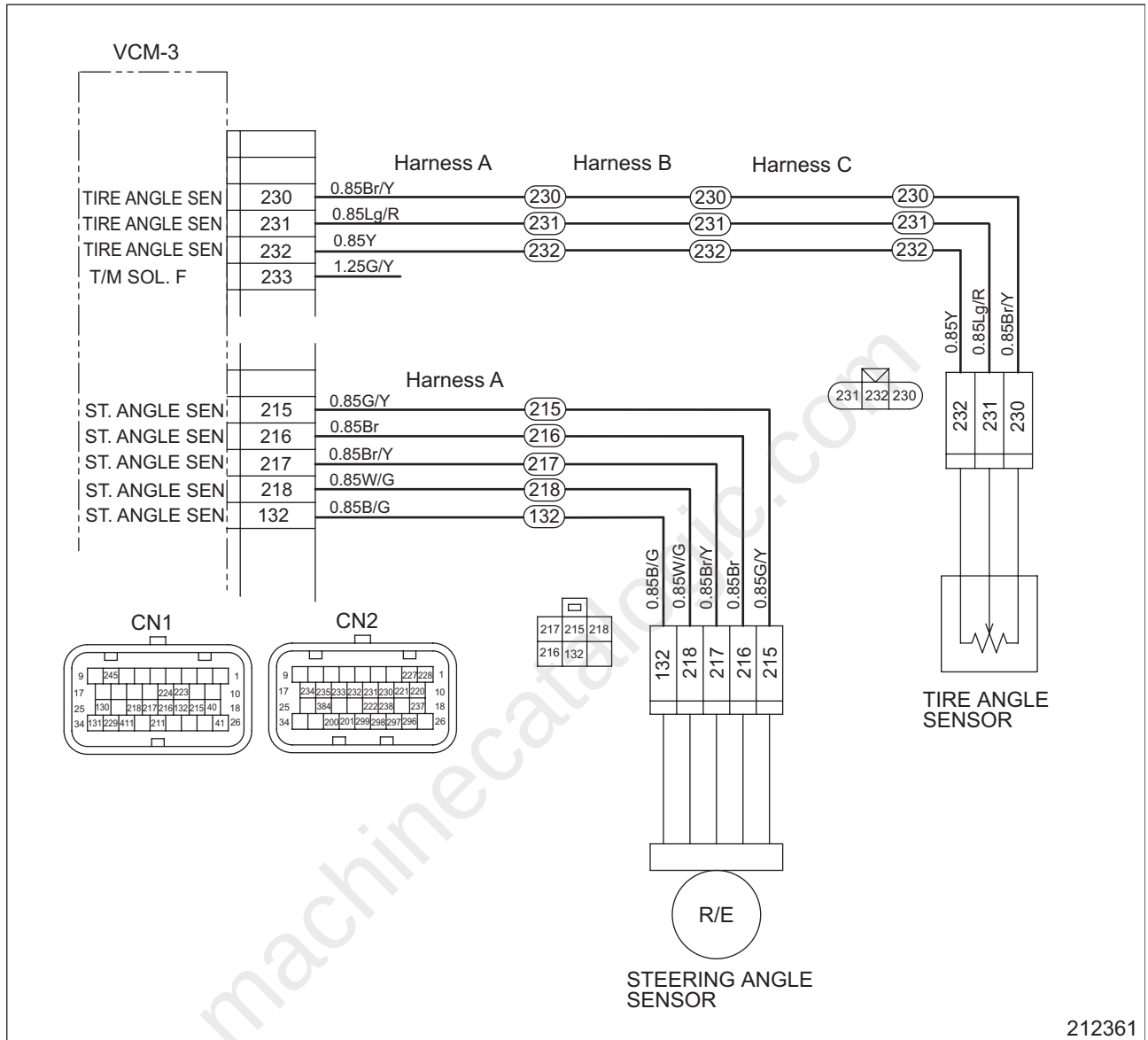




# Service Manual

## Chassis, Mast & Options

|                |               |
|----------------|---------------|
| <b>FD100N</b>  | F15D-60011-up |
| <b>FD120N</b>  | F15D-60011-up |
| <b>FD135N</b>  | F15D-60011-up |
| <b>FD150AN</b> | F24B-60011-up |
| <b>FD160AN</b> | F39-60011-up  |



212361

(3) Tapered roller bearing

Do not remove the outer race unless it is to be replaced with a new one.



**When replacing the tapered roller bearing, the outer race and the inner race should be replaced as a set.**

(4) Lower cover of the steering knuckle

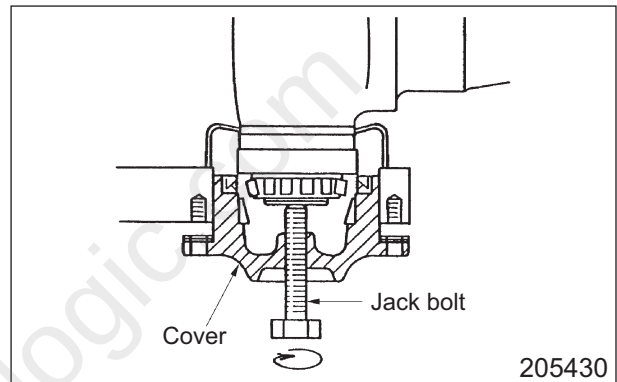
(a) Prepare a jack bolt.

|           |                  |                                   |
|-----------|------------------|-----------------------------------|
| Jack bolt | Nominal diameter | 16 mm (0.63 in.)                  |
|           | Pitch            | 1.5 mm (0.059 in.)                |
|           | Thread length    | 100 mm or more (3.94 in. or more) |

(b) Remove the plug at the center of the cover.

(c) Remove six (6) cover fixing bolts.

(d) Drive-in the jack bolt into the plug hole to pull the cover out.



### 4.3 Reassembly

To reassemble, follow the disassembly sequence in reverse and observe the following.

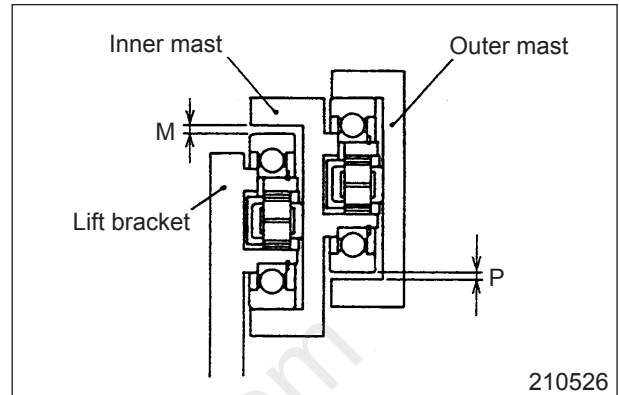
#### 1. Front and rear clearance between mast and lift bracket

- (1) Select and assemble the main roller in an appropriate manner in order that the clearances P and M are within the dimensions as shown below throughout the height range.

|                                                             |                                     |
|-------------------------------------------------------------|-------------------------------------|
| P and M, clearances between main roller and rolling surface | 0.5 to 2.8 mm<br>(0.02 to 0.11 in.) |
|-------------------------------------------------------------|-------------------------------------|

If the specified value can not be achieved, replace the main roller.

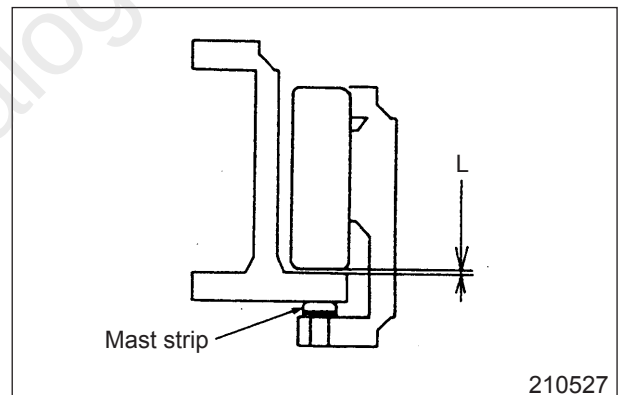
|                  |   |                   |
|------------------|---|-------------------|
| Main roller size | S | 203 mm (7.99 in.) |
|                  | M | 205 mm (8.07 in.) |
|                  | L | 207 mm (8.15 in.) |



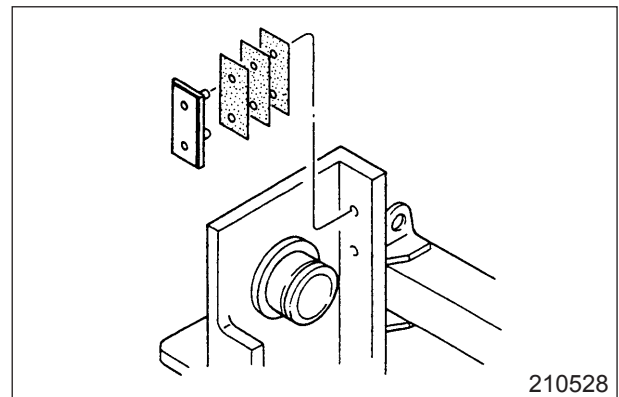
#### 2. Installing mast trip

- (1) Install to make the front and rear clearance between outer and inner masts within the specified dimension at the maximum height range.

|             |                                     |
|-------------|-------------------------------------|
| Clearance L | 0.5 to 1.5 mm<br>(0.02 to 0.06 in.) |
|-------------|-------------------------------------|



- (2) If the clearance of mast strip (L) is not within the specified value, adjust with the shims.

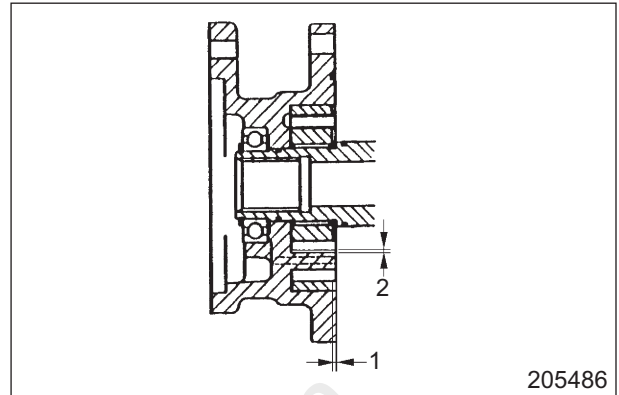


### 3-SPEED POWERSHIFT TRANSMISSION

#### 4.2.2 Inspection

- (1) Oil pump
  - (a) Put the internal gear and pump gear in the pump case, and measure top clearance 2.
  - (b) Using a dial indicator, measure side clearance 1 between the gears and pump case.

|                              |                |                                        |
|------------------------------|----------------|----------------------------------------|
| Side clearance 1<br>mm (in.) | Standard value | 0.040 to 0.078<br>(0.00157 to 0.00307) |
|                              | Service limit  | 0.09 (0.0035)                          |
| Top clearance 2<br>mm (in.)  | Standard value | 0.3 to 0.345<br>(0.0118 to 0.0136)     |
|                              | Service limit  | 0.35 (0.0138)                          |



- (2) Stator shaft
  - (a) Check the splines for wear or damage.
  - (b) Check the oil passages for clogging.
- (3) Friction plates and mating plates
  - (a) Check for sign of seizure, uneven contact, warpage or excessive wear.
  - (b) Check the splines for wear or damage.
- (4) Clutch drums
  - (a) Check the mating plate sliding surfaces for wear or damage.
  - (b) Check the clutch piston sliding surfaces for wear or damage.

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