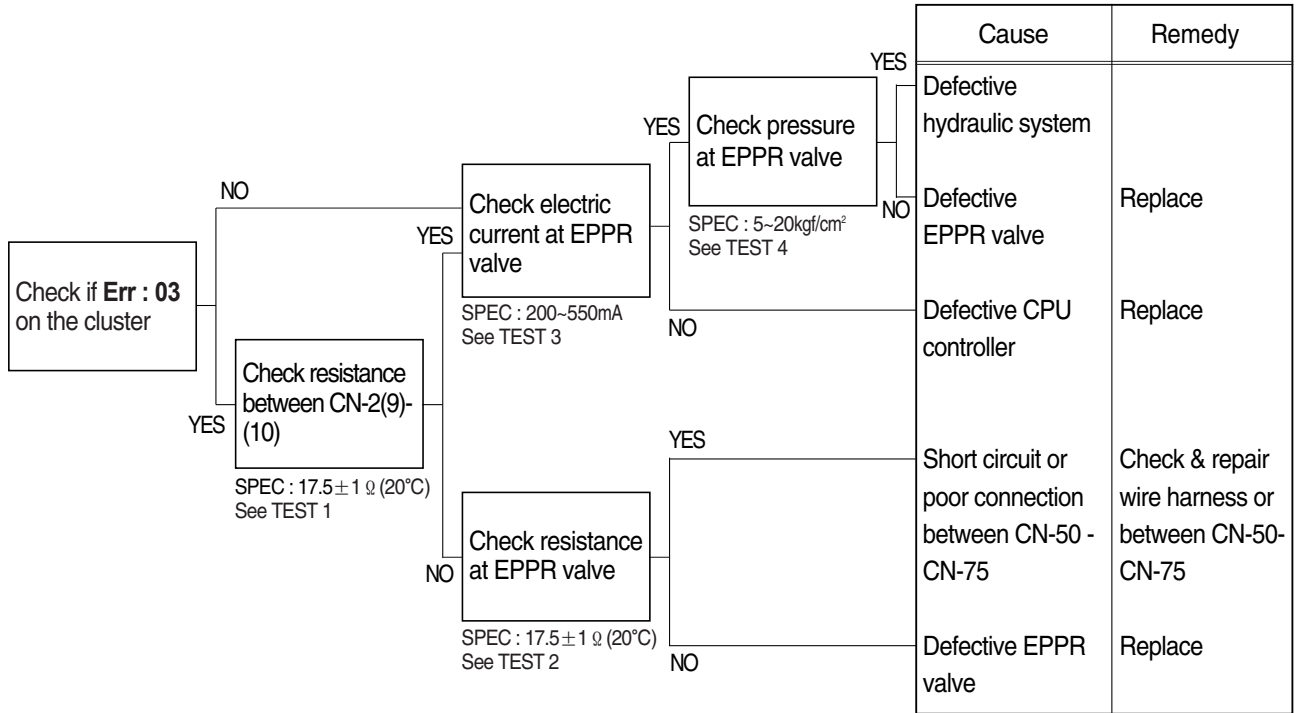


# GROUP 4 MECHATRONICS SYSTEM

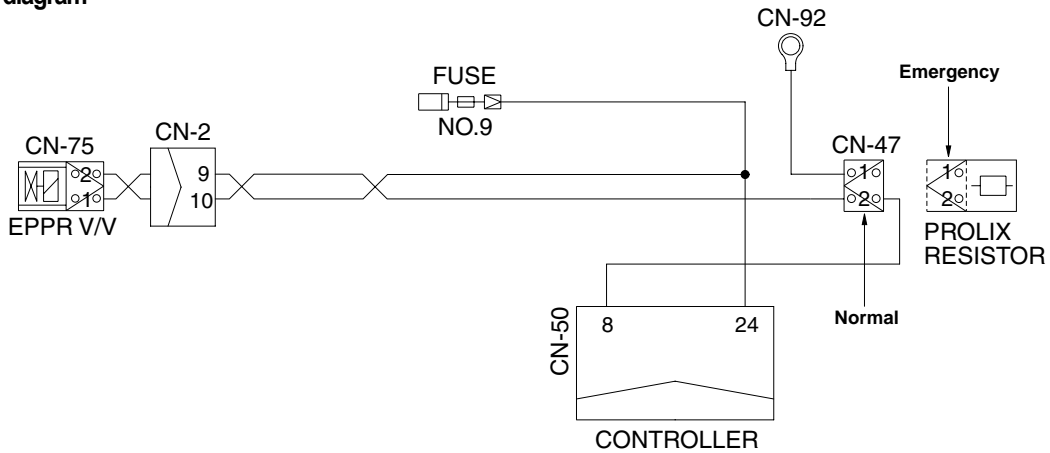
## 1. ALL ACTUATORS SPEED ARE SLOW

- ※ Boom, Arm, Bucket, Swing and travel speed are slow, but engine speed is good.
- ※ Spec : M-mode  $1960 \pm 50\text{rpm}$     H-mode  $1850 \pm 50\text{rpm}$     S-mode  $1750 \pm 50\text{rpm}$
- ※ Before carrying out below procedure, check all the related connectors are properly inserted.

### 1) INSPECTION PROCEDURE



### Wiring diagram



14076TS28

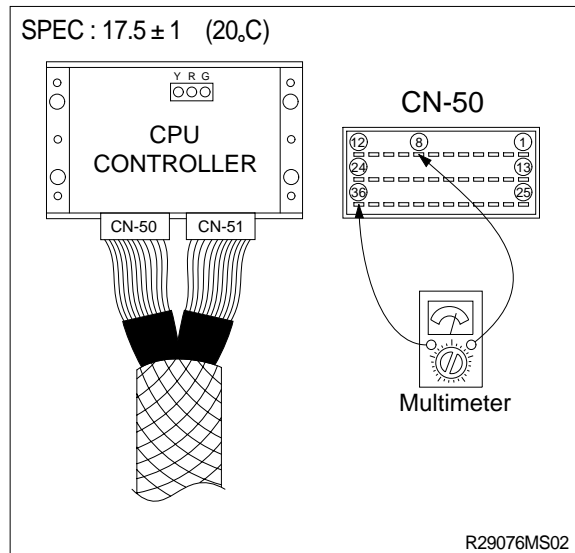
## 2) TEST PROCEDURE

(1) **Test 1** : Check resistance at connector CN-50(8)-(36).

Starting key OFF.

Disconnect connector CN-50.

Check resistance between pin and at connector CN-50(8)-(36).

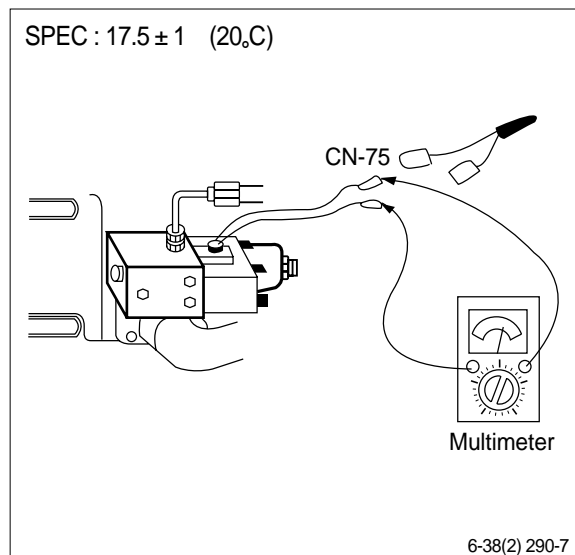


(2) **Test 2** : Check resistance at connector CN-75.

Starting key OFF.

Disconnect connector CN-75 from EPPR valve at main hydraulic pump.

Check resistance between 2 lines as figure.



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

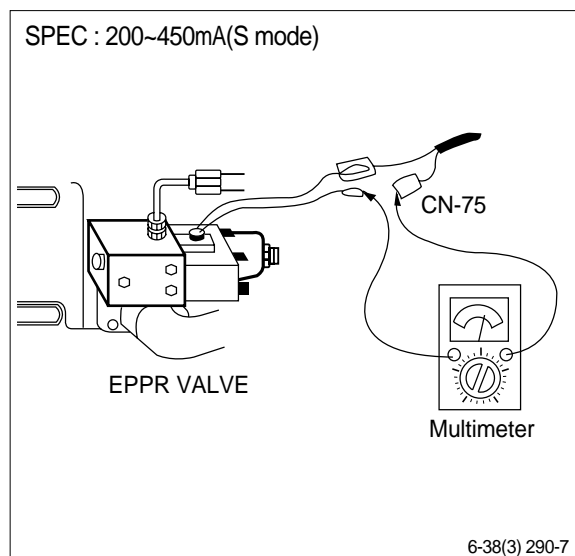
Install multimeter as figure.

Start engine.

Set the accel dial at "10"(MAX)

Set S-mode and cancel auto decel mode.

If tachometer show approx  $1850 \pm 50$ rpm, check electric current.



**(2) Test 4 :** Check pressure at EPPR valve.  
Remove plug and connect pressure gauge as figure.

- Gauge capacity : 0 to 40~50kgf/cm<sup>2</sup>  
(0 to 570~710psi)

Start engine.

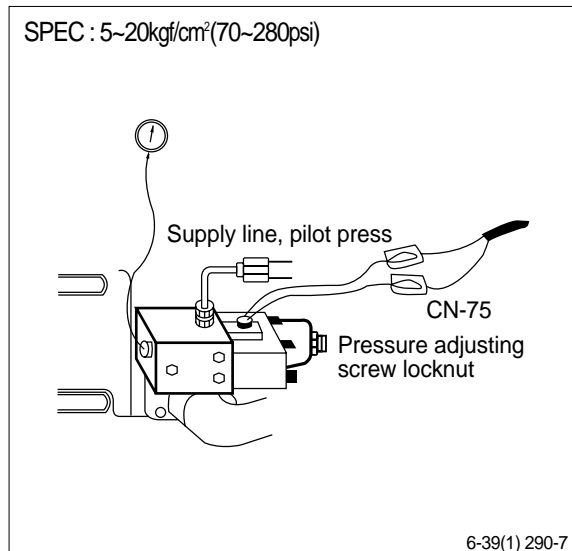
Set the accel dial at "10"(Max).

Set S-mode and cancel auto decel mode.

If tachometer show approx 1850 ± 50rpm,  
check pressure.

If pressure is not correct, adjust it.

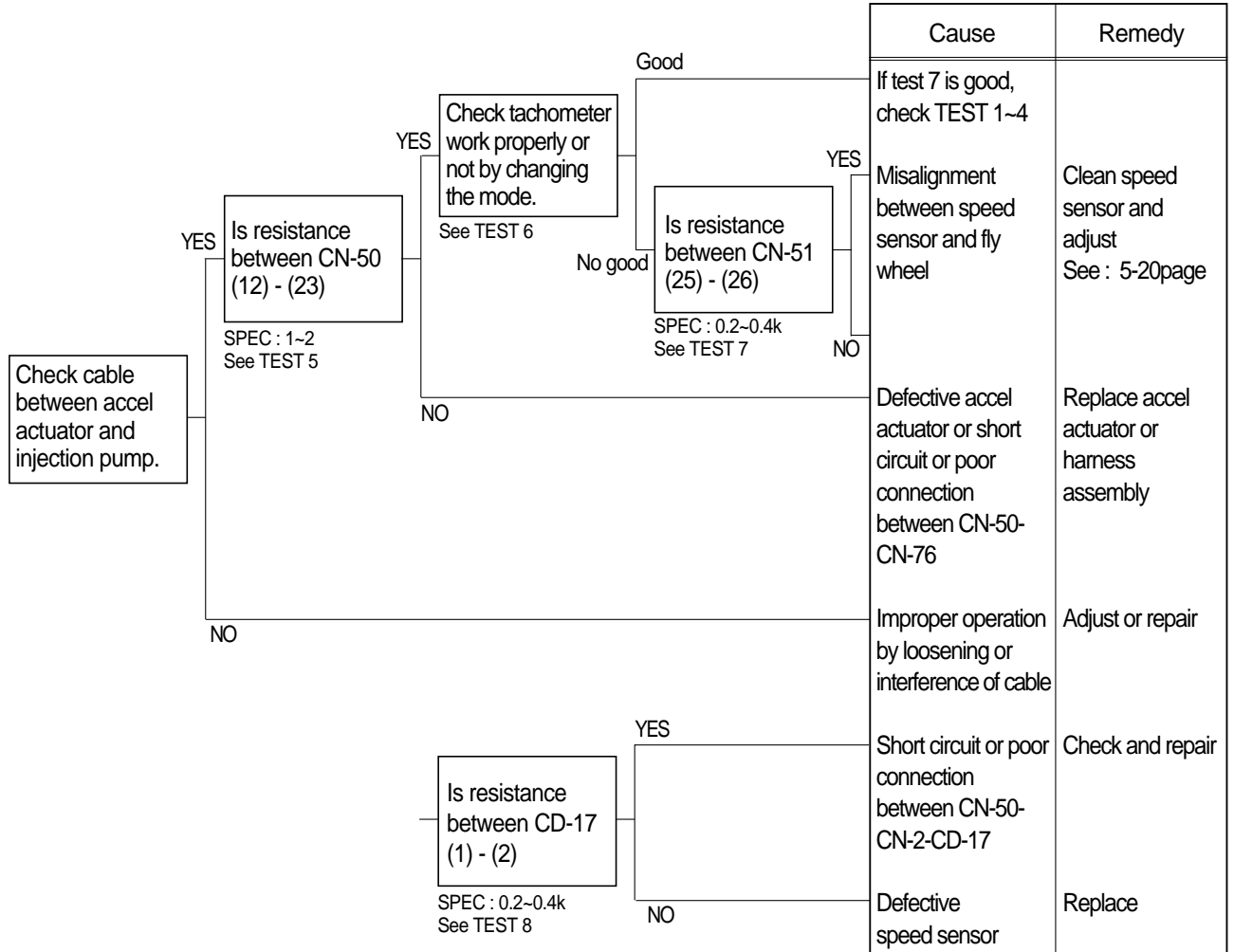
After adjust, test the machine.



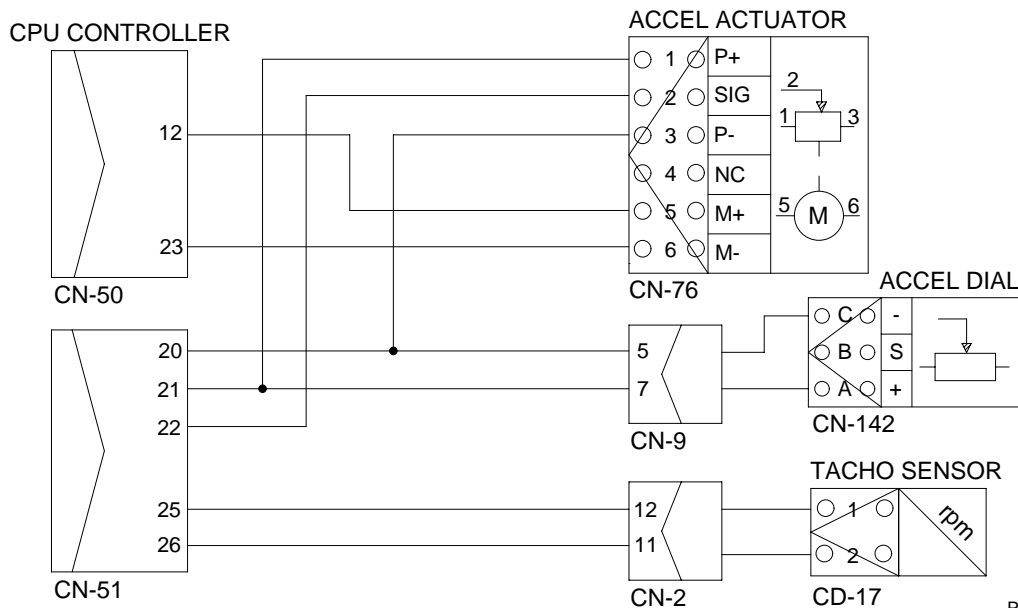
## 2. ENGINE SPEED IS SLOW AT ALL MODE

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

### 1) INSPECTION PROCEDURE



### Wiring diagram



R29076MS03

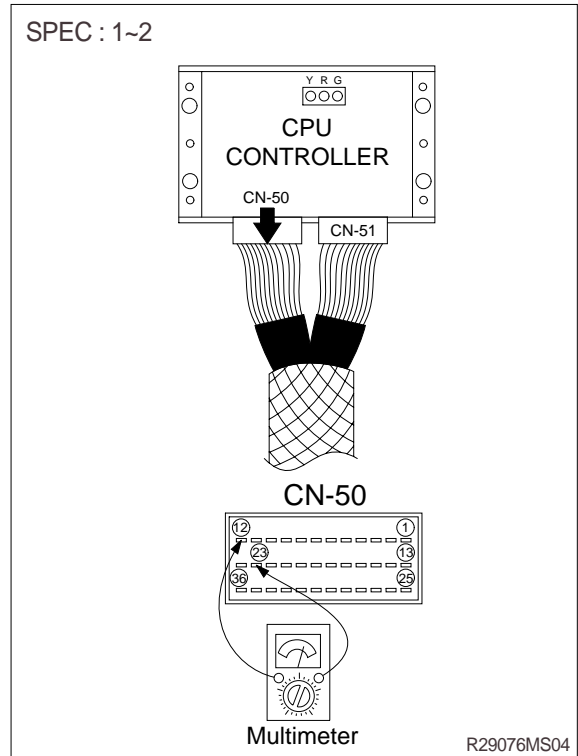
## 2) TEST PROCEDURE

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

Starting key OFF.

Disconnect connector CN-50 from CPU controller.

Check resistance as figure.



Unit : rpm

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

Start engine.

Check tachometer reading.

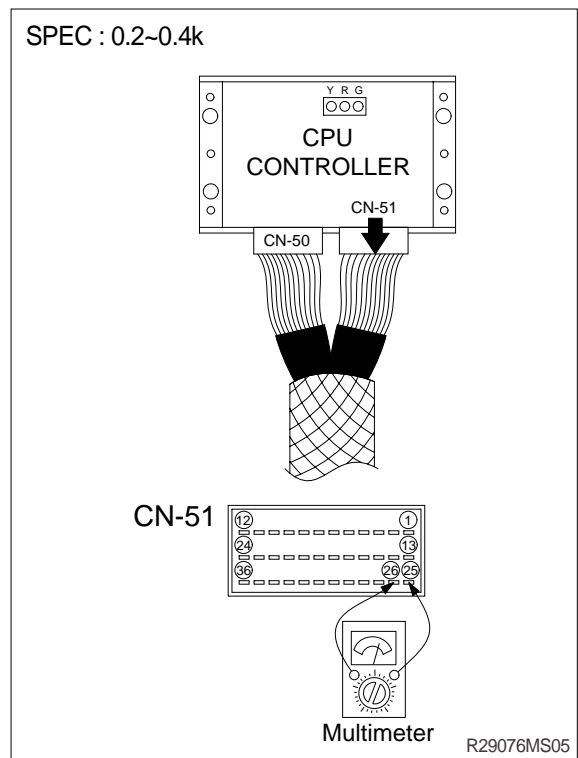
Spec		Remark
H-mode	1960 ± 50	Check rpm after cancel the Auto decel mode.
S-mode	1850 ± 50	

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

Starting key OFF.

Disconnect connector CN-51 from CPU controller.

Check resistance as figure.

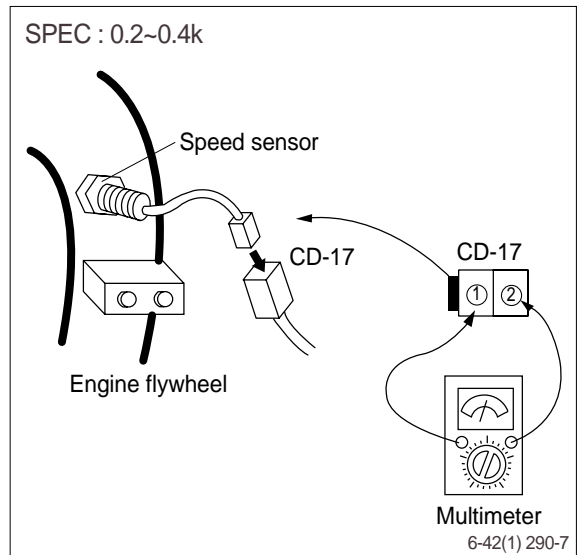


**(4) Test 8 :** Check resistance at speed sensor.

Starting key OFF.

Disconnect connector CD-17 of speed sensor at engine flywheel housing.

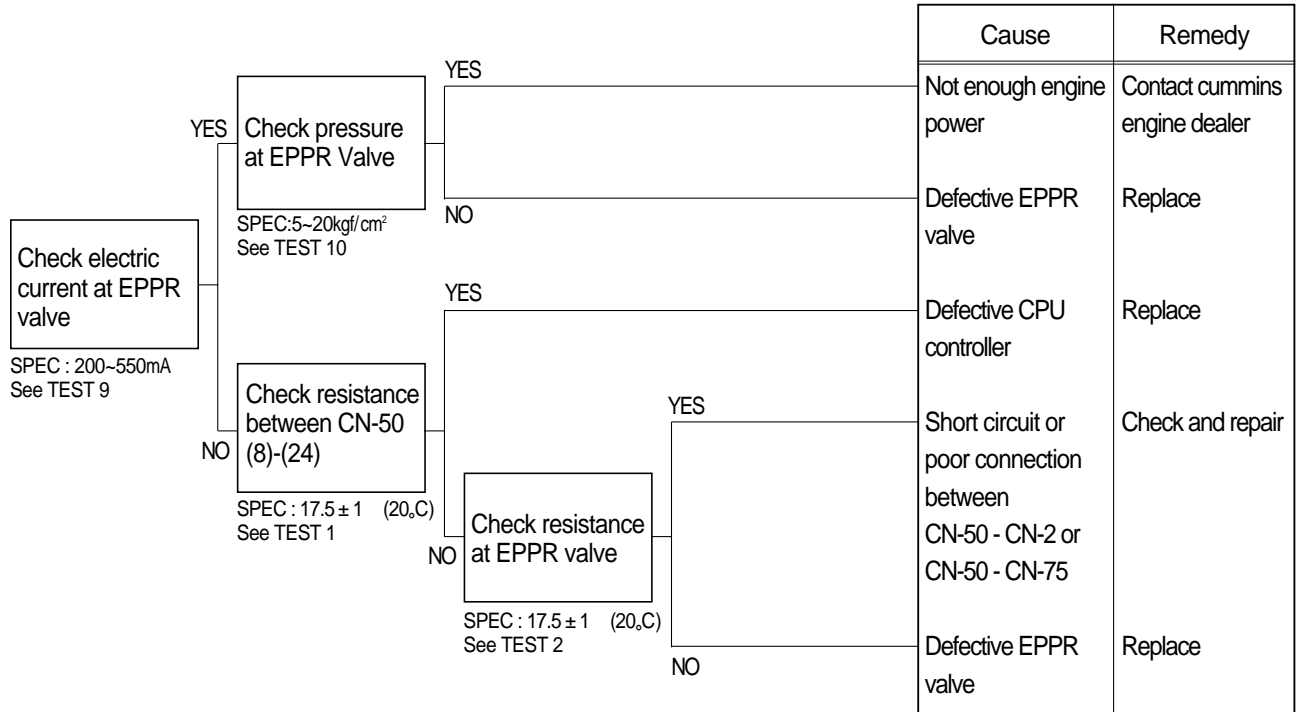
Check resistance as figure.



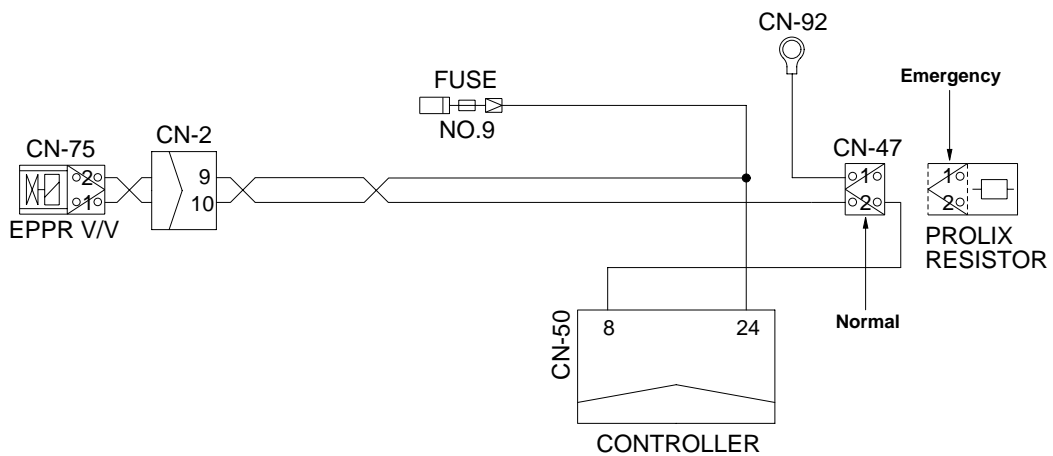
### 3. ENGINE STALL

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

#### 1) INSPECTION PROCEDURE



#### Wiring diagram



14076TS28

## 2) TEST PROCEDURE

### (1) Test 9 : Check electric current at EPPR valve at S-mode

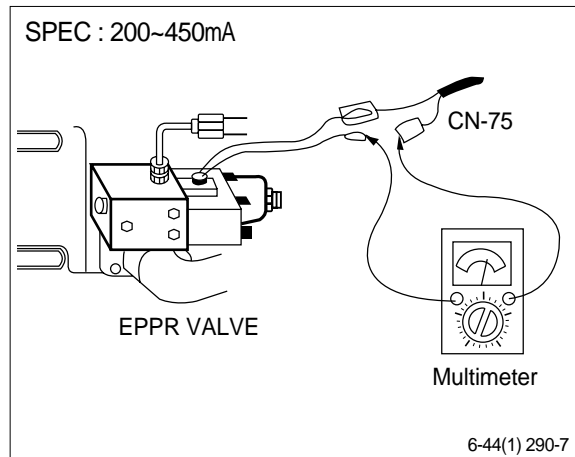
Install multimeter as figure.

Start engine.

Set the accel dial at "10"(max)

Set S-mode with  $1850 \pm 50$ rpm.

Check electric current.



### (2) Test 10 : Check pressure at EPPR valve at S-mode

Connect pressure gauge at EPPR valve.

Start engine.

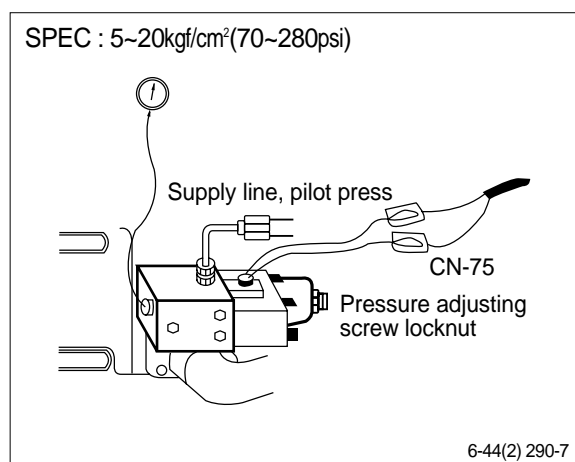
Set the accel dial at "10"(max)

Set S-mode with  $1850 \pm 50$ rpm.

Operate bucket lever completely push or pull.

Hold arm lever at the end of stroke.

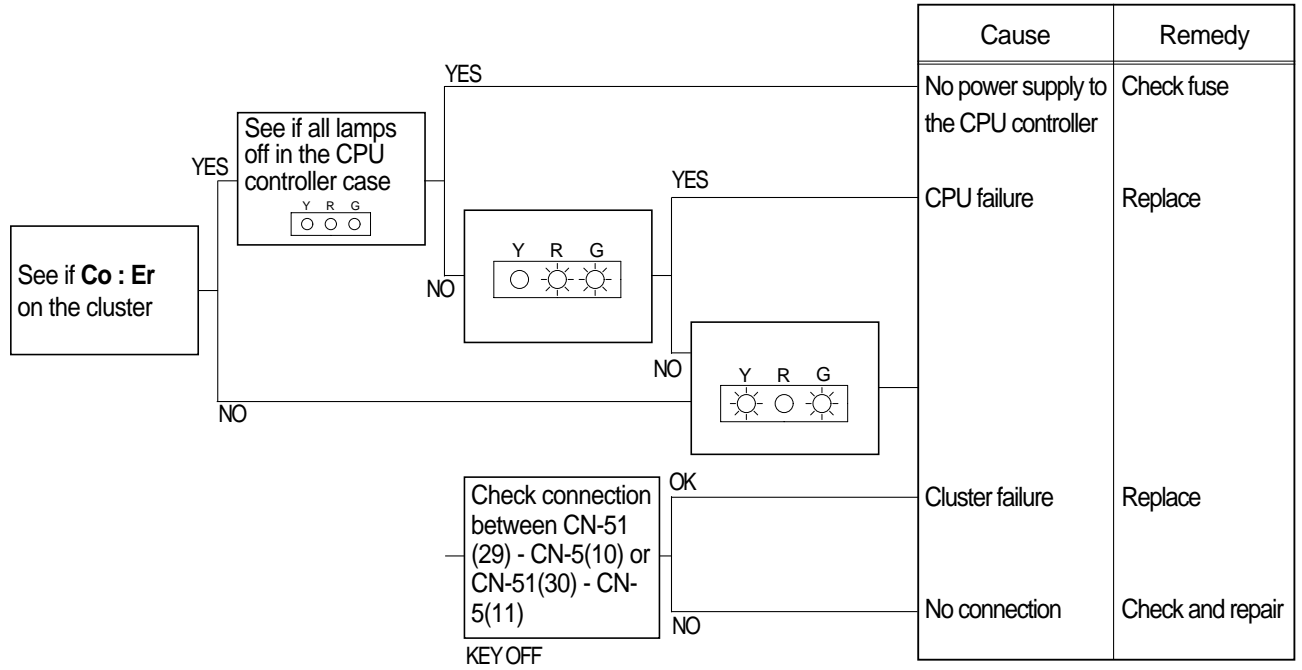
Check pressure at relief position.



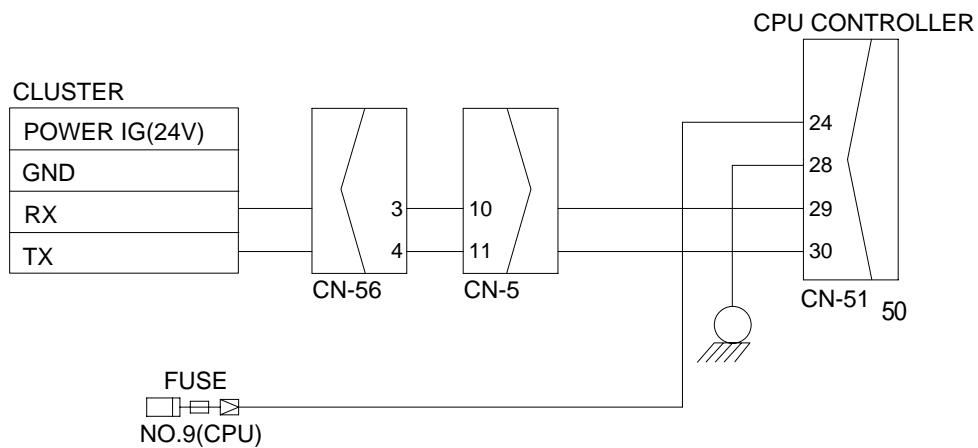
#### 4. MALFUNCTION OF CLUSTER OR MODE SELECTION SYSTEM

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

##### 1) INSPECTION PROCEDURE



##### Wiring diagram

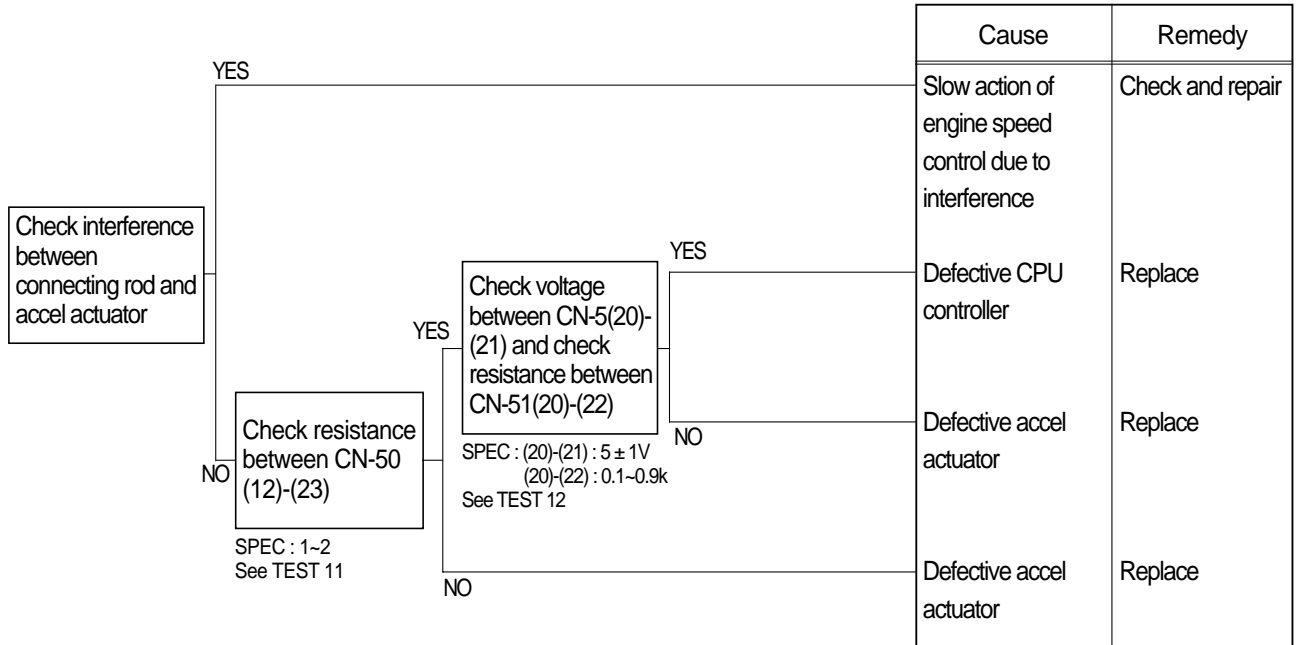


R29076MS06

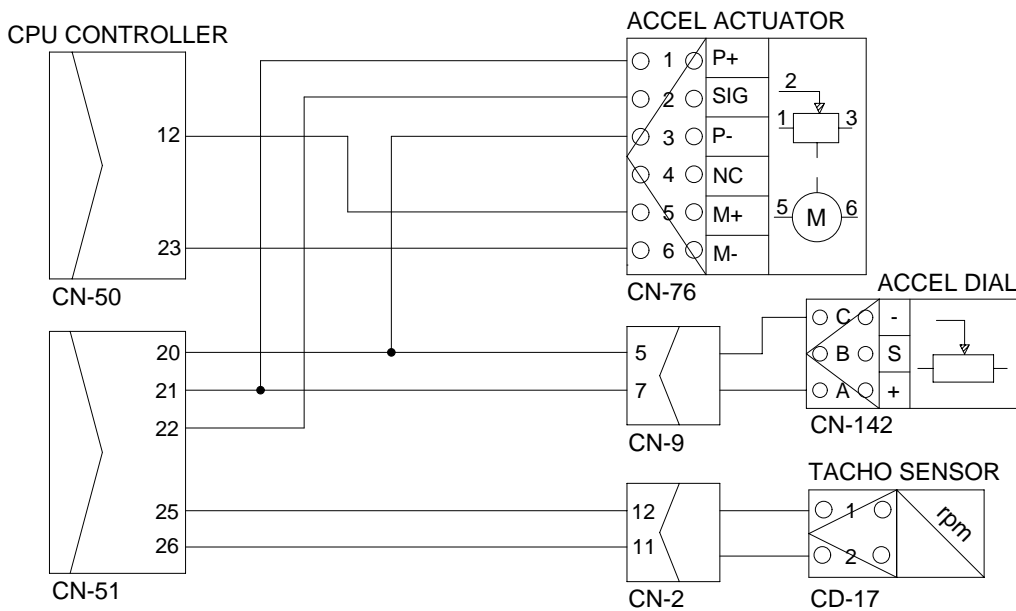
## 5. SLOW ACTION OF ENGINE SPEED CHANGE WHEN CHANGE THE MODE

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

### 1) INSPECTION PROCEDURE



### Wiring diagram



R29076MS03

## 2) TEST PROCEDURE

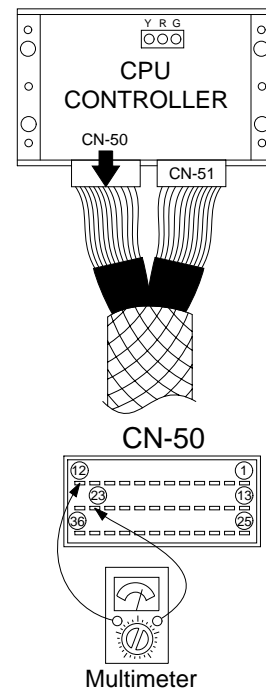
### (1) Test 11 : Check resistance.

Starting key OFF.

Disconnect connector CN-50 from CPU controller.

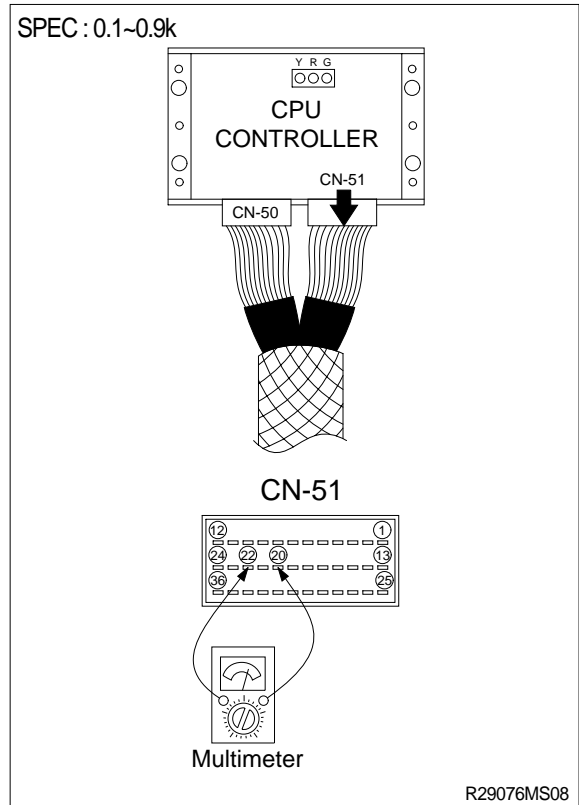
Check resistance between CN-50(12)-(23) as figure.

SPEC : 1~2



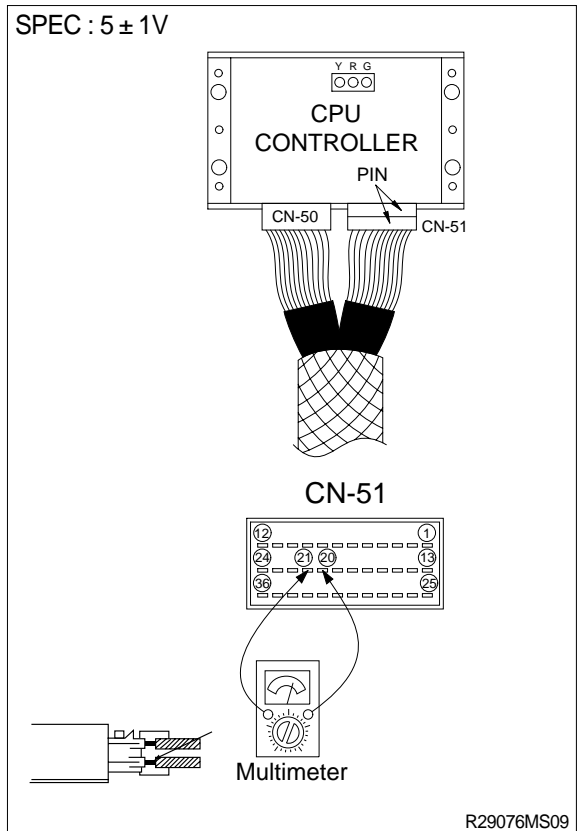
R29076MS04

- (2) Test 12 :** Check voltage and resistance.  
 Check resistance between CN-51(20)-  
 (22).
- Starting key OFF.
  - Disconnect connector CN-51 from CPU controller.
  - Check resistance value with multimeter as figure.



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.



## 6. AUTO DECEL SYSTEM DOES NOT WORK

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

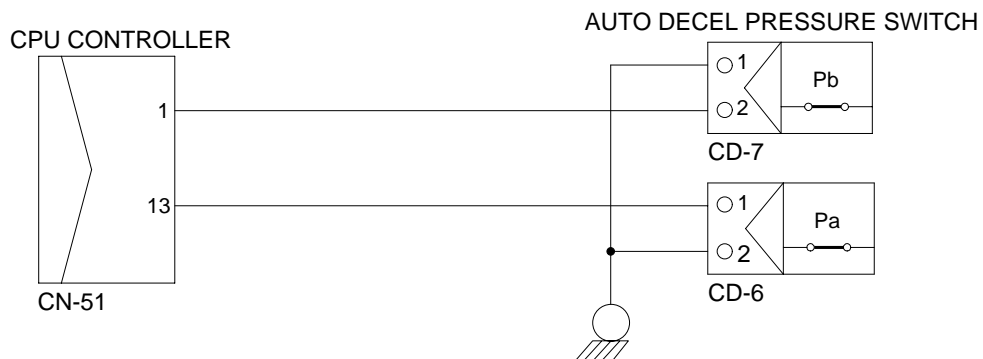
### 1) INSPECTION PROCEDURE

	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



R29076MS10

## 2) TEST PROCEDURE

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

Prepare 1 piece of thin sharp pin, steel or copper.

Starting key ON.

Insert prepared pin to rear side of connectors : One pin to (1) of CN-51.

Check voltage as figure.

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

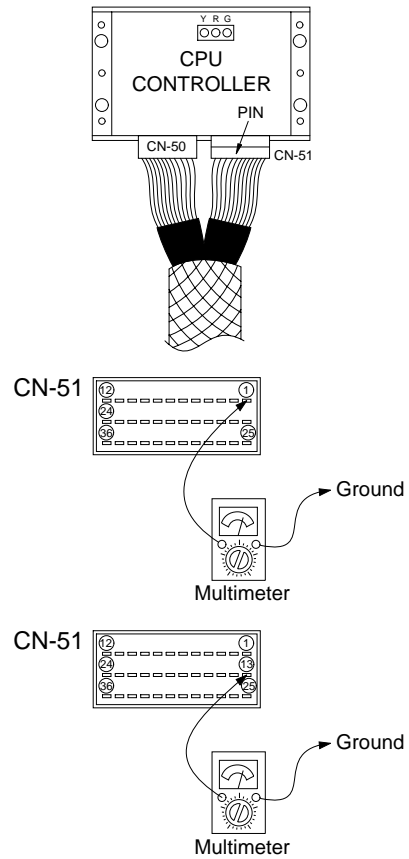
Prepare 1 piece of thin sharp pin, steel or copper

Starting key ON.

Insert prepared pin to rear side of connectors : One pin to (13) of CN-51

Check voltage as figure.

SPEC : Actuator stop : 11~13V  
Actuator operating : 0~2V

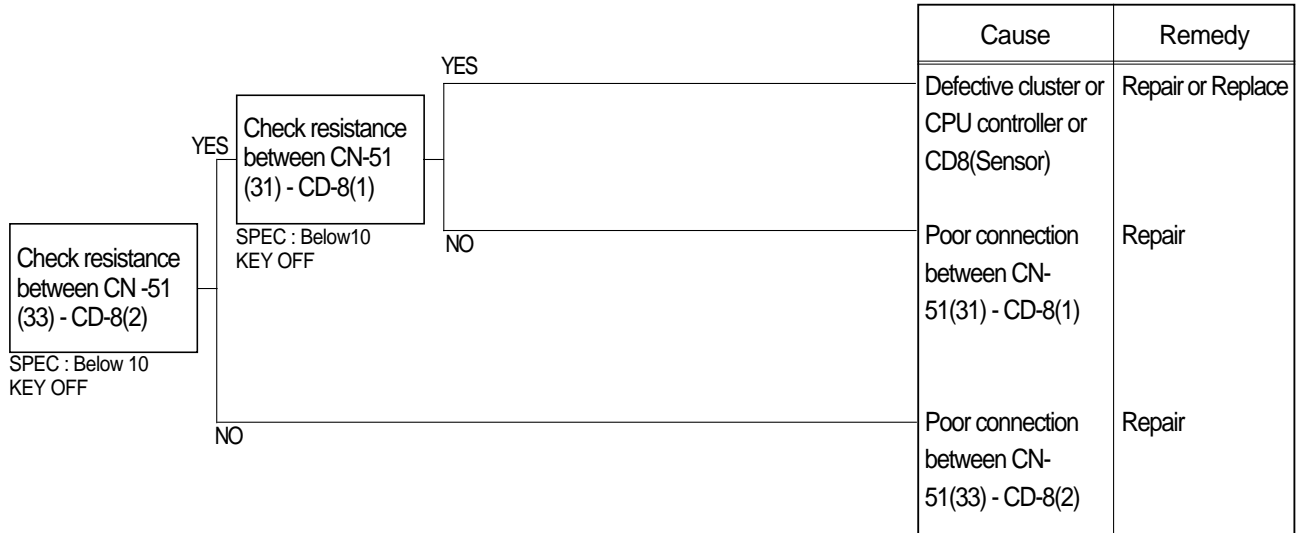


R29076MS11

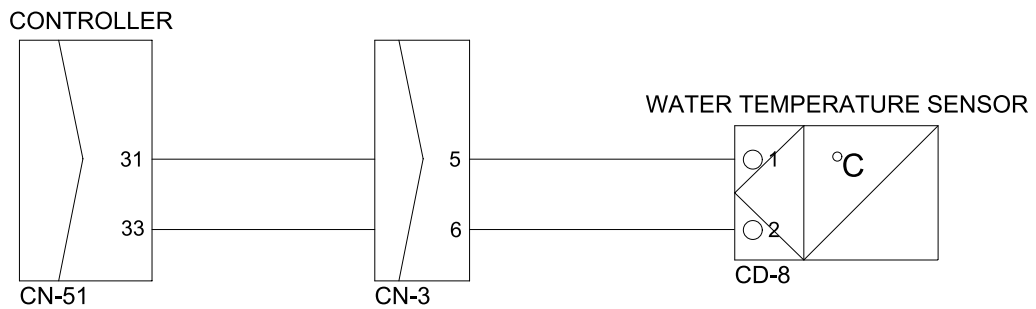
## 7. MALFUNCTION OF WARMING UP

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

### 1) INSPECTION PROCEDURE



### Wiring diagram



R32076MS12



## 2) TEST PROCEDURE

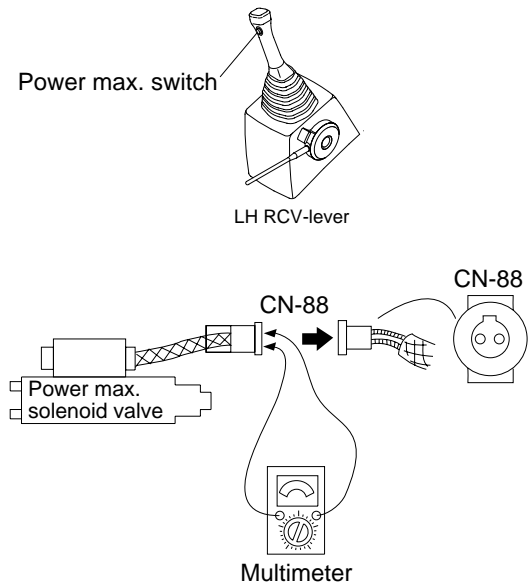
(1) **Test 15:** Check voltage between connector CN-88 - GND.

Start key ON.

Disconnect connector CN-88 from power max solenoid valve.

Check voltage as figure.

SPEC : Key ON :  $24 \pm 1V$   
Key OFF : 0V  
Resistance : 15~30



R29076MS14

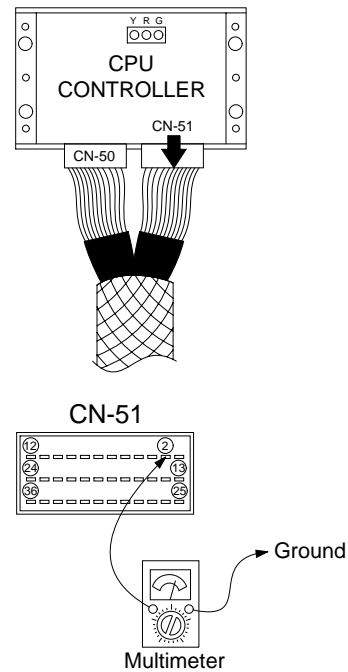
(2) **Test 16:** Check resistance between connector CN-51(2)-GND.

Starting key OFF.

Remove CPU controller and disconnect connector CN-51 from CPU controller.

Check resistance as figure.

SPEC : Power max button pressed ON : 0  
Power max button released OFF :



R29076MS15