

# **Shop Manual**

# **GALEO WA320-5L**

## **WHEEL LOADER**

**SERIAL NUMBERS WA320-5L A32001 and up**

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November 2007

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- |                               |                                  |                         |
|-------------------------------|----------------------------------|-------------------------|
| 1. Engine                     | 10. HST motor 2                  | 19. Final drive         |
| 2. Drive damper               | 11. Steering valve (if equipped) | 20. Front tire          |
| 3. HST pump                   | 12. Transfer                     | 21. Rear drive shaft    |
| 4. Steering pump              | 13. Transfer clutch              | 22. Rear axle           |
| 5. Work equipment pump        | 14. Parking brake                | 23. Differential        |
| 6. Brake and cooling fan pump | 15. Front drive shaft            | 24. Multiple disk brake |
| 7. Transfer lube oil pump     | 16. Front axle                   | 25. Final drive         |
| 8. High pressure hose         | 17. Differential                 | 26. Rear tire           |
| 9. HST motor 1                | 18. Multiple disk brake          |                         |

## POWER TRAIN OPERATION

The power of engine (1) is transmitted to HST pump (3) through drive damper (2) which is installed on the flywheel to absorb the torsional vibration of the engine's power. Engine power (1) is also transmitted to the HST pump (3) which is also connected to the steering pump (4), work equipment pump (5), brake and cooling fan pump (6), and transfer lubricating oil pump (7).

HST pump (3) is equipped with a forward-reverse shifting valve and servo piston, which changes the discharge direction and discharge rate of HST pump (3) continuously by adjusting the swash plate angle.

HST motors (9) and (10) are also attached to transfer (12) and connected to HST pump (3) by a high-pressure hose (8). The rotational speed of HST motors (9) and (10) are controlled by the hydraulic power of HST pump (3) which control the travel direction and travel speed of the machine.

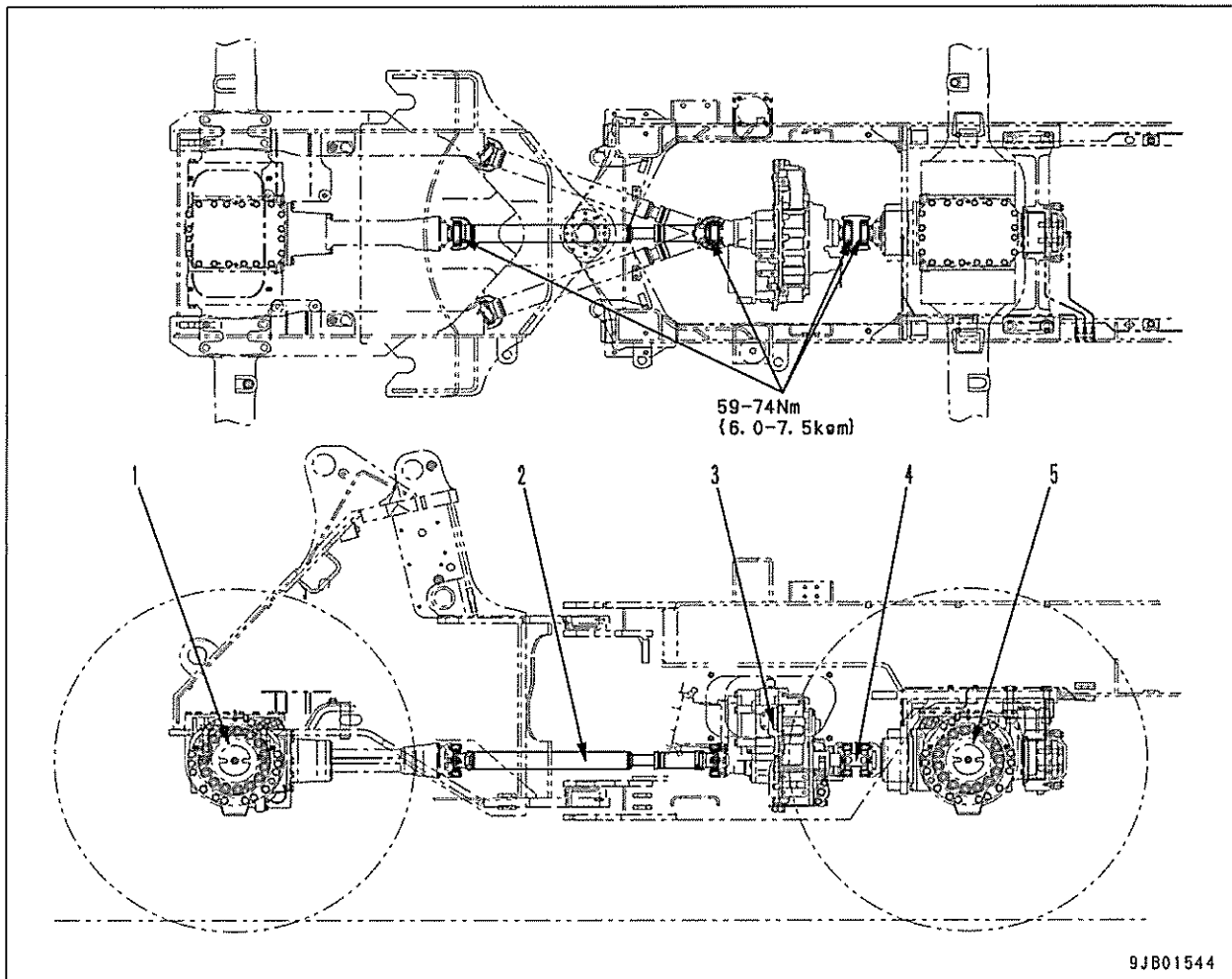
The power of HST motor 1 (9) is transmitted through the transfer clutch (13) in transfer (12) to the output shaft. HST motor 2 (10) is transmitted through the gear in transfer (12) to the output shaft.

Parking brake (14) is installed on the rear side of transfer (12). It operates the wet multiple disc brake to stop and hold the machine according to the operation of the parking brake lever.

The power supply travels through front drive shaft (15) to front axle (16). The power for the rear side is transmitted through rear drive shaft (21) to rear axle (22).

The power supply transmitted to axles (16) and (22) is reduced by the ring and pinion gears in the differentials (17) and (23), and then transmitted through a sun and planetary gear unit. The planetary mechanisms of final drives (19) and (25), are then transmitted through the axle shaft and wheels to tires (20) and (26).

## FRONT AND REAR DRIVE LINES



## DRIVE LINE OPERATION

Power from the output shaft from the transfer is transmitted through front drive shaft (2) and rear drive shaft (4) to front axle (1) and rear axle (5).

When the machine is articulated or it receives any impact during travel or working, the operation of the transfer as well as the front and rear axles will change.

Drive shafts can change their angles and lengths by means of the universal joints and sliding spined shaft so that the power will be transmitted without damaging to any part even when the positions of the components changes due to impact.

**Service meter and clock**

Automatic 10  
Action code (when there is failure)  
If phone No. is set, it is displayed on right of CALL.  
Displayed alternately at intervals of 3 seconds.

While action code is being displayed, when '>' switch is pressed, 6 digits failure code is displayed.

Filter and oil replacement (30 hours rest to replacement)

Automatic 5

Operator mode ①

Upper part: ID number/maintenance items  
Lower part: Hours before next replacement/  
number of replacements

Select YES '<' or NO '>' and then press 'm'  
When YES is selected rest time is effective only  
when night lighting switch is ON.  
Select value with '<'/>'.  
Go to next (right) with 'm'.

Select A or B with '<'/>' and enter it with 'm'.

Enter value with '<'/>'.  
Go to right position with 'Y'.  
Go to left position with 'N'.

Item | Item name | Item class | S. number

Engine oil	500	ENG OIL	01
Engine oil filter	500	ENG OIL FILTER	02
Fuel filter	500	FUEL FILTER	03
Transfer oil	1000	TF OIL	26
HST oil filter	1000	HST OIL FILTER	28
Breath air filter element	2000	AIR BREATHING	04
Hydraulic oil	2000	HYD OIL	10
Axle oil	2000	AXLE OIL	15

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## Operator Mode

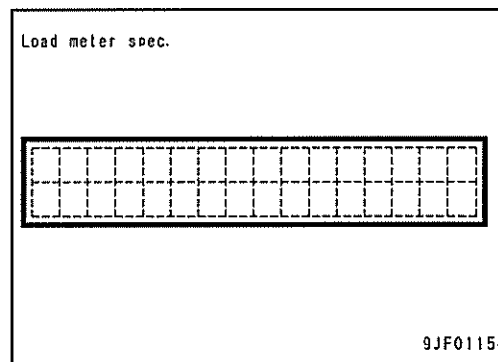
- ★ The display is given endlessly when the [>], [<], [◇], or [■] switches are operated.
- ★ If a failure occurs, the screen switches automatically to the [Action code display function], regardless of the screen being displayed.
- ★ If the switches are not operated for more than 30 seconds, the screen switches automatically as follows regardless of the screen being displayed.
  - If there is no failure, the display switches to the [Service meter (time display) function].
  - If there is a failure, the display switches to the [Action code display function].

## Service Mode 1

- ★ The switching of each function occurs endlessly when the [>], [<], [◇], or [■] switches are operated.
- ★ Once the ID is input, it remains effective until the ignition switch is turned OFF.

## Service Mode 2

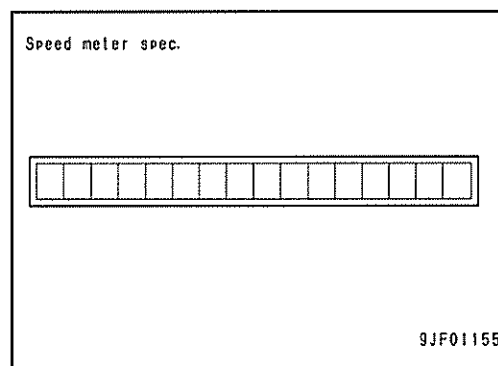
- ★ The switching of each function occurs endlessly when the [>], [<], [◇], or [■] switches are operated.



## Character Display

Sixteen characters can be displayed on the character display. A combination of numerals, letters, and symbols can be used for the display.

1. Numerals: 1, 2, 3,...
2. Lower case letters: a, b, c,...
3. Upper case letters: A, B, C,...
4. Japanese katakana:
5. Symbols: @, Y, \$,...
6. Special characters

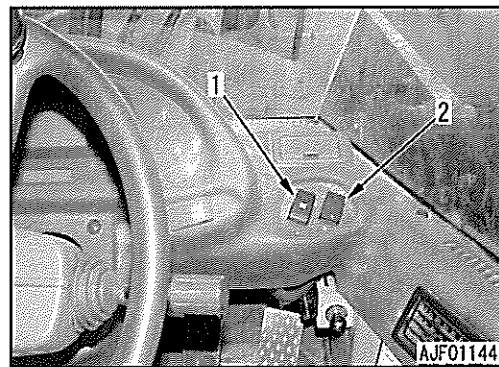


## Operating Switches

The display operations on the machine monitor are all carried out with machine monitor mode selector switches (1) and (2).

The following functions are set for the switch for each switch.

1. [◇]: Execute, select
2. [■]: Cancel, enter (YES/NO screen only)
3. [>]: Right, next
4. [<]: Left, back



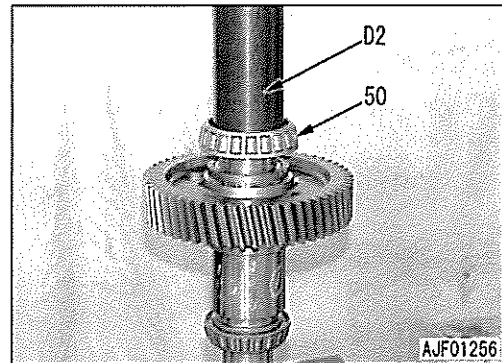
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- D. Using tool **D2** and the press, press fit rear bearing (50).
- ★ After press fitting the bearing, apply transfer oil to it and rotate it.



12. Installation of output shaft and gear assembly.

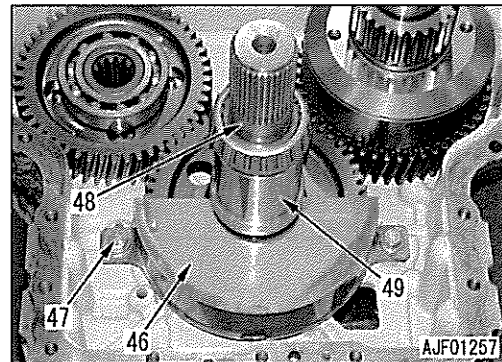
- A. Place cover (46) over the gear and install output shaft and gear assembly (49) to the rear case.
- B. Secure cover (46) with bolts (47).
- ★ Check that cover (46) does not interfere with the inside of the gear.



Mounting bolt: 98 - 123 N·m (72 - 97 ft/lbs)

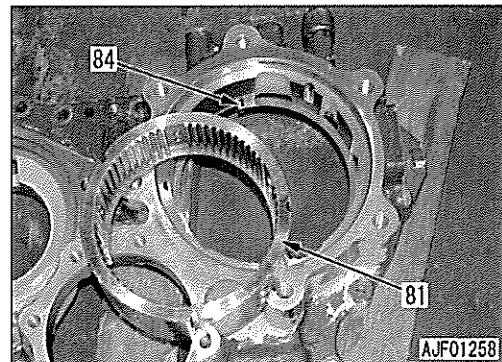


Mounting bolt: **Adhesive (LT-2)**

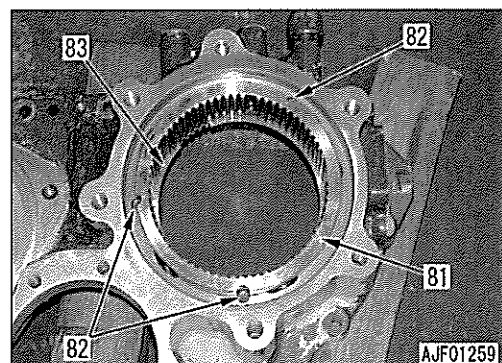


13. Clutch housing

- A. Install snap ring (84) to the front case.
- B. Install clutch housing (81) and 3 pins (82).

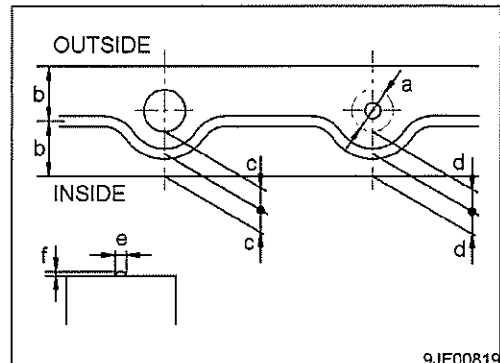


- C. Install snap ring (83).



## 14. Front case

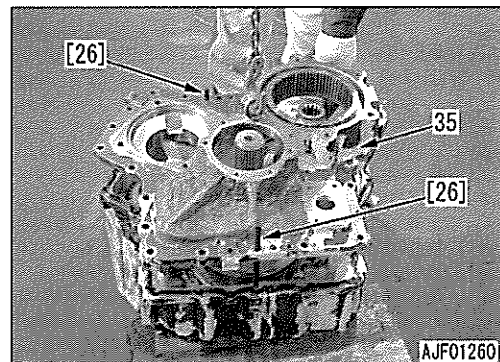
- Use the front case and rear case as an assembly.
  - When installing the cases, match the match marks on their tops to each other.
- A. Apply gasket sealant to the rear case according to the following procedure.
- Apply the gasket sealant to forcing screw contact part (a), similarly to the dimensions for each bolt hole.
  - Apply the gasket sealant so that dimensions (b) and (c) will be the same respectively.
  - Apply the gasket sealant so that dimension (e) x dimension (f) will be 2 - 5mm (0.08 - 0.2in).



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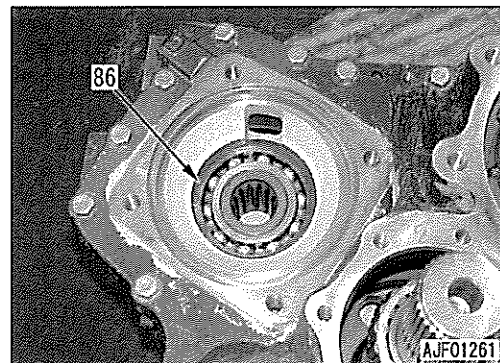
Gasket sealant: **Three Bond 1207B or equivalent**

- B. Install guide pin [26] and install front case (35).

Mounting bolt: **98 - 123 N·m (72 - 97 ft/lbs)**

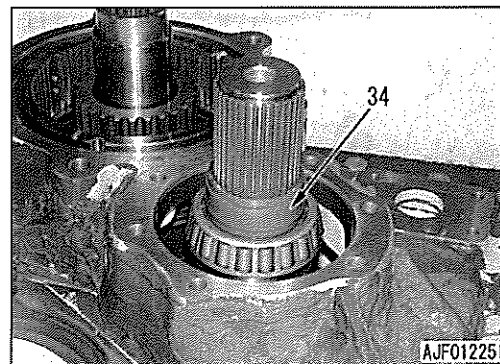
AJF01260

- C. Install snap ring (86) on the HST motor 2 side.



AJF01261

- D. Install spacer (34) of the output shaft.



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