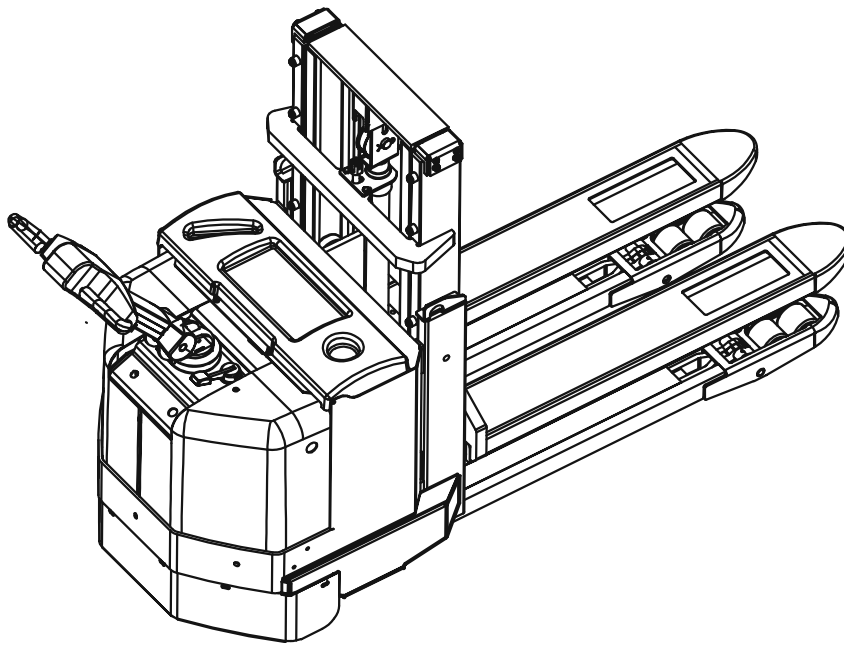


Service Manual

GB



7SM12F, 7SM16D

Valid from serial number: 551390AT-

Order number: 202187-040

Issued: 2002-05-06 ITS

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Introduction Maintenance

Valid from serial number	T-code	C-code/Section
551390AT-	702	P1
Order number	Date	Version
202187-040	2002-05-06	001

Introduction Maintenance

All points in the service program should be carried out to attain the highest safety and the least possible downtime. The service intervals are only a guide and do not need to be followed to the letter. The operator may adapt them to local conditions, but it is important that the intervals comply with TOYOTA's minimum requirements.

The service intervals are based on the running times and can be adapted to most normal 8 hour shifts. The service interval may be shortened if the truck is used more frequently or in more demanding situations, e.g cold store, dusty or corrosive situations. The following running times have been used when calculating the intervals:

- Day time: 08.00-17.00 (20 hr./week)
- 2-shifts: 06.00-14.00, 14.00-22.00 (40 hr./week)
- 3-shifts: 06.00-14.00, 14.00-22.00, 22.00-06.00 (60 hr./week)

Ensure the truck is given a regular maintenance service after every 500 driving hours. The truck's safety, efficiency and service life is dependent on the service and maintenance it is given.

Only use TOYOTA approved spare parts when service and repair work are carried out.

1 Safety regulations with maintenance work

Only personnel that have been trained in the service and repair of this type of truck are authorised to carry out service and repair work.

- Do not carry out any maintenance work on the truck unless you have the correct training and knowledge to do so
- Keep the area where you carry out the service clean. Oil or water makes the floor slippery
- Never wear loose objects or jewellery when working on the truck

WARNING!



Short-circuiting/Burns.

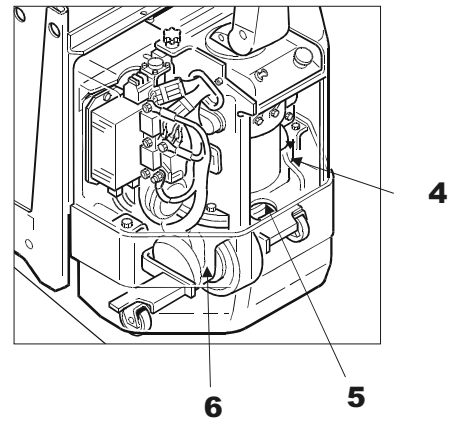
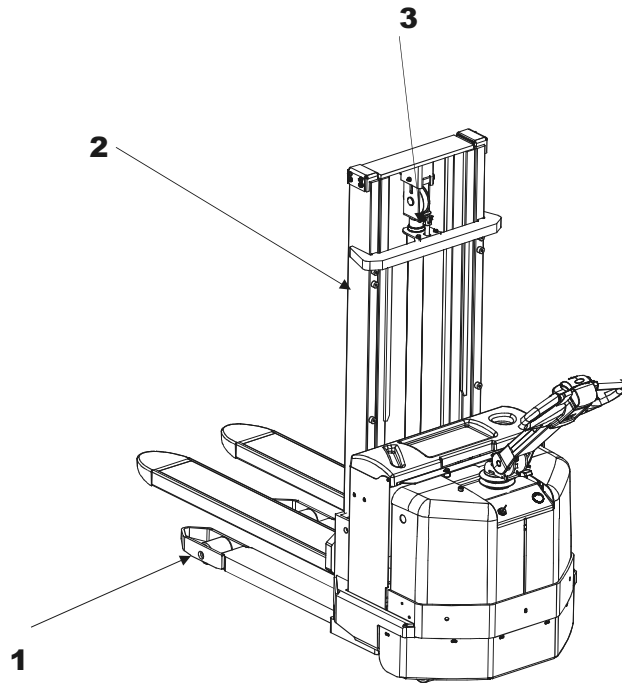
When working with the truck's electrical system, short-circuiting/burns can occur if a metal object comes into contact with live electrical connections.

Remove watches, rings or other types of metal jewellery.

- Always disconnect the battery by pulling out the battery isolator when carrying out maintenance work on the truck unless otherwise stated in this Service Manual
- Always switch off the truck's power supply before opening the covers on the drive unit or electrical system

Preventive maintenance

Valid from serial number	T-code	C-code/Section
551390AT-	702	P2
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202187-040	2002-05-06	001



Electric drive motor

Valid from serial number	T-code	C-code/Section
551390AT-	702	1760
Order number	Date	Version
202187-040	2002-05-06	001

1.2 Assembling

- Assembling is carried out in the reverse order.
- Carefully lift down the motor in the drive gear to avoid damaging the seals and gear wheels.
- Tighten the nuts on the studs to the prescribed torque, 26.6 Nm.
- Fit and adjust the brakes as per the instructions. Screw tight the cover and tiller arm, and connect the cables that were previously removed. Check that the polarity is correct.
- The function of the brakes should be checked before the truck is moved.

Electro magnetic brake

Valid from serial number

551390AT-

Order number

202187-040

T-code

702

Date

2002-05-06

C-code/Section

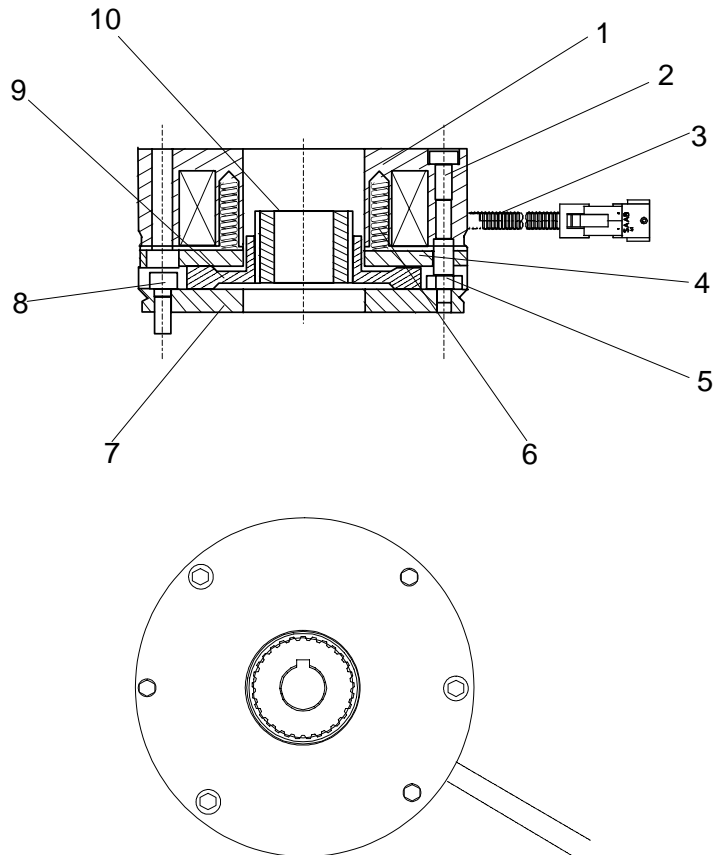
3370

Version

001

Electro magnetic brake

1 Main components of the brake



Pos No	Description
1	Magnetic coil
2	Cap screws
3	Electrical wire
4	Pressure plate
5	Adjustment locking nut
6	Pressure springs
7	Flange
8	Mounting bolts
9	Brake disc
10	Hub

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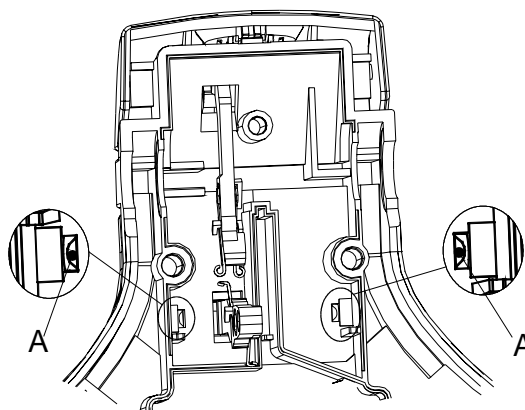
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Steering

Valid from serial number	T-code	C-code/Section
551390AT-	702	4000
Order number	Date	Version
202187-040	2002-05-06	001

Changing of lift/lowering button (13)

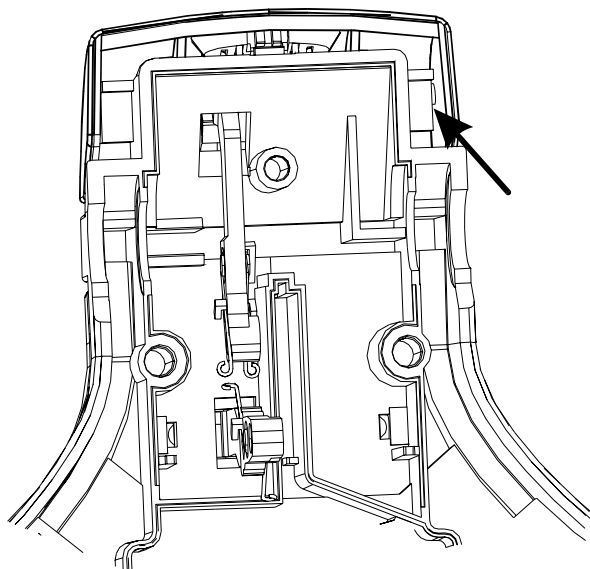
- Remove the button by placing a screwdriver in the hole (A) as per the diagram below.



- Unscrew the holder (18) so that the arm (12) comes loose. Assembling is carried out in the reverse order.

Changing of pushbutton (16)

- Press the button by hand sideways.
- Place a screwdriver as per the diagram and carefully pry the button loose.



- Unscrew the button's holder and arm. Assembling is carried out in the reverse order.

Electrical systems

Valid from serial number 551390AT-	T-code 702	C-code/Section 5000
Order number 202187-040	Date 2002-05-06	Version 001

6.2 Service parameters

- Connect CAN-key in X41
- Choose parameter

Parameter	Name	Unit	Min	Max	Step	Std	Description
10	PIN code		0	9999	1	0	Possibility to state up to 10 PIN codes (10 different drivers)
14	Creep speed		-10	10	1	0	This defines how much output the controller gives when you reach the first speed sensor. -10 : low speed when reaching first speed sensor 10: high speed when reaching first speed sensor
20	Hour meter selection		1	5	1	2	Select wich hour meter
21	Battery size		1	20	1	8	Battery size selection
25	Service interval	1 h	0	2000	50	100	Possible to set service-timer
28	Button option		0	2	1	1	State what button should be used for lifting/ lowering
39	Access code		1	4	1	1	Defines what access level service personnel will have to parameters.

Electrical systems

Valid from serial number 551390AT-	T-code 702	C-code/Section 5000
Order number 202187-040	Date 2002-05-06	Version 001

STATUS LED		Handheld terminal display	Explanation	Possible cause
4,3	xxxx xx	<i>THERMAL CUTBACK</i>	Over-/under-temperature reduction	1. Temp. >85°C or < - 25°C 2. Truck overloaded 3. Wrong installation of transistor regulator 4. Operation under extreme conditions

9.2 Resetting errors

To reset an error turn S17 to off and then on again.

Error	Reset when
<i>OVERVOLTAGE</i>	Battery voltage falls below 33 V
<i>THERMAL CUTBACK</i>	The temperature is within allowed range
<i>THROTTLE FAULT 1, 2</i>	Error has been fixed
<i>LOW BATTERY VOLTAGE</i>	When battery voltage exceeds 16 V

9.3 Safety

The regulator is a high-power component. When working on a battery operated vehicle, necessary precautions should be taken. This includes, but is not limited to, correct training, use of eye protectors, avoiding use of loose-fitting clothes, removal of watches and jewellery, and use of insulated tools only.

WARNING!



Risk of short-circuiting.

Remove all watches, jewellery and always use insulated tools only.

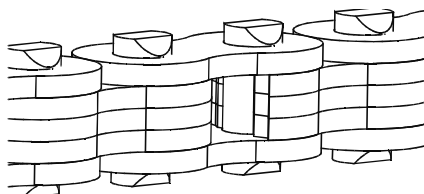
Main lift chain system

Valid from serial number 551390AT-	T-code 702	C-code/Section 7120
Order number 202187-040	Date 2002-12-02	Version 001

4.10 Damaged discs

If a disc has broken on the chain, this can be due to overloading or corrosion.

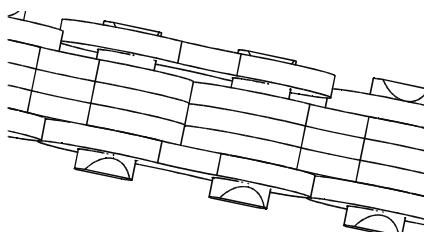
The chain should be replaced.



4.11 Damaged bolts

It can be difficult to discover whether a bolt has broken. It can appear as bolt rotation and/or that the outer disc is loose.

The chain should be replaced.



4.12 Dirty chain

If a chain is very dirty it is first and foremost recommended that it is replaced. It can also be dismantled and cleaned as set out in the chapter "Cleaning".

5 Cleaning

If a chain is very dirty it is recommended that it is replaced.

Dirty chains should be cleaned before they are lubricated, e.g. by washing with solvent such as diesel or petrol.

The chain should be blown dry using compressed air and lubricated directly after cleaning

NOTE!

Exercise care with degreasing agent as these can contain abrasives.

Control/computer equipment

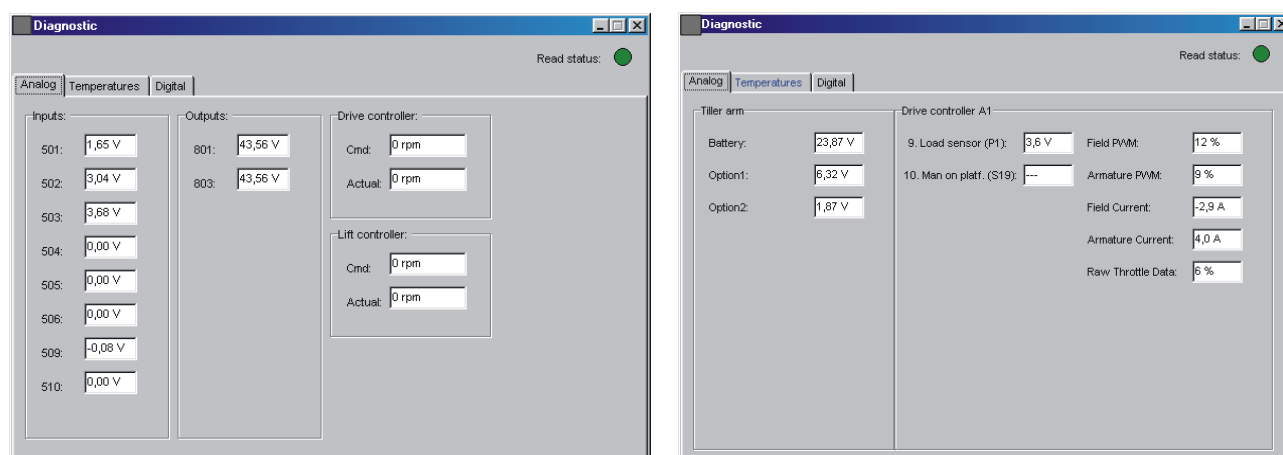
Valid from serial number	T-code	C-code/Section
551390AT-	702	8700
Order number	Date	Version
202187-040	2002-05-06	001

4.6 Diagnostics

To access diagnostics, select the Diagnostic function. This can be done with the menu <Tools | Diagnostic...> or with the tool button [Diagnostic].

NOTE!

If the value “---” is shown in a field, or a red status LED lights up, the communication has been interrupted for some reason and error data will not be able to be shown.



4.6.1 Analogue

Several analogue values will be shown on the Analogue side: Inputs, outputs and the drive/lift converter values. The input/output values are read directly from the in/out directory in the main card and are then shown as voltages and number of revolutions.

NOT THE 7SM-SERIES

“Cmd” is the requested number of revolutions from the main card sent to the drive/lift converters via the CAN bus.

“Actual” is the number of revolutions the drive/lift converters have detected and sent back to the main card.

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