

# GROUP 4 MECHATRONICS SYSTEM

## 1. ALL ACTUATORS SPEED ARE SLOW

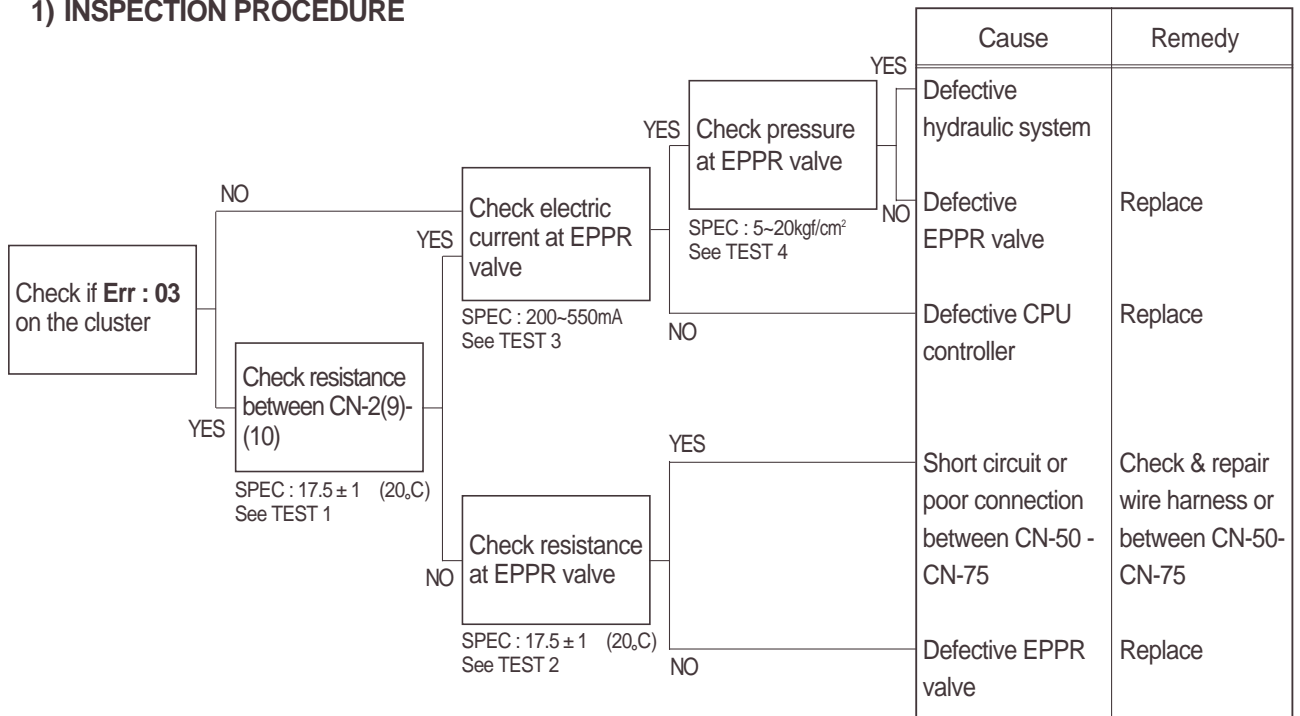
Boom, Arm, Bucket, Swing and travel speed are slow, but engine speed is good.

Spec : H-mode 2350 ± 50(2250 ± 50)rpm      S-mode 2150 ± 50(2100 ± 50)rpm

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

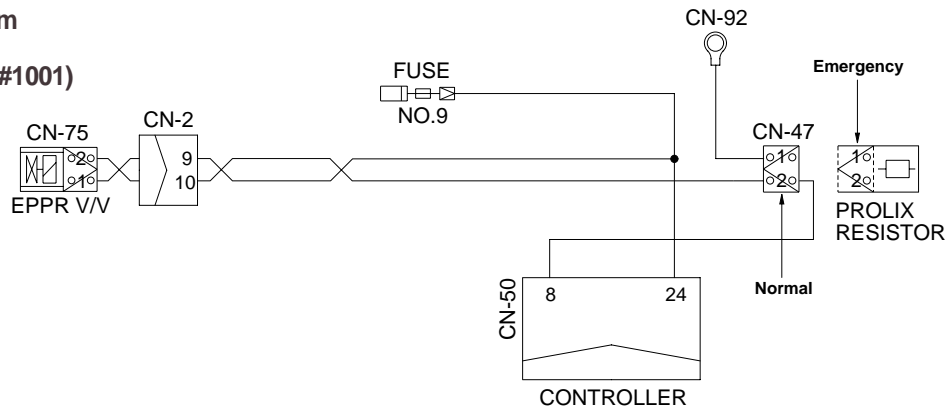
( ) : TIER II (#1001 AND UP)

### 1) INSPECTION PROCEDURE

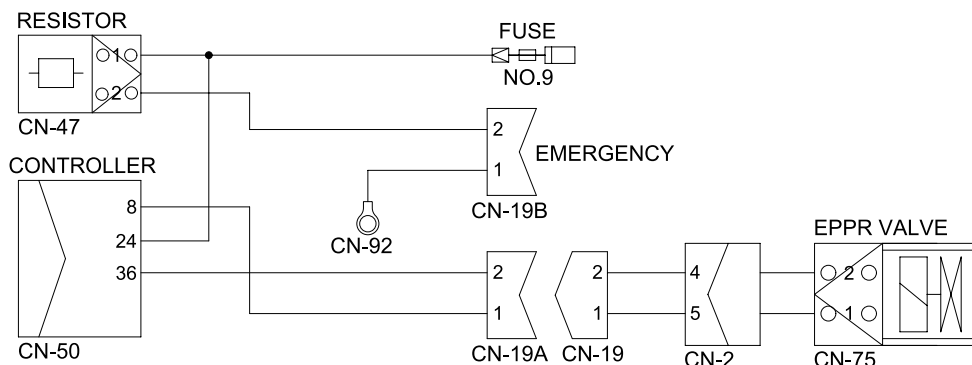


### Wiring diagram

#### TIER I(UP TO #1001)



#### TIER II(#1001 AND UP)



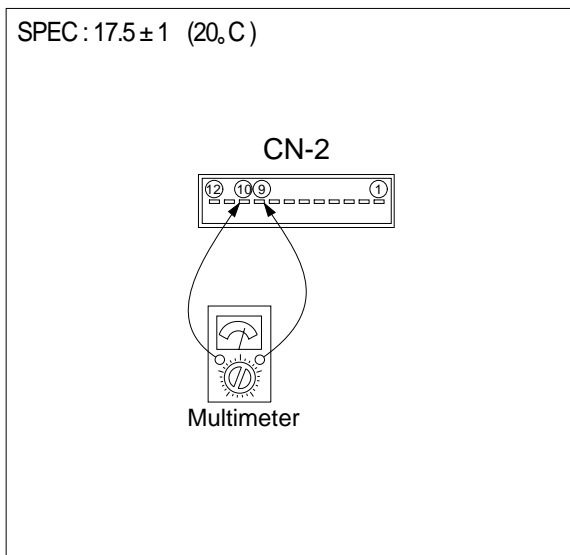
## 2) TEST PROCEDURE

- (1) **Test 1** : Check resistance at connector CN-2(9)-(10).

Starting key OFF.

Disconnect connector CN-2.

Check resistance between pin and at connector CN-2(9)-(10).

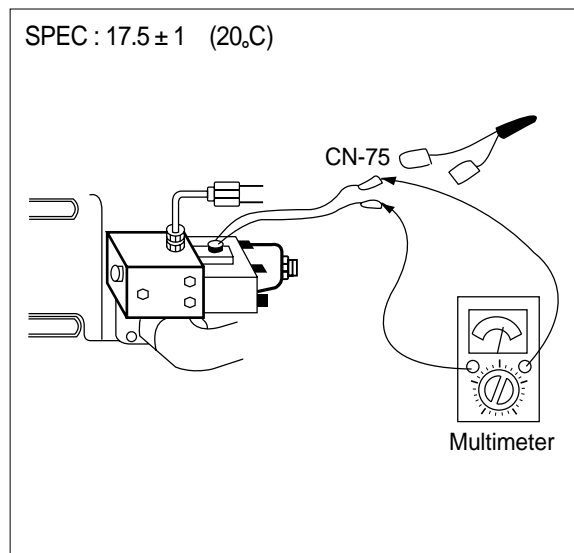


- (2) **Test 2** : Check resistance at connector CN-75.

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.

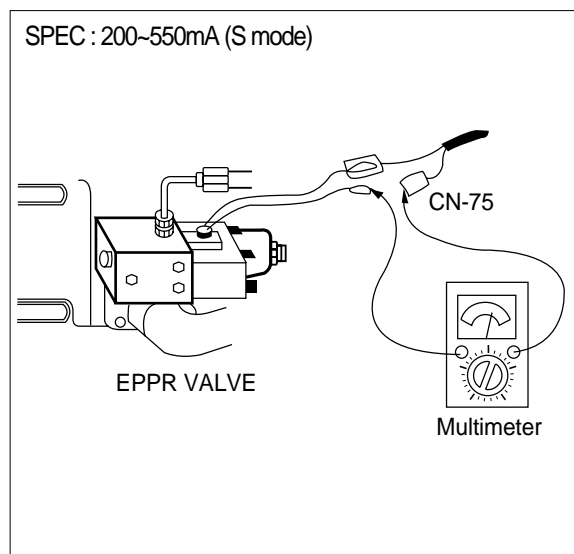
Start engine.

Set the accel dial at "10"(MAX)

Set S-mode and cancel auto decel mode.

If tachometer show approx  $2150 \pm 50$  ( $2100 \pm 50$ )rpm, check electric current.

( ) : TIER II (#1001-)



(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.

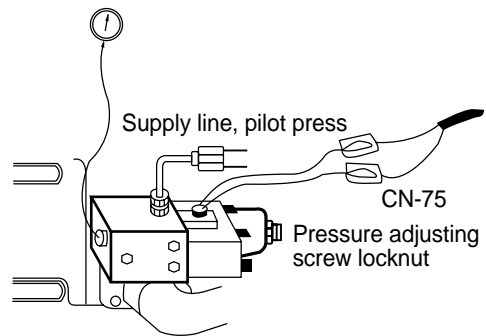
If tachometer show approx 2150 ± 50  
(2100 ± 50)rpm, check pressure.

If pressure is not correct, adjust it.

After adjust, test the machine.

( ) : TIER II (#1001-)

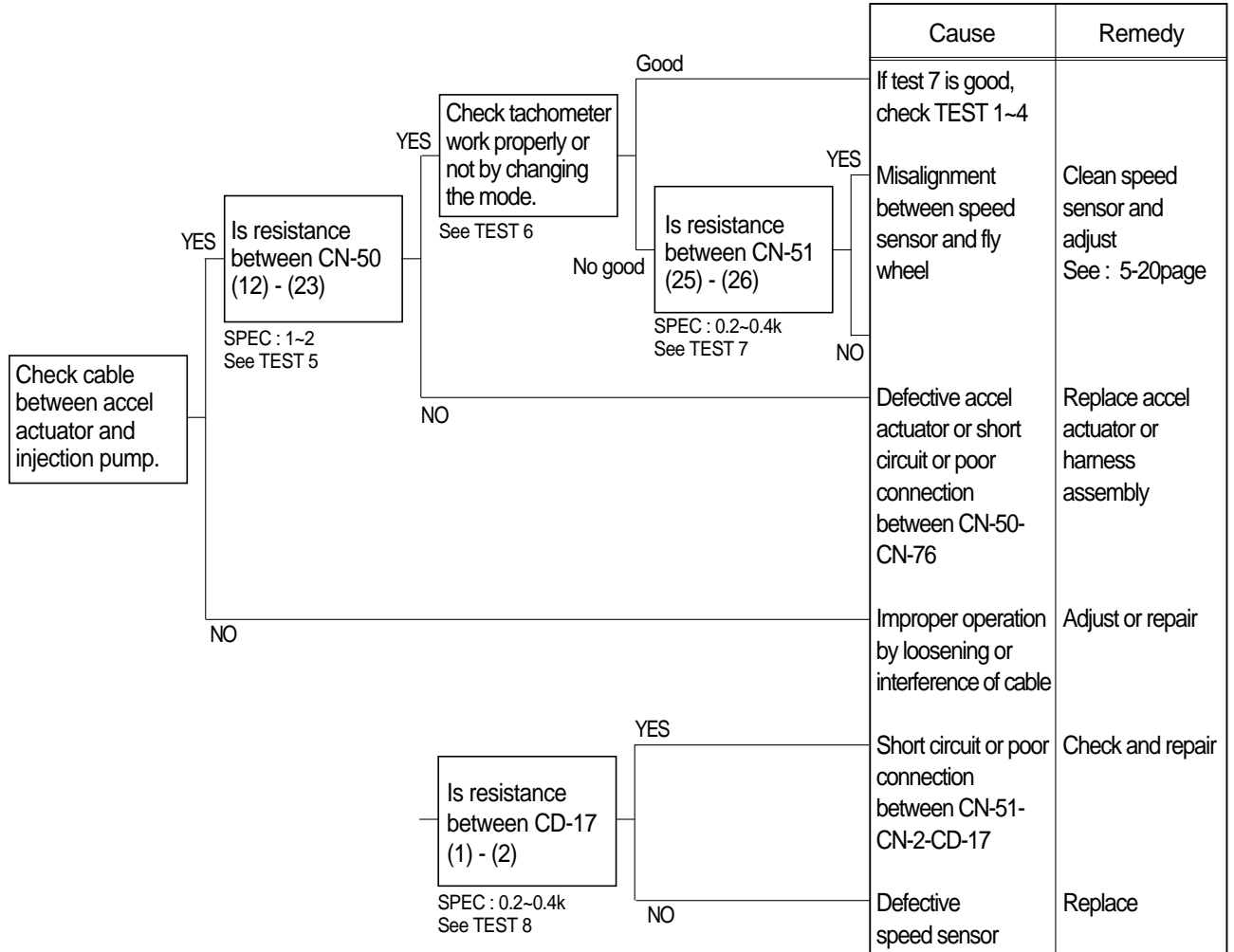
SPEC : 5~20kgf/cm<sup>2</sup>(70~280psi)



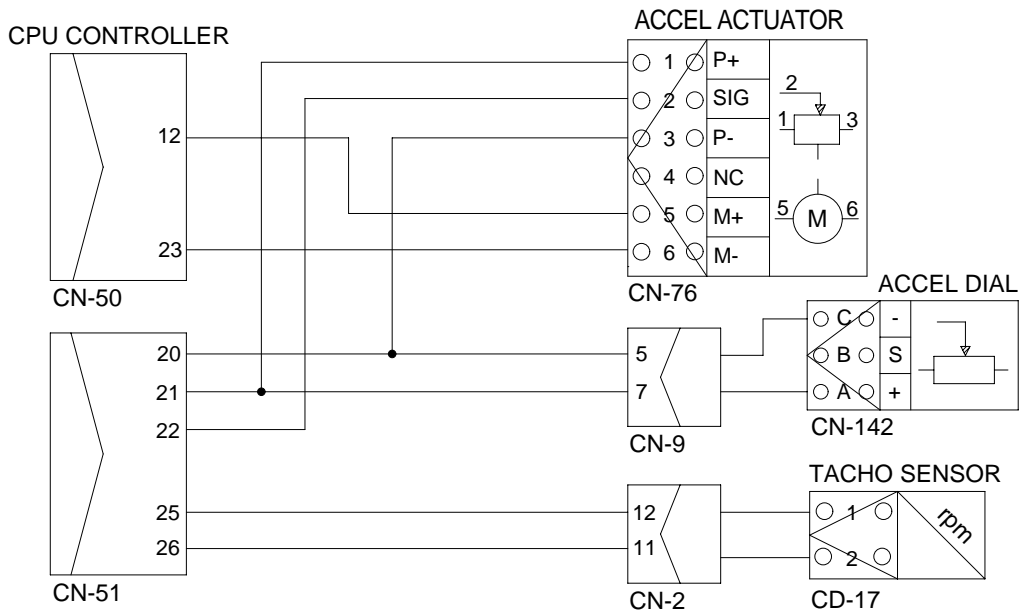
## 2. ENGINE SPEED IS SLOW AT ALL MODE

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

### 1) INSPECTION PROCEDURE



### Wiring diagram



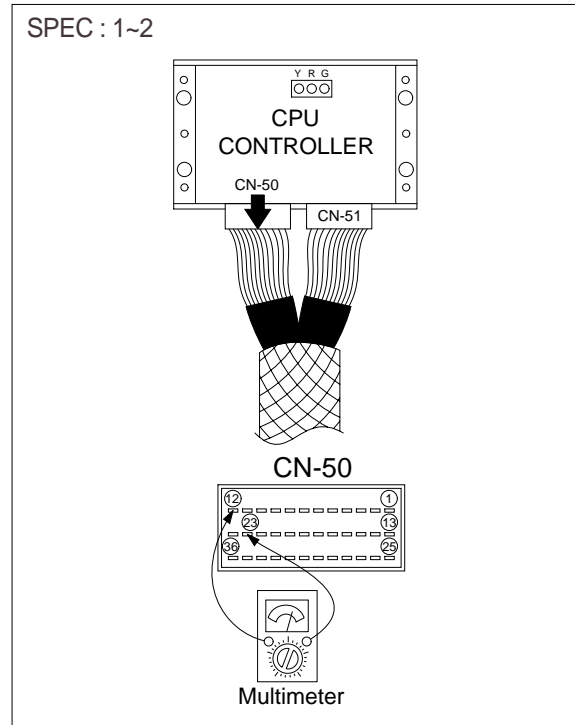
## 2) TEST PROCEDURE

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

Starting key OFF.

Disconnect connector CN-50 from CPU controller.

Check resistance as figure.



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

Start engine.

Check tachometer reading.

Unit : rpm

Spec		Remark
H-mode	2350 ± 50	Check rpm after cancel the Auto decel mode.
	*2250 ± 50	
S-mode	2350 ± 50	
	*2100 ± 50	

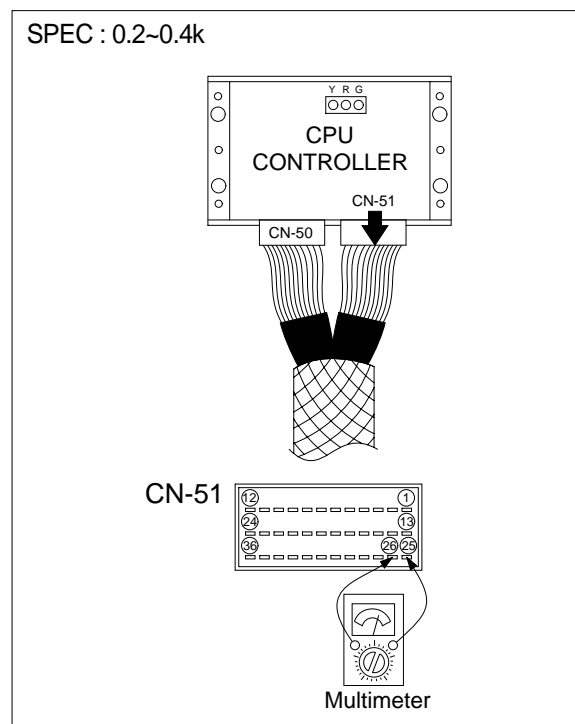
\* TIER II (#1001-)

- (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.

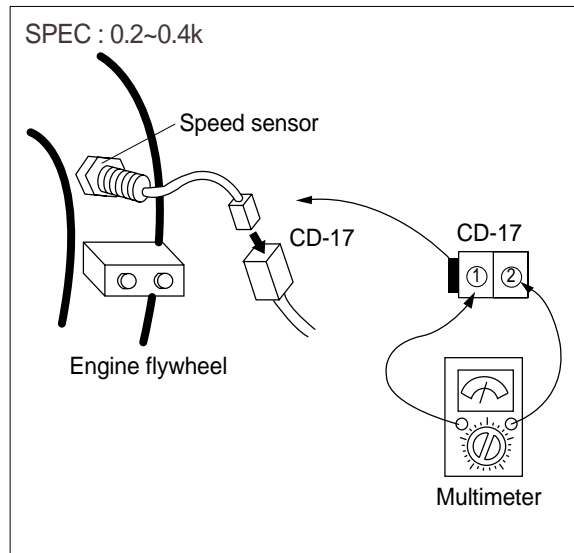


(4) **Test 8** : Check resistance at speed sensor.

Starting key OFF.

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

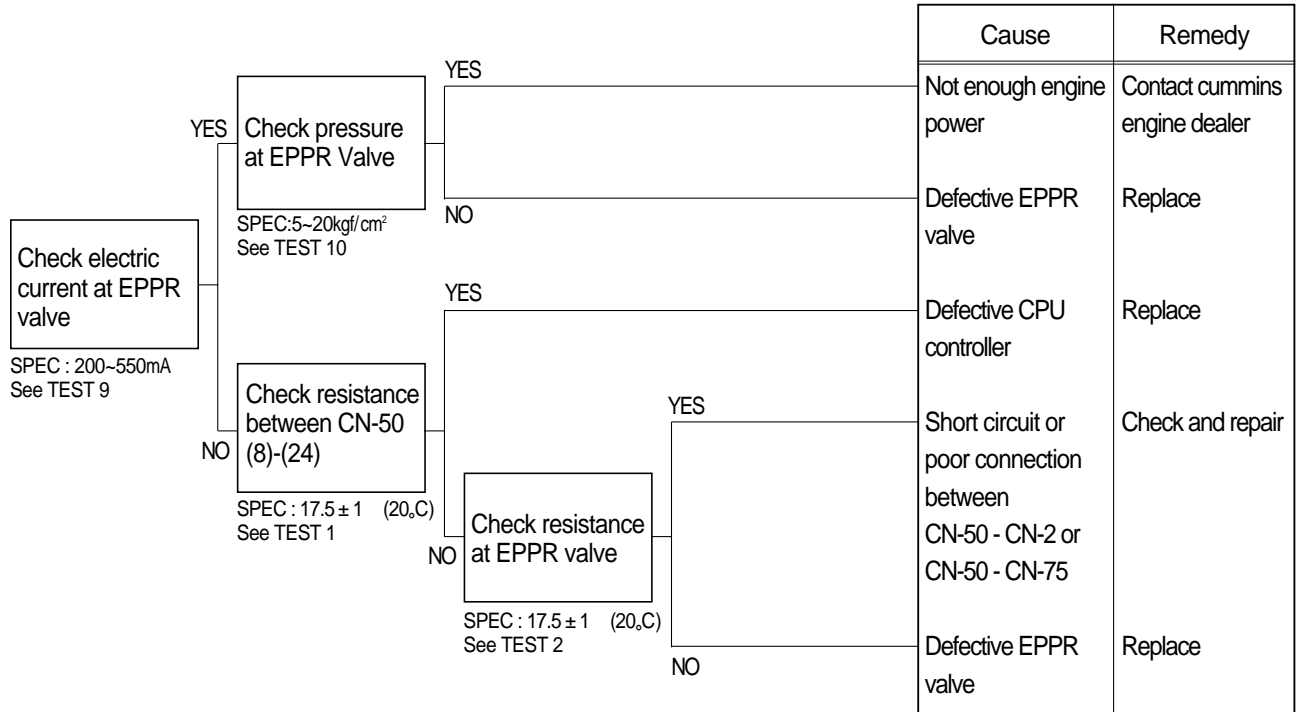
Check resistance as figure.



### 3. ENGINE STALL

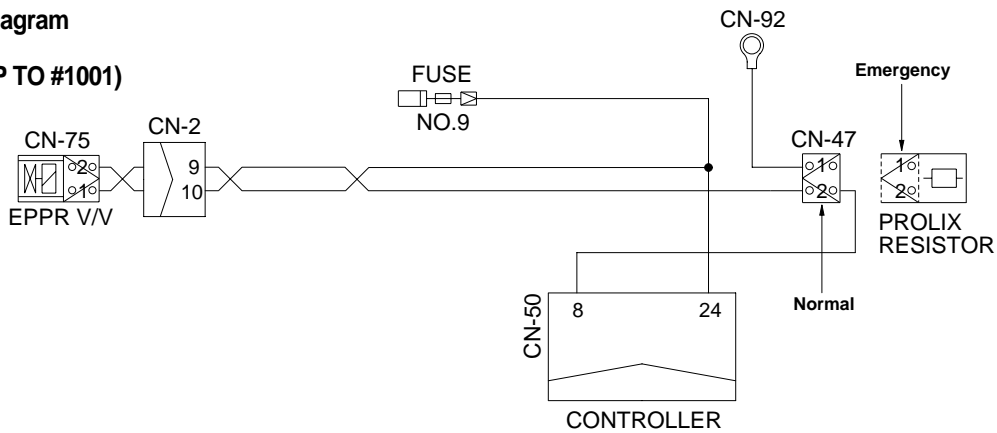
Before carrying out below procedure, check all the related connectors are properly inserted.

#### 1) INSPECTION PROCEDURE

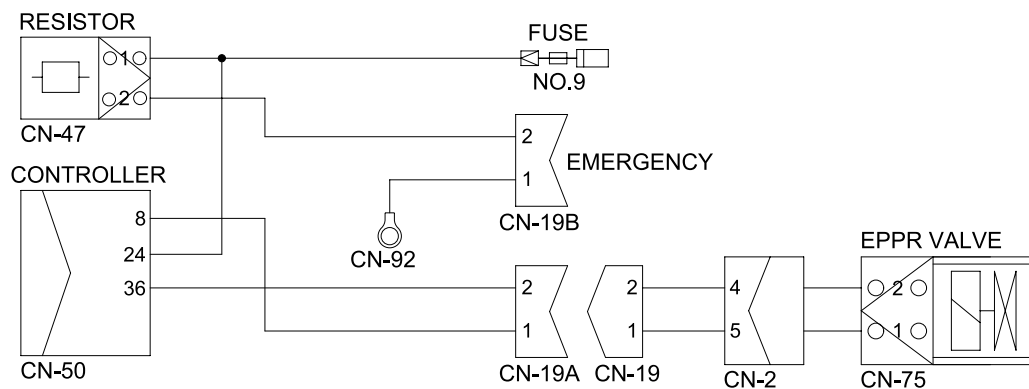


#### Wiring diagram

##### TIER I (UP TO #1001)



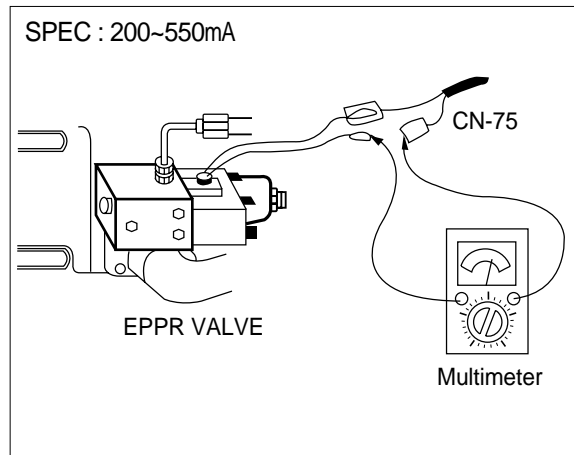
##### TIER II (#1001 AND UP)



## 2) TEST PROCEDURE

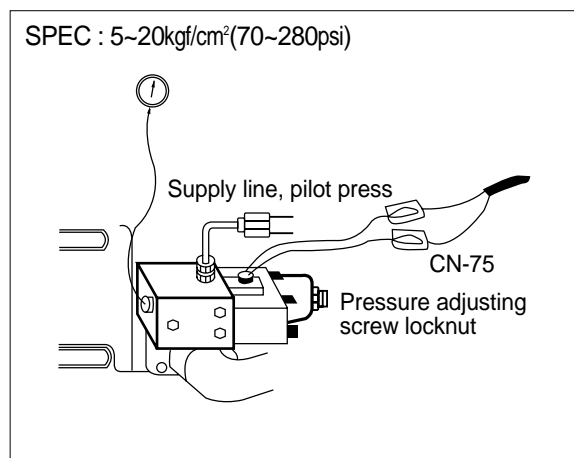
- (1) **Test 9** : Check electric current at EPPR valve at S-mode  
Install multimeter as figure.  
Start engine.  
Set the accel dial at "10"(max)  
Set S-mode with  $2150 \pm 50$  ( $2100 \pm 50$ )rpm.  
Check electric current.

( ) : TIER II (#1001-)



- (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  $2150 \pm 50$  ( $2100 \pm 50$ )rpm.  
Operate bucket lever completely push or pull.  
Hold arm lever at the end of stroke.  
Check pressure at relief position.

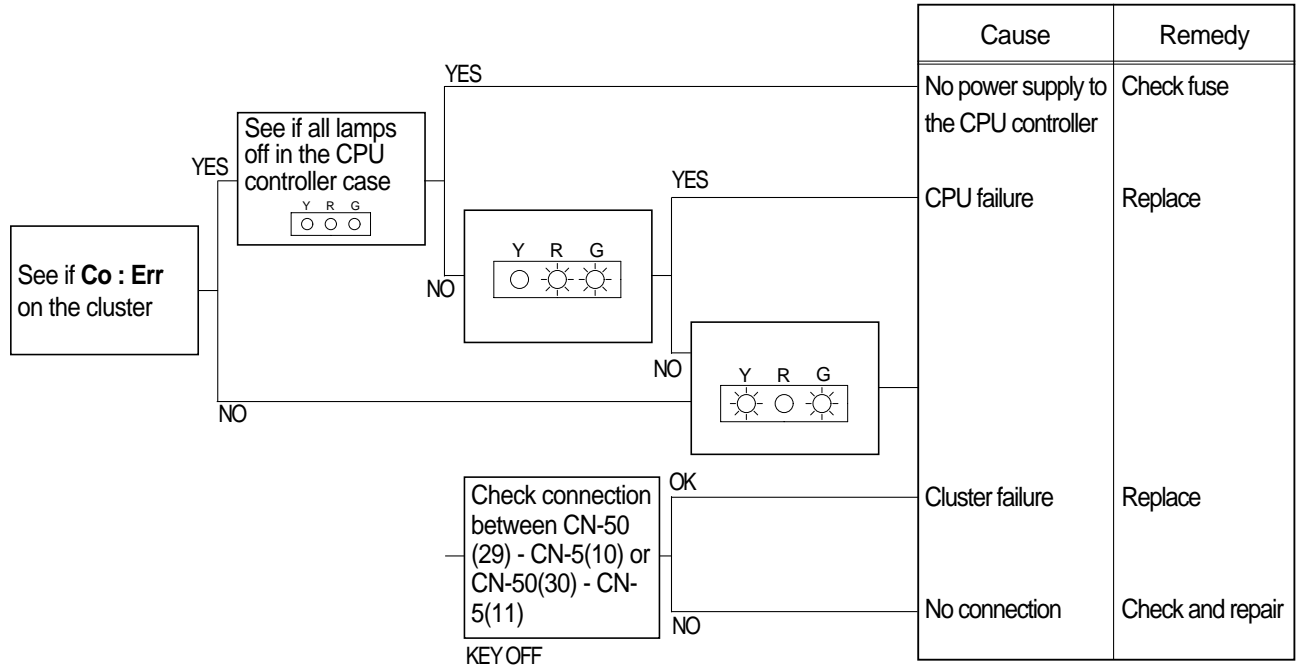
( ) : TIER II (#1001-)



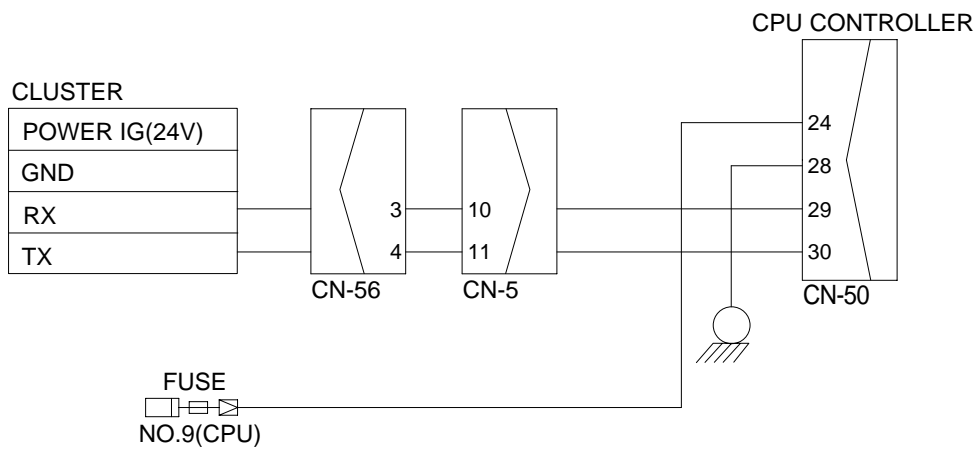
#### 4. MALFUNCTION OF CLUSTER OR MODE SELECTION SYSTEM

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

##### 1) INSPECTION PROCEDURE



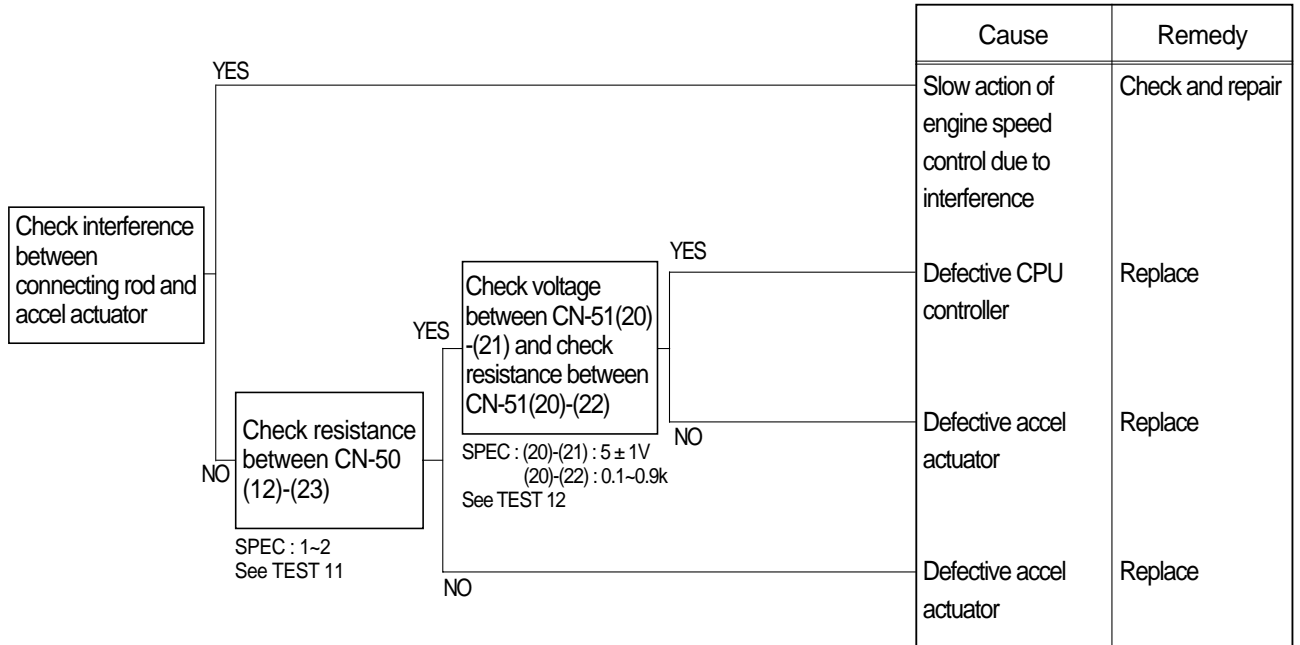
##### Wiring diagram



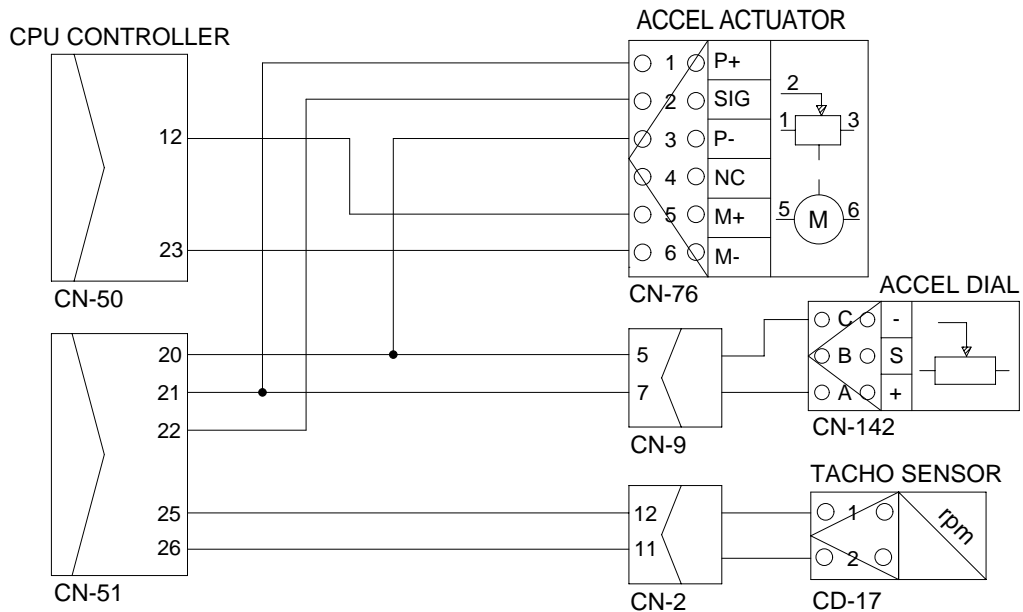
## 5. SLOW ACTION OF ENGINE SPEED CHANGE WHEN CHANGE THE MODE

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

### 1) INSPECTION PROCEDURE



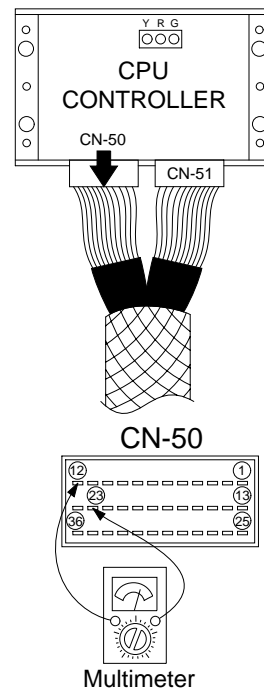
### Wiring diagram



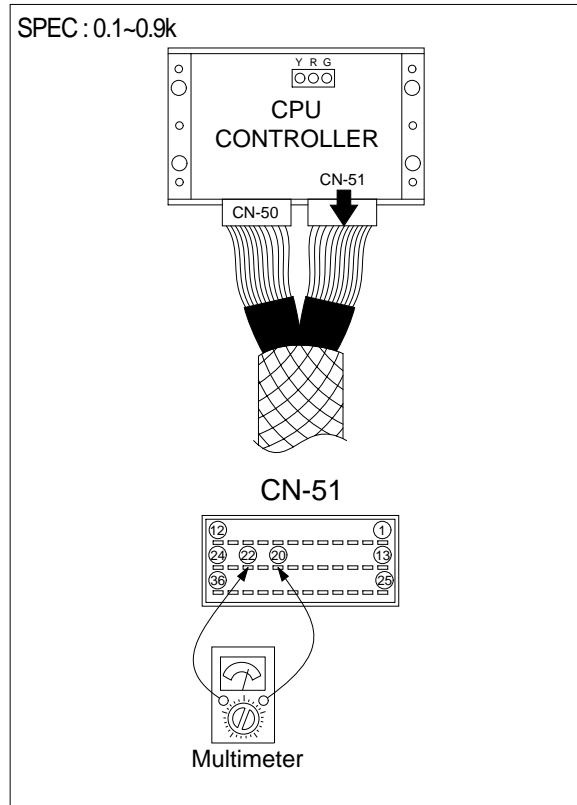
## 2) TEST PROCEDURE

- (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

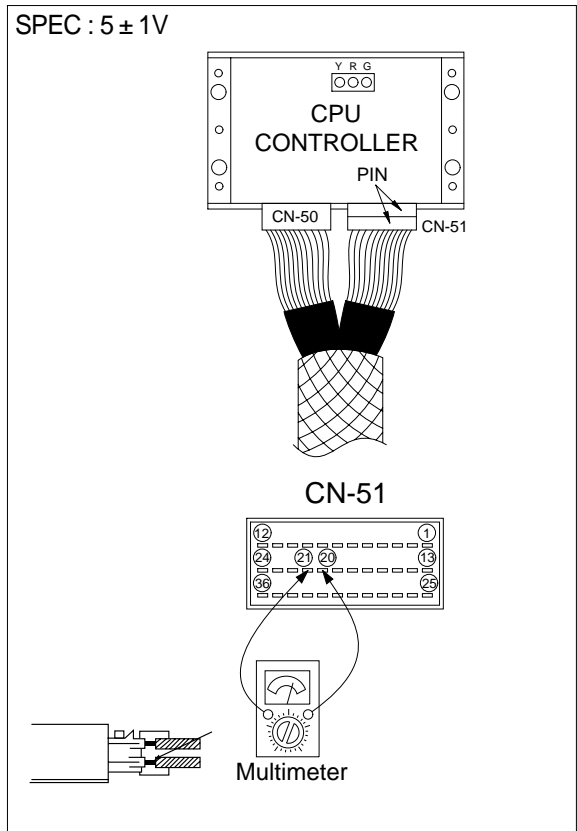


- (2) **Test 12** : Check voltage and resistance.  
 Check resistance between CN-51(20)-  
 (22).
- Starting key OFF.
  - Disconnect connector CN-51 from CPU controller.
  - Check resistance value with multimeter as figure.



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

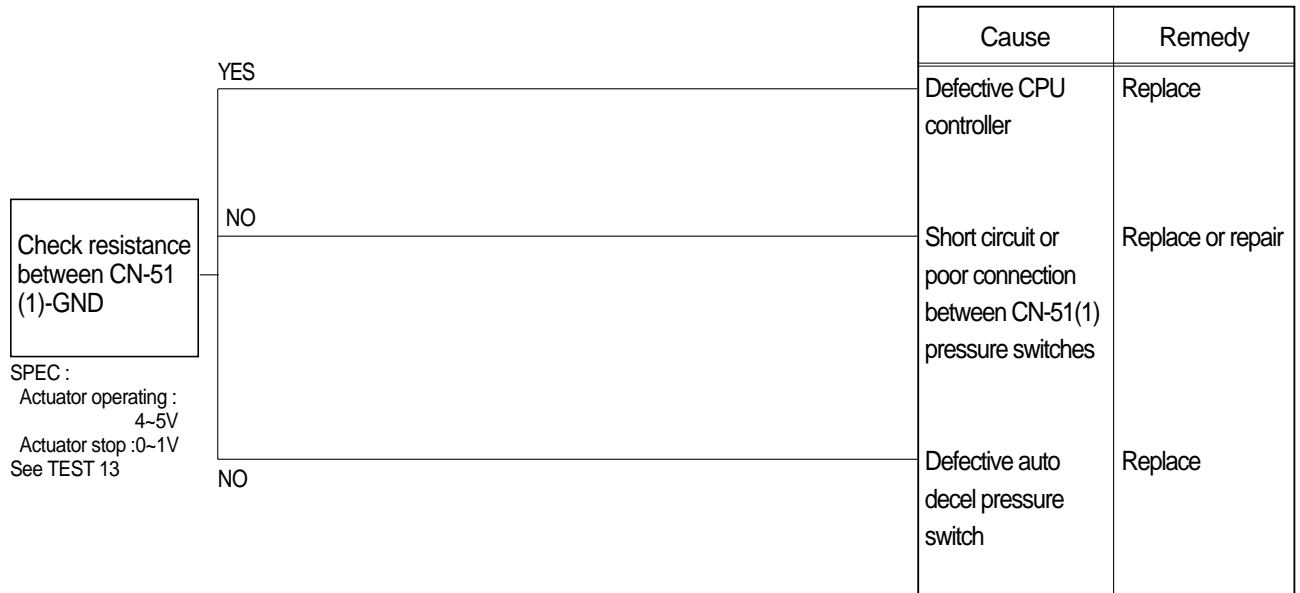
- Prepare 2 pieces of thin sharp pin, steel or copper.
- Starting key ON.
- Insert prepared pins to rear side of connectors : One pin to CN-51(20)  
 Other pin to CN-51(21)
- Check voltage.



## 6. AUTO DECEL SYSTEM DOES NOT WORK

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

### 1) INSPECTION PROCEDURE



### Wiring diagram



## 2) TEST PROCEDURE

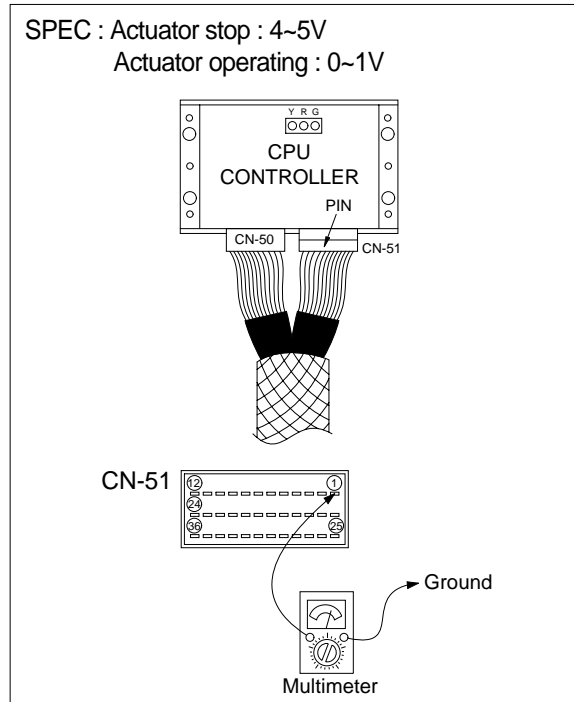
(1) **Test 13** : Check voltage at CN-51(1) and ground.

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.

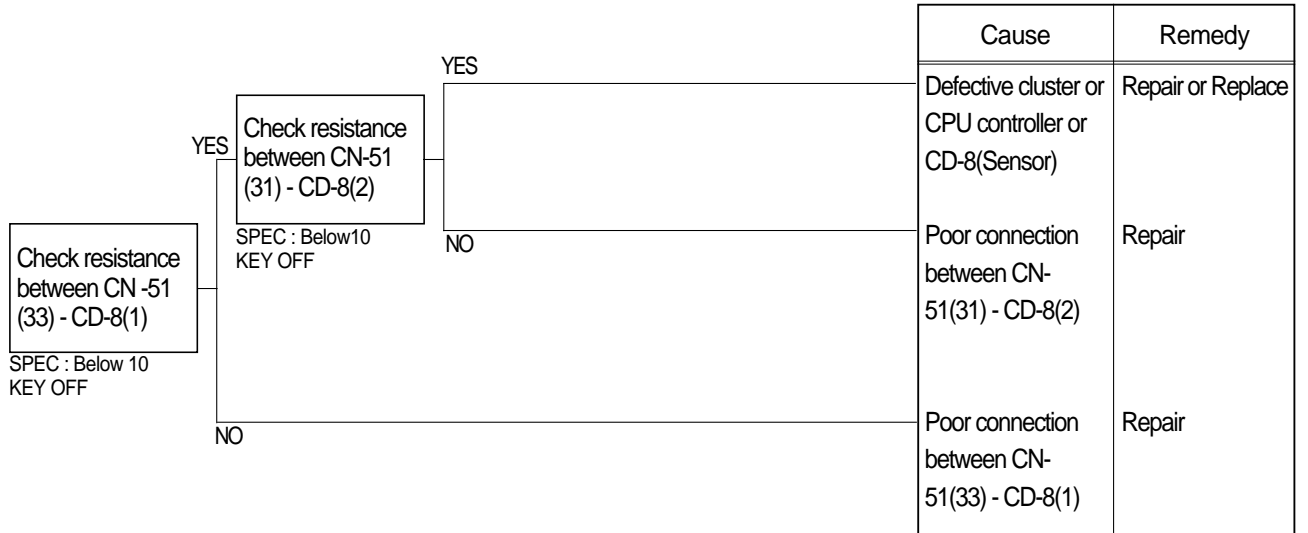
Check voltage as figure.



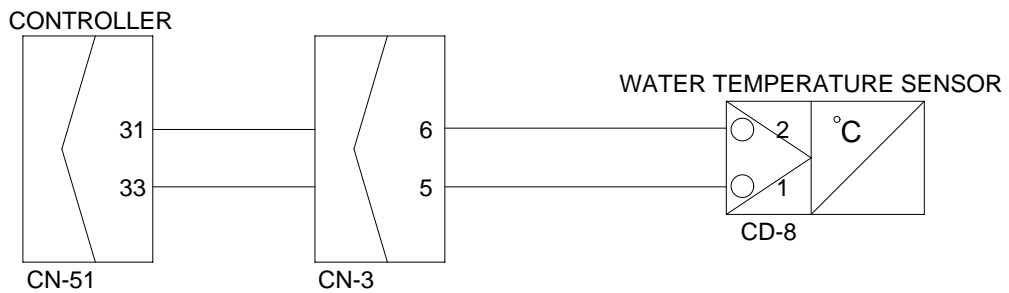
## 7. MALFUNCTION OF WARMING UP

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

### 1) INSPECTION PROCEDURE



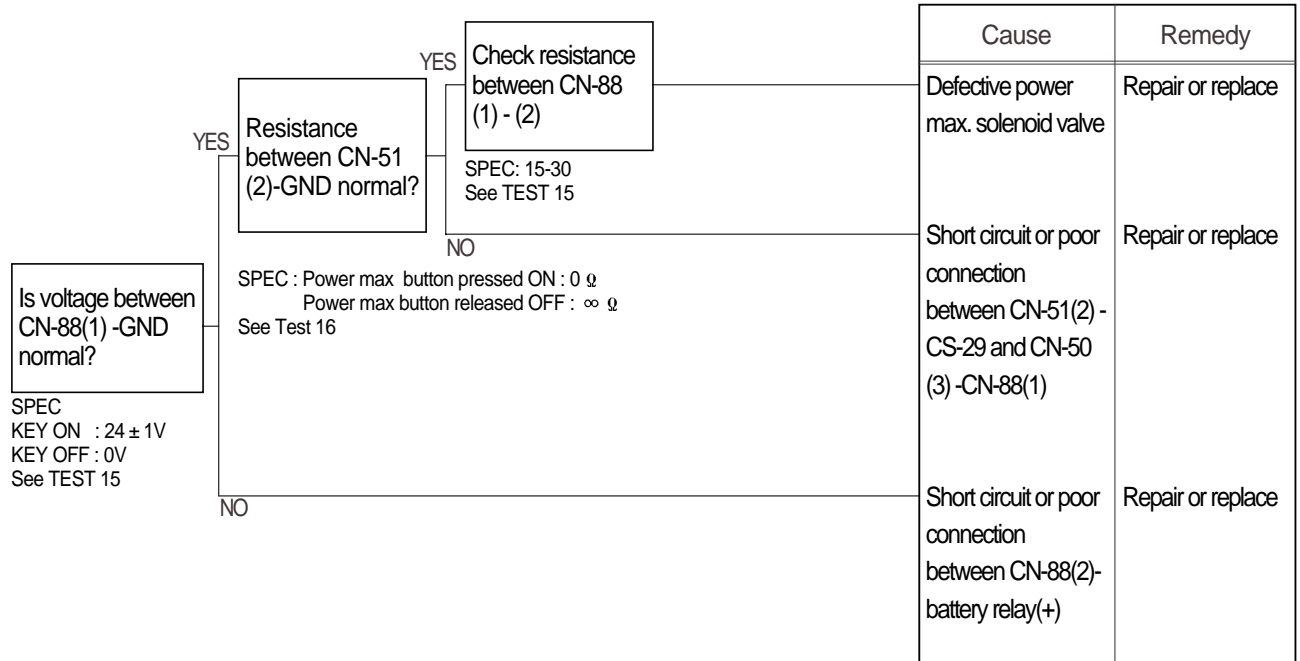
### Wiring diagram



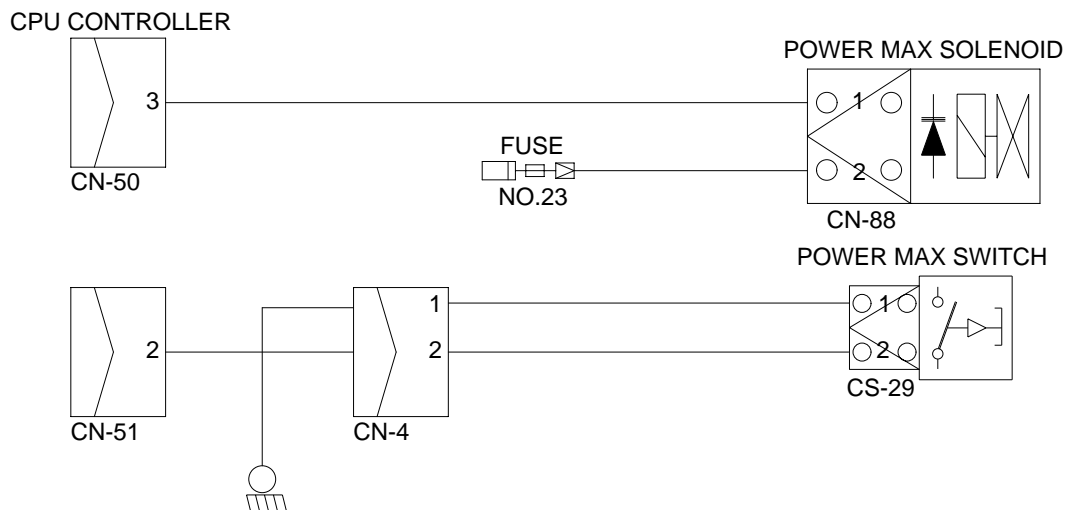
## 8. MALFUNCTION OF POWER MAX

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

### 1) INSPECTION PROCEDURE



### Wiring diagram



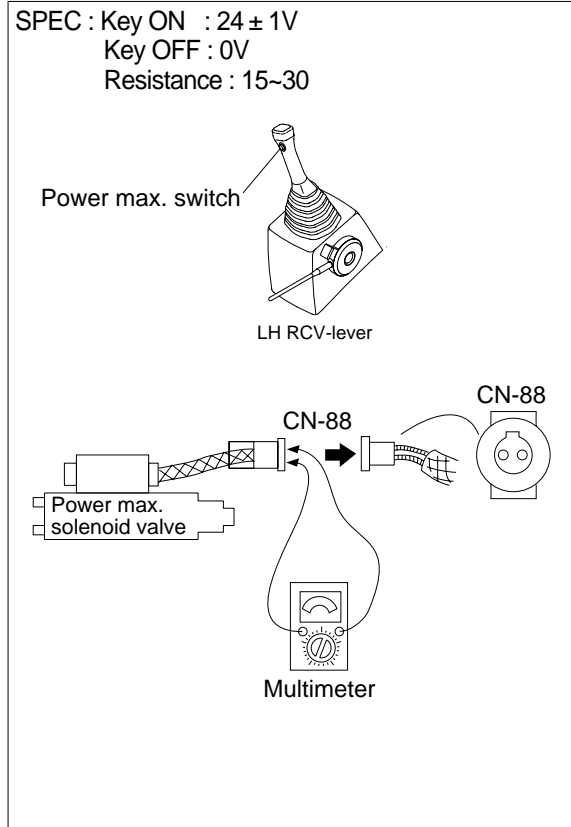
## 2) TEST PROCEDURE

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

Start key ON.

Disconnect connector CN-88 from power max solenoid valve.

Check voltage as figure.



- (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.

