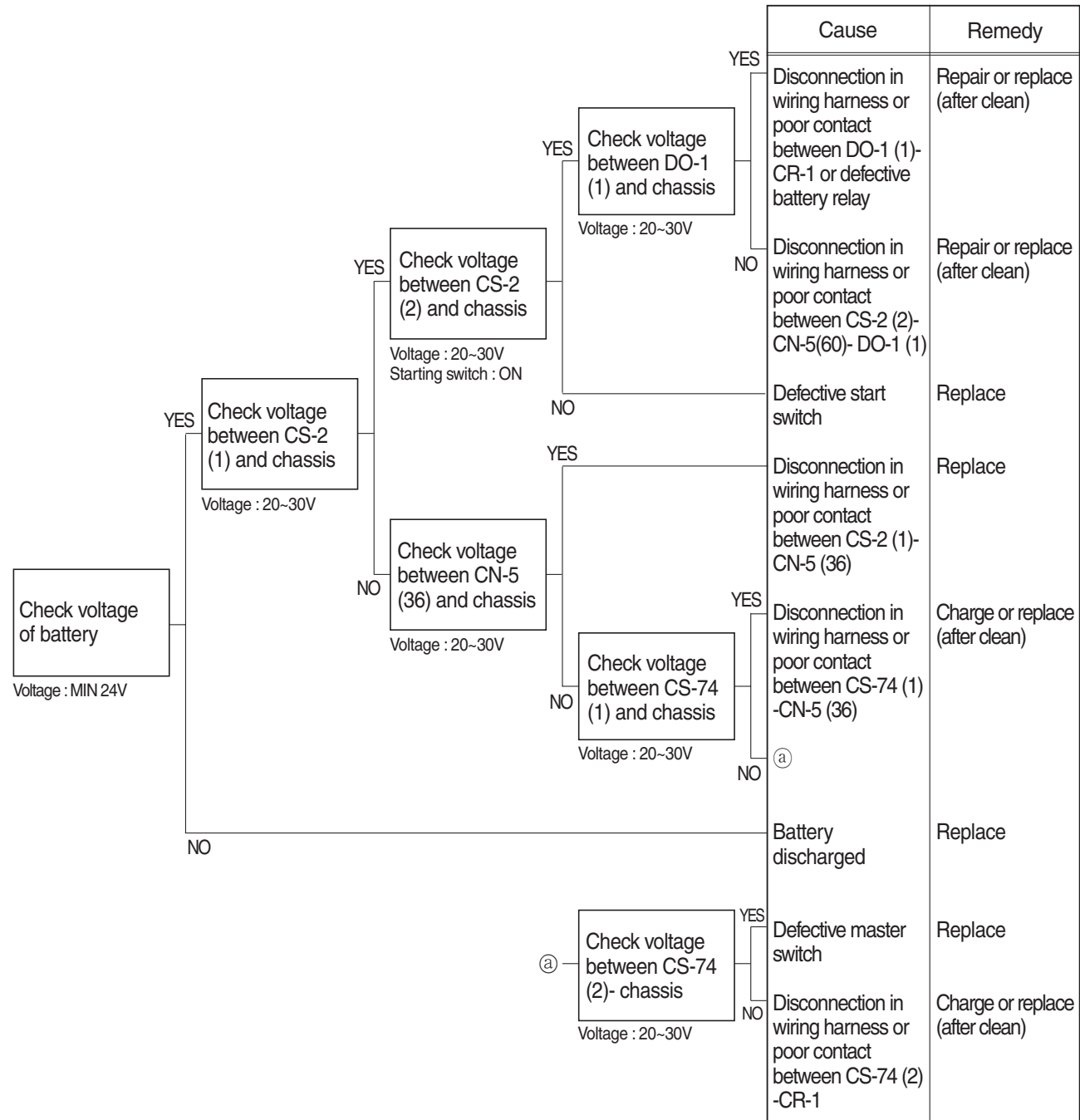


140Z96ES11



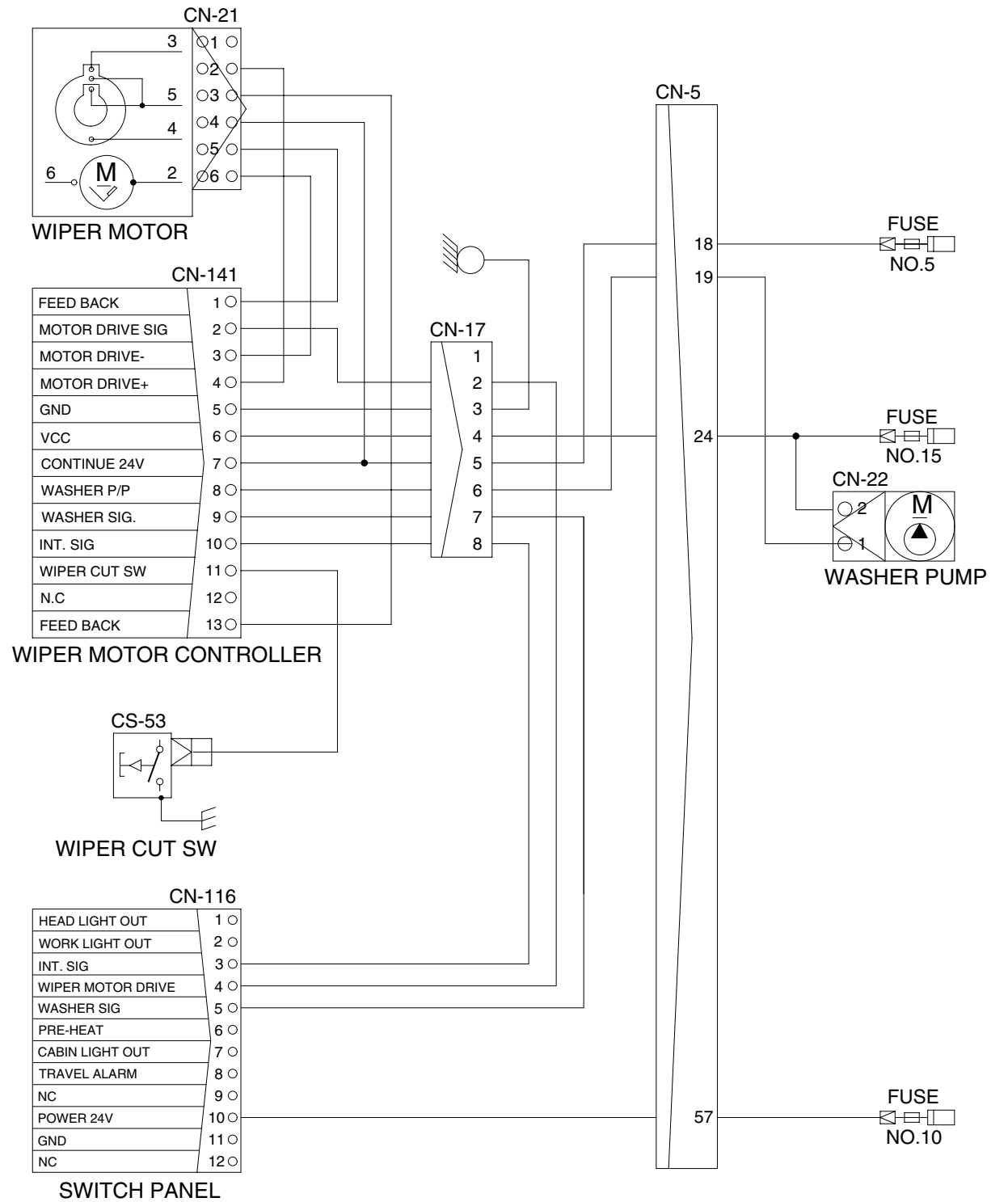
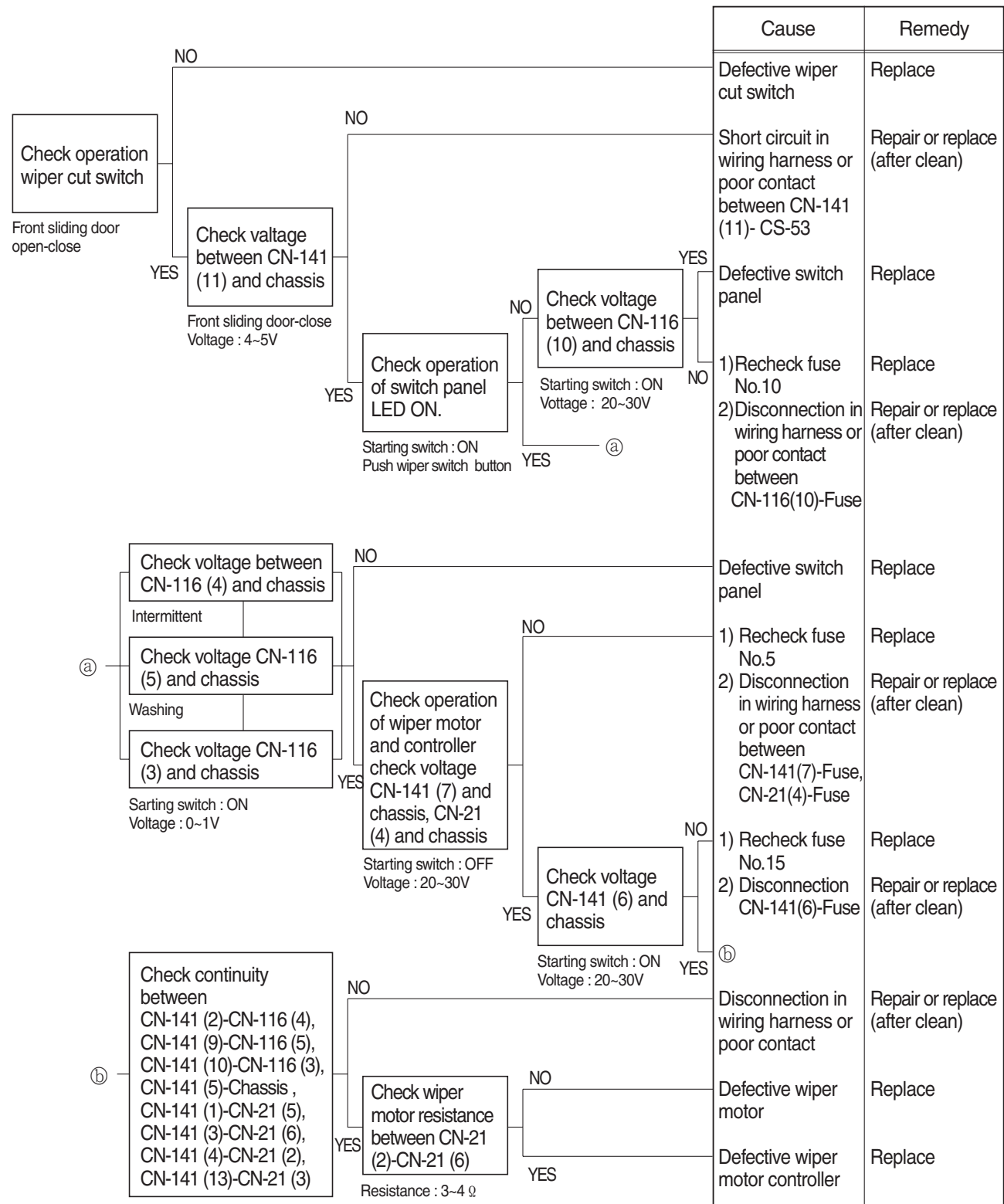
### 13. WHEN STARTING SWITCH ON DOES NOT OPERATE

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted, master switch ON and check open circuit of fusible link (CN-60).
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



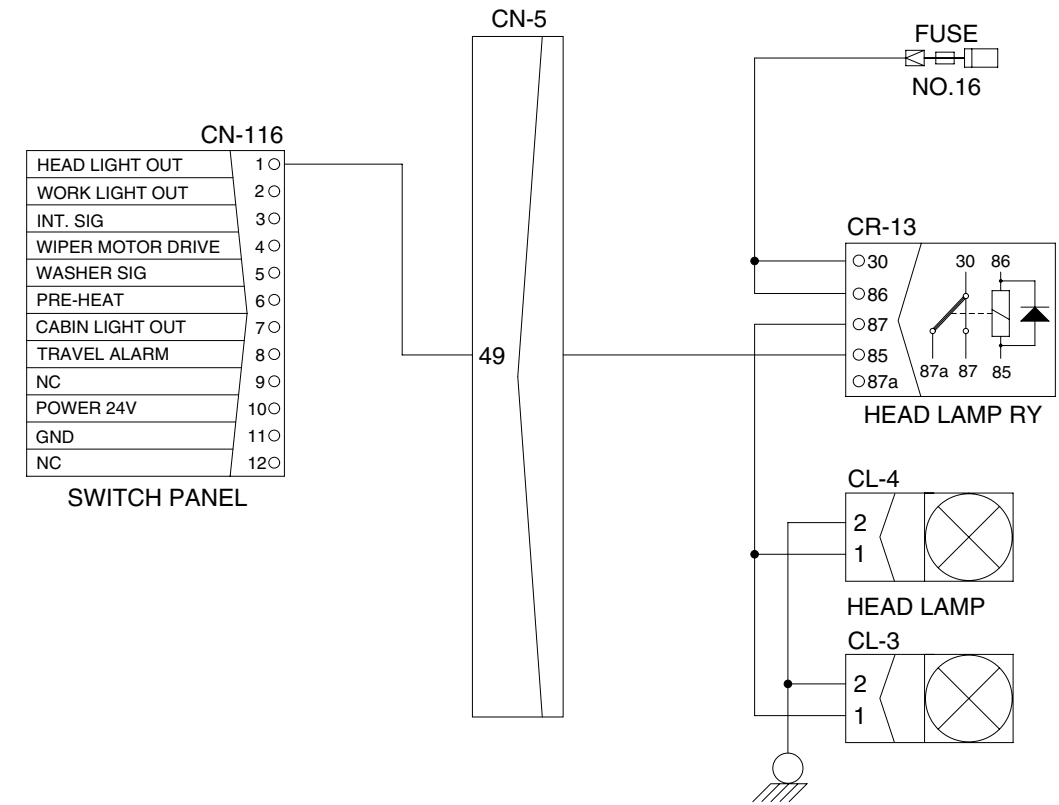
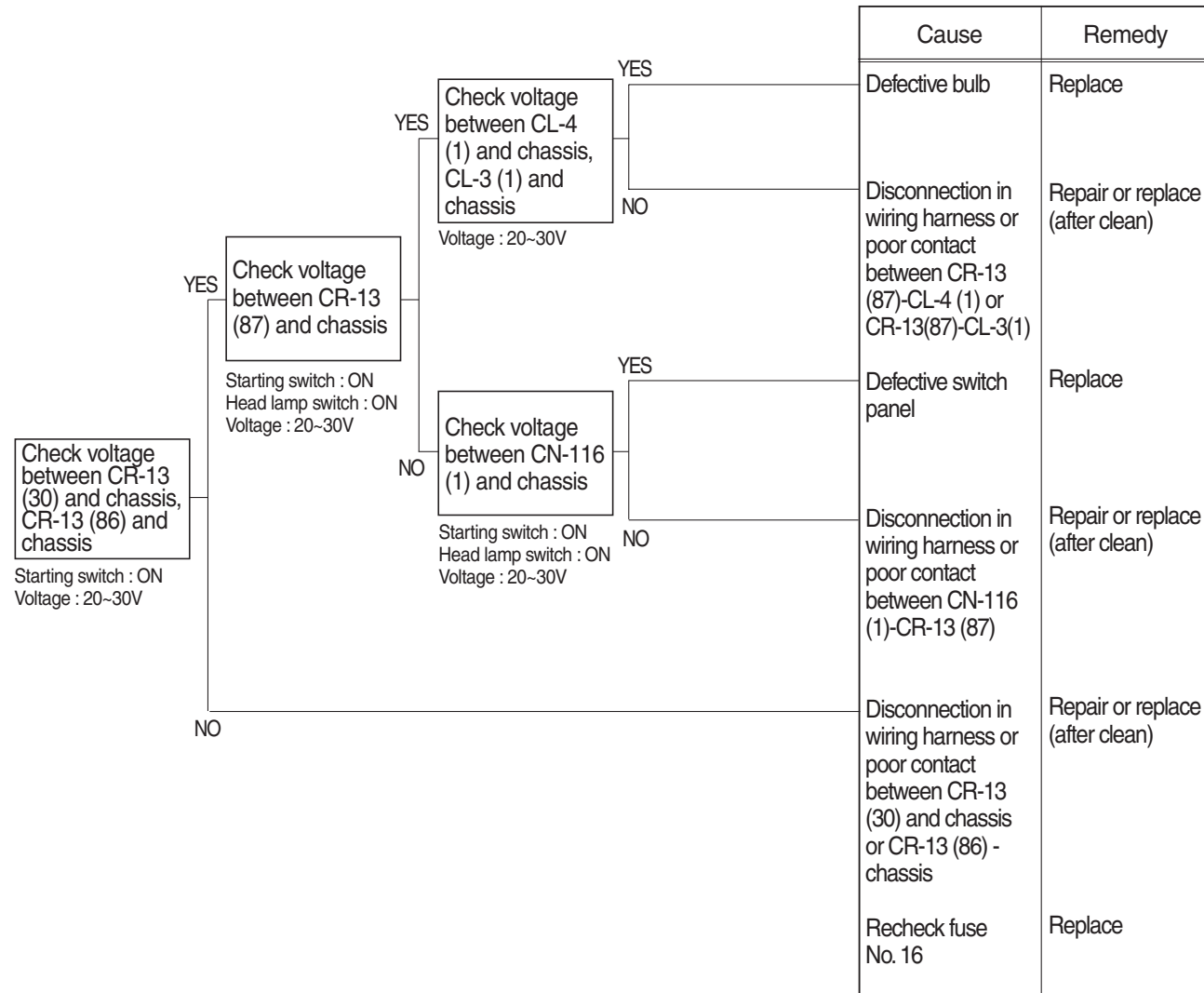
## 14. WHEN STARTING SWITCH IS TURNED ON, WIPER MOTOR DOES NOT OPERATE

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and fuse No. 5, 10 and 15 burnt out.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



### 15. WHEN STARTING SWITCH IS TURNED ON, HEAD LAMP DOES NOT LIGHTS UP

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and fuse No.16 burnt out.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



## 16. WHEN STARTING SWITCH IS TURNED ON, WORK LAMP DOES NOT LIGHTS UP

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted and fuse No.17 burnt out.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.

