ELECTRIC OUTBOARD MOTOR

OPERATOR'S MANUAL
Model Numbers
F4ETS, F4ETL, F4ERS, F4ERL
F5ETS, F5ETL, F5ERS, F5ERL

SUZHOU PARSUN POWER MACHINE CO., LTD.

Thank you for purchasing a PARSUN outboard motor.

Your trust in our company and products is greatly appreciated

- “PARSUN” outboard motors are powerful, economic, safe, and manufactured with advanced technology. Please read this manual carefully before operating your outboard motor. A through understanding of the manual will help you to safely operate the product, and perform the required maintenance and care. By following the information contained within this manual, you will ensure that your outboard motor operates for many years
- “PARSUN” seeks continuous improvement in product quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your machine and this manual. If there is any question concerning the manual, please consult your local PARSUN dealer.
- Data, illustrations, or explanations in this Operators Manual do not constitute base for any legal claim against our company.

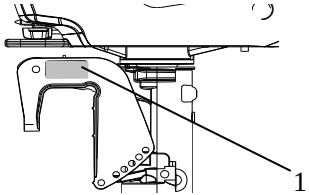
SUZHOU PARSUN POWER MACHINE CO., LTD

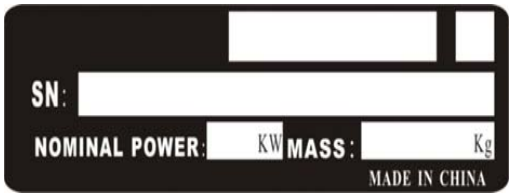
Outboard Identification Numbers

Outboard motor serial number

The outboard motor serial number is marked on the label. The label can be found on the left bracket assembly or on the upper part of the bracket swivel.

Record your outboard motor serial number in the spaces provided to assist you in ordering spare parts from your Parsun dealer or for reference in case your outboard motor is stolen.





1. Outboard motor serial number location.

Serial number as follows:

SN

Manufacturer's Declaration

This outboard motor complies with the requirements of Directive 2003/44/EC in relation to the noise emissions. The following installation and maintenance instructions, if applied, guarantee that the outboard motor will remain in compliance with the noise emissions limits under normal conditions of use.

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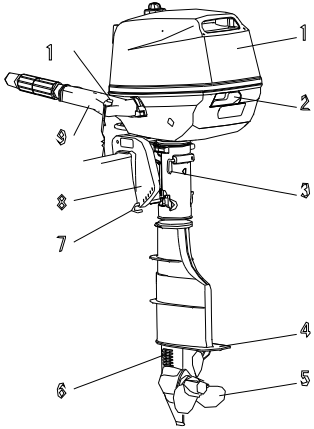
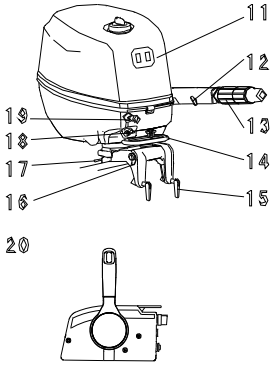
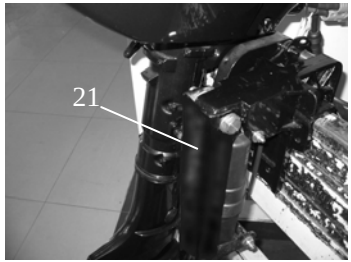
Main Components and General Information







1. Top cover
2. Top cover lock handle
3. Steering friction screw
4. Anti-cavitation plate
5. Propeller
6. Cooling water inlet
7. Trim Rod
8. Clamp Bracket
9. Tiller handle
10. Stop button, Lanyard switch
11. Control switches
12. Throttle friction adjuster
13. Throttle grip
14. Carry handle
15. Clamp screw
16. Rope attachment
17. Tilt support bar
18. Remote control cable
19. Power Cable connector
20. Remote control
21. Power tilt system(If equipped)

General Information and Specifications

Parameter

Items	Data		Items	Data	
Type of outboard	Electric		Input Power	4HP	4.8 KW Maximum
Rated voltage	48 VDC			5HP	4.8 KW Maximum
Rated Current	4HP	75 Amps	Maximum Continuous output	4HP	3.0 Kw/4500Rpm
				5HP	3.7 Kw/5000Rpm
	5HP*	100 Amps	Full throttle motor speed	4000 ~ 5000Rpm	
Operating Voltage	30-60 VDC		Gear ratio	2.08（27/13）	
Overall length	717mm		Recommended gear oil	Hypoid gear oil SAE # 90	
Overall width	361mm		Gear oil quantity	100 mm^3	
Overall height (S)	1029mm		Net Weight	ETL:30.4kg,ETS:29.4kg	
Overall height (L)	1156mm			ERL:29.4kg,ERS:28.4kg	

***The F5 outboard has a 10 second burst of power at 140 Amps to increase the thrust by 25%.**

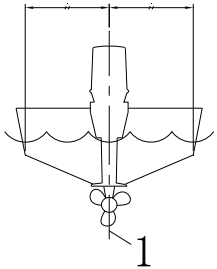
Propeller Selection

The performance of your outboard motor will be critically affected by your choice of propeller, as an incorrect choice could adversely affect performance. The outboard motor is fitted with propeller chosen to perform well over a range of applications, but there may be uses where a propeller with a different pitch would be more appropriate. “PARSUN” dealers stock a range of propellers and can advise you and install a propeller on your outboard that is best suited to your application.

For a greater boat load and a low engine speed, a smaller-pitch propeller is more suitable. Conversely, a large-pitch propeller is more suitable for a smaller operating load as it enables the correct engine speed to be maintained.

Operation and Installation

Mount the outboard motor on the center line (keel line) of the boat. For boats without a keel or which are asymmetrical, consult your dealer.



1. Center line (keel line)

NOTE:

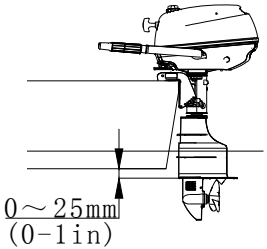
During water testing, check the buoyancy of the boat when at rest with its maximum load. Check that the static water level on the exhaust housing is low enough to prevent water entry into the power head, or when water rises due to waves, or when the outboard is not running.

⚠ WARNING:

- **Overpowering a boat could cause severe instability. Do not install an outboard motor with more horsepower than the maximum rating on the capacity plate of the boat. If the boat does not have a capacity plate, consult the boat manufacturer.**
- **Improper mounting of the outboard motor could result in dangerous conditions and injury. For permanently mounted models, your dealer or other person experienced in proper rigging should mount the motor. If you are mounting the motor yourself, you should be trained by an experienced person. For portable models, your dealer or other person experienced in proper outboard motor mounting should show you how to mount your motor.**
- **The information presented in this section is intended as reference only. Proper mounting depends in part on experience and the specific boat and motor combination.**

Mounting Height

The mounting height of the outboard motor greatly affects your boat running efficiency. If the mounting height is too high, cavitation tends to occur, thus reducing the propulsion. If the mounting height is too low, the water resistance will increase and thereby reduce engine efficiency. Mount the outboard motor so that the anti-cavitation plate is between the bottom of the boat and a level 25mm below it.

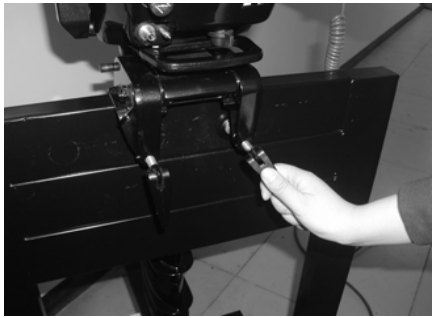


NOTE:

The optimum mounting height of the outboard motor is affected by the boat and motor combination and the desired use. Test runs at a different height can help determine the optimum mounting height. For further information, consult your "PARSUN" dealer or boat manufacturer.

Clamping the Outboard Motor

1. Tighten the transom clamp screw evenly and securely. Occasionally check the clamp screws for tightness during operation of the outboard motor because they could become loose due to engine vibration.



⚠ **WARNING:**

- **Loose clamp screws could allow the outboard motor to fall off or move on the transom. This could cause loss of control. Make sure the clamp screws are tightened securely. Occasionally check the screws for tightness during operation.**

1. If the engine restraint cable attachment is equipped on your engine, an engine restraint cable or chain should be used. Attach to a secure mounting point on the boat to avoid the engine being completely lost if it accidentally falls off the transom.

Remote Control mount

Choose suitable place on the boat to install remote Control plank and punch holes in the boat according to remote control plank, finally fasten remote control plank and remote control box to the boat with bolt.

Pre-Operation Checks

Controls

- Check throttle, shift and steering for proper operation before starting the outboard.
- The controls should work smoothly, without binding or unusual free play.
- Look for loose or damaged connections.
- Check the operation of the On and Off switch when the outboard motor is in the water.

CAUTION:

- **Do not start the outboard out of water. Overheating of the water pump can occur.**
- **Check the outboard mounting.**
- **Look for loose or damaged fasteners.**
- **Check the propeller for damage.**

Starting the Outboard
(Tiller Model)

1. Check to see that the On-Off-Battery switch is in the Off position.
2. Attach the outboard Tether Lanyard to a secure place on your clothing, or on your arm or leg. Then install the lock plate on the other end of the lanyard into the outboard stop switch
3. Connect the Blue Power Cable to the outboard.
4. Verify the Forward-Reverse switch is in the proper position.
5. Move the Throttle Grip to the minimum position.
6. Push the On-Off-Battery switch to On.
7. Carefully and slowly move the Throttle Grip in increase the outboard speed.
8. Check for steady flow of water from the cooling water pilot hole.

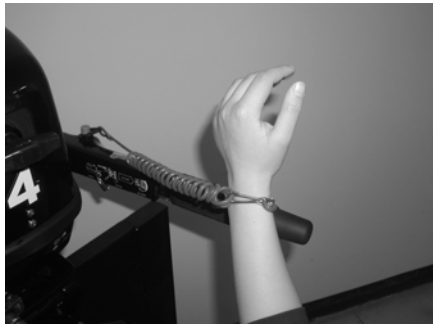
Power Cable

On-Off-Battery

Tether Switch Lanyard

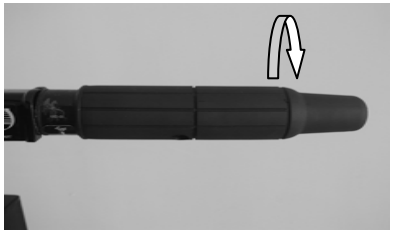
⚠ **WARNING:**

- **Do not start the outboard unless the Throttle Grip is in the minimum position.**
- **Do not attach the lanyard to clothing that could tear loose. Do not route the lanyard where it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the lanyard during normal operation. Loss of engine power means the loss of steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**
- **Always attach lanyard to clothing or wrist when operating the outboard.**



Changing Direction for Tiller Model

1. Place the throttle grip in the fully closed position.



2. Move the Forward-Reverse switch to the desired direction position.

On-Off-Battery Check switch on left side.

Forward (FWD) and Reverse (REV) switch on right side.

NOTE:

The outboard motor can turn 360° in its bracket (full-pivot system). The boat can also be backed up by simply turning the outboard motor around 180° with the steering handle facing toward you.

CAUTION:

- **You can change direction at any time, even with the Throttle Grip in the full speed position. This can cause a shifting lo loads in the boat, but may be necessary if you are moving too quickly towards a dock.**

⚠ **WARNING:**

- **When operating in reverse, go slowly. Do not open the throttle more than half. Otherwise the boat could become unstable, which could result in loss of control and an accident.**

Stopping the Outboard (Tiller Model)

PROCEDURE:

1. Push the On-Off-Battery switch to the off position.

NOTE:

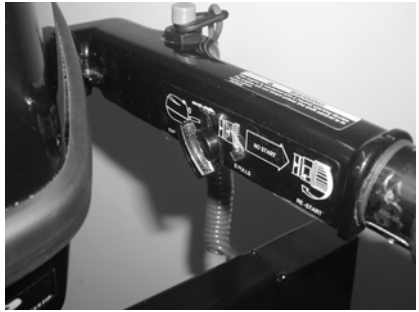
The outboard can also be stopped by pulling the lanyard and removing the lock plate from the Tether stop switch.

In emergency situations, the main Power Cable connector can also be removed to disconnect power form the outboard.

Throttle Friction Adjuster

The throttle friction adjuster is on the tiller handle, which provides adjustable resistance to movement of the throttle grip, and can be set according to operator preference.

To increase resistance, turn the adjuster clockwise. To decrease resistance, turn the adjuster counterclockwise. When constant speed is desired, tighten the adjuster to maintain the desired throttle setting.



⚠ **WARNING:**

- **Do not over-tighten the friction adjuster. If there is too much resistance, it could be difficult to move throttle lever or grip, which could result in an accident.**

Starting the Outboard
(Remote Control Model)

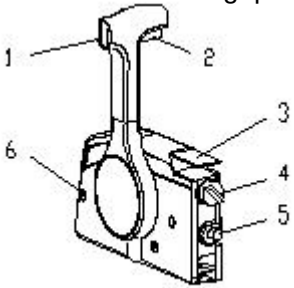
1. Check to see that the Battery switch is in the Off position.
2. Attach the engine stop switch lanyard to a secure place on your clothing, or your arm or leg. Then install the lock plate on the other end of the lanyard into the outboard stop switch
3. Connect the Blue Power Cable to the outboard.
4. Verify the Throttle Lever is in the neutral position.
5. Turn the Key switch to On by rotating clockwise.
6. Depress the Handle switch on the Throttle Lever and rotate the Throttle lever forward (for forward direction) or Reverse (for the reverse direction).
7. Carefully and slowly move the Throttle lever in increase or decrease the outboard speed.
8. Check for steady flow of water from the cooling water pilot hole.

⚠ **WARNING:**

- **Before changing direction, make sure there are no swimmers or obstacles in the water near you.**
- **Shifting from forward to reverse or vice versa is possible at any time, but care must be taken to prevent people and equipment from shifting in the boat.**

Changing Direction for the Remote Control Model

1. Place the throttle grip in the upright position for neutral.

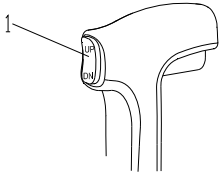


1. Throttle Grip.
2. Throttle Lock.
3. Not used on electric models.
4. Key Switch.
5. Tether Lanyard switch.
6. Mounting screw location.

Power tilt switch

The power tilt system adjusts the outboard motor in relation to the transom.

Pressing the switch“UP”trims the outboard motor up. Pressing the switch “DN” trims the outboard motor udown. When the switch is released,the outboard motor will stop in its current position.



1. Power tilt switch

2. Rotate the Throttle Grip forward for the forward boat direction, and rotate the Throttle Grip backwards for the reverse boat direction.

Stopping the Remote Control Outboard

PROCEDURE:

Rotate the Key switch to the off position.

NOTE:

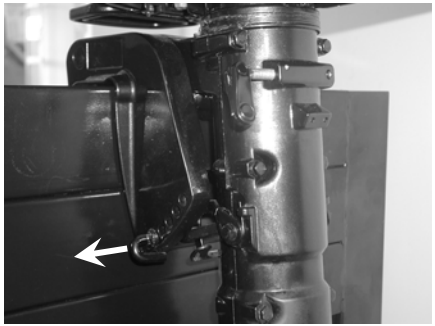
The outboard can also be stopped by pulling the lanyard and removing the lock plate from the Tether stop switch.

In emergency situations, the main Power Cable connector can also be removed to disconnect power from the outboard.

Trimming the Outboard Motor

There are 4 or 5 holes provided in the clamp bracket to adjust the outboard motor trim angle.

1. Stop the outboard.
2. Remove the trim rod from the clamp bracket while slightly tilting the outboard motor up.



3. Reposition the rod in the desired hole. Make test runs with the trim set to different angles to find the position that works best for your boat and operating conditions.

⚠ **WARNING:**

- **Stop the outboard before adjusting the trim angle.**
- **Use care to avoid being pinched when removing or installing the rod.**
- **Use caution when trying a trim position for the first time. Increase speed gradually and watch for any signs of instability or control problems. Improper trim angle can cause loss of control.**

Tilting Up and Down

If the engine will be stopped for some time or if the boat is moored in shallows, the outboard motor should be tilted up to protect the propeller and casing from damaged by collision with obstructions, and also to reduce corrosion.

⚠ WARNING:

- **Be sure all people are clear of the outboard motor when tilting up and down, also be careful not to pinch any body parts between the drive unit and engine bracket.**
- **Remove the Power Cable if the outboard motor will be tilted for more than a few minutes. Otherwise, an unsafe condition my exist.**

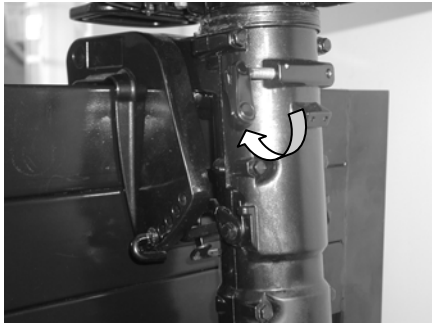
NOTE:

- **Do not tilt up the engine by pushing the tiller handle because this could break the handle.**
- **The outboard motor cannot be tilted when in reverse or when the outboard motor is turn 180° (facing the rear).**

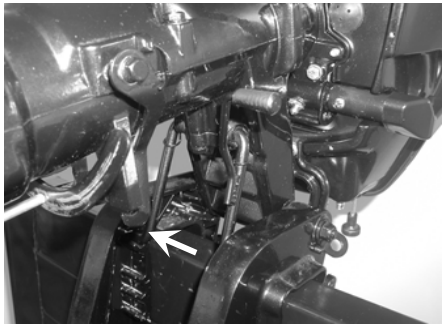
Tilting Up

1. Place the On-Off-Battery switch in the Off position and face the outboard motor forward. If this is a Remote Control Model, turn the Key switch to off and remove the key.

2. Tighten the steering friction adjuster by turning it clockwise to prevent the motor from turning freely.



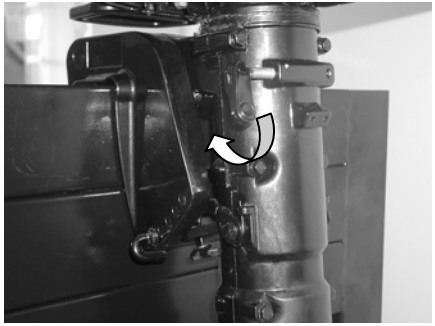
3. Disconnect the Power Cable from the outboard motor.
4. Hold the rear handle and tilt the outboard up fully until the tilt support lever automatically locks.



Tilting Up(power tilt)

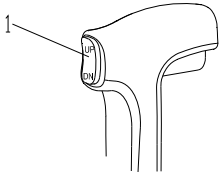
1. Place the On-Off-Battery switch in the Off position and face the outboard motor forward. If this is a Remote Control Model, turn the Key switch to off and remove the key.

2. Tighten the steering friction adjuster by turning it clockwise to prevent the motor from turning freely.



3. Disconnect the Power Cable from the outboard motor.

4. Pressing the switch“UP”trims the outboard motor up.



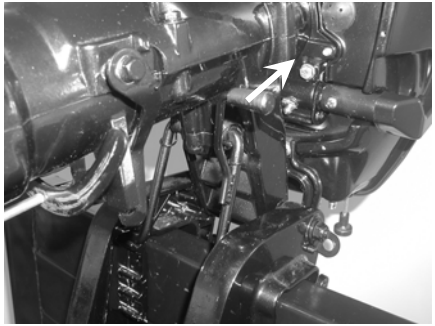
1. Power tilt switch

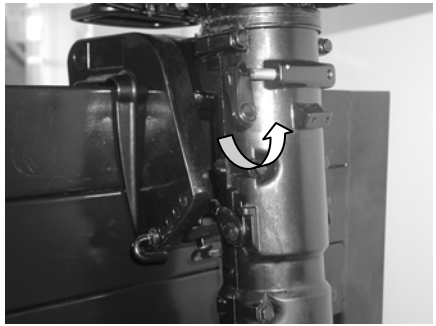
CAUTION:

Be sure to retract the trim rods completely huring mooring. This protects rods from marine growth and corrosion which could damage the power tilt mechanism.

Tilting Down

1. Slightly tilt the outboard motor up.
2. Slowly tilt the outboard motor down while pulling the tilt support bar lever up.





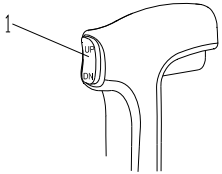
3. Loose the steering friction adjuster by turning it counterclockwise, and adjust the steering friction according to operator preference.

⚠/ARNING:

If there is too much resistance it could be difficult to steer, which could result in an accident.

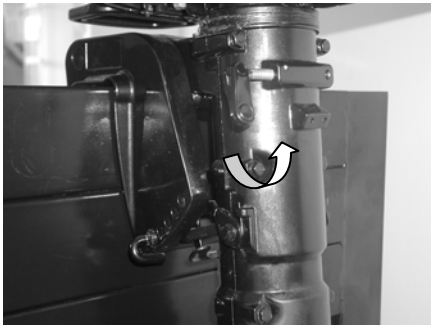
Tilting Down(power tilt)

1. Pressing the switch“DN”trims the outboard motor down.



1. Power tilt switch

2. Loose the steering friction adjuster by turning it counterclockwise, and adjust the steering friction according to operator preference.



⚠ **WARNING:**

If there is too much resistance it could be difficult to steer, which could result in an accident.

Cruising in Other Conditions and Cruising in Shallow Water

The outboard motor can be tilted up partially to allow operation in shallow water.

⚠ **WARNING:**

- **The tilt lock mechanism does not work while the shallow water cruising system is being used. Run the boat at the lowest possible speed to avoid the outboard motor being lifted out of the water, resulting in loss of control.**

- **Return the outboard motor to its normal position as soon as the boat is back in deeper water.**

CAUTION:

The cooling water inlet on the lower unit should be not above the surface of the water when setting up for and cruising in shallow water. Otherwise severe damage from overheating can result. For tilting procedure, see section 2.11.

Cruising in Salt Water

After operating in salt water, wash out the cooling water passages with fresh water to prevent them from becoming clogged with salt deposits.

Maintenance Procedures

While using the outboard motor, the periodic maintenance is necessary for you to ensure its performance.

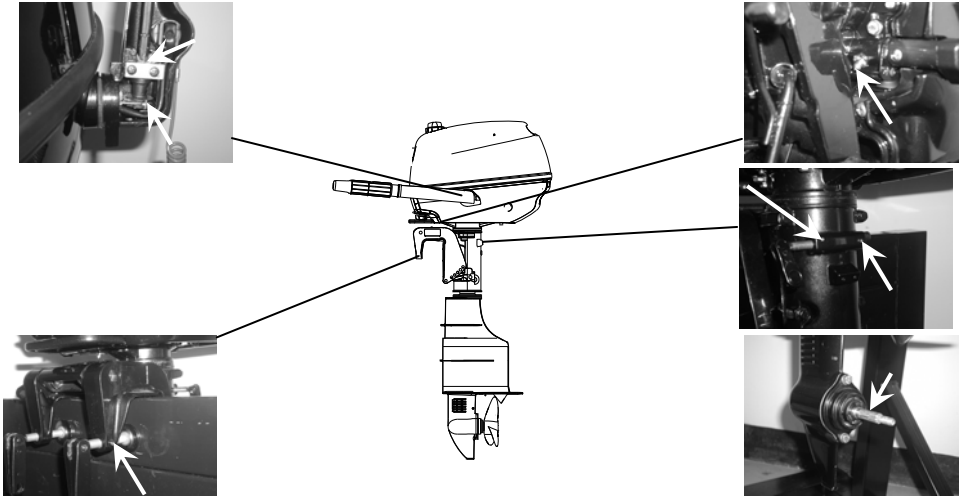
⚠ **WARNING:**

- **Be sure to turn off the outboard when you perform maintenance unless otherwise specified. This work should always be done by a qualified mechanic or your authorized PARSUN dealer.**

CAUTION:

If replacement parts are necessary, use only genuine PARSUN parts or appropriate parts of the same type and quality.

Greasing



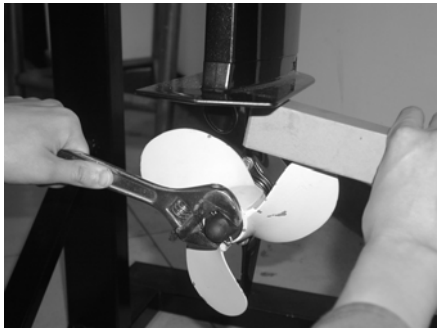
Checking wiring and connectors

Check that each grounding wire is properly secured and each connector is engaged securely.

Checking the Propeller

⚠ **WARNING:**

- **Before inspecting, removing or installing the propeller, always take actions to ensure the outboard does not accidentally start, such as removing the Power Cable connector, placing the On-Off-Battery switch in the Off position, (or remove the Key for the Remote Control Modle) and removing the lanyard from the outboard Tether stop switch, etc.. Serious injury can occur if the outboard should start and you are standing too close to the propeller.**
- **Do not use your hand to hold the propeller when loosening or tightening the propeller nut. Put a wood block between the anti-cavitation plate and the propeller to prevent the propeller from turning.**



1. Check each of the propeller blades for wear, erosion from cavitation or ventilation, or other damage.
2. Check the propeller shaft for damage.
3. Check the splines/shear pin for wear or damage.
4. Check for fish line tangled around the propeller shaft.
5. Check for the propeller shaft oil seal for damage.

Removing the Propeller

1. Straighten the cotter pin and pull it out using a pair of pliers.
2. Remove the propeller nut, washer, and spacer (if equipped).
3. Remove the propeller and thrust washer.

Installing the Propeller

CAUTION:

- **Be sure to install the thrust washer before instating the propeller, otherwise the lower case and propeller boss could be damaged.**
- **Be sure to use a new cotter pin and bend the ends over securely. Otherwise the propeller could come off during operation and be lost.**

1. Apply a marine grease or corrosion resistant grease to the propeller shaft.
2. Install the spacer (if equipped), thrust washer, and propeller on the propeller shaft.
3. Install the spacer (if equipped) and the washer.

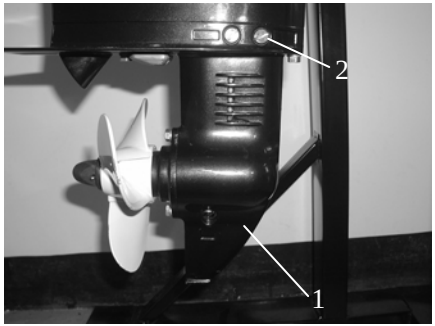
4. Tighten the propeller nut. Align the propeller nut with the propeller shaft hole. Insert a new cotter pin in the hole and bend the cotter pin ends.

Changing gear oil

⚠ **WARNING:**

- **Be sure the outboard motor is securely fastened to the transom or a stable stand.**
- **Never get under the lower unit while the outboard motor is tilted, even when the tilt support lever or knob is locked. Serious injury could occur if the motor falls.**

1. Tilt the outboard motor so that the gear oil drain screw is at the lowest point possible.
2. Place a suitable container under the gear case.
3. Remove gear oil drain screw.



1. Gear oil drain screw
2. Oil level plug

3. Remove the oil level plug to allow the oil to drain completely.

CAUTION:

Change the gear oil after the first 10 hours of operation, and every 100 hours or at 6-month intervals thereafter. Otherwise the gear will wear quickly.

CAUTION:

Inspect the used oil after it has been drained. If the oil is milky, water is getting into the gear case which can cause gear damage. Consult your PARSUN dealer.

5. Use a flexible or pressurized filling device, inject the gear oil into the gear oil drain screw hole.

6. When the oil begins to flow out of the oil level plug hole, insert and tighten the oil level plug (If necessary, change the seal spacer).

7. Insert and tighten the gear oil drain screw (If necessary, change the seal spacer).

Checking and Replacing the Anode

Inspect the external anode periodically. Remove scales from the surfaces of the anode. Consult a PARSUN dealer for replacement of external anode.

CAUTION:

Do not paint anodes, as this would render them ineffective and can cause more rapid engine corrosion.

Checking the Top Cowling (Cover)

Check the fitting of the top cowling by pushing it with both hands. If it is loose have it repaired by your PARSUN dealer.

Maintenance Table

When utilized under normal condition, maintained and repaired in the proper manner, the outboard motor can work normally within the normal life period.

Frequency of maintenance operations may be adjusted according to the operating conditions, but the following table gives general guidelines.

The "●" symbol indicates the check-ups which you may carry out by yourself.

The "○" symbol indicates work to be carried out by your Parsun dealer.

Item	Operations	Initial		Every	
		10 hours (1 month)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)
Anode(s) (external)	Check/replacement		● / ○	● / ○	
Anode(s) (internal)	Check/replacement				○
Cooling water passages	Cleaning		●	●	
Cowling clamp	Check				●
Gear oil	Change	●		●	
Greasing points	Greasing			●	
Propeller and cotter pin	Check/replacement		●	●	
Shift link/shift cable	Check/adjustment				○
Throttle link/throttle cable/ throttle pick-up timing	Check/adjustment				○
Water pump	Check				○

NOTE:

When operating in salt water, turbid or muddy water, the engine should be flushed with clean water after every use.

Transporting and Storing

The outboard motor should be trailed and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the outboard motor in the tilt position using a motor support device.

CAUTION:

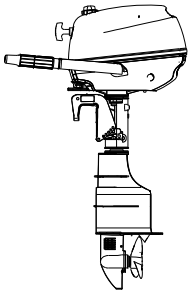
Do not use the tilt support lever or knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall.

⚠ WARNING:

- **Never get under the lower unit while it is tilted, even if a motor support bar is used.**

CAUTION:

- **Place a towel or something similar under the outboard motor to protect it from damage.**



Storing

When storing your PARSUN outboard motor for prolonged periods of time (2 months or longer), several important procedures must be performed to prevent damage.

It is advisable to have your outboard motor serviced by an authorized PARSUN dealer prior to storage. However, you, the owner, with a minimum of tools, can perform the following procedures.

CAUTION:

- **Keep the outboard motor in an upright attitude when transporting and storing it. If storing or transporting the outboard motor on its side (not upright), put it on a cushion.**
- **Do not place the outboard motor on its side before the cooling water has drained from it completely.**
- **Store the outboard motor in a dry, well-ventilated place, not in direct sunlight.**

Emergency Situations

Impact Damage

If the outboard motor hits an object in the water, follow the procedure below.

1. Stop the outboard immediately.
2. Inspect the control system and all components for damage.
3. Whether damage is found or not, return to the nearest harbor slowly and carefully.
4. Have a PARSUN dealer inspect the outboard motor before operating it again.

Treatment of Submerged Outboard

If the outboard is submerged, immediately take it to a PARSUN dealer. Otherwise some corrosion may begin almost immediately.

CAUTION:

Do not attempt to run the outboard motor until it has been completely inspected.

Low Battery Warning

The outboard is equipped with a low voltage warning beeper (buzzer). If the battery voltage falls below 36 volts for 20 seconds, then a low voltage warning beeper will sound every 20 seconds. **You should proceed immediately to shore!** Depending on the batteries and their condition, you may have very little battery capacity remaining.

The outboard will automatically shutdown when the voltage reaches 30 volts. If this happens,

you can wait a few minutes for the battery voltage to rise, restart the outboard, and proceed slowly to shore. You will go much farther with a low throttle setting than if you use a full throttle setting.

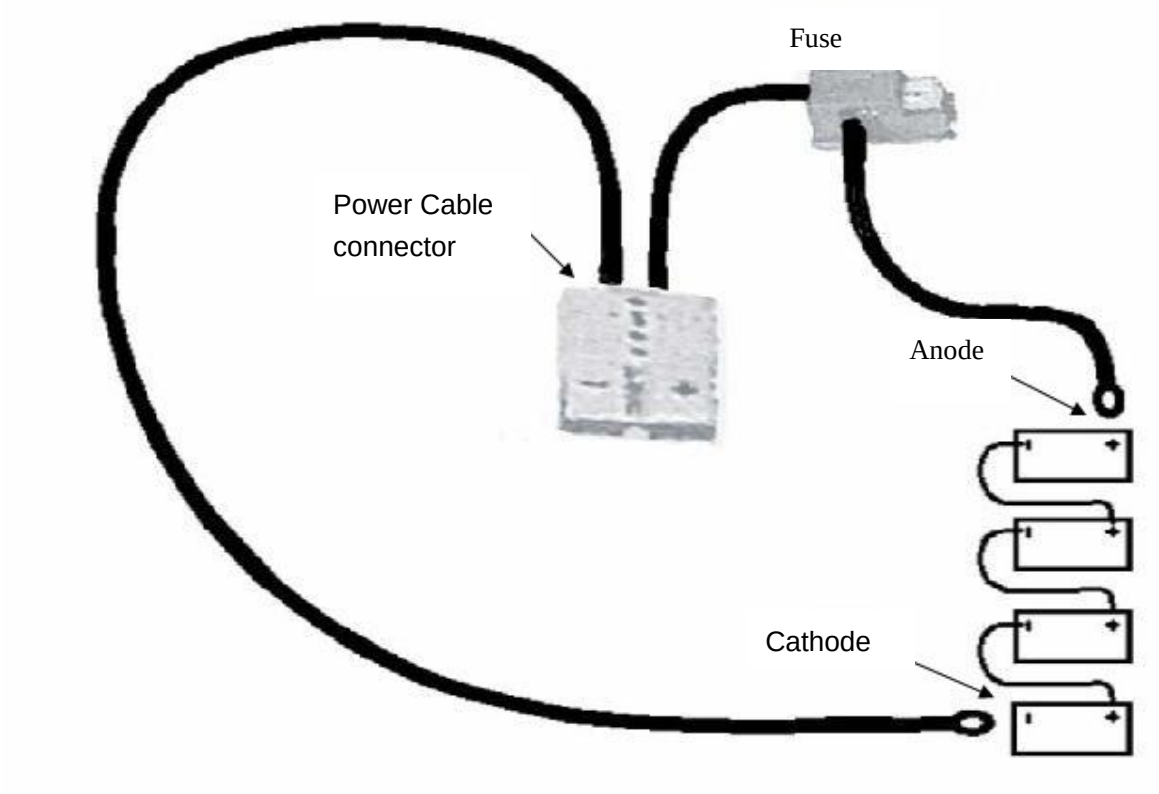
Overcurrent Protection

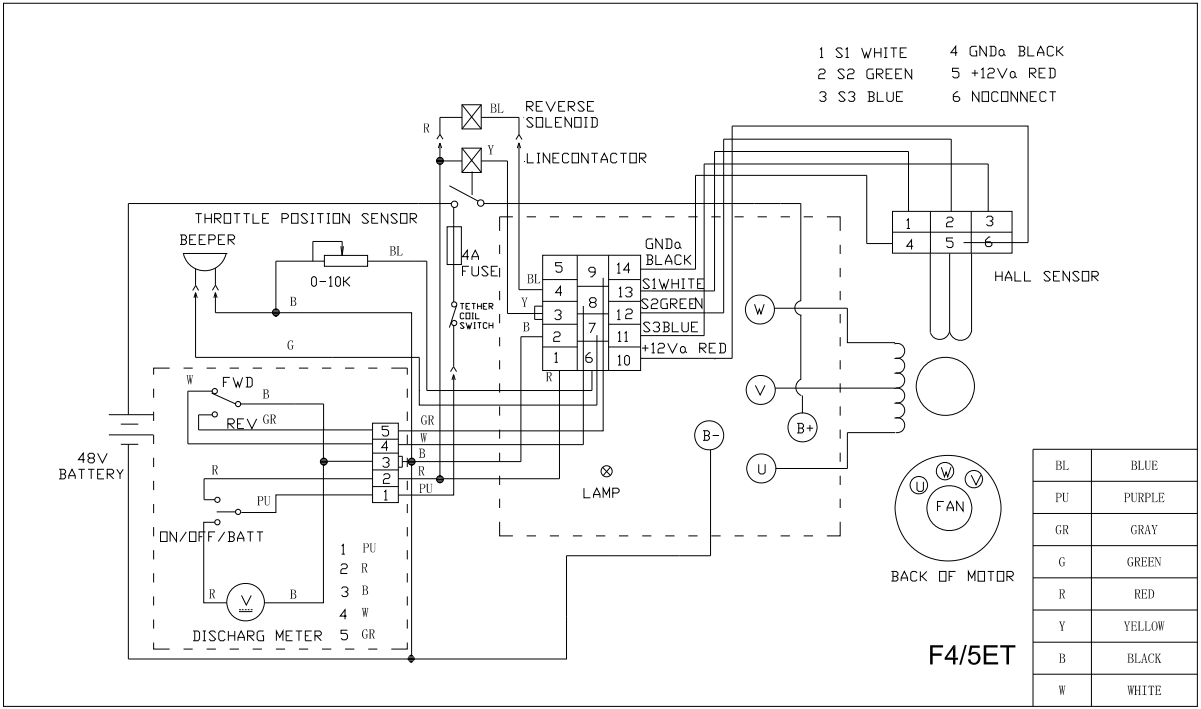
A manually reset, trip-free circuit breaker or fuse must be placed at the source of power (batteries) for each circuit or conductor except:

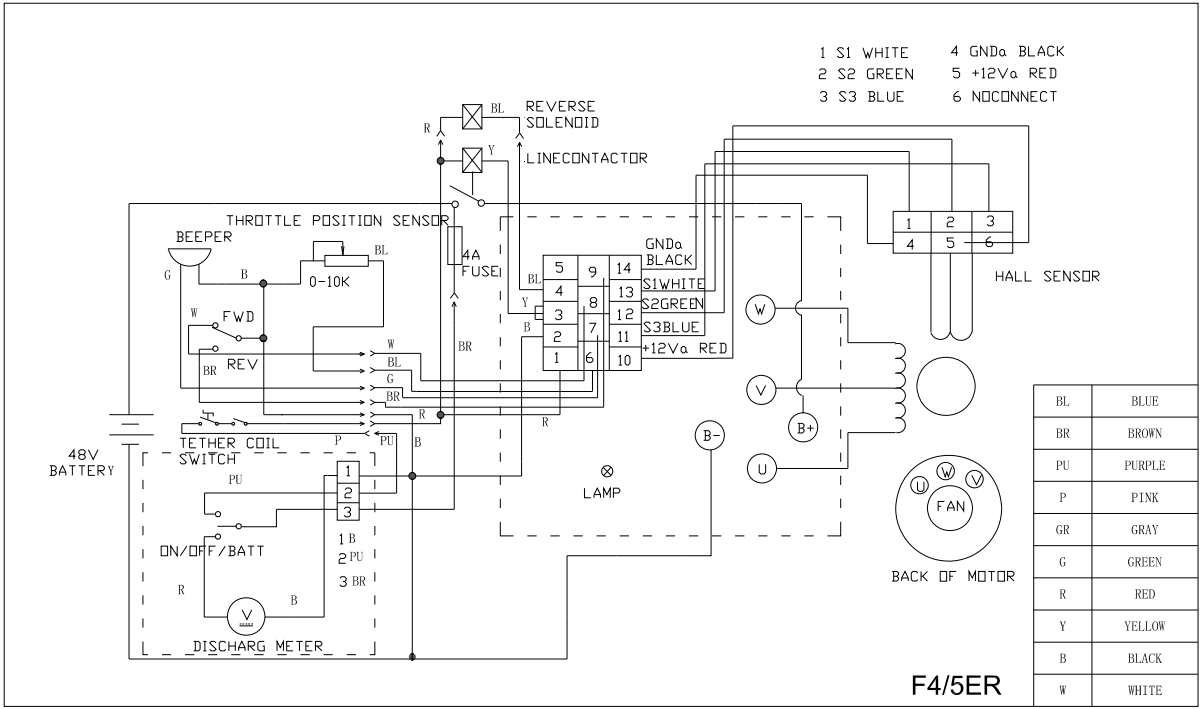
(1) If it is physically impractical to place the circuit breaker or fuse at the source of power, it may be placed within seven inches of the source of power for each circuit or conductor, measured along the conductor.

(2) If it is physically impractical to place the circuit breaker or fuse at or within seven inches of the source of power, it may be placed within 40 inches of the source of power for each circuit or onductor, measured along the conductor, if the conductor is contained throughout its entire distance between the source of power and the required circuit breaker or fuse in a sheath or enclosure such as a junction box, control box, or enclosed panel.

Circuit diagram




1 S1 WHITE
2 S2 GREEN
3 S3 BLUE
4 GNDa BLACK
5 +12Va RED
6 NOCONNECT
REVERSE SOLENOID
LINECONTACTOR
THROTTLE POSITION SENSOR
BEEPER
0-10K
4A FUSE
TETHER COIL SWITCH
GNDa BLACK
S1WHITE
S2GREEN
S3BLUE
+12Va RED
HALL SENSOR
FWD
REV
48V BATTERY
ON/OFF/BATT
DISCHARG METER
LAMP
B-
B+
FAN
BACK OF MOTOR
F4/5ET
BL BLUE
PU PURPLE
GR GRAY
G GREEN
R RED
Y YELLOW
B BLACK
W WHITE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HALL SENSOR
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BACK OF MOTOR
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BL BLUE
BR BROWN
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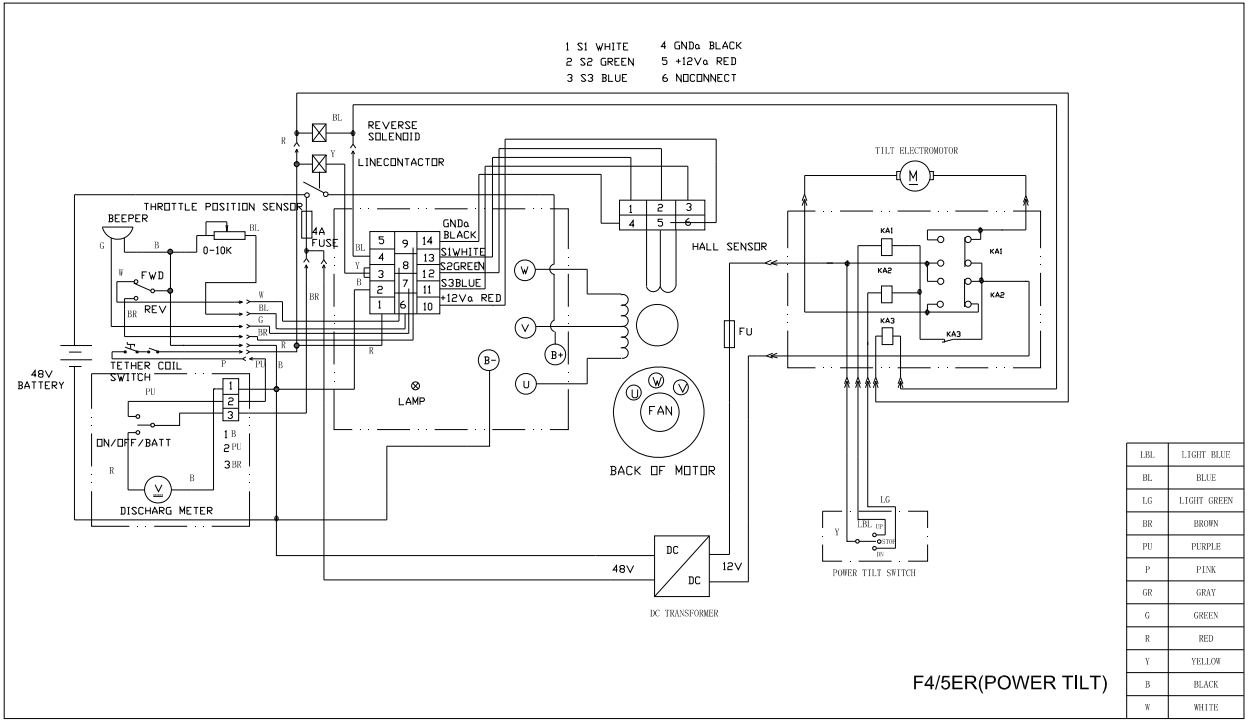
P PINK
GR GRAY
G GREEN
R RED
Y YELLOW
B BLACK
W WHITE



LBL	LIGHT BLUE
BL	BLUE
LG	LIGHT GREEN
BR	BROWN
PU	PURPLE
P	PINK
GR	GRAY
G	GREEN
R	RED
Y	YELLOW
B	BLACK
W	WHITE

Save this Operators Manual and store it with the outboard.