PARTS & SERVICE NEWS

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This Parts and Service News supersedes the previous issue No. AA04005 which should be discarded.

SUBJECT: REPAIR PROCEDURE OF TRANSMISSION SHIFT NOISE

PURPOSE: To introduce modification procedure to repair when transmission shift noise and shock occurs after operating the Forward-reverse shift lever

APPLICATION: WA380-5 Wheel Loader, S/N 60001 thru 60321
WA380-5L Wheel Loader, S/N A52001 thru A52228
WA380-5H Wheel Loader, S/N H50051, H50052, H50054 THRU H50528, H50530 THRU H50533, H50537, H50541
WA400-5 Wheel Loader, S/N 70001 thru 70022
WA400-5L Wheel Loader, S/N A40001 to A40034
WA430-5 Wheel Loader, S/N 60001 thru 60055

FAILURE CODE: 1500GA

DESCRIPTION:

Introduction

On the above wheel loader models, the following failure may occur.

Failure Phenomenon: While the transmission oil temperature is high, transmission shift noise and shock occur immediately after operating the Forward-reverse shift lever (F, R Lever).

To determine if the modification per this **PARTS & SERVICE NEWS** is applicable to the machine, refer to the table of Serial Numbers of the applicable machines and the judgement method if the machine is applicable or not as indicated on Page 2

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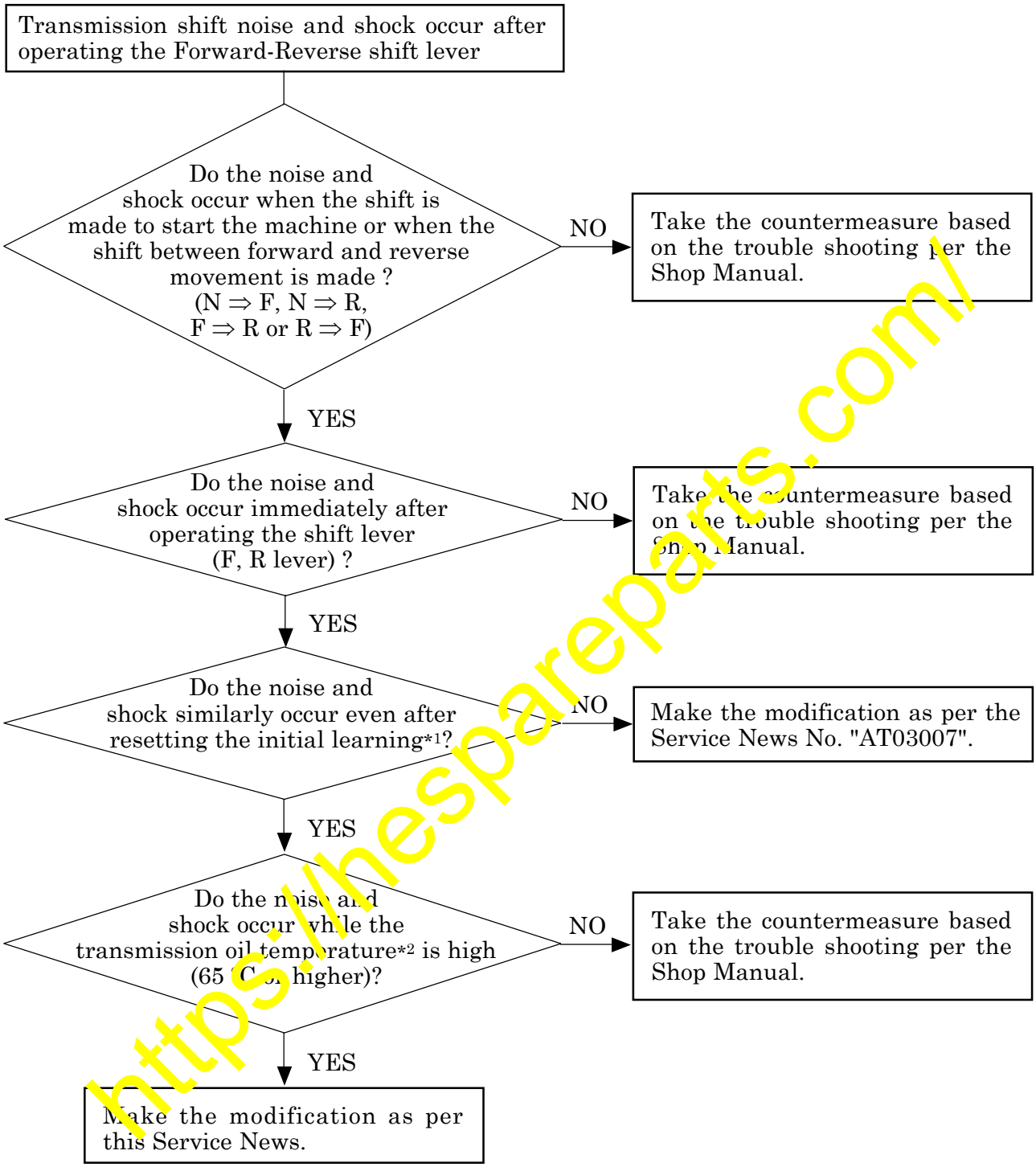
Judgment method if a machine is applicable to the modification per this Service News or not



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*1) Initial learning for the transmission
Refer to page 6 and 7 regarding the method to perform the initial learning.

*2) Transmission oil temperature
Check the transmission oil temperature in the "REAL TIME MONITOR" screen on the monitor panel of the machine.
"REAL-TIME MONITOR" ⇒ "TRANSMISSION" ⇒ "ECMV OIL TEMP, 41500"

2. List of parts

Part No.	Part Name	Purpose of part	Q'ty	Remarks
7823-32-2009 (7823-32-2008)	Controller (Controller)	Replacement	1 (1)	
7823-32-2009 (7823-32-2007)	Controller (Controller)		1 (1)	
7823-32-2009 (7823-32-2006)	Controller (Controller)		1 (1)	
7823-32-2009 (7823-32-2005)	Controller (Controller)		1 (1)	
7823-32-2009 (7823-32-2004)	Controller (Controller)		1 (1)	
7823-32-2009 (7823-32-2003)	Controller (Controller)		1 (1)	
7823-32-2009 (7823-32-2002)	Controller (Controller)		1 (1)	

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3. Details of the modification of the transmission controller

3-1) Details of the modification

The high speed clutch charging time (hereafter called the "trigger time") while the transmission oil temperature is high has been shortened so that the abnormal noise and shock caused by occurrence of the clutch charge ending peak pressure during the trigger time may not occur.

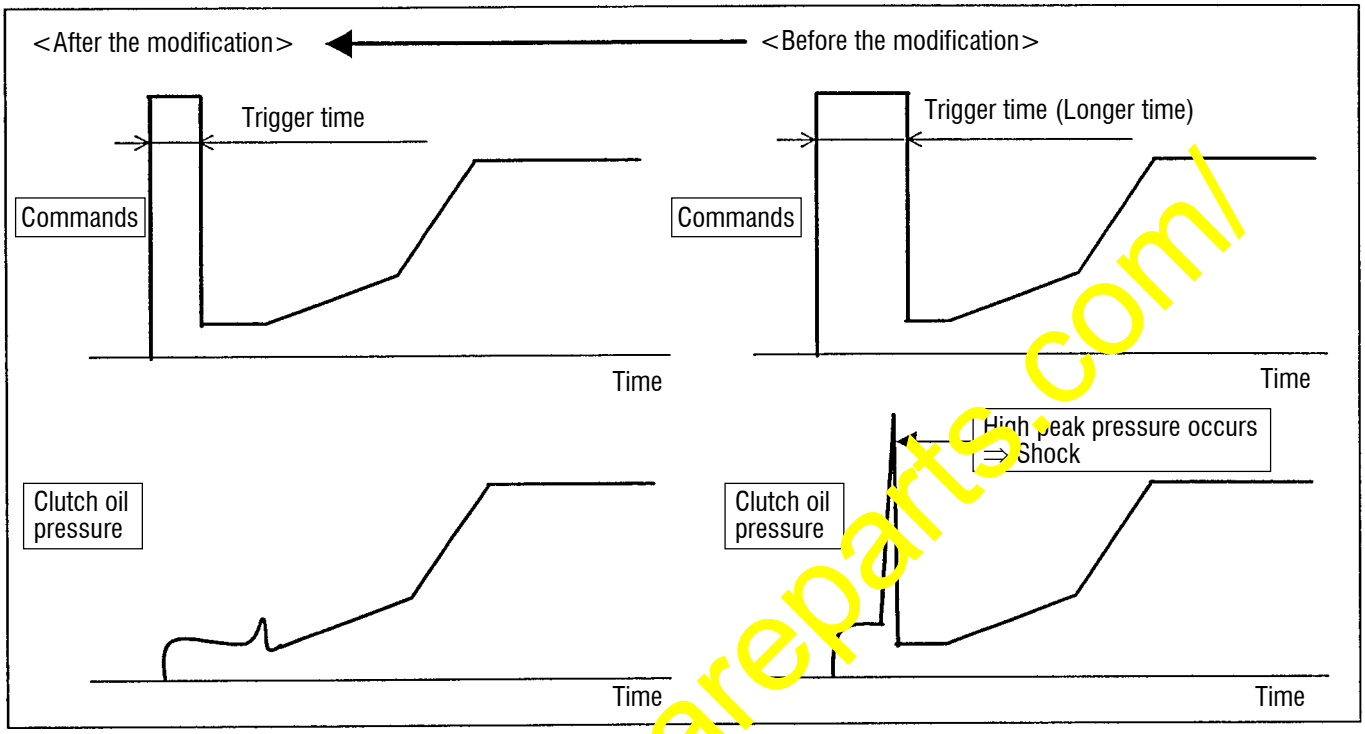

Fig. 1 Descriptions of improvements of the controller commands

3-2) Modification procedure to replace the controller

(1) Turn OFF the starting switch for the engine.

(2) Remove the covers Ⓐ, Ⓑ and Ⓒ.

(Note: Although Fig. 2 does not show the operator's seat, it is possible to replace the controller without removal of the operator's seat.)

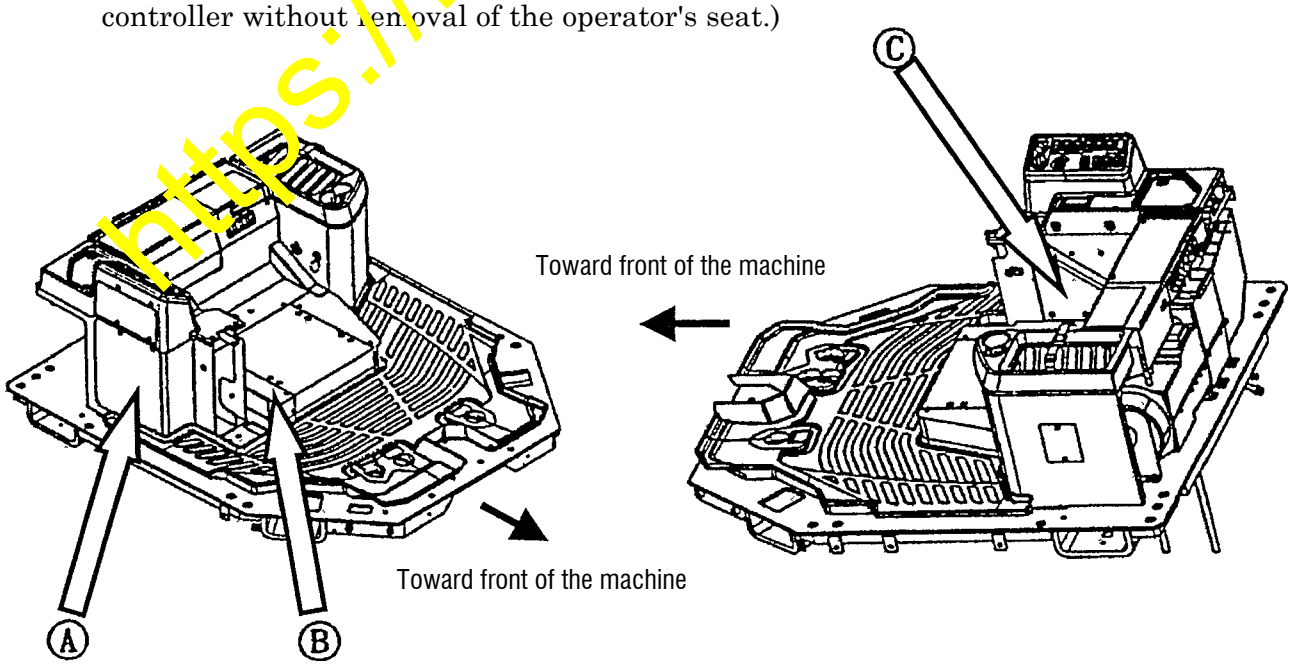

Fig. 2 Illustration for removal of the covers.

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(3) Loosen the hexagon socket head cap bolts located at the center of the connector to disconnect the connector of the transmission controller (the controller located at the front side of the machine) and remove the harness.

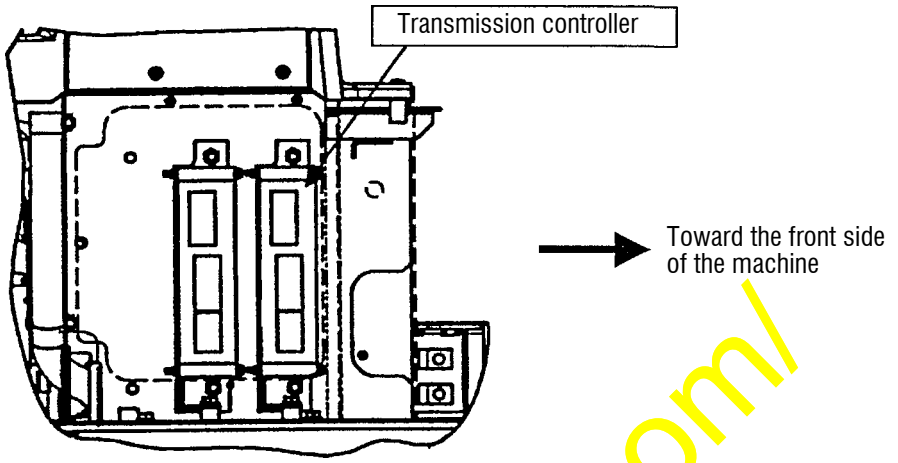

Fig. 3 Location of the controllers (in the status at which the cover (A) has been removed)

(4) Remove the transmission controller from the console box together with the mounting bracket and after that, remove the transmission controller body from the mounting bracket to replace with the improved controller.

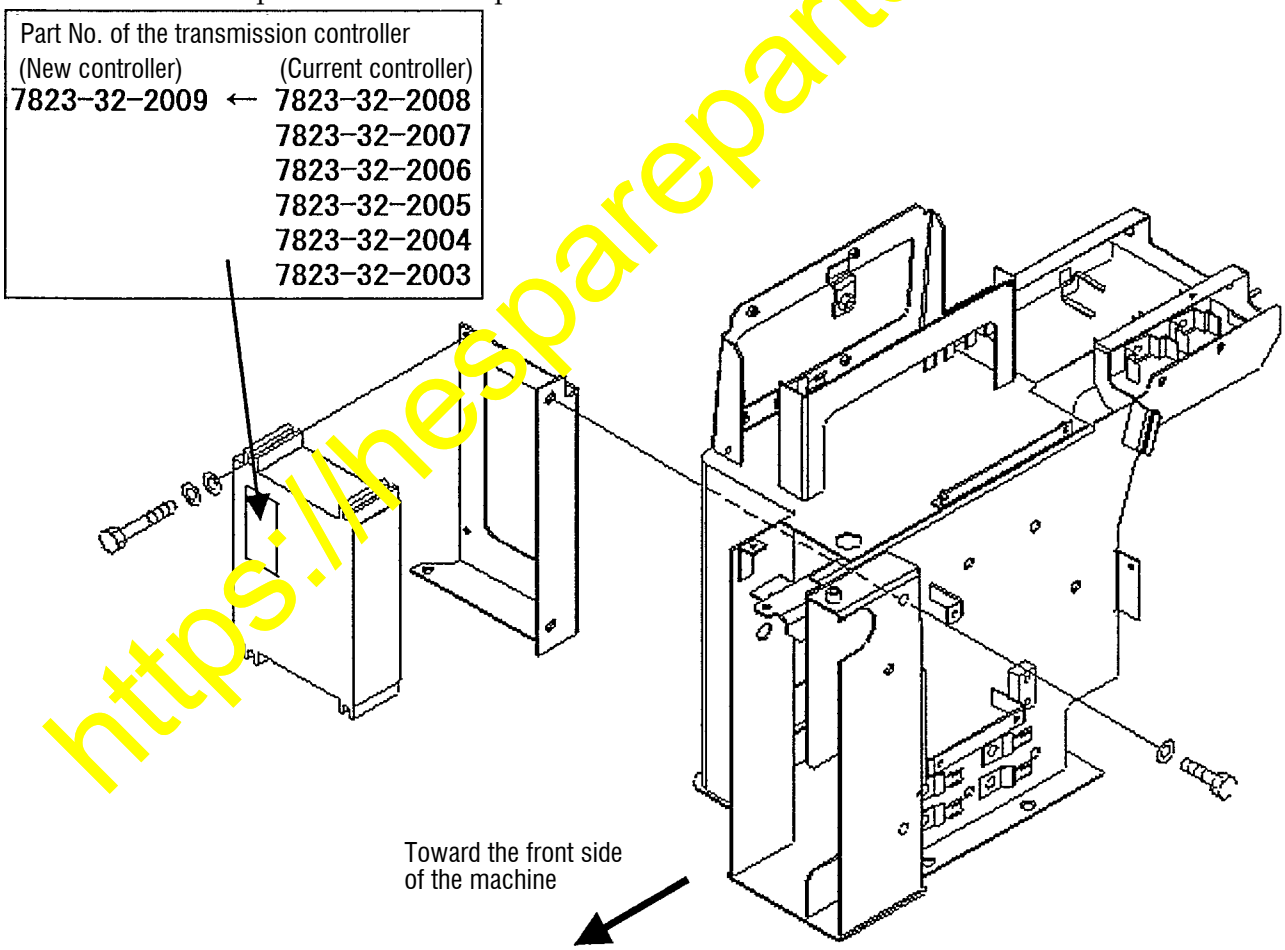

Fig. 4 Controller mounting illustration

(5) Reinstall the new transmission controller in the reversed procedure of the above procedures (1) thru (4).
(6) After finishing the replacement work for the transmission controller, perform the "Initial learning for the transmission". (Refer to pages 6 and 7.)
(7) After finishing the initial learning for the transmission, check that the initial learning for the transmission has been finished (indication: "TUNED") on the REAL TIME MONITOR screen.

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4. Initial learning procedure for the transmission
In the following cases, reset (refer to the Section 4.1) the current transmission initial learning data, and after that, perform the initial learning (refer to the Section 4.2) once again.
- When judging if a machine is applicable or not to the modification per this Service News. (Refer to *1 on page 2.)
- When the transmission controller has been modified or replaced

4.1 Resetting the initial learning data
By use of the learning data resetting command, reset all the initial learning data being stored in the non-volatile memory.

Procedure to reset the initial learning data for the transmission on the monitor
① Press the ■ switch and the "<" switch at the same time for more than 5 sec. to shift to the "ID Input" screen. (Refer to Fig. 1.)
② Input the ID using the "<" switch and the ">" switch, and after that, press the "◇" switch to enter into the Service Person screen.
③ Using the "<" switch and the ">" switch, let the "Sensor Initial Setting Selection" screen (Refer to Fig. 2) indicate on the display, and after that, press the "◇" switch to make its entry.
④ Using the "<" switch and the ">" switch, show the Setting Item No. 1, "Transmission Initial Learning" screen (Refer to Fig. 3) on the display.
⑤ Press the "◇" switch and the "Transmission Initial Learning Setting" screen (initial learning not finished screen) (Refer to Fig. 4) or the "Transmission Initial Learning Finished" screen (Refer to Fig. 5) will be displayed.
⑥ In either case per Fig. 4 or 5, press the "◇" switch once again to show the "Transmission Initial Learning Resetting Confirmation" screen (Refer to Fig. 6) on the display.
⑦ Using the "<" switch, select YES, and after that, press the ■ switch.
⑧ When the ■ switch is pressed, the "Transmission Initial Learning Setting Screen" (Refer to Fig. 4) will be displayed to complete the resetting work.

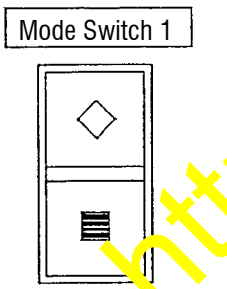

Fig. 1 "ID Input" screen

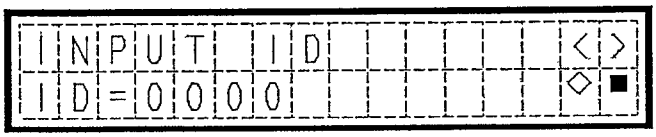

Fig. 2 "Sensor Initial Setting Selection" screen

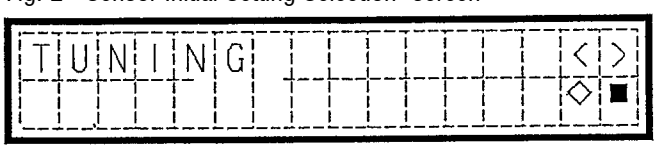

Fig. 3 "Transmission Initial Learning" screen

Fig. 4 "Transmission Initial Learning Setting" screen (initial learning not yet finished screen)

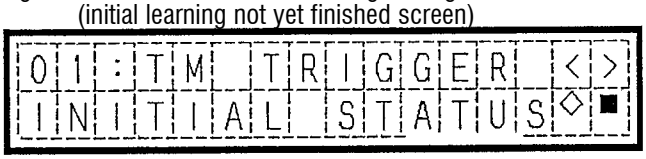

Fig. 5 "Transmission Initial Learning Finished" screen

Fig. 6 "Transmission Initial Learning Resetting Confirmation" screen

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1) Initial Learning Procedure

Preparation for machine

1. Start the engine.
2. Display the transmission oil temperature on the real-time monitor.
3. Operate the gear shift lever and directional lever, and circulate the oil inside the transmission.

Gear range	N2 →	F2 →	F1 →	F2 →	F3 →	F4 →	F3 →	F2 →	N2 →	R2 →	N2
Holding time	2 sec	2 sec	2 sec	2 sec	2 sec	2 sec	2 sec	2 sec	2 sec	2 sec	2 sec

After holding each gear speed for the time specified or more, shift gears to the next range.
Operate the engine at low idling, place the shift mode switch in the MANUAL position and transmission cut- off switch in the OFF position (the lockup switch in the OFF position).

4. Increase the oil temperature of transmission to 55 - 70°C.
   Set the oil temperature to the specified temperature while learning operation.
   Check that the machine is in normal conditions (no fault is detected).

Initial learning method

1. Carry out initial learning operation at the state of the machine mentioned above. (Do not stop the engine.)
2. Check that the oil temperature of transmission is in the range of 55 - 70°C on the real-time monitor.
   If it is outside of the specified range, be sure to carry it out within the specified temperature range.
   ★ If the initial learning is carried out at the temperature outside of the specified range, it may cause time lag and gear shift shock.
3. Shift the transmission by operating the gear shift lever and directional lever.

Gear range	N2 →	F2 →	F1 →	F2 →	F3 →	F4 →	F3 →	F2 →	N2 →	R2 →	N2
Holding time	5 sec	5 sec	5 sec	3 sec	3 sec	3 sec	3 sec	3 sec	3 sec	3 sec	3 sec

After holding each gear speed for the time specified or more, shift gears to the next range.
Operate the engine at low idling, place the shift mode switch in the MANUAL position, and the transmission cut-off switch in the OFF position (the lockup switch in the OFF position).
~~Carry out shifting operation in the actual traveling or skid travelling.~~

   ★ When setting to N2 manually, operate the directional lever by placing it in the N position following the F2 or R2 position.
   Even if the shift lever is changed to 2 after placing the directional lever in N, the gear will not change. Therefore, operate the directional lever by placing it in the N position after setting the gear shift lever to 2.
   When the directional lever is placed in the N position at the shift lever in other than 2, place the directional lever in the F or R position and then operate the directional lever in the N position following F2 or R2.
   ★ Hold the shift lever for the specified holding time or more for each speed of gear range.
   If the gear shift lever is operated for the holding time or less, completion of initial learning (display of TUNED) will not appear.
4. Check that completion of initial learning (display of TUNED) appears on the initial learning of transmission setting screen on the real-time monitor.

5. When the initial learning is not carried out (display of INITIAL STATUS), repeat operations mentioned in 3 and 4 until completion of initial learning (display of TUNED) appears.

Carry out the speed shifting operations while making actual travels of the machine or while the machine is in stopped state with the brake pedal depressed.

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