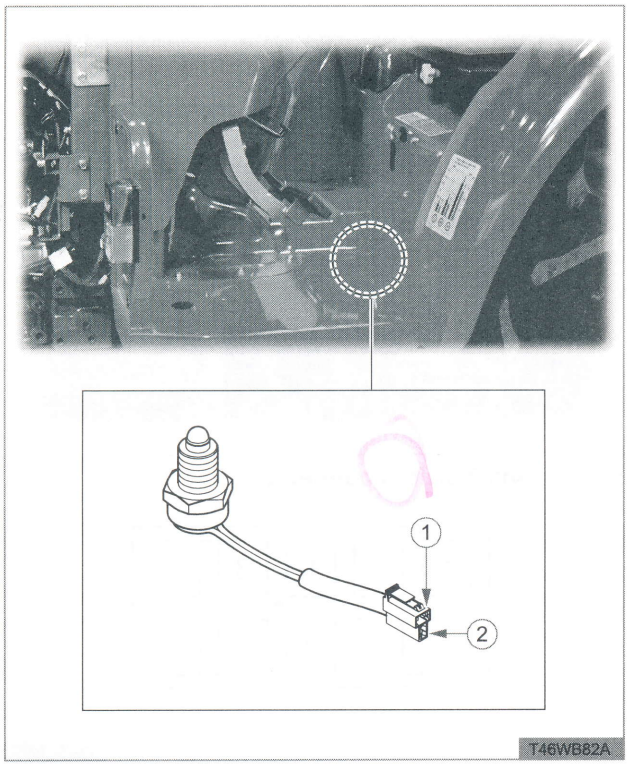
2.19 NEUTRAL SWITCH (MECHANICAL)

Function



The neutral switch is located on the lower part of the shuttle lever.

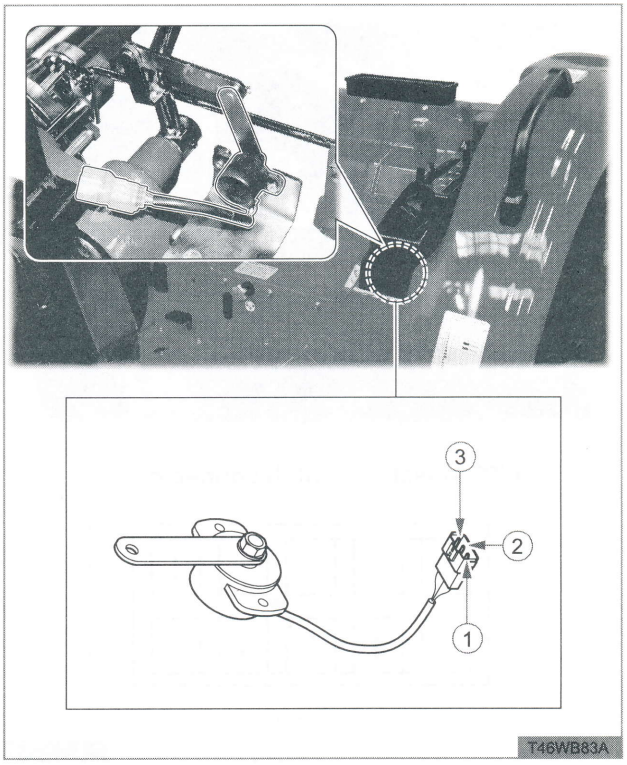
This switch is a normally closed type and detects the neutral position of the shuttle lever.

Range	Tester's measuring point		Result	Remarks
	Red lead	Black lead		
Resistance	No. 1 connector	No. 2 connector	OFF	No continuity
	No. 1 connector	No. 2 connector	ON	Continuity

※ When measuring the resistance with a tester, it is OK to switch over the leads (red and black).

2.20 RANGE SHIFT SENSOR (HST)

Function



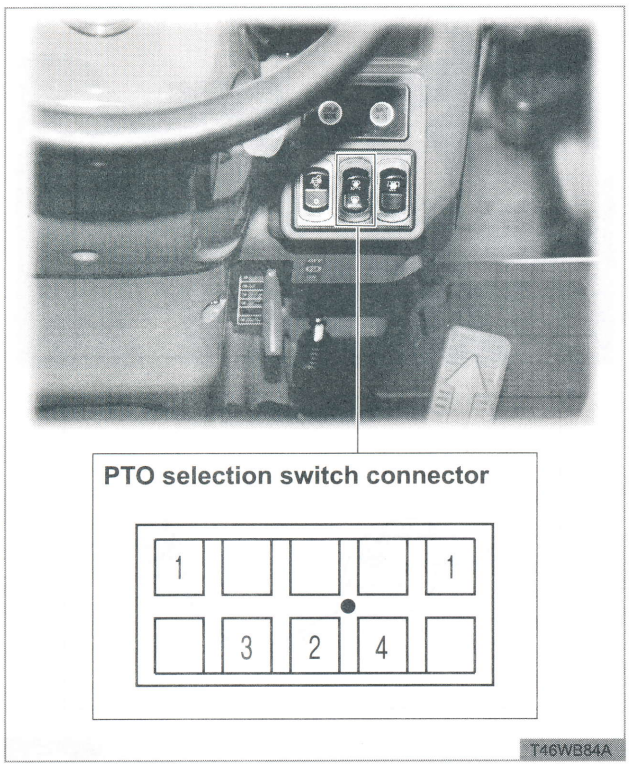
The range shift sensor is installed in the lower part of the range shift lever.

The range shift sensor detects the position of the range shift lever (N, H, M, L) and sends a signal to the instrument panel.

Range	Measuring points		Result	Remarks
	Test lead (+)	Test lead (-)		
Resistance	No.1 3P housing	No.3 3P housing	2kΩ (fixed)	Unit check
	No.1 3P housing	No.2 3P housing	0 ~ 2kΩ (converted)	
DC voltage	No.3 3P housing	No.1 3P housing	DC5V (fixed)	Check when the wiring is installed after turning the key switch to ON position
	No.2 3P housing	No.1 3P housing	DC 0 ~ 5V (converted)	

2.21 PTO SELECTION SWITCH

Function



The PTO selection switch is installed on the right side of the instrument panel cover.

By press the upper portion of the PTO selection switch, the PTO switch LED comes on and the PTO automatic operation is selected.

The PTO operates depending on the position of the position lever.

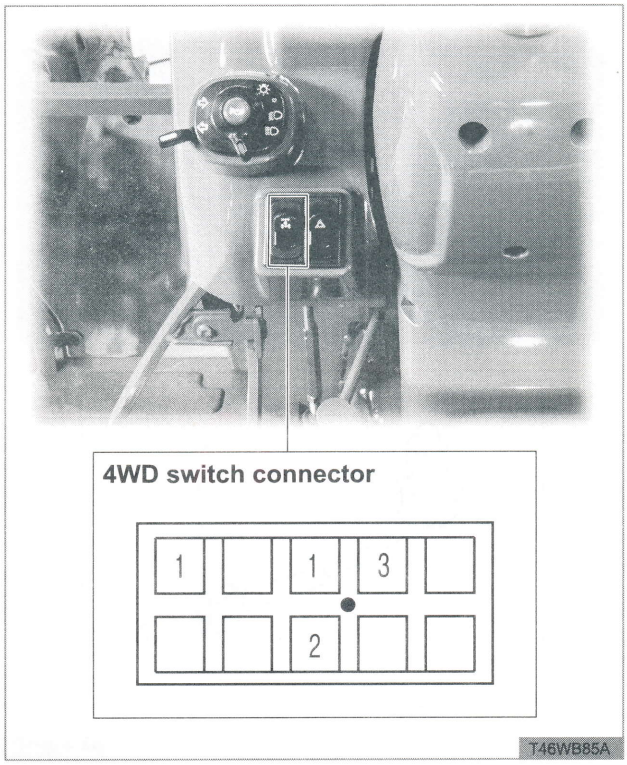
The PTO manual operation is selected when pressing the lower portion of the PTO selection switch.

Range	Tester's measuring point		Operation	Result
	Red lead	Black lead		
Resistance	No. 2 connector	No. 3 connector	Manual (ON)	Continuity
	No. 2 connector	No. 4 connector	Automatic (ON)	Continuity

※ When measuring the resistance with a tester, it is OK to switch over the leads (red and black).

2.22 4WD SWITCH

Function



The 4WD switch is installed on the left side of the instrument panel.

The 4WD switch is used to operate 4-wheel drive function.

Conditions for 4WD

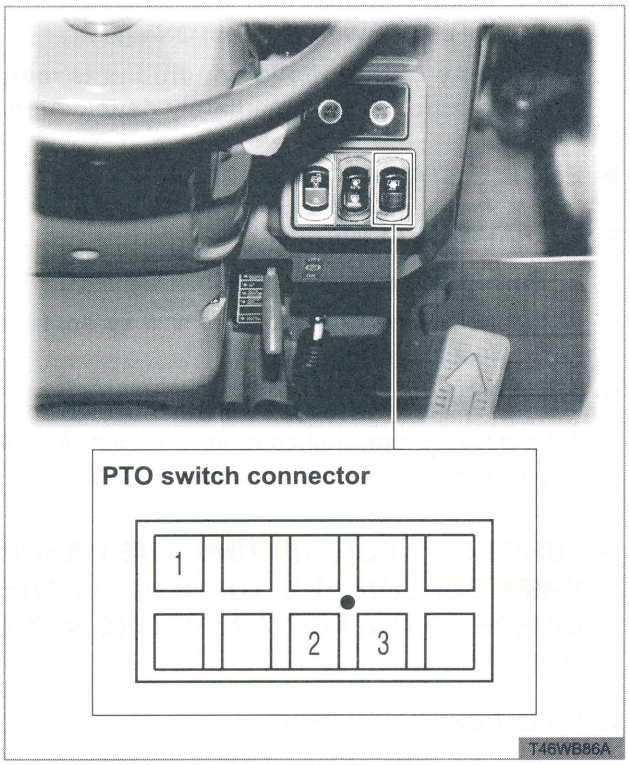
- When the traction force is needed due to the steep hill, swamp or trailer transportation
- When working on the sandy field
- When the tractor is pulled forward on paved road while cultivating the field

  When entering the field or crossing the bank

Range	Tester's measuring point		Operation	Result
	Red lead	Black lead		
Resistance	No. 1 connector	No. 3 connector	ON	Continuity
DC voltage	No. 2 connector	No. 1 connector	ON	DC12V

2.23 PTO SWITCH

Function



The PTO switch is installed on the right side of the instrument panel cover.

The PTO switch is composed of circuits for PTO selection switch. When the PTO switch is OFF, the PTO system does not operate.

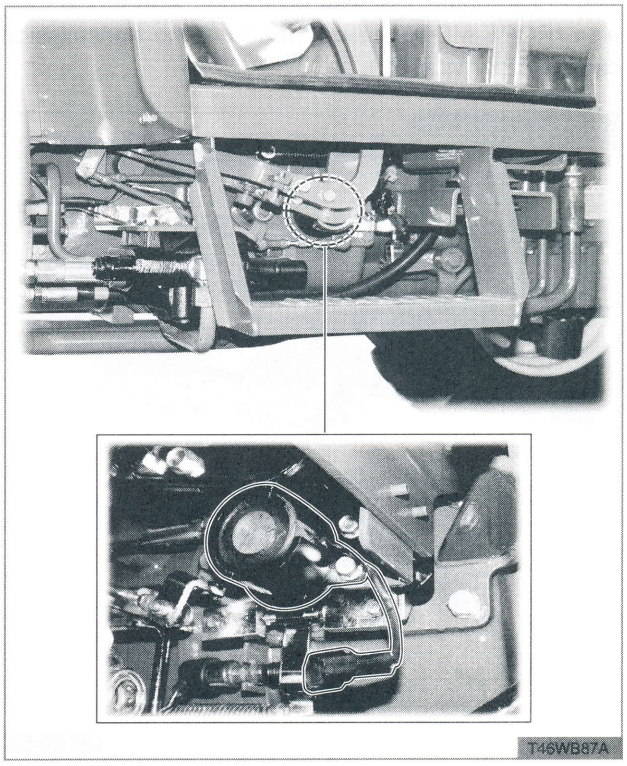
Range	Tester's measuring point		Operation	Result
	Red lead	Black lead		
Resistance	No. 2 connector	No. 3 connector	ON	Continuity (0Ω)
DC voltage	No. 3 connector	No. 1 connector	ON	DC12V

※ When measuring the resistance with a tester, it is OK to switch over the leads (red and black).

When measuring the DC voltage, the key switch should be turned to the "ON" position.

2.24 CRUISE MAGNET (HST)

Function



The cruise magnet is installed under the HST pedal.

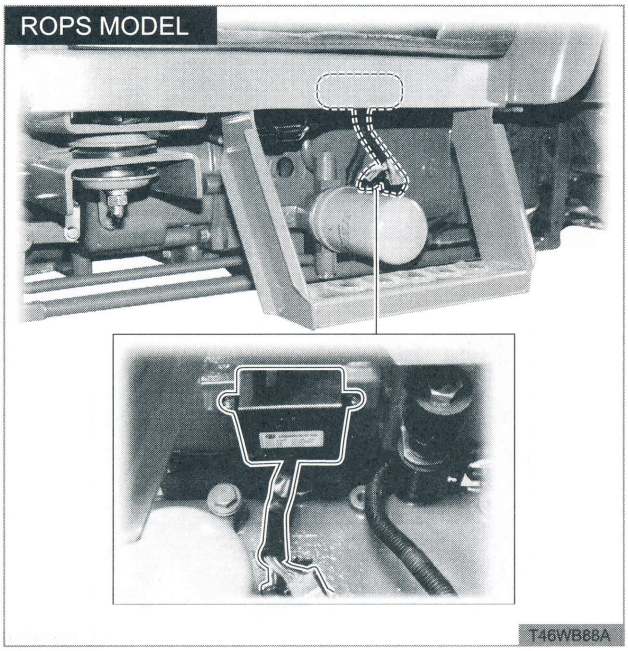
The cruise magnet holds the HST pedal to keep constant speed. It becomes magnetic as soon as it receives DC12 V from the cruise unit.

2.25 CRUISE UNIT (HST)

Function

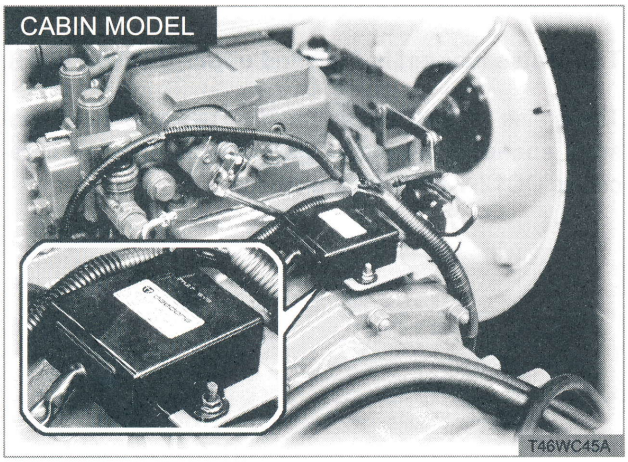
The cruise unit is installed on the left side of the footstep (ROPS MODEL) / on the top of the transmission case (CABIN MODEL).

ROPS MODEL



T46WB88A

CABIN MODEL



T46WC45A

▶ CRUISE OPERATION

* Refer to pinout on p.33 (11-33).

A. OPERATIONAL CONDITIONS

1. Unit power (No. 1 signal): Input of +12 V or over
2. Alternator charging signal (No. 16 signal): Input of +12 V or over
3. Cruise SW ON signal (No. 2 signal): Input of GND signal for 1 time (unstable signal)
4. Brake SW (one side) signal (No. 4 signal): OFF
5. Brake SW (both sides) signal (No. 5 signal): OFF

B. ACTIVATION

Output of +12 V to the cruise magnet

C. DEACTIVATION CONDITION

1. Input of cruise SW OFF (GND) signal (No. 3 signal)
2. Input of brake SW (one side) ON signal
3. Input of brake SW (both sides) ON signal

→ If any of the above conditions is met, the function is immediately deactivated.

▶ ENGINE STARTING FUNCTION

A. OPERATIONAL CONDITIONS

1. Rear PTO operation signal (No. 7 signal): OFF
2. Input of value when the range shift sensor is in the neutral position

B. ACTIVATION

If the above operational conditions are satisfied, it outputs GND signal to the ignition relay (No. 21 signal).

▶ FUNCTIONS FOR SETTING THE RANGE SHIFT SENSOR AND TURNING ON THE LAMPS (ONLY FOR TRACTORS WITH HST)

A. CONDITIONS FOR SETTING

1. Unit power (No. 1 signal): Input of +12 V
2. Alternator charging signal (No. 16 signal): GND
3. Brake SW (both sides) signal (No. 5 signal): ON
4. The H lamp flashes when placing the cruise switch from neutral to ON and then to OFF position if all the above conditions are met. (The H lamp continues to flash in setting mode.)

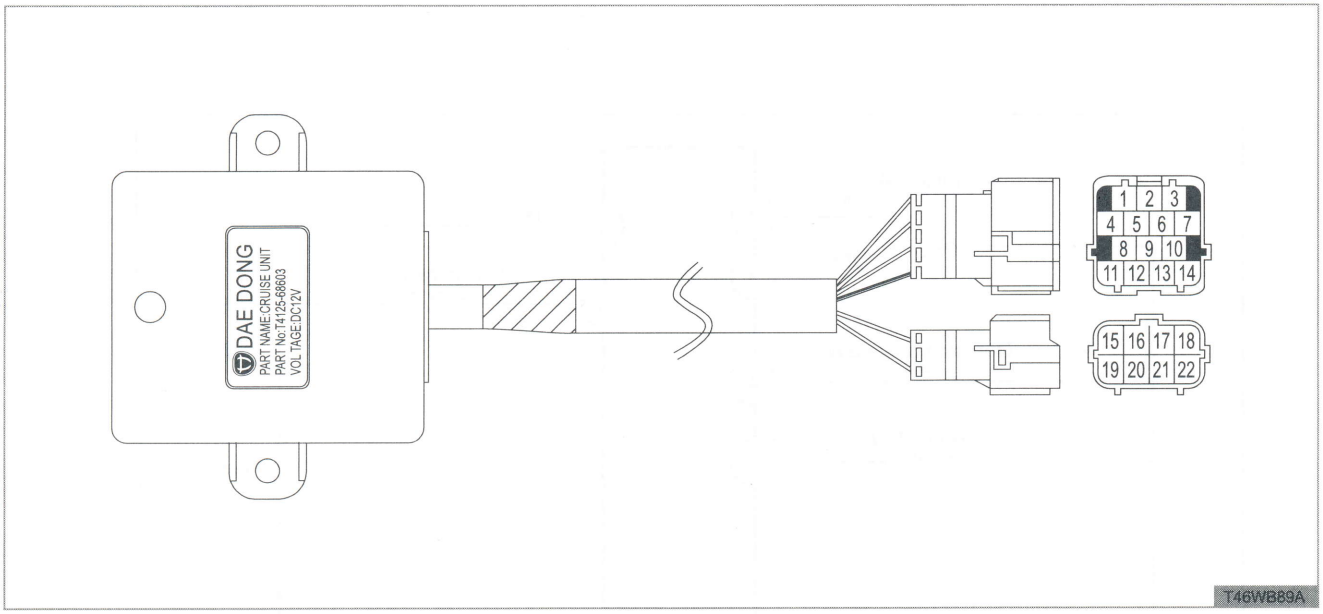
B. HOW TO SET THE SENSOR

1. When the range shift sensor is moved to the setting points (N(3.1 ± 0.3V), M(2.5 ± 0.3V), N(1.9 ± 0.3V)), the N, M and N lamp flashes accordingly.
2. When each lamp flashes, move the cruise switch from ON to neutral position. The corresponding lamp comes on for 1 seconds to indicate the completion of setting. (The sensor operates normally when turning the key switch from ON to OFF and then to ON again after the setting is completed.)

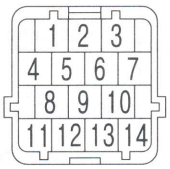
C. LAMP ON FUNCTION

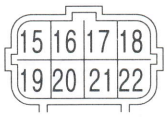
1. The corresponding lamp comes on when the voltage is within the stored range with a tolerance of ± 0.3V.
2. The M lamp flashes if the shift sensor's voltage is over 4.8 V for over 2 seconds.
3. The L lamp flashes if the range shift sensor's voltage is below 0.2 V for over 2 seconds.

▶ PIN ARRANGEMENT OF CRUISE UNIT



No.	Signal	Wiring specification	Remarks
1	+12V	AVSS 0.85 R	
2	Cruise ON SW	AVSS 0.3 RB	
3	Cruise OFF SW	AVSS 0.3 Y	
4	Brake (one side) SW	AVSS 0.3 GY	
5	Brake (both sides) SW	AVSS 0.3 GR	
6	-	-	
7	Rear PTO signal	AVSS 0.3 LgR	
8	+5V output	AVSS 0.3 RW	
9	Cruise magnet output	AVSS 0.85 WB	
10	-	-	
11	GND	AVSS 0.85 B	
12	Range shift sensor (HST) input	AVSS 0.3 W	
13	-	-	
14	-	-	
15	Instrument panel H lamp output	AVSS 0.3 YB	
16	Charging signal	AVSS 0.3 GOr	
17	Instrument panel M lamp output	AVSS 0.3 YW	
18	Instrument panel L lamp output	AVSS 0.3 G	
19	-	-	
20	Instrument panel N lamp output	AVSS 0.3 GW	
21	Ignition relay	AVSS 0.3 Lg	
22	-	-	





▶ CIRCUIT DIAGRAM FOR CRUISE UNIT