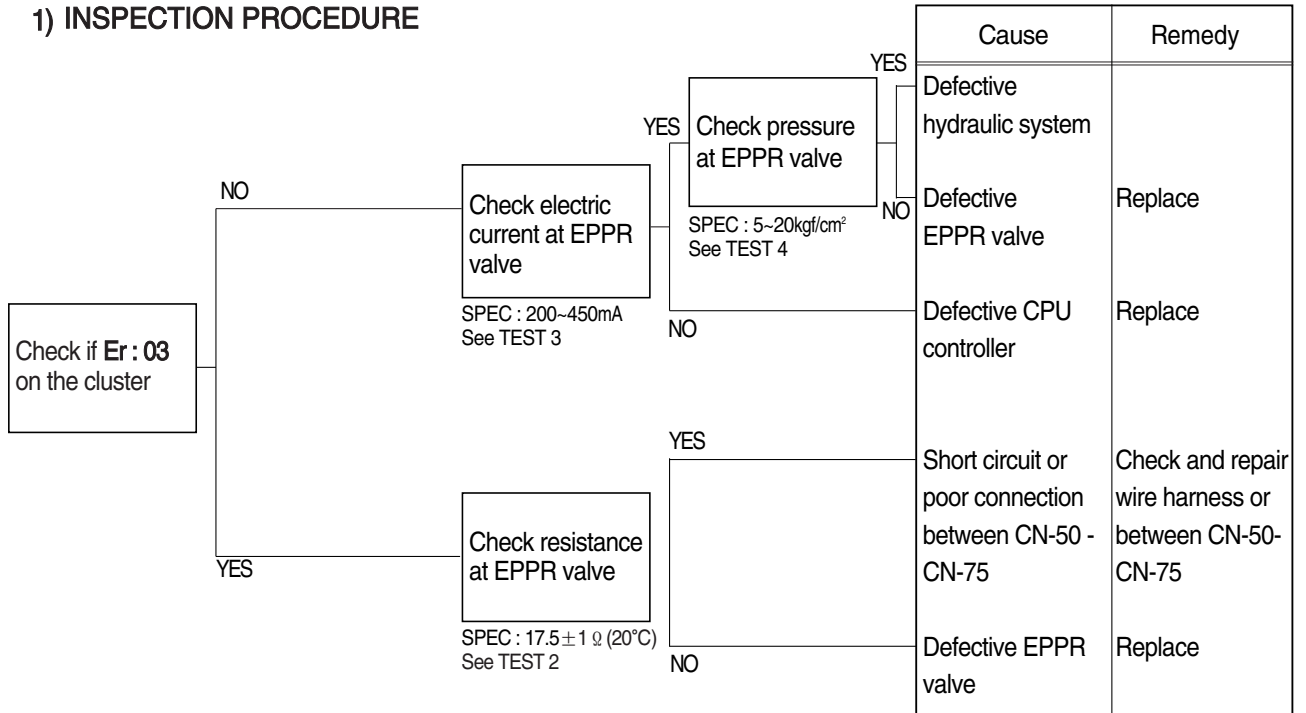


# GROUP 4 MECHATRONICS SYSTEM

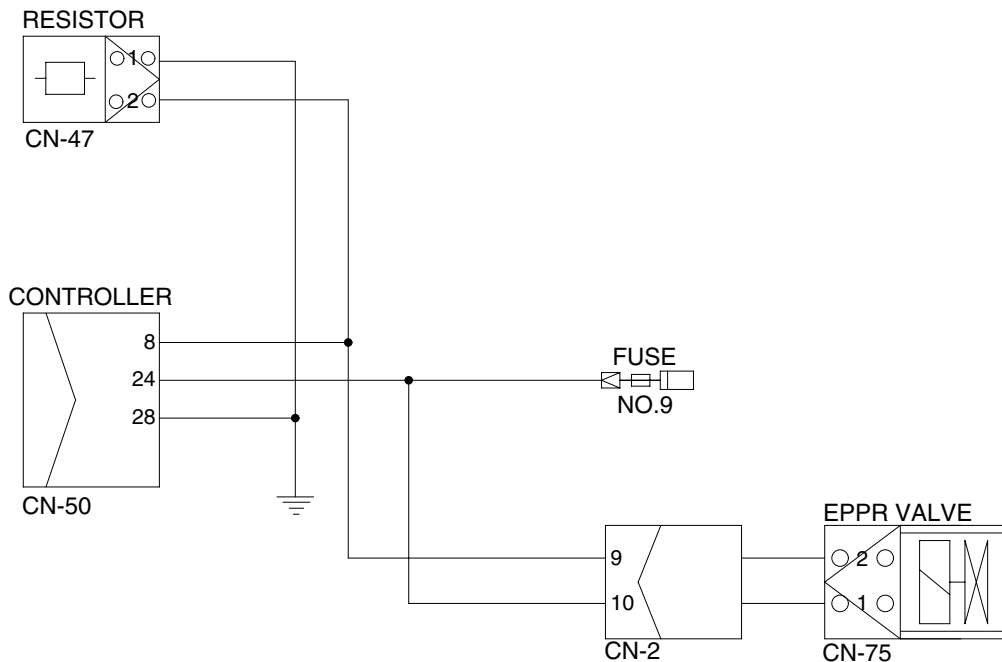
## 1. ALL ACTUATORS SPEED ARE SLOW

- ※ Boom, Arm, Bucket, Swing and travel speed are slow, but engine speed is good.
- ※ Spec : H-mode 1950 ± 50rpm                      S-mode 1850 ± 50rpm
- ※ Before carrying out below procedure, check all the related connectors are properly inserted.

### 1) INSPECTION PROCEDURE



### Wiring diagram

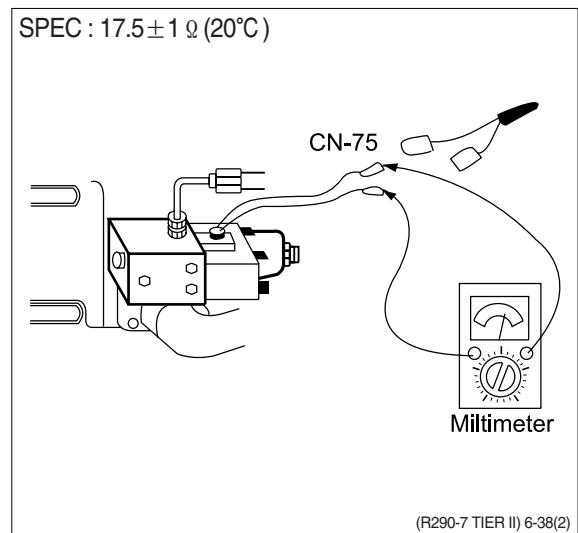


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## 2) TEST PROCEDURE

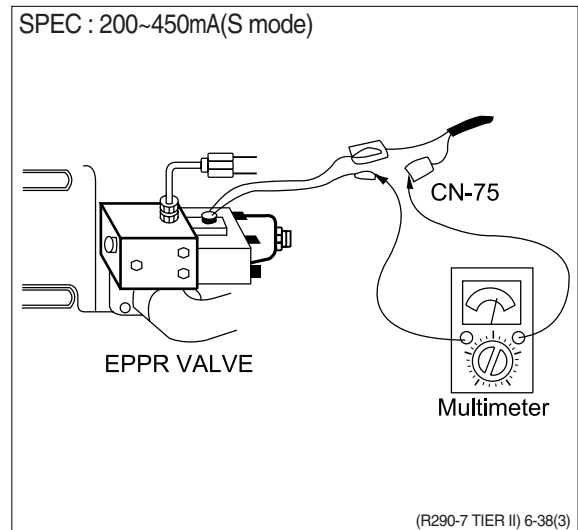
(1) **Test 1** : Check resistance at connector CN-75.

- ① Starting key OFF.
- ② Disconnect connector CN-75 from EPPR valve at main hydraulic pump.
- ③ Check resistance between 2 lines as figure.



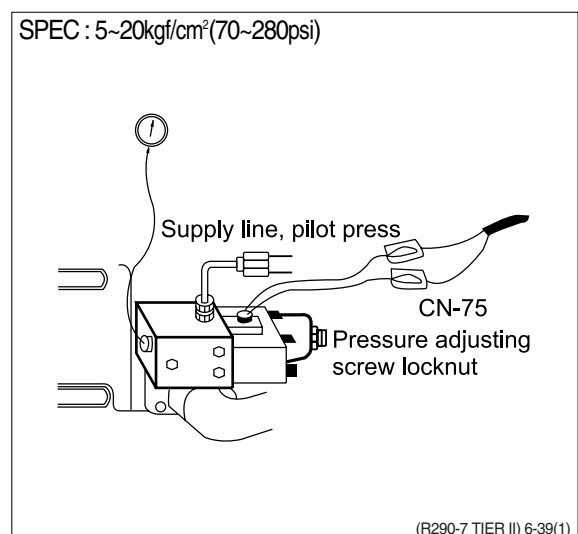
(3) **Test 2** : Check electric current at EPPR valve.

- ① Install multimeter as figure.
- ② Start engine.
- ③ Set the accel dial at "10"(MAX)
- ④ Set S-mode and cancel auto decel mode.
- ⑤ If tachometer show approx  $1850 \pm 50$ rpm check electric current.



(2) **Test 3** : Check pressure at EPPR valve.

- ① Remove plug and connect pressure gauge as figure.
  - Gauge capacity : 0 to 40~50kgf/cm<sup>2</sup>  
(0 to 570~710psi)
- ② Start engine.
- ③ Set the accel dial at "10"(Max).
- ④ Set S-mode and cancel auto decel mode.
- ⑤ If tachometer show approx  $1850 \pm 50$ rpm check pressure.
- ⑥ If pressure is not correct, adjust it.
- ⑦ After adjust, test the machine.

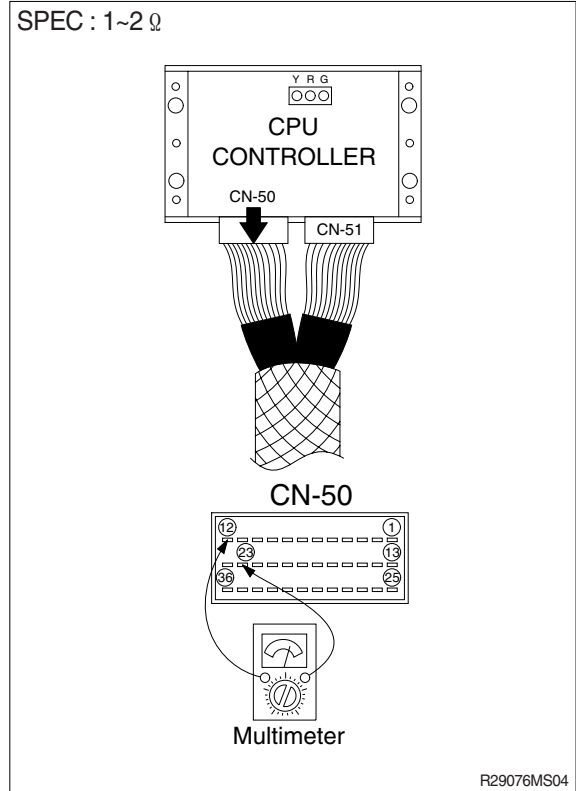




## 2) TEST PROCEDURE

(1) **Test 5** : Check resistance between CN-50 (12)-(23).

- ① Starting key OFF.
- ② Disconnect connector CN-50 from CPU controller.
- ③ Check resistance as figure.



(2) **Test 6** : Check tachometer(Work properly or not)

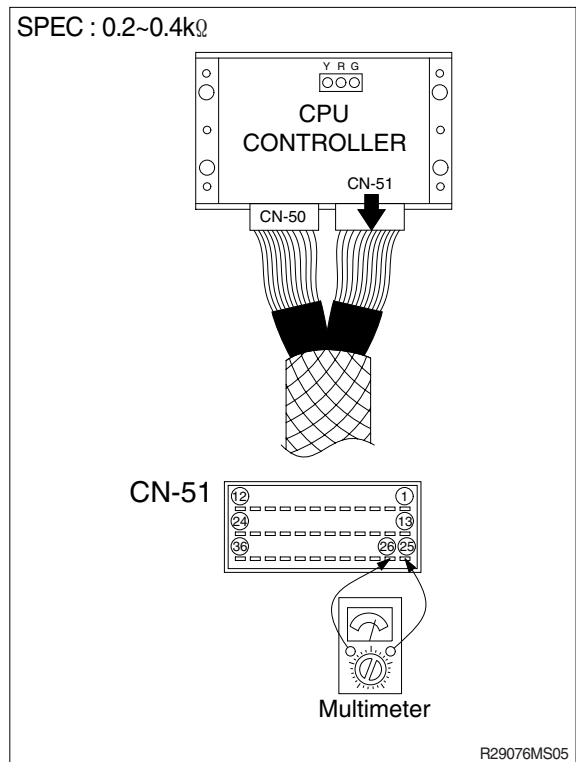
- ① Start engine.
- ② Check tachometer reading.

Unit : rpm

Spec		Remark
H-mode	2050 ± 50	Check rpm after cancel the Auto decel mode.
S-mode	1950 ± 50	

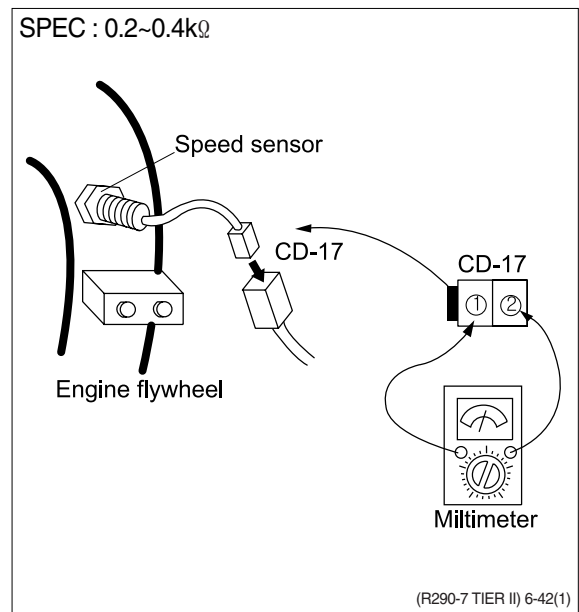
(3) **Test 7** : Check resistance between CN-51 (25) and CN-51(26).

- ① Starting key OFF.
- ② Disconnect connector CN-51 from CPU controller.
- ③ Check resistance as figure.



(4) **Test 8** :Check resistance at speed sensor.

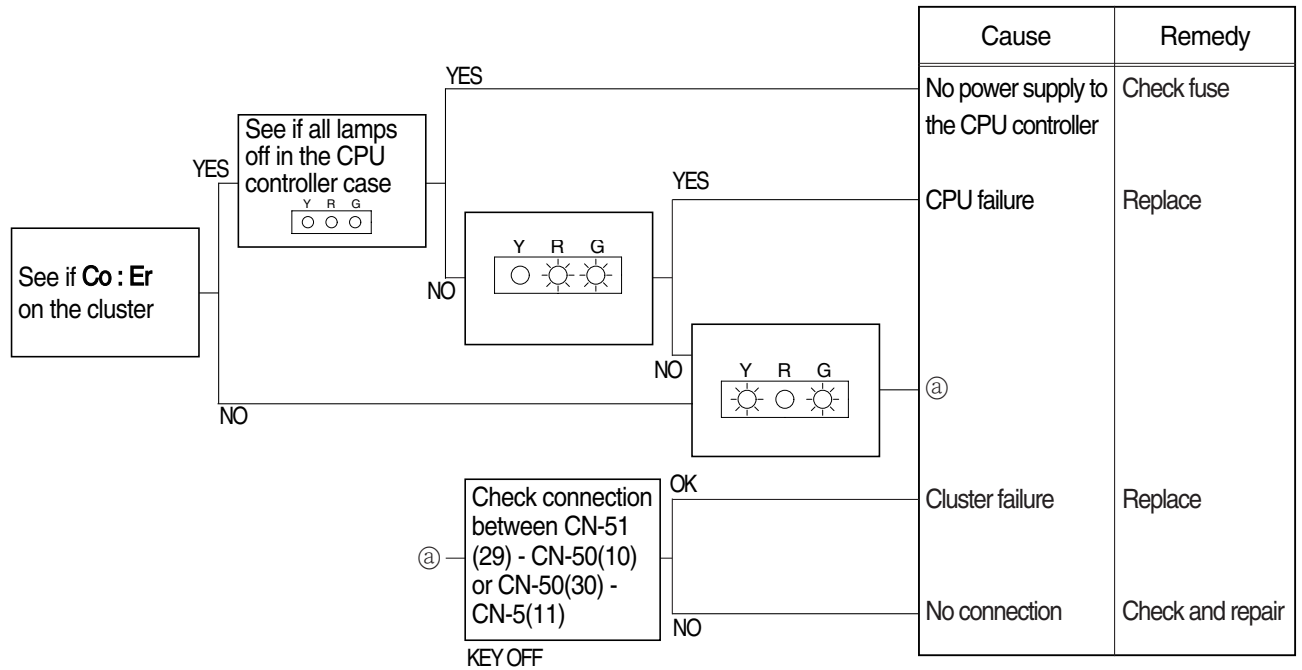
- ① Starting key OFF.
- ② Disconnect connector CD-17 of speed sensor at engine flywheel housing.
- ③ Check resistance as figure.



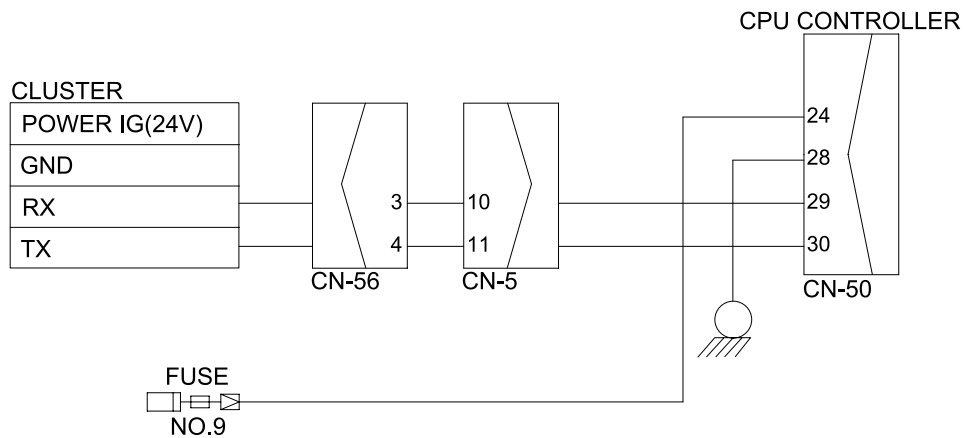
### 3. MALFUNCTION OF CLUSTER OR MODE SELECTION SYSTEM

※ Before carrying out below procedure, check all the related connectors are properly inserted.

#### 1) INSPECTION PROCEDURE



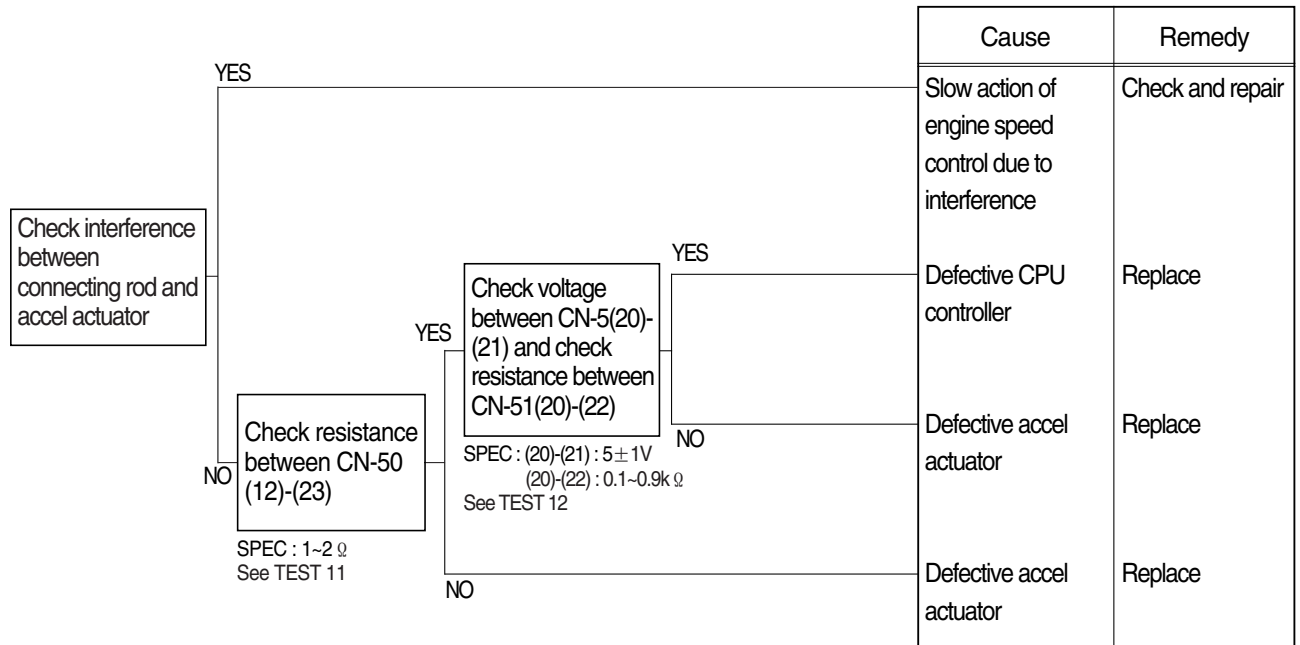
#### Wiring diagram



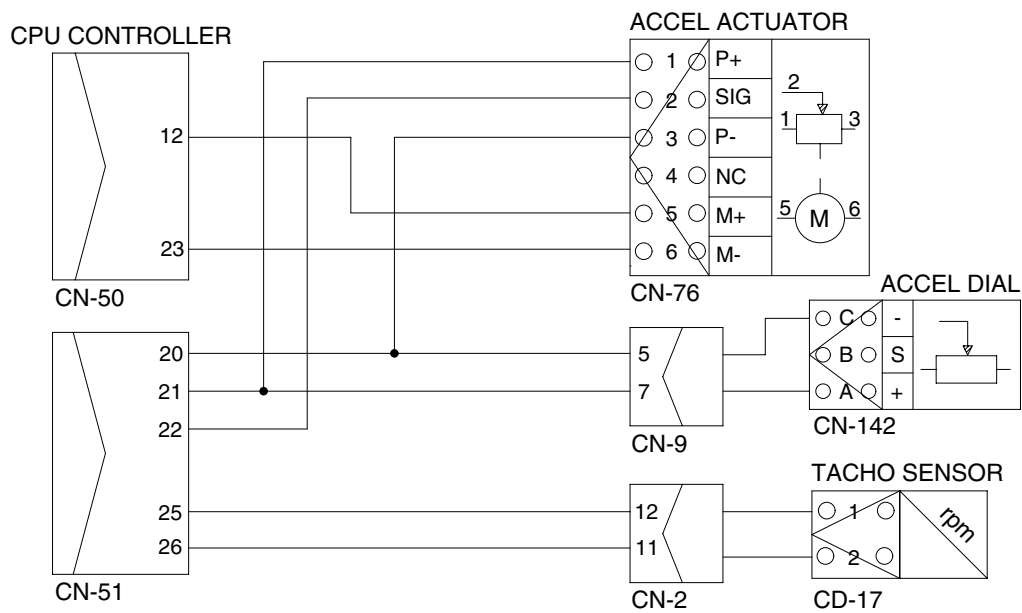
#### 4. SLOW ACTION OF ENGINE SPEED CHANGE WHEN CHANGE THE MODE

※ Before carrying out below procedure, check all the related connectors are properly inserted.

##### 1) INSPECTION PROCEDURE



##### Wiring diagram

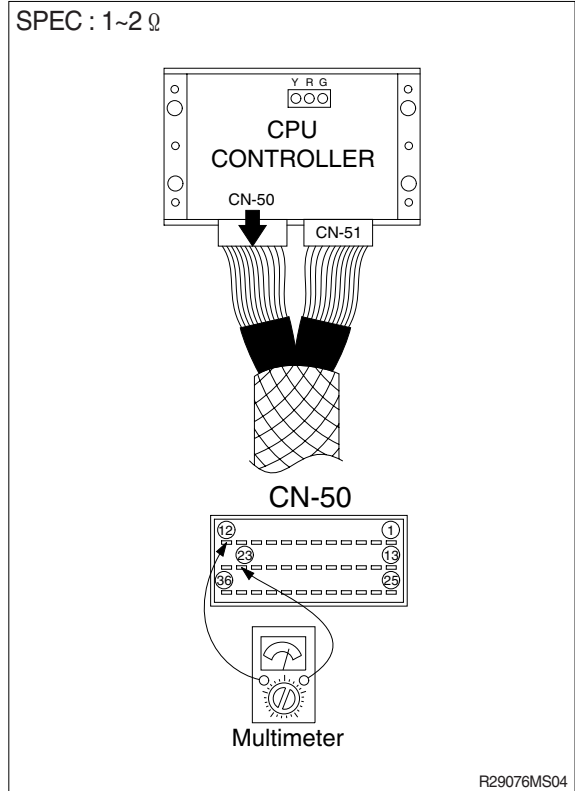


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## 2) TEST PROCEDURE

(1) **Test 11** : Check resistance.

- ① Starting key OFF.
- ② Disconnect connector CN-50 from CPU controller.
- ③ Check resistance between CN-50(12)-(23) as figure.

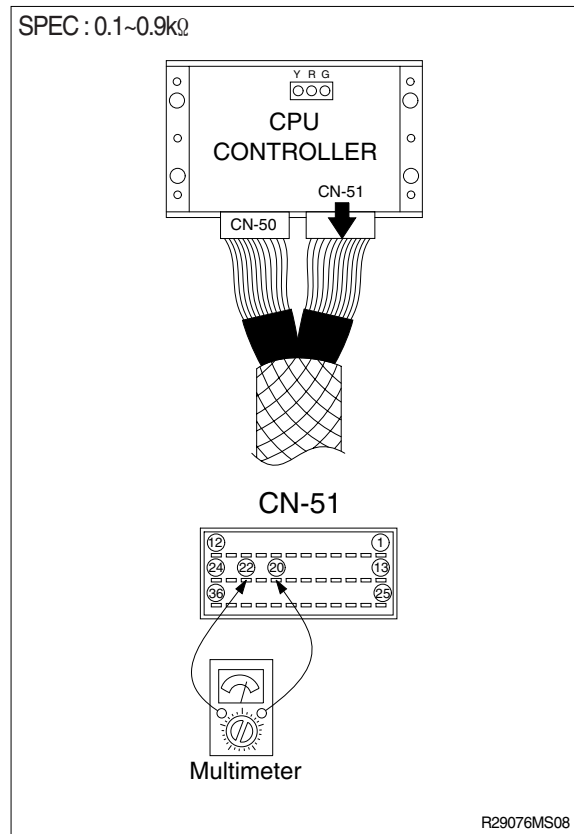




(2) **Test 12** : Check voltage and resistance.

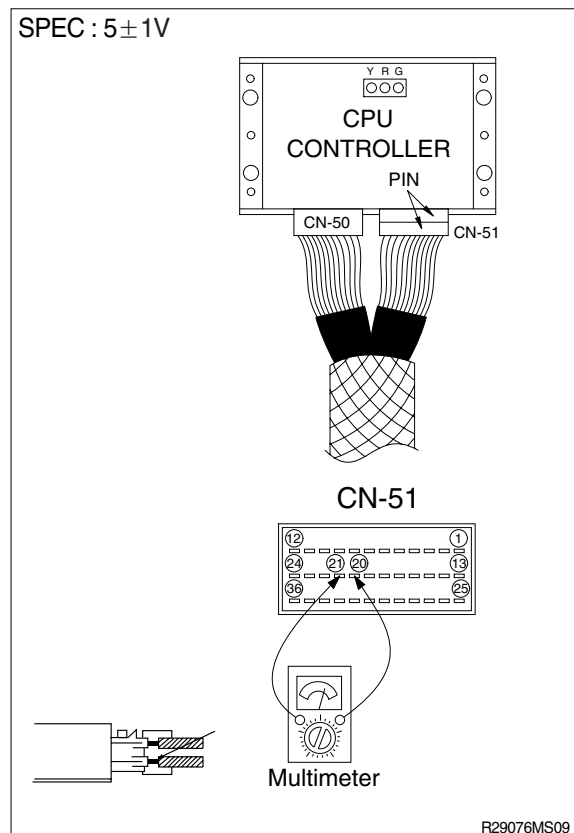
① Check resistance between CN-51(20)-  
(22).

- Starting key OFF.
- Disconnect connector CN-51 from CPU controller.
- Check resistance value with multimeter as figure.



② Check voltage between CN-51(20) and  
CN-51(21).

- Prepare 2 pieces of thin sharp pin, steel or copper.
- Starting key ON.
- Insert prepared pins to rear side of connectors : One pin to CN-51(20)  
Other pin to CN-51(21)
- Check voltage.



## 5. AUTO DECEL SYSTEM DOES NOT WORK

※ Before carrying out below procedure, check all the related connectors are properly inserted.

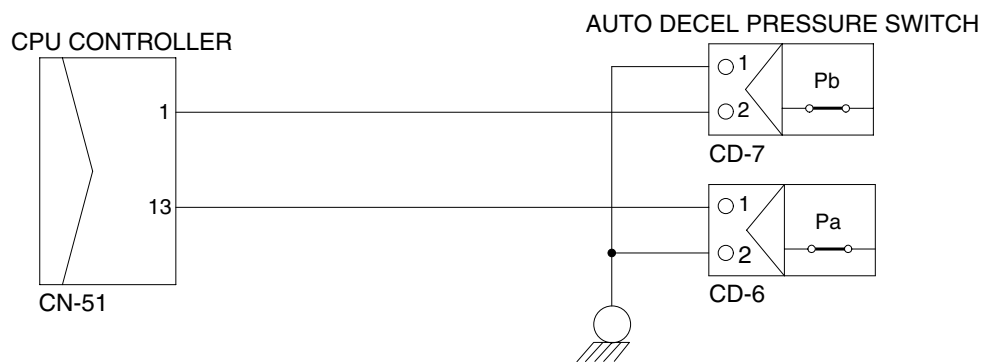
### 1) INSPECTION PROCEDURE

	Cause	Remedy
YES	Defective CPU controller	Replace
NO	Short circuit or poor connection between CN-51(1), (13)- pressure switches	Replace or repair
NO	Defective auto decel pressure switch	Replace

Check resistance between CN-51 (1)-GND and CN-51(13)-GND

SPEC :  
 Actuator operating : 11~13V  
 Actuator stop : 0~2V  
 See TEST 13  
 See TEST 14

### Wiring diagram



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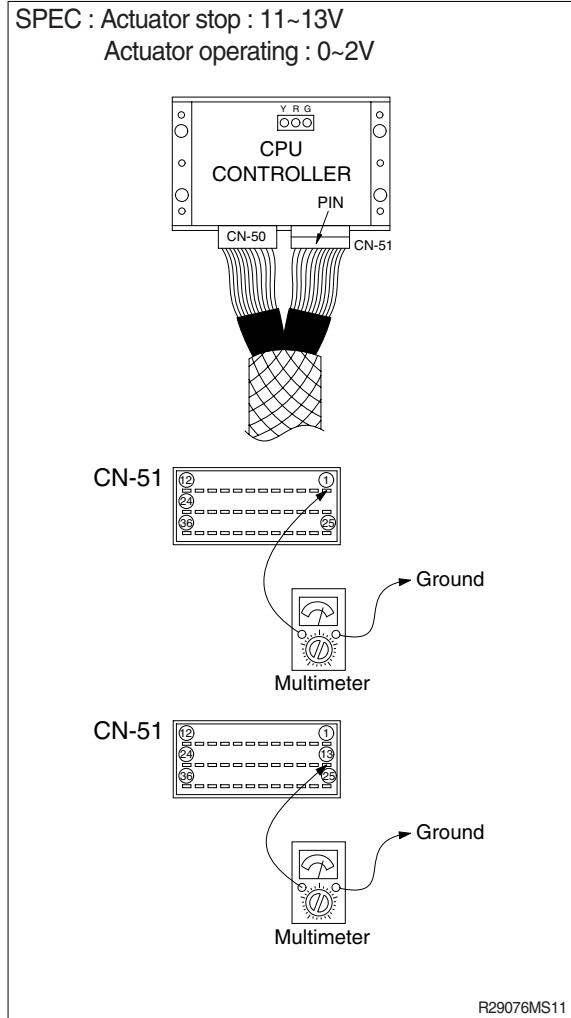
## 2) TEST PROCEDURE

(1) **Test 13** : Check voltage at CN-51(1) and ground.

- ① Prepare 1 piece of thin sharp pin, steel or copper.
- ② Starting key ON.
- ③ Insert prepared pin to rear side of connectors : One pin to (1) of CN-51.
- ④ Check voltage as figure.

(2) **Test 14** : Check voltage at CN-51(13) and ground.

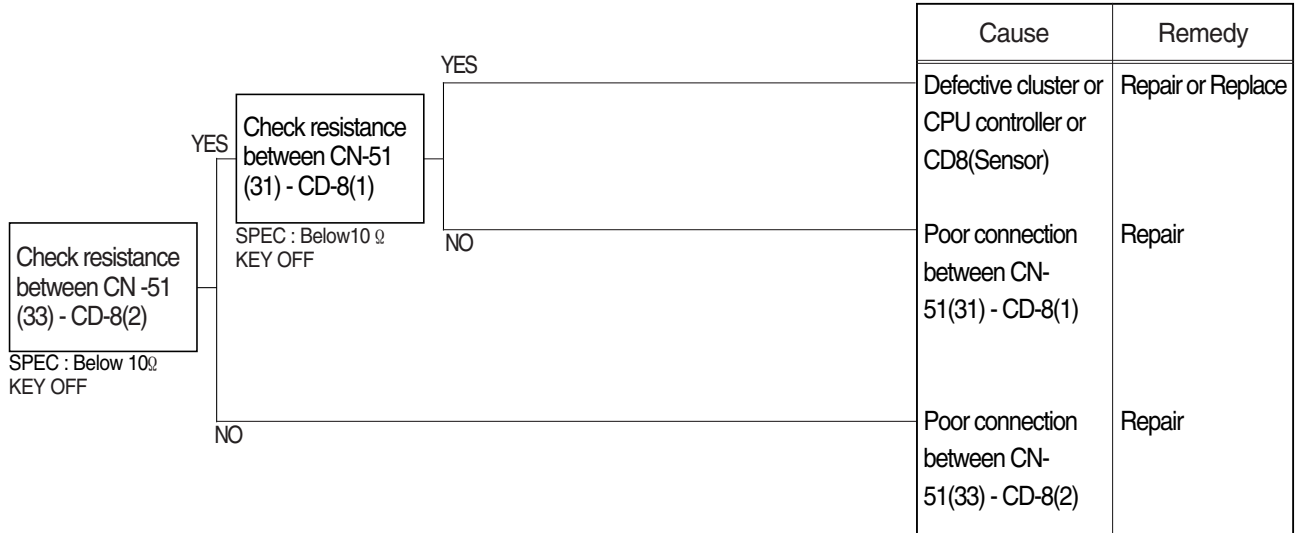
- ① Prepare 1 piece of thin sharp pin, steel or copper
- ② Starting key ON.
- ③ Insert prepared pin to rear side of connectors : One pin to (13) of CN-51
- ④ Check voltage as figure.



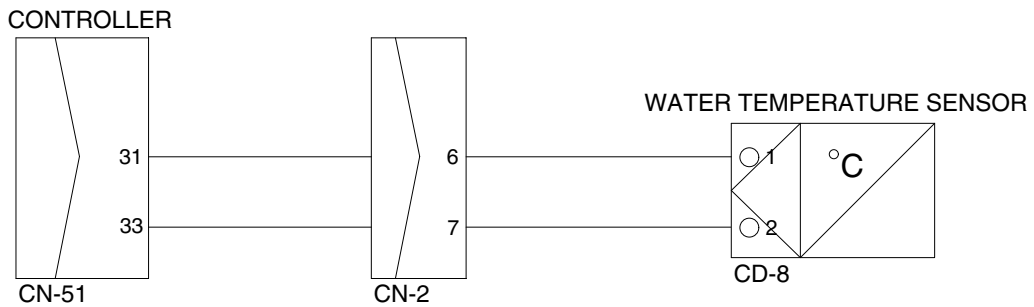
## 6. MALFUNCTION OF WARMING UP

※ Before carrying out below procedure, check all the related connectors are properly inserted.

### 1) INSPECTION PROCEDURE



### Wiring diagram

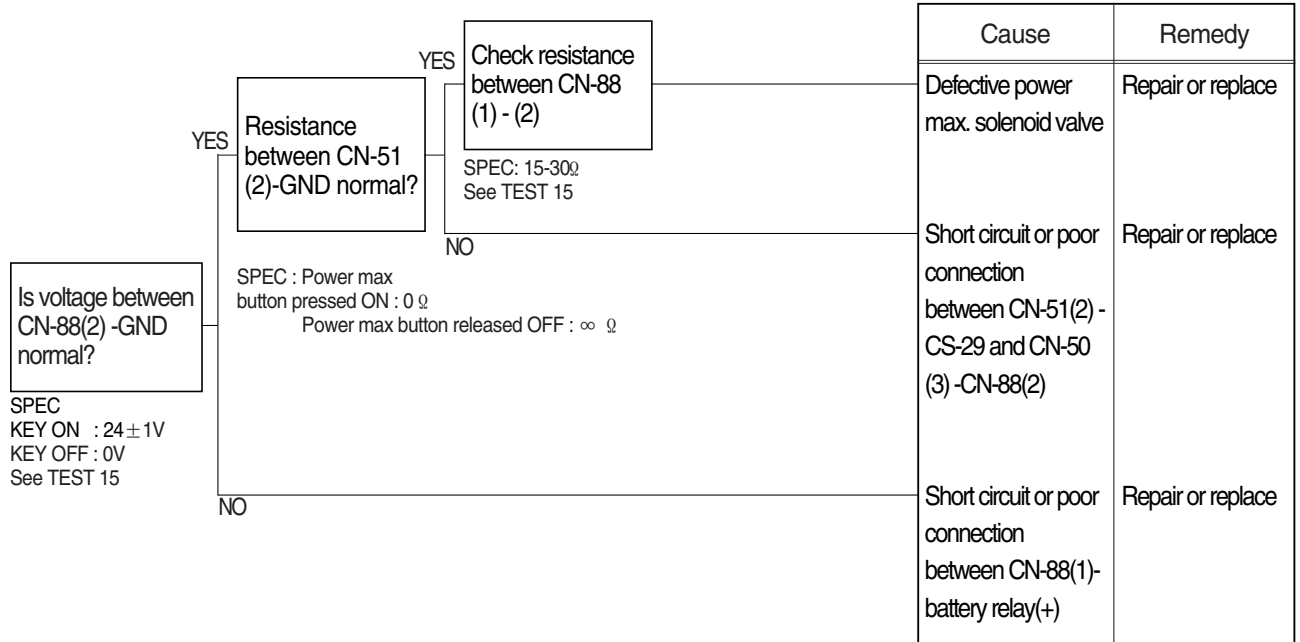


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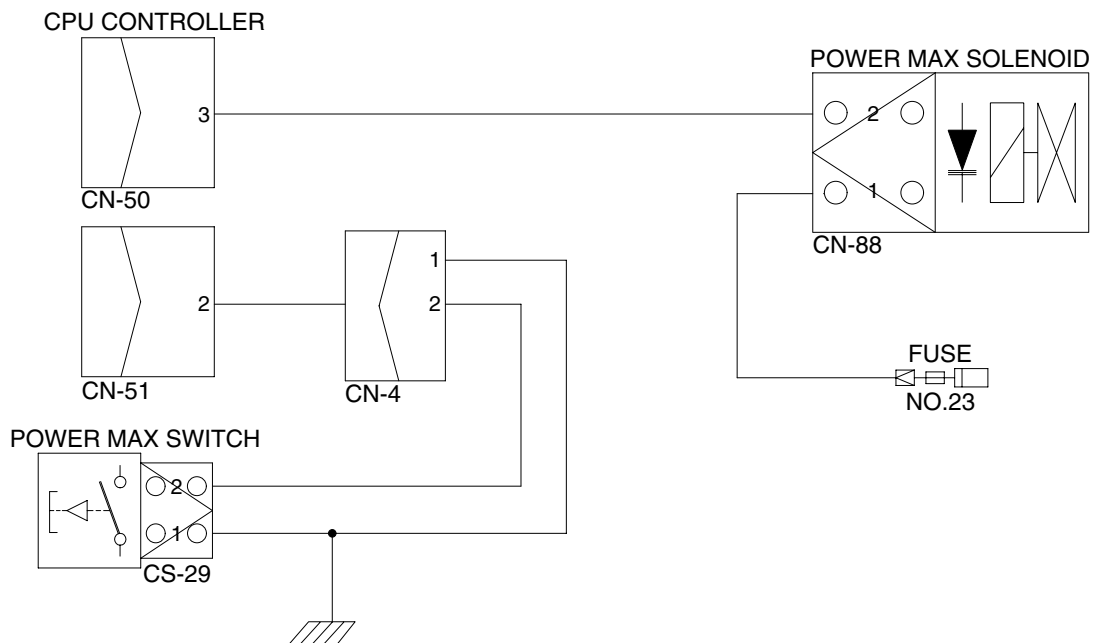
## 7. MALFUNCTION OF POWER MAX

※ Before carrying out below procedure, check all the related connectors are properly inserted.

### 1) INSPECTION PROCEDURE



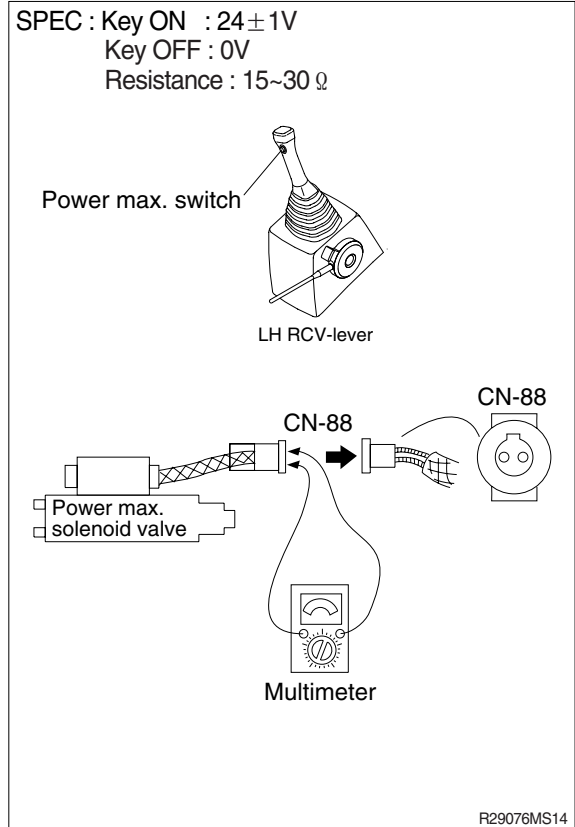
### Wiring diagram



## 2) TEST PROCEDURE

(1) **Test 15:** Check voltage between connector CN-88 - GND.

- ① Start key ON.
- ② Disconnect connector CN-88 from power max solenoid valve.
- ③ Check voltage as figure.



(2) **Test 16:** Check resistance between connector CN-51(2)-GND.

- ① Starting key OFF.
- ② Remove CPU controller and disconnect connector CN-51 from CPU controller.
- ③ Check resistance as figure.

