TITAN two strokes

5.5

horse power

Manual de Usuario

Manual do Proprietário

Owner´s Manual

Read this owner's manual carefully before operating your outboard motor. While sailing, take these manual in a waterproof bag. If you sale your motor board, these manual should go together.

To the owner

Thank you for choosing a TITANoutboards outboard motor. This Owner's Manual contains information needed for proper operation, maintenance and care. A thorough understanding of these simple instructions will help you obtain maximum enjoyment from your new TITANoutboards engine. If you have any question about the operation or maintenance of your outboard motor, please consult a TITANoutboards dealer.

In this Owner's Manual particularly important information is distinguished in the following ways.

The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING

Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the outboard motor.

PRECAUTION

A CAUTION indicates special precautions that must be taken to avoid damage to the outboard motor.

NOTE:

provides key information to make procedures easier or clearer.

TITANoutboards continually seeks advancements in product design and 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 this manual, please consult your TITANoutboards dealer.

To ensure long product life, TITANoutboards recommends that you use the product and perform the specified periodic inspections and maintenance by correctly following the instructions in the owner's manual. Note that if you do not follow these instructions, not only may the product break down, but the warranty will also be voided.

Some countries have laws or regulations restricting users from taking the product out of the country where it was purchased, and it may be impossible to register the product in the destination country. Additionally, the warranty may not apply in certain regions.

When planning to take the product to another country, consult the dealer where the product was purchased for further information.

If the product was purchased used, please consult your closest dealer for customer reregistration, and to be eligible for the specified services.

NOTE:

The 5.5T and the standard accessories are used as a base for the explanations and illustrations in this manual. Therefore some items may not apply to every model.

5.5T
OWNER'S MANUAL

1st Edition, June 2011

Outboard engine securityFollow these precautions at all times

Propeller
Danger of accidents ore ven death may occurif people gets in the way of the propeller.The propeller could keep on spinningwith the engine in neutral gear and the sharp borders of the propeller may cause a cut even when stopped.
Stop the engine if there is someone in the water near the boat. Keep people away from the propeller even with the engine stopped.
Spinning parts
Hands, feet, hair, jewelery, clothes, lifesaver´s jacket straps, etc. could entangle with the internal spinning parts of the engine, that can cause severe injuries, even death.
Keep always the superior cover on place. Do not remove nor replace the cover with the engine running.
Only use the engine with the cover off, if you follow the specific instruccions of these manual.Keep hands, feet, hair, jewelery, clothes, lifesaver´s jacket straps, etc.away from any moving part of the engine
Hot parts
During and after working the engine parts are hot enough to cause severe burning. Avoid touching any part located under the superior cover until the engine has cool down.
Electric shock
Do not touch any electric part while starting the engineor when running.You may suffer an electric shock.
Fuel
The fuel and fuel fumes are highly inflamables
Always refuel accordingwith the procedure on page 26 to reduce the risk of fire or explotion.
Fuel leaks
Try not to spill fuel. If some spill occur, clean inmediatly with dry cloths. Discard the cloths in a proper way.If fuel spill over skin, wash inmediatly with wáter and soap. Change your clothes if you spill some fuel over.If fuel is ingested, fume inhalated, goto medical attention inmediatly.Do not extract the fuel sucking with the mouth.
Carbon monoxide
These product produces exhaust gases that conteins carbón monoxide, a colourless, odorless gas, that may cause brain damageor even death if inhalated.
Symptons are nausea, dizziness and drowsiness.
Keep areas well ventilated. Avoid blocking exhaust outlets.
Modifications
Do not modify these the outboard engine.
Modifications may reduce it´s safety.

Do not modify these the outboard engine.
Modifications may reduce it´s safety.

Sailing safety

In these section are included several important safety precautions that should be undertaken while sailing.

Alcohol and drugs

Never sail after drinking alcohol or medicines. The intoxication is one of the factors that most common cause navigation accidents.

Life jacket

Carry one authorized life jacket for each occupant.
TITANoutboards recomends to wear it at all times while sailing. At a minimum, children and people who do not swim should always wear life jackets, and everyone should use then when potentially hazardous conditions exist during navigation.

People in the water

Watch closely if there is people in the water, like bathers, water skiers or divers, if the engine is running. If there is someone near the boat stop the engine.
Keep away from swimming areas.

Passangers

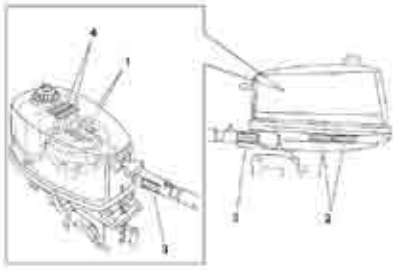
Check the boat instrucctionsto check the proper place the passengers should occupied on the boat and make sure they are properly placed before speedying up. If the passengers stay up ori f they sit on the wrong placethey may fell in the wáter.Even with every body properly seated, warn then if you need to do a sudden move. Avoid jumping over waves.

Overload

Do not overload the boat. Check the capacity to know the weight and maximun of passagers that can be carried.Make sure that the weight is distribuited correctly, according with the manufacturer instruccions.An overload or an incorrect distribution of the weight may afect the boat performance and cause an accident.

Avoid colissions

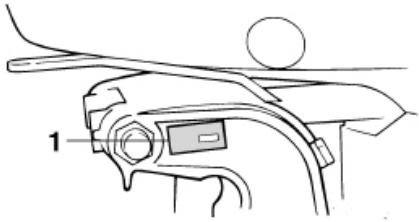
Watch constantly for peopla, objects or other boat on your way. Keep alert for conditions that may reduce your capability of vision.



Sail within the right speed and keep a safe distance from people,objects and other boats.
• Do not follow other boats or skiers water standing directly behind them.
• Avoid areas with submerged objects or shallow water.
• Navigate within your limits and avoid abrupt maneuvers to reduce the risk of loss of control, ejection and collision.
• Act early to avoid collisions.
Remember, boats do not have brakes and if the engine stops or reduces the acceleration, could be affected the capacity to steer the boat. If you are unsure able to stop in time before hitting an obstacle, accelerate and turn in another direction..
Weater conditions
Keep inform about the weather report. Check the weather before leaving. Avoid sailing with a dangerous weather.
Passengers skills
Make sure that at least one of the passengers knows how to steer the boat in an emergency.
Safety Documentation
Navigation
Stay informed about safety navigation. You can get documentation and additional information from many navigation organizations.
Legislation and policy
Know the laws and marine policy applicable in the place where you are navegating. In different places different rules prevail, but they all basically agree with International Route Rules.
.

Id Numbers:

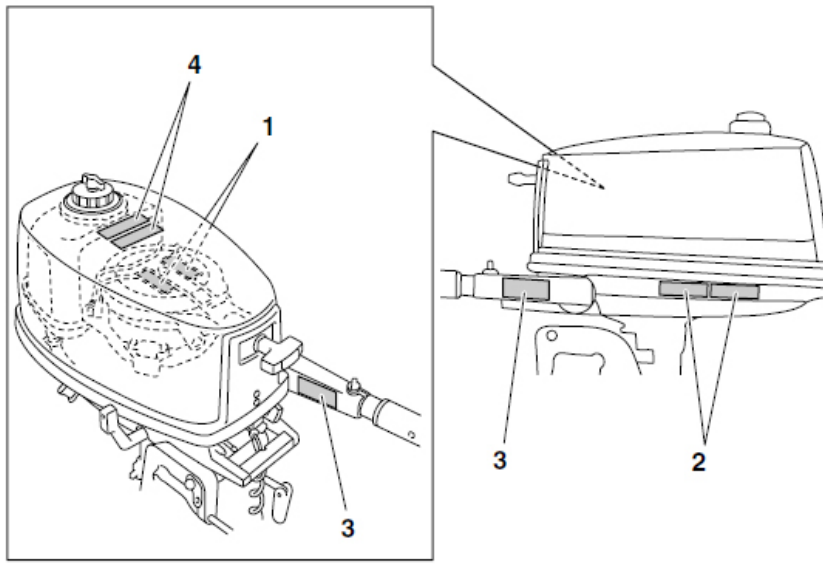
The outboard motor serial number is stamped on the label attached to the port side of the clamp bracket or the upper part of the swivel bracket. Record your outboard motor serial number in the spaces provided to assist you in ordering spare parts from your Yamaha dealer or for reference in case your outboard motor is



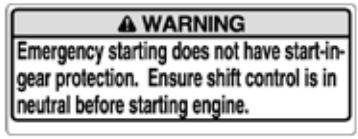
1. Outboard motor serial number location Declaration of Conformity CE

General Information
Read the manuals and labels
Safety information

Before mounting or operating the outboard motor, read this entire manual. Reading it should give you an understanding of the motor and its operation.
Before operating the boat, read any owner's or operator's manuals supplied with it and all labels. Be sure you understand each item before operating.
Warning labels
IF the labels are broken or missing, contact your TITANoutboarder dealer for replacement.
Labels content
5.5T

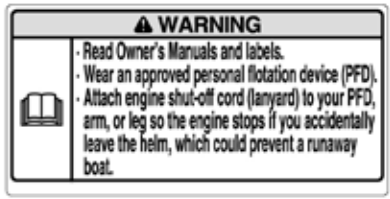


1



2

3



The previous warning labels have the following meanings

1

⚠ WARNING

The emergency start has not protection boot up engaged. Check control shift is in neutral before starting the engine.

⚠ WARNING

• Keep hands, hair and clothing away from rotating components while the engine is running.
• Do not touch or remove components when starting the engine power or while in operation.

⚠ WARNING

Read the owner's manuals and tags.
• Use a personal floating device

Attach the engine stop cable (lanyard) to the floating device, arm or leg so that the engine stops if accidentally leaves the helm, to avoid the boat is out of control.

⚠ WARNING

Gasoline is extremely flammable and explosive. Stop the engine before refueling. Tighten the reservoir cap and screw of breath when not in use.

Symbols

These symbols have the following meanings.
Caution / Warning

See te owner manual.

Danger

Danger

lever operation
Remote control / shift lever
up, two-way

Start up

Specifications

Dimension:
Overall length:
677 mm (26.7 in)
Overall width:
322 mm (12.7 in)
S Overall height:
1011 mm (39.8 in)
Overall height L:
1138 mm (44.8 in)
Transom Height S:
444 mm (17.5 in)
Transom height L:
571 mm (22.5 in)
Weight S:
21.0 kg (46 lb)
Weight L:
21.5 kg (47 lb)
Yield:
Working range at full throttle:
4500-5500 r / min
Maximum power:
- 5.5T model:
KW@5250 4.1 r / min (5.5 HP@5250 r / min)

Idling speed (in neutral):
1150 ± 50 r / min
Engine:
Type:
2 stroke S
Displacement:
103.0 cm^3
Bore x stroke:
54.0 × 45.0 mm (2.13 x 1.77 in)
Ignition system:
CDI
Spark Plug (NGK)
B7HS
Clearance of spark plug:
0.6-0.7 mm (in 0024-0028)
Control system:
Tiller
Starting System:
Manual
Fuel system to boot:
Throttle

Transmission Unit:
Gear positions:
Forward-Neutral-Rear
Gear Ratio:
2.08 (27/13)
Lift and trim system:
Manual lifting

Combustible and oil:
Recommended fuel:
Regular unleaded
Minimum octane (R.O.N.)
90
Fuel tank capacity:
12.0 L (3.17 U.S. gal, 2.64 Imp.gal)
Fuel tank capacity
(integrated):
2.8 L (0.74 U.S. gal, 0.62 Imp.gal)
Recommended engine oil:
Outboard engine oil 2
POWERLUBE Value Fuel oil:
Regular gasoline:
50: 1

Specifications and requirements
Lubrication
Premixed fuel and oil
Recommended gear oil:
Hypoid gear oil SAE
90 Gear oil quantity:
0,100 L (0.106 U.S. qt, 0.088 Imp.qt)
Torque:
Spark plug:
25.0 Nm (2.55 kgf-m, 18.4 ft-lb)

⚠ WARNING

Overloading the boat can
result in serious instability.
Before installing the outboard motor,
sure that the total engine power not
exceeds the maximum power of the
boat. Watch
the boat's capacity plate or contact
contact the manufacturer.
Engine Mounting

⚠ WARNING

• Improper mounting of an outboard
motor
could lead to dangerous conditions, as
improper handling,
loss of control or fire hazard.
• Since the engine is very heavy,
require special equipment and training
to ride safely.
The engine installation must be per-
formed by your dealer or other experi-
enced person
in the installation of ships,
using appropriate equipment and
complete installation instructions. To
For more information.
Engine Mounting
• Improper mounting of an outboard
motor
could lead to conditions
dangerous, as improper handling,
loss of control or fire hazard.
• Since the engine is very heavy,
require special equipment and training
to ride safely.

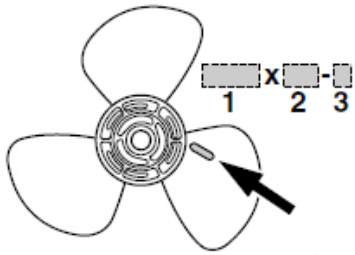
PRECAUTION

The engine installation must be per-
formed by dealer or other person
experienced in the installation of ships,
using appropriate equipment and
complete installation instructions. To
For more information.

Propeller Selection

With the choice of an outboard motor,
Choosing the right propeller is

one of the most important buying decisions a sailor to take. The type, the size and propeller design influence directly in acceleration, speed maximum fuel consumption and even the life of the engine. TITANoutboards designs and manufactures propellers for all outboard engines and any application.
Your outboard motor is equipped with a Powertec propeller chosen to work Outboards successfully in a wide range of applications but there may be circumstances in which it might be more appropriate to use a different propeller. TITANoutboards dealer can help you choose the right propeller for your navigation needs.
Select a propeller that allows the engine to reach the middle half
or higher operating margin Full speed with full load. Normally, choose a higher pitch propeller for a lower operating charge and a helix underpass for a larger load. Carrying constantly varying loads, choose the propeller to enable the motor function in the proper range for



maximum load, but remember to be reduce the acceleration to remain in engine speed range recommended when carrying lighter loads.
For instructions on removing and installation of the propeller, see page 50.
1. Propeller diameter in inches
2. Propeller pitch in inches
3. Type of propeller (propeller mark)

Protection against start
with gear engaged TITANoutboards engines or Remote control units approved by TITANoutboards have device (s)
protection against starter in gear. This function starts the motor only
when in neutral. Select always neutral before starting the motor.

Engine oil requirements

Recommended engine oil:
Outboard engine oil 2
TITANLUBE
If there is no recommended engine oil, using another engine oil
2-stroke with an index of approved TC-W3 by NMMA.
Fuel Requirements

Gasoline

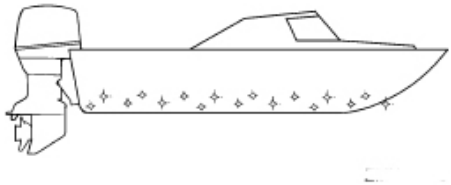
Use a type of gasoline quality that meets the minimum octane.
If there are strokes or sounds, use a different brand of gasoline or fuel unleaded.
Gasoline Recommended:
Regular unleaded gasoline with a minimum octane rating 90 (RON).

PRECAUTION

• Do not use leaded gasoline. Gasoline lead can cause serious damage engine.
• Avoid getting water and dirt in the fuel tank. The dirty fuel can encourage poor performance or engine damage. Use only fresh gasoline
has been stored in clean warehouses.

Acidic or muddy waters

TITANoutboards strongly recommended that you ask your dealer to install the optional chrome pump kit if you use the motor outboard in water conditions
acidic or muddy. However, depending on the model that may not be necessary.
Paint stick A clean hull improves the ship performance. The bottom of the boat must be keep as clean as possible of all adhesions marinas. If necessary, the bottom of ship can be coated with a paint stick aproved in your country to inhibit marine adhesions. Do not use paint stick that has copper or graphite. These paintings may cause a higher corrosion to the motor. Engine waste requirements
Do not dispose of motor illegally.

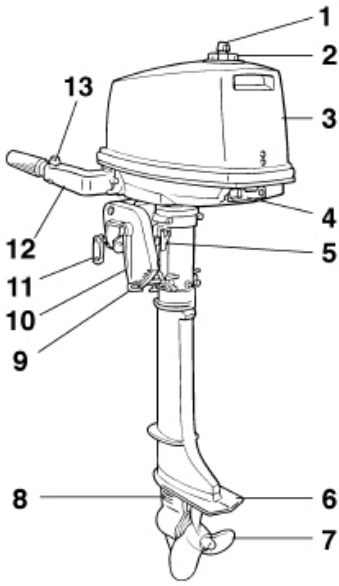


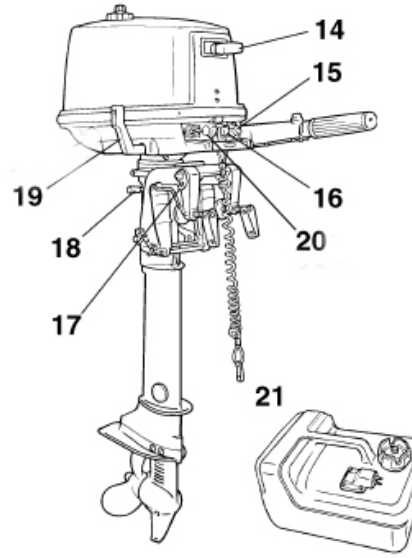
TITANoutboards recommends consulting your dealer
to get rid of the engine.

Emergency equipment
Bring the following items on board in case you
have engine problems.
• Tool kit with screwdrivers,
pliers, wrenches (including
metric sizes) and duct tape.
• waterproof flashlight with extra batteries.
• An additional cable man overboard (lanyard)
with lock.
• Spare parts, as an extra set of
spark plugs.
For more details, consult your
TITAN dealer Outboards.

*Component Diagram

NOTE:
* It may not exactly match the picture shown, also may not be included as standard on all models.

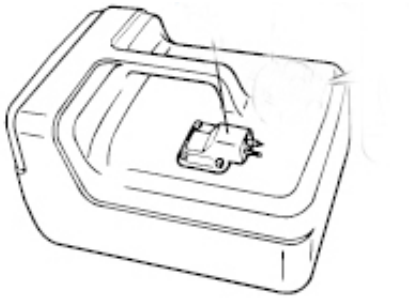




Specifications and requirements
1. Sigh tank
2. Fuel tank cap
3. Upper canopy
4. Canopy closure
5. Steering Friction regulator
6. Anti-cavitation plate
7. Propeller*
8. Cooling water inlet
9. Rod trim
10. Fixing support
11.Blade fixing
12.Tiller
13. Throttle friction regulator
14. Manual starter handle
15. Choke handle
16.Engine stop switch/ landyard switch
17. Cable hook up
18. Support Bar
19. Gearshift lever
20. Fuel key

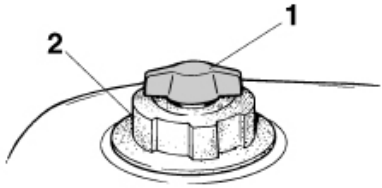
If your model is equipped with a portable fuel tank, its function is as follows

Components
The fuel tank that is supplied
with this engine is specific to the
fuel and should not be used as
storage container.
Commercial users should satisfy the relevant
authorities issuing the license
or approval.



1. Sigh tank
2. Fuel Gauge
3. Fuel connector
4. Fuel tank cap

Fuel Tank
If your model includes a fuel tank
its components are as follows.



1. Sigh tank
2. Fuel tank cap
Fuel connector

This connector is used to attach the tube
fuel.
Fuel Gauge
This meter is in the tank lid fuel or base con-
nector gasoline. Shows the approximate
amount of fuel remaining in the tank.

Fuel tank cap This cap closes the fuel tank.

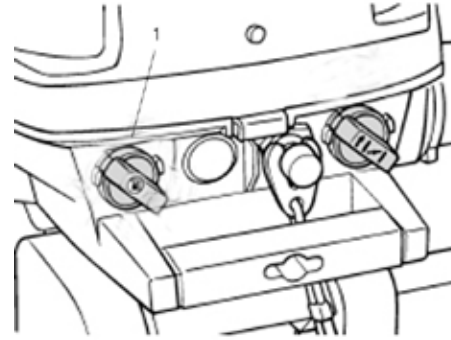
When removed, it can be refueled
the tank. To remove the cap, turn
counterclockwise.

Fuel key
The key opens and closes the fuel supply
from theFuel Tank
to the engine.
1. Fuel cock Close
To stop the flow of fuel to the engine,
turn the lever or handle to closure position.

Components

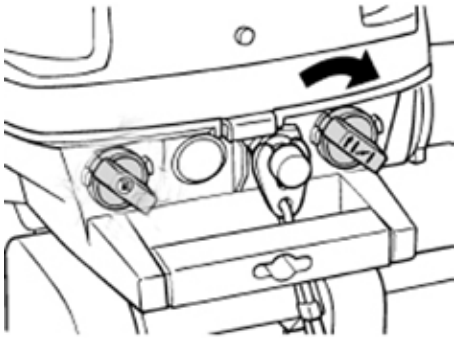
Always turn the lever or handle to end position
when the engine is not

operating.

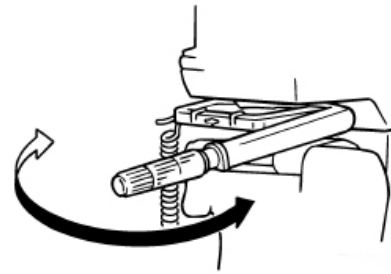


1. Closed position

Always turn the lever or handle to end position when the engine is not operating.

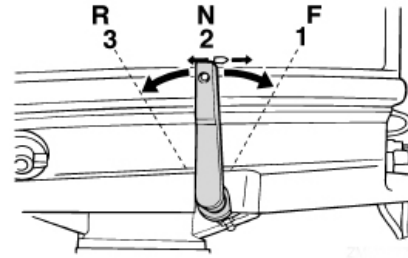


before launching the inner tank engines, you must open combultible knob.

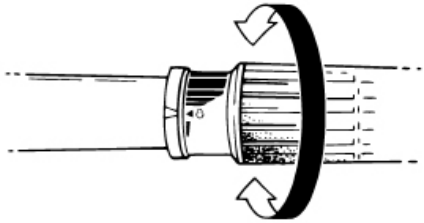


ahead, which makes the boat move forward. By pushing the lever away you, you put the engine running back and the boat moves backward.

Tiller
To change direction, move control tiller to the left or right as necessary.
Gearshift lever Pulling the gear shift lever toward you, you put the engine running



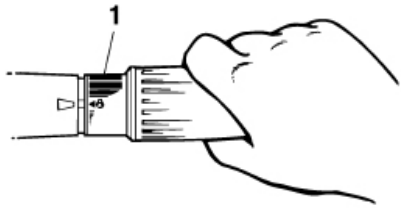
1. Avante "F"
2. Neutral "N"
3. Reverse "R"



Throttle

The throttle is on the tiller.
Turn the handle counterclockwise to increase the speed and clockwise to decrease.
Components

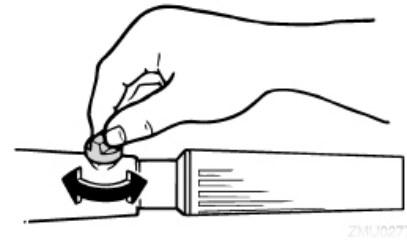
Throttle indicator



The fuel consumption curve in Throttle indicator shows the amount relative fuel consumption for each accelerator valve position. Choose the setting that provides the best performance and fuel saving for the desired operation.

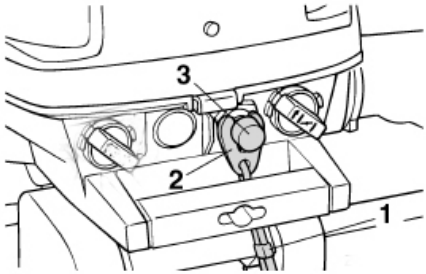
Throttle Friction Adjustment

The friction device provides an adjustable resistance movement of the throttle or the remote control lever, and may be adjusted according to operator preference.
To increase resistance, turn the adjuster in the sense of clockwise. To decrease resistance, turn the adjuster in the clockwise direction.



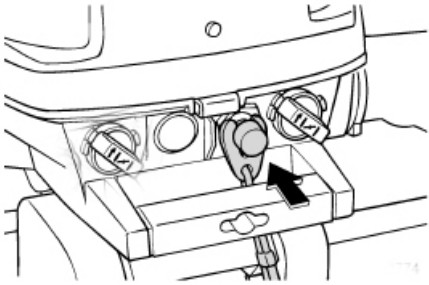
WARNING! Do not overtighten the friction regulator. If you find much resistance, may be difficult to move the lever of the remote or the throttle, which could be cause of accident.
If you want a constant speed, tight the regulator to keep the desired throttle setting.

The cable must be attached safety to clothing, or the operator's arm or leg. If operator falls overboard or leave the



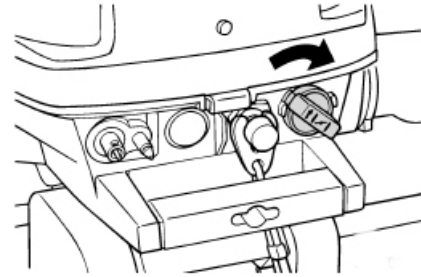
helm, he will pull the cord and stop the motor. This prevent the ship itself driven out by itself.

WARNING! Secure the cable man overboard to a safe place

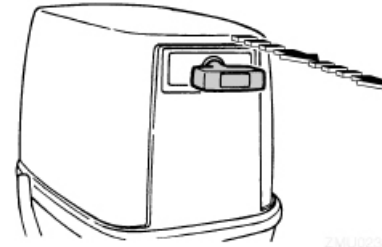


clothes, or your arm or leg while running. Do not attach the cable to clothing they might break and fall off. Do not run cable to a place where he could entangled, preventing its operation.
Avoid accidentally pulling the cable during the normal operation. The power loss motor means losing almost the steering control. Also without power engine, the boat would quickly decelerated.

This could be due to people and objects boat to be thrown ahead.

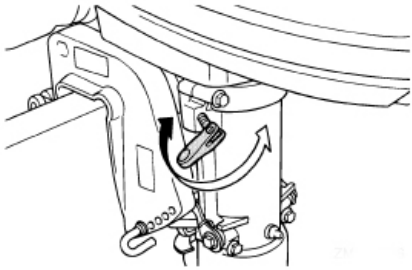


1. Cable
2. Lock
3. Engine stop switch



Engine stop button To open the ignition circuit and stop tne engine, press this button.Choke Knob To feed the engine with rich fuel mixture required for startup, turn the knob to the right. Starter handle manual To start the engine, start pulling gently the handle until you feel resistance. In reaching this position, pull straight and strongly to start the engine. Regulatory Steering Friction The friction device provides a graduable resistance to the steering mechanism, and can be adjusted according to operator´s preference. The adjustment screw or bolt is located in the conduit of the rotation axis.

To increase resistance, turn the adjuster clockwise.



Reduce resistance, turn the adjuster counterclockwise.

⚠ WARNING

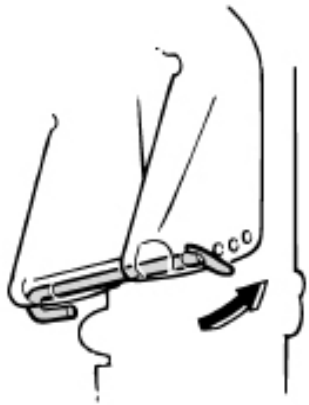
Do not over tight the friction regulator. If you encounter much resistance, it can be difficult steering the boat, that could cause accidents.

Trimming rod (pin elevation)

The position of the trim rod determines the minimum trim angle of the outboard engine in relation to the transom.

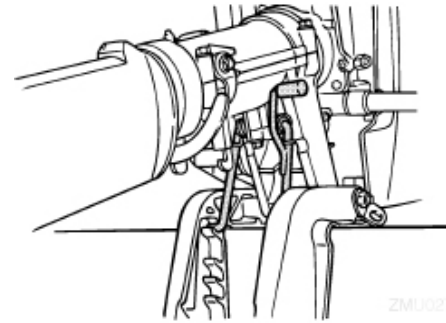
Support Bar

The support bar keeps the outboard in the raised position.



Do not use the support bar when towing the boat. The outboard motor could detached from the support due to movement

and fell. If you can not tow



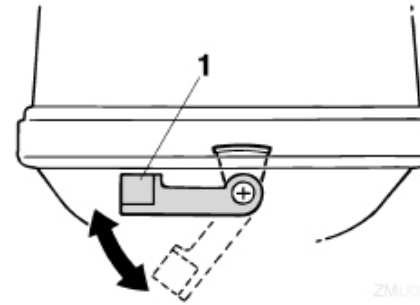
PRECAUTION

the engine in normal running position, use additional support to secure in position.

Close (s) of the hood (Rotary type)

To remove the canopy top, turn on (the) end (s) and lift and remove the hood.

When installing the hood, make sure it fits properly in the shutter rubber. Then lock the hood



Installation

The information in this section is offered as reference only.
It is impossible to offer complete instructions for every possible combination of boat and motor. Proper assembly depends part on the experience and the combination specific of boat and engine.

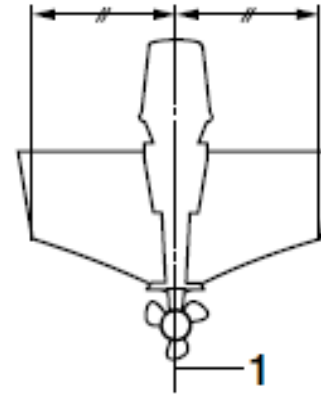
⚠ WARNING

• Overloading of the ship could result on serious instability. Do not install an outboard motor with a power higher than the nominal maximum specified on the boat capacity plate. If the boat has no capacity plate, see the boat manufacturer.
• Improper mounting of an outboard motor could lead to dangerous conditions as improper handling, loss control or fire hazard. In permanently mounted models, you must install the motor with your dealer or any other person experienced in the rigging of ships.

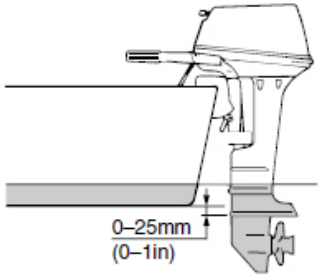
Engine height

To reach the ship optimal performance, the water resistance (resistance forward) of the boat and outboard motor must

be minimized. The height of the outboard engine greatly affects water resistance. If the height of motor is too large, it tends to occur cavitation, thus reducing propulsion, and if the tips of the blades of the propeller cut the air, the engine speed will rise abnormally and cause overheating engine. If the engine height is too low, resistance will rise water and thus will reduce the performance engine. Mount the outboard motor on such a way so that the anti-cavitation plate is positioned between the bottom of the boat and a level of 25 mm (1 in) under it.



• Check that the idle port is high enough to prevent water getting inside the engine, while the boat is Stop and maximum load.
• Incorrect engine height or obstacles to the smooth ride on water (as might be the design or condition of the boat, or accessories as a ladder) can create a water spray, suspended in the air while move the boat. If the engine runs continuously in the presence of spray, of water suspended in the air could enough water penetrate into the engine through the inlet opening hood and cause serious damage motor. Remove the cause of the spray, water suspended in the air.



NOTE:
• The optimum height of outboard motordepends on a combination boat / motor and the intended use. Functional testing made at different heights can help determine the optimum height of the engine. For more information on height determination good engine, consult your TITANoutboards dealer or boat manufacturer.

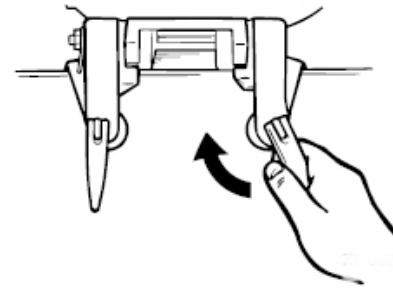
• For instructions on setting trim angle of the outboard engine
.

Outboard motor fastening

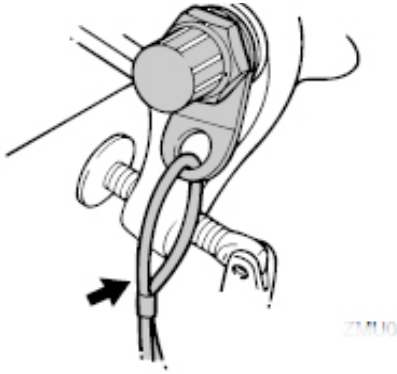
1. Place the outboard motor on the transom of Stern is positioned so that it is close to the center. Tighten fixation evenly and firmly. Occasionally, check during operation outboard engine tightening the Fixing, because they could loosen due to engine vibration.

WARNING! Loose fixing could make the motor to fell or outboard motor move in the transom. This could cause loss of control and serious injury. Make sure moths are transom tight. Occasionally, check during operation tightening the wing.

2. If your engine is equipped with a hook security cable, use a cable or chain lock. Attach one end to the cable hook security and the other to a safe point



3. Secure the bracket to breastplate
using the supplied bolts
with the outboard (if included).
For details, consult your dealer



TITANoutboards. WARNING!
Avoid the use of bolts, nuts or
washers are not content in the engine
package. If you use others they must
be at least a material of equal quality
and resistance of the originals, must
tightened firmly. Once tight, check the
operation of motor check for tightness.

First Use

Engine break
Your new engine needs a break-in period to the mated surfaces moving parts to wear out uniformly. Ensure a correct break-in period for a good performance and longer life
engine service. CAUTION: Failure to do so, the rolling procedure could reduced engine life, and evenmay cause damage.

Chart of mixture of gasoline and oil motor (25:1)

	25:1			
	1L (0.26 US gal. 0.22 Imp gal.)	12L (3.2 US gal. 2.6 Imp gal.)	14L (3.7 US gal. 3.1 Imp gal.)	24L (6.3 US gal. 5.3 Imp gal.)
	0.04 L (0.04 US qt. 0.04 Imp qt.)	0.48 L (0.51 US qt. 0.42 Imp qt.)	0.56 L (0.59 US qt. 0.49 Imp qt.)	0.96 L (1.01 US qt. 0.84 Imp qt.)

ZMU02442

1. : Gasolina
2. : Aceite de motor

PRECAUTION

Be sure to blend perfectlygasoline and oil, because otherwisecan damage the engine.

Procedure for fuel models premixed:
Run the engine under load (with gear engaged and a propeller installed) during 10 hours as follows.

1. First ten minutes:
Run the engine at the slowest speed possible. Fast idle in neutral recommended.

2. Next fifty minutes:
Do not exceed the average position of acceleration (approximately 3000 r / min). Occasionally vary the speed of motor. If you have a planner, swift as possible to stand at plane and immediately reduce the acceleration at 3000 r / min or less.

3. Two following hours:
Full throttle to stand at plane and reduce engine speed to three quarters of the acceleration (Approximately 4000 r / min). Vary engine speed occasionally.
Navigate to full throttle for a minute and then reduce the fly for 10 minutes to three quarters parts of the acceleration or less, to allow the engine to cool.

4. Seven remaining hours: Run engine at any speed. However, do not navigate full throttle for more than 5 minutes followed.

5. After the first ten hours:
Use the engine normally. Use the normal proportion of premix fuel and oil. For information on how to mix fuel and oil.

Knowing your boat
Differents vessels behave differently. Navigate with caution while learning the behavior of boat in different conditions and different angles of trim.

Operation
Checks before
starting engine

⚠ WARNING

If before starting the engine any elements of the checks fail to work properly, ask to examinate and repair before use the outboard motor. Otherwise an accident could occur.

PRECAUTION

Do not start the engine out of water. It may cause overheating and seriously damage the motor.

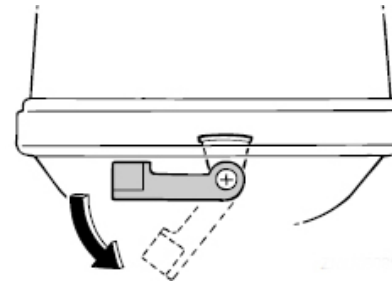
Fuel Level
Make sure you have enough fuel for the voyage. Good rule is to use 1 / 3 of fuel to get their destination, 1 / 3 to return and maintain 1 / 3 as an emergency reserve. With level boat on a trailer or water, check the fuel level. For instructions on filling Fuel.

Remove the hood

To perform these checks, remove the top of the engine hood. To disassemble upper canopy, release the latch and lift.

Fuel System
Gasoline and its vapors are highly flammable and explosives. Stay away from sparks, cigarettes, flames or other ignition sources.

Leaking fuel can be cause fire or explosion.



⚠ WARNING

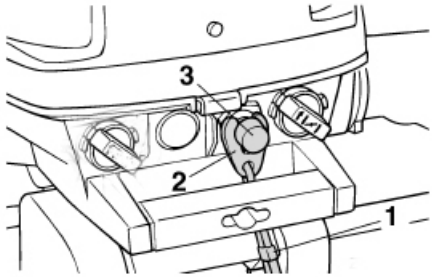
• Regularly check for leaks fuel.
• If fuel leaks that must be Nrepair the fuel system a qualified mechanic. Improper repairs may make it unsafe to operate outboard motor.

⚠ WARNING

Check for fuel leaks
• Check for leaks boat fuel or fuel vapors.
• Check for fuel leaks in fuel system.
• Examine the tubes and the fuel tank for cracks, expansion or other damage.

Controls

• Turn the tiller completely left and right to ensure that it moves slowly.
• Turn the throttle position completely closed to fully open open. Chack that it turns slowlyand goes to the completely close psition.
• Look for loose connections or damaged throttle cable and inverter.WARNING Cable man overboard (lanyard)
Inspect the cable man to water for damage such as cuts, breaks and wear.



1. Cable
2. Lock
3. Engine stop switch

Oil

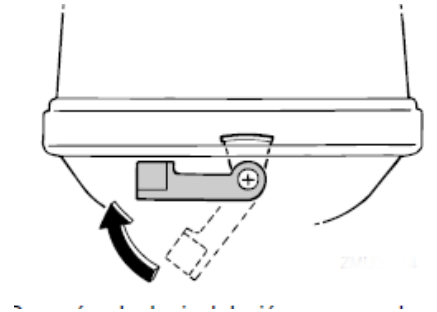
• Make sure you carry enough oil for your trip.

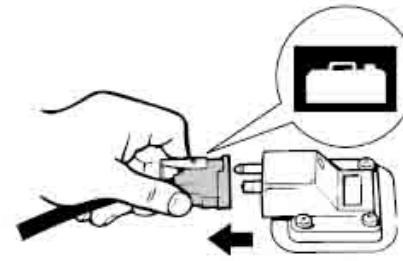
Motor

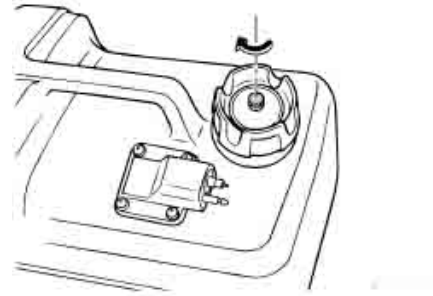
• Check the motor and its installation.
• Check for loose fasteners or damaged.
• Ensure that the propeller is not damage.

Install the hood

1. Make sure you release a closure hood.
2. Make sure the rubber stopper settle properly around the upper canopy.
3. Place the top over the lower canopy.
4. Make sure the rubber stopper fits properly around the motor.
5. Push the hood latch to lock as indicated. CAUTION: If the hood is not installed correctly, under water spray could damage the engine or it could be flown while navigating at high speeds. After installation, check adjustment of the upper canopy pushing with both hands. If it is loose, contact Powertec dealer for Outboards to request a repair.







Fueling and oil motor

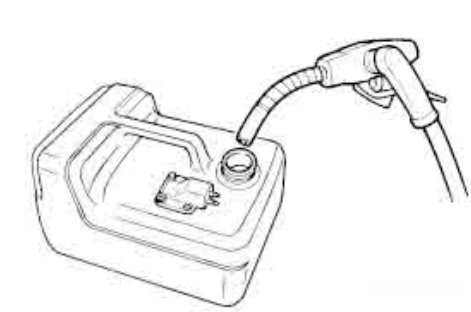
Fueling for mobile container

⚠ WARNING

• Gasoline and its vapors are highly flammable and explosives. When refueling, follow ever this procedure to reduce the risk of fire and explosion.
• Gasoline is toxic and can cause injury or death. Gasoline should be handled with care.
Never pull the gas sucking by mouth. If you swallow some gasoline inhaled gas or vapor, or if gasoline comes in contact with your eyes, immediately go to a doctor. If gasoline spilled on skin, wash with soap and water. If gasoline spills on clothing, change them.

1. Make sure the engine is stopped.
2. Disconnect the tank fuel tube and tighten the fuel tank cap.
3. Remove the mobile container of the boat.
4. Make sure you are in an area outside well ventilated, either docked safe or trailer.
5. Do not smoke and stay away from sparks, fire, electric shock
Static or other ignition sources.
6. If you use a mobile container storage to manage fuel use only GASOLINE container approved.
7. Touch the peak fuel opening or mouth of the filler cap to prevent electrostatic sparks.
8. Fill the fuel tank, but not overfill. The deposit may expand and spill if temperature increases
Fuel tank capacity:

12.0 L (3.17 U.S. gal, 2.64 Imp.gal)



9. Tighten the filler cap.
10. Immediately clean up spilled fuel with dry cloth. Discard of rags properly according with regulations or legislation.
Fueling for integrated reservoir
Make sure the outboard motor is firmly attached to the transom or a a stable support.

⚠ WARNING

• Gasoline and its vapors are highly flammable and explosives. When refueling, follow ever this procedure to reduce the risk of fire and explosion.

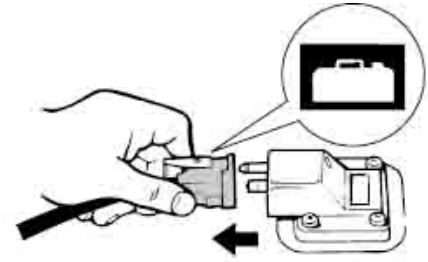
⚠ WARNING

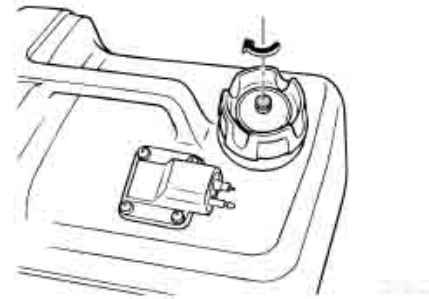
• Gasoline is toxic and can cause injury or death. Gasoline should be handled with care. Never pull the gas sucking by mouth. If you swallow some gasoline inhaled gas or vapor, or if gasoline comes in contact with your eyes, immediately go to a doctor. If gasoline spilled on skin, wash with soap and water. If gasoline spills on clothing, change then.

1. Make sure the engine is stopped.
2. Disconnect the fuel tube from the portable fuel tank and tighten the sigh of the tank lid fuel (if supplied from a reservoir portable fuel).

3. Remove the mobile container of the boat.

4. Make sure you are in an area outside well ventilated, either docked safe or trailer.
5. Do not smoke and stay away from sparks, fire, electric shock static or other ignition sources.





6. If you use a mobile container storage and manage fuel use only GASOLINE container approved locally.

7. Touch the peak fuel opening or mouth of the filler cap to prevent electrostatic sparks.
8. Fill the fuel tank, but not overfill. The deposit may expand and spill if increases temperature.
Fuel tank capacity:

2.8 L (0.74 U.S. gal, 0.62 Imp.gal)

9. Tighten the filler cap.
10. Immediately clean up spilled fuel with dry cloth. Discard the right way wipes According to regulations or legislation force.

Fuel oil mixture (50:1)

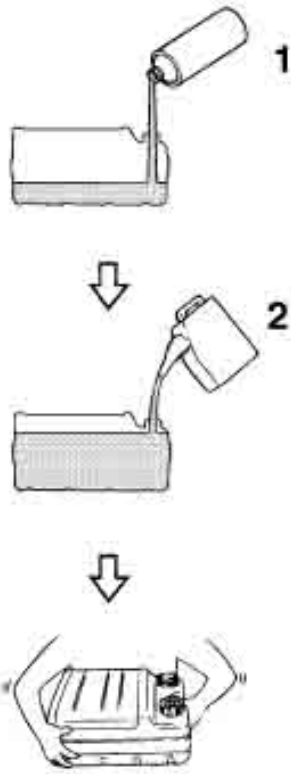
PRECAUTION

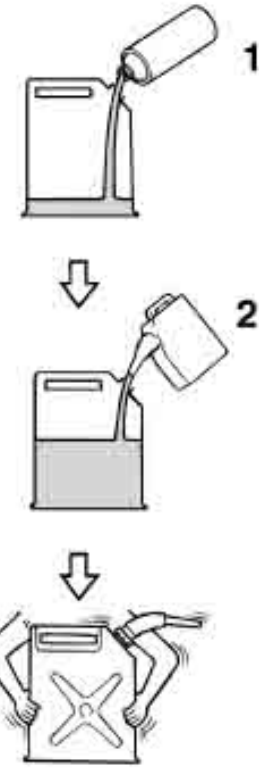
• Avoid using a different oil type specified.
• Use a mixture of fuel and oil well done.
• If the mixture is not adequate, or whether the relation Mixing is incorrect, the following problems can occur.
• Low proportion of oil: Not enough oil could cause significant engine damage, such as seizure of piston.
• High proportion of oil: too much oil may be cause of dirty spark plugs, exhaust smoke and large carbon deposits
1. Pour oil into the potable fuel tank phone and then add gasoline.

	50:1			
	1L (0.26 US gal. 0.22 Imp gal.)	12L (3.2 US gal. 2.6 Imp gal.)	14L (3.7 US gal. 3.1 Imp gal.)	24L (6.3 US gal. 5.3 Imp gal.)
	0.02 L (0.02 US qt. 0.02 Imp qt.)	0.24 L (0.25 US qt. 0.21 Imp qt.)	0.28 L (0.3 US qt. 0.25 Imp qt.)	0.48 L (0.51 US qt. 0.42 Imp qt.)

ZMU02442

1. : Gasolina
2. : Aceite de motor





1. Motor Oil
2. Gasoline
2. Replace the lid of
fuel and close well.
3. Shake the fuel tank
thoroughly mixing the fuel.
4. Check the oil and fuel are
mixed. If equipped with a fuel tank
integrated
1. Pour oil into a clean container and
then
add gasoline.
1. Motor Oil
2. Gasoline
2. Replace the fuel container cover
and close well.
3. Shake the container to mix thoroughly
the fuel.
4. Check the oil and fuel
mixed.
5. Pour the mixture of fuel and oil
Integrated fuel tank.
NOTE:
If using a tank permanent installed,
gradually pour the oil
as you add the fuel to the
deposit.ADVERTE

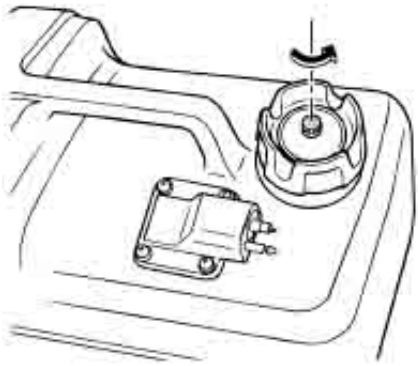
Engine Running

Fuel supply (portable tank)

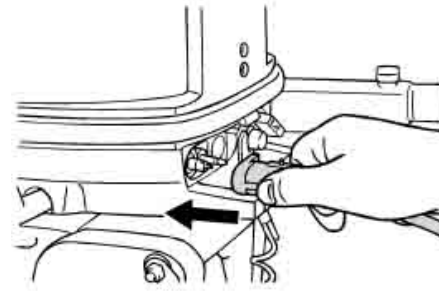
⚠ WARNING

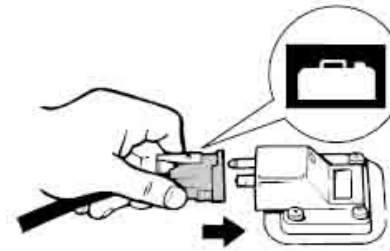
• Before starting the engine, make sure that the boat is moored and that can govern avoiding any obstacle. Be sure no swimmers are nearby.
• Releasing the sigh of the tank, may release gasoline vapors. Gasoline is highly flammable and its vapors are also flammable and explosive. No smoke and stay away from flames and sparks while loosening the sigh tank.
• This product emits exhaust gases containing carbon monoxide, colorless, odorless gas that can cause brain injury and even death if inhaled. Symptoms include nausea, dizziness and drowsiness. Keep well ventilated areas of the house and the cabin. Do not block exits escape.

1. If the fuel tank cap have a breath, loosen 2 or 3 turns.

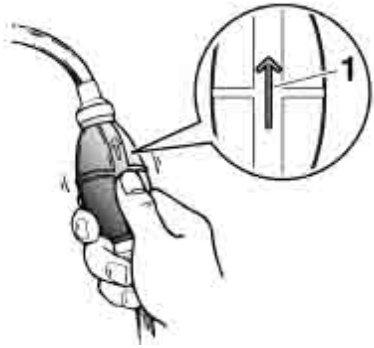


2. If the engine has a connector fuel, connect the fuel firmly to the connector. Then Connect the other end of the fuel hose connector to the fuel tank.





NOTE:
Immediately clean up spilled fuel with dry cloth. Dispose of rags the right way according to the regulation or legislation.
3. Squeeze the bulb, with the arrow pointing up until it is hard. While the engine is running, Place the container in a horizontal position because otherwise the fuel can not be removed from the tank..

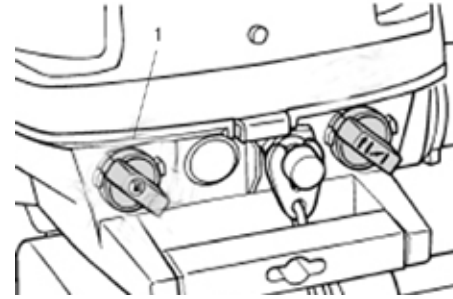


2. Open combutible knob.

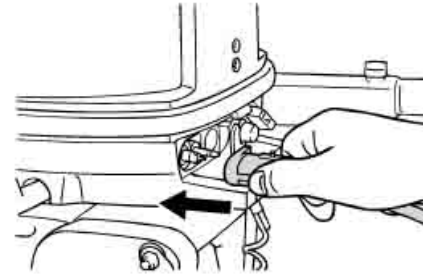
Fuel Transport

⚠ WARNING

• Before starting the engine, make sure that the boat is moored and that can govern avoiding any obstacle. Verify that no swimmers in the vicinity.
• Releasing the sigh of the tank, release gasoline vapors. Gasoline is highly flammable and its vapors are also flammable and explosive. Do not smoke Keep away from flames and sparks while loosening the breath of tank.
• This product emits exhaust gases containing carbon monoxide, colorless, odorless gas that can cause brain injury and even death if inhaled. Symptoms include nausea, dizziness and drowsiness. Keep well ventilated areas of the house and the cabin. Do not block exits escape.



3. Open Fuel Knob (internal tank models).

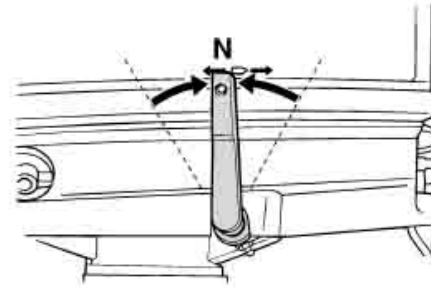


1. For the integrated tank, loosen a sigh back at the top of the tank fuel tank. For lodging external fuel, loosen in 2 or 3 turns at the top of the tank fuel.

Starting the engine

⚠ WARNING

Before starting the engine, make sure that the boat is moored and can be govern avoiding any obstacle. Be sure there are no swimmers nearby.
Manual start models (control with tiller)

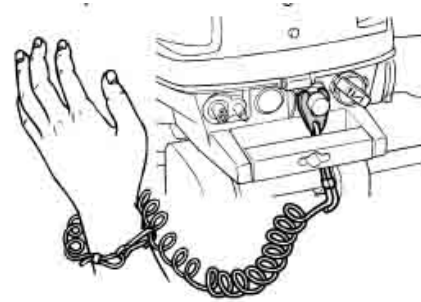


NOTE:
The protection device against starting in gear prevents the engine to start, Unless is on neutral position. 2. Secure the landyard to a place sure, your clothes, or to an arm or leg. Then install the lock to the other end into the switch landyard.

⚠ WARNING

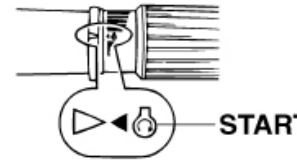
• Not connecting the cable man water can cause loss of boat if the operator falls overboard. Attach the landyard to a safe place, clothing or an arm or leg during the operation.
Do not attach the cable to clothing that could tear easily. Do not run cable in places where it could be entangled, which would prevent its operation.

• Avoid pull accidentally the cable during normal operation. The engine power loss means loss of control direction.Also without power, the boat could lose speed quickly. This would cause people and objects oon in the boat been driven forward.

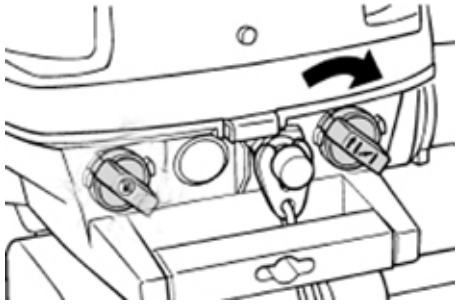


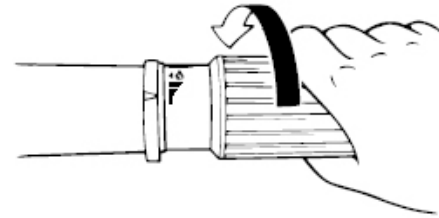
3. Place the throttle in "start" (start).

1. Place the gearshift lever on neutral.



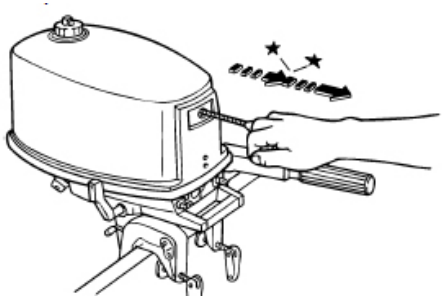
4. Rotate or fully pull shooter choke. After startup the engine, replace the handle on the original position.





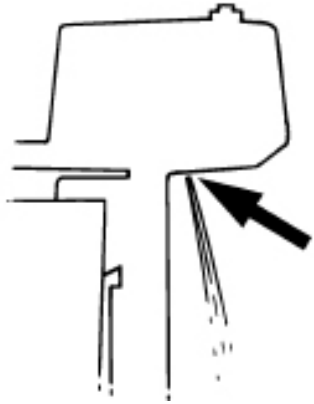
NOTE:
• No need to use the choke to start a warm engine.
• If the choke knob is left "start" (start) while the engine is running, the engine will not run properly or will stall.

NOTE:
• If the engine is cold, it should be warm. For more information.
• If the engine fails to start in the first try, repeat the procedure. If the motor not start after 4 or 5 trials slightly open the throttle (between 1 / 8 and 1 / 4) and try again. Also, if the engine is hot and will not start, open the throttle in the same proportion and crank the engine again. If the engine still does not start.



5. Slowly pull the manual starter handle until you feel resistance. A Then pull vigorously to operating and start the engine. Repeat procedure if necessary.
6. When the engine starts, Put again the manual starter handle slowly in its original position before releasing.
7. Replace throttle handle slowly to completely closed positio.

may overheat and suffer
serious damage. Stop the engine and check if the input of cooling water the lower housing or water sneak clogged cooling. If the problem can not be traced and corrected, please contact your dealer TITANoutboards.
Check for water leaks between joints the top of the exhaust, cylinder head and cylinder.



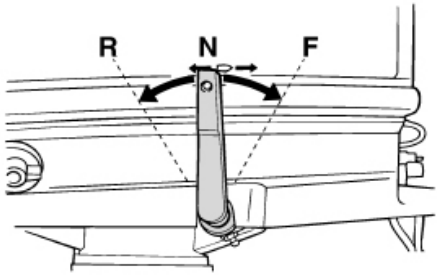
Motor heating Models start with choke
When the engine starts, let operate at idle speed for 3 minutes to warm up, because otherwise will reduce its life. Replace gradually choke knob in its original position while heating engine.

Checks after of engine

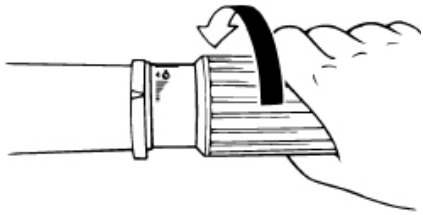
Shifting gears
With the boat securely attached and without accelerating verify that the ship change without problems and march forward march back, and back to neutral.

Stop Switches

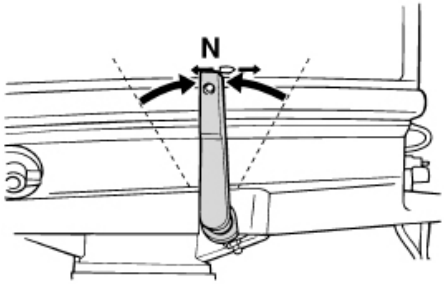
• Press the engine stop and
make sure the motor stops.
• Make sure that removing the landyard lock switch stops the
engine.
• Make sure the engine can not start having withdrawn thelanyard lock.
Shifting gears
WARNING
Before moving up, make sure
that no swimmers or obstacles in
water nearby.
CAUTION
Warm up the engine before engaging the gaer. The idling speed may be
higher than normal until the
engine warms up. High idle speed
may prevent changes again
to neutral. If this happens, stop
the engine, shift to neutral and
then reboot and let it
warm up.
To change from neutral
Move the gear shift lever firmly
forward (to the pinion
forward) or backward (for gear
reverse).



To change gear engaged (forward / reverse) to neutral



1. Close the throttle to the engine operate at idle speed.
2. Once the engine to run at speed idling in gear, move the gear shift lever firmly to the center position dead.



NOTE:
The outboard motor can rotate 360 ° in support (full turn). The boat can also be spinning backwards outboard motor simply about 180 ° with the steering control toward you.
Boat stop

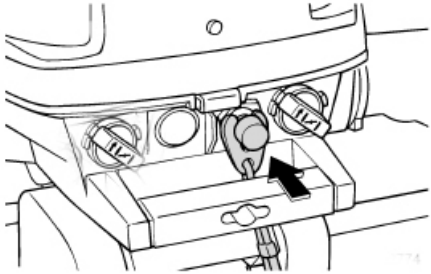
⚠ WARNING

• Do not use the reverse gear to slow or stop the boat, as you could lose control, thrown or hitting the steering wheel or other parts of the ship. You could injure serious. It could also damage the gear mechanism.
• Do not shift into reverse while traveling at planing speed. Could losing control, or it could sink or damage to the ship.
The boat is equipped with a system of independent braking. If stops due to water resistance after moving the throttle to the idle position.

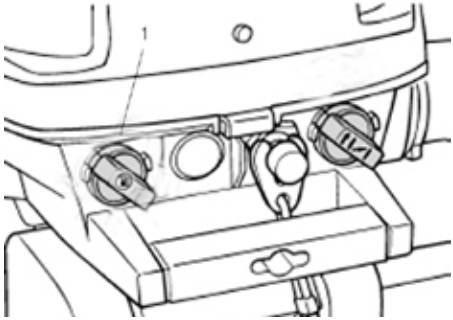
The stopping distance varies depending on weight rough surface conditions of water and wind direction.

Engine stop
Before stopping the engine, first let it cool for a few minutes at low speed or at idle. Not recommended to stop the engine immediately after a high speed operation.
Procedure
1. Press and hold the button stop the engine until it complete stop.
2. After stopping the engine, push the sigh of the fuel tank cap and put the lever or handle fuel key position closed, if installed.
3. Disconnect the fuel line if is using a exterior fuel tank.

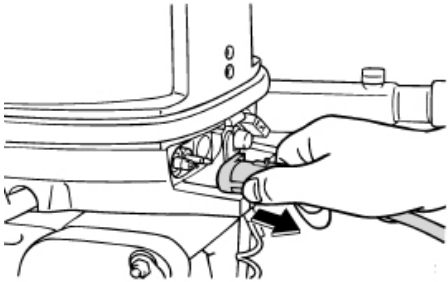
NOTE:
If the outboard has landyard, the engine can also be stop by pulling on the cable and dropping switch lock. p



Trimming outboard motor
Excessive trim for the working conditions (either maximum or minimum) can cause instability of the boat and make government more difficult.



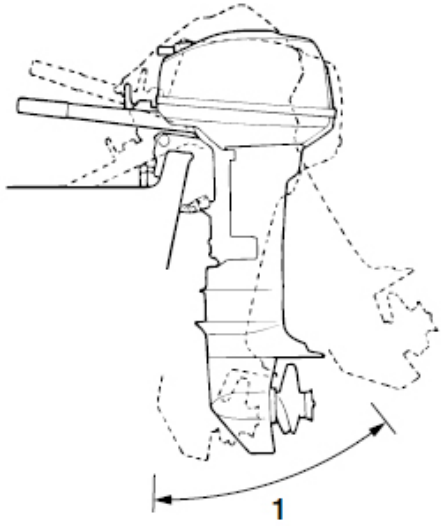
This increases the possibility of an accident. If the boat begins to be unstable or difficult to govern, slow down the



speed and / or reset
trim angle.
The trim angle of the outboard engine helps determine the position of the bow of the boat in the water. The correct trim angle performance improvement and savings fuel while reducing fatigue engine. The correct trim angle depends on the combination of boat, motor and propeller.

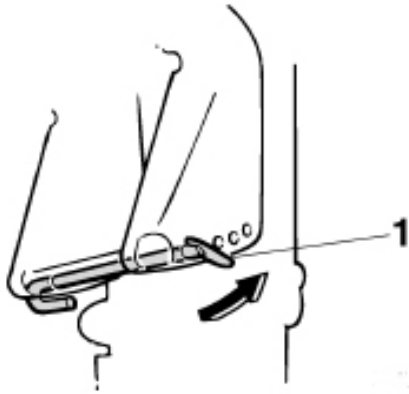
WARNING

The trim correct
is also affected by variables such as the ship's cargo,
sea conditions and speed
running.
WARNING



1. Operating trim angle Adjusting trim angle for manual elevation models In the bracket there are 4 or 5 holes to adjust the motor trim angle outboard.

1. Stop the engine.
2. Raise the outboard motor and then remove the trim rod holder fixing.
3. Replace the rod in the desired hole.
To raise the bow ("Apopa"), move rod



away from the transom.
To lower the bow ("noising"), move the rod to the transom.
Experiment with the trim set to different angles to determine the position most suitable for your boat and conditions work.

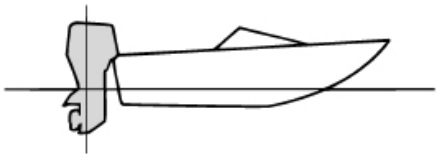
⚠WARNING

• Stop the engine before adjusting the trim angle.
• Be careful to avoid being engaged when removing or installing the rod.
• Be careful when you try to first trim position. Gradually increase the speed and look for signs of instability or control problems. Improper trimming Angle can cause loss of control.

NOTE:

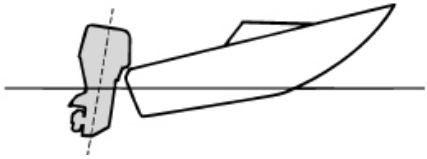
The trim angle of the outboard engine can be changed by about 4 degrees trim by moving the rod in a hole.
Adjusting the trim of the boat when the boat is on plane, the Apopa resulting in a greater stability and performance.
This occurs usually when the keel line the boat is raised about 3 to 5 degrees.
When the boat is APOP, may be more likely when is governed to move from one to another side. This is offset by the management itself.

When the bow of the boat is low, it is easier to accelerate from a position starting to get on the plane.



Bow

Excessive stern makes the bow of boat up the water. This action produces a poor performance and fuel economy, because the hull pushes the water and, therefore, air resistance is greater. A stern excess can also causes the propeller ventilation thereby further reducing performance and the boat can jumps in the water, an action that could result on the launch overboard of the operator and passengers.

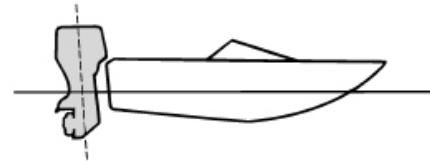


Bowing

Excessive bowing makes the boat "crossing" water, reducing fuel and making it difficult to increase speed. When operating with an excessive bowing at high speeds, the boat lost also stability. Forward resistance greatly increased, raising the danger of "government with the bow" and makes it difficult and dangerous operation

NOTE:

Depending on the type of boat, the trim angle outboard motor may have little effect on the trim of the boat when sailing. Raising and lowering If the motor is stopped for some time or if the boat is moored in shallow waters, should rise the outboard motor to protect the propeller and lower shell against damage from collision barriers and reduce corrosion saline.



Make sure everyone is away while lifting and lowering the outboard motor , as somewhere the body could be crushed between engine and the trim bracket or tilt the motor. Fuel leaks are a danger fire. Tighten the tank sigh

⚠WARNING

Operation

and place the fuel cock position closed if the outboard motor had to be bent over few minutes. Failure to do so, fuel may leak.

• Before lifting the outboard motor, follow the procedure in "Stopping Engine "in this chapter. Never lift the outboard motor if it is running. It may cause serious damage by over temperature.
• Do not lift the engine by pushing the tiller because it could break the command.

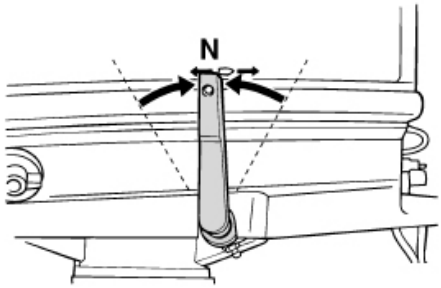
⚠WARNING

• Keep always the engine higher than the propeller. Failure to do so may enter water in the cylinder and cause damage.
• The outboard motor can not rise while in reverse and when turned. 180 ° (facing stern).

NOTE:
Depending on the type of boat, the trim angle outboard motor may have little effect on the trim of the boat when sailing.
Raising and lowering

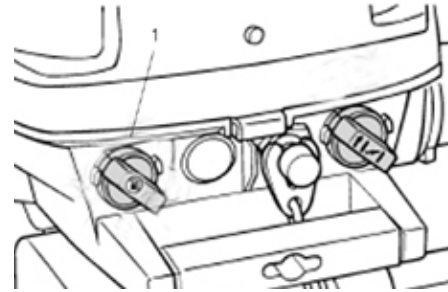
PRECAUTION

If the motor is stopped for some time or if the boat is moored in shallow waters, should rise the outboard motor to protect the propeller and lower shell against damage from collision barriers saline. Make sure everyone is away while lifting and lowering the outboard motor , as somewhere the body could be crushed between engine and the trim bracket or tilt the motor.
Fuel leaks are a danger fire. Tighten the tank sigh peration and place the fuel cock position closed if the outboard motor had to be bent over few minutes. Failure to do so, fuel may leak.
• Before lifting the outboard motor, follow the procedure in "Stopping Engine "in this chapter. Never lift the outboard motor if it is running. It may cause serious damage by over temperature.



• Do not lift the engine by pushing the tiller because it could break the command.
• Keep always the engine higher than the propeller. Failure to do so may enter water in the cylinder and cause damage.
• The outboard motor can not rise while in reverse and when turned 180 ° (facing stern).

Lifting procedure (manual

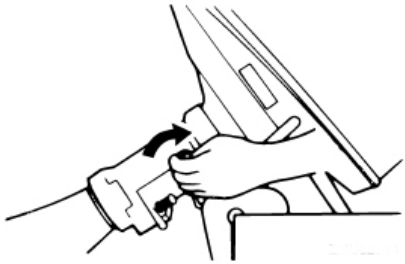


1. Place the gearshift lever in neutral and start the engine outboard forward.
2. Tighten the Steering Friction regulator turning it clockwise to prevent free rotation of the motor. 3. Tighten the sigh of the tank.
4. Turn off the fuel.
5. With one hand hold back the canopy top or rear handle (if fitted) and lift completely the outboard motor until the bar support is lock automatically.

PRECAUTION

Do not use the support bar when towing the boat. The outboard motor could detached from the support due to movement and fell. If you can not tow the engine in normal running position, use additional support to secure in position. For For more details
.

Procedure
1. Place the gearshift lever in neutral and point the motor outboard forward.
2. Tilt the outboard motor slightly upward until the support bar tilt automatically turn to the locked position to secure engine. The outboard motor is equipped with 2 or 3 positions for shallow water navigation.
3. To lower the outboard motor to position normal operation, first tilt slightly



above. Then pull up the handle bar bracket tilt and tilt the engine slowly down.

Navigation in shallow water

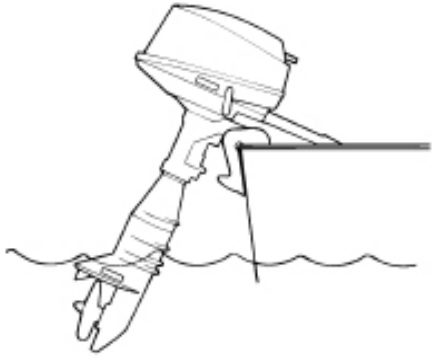
• When using the shallow water navigation system, the boat must navigate to the lowest possible speed. The lock Lift mechanism does not work while using the in shallow water navigation system. If you hit an underwater obstacle, outboard engine could get out of the water, with consequent loss control.
• Do not turn 180 ° or use reverse. Place shift lever position reversed to navigate reverse
• Take special care when navigating reverse. Excessive reverse can cause the outboard motor out of the water, with consequent risk of accident and

⚠ WARNING

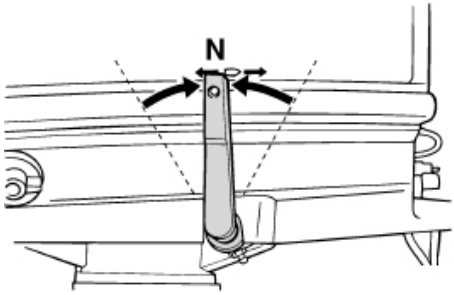
Do not raise the outboard motor so the cooling water inlet in the queue is above the surface water when making the adjustment navigate in shallow waters. Not done, serious damage could occur overtemperature. Procedure
1. Place the gearshift lever in neutral and point the motor outboard forward.
2. Tilt the outboard motor slightly upward until the support bar tilt automatically turn to the locked position to secure engine. The outboard motor is equipped with 2 or 3 positions for shallow water navigation. 3. To lower the outboard motor to position normal operation, first instead tilt slightly above. Then pull up the handle bar bracket tilt and tilt the engine slowly down.

PRECAUTION

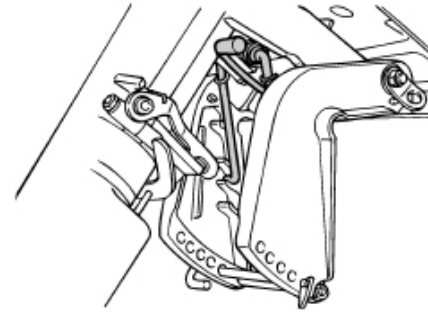
Do not raise the outboard motor so the cooling water inlet in the tail is above the surface water when making the adjustment navigate in shallow waters. Not doing so, serious damage could occur and also over temperature.



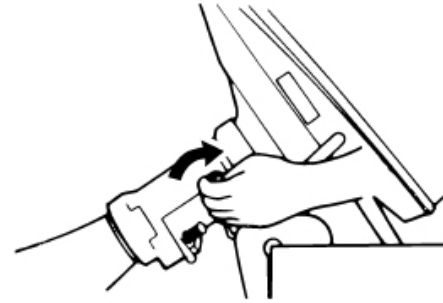
1. Place the gearshift lever in neutral and point the motor outboard forward.



2. Tilt the outboard motor slightly upward until the support bar tilt automatically turn to the locked position to secure engine. The outboard motor is equipped with 2 or 3 positions for shallow water navigation.



3. To lower the outboard motor to position normal operation, first tilt slightly above. Then pull up the handle bar bracket tilt and tilt the engine slowly down. Navigation in other conditions Salty water navigation After sailing in



salty water, wash ducts of the cooling water water to prevent clogging.
You should also wash the outside of outboard motor with fresh water. When navigation in muddy water, muddy or acidic TITANoutboards strongly recommends that use the optional pump kit chrome (see page 12) if you use the outboard motor in acidic water

Operation
high in sediments, as water
muddy or turbid. After sailing in
this water, wash the ducts
cooling water to prevent corrosion.
You should also wash the outside
outboard motor with fresh water.

Transport and storage outboard motor

⚠ WARNING

• Take care when transporting the fuel tank on a boat or a car.
• Do not overfill the container fuel. Gasoline expands considerably as hot and could increase pressure on the container. This could cause leaks fuel and a fire hazard. Fuel leakage can cause fire.

⚠ WARNING

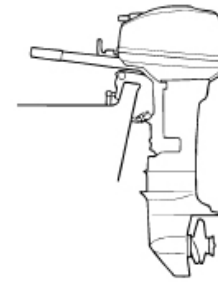
When transporting and storing out-board motor, turn offthe fuel duct to prevent fuel leaks Never place yourself under the engine when it is raised. You could seriously injured if the outboard go down accidentally. Do not use the rod holder or motor high when towing the boat. The

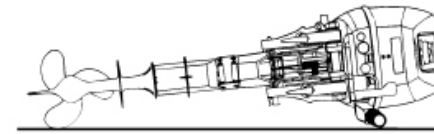
PRECAUTION

outboard motor could get loose and fall due to the movement. If you can not tow the motor in normal running position, use an Additional Support locked in high position. The outboard motor should be towed and stored on normal operating position.

If the space between the engine and road is insufficient in this position, it should be towed in the tilted position using a support device, such as bar transom protection.
Ask your dealer for details TITANoutboards.

Models with wing-mounted fixing When transporting or storing the outboard motor that has been taken off from a boat hold the tilt position.





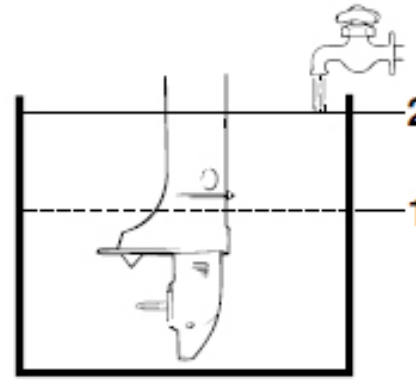
NOTE:
Place a towel or similar underneath the outboard engine and protect it from damage. Storing outboard motor When your outboard motor TITANoutboards is to be stored for a prolonged period (2 months or more), you must do several important procedures to avoid excessive damage.

It is recommended to carry the outboard motor to a TITANoutboards dealer before proceed to storage, in order to perform timely reviews. However, you can, perform the following procedures with a minimum of tools.

PRECAUTION

• Do not place the outboard on it´s side before completely empty the water cooling, since otherwise it may some water penetrate into the cylinder through exhaust port and cause engine problems.
• Store the outboard motor in a dry, well ventilated area, away from direct sunlight.A

Procedure
Washed in a water tank
1. Wash the outboard motor body with freshwater. CAUTION: Do not spray water in the air intake. For
For more information, see page 44.
2. Set the fuel cock position closed and disconnect the tube fuel, if included. Tighten sigh tank, if provided.
3. Remove the top of the engine hood and muffler cover.
4. Install the outboard motor in the test tank.
1. Minimum water level
2. Water Surface
5. Fill with fresh water above the level of anti-cavitation plate.
CAUTION: If the water level is below the level of the anti-cavitation plate or if the water supply is insufficient, may result in seizure of motor.
6.Washing the cooling system flush is essential to prevent clogging



with salt, sand or dirt. In addition, misting / lubrication motor is mandatory to avoid excessive damage due to the same oxidation. Perform washing and misting at the same time.VERTEN CIA
WARNING! Do not touch or remove electrical components when starting the engine or while working. Keep hands, hair and clothing away from the wheel and other rotating components while the engine is running.
7. Run the engine at idle speed for a few minutes at neutral.
8. Just before turning off the engine, spray quickly “fogging oil” within each carburetor or spraying into the hole cover

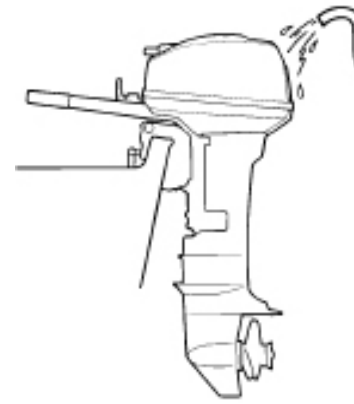
CAUTION
Maintenance
muffler, if included. If done correctly, the engine fall off a excessive smoke and almost will stall.
9. If there is no "fogging oil" make the engine run to idle fast until you empty the system
fuel and the motor stops.
10. Remove the outboard motor from the tank test.
11. Install the muffler cap or plug hole and canopy fogging superior.
12. Completely drain the cooling water engine. Clean the body.
13. If there is no "fogging oil" remove (s) spark plug (s). Pour a teaspoon of clean engine oil in each cylinder. Crank the engine manually several times. Replace the (s) spark plug (s).
14. Drain fuel tanks
and integrated mobile teams that have installed.

NOTE:
Models equipped with portable fuel tank:
Keep the fuel tank moving in a dry, well ventilated area protected from direct sunlight.

Lubrication
1. Install (s) spark plug (s) and tighten to thetorque specified. For information about installing spark plugs.
2. Change gear oil. For instructions, see page 52. Inspect the oil to check if it exists in water, indicating a seal leakage. The replacement seal must be made by an authorized dealer TITANoutboards before use.
3. Grease all the grease.
For more details.

NOTE:
In case of prolonged storage
engine oil fogging is recommended.
Contact your dealer TITANoutboards for information on oil mist and procedures for the engine.
Cleaning the outboard motor After use, wash the outside of outboard motor with fresh water. Wash the refrigeration system fresh water.

Check painted surfaces
Engine Check the engine to look for scratches, indentations, or peeling paint. Areas in which the paint is dam



aged are more exposed to oxidation. If necessary, clean and paint those areas. You can have a touch-up paint from your dealer TITANoutboards.
debe hacerla un concesionario autorizado de TITANoutboards antes de utilizarlo.

Service periodical

⚠ WARNING

These procedures require mechanical knowledge, tools and other equipment. If you do not have the knowledge, appropriate tools and equipment to perform a maintenance task, a TITANoutboards dealer or a qualified mechanic has to perform the work. Procedure involves removing the motor and expose dangerous parts. To reduce the risk of injury by moving parts or electric hot:

• Stop the engine and take the lead man overboard (lanyard) when you maintenance unless otherwise noted.
• Let the engine cool before manipulate parts or hot fluids.
• Always mount the engine completely before use.

Spares Parts

If spare parts are needed, use only original parts or TITANoutboards other equivalent quality and design. Any inferior piece could work inappropriately , and the resulting loss control could endanger the operator and to passengers. The original parts and accesories TITANoutboards are available in the TITANoutboards dealer.

Severe operating conditions Among the Serious conditions operating include one or more of the following regular operating modes:

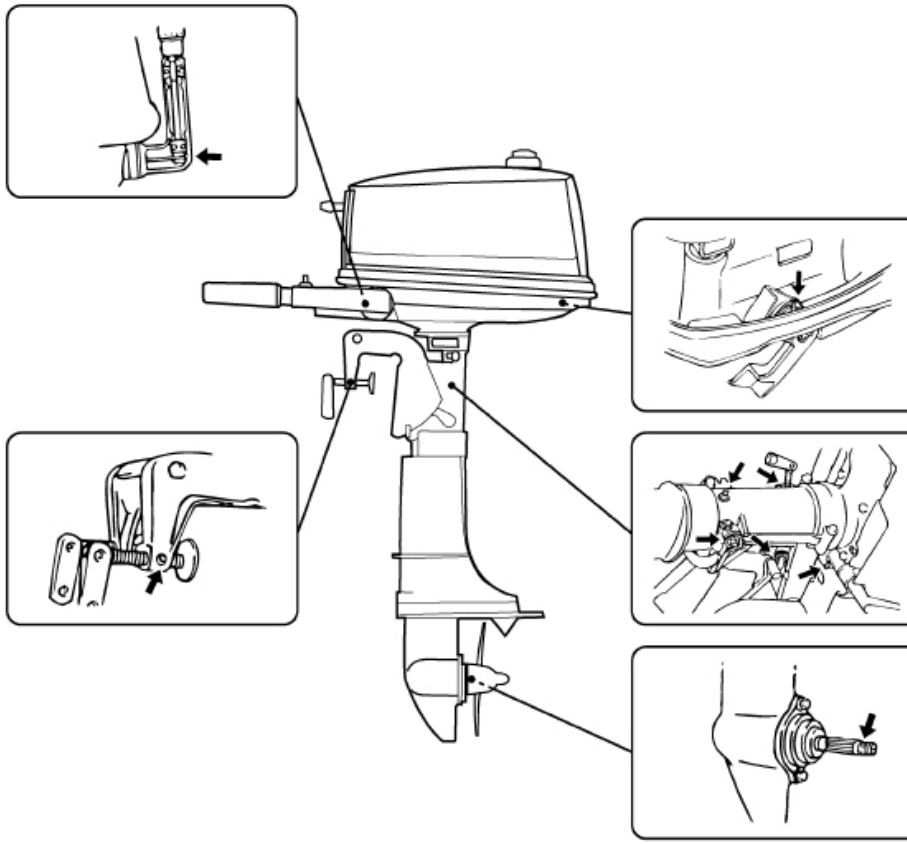
• Continuous operation at the Maximum speed engine or at high speed (r / min) for many hours
• Continuous operation at a low speed (r / min) for many hours
• Operation without sufficient time to let the engine warn or cool down.
• Frequent rapid acceleration and deceleration
• Frequent gear shift
• frequent Starting and stopping the motor
• Performance often fluctuates between light and heavy

Outboard engines operating under any of the above conditions require more frequent maintenance. TITANoutboards recommended this Service twice as often as specified on the operating table. For example, whether a service should be every 50 hours, do it every 25 hours. Doing so, will help to prevent faster deterioration components

Maintenance Chart 1
NOTE:
• See the sections of this chapter for explanations of specific action of the owner.
• The maintenance cycle indicated in these tables is based on use of 100 hours per year and a periodic cleaning of the ducts of the cooling water. The frequency of tasks maintenance should be adjusted when the engine is used in adverse conditions, for example, when sailing at low speed for extended periods of time.
• Depending on the outcome of maintenance checks may be necessary remove the motor or repairs.
• expendable or consumable parts and lubricants lose their effectiveness over time under normal conditions regardless of the warranty period.
• When used in salt water, muddy or cloudy, the engine must be washed with clean water
after each use.
The symbol ● indicates the checks you can do yourself.
The symbol ○ indicates the work to be performed by TITANoutboards dealer.

Item	Actions	Initial		Every
		10 hours (2 month)	50 hours (6 months)	100 hours (12 months)
Anode(s) (external)	Inspection / replace-ment		●/○	○
Cooling water passages	Cleaning	○	○	○
Cowling clamp	Inspection		○	○
Fuel filter (disposable)	Inspection / replace-ment		●/○	●/○
Fuel filter (inside built-in fuel tank)	Inspection / cleaning	●/○	●/○	●/○
Fuel system	Inspection	●/○	●/○	●/○
Fuel tank (built-in tank)	Inspection / cleaning		○	○
Fuel tank (Yamaha por-table tank)	Inspection / cleaning		○	○
Gear oil	Change	●	●	●
Greasing points	Greasing	○	○	○
Idling speed (carbure-tor models)	Inspection	●	●	●
Propeller and cotter pin	Inspection / replace-ment	○	○	○
Shift link / shift cable	Inspection / adjustment			○
Thermostat	Inspection / replace-ment			○
Throttle link / throttle cable / throttle pick-up timing	Inspection / adjustment	○	○	○
Water pump	Inspection / replace-ment			○
Spark plug(s)	Cleaning / adjustment / replacement		●/○	●/○

TITAN grease Outboards type A (water-resistant grease)
TITAN fat Outboards type D (grease resistant to corrosion for the propeller shaft)



Clean and adjust spark plug

The spark plug is an important component of motor and is easy to inspect. The state of the spark plug can indicate the status of motor. For example, if the porcelain electrode
centers have a very white,
could indicate an intake air leak
or carburation problem in that cylinder. Do not attempt to diagnose problems yourself. Take the outboard motor to a TITANoutboards dealer. Should remove and inspect
the spark plug periodically, as the heat and deposits will cause erosion and gradual deterioration.

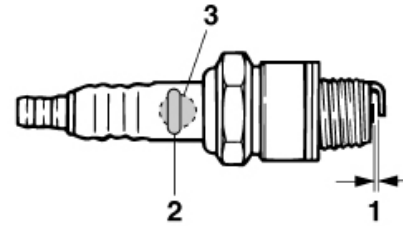
1. Remove the spark plug pipettes plugs.
2. Remove the spark plug. If the electrode shows signs of erosion, or accumulation of carbon and other deposits are excessive, should replace the plug with another of correct type.

WARNING! When removing or installing a plug, try not to damage the insulation. Insulation damage could allow the formation external sparks, which could lead to an explosion or fire.

Standard spark plug:

B7HS

3. Be sure to use the specified spark plug, because otherwise the engine could malfunction. Before installing the spark plug, measure the clearance of electrode with a gauge, replace if conforms to specifications.



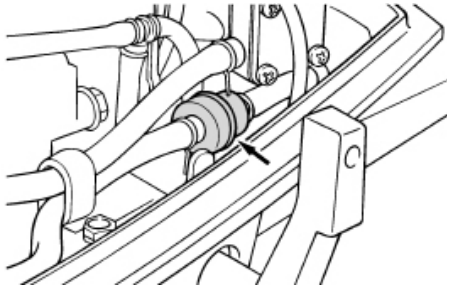
1. Clearance of spark plug
2. Reference to the spark plug
3. DT, Mark Spark Plug (NGK)

Clearance of spark plug:
0.6-0.7 mm (in 0024-0028)

4. When installing the spark plug, clean the dirt
thread and tighten with the torque.

Torque the spark plug:
25.0 Nm (2.55 kgf-m, 18.4 ft-lb)
NOTE:
º
If there is no torque wrench
installing a spark plug, a good estimate the correct torque is given by 1 / 4 to 1 / 2 over back to press with your hand. As soon as possible, adjust the plug to the correct torque with wrench.

Check fuel filter Periodically check the fuel filter. It is a one-piece unit, type disposable. If dirt is in the filter, replace it. To replace the gasoline filter, consult your dealer TITANoutboards.



Inspection Speed idle

⚠ WARNING

• Do not touch or remove electrical parts when start the engine or while in operation.
• Keep hands, hair and clothes distance from the steering wheel and other rotating parts while the engine is running.

PRECAUTION

This procedure must taken with outboard motor in the water.
You can use a flush connector or test tank.

If the boat is not equipped with a tachometer for the outboard motor, use a diagnostic tachometer for this procedure.
Results may vary depending that the tests were done with the flush connector in a tank, or outboard motor in water.
1. Start the engine and warm it in neutral until it works normally.
2. When the engine is warmed up, check idle speed
adjusted according to specifications.
Specifications are found
Idle speed.

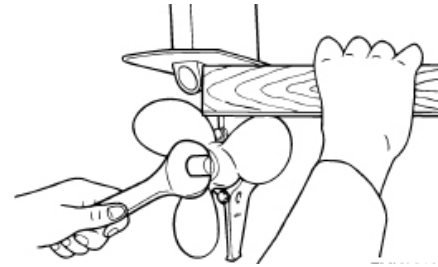
3. If you are having trouble check idle speed, or if necessary adjustments, consult your dealer TITANoutboards authorized or a qualified Mechanic.
Check the cables and connectors

⚠ WARNING

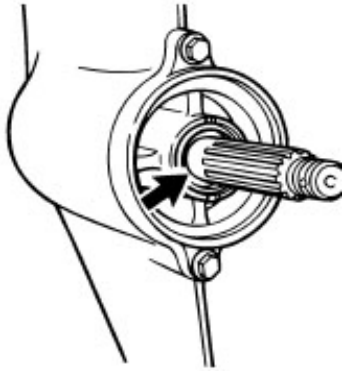
• Check that each connector is fully conected.
• Verify that each cable is grounded firmly in place.

Checking the Propeller

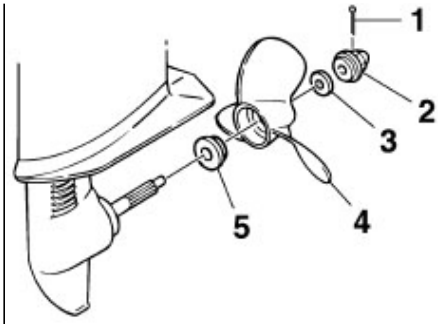
Could suffer serious injury if the motor starts accidentally being close propeller. Before inspecting, uninstall or install the propeller, turn the control neutral investor, put the main switch in position OFF (off) and remove the key, then release the switch lock man overboard (landyard). Turn off the disconnect battery if your boat had one. pruebe si la velocidad de ralentí está ajustada de acuerdo con las especifica



Do not hold the propeller by hand when loosening
or tighten the nut. Place a block wood between the anti-cavitation plate and propeller
to prevent the rotation of the propeller.
CAUTION
Maintenance Checkpoints



• Check each of the blades propeller to see if they are worn, show cavitation erosion or ventilation, or any other damage.
• Check for damaged shaft propeller.
• Check if the grooves are worn or damaged.
• Check if a line has been wrapped on the propeller shaft.
• Check if the seal is damaged oil from the propeller shaft.
Removing the propeller
Grooved Models
1. Straighten the pin and pull the propeller with pliers.
2. Remove the propeller nut, washer and separator (if included). WARNING! Do not hold the propeller by hand when loosening
nut.

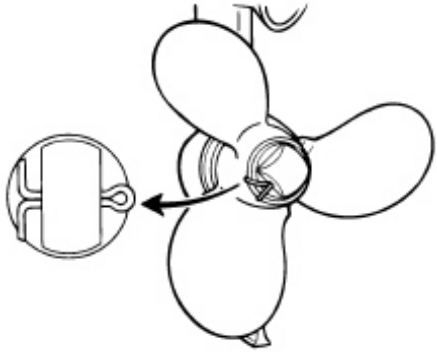


1. Propeller Pin
2. Propeller nut
3. Washer
4. Propeller
5. Thrust Washer
3. Remove the propeller, washer (if supplied) and washer.
Installing the propeller
Grooved Models Make sure to use a new pin propeller and bend the ends well. If do not so, the propeller could come off during operation and get lost.
1. Apply the propeller shaft marine grease owertec Outboards or grease resistant corrosion.
2. Install the spacer (if included), the thrust washer and propeller into the shaft propeller.

PRECAUTION

Make sure to install the thrust washer before placing the propeller, since not doing so may damage the housing lower and the propeller hub.
3. Place the spacer (if included) and washer. Tighten the propeller nut until there is no movement toward front and back.

4. Align the propeller nut with the hole the axis. Insert into the hole a new pin and fold the ends of the pin. CAUTION: Do not reuse the propeller pin installed. Otherwise, it could come loose from the propeller during operation.

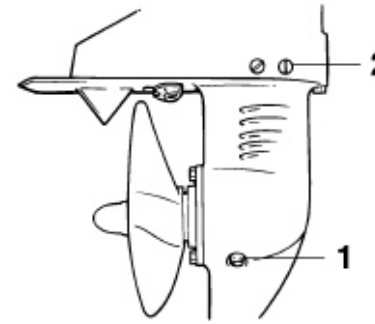


NOTE:
aline with the hole in the propeller shaft after tighten, loosen the nut until aligned with the hole.

Change gear oil

• Make sure the outboard motor is set correctly to the transom or to a stable support. If it falls on outboard engine can result in serious injury.
• Do not run under the tail while the engine is high, even if blocked the support or rod motor high. It could result in serious injury if accidentally dropped the motor outboard.

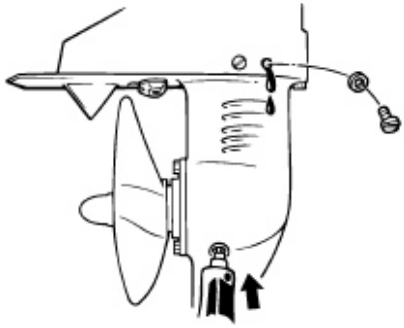
1. Tilt the outboard motor so that the oil drain bolt is on the lowest point possible.
2. Place a suitable container under the gearbox.
3. Remove the oil drain screw gear and the board.
CAUTION: Excessive of metallic particles in the oil drain Magnetic screw Gear can be a symptom a problem in the tail. Ask a TITANoutboards dealer.
1. Oil drain screw gear
2. Oil level plug



NOTE:
• If the engine is equipped with a screw Magnetic oil drain gear, remove all particles metal screw before installation.
• Always use new seals. Do not reuse used seals. 4. Remove plug oil level check and drain the oil completely.

NOTE:
To remove the used oil, consult your TITANoutboards dealer.
5. Place the outboard motor ONvertical position.
Use a filling device flexible or pressurized to inject gear oil in the hole oil drain screw. Recommended gear oil: Hypoid gear oil

SAE # 90 Gear oil quantity: 0,100 L (0.106 U.S. qt, 0.088 Imp.qt)



6. Place a new gasket in the cap check oil level. When oil begins to flow through orifice plug, check oil level insert the plug and tighten.

Torque:
9.0 Nm (0.92 kgf-m, 6.6 ft-lb)

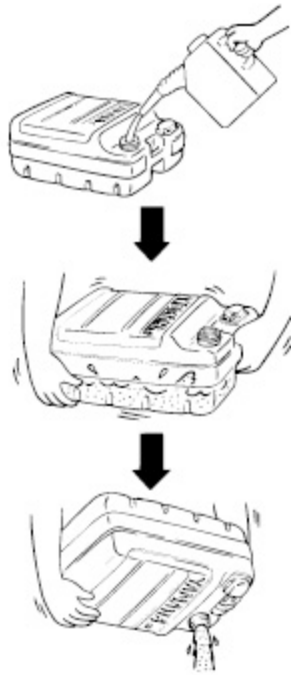
7. Place a new gasket on the screw Drain gear oil. Enter the drain screw and tighten.

Torque:
9.0 Nm (0.92 kgf-m, 6.6 ft-lb)

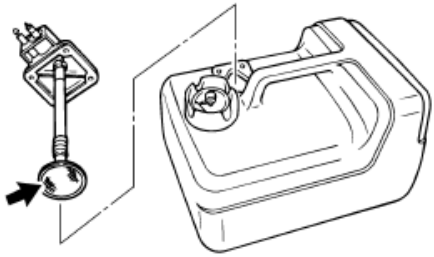
⚠ WARNING

Clean fuel tank Gasoline is highly flammable and its vapors are also flammable and explosive.
• If you have any doubt about the correct way to perfome this procedure, consult your TITANoutboards dealer.
• Keep away from sparks, Cigarettes, flames or other sources when cleaning the fuel tank.
• Remove the fuel tank ship before cleaning. Work only outside in an area with good ventilation.
• Clean any spillage of fuel.
• Reassemble carefully the tank fuel. Improper assembly could cause fuel leaks and result in fire or explosion.
• Dispose of the gasoline used following local regulations.

1. Drain the fuel in a approved container.
2. Pour into a small tank a suitable solvent. Place cap and shake the tank. Drain solvent completely.



3. Remove the screws holding the gasoline connector. Pull together and pull tank.



4. Clean the filter (located at the end of suction pipe) with a proper cleaning solvent. Allow the filter to dry.
5. Replace gasket with a new one. Put back the gas connector and
tighten the screws. Inspection and replacement (of the) anode (s)
TITANoutboards outboard motors are protected against corrosion of the anodes.
Periodically inspect the external anodes. Remove oxide layers from the anode surfaces. Consult your TITANoutboards dealer to replace anodes external.

PRECAUTION

Do not paint the anodes, it will suffer their effectiveness.

NOTE:

Check the ground wires attached to external anode on the models equipped with them. Consult your r TITANoutboards dealefor inspection and replace of internal anodes attached to the motor.

Troubleshooting

A fault in the fuel systems, compression, or ignition can cause Incorrect starting, power loss or other problems. This section describes the basic checks and possible solutions and covers all TITANoutboards outboard engines. It is therefore possible some elements apply to your model.
If your outboard motor needs repair, take it to the TITANoutboards dealer.
If the warning engine indicator problems is flashing, refer to TITANoutboards dealer.

The engine will not start

Q. Is the combustible knob open?
A. Open it.
Q. Is the the fuel tank empty?
A. Fill the tank with fresh fuel.
Q. is the fuel contaminated or dirty?
A. Fill the tank with fresh fuel.
Q. Is fuel filter clogged?
A. Clean or replace the filter.
Q. is the fuel pump not working properly?
A. Take it to a TITANoutboards dealer for inspection.
Q. is spark plug (s) damaged or not the correct type?
A. Check (s) spark plug (s). Clean or replace them with the recommended type.
Q. Are spark plug (s) not set correctly?
A. Check the plug (s) of adjustment.
Q. Is the power cable damaged or not connected properly?
A. Check wires for wear or damaged. Tighten all connections loose. Replace frayed or damaged.
Q. Are the starting parts defective?
A. Take it to a TITANoutboards dealer for inspection.
Fault Correction

The engine runs at idle speed
irregularly shaped or stalling.
Q. Is (s) spark plug (s) damaged or
are not the correct type?
A. Check (s) spark plug (s). Clean or
replace them with recommended type.
Q. Is fuel system obstructed?
A. Check if the fuel pipe got stuck
somewhere
or if thereis any
other obstruction in the fuel system.
Q. Is the fuel contaminated or dirty?
A. Fill the tank with fresh fuel.
Q. Is fuel filter clogged?
A. Clean or replace the filter.
Q. The starter parts do not work correctly?
A. Take it to a TITANoutboards dealer
for
inspection.
Q. Have the the warning system been
activated?
A. Locate and correct the reason for the
warning.
Q. Is the spark plug gap incorrect?
A. Inspect and tighten as specified.
Q. Is the power cable damaged or not
connected properly?
A. Check wires for wear
or damaged. Tighten all connections
loose. Replace frayed or
damaged.
Q. The specified motor oil is not been
use?
A. Check and replace oil as
specified.
Q. Is the thermostat faulty or clogged?
A. Take it to a TITANoutboards
dealer for
inspection.
Q. "The carburetor settings are correct?
A. Take it to a TITANoutboards
dealer for
inspection.
Q. Is fuel pump damaged?
A. Take it to a TITANoutboards
dealer for
inspection.
Q. Is closed tank sigh
fuel?
A. Open the sigh of the tank.
Q. Have you pulled the choke knob?
A. Return to the original position.
Q. Does the motor angle is too high?
A. Return to the operating position
normal.
Fault Correction
Q. Is it clogged the carburetor?
A. Take it to a TITANoutboards
dealer for
inspection.
Q. Is the connection of the fuel connector
not correct?
A. Connect correctly.
Q. The adjustment of the throttle valve
is not correct?
A. Take it to a TITANoutboards
dealer for
inspection.
Q. Is disconnected the battery cable?
A. Connect securely.

Loss of engine power.
Q. Is the propeller damaged?
A. Repair or replace the propeller.
Q. Are the pass or the diameter of the propeller notcorrect?
A. Install the correct propeller to navigate
within the range of speed (r / min) recommended.
Q. Is the trim angle not correct?
A. Adjust the trim angle to achieve
more efficient operation.
Q. Is the engine installed at the correct
height
in the transom?

A. Place engine in the correct height transom.
Q. Has the warning system been activated?
A. Locate and correct the reason for the warning.
Q. Has bottom of the boat been deteriorated with marine adhesions?
A. Clean the bottom of the boat.
Q. Is the spark plug damaged or is it not the correct type?
A. Check spark plug . Clean or replace them with the recommended type.
Q. Are seaweed or other substances strange tangled in the gearbox?
A. Remove foreign substances and clean
tail.
Q. Is fuel system obstructed?
A. Check if it got stuck somewhere fuel pipe or is there any
other obstruction in the fuel system.
Q. Is fuel filter clogged?
A. Clean or replace the filter.
Q. Is the fuel contaminated or dirty?
A. Fill the tank with fresh fuel
Q. Is the spark plug gap incorrect?
A. Inspect and tighten as specified.
Q. Is the power cable damaged or not connected properly?
A. Check wires for wear
or damaged. Tighten all connections loose. Replace frayed or
damaged.
Q. Are the electrical parts not working properly?
A. Take it to a TITANoutboards dealer for
inspection.
Q. Are you not using the fuel specified?
A. Replace the fuel with the type specified.
Q. Is not being used motor oil specified?
A. Check and replace oil with other the specified type.
Q. Is the thermostat faulty or clogged?
A. Take it to a TITANoutboards dealer for
inspection.
Q. Is the sigh of the tank closed?
A. Open the sigh of the tank.
Q. Is fuel pump damaged?
A. Take it to a TITANoutboards dealer for
inspection.
Q. Is the connection of the fuel connector
not correct?
A. Connect correctly.

Fault Correction
Q. Is the temperature spark plug range correct?
A. Inspect the spark plug and replace it with
recommended type.
Q. Is it the high fuel pump
pressure strap transmission broken?
A. Take it to a TITANoutboards dealer for
inspection.
Q. Is the engine responding incorrectly to the position of the shuttle lever?
A. Take it to a TITANoutboards dealer for
inspection.
The engine vibrates excessively.
Q. Is the propeller damaged?
A. Repair or replace the propeller.
Q. Is it the propeller shaft?
A. Take it to a TITANoutboards dealer for
inspection.
Q. Are seaweed or other strange substances
tangled in the propeller?
A. Remove and clean the propeller.
Q. Is the motor mounting bolt loose?
A. Tighten the bolt.
Q. Is the kingpin loose or damaged?
A. Tighten it or take it to a Outboards Powertec dealer for inspection.

Temporal action in an Emergency Impact damage

⚠ WARNING

The outboard motor can be severely damaged by a collision during operation or when towing. Damage could make it unsafe operation outboard motor.

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

1. Stop the engine immediately.
2. Inspect the control system and all components to see if damaged. Also check the possible damage to the ship.
3. Whether or not damage, slowly return carefully to the nearest port. 4. Have a TITANoutboards dealer inspect outboard motor before putting it back in operation.
If the starter does not work (ie, the engine can not reach Boot up with), pleasebe started manually with an emergency starter.

⚠ WARNING

• Follow this procedure only in an emergency to return to a nearby port.
• When using the boot out emergency to start the motor, the device does not work protection boot up Make sure the lever remote control is in neutral. Otherwise, the boat could unexpectedly started to move, causing an accident.
• Secure the cable to a man overboard safe place in your clothes, or your arm or leg while running the boat.
• Do not attach the cable (landyard)to clothing that could break and fall off. Do not pass the cable to a place where he could entangled, preventing its operation.
• Avoid accidentally pulling cable during normal operation. The Engine power loss means almost losing control direction. Moreover, without power engine, the boat could desacelerat quickly. This could throw people and objects in the boat forward.
• Make sure no one is behind when you pull the starter out. This could produce an effect whip and injure someone.
• A steering wheel not protected while turning is very dangerous. Keep loose clothing and other objects at a distance
when starting the engine. Use the emergency starter after only as instructed. Do not touch the wheel and other moving parts when running the engine. Do not install starter mechanism or the hood higher after being in operation engine.
• Do not touch the ignition coil, the spark plug wire, the spark plug cap, or other components when start or has in operation engine. Shock could occur.

Emergency starter motor
1. Remove the upper fairing.
2. Remove the starter cable protection against starter in gear if installed.
3. Remove the top starter / flywheel removing the bolt or bolts.

4. Prepare the engine for starting. To more information, see page 31. Check the motor if it is in neutral and that the lock is fixed to the switch of the landyard. The principal switch should be in position "ON" (activated), if installed.
5. If you installed the choke knob, remove it when the engine is cold. After starting the engine gradually put the choke knob to its initial position while the engine is heating.
6. Insert the knotted end of the cape emergency starter notch rotor wheel and roll out several turns around the steering wheel clockwise.
7. Pull firmly and briskly out to starting the engine. If necessary, repeat the procedure.
Treatment of submerged motor
If the outboard motor was submerged, take it immediately to a TITAN Outboards dealer.
Otherwise, it will begin to corrode almost immediately. CAUTION: Do not attempt to operating the outboard motor while not inspected completely.
Fault Correction