CASE

REPAIR MANUAL

WHEEL LOADER

1221E
TIER 3

87728465 NA

Issued 01Mar 08

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TABLE OF CONTENTS

Section 1 - General

Safety Hints 1-1
Specification 1-8
Operational Checkout Record Sheet 1-20

Section 2 - Engine

Structure And Function 2-1

Section 3 - Power Train System

Structure And Function 3-1
Operational Checks And Troubleshooting 3-67
Tests And Adjustments 3-79
Disassembly And Assembly 3-82

Section 4 - Brake System

Structure And Function 4-1
Operational Checks And Troubleshooting 4-19
Tests And Adjustments 4-25

Section 5 - Steering System

Structure And Function 5-1
Operational Checks And Troubleshooting 5-19
Tests And Adjustments 5-26
Disassembly And Assembly 5-32

Section 6 - Work Equipment

Structure And Function 6-1
Operational Checks And Troubleshooting 6-31
Tests And Adjustments 6-40
Disassembly And Assembly 6-54

Section 7 - Electrical System

Component Location 7-1
Electronic Monitor System 7-23
Switches 7-36
Electrical Component Specification 7-43
Connectors 7-49
Troubleshooting 7-69

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(5) Engine fault code (For QSM11)

Fault code No.	Reason	Effect(only when fault code is active)
111	Error internal to the ECM related to memory hardware failures or internal ECM voltage supply circuits.	Engine will not start.
115	No engine speed signal detected at both engine position sensor circuits.	Engine will die and will not start.
121	No engine speed signal detected from one of the engine position sensor circuits.	None on performance.
122	High voltage detected on the intake manifold pressure circuit.	Derate in power output of the engine.
123	Low voltage detected on the intake manifold pressure circuit.	Derate in power output of the engine.
131	High voltage detected at the throttle position signal circuit.	Severe derate(power and speed). Limp home power only.
132	Low voltage detected at the throttle position signal circuit.	Severe derate(power and speed). Limp home power only.
133	High voltage detected at the remote throttle position signal circuit.	None on performance if remote throttle is not used.
134	Low voltage detected at the remote throttle position signal circuit.	None on performance if remote throttle is not used.
135	High voltage detected at the oil pressure circuit.	No engine protection for oil pressure.
141	Low voltage detected at the oil pressure circuit.	No engine protection for oil pressure.
143	Oil pressure signal indicates oil pressure below the low oil pressure engine protection limit.	Progressive power and speed derate with increasing time after alert. If engine protection shutdown feature is enable, engine will shut down 30 seconds after red lamp starts flashing.
144	High voltage detected at the coolant temperature circuit.	Possible white smoke. Fan will stay on if controlled by the electronic control module (ECM). No engine protection for coolant temperature.
145	Low voltage detected at the coolant temperature circuit.	Possible white smoke. Fan will stay on if controlled by electronic control module (ECM). No engine protection for coolant temperature.
147	A frequency of less then 100Hz was detected at the frequency throttle signal pin of the actuator harness connector at the ECM.	Calibration dependent power and speed derate.
148	A frequency of more than 100Hz was detected at the frequency throttle signal pin of the actuator harness connector at the ECM.	Calibration dependent power and speed derate.
151	Coolant temperature signal indicates coolant temperature above 104ÁC(220ÁF).	Progressive power derate with increasing time after alert. If engine protection shutdown feature is enabled, engine will shut down 30 seconds after red lamp starts flashing.

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3) Install both bearing inner races.
Lay preassembled counter haft gear upon the surface plate and determine Dimension **III** (bearing dimension).
Dimension **III** e.g. 59.52mm

EXAMPLE D2

Dimension Y

(installation dimension) 61.02mm

Dimension III

(bearing dimension) - 59.52mm

gives shim e.g. s = 1.50mm

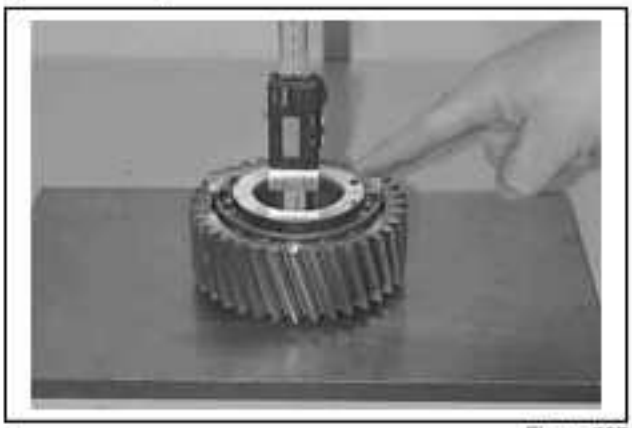


Figure 307

NOTE: *The assembly of the shim as well as of the countershaft axle can be performed only after the installation of the clutches.*

4) Position countershaft gear(along with bearing inner races), see Figure 308.

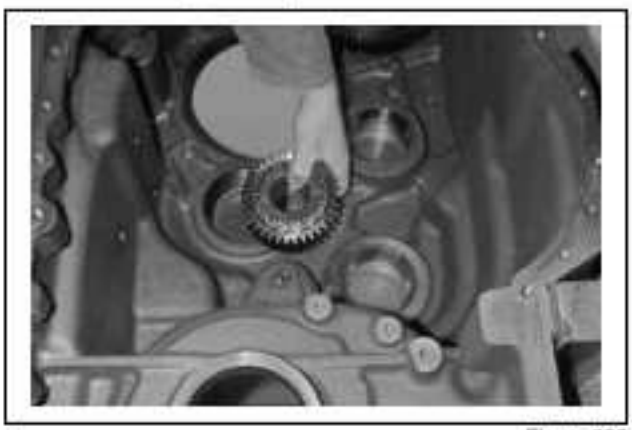


Figure 308

5) Insert bearing outer races KV/K1, KR/K2 and K3/K4 into the housing bores until contact is obtained, see Arrows.

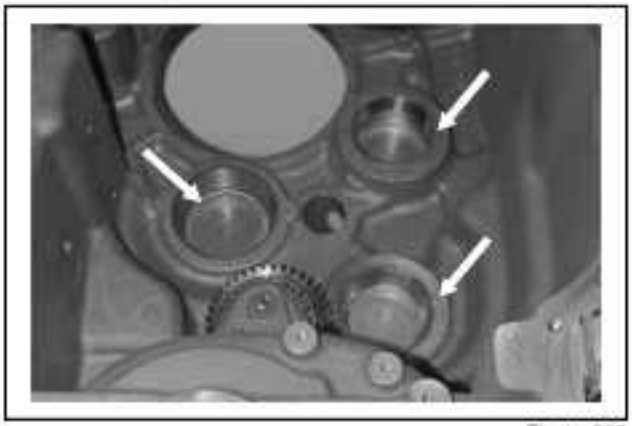


Figure 309

6) Position clutch KV/K1, using lifting device.

Special tool
Set of eye bolts



Figure 310

7) Position clutch KR/K2.



Figure 311

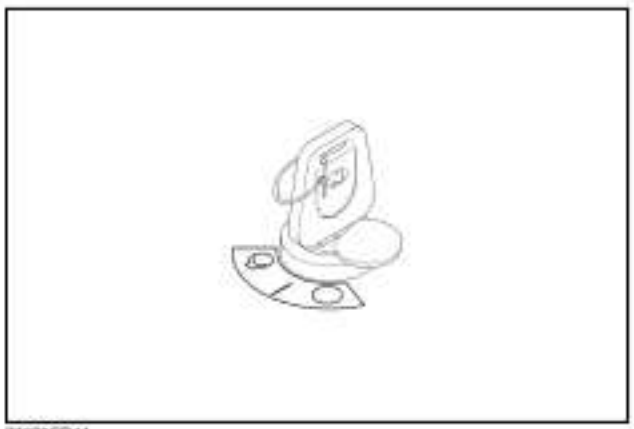
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1) STARTING SWITCH

(1)There are three positions, OFF, ON and START.

- ○ (OFF) : None of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- (START) : Use when starting the engine. Release key immediately after starting.

ATTENTION: *Key must be in the ON position with engine running maintain electrical and hydraulic function and prevent serious machine damage.*

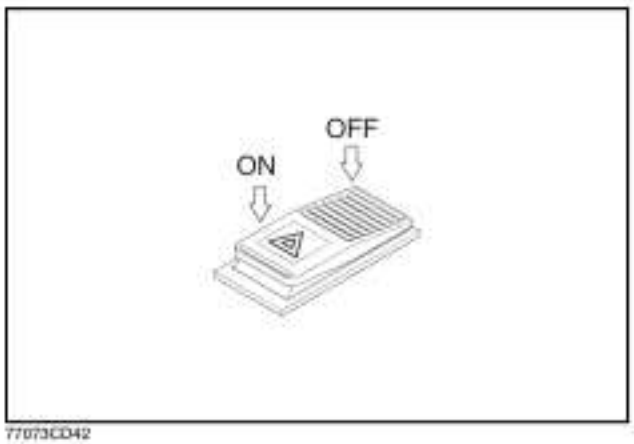


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2) HAZARD SWITCH

(1)Use for parking, or roading machine.

ATTENTION: *If the switch is left ON for a long time, the battery may be discharged.*



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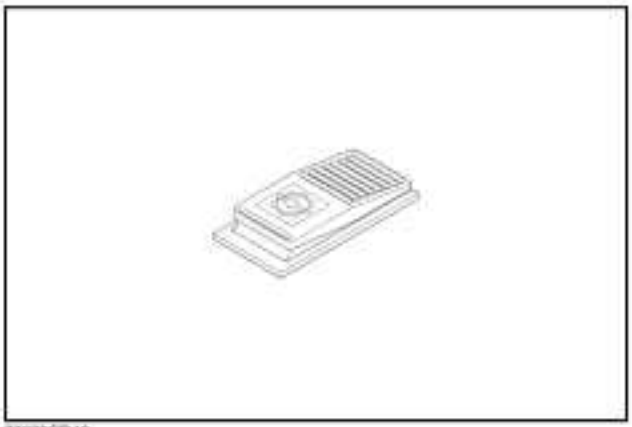
3) CLUTCH CUT OFF SWITCH

(1)This switch is pressed, it will cut off the clutch when brake operates.

ATTENTION: *Be careful not to use this switch when driving on a slope.*

(2)When the switch failure occurs, it will be able to operate a clutch off function from LCD.

NOTE: *Refer to page 7-34.*

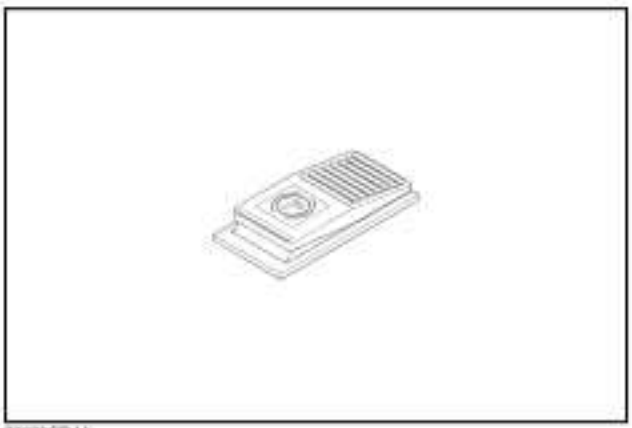


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4) PARKING BRAKE SWITCH

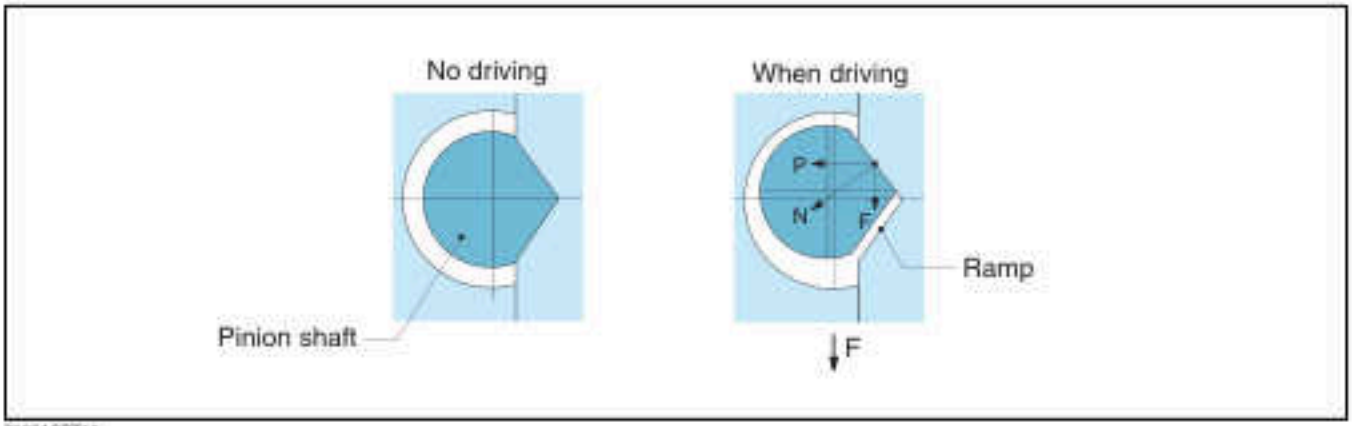
(1)This switch is pressed, the parking brake will start to operate and the gauge panel warning lamp will comes ON.

ATTENTION: *When operating the gear selector lever, be sure to release the parking brake. If the machine is operated with the parking brake engaged, the brake will overheat and may cause the brake system to go out of order.*



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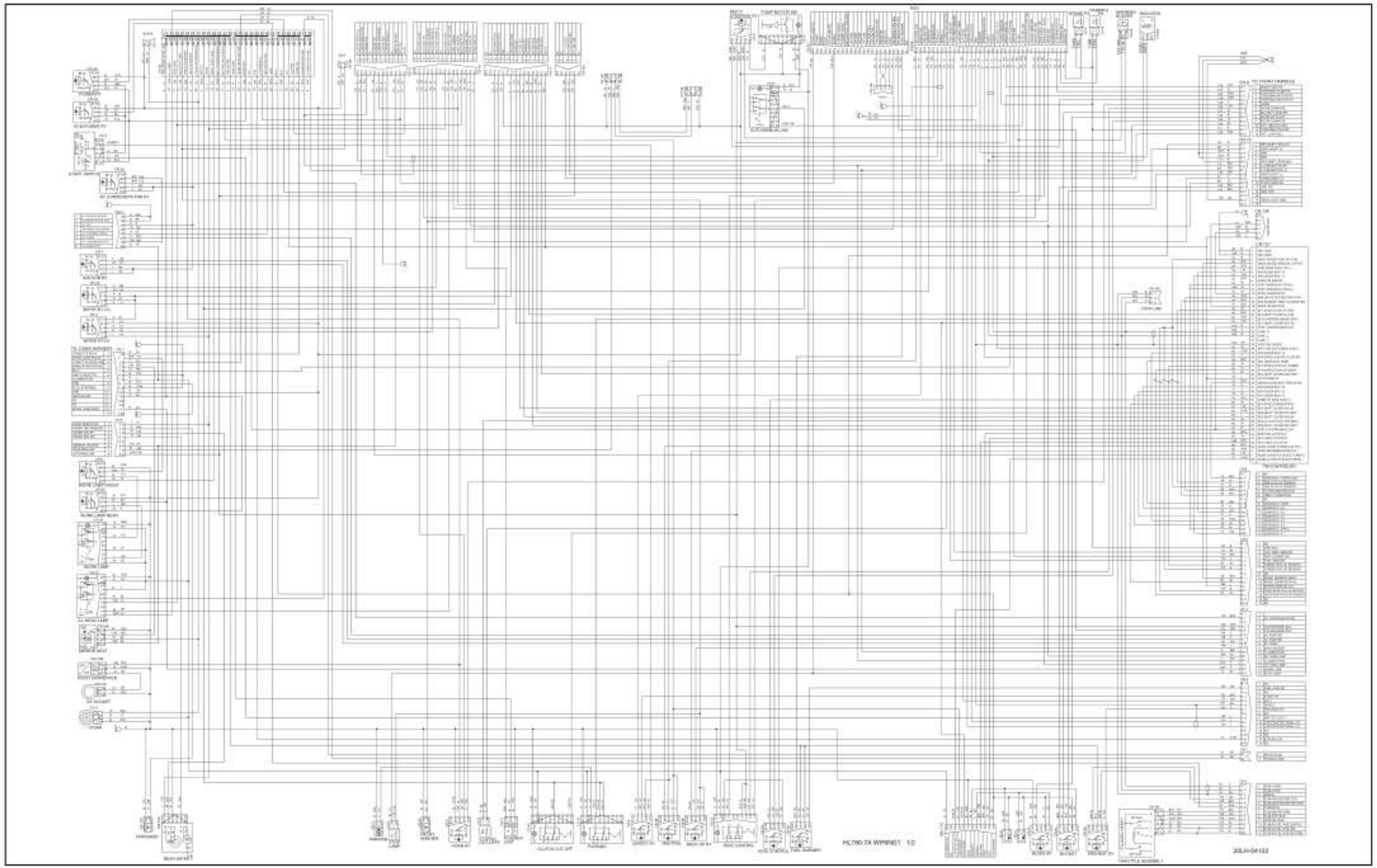
When the differential case is rotated, pinion shaft is moved up on the ramp by the resistance force of tires as the figure, and then force P is generated. This force P becomes the engaging force of clutch.

(1) When travelling straight(equal resistance from road surface to left and right tires). Under this condition, both clutch are engaged and the left and right side gears are driveb wutg tge sane firce.

(2) When travelling on soft ground(Resistance from road surface to right tire is smaller). At rotating speed of right tire becomes faster than left due to the smaller resistance of right tive, right clutch is engaged and torque of faster rotating right axle shaft is added to left axle shaft through diffenenting gear case.

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SECTION 7 - ELECTRICAL SYSTEM



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