TOYOTA 7FBMF 16-50

TOYOTA

TOYOTA MATERIAL HANDLING SWEDEN

New Model Features

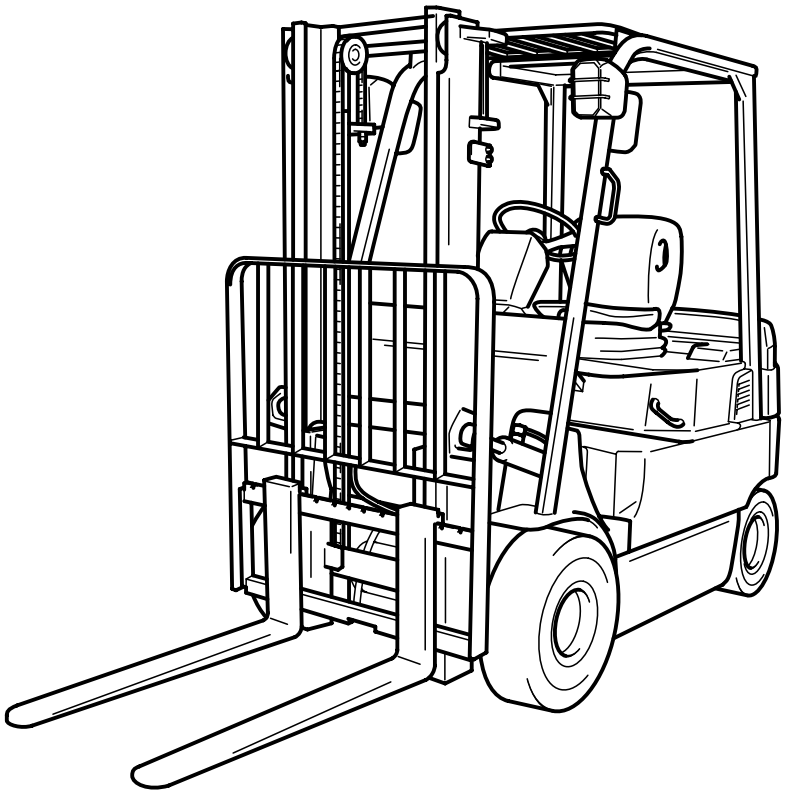
< Tillbaka till Index

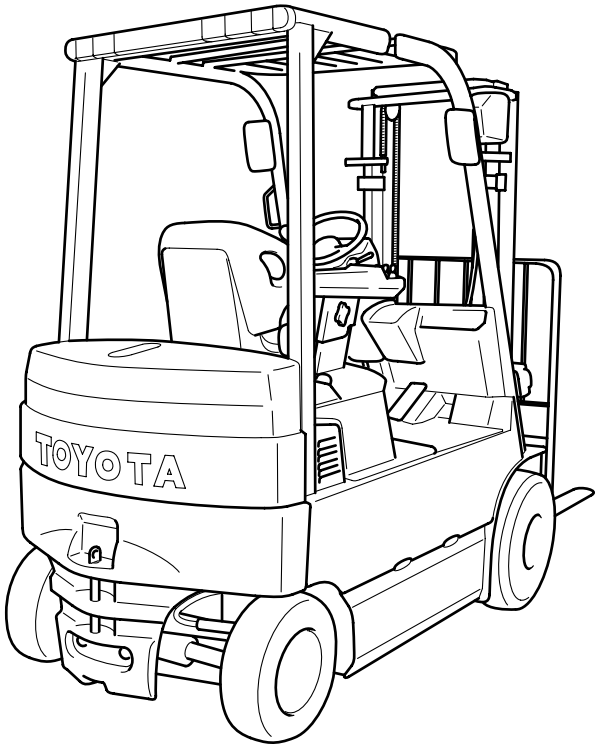
OPS fr.o.m 2006

GENERAL

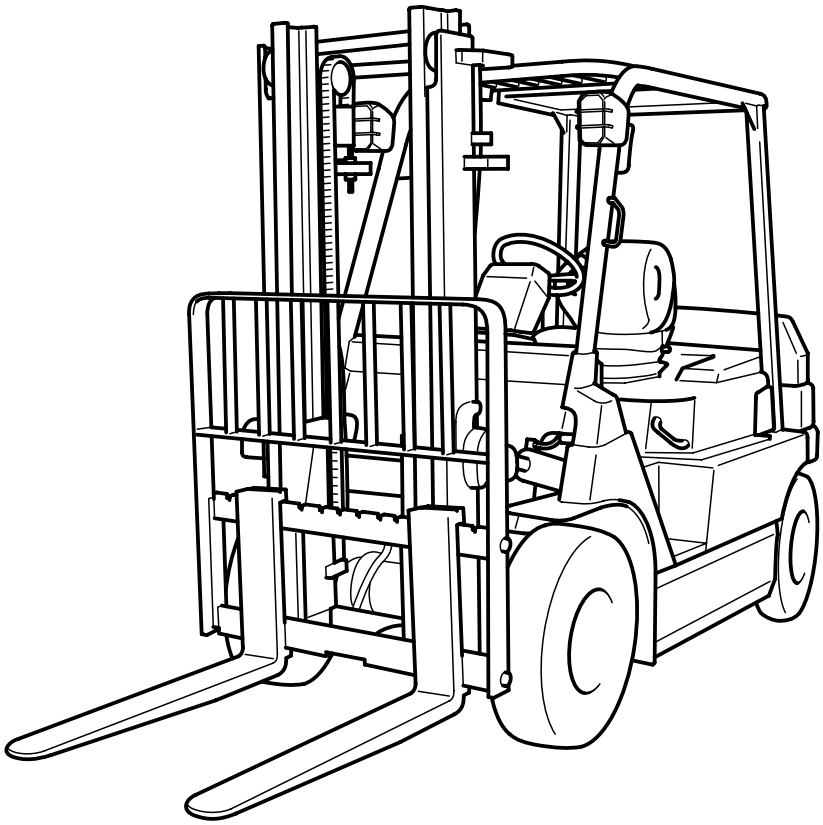
EXTERIOR VIEWS

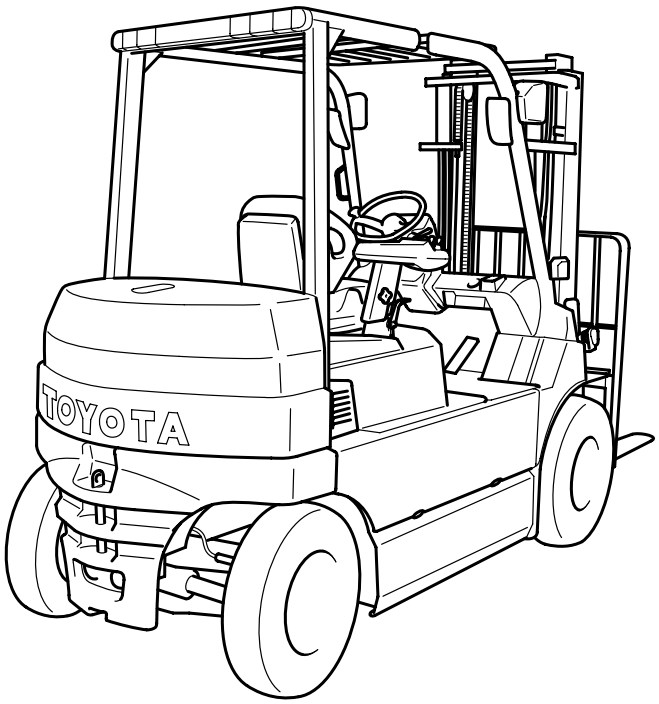
16 ~ 35 Model





40 ~ 50 Model

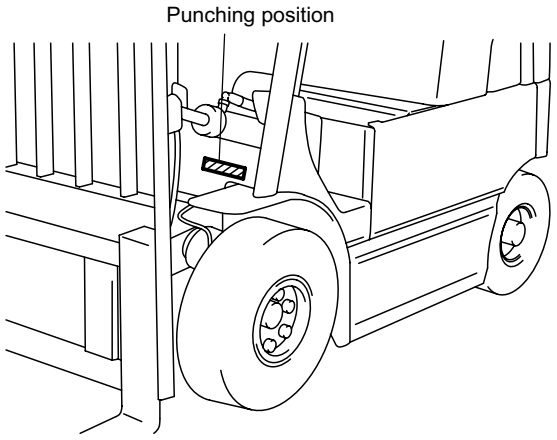




VEHICLE MODELS

Model code	Load capacity	Vehicle model	Voltage
16	1.6 ton	7FBMF16	80 V/72 V
18	1.8 ton	7FBMF18	↑
20	2.0 ton	7FBMF20	↑
25	2.5 ton	7FBMF25	↑
30	3.0 ton	7FBMF30	↑
35	3.5 ton	7FBMF35	↑
40	4.0 ton	7FBMF40	↑
45	4.5 ton	7FBMF45	↑
50	5.0 ton	7FBMF50	↑

FRAME NUMBER

Vehicle model	Punching format	Frame No. punching position
7FBMF16	7FBMF18Ⓔ10011	
7FBMF18		
7FBMF20	7FBMF25Ⓔ10011	
7FBMF25		
7FBMF30	7FBMF35Ⓔ10011	
7FBMF35		
7FBMF40	7FBMF50Ⓔ10011	
7FBMF45		
7FBMF50		

HOW TO USE THIS MANUAL

EXPLANATION METHOD

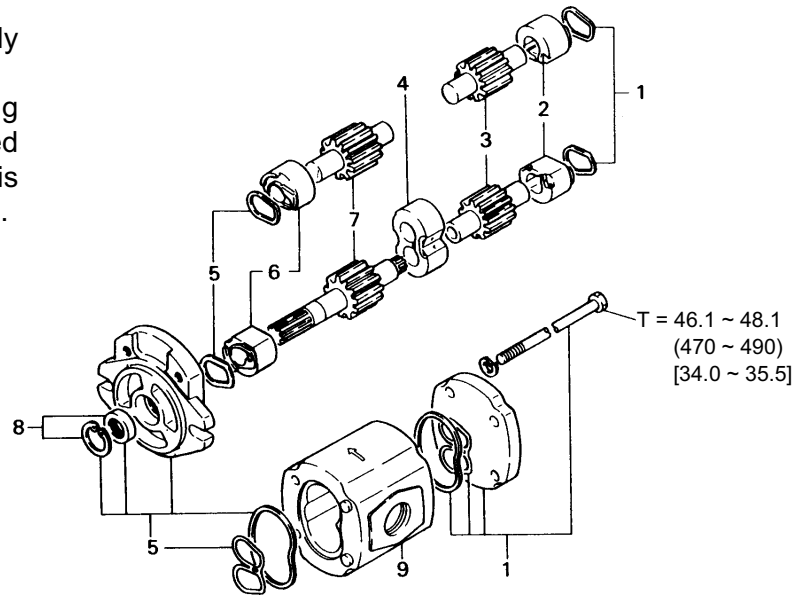
1. Operation procedure
   (1) The operation procedure is described in either pattern A or pattern B below.
   Pattern A: Explanation of each operation step with illustration.
   Pattern B: Explanation of operation procedure by indicating step numbers in one illustration, followed by explanation of cautions and notes summarized as point operations.

Example of description in pattern B

DISASSEMBLY·INSPECTION·REASSEMBLY

Tightening torque unit T = N·m (kgf·cm) [ft·lbf]

- Step Nos. are sometimes partially omitted in illustrations.
- When a part requiring tightening torque instruction is not indicated in the illustration, the part name is described in the illustration frame.



Disassembly Procedure

1 Remove the cover. **[Point 1]**
2 Remove the bushing **[Point 2]** ← Operation explained later
3 Remove the gear.

Point Operations Explanation of key point for operation with an illustration

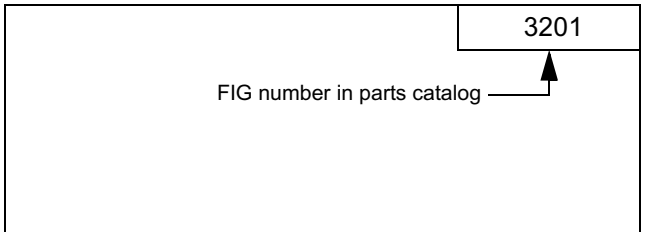
↙

[Point 1]
Disassembly:
Put a match mark when removing the pump cover.

[Point 2]
Inspection:
Measure the bushing inside diameter.
Limit: 19.12 mm (0.7528 in)

2. How to read components figures (Example)

(1) The components figure uses the illustration in the parts catalog for the vehicle model. Please refer to the catalog to check the part name.
The number at the top right of each components figure indicates the Fig. number in the parts catalog.



3. Matters omitted in this manual

(1) This manual omits description of the following jobs, but they should be performed in the actual operation:
(a) Cleaning and washing of removed parts as required
(b) Visual inspection (partially described)

TERMINOLOGY

Caution:
Important matters of which negligence may cause hazards to the human body. Be sure to observe them.

Note:
Important items of which negligence may cause breakage or breakdown, or matters in operation procedure requiring special attention.

Standard: Values showing the allowable range for inspections and adjustments.

Limit: Maximum or minimum allowable value for inspections or adjustments.

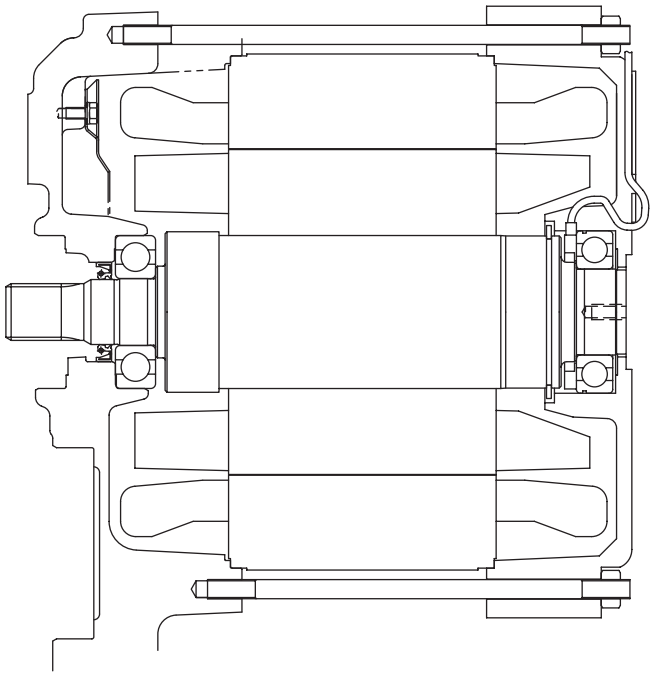
ABBREVIATIONS

Abbreviation (code)	Meaning	Abbreviation (code)	Meaning
ASSY	Assembly	SAE	Society of Automotive Engineers (USA)
ATT	Attachment	SAS	System of active stability
CHPS	Central hydraulic power steering	SST	Special service tool
LH	Left hand	STD	Standard
L/	Less	T =	Tightening torque
OPT	Option	○○T	Number of teeth (○○)
O/S	Oversize	U/S	Undersize
PS	Power steering	W/	With
RH	Right hand		

MOTOR

DRIVE MOTOR

GENERAL

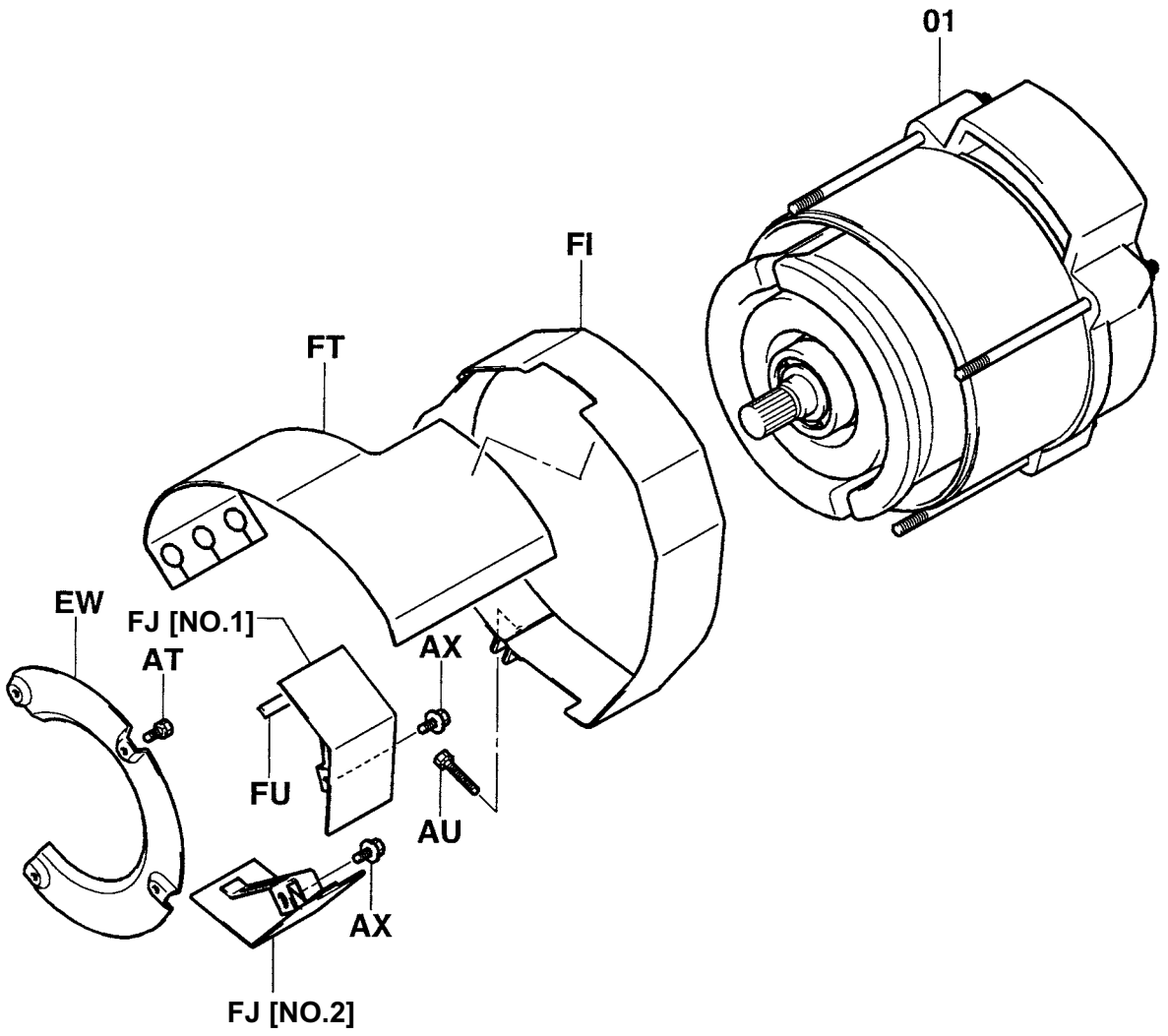


SPECIFICATIONS

Item \ Model	16·18	20 ~ 35	40 ~ 50
Type	3-phase AC	←	←
Nominal voltage V	72/80	←	←
Rated output kW	12.0/13.3	15.4/17.1	14.9/16.6
Dimensions mm(in) (outside diameter × length)	ϕ270 × 260 (10.63 × 10.24)	ϕ270 × 285 (10.63 × 11.22)	ϕ270 × 340 (10.63 × 13.39)
Weight kg (lb)	62 (137)	73 (161)	96 (212)
Insulation class	Class F	←	←

COMPONENTS

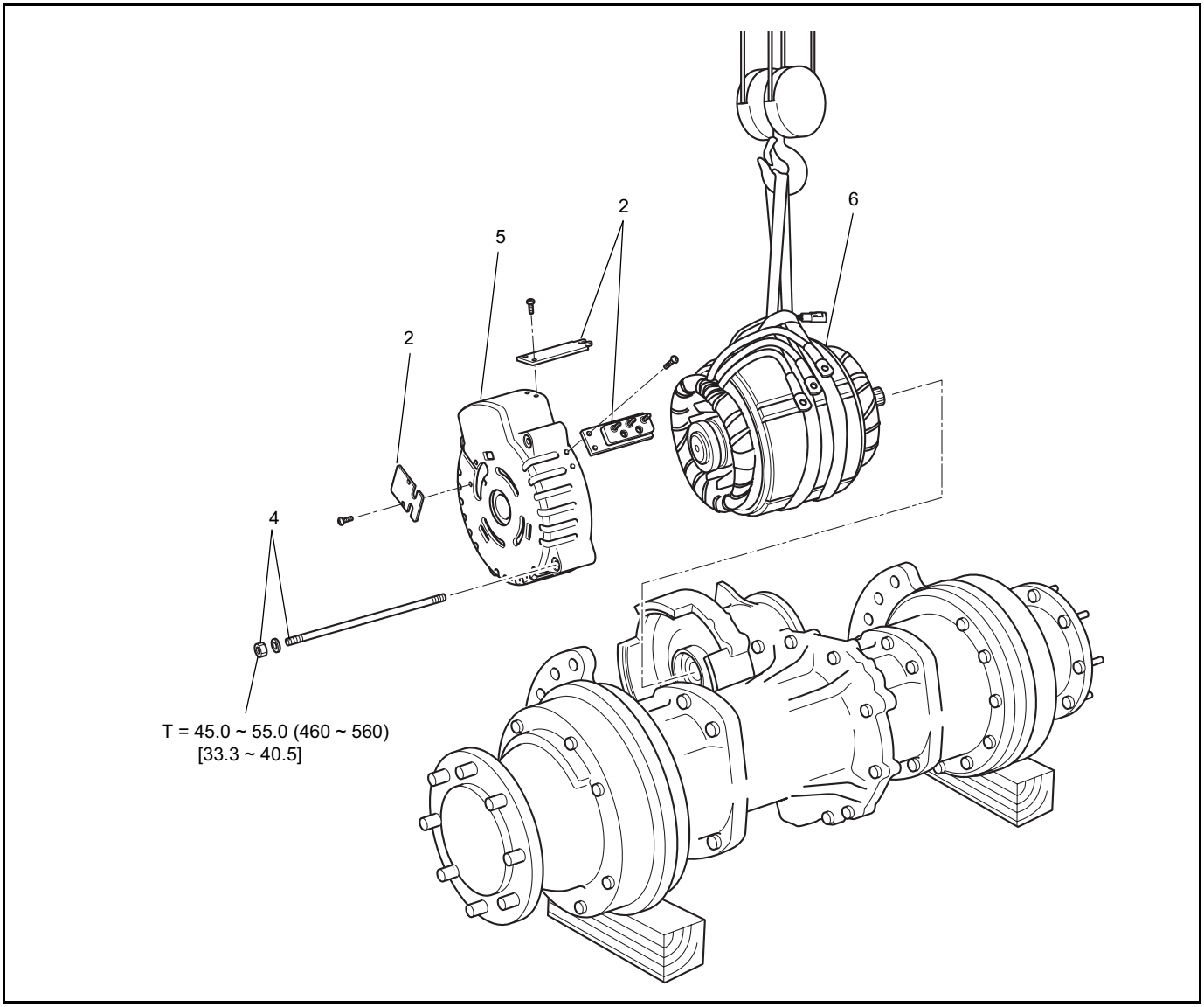
1401



1401-146A

REMOVAL·INSTALLATION

T = N·m (kgf·cm) [ft·lbf]



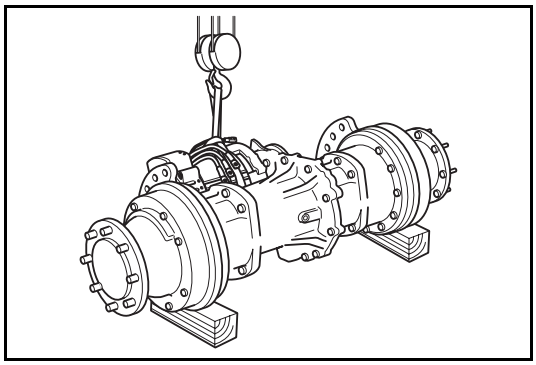
Removal Procedure

1 Remove the drive unit & drive motor W/front axle ASSY. (See page 6-6.)
2 Remove the drive motor sensor bracket, terminal bracket, and sensor cover.
3 Place match marks between the end bracket, stator ASSY, and gear case.
4 Remove the nuts and through bolts. **[Point 1]**
5 Remove the end bracket. **[Point 2]**
6 Remove the stator ASSY W/rotor ASSY.

Installation Procedure

The installation procedure is the reverse of the removal procedure.

Note:
Apply MP grease to the rotor ASSY spline.

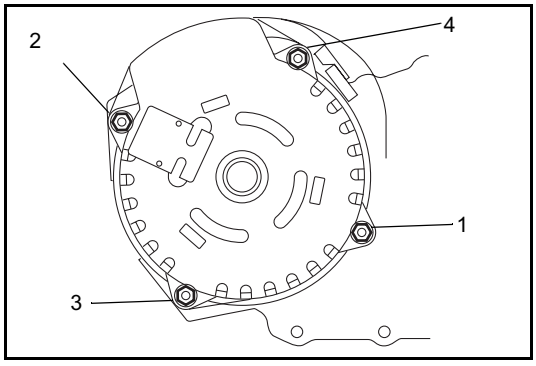


Point Operations

[Point 1]

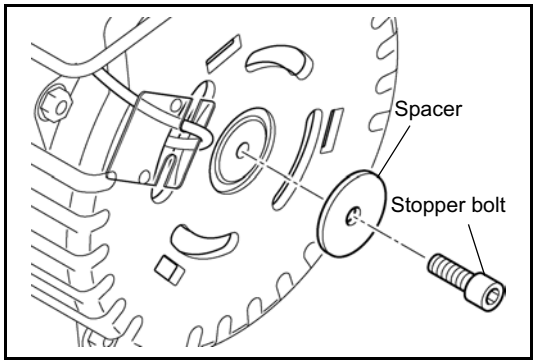
Removal:

After removing the through bolts, use a hoist to lift the yoke ASSY.



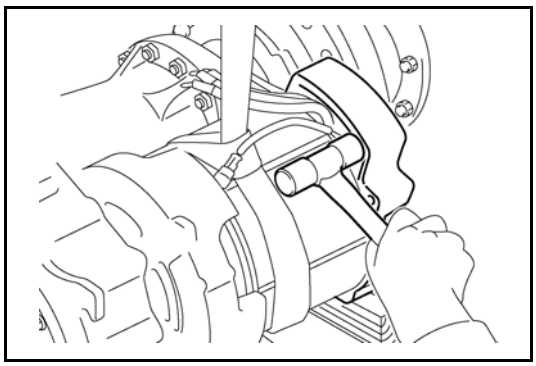
Installation:

After tightening the through bolts until they touch bottom, tighten the nuts in the order shown in the figure.



Installation:

When replacing the motor with a new one, be sure to remove the stopper bolt and spacer installed in the center of the end bracket. (They are not installed hereafter.)



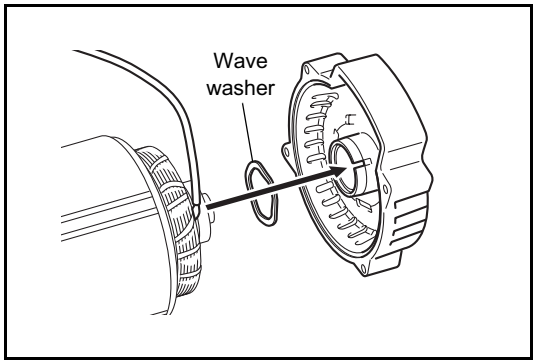
[Point 2]

Removal:

Use a plastic hammer to tap lightly on the end bracket to remove it.

Installation:

Use a plastic hammer to tap lightly on the end bracket to install it.



Installation:

Align the speed sensor harness with the notch in the end bracket and install the end bracket.

When doing this, do not forget to install the wave washer.

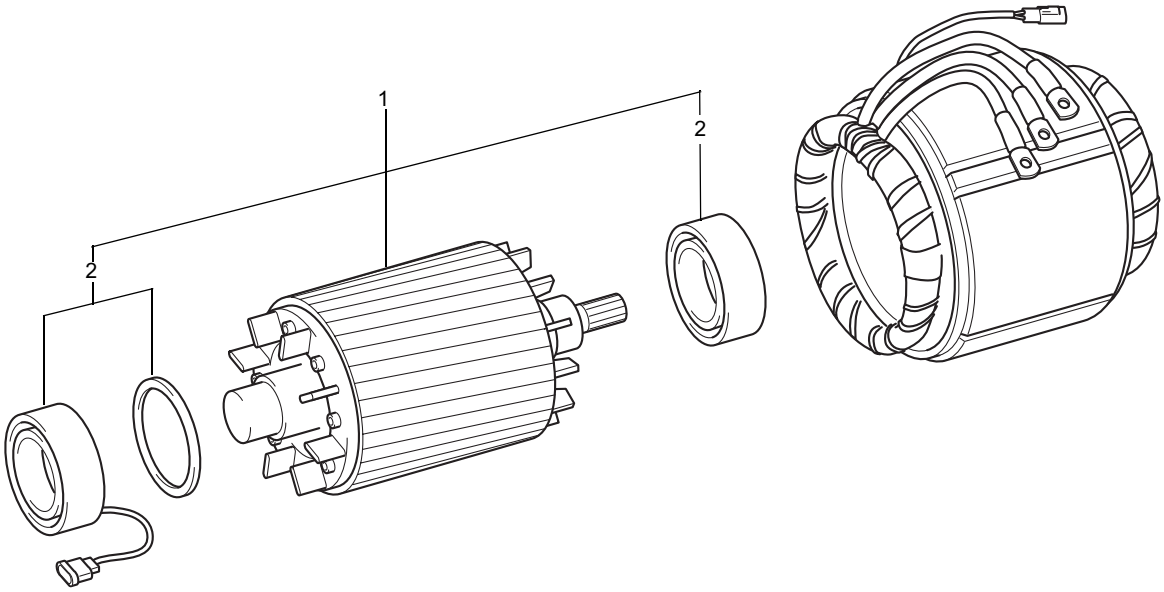
DISASSEMBLY·INSPECTION·REASSEMBLY

Note:
- **Do not apply a shock to the bearing W/speed sensor.**

OBS! Lager finns som separat reservdel. P/N på sensorlagret:

7FBMF 16-35 = 14160-F9802-71

7FBMF 40-50 = 14160-F9801-71

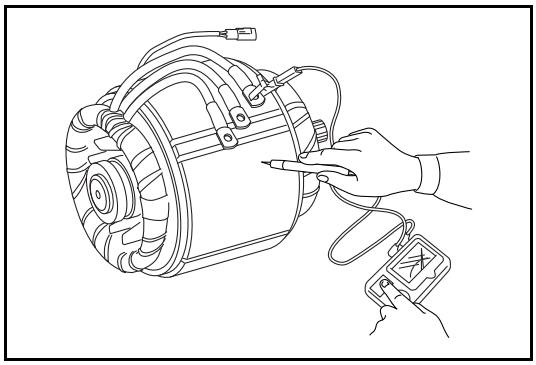


Disassembly Procedure

1 Remove the rotor ASSY W/bearing. **[Point 1]**
2 Remove the bearing. **[Point 2]**

Reassembly Procedure

The reassembly procedure is the reverse of the disassembly procedure.

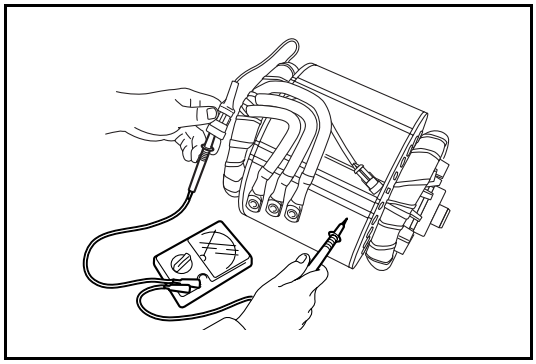


Point Operations

[Point 1]

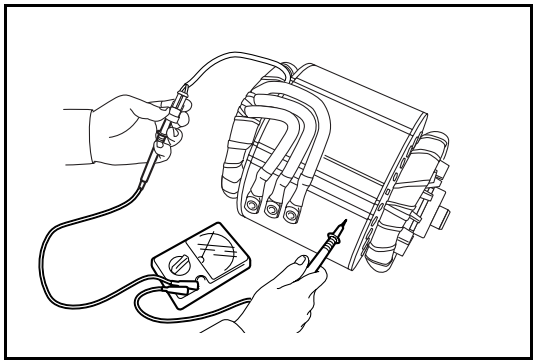
Inspection:
Measure the stator ASSY insulation resistance.
Measurement locations: Between the stator and each terminal (U, V, W)

Standard: 1 MΩ or more



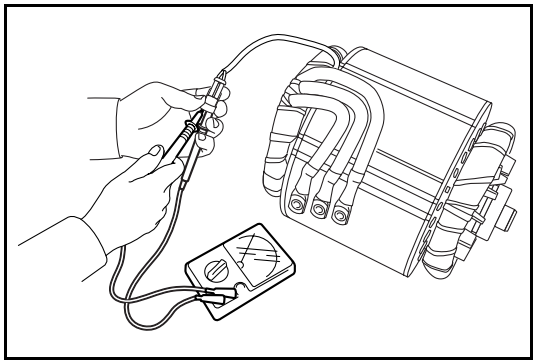
Inspection:
Measure the speed sensor insulation resistance.
Measurement locations: Between the stator and the speed sensor connector terminals (4 locations)

Standard: ∞ Ω



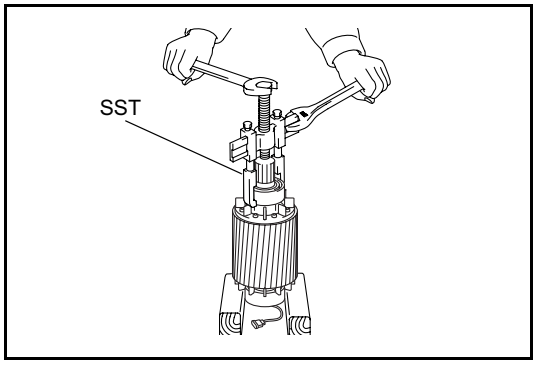
Inspection:
Measure the temperature sensor insulation resistance.
Measurement locations: Between the stator and the temperature sensor connector terminals (2 locations).

Standard: ∞ Ω



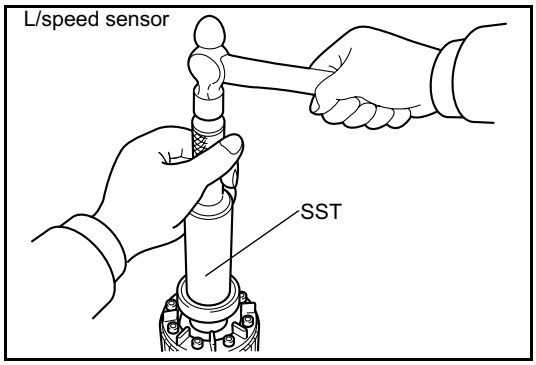
Measurement locations: Between the temperature sensor connector terminals

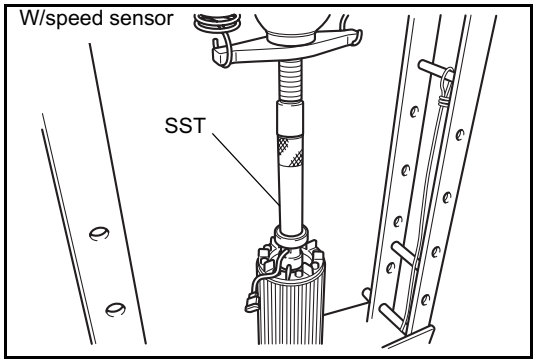
Standard: 0.5 ~ 1.0 kΩ



[Point 2]

Disassembly:
SST 09950-76014-71
(SST 09950-40011)





Reassembly:

Use the following procedure to install the bearing.

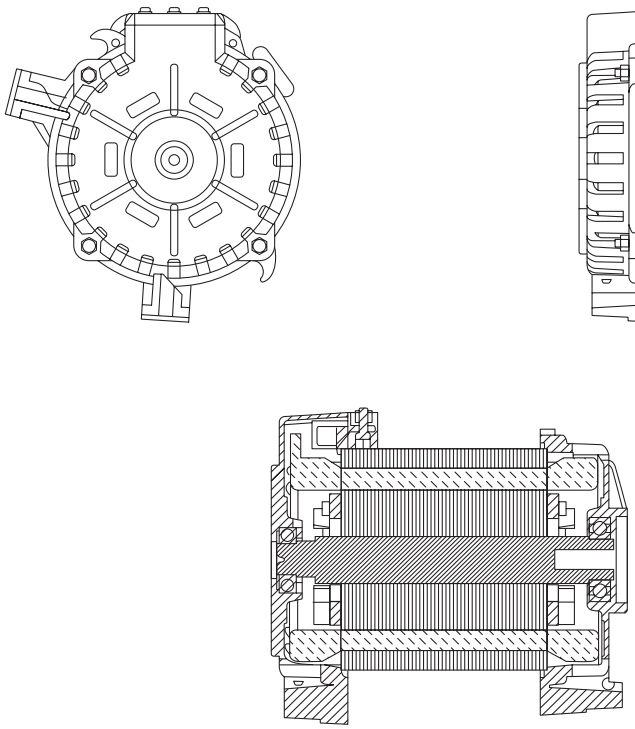
1. Install the bearing (L/speed sensor).
   SST 09370-20270-71

2. Install the bearing (W/speed sensor).
   Tapping on the bearing could damage the sensor. Use a press to install the bearing.
   SST 09411-41800-71

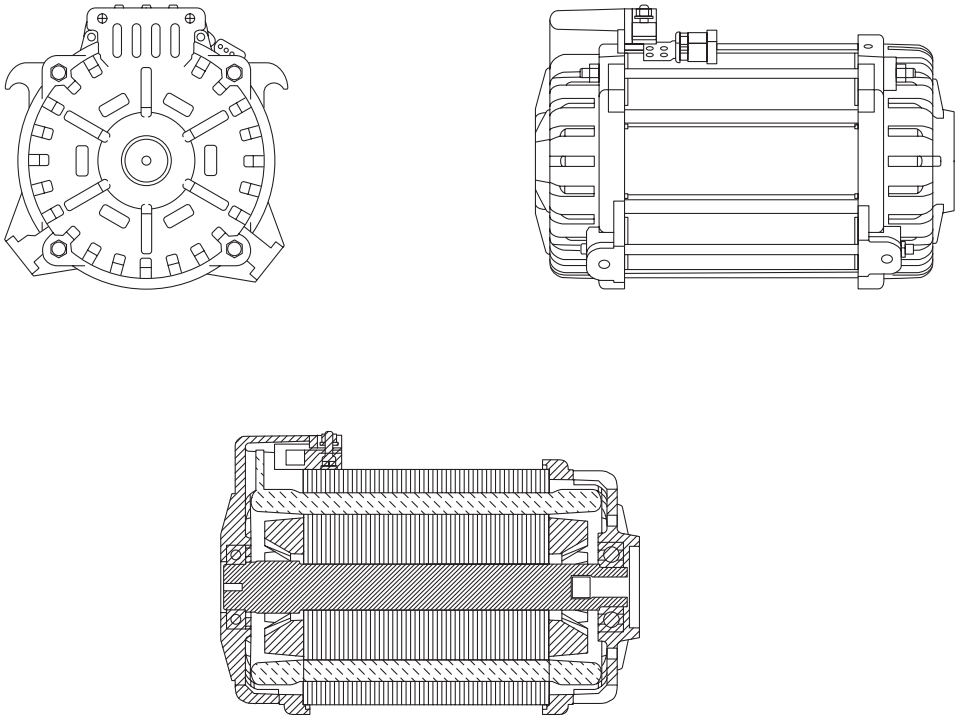
PUMP MOTOR

GENERAL

16 ~ 35 model



40 ~ 50 model



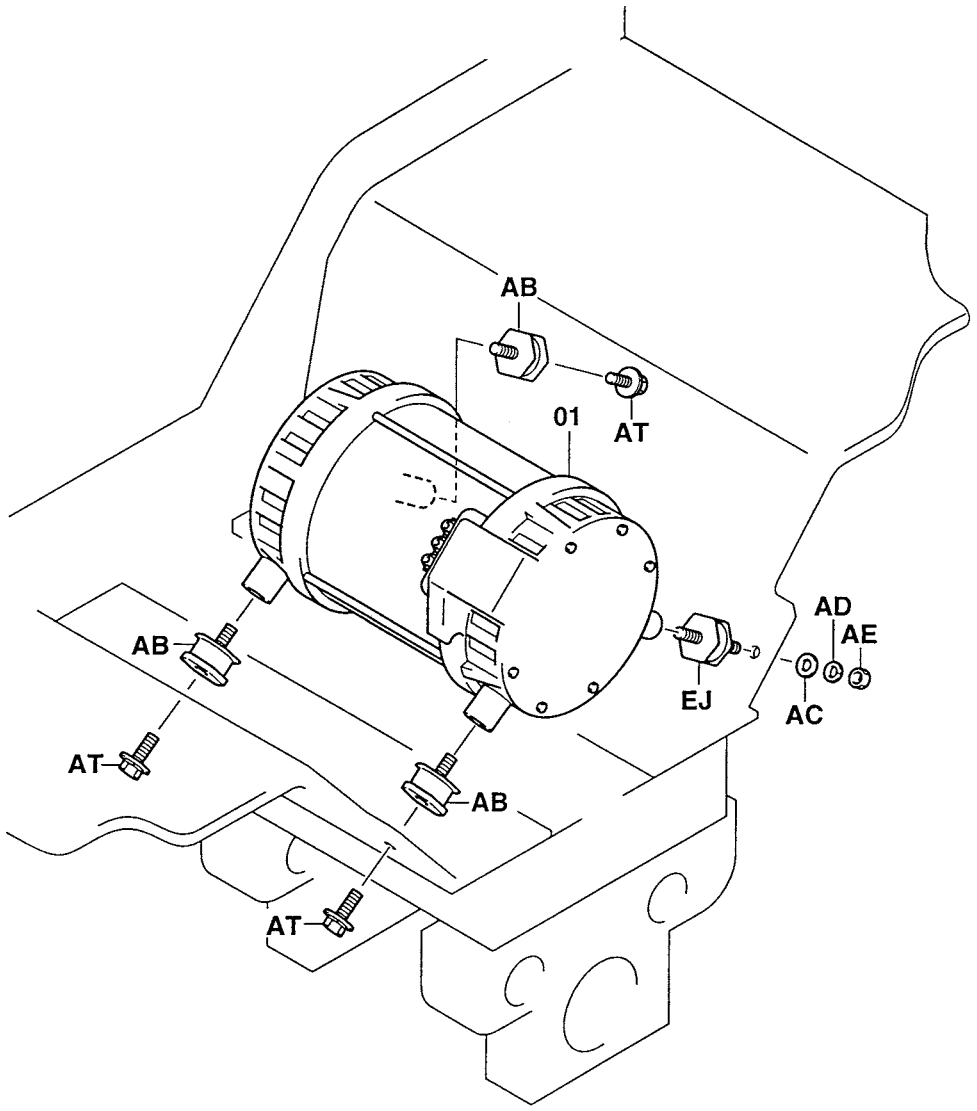
SPECIFICATIONS

Item \ Model	16·18	20 ~ 35	40 ~ 50
Type	3-phase	←	←
Nominal voltage V	72/80	←	←
Rated output kW	12.0/13.5	16.9/18.6	22.8/25.4
Dimensions mm (in) (outside diameter × length)	ϕ240 × 324 (9.45 × 12.76)	ϕ240 × 339 (9.45 × 13.35)	ϕ260 × 427 (10.24 × 16.81)
Weight kg (lb)	57 (126)	60 (132)	97 (214)
Insulation class	Class F	←	←

COMPONENTS

16 ~ 35 model

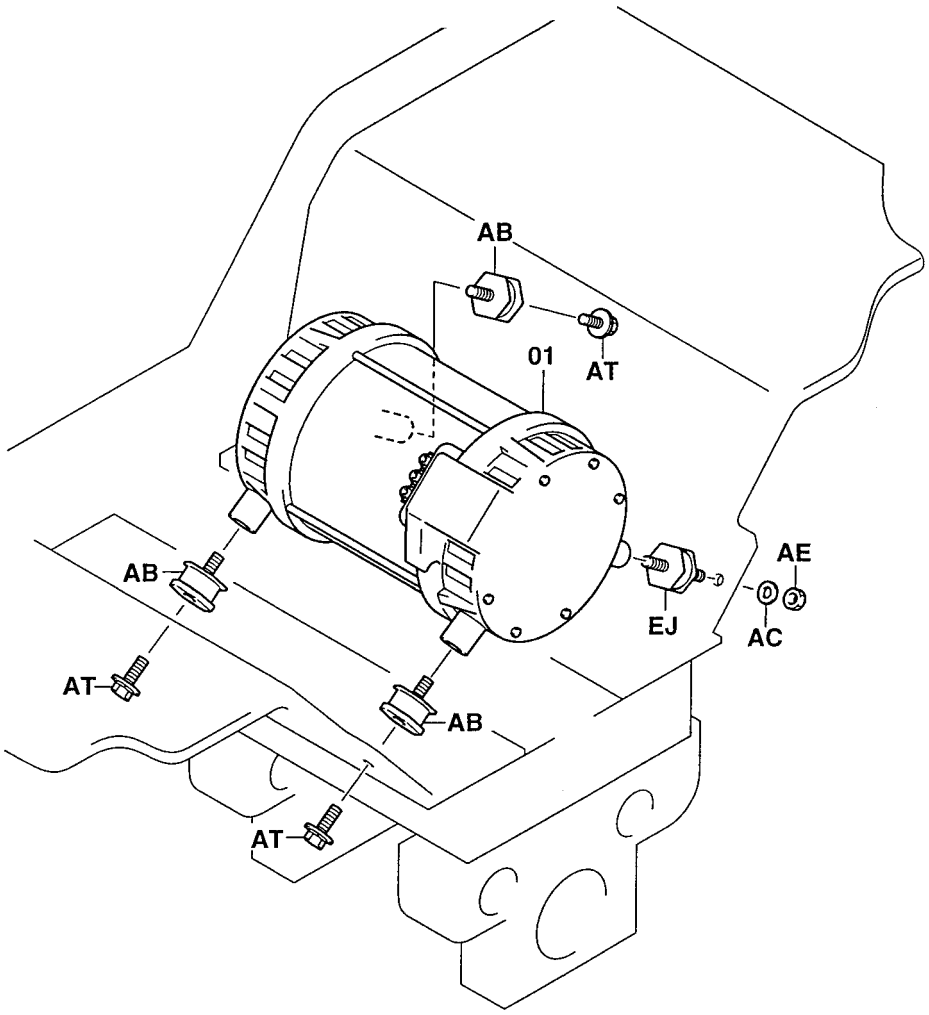
1402



1402-138

40 ~ 50 model

1402

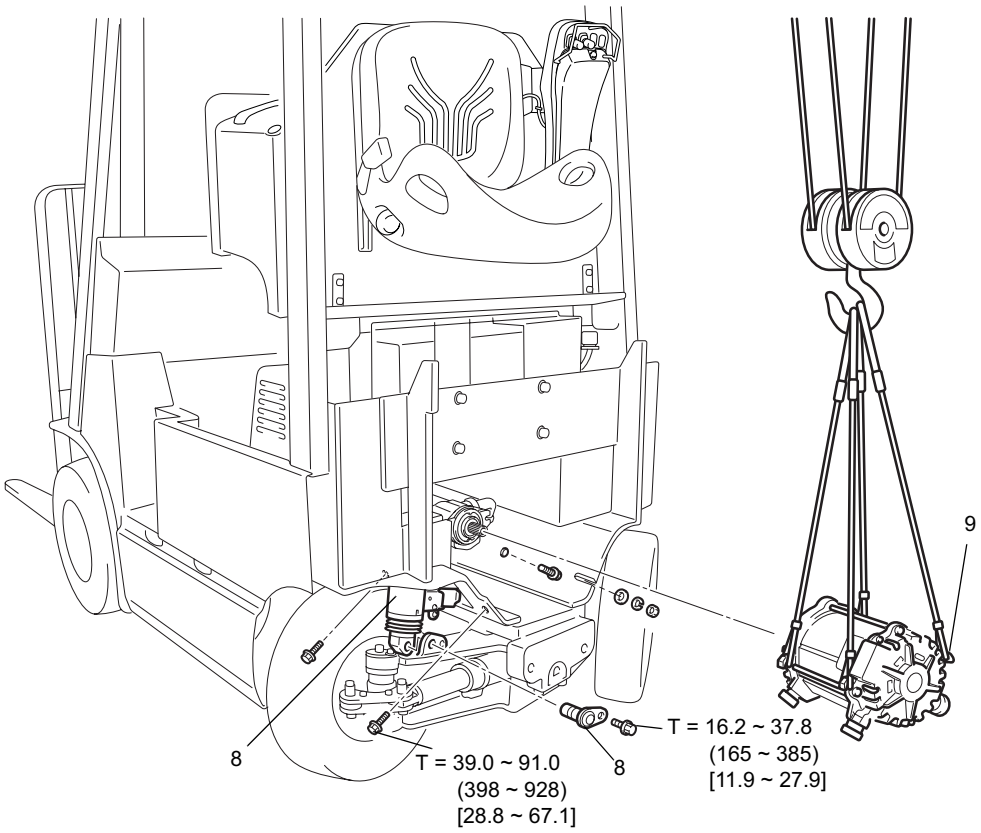


1402-137A

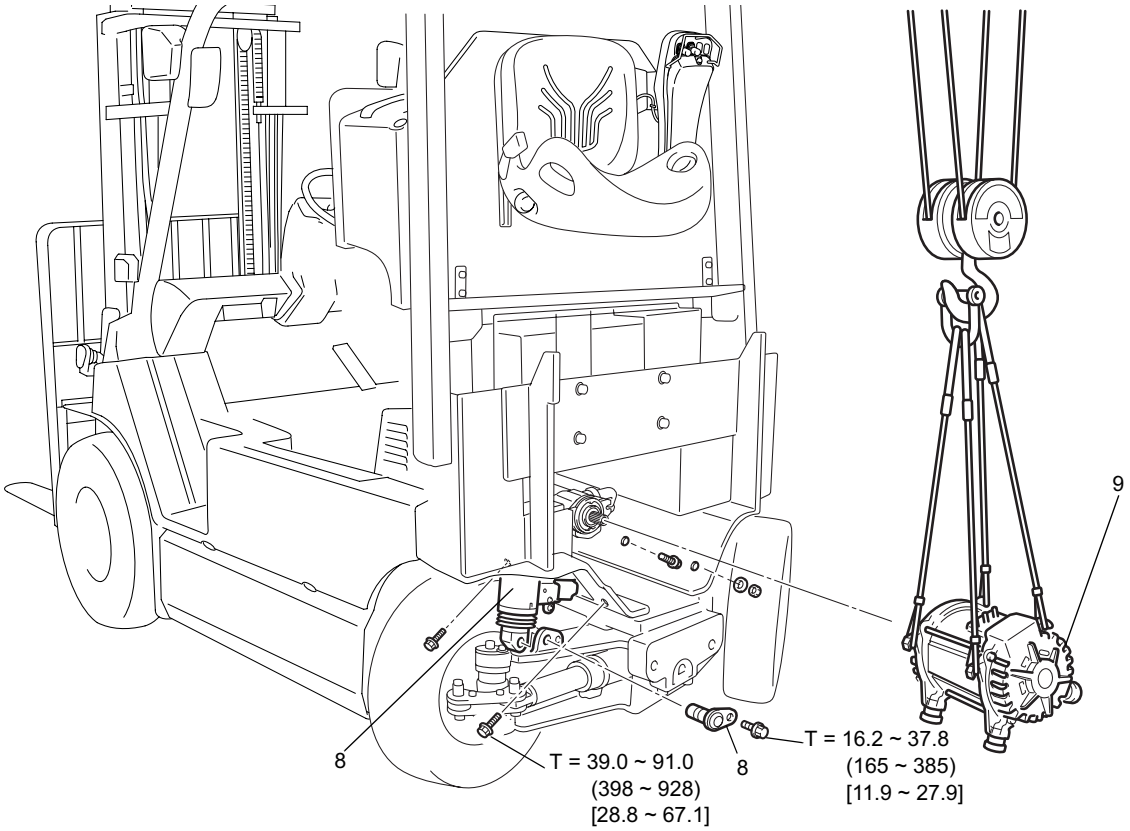
REMOVAL·INSTALLATION

T = N·m (kgf·cm) [ft·lbf]

16 ~ 35 model



40 ~ 50 model



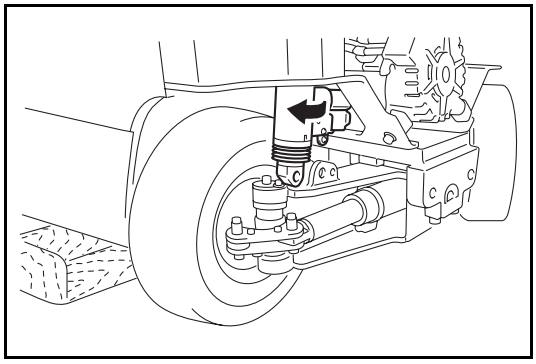
Removal Procedure

1 Remove the battery. (See page 13-10.)
2 Remove the counterweight. (See page 11-10.)
3 Remove the motor cable.
4 Disconnect the speed sensor and temperature sensor connectors.
5 Remove the oil pump set bolts and separate the oil pump from the pump motor.
6 Disconnect the swing lock solenoid connector.
7 Remove the lock cylinder cover.
8 Remove the lock cylinder lower pin and slide the swing lock cylinder to the left. **[Point 1]**
9 Remove the pump motor. **[Point 2]**

Installation Procedure

The installation procedure is the reverse of the removal procedure.

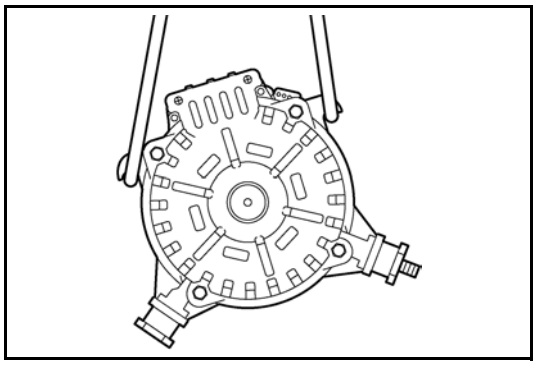
Note:
Apply lock agent (08833-76001-71 (08833-00070)) to the threads of the lock cylinder lower pin set bolt and tighten the bolt.



Point Operations

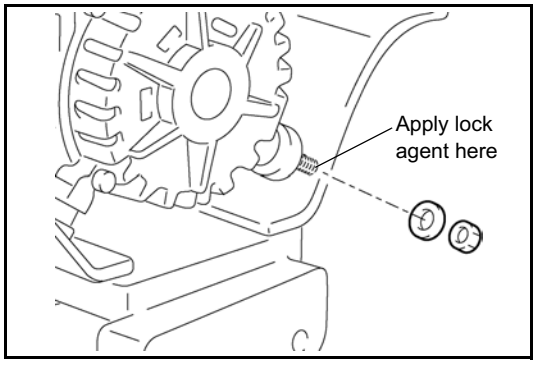
[Point 1]

Removal·Installation:
Jack up the rear axle and support the frame on wooden blocks.



[Point 2] (40 ~ 50 model)

Removal·Installation:
To prevent the right rear insulator bolt from being damaged, connect shackles to the two left side wire ropes, and then tilt and raise up the pump motor.

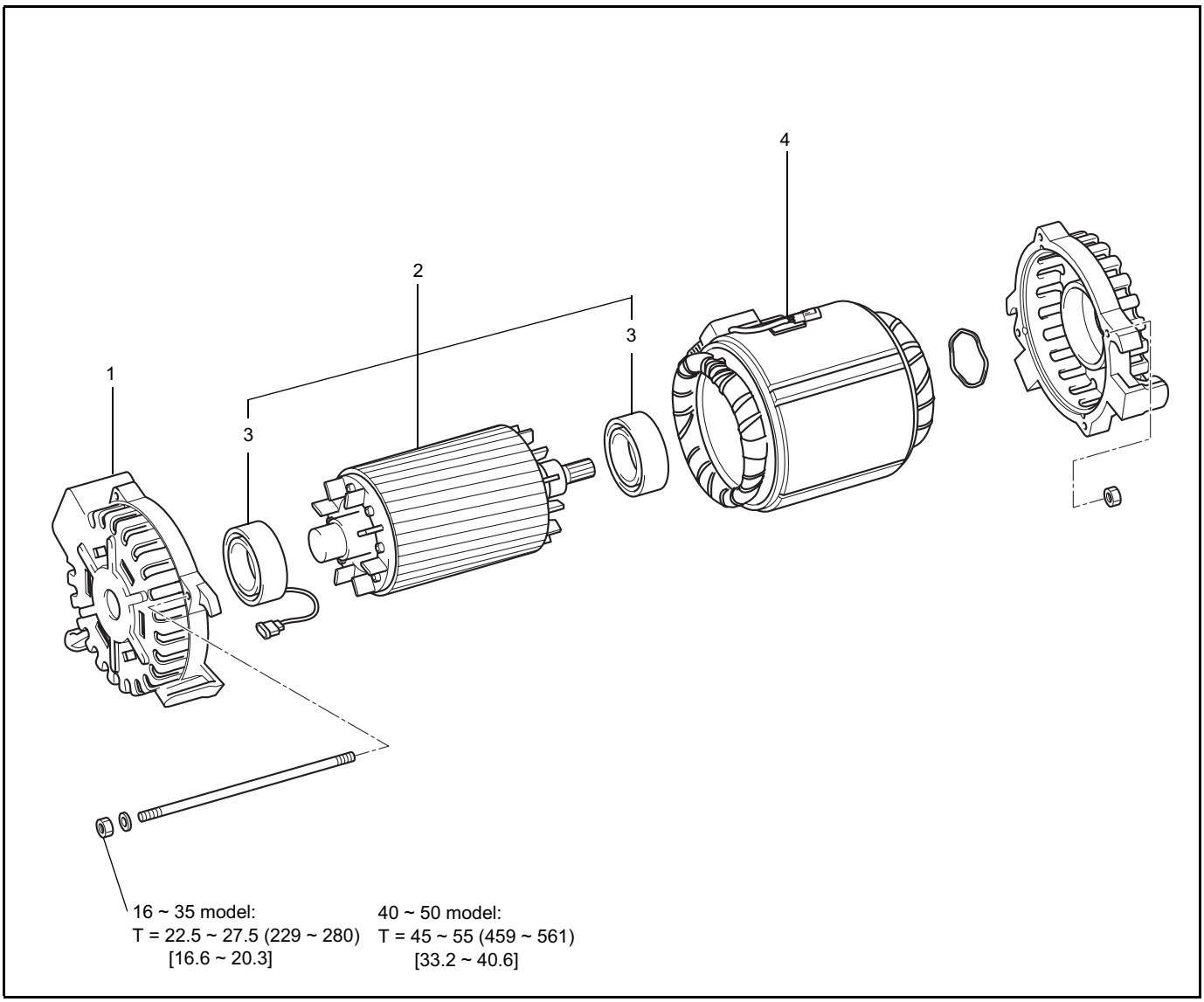


Installation:
Apply lock agent (08833-76002-71 (08833-00080)) to the threads of the right rear insulator bolts and tighten the bolts.

DISASSEMBLY·INSPECTION·REASSEMBLY

Note:
- **Do not apply a shock to the bearing W/speed sensor.**
- **The minimum unit of the parts supply for the bearing consists of "Rotor ASSY W/bearing" even though the bearing is seperable on actual service.**

T = N·m (kgf·cm) [ft·lbf]

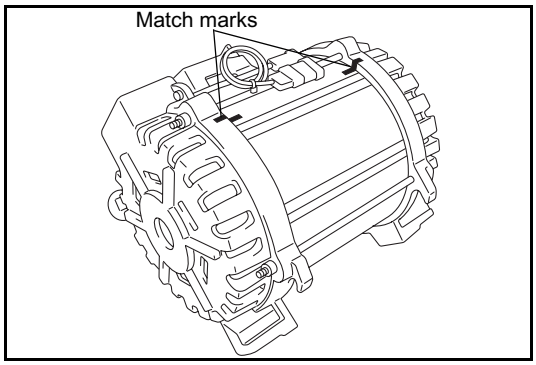


Disassembly Procedure

1 Remove the end bracket (terminal side). **[Point 1]**
2 Remove the rotor ASSY W/bearing. **[Point 2]**
3 Remove the bearing. **[Point 3]**
4 Remove the stator ASSY. **[Point 4]**

Reassembly Procedure

The reassembly procedure is the reverse of the disassembly procedure.

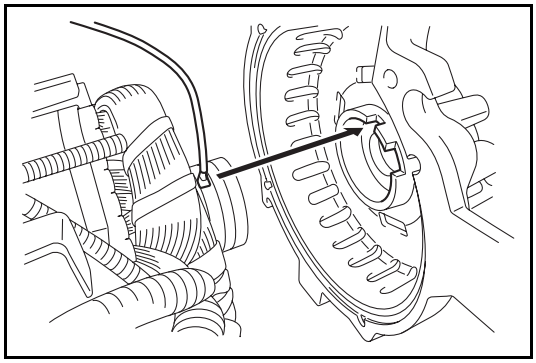


Point Operations

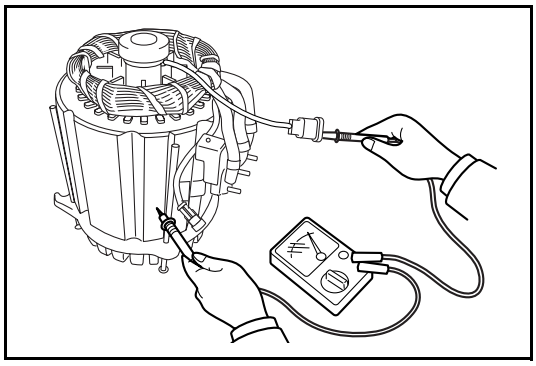
[Point 1]

Disassembly:
Put match marks between the end bracket, stator ASSY, and end bracket (terminal side).

Reassembly:
Align the match marks when installing.



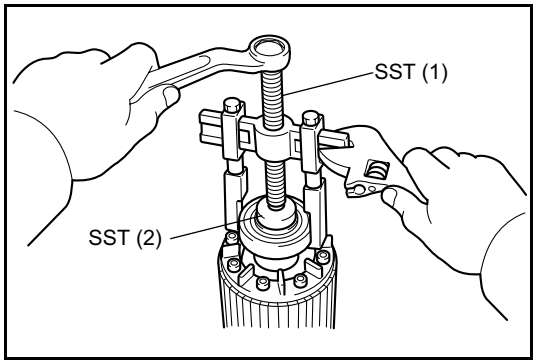
Reassembly:
Align the speed sensor harness with the slot in the end bracket (terminal side) and install the end bracket.



[Point 2]

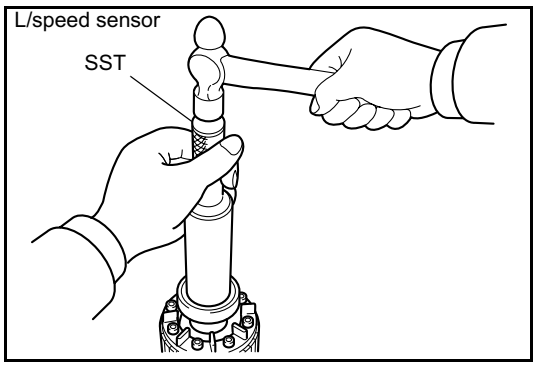
Inspection:
Measure the speed sensor insulation resistance.
Measurement locations: Between the stator and the speed sensor connector terminals (4 locations).

Standard: ∞ Ω



[Point 3]

Disassembly:
SST 09950-76014-71 .....(1)
(SST 09950-40011)
SST 09950-76018-71 .....(2)
(SST 09950-60010)



Reassembly:
Use the following procedure to install the bearing.

1. Install the bearing (L/speed sensor).
   SST 09370-20270-71