

GOLF CAR MAINTENANCE

PERIODIC MAINTENANCE CHARTS

Regular maintenance is required for the best performance and safe operation of your golf car .

WARNING

Be sure to turn off the main switch and apply the parking brake when you perform maintenance unless otherwise specified .If the owner is not familiar with machine serving, this work should be done by a Lvtong dealer or other qualified mechanic.

C=CHECK CA=CHECK ADJUST R=REPLACE S=SERVICE CL=CLEAN AND LUBRICATE L=LUBRICATE

	Remark	Per-operation	20rounds 20hours 100miles 160kms (Every month)	125rounds 125has 1200mis 2000kms (Every years)	250rounds 250has 1200mis 2000kms (Every 2 years)	500rounds 500hrs 2500mis 4000kn (Every 2 years)	1000rounds 1000hrs 5000mis 8000kms(every 4 years)
PRE	CHARGE	S	S	S	S	S	S
	Clean battery tops. for tighten of hold-down screws and terminals	S	S	S	S	S	S
	Check brake pedal free play and adjust if necessary	C	CA	CA	CA	CA	CA
	Check steering operation	C	C	C	C	C	C
	Check tire pressure tread depth tire surface for damage	C	CA	CA	CA	CA	CA
	Check body and chassis ,for damage	C	C	C	C	C	C
	Check tinges of all bolts nuts and screws	C	C	C	C	C	C
	Check reverse buzzer operation	C	C	C	C	C	C
EVERY 6 MONTH	Check electrolyte level			C	C	C	C
	Check for loose or broken connections		C	C	C	C	C
	Clean lube pedal control area		CL				
EVERY MONTHS	Check all wire insulation for crack and /or worn spots			C	C	C	C
	Check shock absorbers for oil leak and damaged springs			C	C	C	C
EVERY	Perform a discharge test				S	S	S

YEAR	Apply terminal protestant				S	S	S
	Check shoe lining thickness and rear axle beating play				C	C	C
	Check steering knuckle bushing free play/adjust wheel alignment				CA	CA	CA
	Check gear box oil level and leakage				C	C	C
	Check operation and adjust pedal stop if necessary				CA	CA	CA
EVERY 4 YEARS	Replace gear oil						R
	Check for grease Gear box if necessary						CA

Items without page number should be HKC dealer or other qualified mechanic, this manual does not contain these procedures. they are contained in the Service Manual.

Battery maintenance

According to the experience, A key point is to use a full set of battery maintenance in order to keep the battery in the best quality, please follow the single steps to maintain the batteries.

Tools as below:

Below is the basis tool to maintain the batteries:

- | | | |
|-------------------|---------------------|-------------|
| 1, spanner | 2, scale-borer | 3, affusion |
| 4, circuit tester | 5, carbonated water | 6, Vaseline |
| 7, densimeter | 8, goggle, glove | |

Caution: You should wear the protect cloth, goggle and glove when operating the batteries.



Check

1. Check the battery's appearance.

- If there is crack on the crust
- If battery top, cable post has any dust, dirty-liquid or rust around the battery.
- Replace all the damaged batteries

If you found any dirty-liquid surrounding the batteries, it certifies that the battery liquid may be leaked out or overflowed.

2. Check all the battery cable and connectors

- Check all the electronic parts whether loosen or damaged
- Replace all the disconnected or ruptured cables

Caution: No smoking around the battery.

3. Operating the battery cable with exactly direction in order that cable terminals are connected well

Caution: Don't make the battery post too tight, or it will fail to crack, melt and easily caused fire.

Right radius to the terminals

Liquid battery

Car-type battery post: 50-70inch/pound

Side-post: 70-90 inch/pound

Butterfly-type Battery post: 95-105 inch/pound

LPT battery post: 95-105 inch/pound

LT battery post: 100-120inch/pound

Max. flux of copper

gauge(U.S.A gauge)	Fluxion load
14	25
12	30
10	40
8	55
6	75
4	95
2	130

Fluxion load is a standard measure of testing the safety capability to the limited. Above is our suggestion Fluxion load .Besides, the gauge we use at present actually should be according to the national electric code or local code.

Testing

Specific proportion testing (only liquid battery need test)

1. Don't plus water before testing
2. Inject the electrolyte into dosimeter before take out the simply from the battery. then discharge the liquid and repeat 2-4times

3. Inject more electrolyte into the dosimeter in order to impulse the buoy age
4. Read and record the value, then reject the electrolyte into the electro bath
5. According to the steps above check every electro baths from batteries.
6. Recover the battery cover and clean up the electrolyte
7. Input the base date up to 80 Fahrenheit
8. Every time raise up to 10 Fahrenheit ,increase the base data to 0.04
9. Every time when decrease 10Fahrenheit, decrease the base data to 0.04.
10. See the sheet below, check the charging situation

The value you read should be at the range of 1.277 ± 0.07 , if lower than this value .follow the steps below

1. Check and record the voltage
2. Charge the battery full
3. Remeasure the dens meter's proportion

If the proportion is lower than normal, follow the steps below:

1. Check the voltage
2. Charge the battery with balance step
3. Remeasure the proportion

If the value you read is lower than the manufactory standard, there may be some situation as follows:

1. The battery is aging to the limited
2. The battery against charging for a long time
3. The electrolyte had been leaked and loosed away
4. Some of the electrolyte had been broken
5. Add excess water before testing the battery

If the situations like 1-4 steps, you should take the battery to our technician to make a further checking, or make a replacement.

Voltage testing when it carved away

In order to capture the exactly voltage value, let the battery unused for at least 6hours (best 24hours)

1. Cut off all the connected cables
2. Use DC circuit tester to measure the voltage
3. Consult the sheet to check the charging situation
4. If the value indicated in the range of 0%-70%, charge the battery.

If the value you measure is lower than the values stated below, there may be some situation as below:

1. The battery against charging for a long time
2. some of the electrolyte had been broken

If the situation stated as above, you should take the battery to our technician to make a further checking, or make a replacement. -

Charge value	proportion	Voltage when it carved away		
		Adjust to 80 Fahrenheit	6v	8v
100	1.277	6.37	8.49	12.73
90	1.258	6.31	8.41	12.62
80	1.238	6.25	8.33	12.50
70	1.217	6.19	8.25	12.37
60	1.195	6.12	8.16	12.24
50	1.172	6.05	8.07	12.10
40	1.148	5.98	7.97	11.96
30	1.124	5.91	7.88	11.81
20	1.098	5.83	7.77	11.66
10	1.073	5.75	7.67	11.51

Notice: Capability and proportion have some relations with the voltage when it carved away

Caution

1. Get familiar to the charger's instruction manual, follow the instructions.
2. Charge the battery time by time
3. Lead acid battery doesn't have memory effect, there is no need to discharge before charging
4. Fire is forbidden when charge the battery ,keep it more ventilative
5. Check whether the charger's voltage is correct.
6. Check the electrolyte's level
7. Make sure all the battery' cover is tight up before charging
8. Overcharge or undercharge is not allowed.
9. Don't charge the frozen battery
10. Don't charge the battery when the temperature is higher than 120 Fahrenheit

Watering (only liquid water need watering)

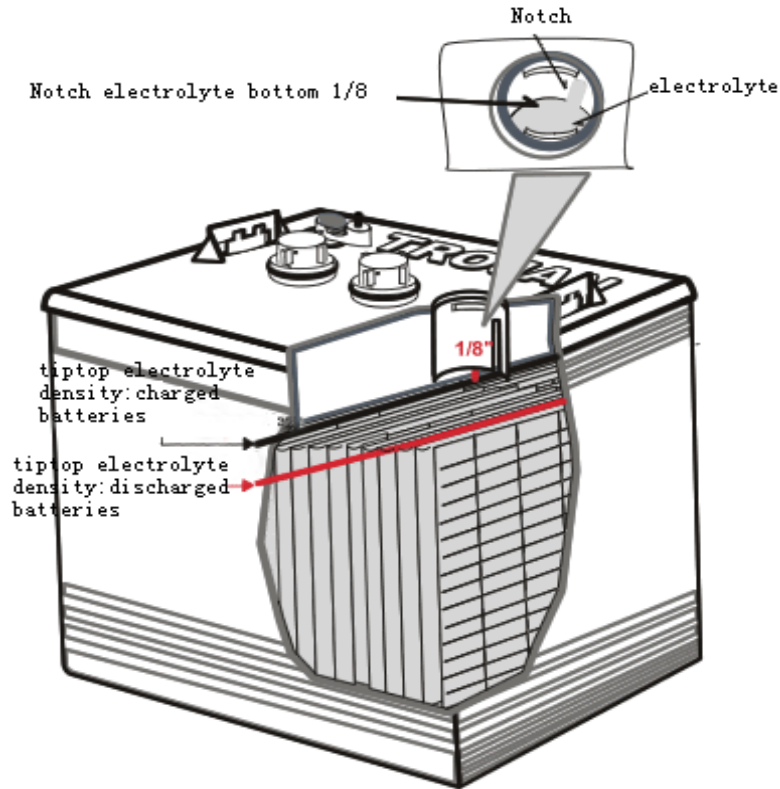
Add water after full charged. Water should cover the acid board before charging. If need to discharge (entirely or portion).water should be cover the acid board.

Please bear in mind:

1. Acid board is not allowed to reveal in the air

2. Watering should be lower than the battery cover.
3. Don't use battery liquid include mineral water.
4. Only allows to use the distilled water

Caution: Avoid touching the electrolyte.



Method and process

1. Open the battery cover to check the electrolyte's level; the lowest is on the top of the acid board.
2. If can't see the electrolyte, add water up to the acid board.
3. Cover the battery cover and tight it up
4. Add water before full charge
5. Wrest up the battery cover to check the electrolyte after full charge
6. Add water up to 1/8 inch on top.
7. Cleaning ,replace and tight up all the battery cover

Caution: Acid is not allowed to inject into the batteries.

Equilibrium (Only liquid battery need to deal with)

Caution: Don't deal with the solid battery or AGM battery balanceably

Equilibrium is terms of excessive charge for the battery after lead-acid battery had been fully charged. It can keep away from battery stratification and sulphate stratification. Because of shorten the battery's life possibility.

Only after full charged. the electrolyte proportion(+/-0.15) is lower or far away from every electrolybath value need deal with equilibrium.

Method and process

1. Check whether is liquid battery
2. Disconnect all the battery cables
3. Connect the charger
4. Adjust the charger to the equilibrium mode
5. Charge
6. Sounds and air bladder from the battery
7. Measure the proportion per hour
8. During the period of air bladder, when the proportion is no more raised, it will indicate that the equilibrium have been done.

Notice: Many chargers don't have this function to operate the method above.

Cleaning

1. Check whether the battery cover had been tighten up
2. Clean the battery top with cloth, brush and saleratus water .don't use any detergent inject into the battery
3. Clean the battery with water and with cleanly cloth
4. Clean the battery post and nip with scale-borer
5. Reconnect the nip to the battery post and wipe with Vaseline thinly
6. Keep the battery cleaning and dryness around

Storage

Avoid:

1. Freezing__the battery storage in a freezing place. A full charged battery can perfectly deiced
2. High temperature__the battery should be kept away from radiator or warm-stove. When the battery is higher than 80 Fahrenheit, It will self-discharge quickly.

Method and process

1. Storage after full charged
2. Keep the battery in a dry and cool place.
During the period of storage, check the battery's proportion (liquid battery) or voltage.
 - Recharge the battery when the capacity is lower than 70%.
3. Reuse the battery before fully charged
4. Before reuse the battery and exert its capability, the battery should be done with equilibrium well.

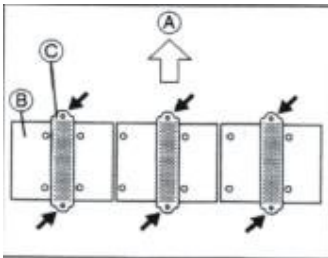
Electrolyte freezing point

Proportion degree	Discharge degree	Freezing point
1.280	100%	-92.0 Fahrenheit
1.265	92%	-71.3 Fahrenheit
1.250	85%	-62.0 Fahrenheit
1.200	62%	-16.0 Fahrenheit
1.150	40%	+ 5.0 Fahrenheit
1.100	20%	+19.0 Fahrenheit

BATTERY INSTALLATION

WARNING

When working with batteries ,do not put wrenches or other metal objects across the battery terminal .An arc can occur causing explosion.

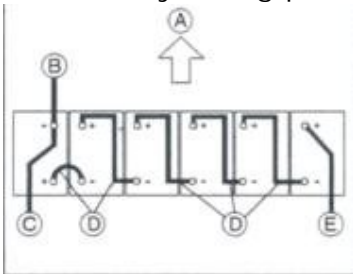


1. Install the battery hold-down plates as shown

A---Forward

B---Battery

C---Battery fitting plate



2. Connect the wire leads shown

A---Forward

B---To receptacle

C---To motor control unit

D---between batteries

E---To relay

WARNING

When installing batteries:

*Carefully place battery cable and hold-down to make sure that cables do not lay across vent caps

*Always remove the negative (-) cable to the motor controller first,and install it last.

CAUTION

Do not over tighten the battery hold-down nuts, excessive force will damage the battery casing.

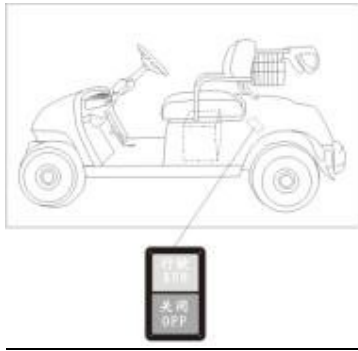
Battery Charging

WARNING

Read and understand the owner's manual provided with golf car 's battery charger before charging batteries.

WARNING

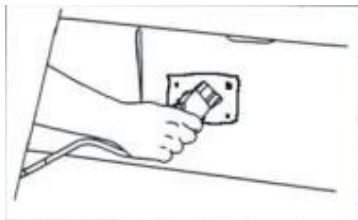
Explosives hydrogen gas is produced while batteries are being charged. Only charge batteries in well ventilated areas (a minimum of 5 air changes per hour is recommended)



To charge the batteries in your golf car, follow the instructions contained in your battery charger's owner's manual.

The following is a summary of the charging steps: do not attempt to recharge your golf car's batteries without thoroughly reading and understanding with your charger.

1. Switch the functional key to "CHARGE"
2. With the charger properly connected and grounded(see charger's owner's manual),insert the DC output plug into the golf car receptacle.



CAUTION

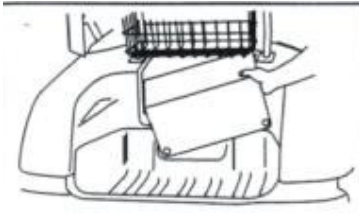
Use only battery chargers that are rated for use with 48 volt Lvtong Golf Cars. Thoroughly read and understand the user manual supplied with your 48 volt charger.

WARNING

Do not disconnect the DC output cord from the battery receptacle when the charger is on or an arc could occur that may cause an explosion.

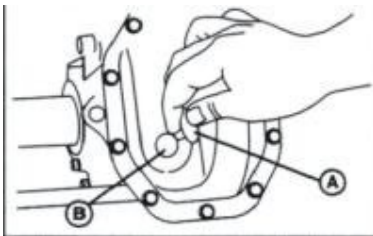
3. The charger will turn off automatically when the batteries reach full charge.
4. after the charger has turned off disconnect the DC output plug from the golf car receptacle by grasping the plug body and pulling the plug straight out of the receptacle.

Gear Box Oil



To check gear box oil level:

1. Place the golf car on a level surface
2. Remove the access panel by removing the rivets in the two lower corners of the panel and pulling the panel from the car.
3. Remove the oil level plug----A
4. Add gear oil little by little until oil flows from the level plug hole---B



Recommended oil
SAE 90 gear oil

Gear case capacity
0.3 US qt
(0.3L, 0.06 Imp gal)

5. Allow excess gear oil flow out until it stops.

CAUTION

Do not allow foreign material to enter the gear box.

6. Reinstall the oil level plug.

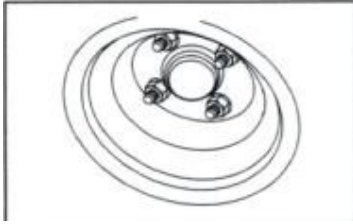
NOTE:

For gear oil replacement, consult a Lvtong dealer or other qualified mechanic.

CAUTION

Before performing wheel or brake maintenance, verify that the main switch is in the "OFF" position.

Wheel Replacement



To remove and install a wheel on your golf car:

1. With the wheel blocked to prevent the golf car from moving loosen the wheel nuts.
2. Elevate the golf car with a jack and remove the wheel nuts and the wheel.
3. Reverse the removal steps when installing the wheel.

Wheel nut tightening torque:
58ft 1b (Nm,8.0m kg)

Brake Adjustment

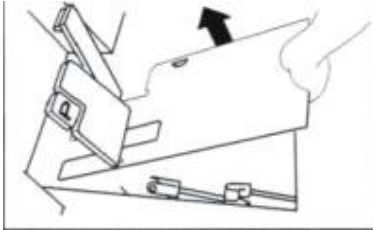
The brakes on your golf car are self-adjusting.

Before you operate the car, press down on the brake pedal several times to make sure the brakes are functioning properly.

WARNING

Consult your Lvtong dealer before using your golf car if you suspect brake problems brake failure could result a serious accident.

Brake Pedal Free Play Adjustment

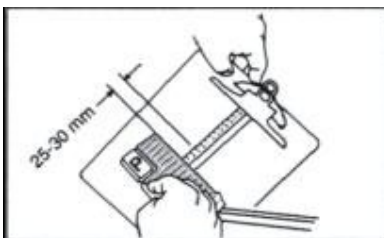


CAUTION

Before adjusting brake pedal free play, pump the brake pedal several times to self-adjust the brakes.

To adjust the brake pedal free play:

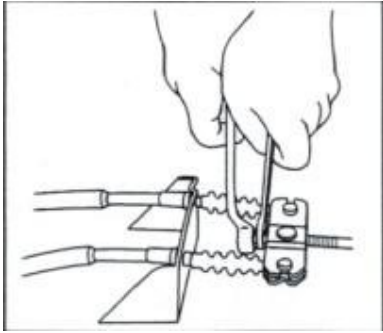
1. Remove the service lid from the floor of the golf car
2. Check the brake pedal free play by pressing against the pedal with two fingers (using light force) and measuring the distance the pedal travels before resistance is felt.



Brake pedal free play

25-30mm(0.98-1.18inch)

3. If the free play distance needs adjusting. Loosen the lock nut and turn the adjusting nut in or out until the free play specification is met, Then tighten the lock nut in place.



WARNING

Do not over tighten the brake cables, The self adjusters may not operate properly, reducing braking performance.

STORAGE

Perform the following preparations when storing your golf car fo extended periods of time.

NOTE:

Turn main switch key to "OFF" position, remove key ,and store key in a safe place.

CHASSIS PREPARATION

1. Verify the tire pressure is set to 22 psi(137 kpa,1.4kgf/cm²)
2. Clean exterior of the golf car and apply a rust inhibitor.
3. Cover the golf car with a breathable cover and store it in dry, well-ventilated place.