

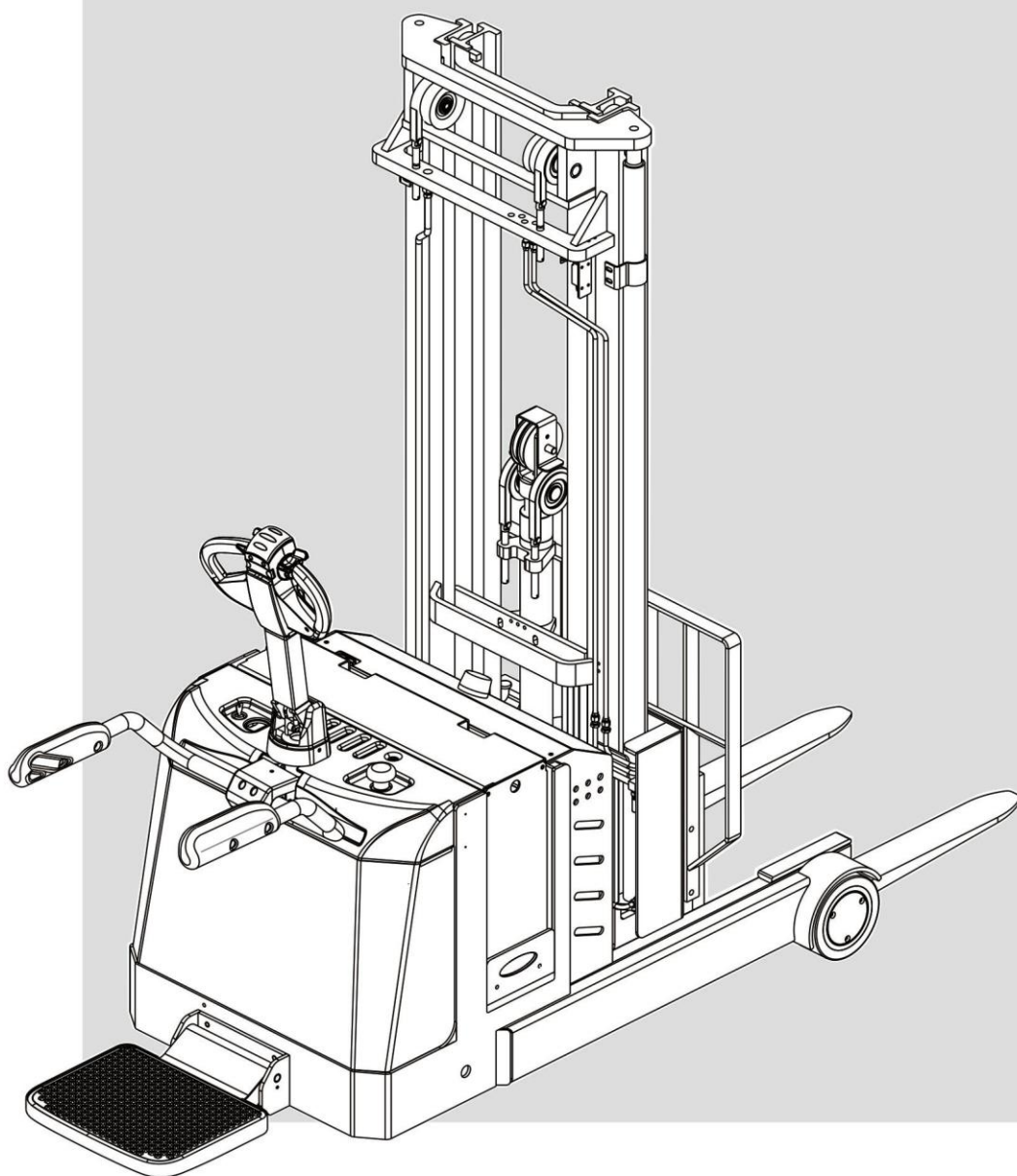
印中力

CQE12R

CQE15R

Reach Truck

Operation Manual



CE
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EP EQUIPMENT CO.,LTD. is one of the world's leading companies manufacture, design material handling equipment and provide related service. With over 100,000m² plant it produces over 100,000 trucks per year, and provides professional, effective and optimized material handling solutions worldwide, until now it has developed three major kinds of business:

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- OEM parts: Global parts supply
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catalogs.

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EP's mission&vision is " Let more people apply the electrical material handling equipment to relieve the intensity of labour" and "Let's grow together".

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Foreword

The present original operating instructions are designed to provide sufficient instruction for the safe operation and maintenance of the Reach Truck. Please be sure to read this operator manual carefully if you are operator or are in charge of the Reach Truck, before you operate and service the Reach Truck. Only in this way can you protect yourself and make the Reach Truck play a role as much as possible.

Our Reach Trucks are subject to ongoing development, so maybe there are some differences between your product and the description in this manual. And the operator manual details will be different because of customer's special requirements.

If you have any questions, please keep in touch with the sales department or let the dealer know.

Notes:

1. This manual is used for operation and maintenance, the detail parameters, size and specifications in context is only for reference, the real parameters will depend on sale files.
2. Manual pictures for reference only, the real car shall prevail, and shall not affect the manual use.
3. Manual pictures only sign for one of the models in this series models.

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WARNING!

TO PREVENT SETIOUS RISK OF INJURY TO YOURSELF AND OTHERS OBSERVE THE FOLLOWING SAFETY INSTRUCTIONS.

These Reach Truck may become hazardous if adequate maintenance is neglected. Therefore, adequate maintenance facilities, trained personnel and procedures should be provided.

Maintenance and inspection shall be performed in conformance with the following practices:

1. A scheduled planned maintenance,lubrication and inspection system should be followed.

2. Only qualified and authorized personnel shall be permitted to maintain, repair, adjust, and inspect Reach Truck.

3. Before leaving the Reach Truck:

- Do not park the Reach Truck on an incline.
- Fully lower the load forks.
- Press the emergency stop switch .
- Set the key switch to the "OFF" position and remove the key.

4. Before starting to operate Reach Truck:

- Be in operating position
- Place directional control in neutral
- Before operating Reach Truck, check functions of lift systems, directional control,speed control,steering, warning devices and brakes.

5. Avoid fire hazards and have fire protection equipment present. Do not use open flame to check lever, or for leakage of electrolyte and fluids or oil. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.

6. Brakes,steering mechanisms, control mechanisms,guards and safety devices shall be inspected regularly and maintained in legible condition.

7. Capacity, operation and maintenance instruction plates or decals shall be maintained in legible condition.

8. All parts of lift mechanisms shall be inspected to maintain them in safe operating condition.

9. All hydraulic systems shall be regularly inspected and maintained in conformance with good practice. Cylinders, valves and other similar parts shall be checked to assure that "drift" has not developed to the extent that it would create a hazard.

10. Reach Truck shall be kept in a clean condition to minimize fire hazards facilitate detection of loose or detective parts.

11. Modifications and additions which affect capacity and safe Reach Truck operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation and maintenance plates or decals shall be changed accordingly.

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Correct use and Application

The truck described in the operation manual is an industrial truck designed for lifting and transporting load units.

It must be used, operated and serviced in accordance with the present instructions. Any other type of use is beyond the scope of application and can result in damage to personnel, the truck or property. In particular, avoid overloading the truck with loads which are too heavy or placed on one side. The data plate attached to the truck or the load diagram are binding for the maximum load capacity. The truck must not be used in fire or explosion endangered areas, or areas threatened by corrosion or excessive dust.

Proprietor responsibilities

For the purposes of the operation manual the “proprietor” is defined as any natural or legal person who either uses the truck himself, or on whose behalf it is used. In special cases (e.g. leasing or renting) the proprietor is considered the person who, in accordance with existing contractual agreements between the owner and user of the truck, is charged with operational duties.

The proprietor must ensure that the truck is used only for the purpose it is intended for and that danger to life and limb of the user and third parties are excluded.

Furthermore, accident prevention regulations, safety regulations and operating, servicing and repair guidelines must be followed. The proprietor must ensure that all truck users have read and understood this operator manual.

Failure to comply with the operation manual shall invalidate the warranty. The same applies if improper work is carried out on the truck by the customer or third parties without the permission of the manufacturer’s customer service department.

Adding accessories

The mounting or installation of additional equipment which affects or enhances the performance of the truck requires the written permission of the manufacturer. Local authority approval may also need to be obtained.

Local authority approval does not however constitute the manufacturer’s approval.

1. Reach Truck Description

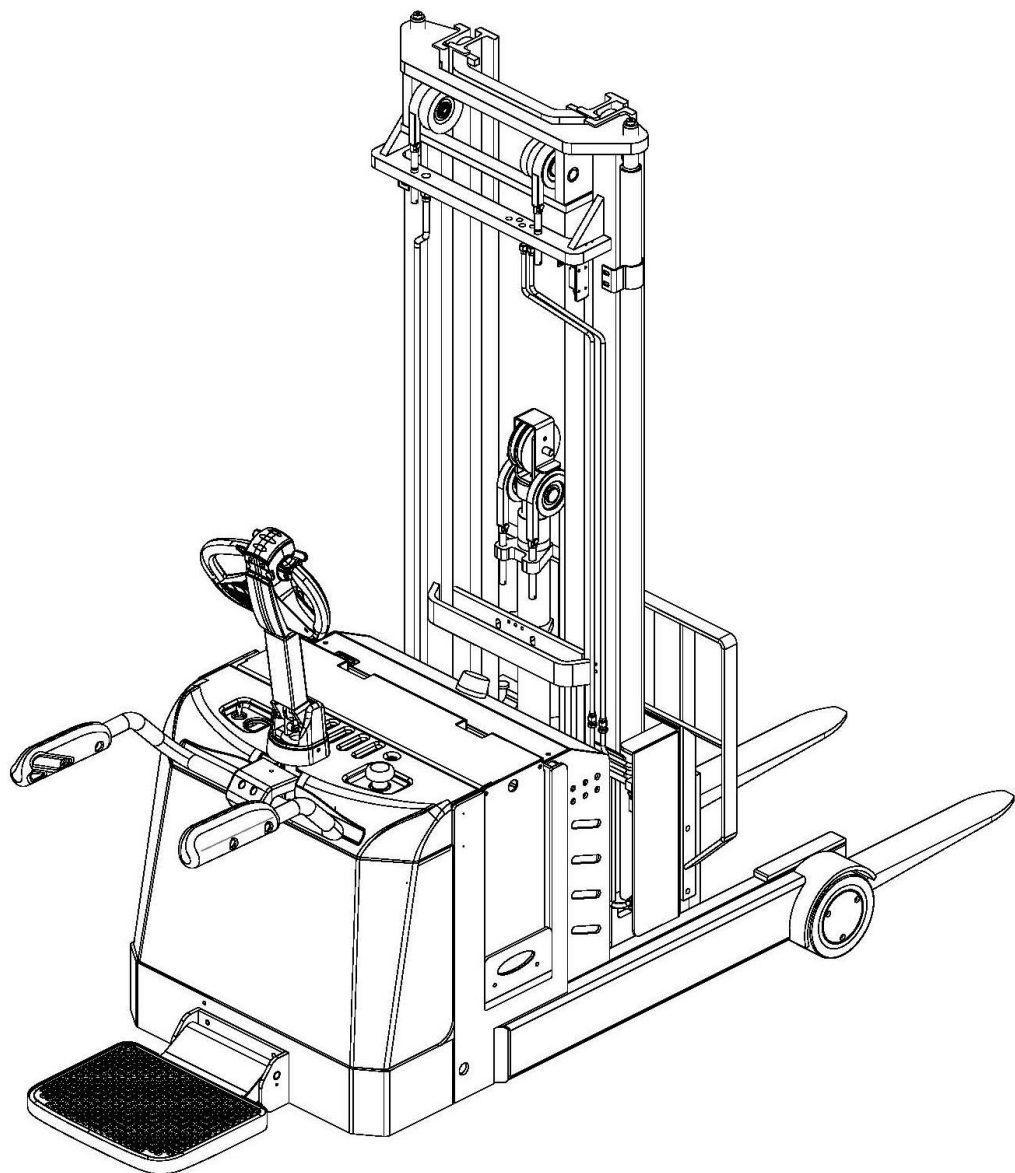
1.1 Application

The Reach Truck is electric Reach Truck with a steered drive wheel.

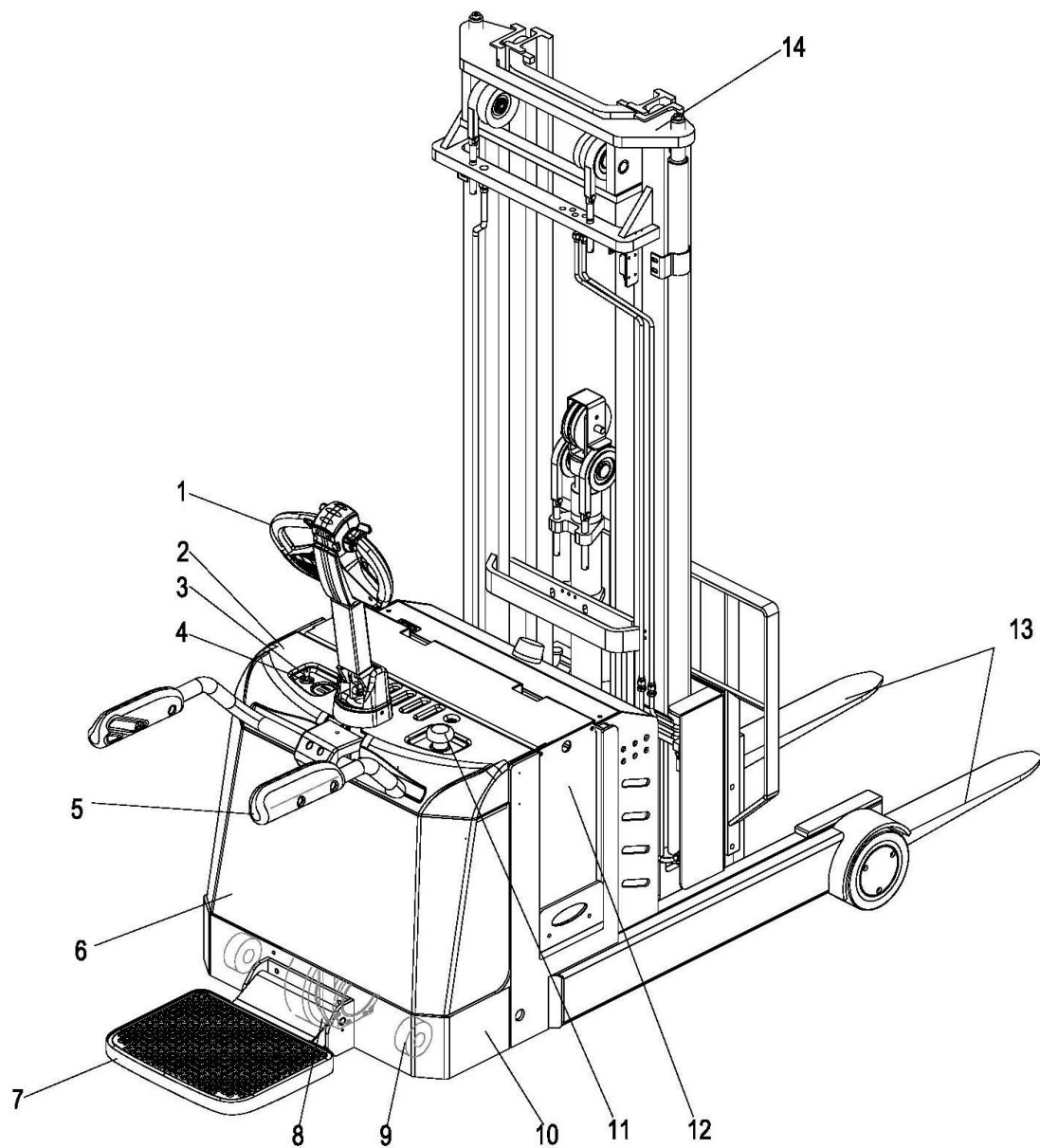
It is designed for use on level floors to lift and transport palletised goods. Open bottom pallets or roll cages can be lifted.

The capacity can be obtained from the data plate.

The capacity with respect to lift height and load center of gravity is indicated on the capacity plate.



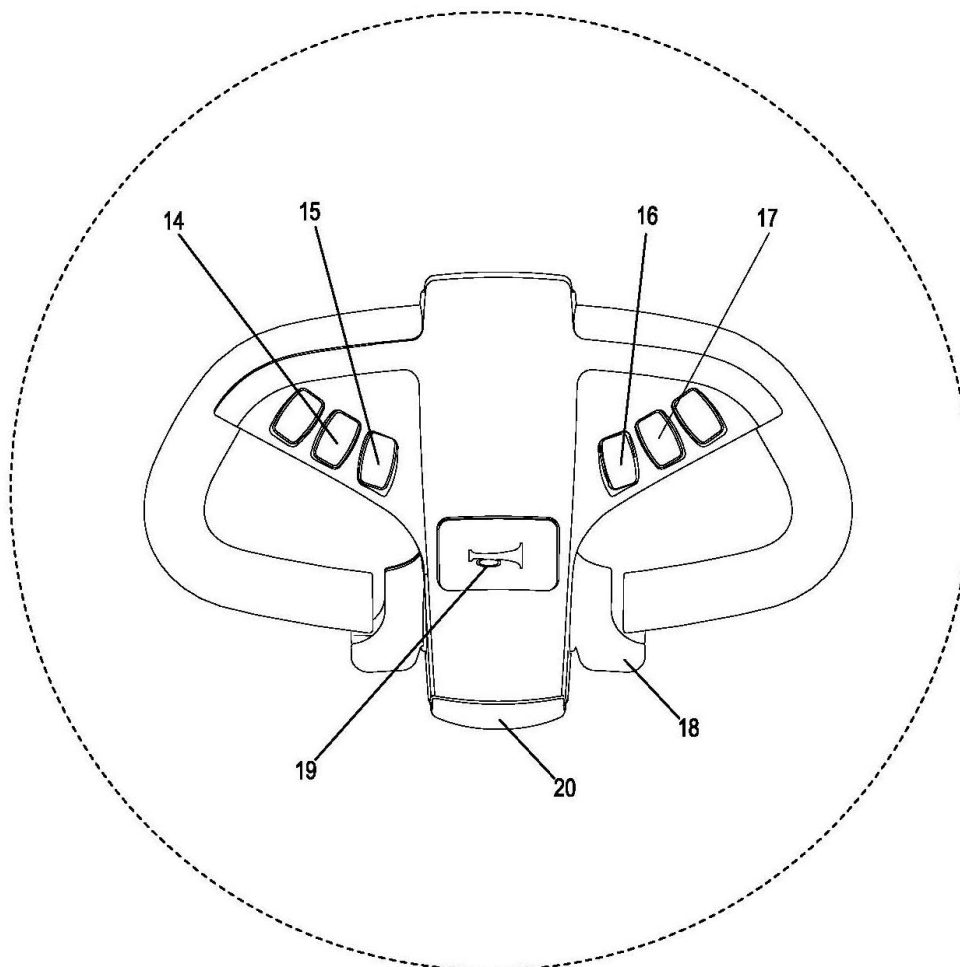
1.2 Reach Truck Assemblies



Item	Component	Item	Component
1	Control handle	8	Driving wheel
2	Upper cover	9	Caster wheel
3	Key switch	10	Chassis
4	Battery discharge indicator	11	Emergency stop switch
5	Handrails	12	Battery
6	Lower cover	13	Forks
7	Platform	14	Lift Mast

1.2.1 Control Handle

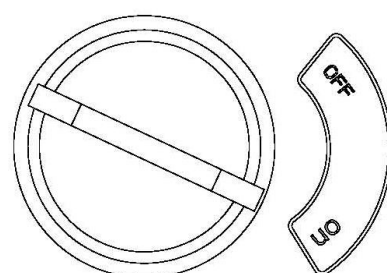
Item	Component	Function
14	"Tilting backward&forward" button	Tilting the fork backward or forward.
15	"Reach backward&forward" button	Reach the mast backward or forward.
16	"Lower&Lift" button	Lowers or Raises load forks.
17	"Right&Left" button	Reach the fork right or left. (Optional)
18	Travel switch	Controls the driving speed and direction.
19	Horn button	Triggers a warning signal.
20	Collision safety switch	Safety function when activated, forces the truck to reverse its travelling direction and stops when the switch is release.



1.2.2 Key switch

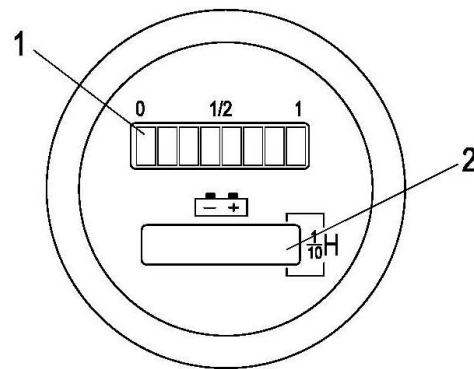
Switches control current on and off.

Removing the key prevents the Reach Truck from being switched on by unauthorised personnel.



1.2.3 Battery discharge indicator

The LEDs (1) represent battery residual capacity, The LCD (2) displays the operating hours.



Battery Discharge Indicator(1)

The battery charge status is display when the key switch is turn on.

The colours of the LEDs (1) represent the following conditions:

Component	LED colour	value
Standard battery residual capacity	Green	70-100%
	Orange	50-60%
	Flashing Red	0-20%

Battery discharged at 70%, one lit red segment and one flashing red segment.

Battery discharged at 80%, two flashing red segments. Lifting is inhibited. The battery must be charged.

Operating hours display(2)

Display range between 0.0 and 99,999.0 hours. Travel and lifting are logged. This is a backlit display.

Power up test

On power up the display shows:

- the operating hours
- the charge status

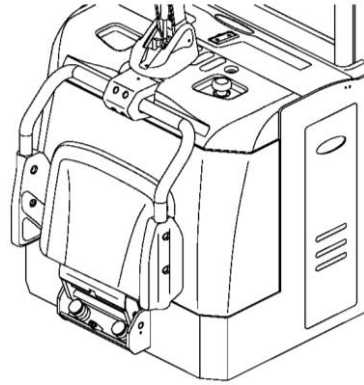
Low Voltage Protection

This vehicle has a low-voltage protection function.

When the battery residual capacity is less than 20%, the vehicle will appear that the driving speed is slow and the fork can not be lifted. And now the battery needs to be charged.

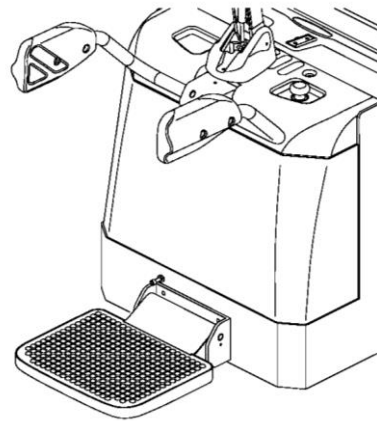
1.2.4 Folding operator pedal

Folding operator pedal have two state: fold and unfold. While the state of Folding operator pedal changed the Travel speed (Max) changed too. Because of gas spring the folding operator pedal can fold self-motion.



1.2.5 Side arm

Travel speed (Max) will change when the state of side arm is changed. Travel speed (Max) is much higher when the side arm is unfolded. The side arm can protect operator when truck running in high speed.



1.2.6 Emergency stop switch

The supply current is interrupted, all electrical functions are deactivated and the truck is automatically braked.

1.3 Standard Version Specifications

1.3.1 Performance data for standard Reach Trucks

Item	Description	CQE12R	CQE15R	Unit
	Drive unit	Battery	Battery	
	Operator type	standing	standing	
Q	Load capacity	1.2	1.5	t
c	Load center	500	500	mm
	Travel speed, laden/ unladen	5.5/6.0	5.5/6.0	km/
	Lifting speed, laden/ unladen	0.105/0.185	0.1/0.145	m/ s
	Lowering speed, laden/ unladen	0.16/0.14	0.22/0.14	m/ s
	Reaching speed, laden / unladen	0.08/0.10	0.07/0.08	m/ s
	Maximum gradeability, laden/ unladen	6/10	6/10	°
	Service weight (Duplex Mast,With battery)	1745	1955	kg
	Loading	Unladen, Front / Rear, fork	1052/782	kg
		Unladen, Front / Rear, fork	1286/539	kg
		Laden, Front / Rear, fork	454/2510	kg
		Laden, Front / Rear, fork	1110/1875	kg
	Drive motor rating S2 60 min.	1.5	1.5	kW
	Lift motor rating at S3 15%	3	3	kW
	Battery voltage/ rated capacity (5h)	24/210	24/270	V/
	Battery weight	190	230	kg

1.3.2 Dimensions

Item	Description	CQE12R	CQE15R	Unit
y	Wheelbase	1310	1412	mm
h ₁	Height, mast lowered	2065	2065	mm
h ₂	Free lift	0	0	mm
h ₃	Lift height	3000	3000	mm
h ₄	Height, mast extended	4000	4000	mm
h ₇	Seat height/standing height	150	150	mm
h ₈	Height of wheel arms	235	235	mm
l ₁	Overall length	2312	2332	mm
l ₂	Length to face of forks	1242	1262	mm
b ₁ / b ₂	Overall width	850/988	850/1018	mm
s/e/l	Fork dimensions	40/100/1070	40/100/1070	mm
b ₃	Fork Frame width	956	956	mm
b ₅	Distance between fork-arms	200-650	200-650	mm

b ₄	Distance between wheel arms/loading surfaces	698	698	mm
α/β	Tilt of mast/fork carriage forward/backward	2/4	2/4	°
l ₄	Reach distance	500	610	mm
m ₁	Ground clearance, laden, below mast	75	75	mm
m ₂	The minimum ground clearance of frame	70	70	mm
Ast	Aisle width ¹⁾ , 1000×1200 pallet crossways	2683	2726	mm
Ast	Aisle width ¹⁾ , 800×1200 pallet lengthways	2739	2766	mm
Wa	Outer turning radius	1597	1697	mm
l ₇	Length across wheel arms (exclusive fork)	1700	1822	mm
	Tyre type	polyurethane/polyurethane	polyurethane/polyurethane	
	Tyre size, driving wheels	Φ230× 75 Φ260× 105	Φ230× 75	mm
	Tyre size, loading wheels	Φ210x85 Φ102x73	Φ254× 102	mm
	Tyre size, caster wheels	Φ130× 55	Φ130× 55	mm
	Wheels, number driving, caster/loading (x=drive wheels)	1x2 / 2	1x2 / 2	
b ₁₀	Track width, front,driving side	0 0	0	mm
b ₁₁	Track width,rear,loading side	900	914	mm

- 1) Including safety distance a = 200 mm
- 2) Sound pressure level at the driver' s ear 74 dB(A)

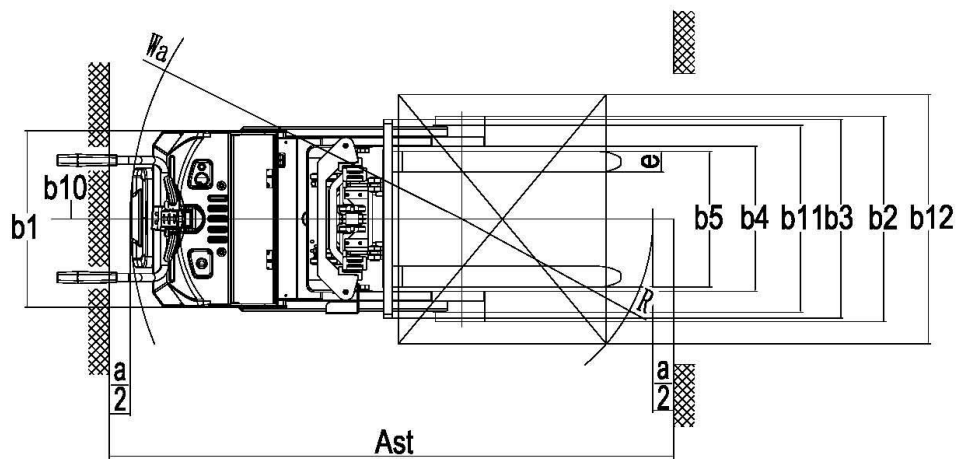
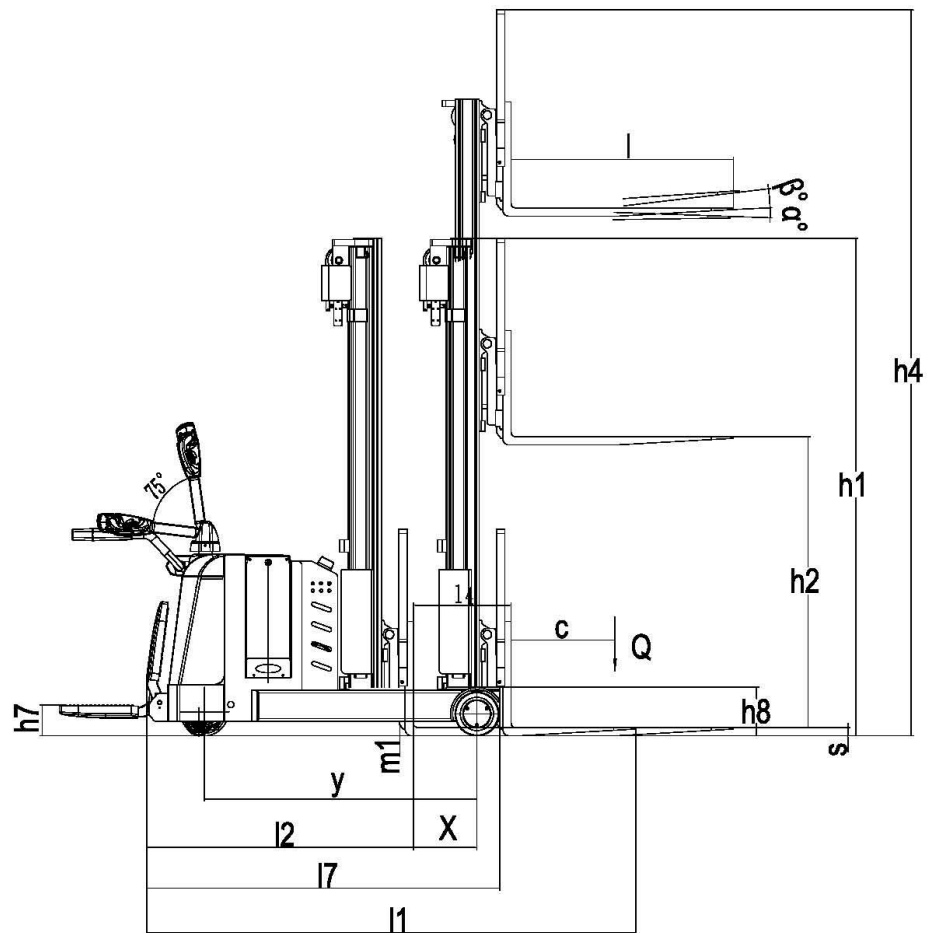
Standard Mast Types (mm)					
	Mast types	Close Mast height	Free height	lift height	Extended Mast Height
		h1	h2	h3	h4
Not For Shifter Side	Duplex Mast	1815	0	2500	3500
		1915	0	2700	3700
		2065	0	3000	4000
		2215	0	3300	4300
		2365	0	3600	4600
		2565	0	4000	5000
		2715	0	4300	5300
	Triplex Mast	1735	740	3500	4500
		1900	905	4000	5000
		2065	1070	4500	5500
		2165	1170	4800	5800
		2230	1235	5000	6000
		2395	1400	5500	6500
For Shifter Side	Duplex Mast	1815	0	2500	3525
		1915	0	2700	3725
		2065	0	3000	4025
		2215	0	3300	4325
		2365	0	3600	4625
		2565	0	4000	5025
		2715	0	4300	5325
	Triplex Mast	1735	715	3500	4525
		1900	880	4000	5025
		2065	1045	4500	5100
		2165	1145	4800	5400
		2230	1210	5000	5600
		2395	1375	5500	6100

Service weight (include battery) (kg)

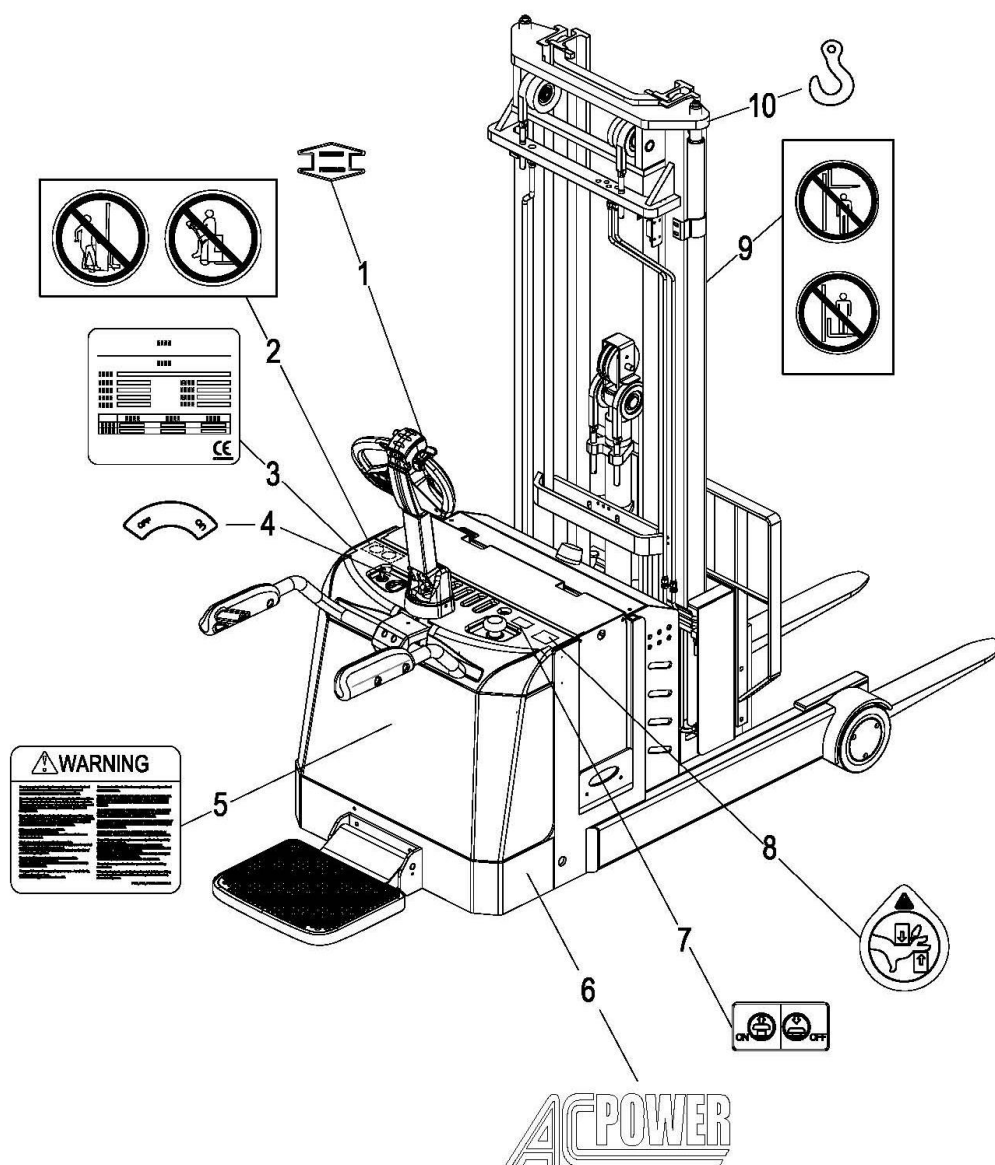
Mast types	Mast height (mm)	Service weight (kg)	
		CQE12R	CQE15R
Duplex Mast	2500	1710	1920
	2700	1725	1935
	3000	1745	1955
	3300	1765	1975
	3600	1785	1995
	4000	1810	2010
	4300	1830	2040
Triplex Mast	3500	1880	2090
	4000	1910	2120
	4500	1940	2150
	4800	1960	2170
	5000	1970	2180
	5500	2000	2210

Length across wheel arms (mm)

Mast types		CQE12R				CQE15R			
		Not For Shifter Side		For Shifter Side		Not For Shifter Side		For Shifter Side	
		Duplex Mast	Triplex Mast	Duplex Mast	Triplex Mast	Duplex Mast	Triplex Mast	Duplex Mast	Triplex Mast
Overall length (minimum)	l_1	2312	2354	2347	2389	2332	2379	2367	2413
Length to face of forks	l_2	1242	1284	1277	1319	1262	1309	1297	1344
Reach distance	l_4	500	470	470	435	610	570	570	535
Aisle width for pallets 1000 × 1200 crossways	Ast	2684	2715	2710	2742	2726	2759	2751	2784
Aisle width for pallets 800 × 1200 lengthways	Ast	2739	2777	2770	2808	2766	2808	2797	2839
Aisle width for pallets 1000 × 1200 lengthways	Ast	2786	2822	2816	2853	2817	2857	2847	2886
Aisle width for pallets 800 × 1200 crossways	Ast	2549	2575	2605	2597	2603	2629	2622	2649



1.4 Identification points and data plates



Item	Description	Item	Description
1	Direction decal on control handle	6	AC Power Decal
2	"No passengers" Decal	7	"Emergency stop switch" Decal
3	Reach Truck data plate	8	"Never put your hands in inner." warning
4	Key Switch Decal	9	Strap point for crane lifting
5	Operator Warning Decal	10	"Never stand " warning

1.4.1 Reach Truck data plate

The diagram shows a rectangular data plate with four mounting holes at the corners. It contains several tables of technical specifications. Numbered callouts point to the following fields:

- 1: Manufacturer (top left)
- 2: VEHICLE NAME
- 3: MODEL NO.
- 4: SERIES NO.
- 5: DATE OF BUILD
- 6: TRUCK WEIGHT WITH BATTERY
- 7: TRUCK WEIGHT WITHOUT BATTERY
- 8: VOLTAGE
- 9: DRIVE OUTPUT
- 10: MAX CAPACITY
- 11: ALT CAPACITY
- 12: License number (bottom left)
- 13: LOAD CAPACITY
- 14: LOAD CENTER
- 15: MAX BATTERY WEIGHT
- 16: MIN BATTERY WEIGHT

Item	Description	Item	Description
1	Manufacturer	9	Drive output
2	Vehicle name	10	Max capacity
3	Model NO.	11	Alt capacity
4	Series NO.	12	License number
5	Date of build	13	Load center
6	Truck weight with battery	14	Load capacity
7	Truck weight without battery	15	Max battery weight
8	Voltage	16	Min battery weight

For queries regarding the Reach Truck or ordering spare parts please quote the Reach Truck serial number(4).

1.4.2 Capacity chart

Capacity chart given above shows the relation between the load center and the weight of loads.

2. Commissioning

2.1 Using the Reach Truck for the First Time

Only operate the Reach Truck with battery current.

Preparing the Reach Truck for operation after delivery or transport.

Procedure

- Check the equipment is complete.
- Check the hydraulic oil level.
- Install the battery if necessary (where required), (see 4.3 Battery removal and installation") do not damage battery cable.
- Charge the battery, (see 4.2 Charging the battery").

When the Reach Truck is parked the surface of the tyres will flatten. The flattening will disappear after a short period of operation.

2.2 During brake-in

We recommended operating the machine under light load conditions for the first stage of operation to get the most from it. Especially the requirements given below should be observed while the machine is in a stage of 100 hours of operation.

- Must prevent the new battery from over discharging when early used. Please charging when remain power less than 20%.
- Perform specified preventive maintenance services carefully and completely.
- Avoid sudden stop, starts or turns.
- Oil changes and lubrication are recommended to do earlier than specified.
- Limited load is 70~80% of the rated load.

3.Operation

3.1 Safety Regulations for the Operation of Reach Trucks

Driver authorisation: The Reach Truck may only be used by suitably trained personnel, who have demonstrated to the proprietor or his representative that they can drive and handle loads and have been authorised to operate the Reach Truck by the proprietor or his representative.

Driver's rights, obligations and responsibilities: The driver must be informed of his duties and responsibilities and be instructed in the operation of the Reach Truck and shall be familiar with the operator manual . The driver shall be afforded all due rights . Safety shoes must be worn with pedestrian operated Reach Trucks.

Unauthorised Use of Reach Truck: The driver is responsible for the Reach Truck during the time it is in use. He shall prevent unauthorised persons from driving or operating the Reach Truck. It is forbidden to carry passengers or lift personnel.

Damage and Faults: The supervisor must be immediately informed of any damage or faults to the Reach Truck. Reach Trucks not safe for operation (e.g. wheel or brake problems) must not be used until they have been rectified.

Repairs: The driver must not carry out any repairs or alterations to the Reach Truck without the necessary training and authorisation to do so. The driver must never disable or adjust safety mechanisms or switches.

Hazardous area: A hazardous area is defined as the area in which a person is at risk due to Reach Truck movement, lifting operations, the load handler (e.g. forks or attachments) or the load itself. This also includes areas which can be reached by falling loads or lowering operating equipment.

- Unauthorised persons must be kept away from the hazardous area.
- Where there is danger to personnel, a warning must be sounded with sufficient notice.
- If unauthorised personnel are still within the hazardous area the Reach Truck shall be brought to a halt immediately.

Safety Devices and Warning Signs: Safety devices, warning signs and warning instructions shall be strictly observed.

3.2 Operate and run the Reach Truck

3.2.1 Preparing

Before the reach truck can be commissioned, operated or a load unit lifted, the driver must ensure that there is nobody within the hazardous area.

Checks and operations to be performed before starting daily work

- Make sure the Emergency stop switch is depressed(6).
- Make sure the battery is connected
- Insert the key in the key switch (14) and turn it to the right as far as it will go.
- Test the warning signal switch (13).

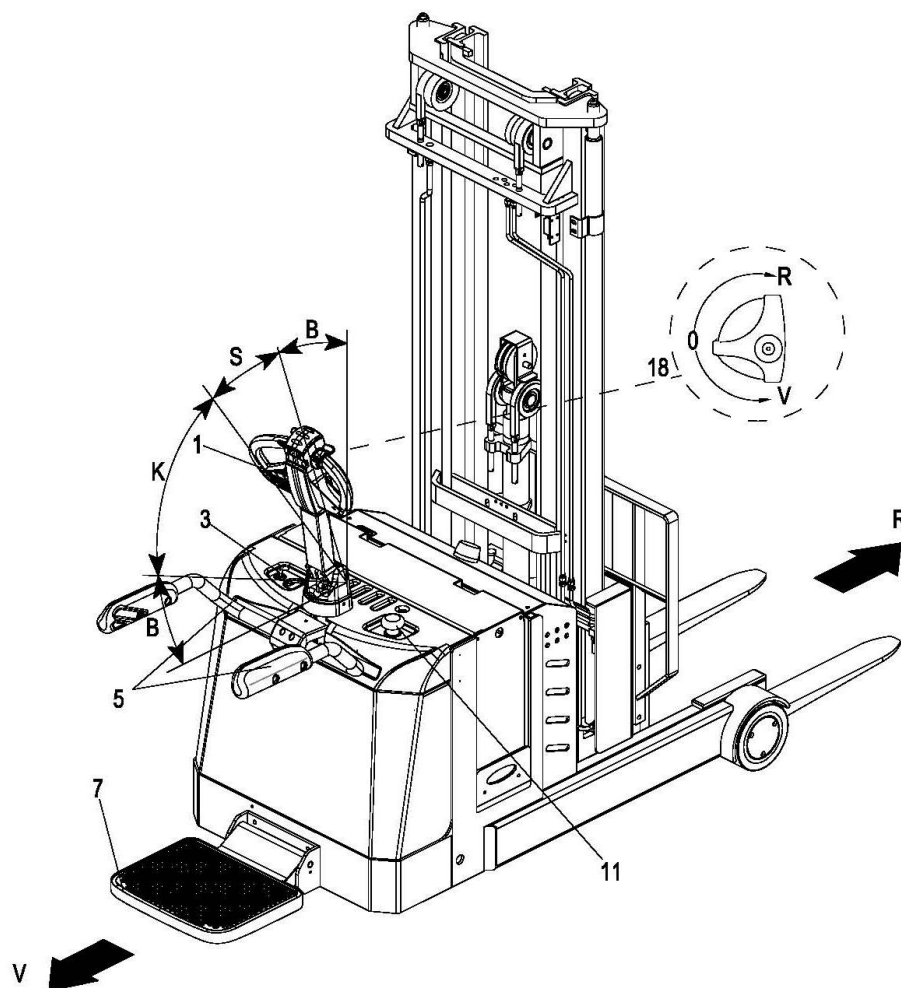
Warning!

Before operating the truck, check all controls and warning devices for proper operation. If any damage of fault is found, don't operate truck until corrected.

- Visually inspect the entire reach truck (in particular wheels and load handler) for obvious damage.

3.2.2 Travel, Steering, Braking

Do not drive the reach truck unless the panels are closed and properly locked.



1. Driving

Driving in low speed

Push the control shaft into the slow speed range(S) and set the driving switch to the desired driving direction(front or back). The bigger angle it swivels, the higher speed will it get.

Driving in high speed

Push the control shaft into the quick speed range(K) and set the driving switch to the desired driving direction(front or back). The bigger angle it swivels, the higher speed will it get.

It will get different speed though the switch swivels the same angle in the different range, the speed in the quick range(K) is quicker than in the slow range(S).

Truck with a folding operator pedal and moving handle.

- Pedestrian mode: Push the side arms in, fold up the operator pedal (1). The truck can only be operated at the reduced travel speed.
- Rider mode: Push the side arms out, fold down the operator pedal (1). The truck can be operated at maximum speed.

2. Steering

Apply the control handle(1) to the left or right.

3. Braking

The brake pattern of the Reach Truck depends largely on the ground conditions. The driver

must take this into account when operating the Reach Truck.

The driver must be looking ahead when travelling. If there is no hazard, brake moderately to avoid moving the load .

The Reach Truck can brake in four different ways:

- Emergency braking
- Automatic braking
- Regenerative braking
- Inversion braking
- **Emergency braking**

Press Emergency stop switch (11), all electrical functions are cut out and the Reach Truck automatically brakes.

- **Automatic braking**

When the control handle(1) is released it automatically sets itself to the upper brake zone (B) and automatic braking ensues.

Warning!

If the control handle moves slowly or not at all to the upper brake zone, the Reach Truck must be taken out of service until the cause of this fault is be rectified.

Replace the gas pressure spring if

Warning!

If the travel switch moves slowly or not at all to 0, the Reach Truck must be taken out of service until the cause of this fault is be rectified.

Replace the control handle if necessary.

- **Regenerative braking**

If the travel switch is set to "0", the Reach Truck automatically brakes regeneratively. When the speed below 1Km/h, the brake then applies and motor brake stop.

Warning!

In hazardous situations set the control handle to the brake position or set the travel switch to the opposite direction.

- **Inversion braking**

You can set the travel switch to the opposite direction when travelling. The Reach Truck brakes regeneratively until it starts to move in the opposite direction.

3.2.3 Lifting, transporting and depositing loads

Unsecured and incorrectly positioned loads can cause accidents

- Instruct other people to move out of the hazardous area of the Reach Truck. Stop working with the Reach Truck if people do not leave the hazardous.
- Only carry loads that have been correctly secured and positioned. Use suitable precautions to prevent parts of the load from tipping or falling down.
- Do not transport with bad handbarrow (as Reach Truck and stock) .
- Never stand underneath a raised load handler.
- Do not stand on the load handler.
- Do not lift other people on the load handler.
- Insert the forks as far as possible underneath the load.

Warning!

Before lifting a load unit the driver must make sure that it has been correctly stowed and does not exceed the Reach Truck's capacity.
Do not lift long loads at an angle.

Warning!

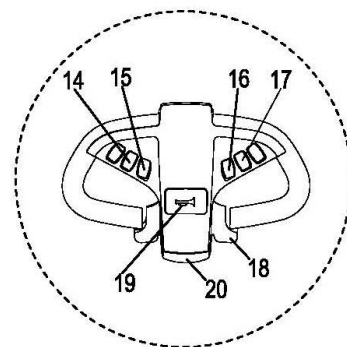
Don't lift to tiptop, to avoid shorted life of oil cylinder.

Tilt forward

Press "Tilting forward&backward" button (14) until the angle you need.

Tilt backward

Press "Tilting forward&backward" button (14) until the angle you need.



Warning!

- Never tilt the forks with loads raised to 1.5m or higher.
- Don't lift the load when the forks was tilted forward.

Reach forward

Press "Reach backward&forward" button(15)until the location you need.

Reach backward

Press "Reach backward&forward" button(15)until the location you need.

Lifting

Pull "Lift&Lower" switch(16) until the height you need.

Lowering

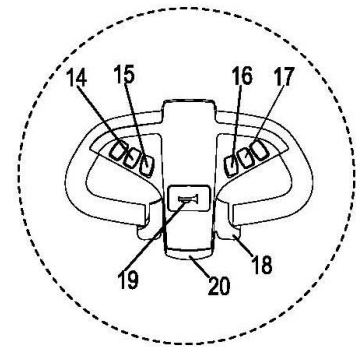
Push "Lift&Lower" switch(16) until the lowest position.

Sideshift left

Press ""Right&Left" button(17)until the location you need.

Sideshift right

Press ""Right&Left" button(17)until the location you need.



3.2.4 Parking the Reach Truck securely

When you leave the Reach Truck it must be securely parked even if you only intend to leave it for a short time.

- Pull "Lower" switch(16), fully lower the load handler.
- Fully lower the forks.
- Press Emergency stop switch(11).
- Turn off the key switch and remove the key(3).

Warning!

Parking the Reach Truck securely.
Forbid parking on an incline.
Always fully lower the forks.

4. Battery Maintenance & Charging

4.1 Safety regulations for handling acid batteries

Park the Reach Truck securely before carrying out any work on the batteries.

Maintenance personnel : Batteries may only be charged, serviced or replaced by trained personnel .The present operator manual and the manufacturer 's instructions concerning batteries and charging stations must be observed when carrying out the work.

Fire protection :

- Smoking and naked flames must be avoided when working with batteries.
- Wherever a Reach Truck is parked for charging there shall be no inflammable material or operating fluids capable of creating sparks within 2 meters around the Reach Truck.
- The area must be well ventilated.
- Fire protection equipment must be provided.



Protection against electric shock:

- Battery has high voltage and energy.
- Do not bring short circuit.
- Do not approach tools to the two poles of the battery , which can cause the sparkle.

4.2 Charging the battery

4.2.1 Exposing the battery

Park the truck securely (See 3.2.4
Parking the Reach Truck securely)

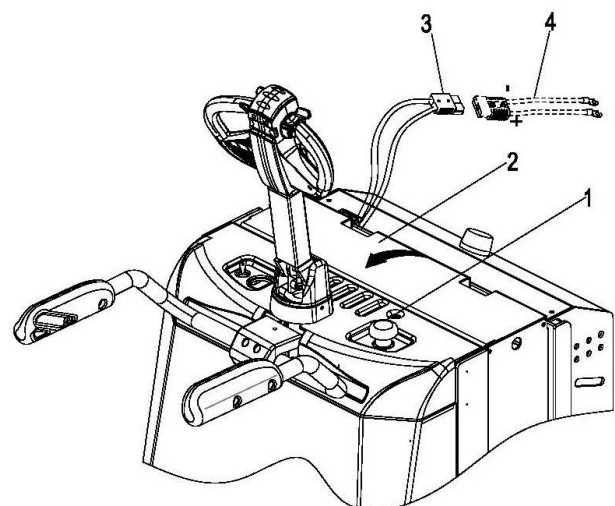
- Open the battery cap(2)

NOTE: This picture is just a sample.

4.2.2 Charging the battery

Charging step

- Check whether the condition is according with "Safety regulations for Charging the battery".



- Park the Reach Truck securely(See 3.2.4 Parking the Reach Truck securely).
- Open the battery cap(2) to exposing the battery(See 4.2.1 Exposing the battery).
- Remove the battery plug (3).
- Connect the battery plug (3) with the charging lead of the stationary charger (4) and turn on the charger.

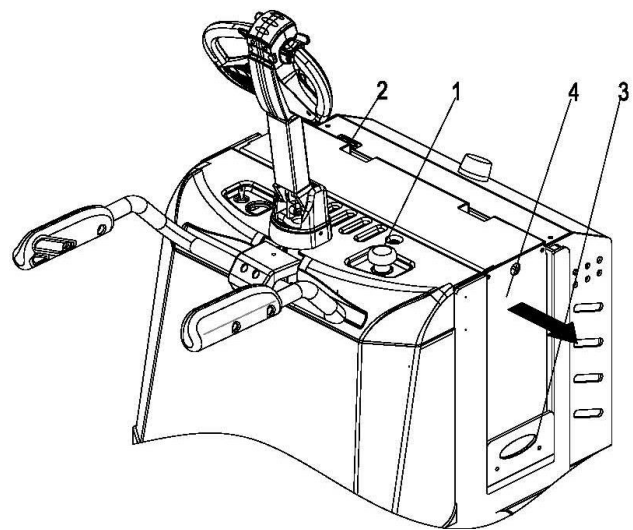
NOTE:This picture is just a sample.

4.3 Battery removal and installation

4.3.1 Changing the battery

- Park the truck securely(See 3.2.4 Parking the truck securely).
- Expose the battery (See 4.2.1 Exposing the battery).
- Remove the battery connector (2).
- Pull out the battery plate (3).
- Pull out the battery (4).

When replacing a battery always use the same battery type. Extra weights must not be removed and must remain in the same position.



NOTE:This picture is just a sample.

4.4 Battery maintenance

Do not overuse battery:

- If you use up the energy of battery till the forklift immovability, you will shorten its working hours.
- If battery discharge indicator showing the red segment, please charge it quickly.

Battery maintenance:

The battery cell covers must be kept dry and clean. The terminals and cable shoes must be clean, secure and have a light coating of dielectric grease. Batteries with non insulated terminals must be covered with a non slip insulation mat.

Warning!

1. Do not use dry cloth or fibre cloth to clean the battery, avoiding static to bring the explosion.
2. Unplug the battery connector from the truck.
3. Use a damp cloth for cleaning.
4. Wear safety goggles, rubber gloves and boots to protect yourself.

Battery storage:

If batteries are taken out of service for a lengthy period they should be stored in the fully charged condition in a dry, frost-free room. To ensure the battery is always ready for use, perform a monthly charging of the battery.

4.5 Battery Disposal

Batteries may only be disposed of in accordance with national environmental protection regulations or disposal laws. The manufacturer's disposal instructions must be followed.

Batteries contain an acid solution which is poisonous and corrosive . Therefore , always wear protective clothing and eye protection when carrying out work on batteries . Above all avoid any contact with battery acid.

Nevertheless, should clothing, skin or eyes come in contact with acid the affected parts should be rinsed with plenty of clean water-where the skin or eyes are affected call a doctor immediately. Immediately neutralize any spilled battery acid.

Only batteries with a sealed battery container may be used.

The weight and dimensions of the battery have considerable affect on the operational safety of the Reach Truck. Battery equipment may only be replaced with the agreement of the manufacturer.

5.Reach Truck Maintenance

5.1Operational safety and environmental protection

- The servicing and inspection operations contained in this chapter must be performed in accordance with the intervals indicated in the servicing checklists.
- Any modification to the Reach Truck assemblies, in particular the safety mechanisms, is prohibited. The operational speeds of the Reach Truck must not be changed under any circumstances.
- Only original spare parts have been certified by our quality assurance department. To ensure safe and reliable operation of the Reach Truck, use only the manufacturer's spare parts. Used parts, oils and fuels must be disposed of in accordance with the relevant environmental protection regulations. For oil changes, contact the manufacturer's specialist department.
- Upon completion of inspection and servicing, carry out the activities listed in the "Recommissioning " section.

5.2Maintenance Safety Regulations

Maintenance personnel

Reach Trucks must only be serviced and maintained by the manufacturer's trained personnel.

The manufacturer's service department has field technicians specially trained for these tasks. We therefore recommend a maintenance contract with the manufacturer's local service center.

Lifting and jacking up

When a Reach Truck is to be lifted, the lifting gear must only be secured to the points specially provided for this purpose.

When jacking up the Reach Truck, take appropriate measures to prevent the Reach Truck from slipping or tipping over (e.g. wedges, wooden blocks).

You may only work underneath a raised load handler if it is supported by a sufficiently strong chain.

Cleaning

Do not use flammable liquids to clean the Reach Truck.

Prior to cleaning, all safety measures required to prevent sparking (e.g. through short circuits) must be taken. For battery-operated Reach Trucks, the battery connector must be removed.

Only weak suction or compressed air and non-conductive antistatic brushes may be used for cleaning electric or electronic assemblies.

If the Reach Truck is to be cleaned with a water jet or a high-pressure cleaner, all electrical and electronic components must be carefully covered beforehand as

moisture can cause malfunctions.

After cleaning the Reach Truck, carry out the activities detailed in the "Recommissioning" section.

Electrical System

Only suitably trained personnel may operate on the Reach Truck's electrical system. Before working on the electrical system, take all precautionary measures to avoid – electric shocks.

For battery-operated Reach Trucks, also de-energise the Reach Truck by removing the battery connector.

Welding

To avoid damaging electric or electronic components, remove these from the Reach Truck before performing welding operations.

Settings

When repairing or replacing electric or electronic components or assemblies, always note the Reach Truck-specific settings.

Tyres

The quality of tyres affects the stability and performance of the Reach Truck. When replacing factory fitted tyres only used original manufacturer's spare parts, as otherwise the data plate specifications will not be kept.

When changing wheels and tyres, ensure that the Reach Truck does not slew (e.g. when replacing wheels always left and right simultaneously).

5.3 Servicing and inspection

Thorough and expert servicing is one of the most important requirements for the safe operation of the Reach Truck. Failure to perform regular servicing can lead to Reach Truck failure and poses a potential hazard to personnel and equipment.

The service intervals stated are based on single shift operation under normal operating conditions. They must be reduced accordingly if the Reach Truck is to be used in conditions of extreme dust, temperature fluctuations or multiple shifts.

The following maintenance checklist states the tasks and intervals after which they should be carried out. Maintenance intervals are defined as:

W = Every 50 service hours, at least weekly

A = Every 250 operating hours

B = Every 500 operating hours, or at least annually

C = Every 2000 operating hours, or at least annually

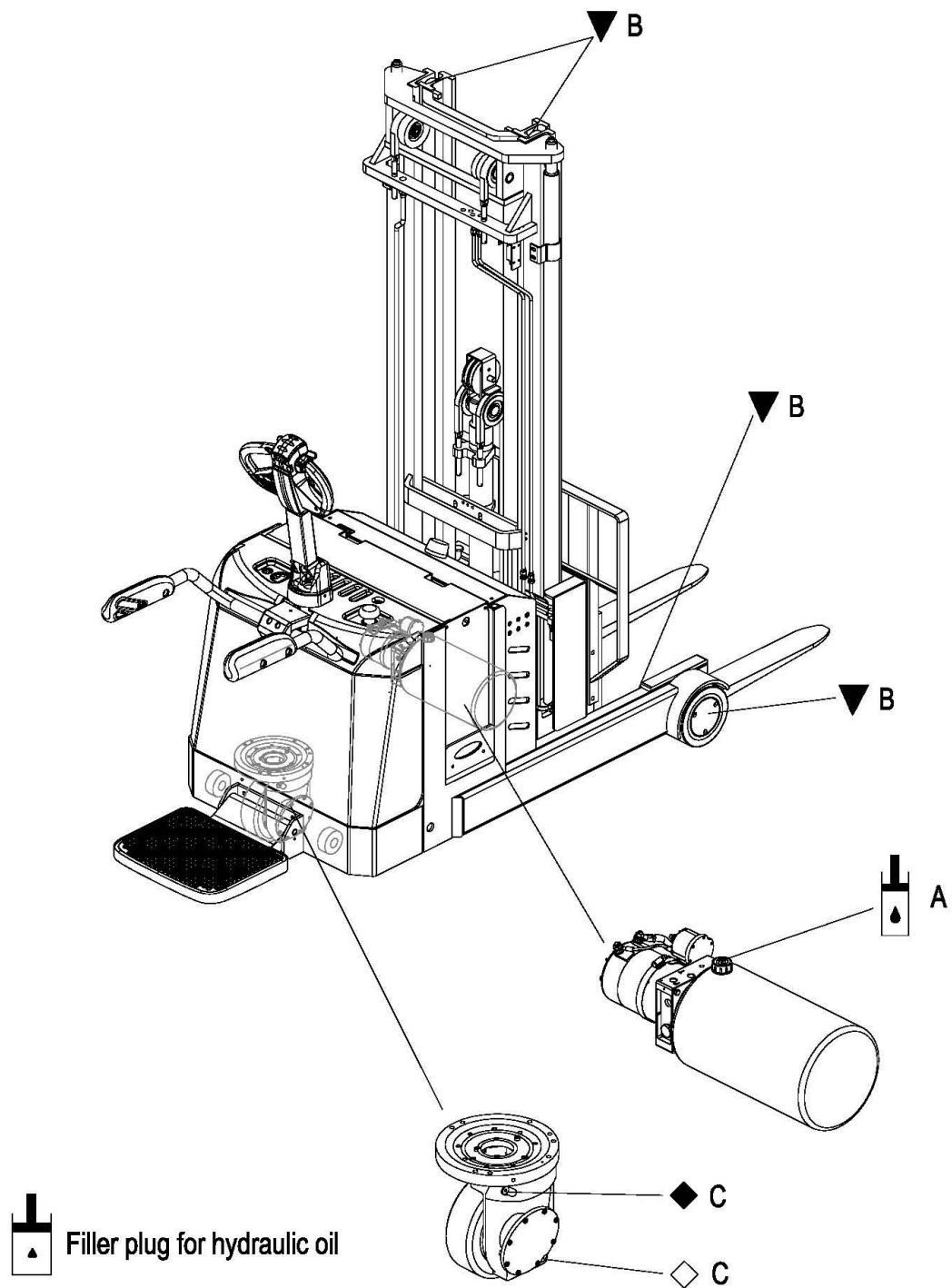
W service intervals are to be performed by the customer.

In the run-in period - after approx. 100 service hours - or after repair work, the owner must check the wheel nuts/bolts and re-tighten if necessary.

5.3.1 Maintenance Checklist

		Maintenance interval •			
		W	A	B	C
Braking	Check magnetic brake air gap.			•	
Electrical system	Test instruments, displays and control switches.	•			
	Test warning and safety device.		•		
	Make sure wire connections are secure and check for damage.			•	
	Test micro switch setting.	•			
	Check Controller and EPS Controller.			•	
	Fix the motor and cable			•	
Power supply	Visually inspect battery		•		
	Visually inspect battery plug			•	
	Check battery cable connections are secure, grease terminals if necessary.			•	
Travel	Check the transmission for noise and leakage.			•	
	Check travel mechanism, adjust and lubricate if necessary. Check control handle recuperating function.		•		
	Check driving wheel and loading wheel for wear and damage.			•	
	Check wheel bearings and attachments.			•	
Reach Truck frame	Check Reach Truck frame for damage.			•	
	Check labels are present and complete			•	
	Check mast attachment			•	
Hydraulic operations	Test hydraulic system.		•		
	Check that hose and pipe lines and their connections are secure, check for leaks and damage.		•		
	Check cylinders and piston rods for damage and leaks, and make sure they are secure.			•	
	Check load chain setting and tension if necessary.			•	
	Visually inspect mast rollers and check contact surface wear level			•	
	Check forks, load handler for wear and damage			•	
	Check hydraulic oil level.			•	
	Replace hydraulic oil.				•

5.3.2 Lubrication Schedule



Consumables

Handling consumables type material: Consumables must always be handled correctly. Follow the manufacturer's instructions.

Improper handling is hazardous to health, life and the environment. Consumables must only be stored in appropriate containers. They may be flammable and must therefore not come into contact with hot components or naked flames.

Only use clean containers when filling up with consumables. Do not mix consumables of different grades. The only exception to this is when mixing is expressly stipulated in the Operating Instructions.

Avoid spillage. Spilled liquids must be removed immediately with suitable bonding agents and the bonding agent/consumable mixture must be disposed of in accordance with regulations.

Code	Description	Used for
A	HM46#	Hydraulic system
B	Polylub GA352P	Lubrication grease
C	GL5-80W-90	gear case

5.3.3 Maintenance Instructions

Prepare the Reach Truck for maintenance and repairs

All necessary safety measures must be taken to avoid accidents when carrying out maintenance and repairs. The following preparations must be made:

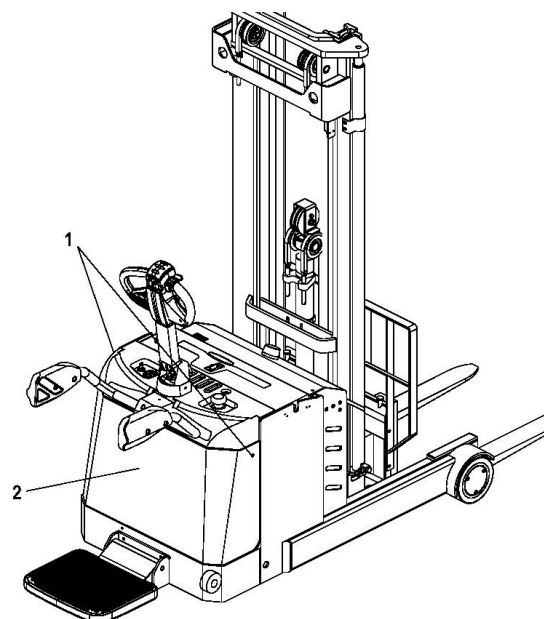
- Park the Reach Truck securely (See 3.2.4 Parking the Reach Truck securely).
- Remove the key to prevent the Reach Truck from accidentally starting.
- When working under a raised lift Reach Truck, secure it to prevent it from tipping or sliding away.

Removing the front panel

- Open the battery panel(see 4.3.1 Exposing the battery).
- Remove the two screws (1).
- Carefully lift off the front panel (2).

Replacing the drive wheel

The drive wheel must only be replaced by authorised service personnel.



Check the hydraulic oil level

- Prepare the Reach Truck for maintenance and repairs (See 5.3.3 Maintenance Instructions).

- Opening the front cover

- Add hydraulic oil of the correct grade (See 5.3.2 Lubrication Schedule) .

Add hydraulic oil till you cant hear explosion sound during lifting.

Installation is the reverse order.

Warning!

Forbid adding hydraulic oil within impurity.

Check transmission oil level

- Prepare the Reach Truck for maintenance and repairs (See 5.3.3 Maintenance Instructions).

- Open the panel (See 5.3.3 Maintenance Instructions).

- Turn the control handle to the right limited position.

- Check the transmission oil level, it should be at the control plug level (See 5.3.2 Lubrication Schedule).

- If necessary add transmission oil of the correct grade (See 5.3.2 Lubrication Schedule).

Installation is the reverse order.

Warning!

Forbid adding transmission oil within impurity.

Checking electrical fuses

- Prepare the Reach Truck for maintenance and repairs (See 5.3.3 Maintenance Instructions).

- Open the front cover.

- Check rating of all fuses in accordance with table, replace if necessary.

Item	To protect:	Rating
1	Traction/ lifting motor Fuse	200A
2	Battery Control Fuse	10A
3	Control system Control Fuse	10A

Recommissioning

The Reach Truck may only be recommissioned after cleaning or repair work, once the following operations have been performed.

- Test horn.

- Test Emergency stop switch.

- Test brake.

- Lubricate the Reach Truck in accordance with the maintenance schedule.

5.4 Decommissioning the Reach Truck

If the Reach Truck is to be decommissioned for more than two months, e.g. For operational reasons, it must be parked in a frost-free and dry location and all necessary measures must be taken before, during and after decommissioning as described.

On decommissioning the Reach Truck must be jacked up so that all the wheels are clear of the ground. This is the only way of ensuring that the wheels and wheel bearings are not damaged.

If the Reach Truck is to be out of service for more than 6 months, further measures must be taken in consultation with the manufacturer's service department.

5.4.1 Prior to decommissioning

- Thoroughly clean the Reach Truck.
 - Check the brakes.
 - Check the hydraulic oil level and replenish as necessary (See 5.3.3 Maintenance Instructions).
 - Apply a thin layer of oil or grease to any non-painted mechanical components.
 - Lubricate the Reach Truck in accordance with the maintenance schedule (See 5.3.2 Lubrication Schedule).
 - Charge the battery (See 4.3 Charging the battery).
 - Disconnect the battery, clean it and apply grease to the terminals.
- In addition, follow the battery manufacturer's instructions.
- Spray all exposed electrical contacts with a suitable contact spray.

Warning!

Charge every month:

- Charge the battery.

Battery powered Reach Trucks:

The battery must be charged at regular intervals to avoid depletion of the battery through self-discharge. The sulfuration would destroy the battery.

5.4.2 Restoring the Reach Truck to operation after decommissioning

- Thoroughly clean the Reach Truck.
- Lubricate the Reach Truck in accordance with the maintenance schedule (See 5.3.2 Lubrication Schedule).
- Clean the battery, grease the terminals and connect the battery.
- Charge the battery (See 4.3Charging the battery).
- Check hydraulic oil for condensed water and replace if necessary.
- Start up the Reach Truck (see 3.2Operate and run the Reach Truck).

If there are switching problems in the electrical system, apply contact spray to the exposed contacts and remove any oxide layers on the contacts of the operating controls by applying them repeatedly.

Perform several brake tests immediately after re-commissioning the Reach Truck.

5.5 Safety checks to be performed at regular intervals and following any

unusual incidents

Carry out a safety check in accordance with national regulations. EP has a special safety department with trained personnel to carry out such checks. The Reach Truck must be inspected at least annually (refer to national regulations) or after any unusual event by a qualified inspector. The inspector shall assess the condition of the Reach Truck from purely a safety viewpoint, without regard to operational or economic circumstances. The inspector shall be sufficiently instructed and experienced to be able to assess the condition of the Reach Truck and the effectiveness of the safety mechanisms based on the technical regulations and principles governing the inspection of Reach Trucks.

A thorough test of the Reach Truck must be undertaken with regard to its technical condition from a safety aspect. The Reach Truck must also be examined for damage caused by possible improper use. A test report shall be provided. The test results must be kept for at least the next 2 inspections.

The owner is responsible for ensuring that faults are immediately rectified.

A test plate is attached to the Reach Truck as proof that it has passed the safety inspection. This plate indicates the due date for the next inspection.

5.6 Final de-commissioning, disposal

Final, proper decommissioning or disposal of the Reach Truck must be performed in accordance with the regulations of the country of application. In particular, regulations governing the disposal of batteries, fuels and electronic and electrical systems must be observed.

6.Troubleshooting

This chapter is designed to help the user identify and rectify basic faults or the results of incorrect operation. When locating a fault, proceed in the order shown in the table.

Fault	Possible cause	Action
Reach Truck does not start.	<ul style="list-style-type: none">• Key switch in “OFF” position• Battery charge too low• Faulty fuse• Reach Truck in charge mode	<ul style="list-style-type: none">• Set key switch to “I”• Check battery charge, charge battery if Necessary• Test fuses• Interrupt charging
Load can not be lifted	<ul style="list-style-type: none">• Hydraulic oil level too low• Excessive load	<ul style="list-style-type: none">• Check the hydraulic oil level• Note maximum capacity (see data plate)

If the fault cannot be rectified after carrying out the remedial procedure, notify the manufacturer ' s service department ,as any further troubleshooting can only be performed by specially trained and qualified service personnel.