

# **FOREWORD**

This manual covers the service procedures of the TOYOTA BATTERY FORKLIFT **5FBE10-20** Series. Please use this manual for providing quick, correct servicing of the corresponding forklift models.

This manual deals with the above models as of September 1998. Please understand that disagreement can take place between the descriptions in the manual and actual vehicles due to change in design and specifications. Any change or modifications thereafter will be informed by Toyota Industrial Vehicles' Parts & Service News.

**TOYOTA Material Handling Company**  
A Division of TOYOTA INDUSTRIES CORPORATION

# SECTION INDEX

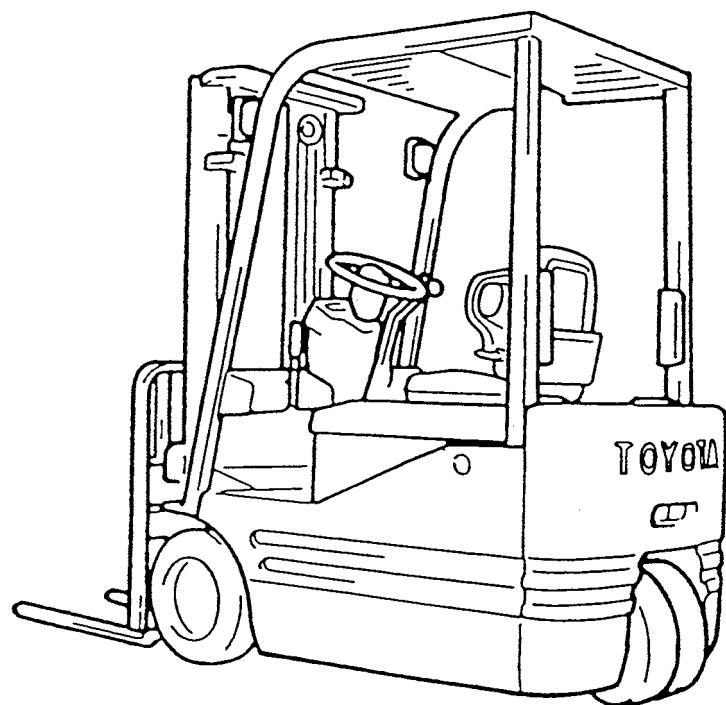
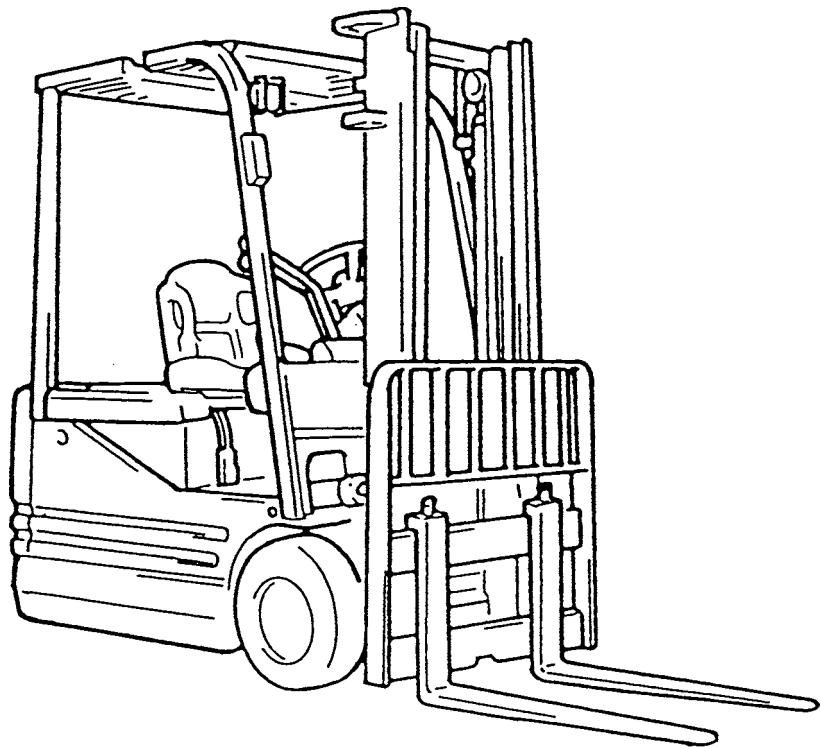
NAME	SECTION
<b>GENERAL</b>	<b>0</b>
<b>BATTERY</b>	<b>1</b>
<b>CONTROL CIRCUIT</b> [FOR OTHER THAN U.S.A.] (1993.1 ~ 1998.8) [FOR U.S.A.] (1993.1 ~ 1999.1)	<b>2</b>
<b>CONTROL CIRCUIT</b> [FOR OTHER THAN U.S.A.] (1998.9 ~) [FOR UL. U.S.A., CANADA] (1999.2 ~)	<b>A</b>
<b>MULTI-DISPLAY FUNCTIONS</b> [FOR OTHER THAN U.S.A.] (1993.1 ~ 1998.8) [FOR U.S.A.] (1993.1 ~)	<b>3</b>
<b>MULTI-DISPLAY FUNCTIONS</b> [FOR OTHER THAN U.S.A.] (1998.9 ~)	<b>3A</b>
<b>ELECTRICAL SYSTEM TROUBLESHOOTING</b> [FOR OTHER THAN U.S.A.] (1993.1 ~ 1998.8) [FOR U.S.A.] (1993.1 ~)	<b>4</b>
<b>ELECTRICAL SYSTEM TROUBLESHOOTING</b> [FOR OTHER THAN U.S.A.] (1998.9 ~)	<b>4A</b>
<b>MOTOR</b>	<b>5</b>
<b>FRONT AXLE &amp; TRANSMISSION</b> (1993.1 ~ 1998.1)	<b>6</b>
<b>FRONT AXLE &amp; DRIVE UNIT</b> (1998.2 ~)	<b>6A</b>
<b>REAR AXLE</b> (1993.1 ~ 1998.1)	<b>7</b>
<b>REAR AXLE</b> (1998.2 ~)	<b>7A</b>
<b>STEERING</b>	<b>8</b>
<b>BRAKE</b> (1993.1 ~ 1998.1)	<b>9</b>
<b>BRAKE</b> (1998.2 ~)	<b>9A</b>
<b>BODY &amp; FRAME</b>	
<b>MATERIAL HANDLING SYSTEM</b>	<b>11</b>
<b>MAST</b>	<b>12</b>
<b>CYLINDER</b>	<b>13</b>
<b>OIL PUMP</b>	<b>14</b>
<b>OIL CONTROL VALVE</b>	<b>15</b>
<b>APPENDIX</b>	<b>16</b>

# GENERAL

0

	Page
EXTERIOR VIEWS .....	0-2
VEHICLE MODEL .....	0-3
FRAME NUMBER .....	0-3
HOW TO USE THIS MANUAL .....	0-4
EXPLANATION METHOD .....	0-4
TERMINOLOGY .....	0-5
ABBREVIATIONS .....	0-5
LIST OF ABBREVIATIONS AND SYMBOLS .....	0-6
OPERATIONAL TIPS .....	0-7
JACK-UP POINTS .....	0-8
CIRCUIT TESTER .....	0-9
STANDARD BOLT & NUT TIGHTENING TORQUE .....	0-11
BOLT STRENGTH TYPE IDENTIFICATION METHOD .....	0-11
TIGHTENING TORQUE TABLE .....	0-12
PRECOAT BOLTS .....	0-13
HIGH PRESSURE HOSE FITTING TIGHTENING TORQUE .....	0-13
WIRE ROPE SUSPENSION ANGLE LIST .....	0-14
SAFE LOAD FOR EACH WIRE ROPE SUSPENSION ANGLE .....	0-14
COMPONENTS WEIGHT .....	0-15
RECOMMENDED LUBRICANTS AND CAPACITIES .....	0-15
LUBRICATION CHART .....	0-16
PERIODIC MAINTENANCE .....	0-17
PERIODIC REPLACEMENT OF PARTS AND LUBRICANTS .....	0-22

## EXTERIOR VIEWS

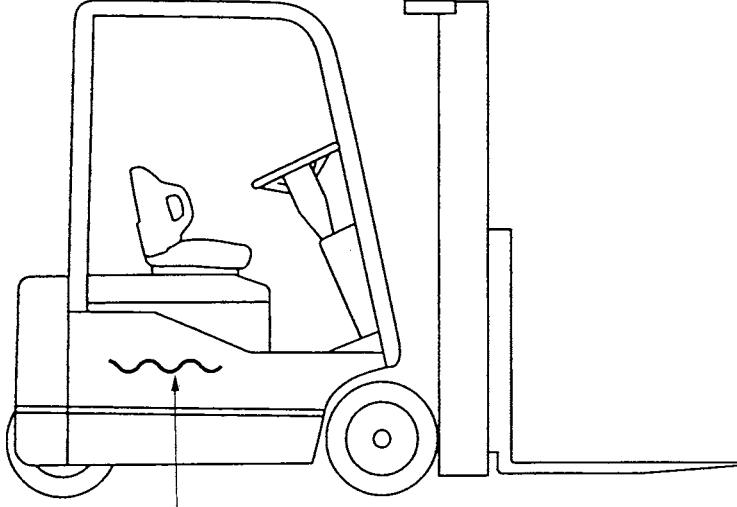


## VEHICLE MODEL

Load capacity	Model	Battery capacity AH/5HR	Voltage V	Control circuit
1.0 ton	5FBE10	280	*36 or 48	MCS-IIIA
1.25 ton	5FBE13	↑	↑	↑
1.5 ton	5FBE15	390	↑	t
1.75 ton	5FBE18	↑	↑	t
1.815 ton	5FBE20	375	↑	t

\*: 36 V is provided for UL specification.

## FRAME NUMBER

Punching position	 Upper face of side member of frame RH	
Vehicle model		Punching format
	5FBE10	5FBE13-10011 5FBE13E10011 (EEC spec.) (1993.1 ~ 1993.9) 5FBE13@10011 (EEC spec.) (1993.10 ~ )
1 ton series	5FBE13	
	5FBE15	5FBE18-10011 5FBE18E10011 (EEC spec.) (1993.1 ~ 1993.9) 5FBE18@10011 (EEC spec.) (1993.10 ~ )
1.5 ton series	5FBE18	
2.0 ton series	5FBE20	5FBE20-10011

## HOW TO USE THIS MANUAL

### EXPLANATION METHOD

#### 1. Operation procedure

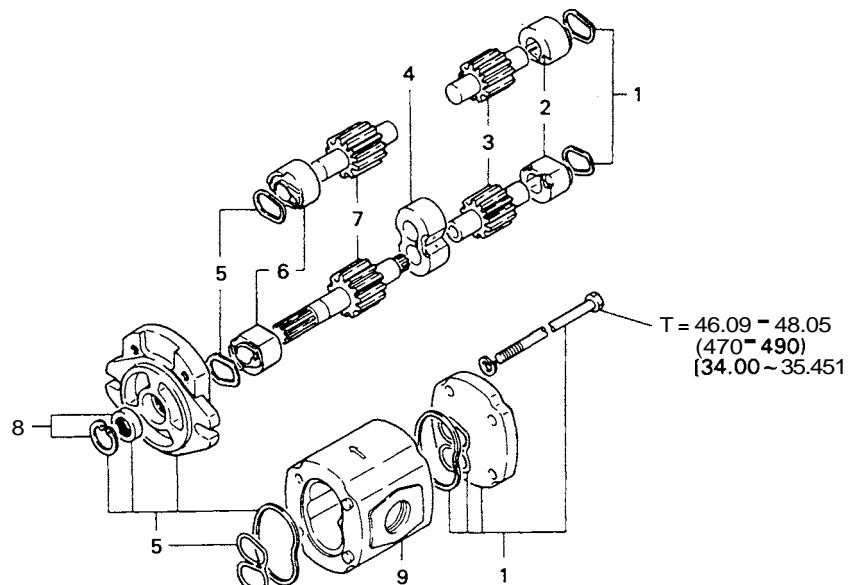
(1) The operation procedure is described in either pattern A or pattern B below.

Pattern A: Explanation of each operation step with a photo or 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]



#### Disassembly Procedure

- 1 Remove the cover. **[Point 11]**
- 2 Remove the bush **[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 bush inside diameter.

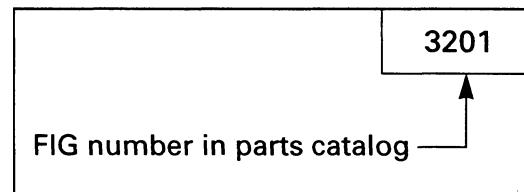
**Bush inside diameter limit: 19.12 mm (0.7528 in)**

## 2. How to read components figures

(1) The components figure use the illustration in the parts catalog for the vehicle model. Please refer to the catalog for checking the part name.

The number at the right shoulder of each components figure indicates the Fig. number in the parts catalog.

(Example)



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## 3. Matters omitted in this manual

(1) This manual omits description of the following jobs, but perform them in actual operation:

- ① Cleaning and washing of removed parts as required
- ② visual inspection (Partially described)

## TERMINOLOGY

**Caution:**

**Important matters of which negligence may cause accidents. Be sure to observe them.**

**Note:**

**Important items of which negligence may cause accidents or matters in operation procedure requiring special attention.**

**Standard:** Values showing allowable range in inspection and adjustment.

**Limit:** Maximum or minimum allowable value in inspection or adjustment.

## ABBREVIATIONS

Abbreviation (code)	Meaning	Abbreviation (code)	Meaning
ASSY	Assembly	RR	Rear
EHPS	Electrical hydraulic power steering	SAE	Society of Automotive Engineers (USA)
FR	Front	SST	Special service Tool
L/	Less	STD	Standard
LH	Left hand	T =	Tightening torque
OPT	Option	OOT	Number of teeth (○○)
O/S	Oversize	U/S	Undersize
PS	Power steering	W/	With
RH	Right hand		

## LIST OF ABBREVIATIONS AND SYMBOLS

Symbol	Name	Symbol	Name	Symbol	Name
BATT	Battery	FR <sub>Y</sub>	Flasher Relay	PB <sub>SN</sub>	Snubber Print Board
B <sub>Z</sub>	Buzzer	H	Horn	PL <sub>W</sub>	Working Pilot Lamp
CA	Absorber Capacitor	IWP	Wheel Position Indicator	RA	Absorber Resistor
CAD/P	Drive/Pump Absorber	L <sub>BU-L</sub>	Back-up Lamp, LH	RAD/P	Drive/Pump Absorber
	Capacitor	L <sub>BU-R</sub>	Back-up Lamp, RH		Resistor
CH	Charger	L <sub>C-L</sub>	Clearance Lamp, LH	PCK1/2	Check Resistor No.1/2
CHI <sub>F</sub>	Forward Chime	L <sub>C-R</sub>	Clearance Lamp, RH	SA	Surge Absorber
CHI <sub>R</sub>	Reverse Chime	L <sub>F-L</sub>	Flasher Lamp, LH	SLL	Lequid Level Sensor
CSD/P	Drive/Pump Current	L <sub>F-LR</sub>	Flasher Lamp, LH (Rear)	SN1	Sunbber No.1
	Sensor	L <sub>F-R</sub>	Flasher Lamp, RH	SNC1/2	Snubber Capacitor 1/2
CS <sub>PS</sub>	Power Steering Current	L <sub>F-RR</sub>	Flasher Lamp, RH (Rear)	SNR1/2	Snubber Resistor 1/2
	Sensor	L <sub>H-L</sub>	Head Lamp, LH	SSP	Steering Pressure Sensor
DAD/P	Drive/Pump Absorber	L <sub>H-R</sub>	Head Lamp, RH	SSL	Speed Sensor, LH
	Diode	L <sub>R-F</sub>	Rotaly Forward Lamp	SS <sub>R</sub>	Speed Sensor, RH
D <sub>CH</sub>	Charger Diode	L <sub>R-R</sub>	Rotaly Reverse Lamp	STH	Thermo Sensor
DC-SDD	DC-DC Converter &	LS <sub>ATT1/2</sub>	Attachment Limit Switch	SW <sub>AC</sub>	Accel Switch
	Source Drive (Drive)		No.1/2	SW <sub>F</sub>	Flasher Switch
DC-SDP	DC-DC Converter &	LS <sub>B</sub>	Brake Limit Switch	SW <sub>H</sub>	Horn Switch
	Source Drive (Pump)	LS <sub>D</sub>	Dead Man Limit Switch	SW <sub>KY</sub>	Key Switch
DF1/2	FLY-WHEEL Diode,	LS <sub>L1/2</sub>	Lift Limit Switch No.1/2	SW <sub>L</sub>	Light Switch
	No.1/2	LS <sub>ST</sub>	Stop lamp limit Switch	SW <sub>PB</sub>	Parking Brake Limit
DF3/4	FLY-WHEEL Diode No.3/4	L <sub>ST-L</sub>	Stop Lamp, LH		Switch
DISP	Display	L <sub>ST-R</sub>	Stop Lamp, RH	SW <sub>SC</sub>	Speed Control Switch
DM <sub>D/P</sub>	Drive/Pump Motor	L <sub>T-T</sub>	Tilt Limit Switch	TF	Transformer
DM <sub>PS</sub>	Power Steering Motor	L <sub>T-L</sub>	Tail Lamp, LH	THR	Thermal Relay
DS <sub>BU</sub>	Back-up Direction Switch	L <sub>T-R</sub>	Tail Lamp, RH	TM	Main Transistor
DS <sub>F</sub>	Forward Direction Switch	L <sub>W</sub>	Working Lamp	TMD	Main Drive Transistor
DS <sub>FO</sub>	Forward Optional	MF <sub>L</sub>	Forward Contactor, LH	TMP	Main Pump Transistor
	Direction Switch	MF <sub>R</sub>	Forward Contactor, RH	TM <sub>PS</sub>	Main Power Steering
DS <sub>R</sub>	Reverse Direction Switch	MP	Pump Contactor		Transistor
F1	Drive Fuse	M <sub>PS</sub>	Power Steering Contactor	TU	Timer Unit
F2	Pump Fuse	MR <sub>L</sub>	Reverse Contactor, LH	VRAD	Accel Drive Variable
F3	Power Steering Fuse	MR <sub>R</sub>	Reverse Contactor, RH		resistor
F4	Lamp Fuse	MS <sub>CH</sub>	Charger Magnet Switch	VRSP	Steering Position Variable
F5	Control Circuit Fuse	PB <sub>CPU</sub>	Computer Print Board		resistor (Steering
F <sub>CH</sub>	Charger Fuse	PB <sub>EHPS</sub>	EHPS Print Board		potentiometer)

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