Gori 3-blade folding propeller

The Gori 3-blade folding propeller is available for installation on vessels with engines from around 10BHP to 300+BHP.

This unique design offers an “overdrive feature”, with 2 controlled pitch settings in fwd and full reverse thrust. The “overdrive feature” gives lower engine RPM for the same cruising speed when in calm waters or motor-sailing.

The 3-blade propeller is available in diameters from 15” ~ 30+”, and pitch settings between 60% and 80% of the diameter.

They are available in both LH and RH configurations for both saildrive and shaft installations.

The Gori 3-blade propeller won the “DAME” design award at the Meets on November 1994 and the “HISWA” award in December 1994.

In November 1994 the German Magazine “Die Yacht” published results of independent tests carried out by the Technical University of Berlin. These results showed conclusively the advantages of the Gori 3-blade propeller

- **Ahead**  Gori was 11+% more efficient than 3-blade feathering props tested
- **A stern**  Gori was 6.5+% more efficient than 3-blade feathering props tested

When sailing ... drag was reduced by nearly 50% compared to the 3-blade feathering propeller under test

Folding propellers compared to a feathering propeller will not snag weed, lobster lines etc when sailing.

Patents are pending

Why not a bonus to your sailing speed ?

**GO GORI ... FOR SPEED ... FOR FUN**
3-blade Gori propeller Installation Instructions

**Warning ~ Do not remove the blades from the blade housing when installing or removing the propeller from the shaft!!!!**

**Installing the Propeller**

The propeller is delivered assembled. This ensures that at the factory the propeller has been checked, and balanced before shipping.

If your propeller has a fwd collar zinc installed ... remove the collar zinc (22 + 23)
Take apart the jacket (1) from the blade housing (6).

First remove the 3 x allen head bolts (5) holding the jacket (1) in place.
If supplied with a fwd collar zinc remove this zinc first.

Now undo the jacket using the C-Spanner (16). The thread on the blade housing assembly is a standard right to tight and left to loose. You may use a hammer with care, to get the jacket started as it is a firm fit. Place the C Spanner on the stb side & hit down.

You will now have the jacket and blade housing (with blades installed) and the hub cone (2) separate.

Check the fit of the hub cone (2) onto the shaft with out the key. Install hub cone on shaft with key & Adjust the key if necessary.

Check the shaft nut (3) with the shaft threads.

Slide the jacket (1) onto the shaft first. Lightly smear/coat the jacket thread with waterproof grease. Now slide the hub cone (2) onto the shaft and tighten the shaft nut (3) very tightly. [1" dia. SAE - 3/4x10 = 72ft/lbs of torque]

Coat the three dog(cone) point Allen screws (4) with Loctite-243 and tighten securely into the hub cone (2), locking the shaft nut(3), firmly in place. To do this you may need to rotate the jacket to line up an access hole with the allen screws (4).

Slide the blade housing assembly onto the hub cone (4), making sure that the tabs engage the hub cone. Push it fwd until you can start the thread of the jacket (1). Lightly coat the blade housing jacket threads with waterproof grease, Lanocoat, Tuffgel etc.

Tighten the jacket (1) to the blade housing assembly. Use the C-Spanner (16) to tighten and align the 3 threaded holes (5) with the holes in the jacket.

Now using Loctite-243, re-install the 3 allen head bolts (5) into the jacket holes and tighten firmly.

Check that the blades will move freely from fwd to reverse.
Your Gori is water lubricated. After cleaning, a light "smear" of a waterproof grease over the blade teeth & gear wheel (13) & blade housing (6) contact points will allow you to check blade operation and stop oxidization of the metal when out of the water.

**Removing the propeller**

*Warning ~ Do not remove the blades from the blade housing when removing the propeller from the shaft*

If your propeller has a fwd collar zinc installed ... remove the collar zinc (22 + 23). Ensure zinc surface is clean/unobstructed.

Take apart the jacket (1) from the blade housing (6) - First remove the 3 x allen head bolts (5), from the jacket.

Now using the C-Spanner, undo the jacket so that it separates from the blade housing and push it fwd on the shaft. Place the C Spanner on the stb side of the propeller & hit down.

Carefully remove the blade housing assembly.

Undo the allen screws (4) to allow removal of the shaft nut (3). It is not necessary to remove them completely from the Hub cone (2).

Unscrew the shaft nut (3)

Install the bronze puller (17) into the hub cone (2). Thread it in all the way.

Tighten the large bolt in the centre of the puller (17) and this will draw the hub cone off of the shaft.

**Replacing the Aft Zinc**

This should be done if more then 50% of the zinc (7), has been eroded away.

Undo the allen head bolt (8) and remove the old zinc (7) ... if not gone completely.

Clean the zinc contact surface on the hub end. Replace the zinc with a new one ... index the fwd end of zinc with the pin on the end of the hub.

Use the new allen head bolt supplied ... smear with loctite (supplied) before re-installing the bolt

**Replacing the Fwd Collar Zinc**

First remove the 4 x allen-head bolts and remove what is left of the zinc

Clean the surface of the propeller hub cone to ensure a good clean contact between the hub and the new zinc

Install the new zinc using the Loctite (supplied) on each of the 4 x allen-head bolts
Replacing Flexible Stops

These can be replaced **without removing** the blades.

Using a flat screw driver ... pry out the old or worn Flexi-stops (15). Ensure hole is clean.

Push the new flexi-stops in place. It may be necessary to swivel the blades open and closed to obtain the best angle for re-installing the new ones. Remember they are flexible.

Removal of blades from the Blade Housing !!!

This must only be done when cleaning and full service of the propeller is required.

Blades are not removed for the installation and removal of the propeller

Remove the zinc centre bolt (8) and the zinc anode (7), using a 5mm allen key (19).

On propellers 18.0” Dia. and larger it will also be necessary to: Remove the threaded pin (9) using a 6mm allen key ... then Remove the fixing lock bolt (10) using a 6mm allen key.

**Failure to remove the Center Fixing Locking Bolt first will result in damage to the internal threads of the blade pins (11) & Fixing Lock Bolt.**

Disassemble the blade pins (11 & 11.1) from the blade housing using a 6mm allen key. Note that blades, pins and the housing are matched and numbered. They should only be reassembled in the correct location ... that is #1 - # 2 - # 3.

Remove the blades.

Remove the gear-wheel (13) and the spacer (14).

Remove the flexible stops (15) using either a flat blade screw driver or pliers.

The blade housing (6), the pins (11) and the propeller blades (12) are numbered, & must be matched when reassembling. When re-mounting the blades to the housing it is important to apply loctite-243 to ... blade pins & external locking screw/bolt (11 & 11.1), fixing lock bolt (10), threaded pin (9), zinc anode bolt (8).

On older models without the external lock bolt (11.1), the blade housing (6) and the blade pin head (11) are marked with a hatch line, and must align when remounting. The fixing bolt (8 or 10) locates in the ½ moon cut out in the blade pin end & stops it unscrewing/coming out.

The fixing lock bolt (10) and the fixing bolt (8) are the very last items to be reassembled.

Be sure that all components fit back together and that the blade pins (11) are located as before removal as they are indexed inside the hub to lock bolts (10 +8) by the external Lock Bolts (11.1) or the hatch line.
Operating Instructions

The Gori 3-blade propeller has the possibility of two distinct pitch settings in the fwd direction ... standard and “overdrive”

Standard fwd is the pitch setting that the propeller will be designed to, and will allow the engine to perform to the required RPM just as a fixed pitch propeller or any other propeller would.

In “overdrive” the pitch setting in fwd, will increased changing the engine RPM between 300~600 RPM less. The boat will attain the same boat speed at lower RPM in the “overdrive” position ... as it is a pitch increase.

Ahead:
The propeller will operate in the standard fwd setting when the blades open due to the centrifugal force of the shaft when in gear.

Should you have backed out of your slip and then engaged fwd while the boat was in fact still moving aft you may well be in “overdrive” without knowing it. To go back to standard fwd, gear simply move the shift lever into neutral for several seconds ... (allowing the blades time to fold together), and then go back into fwd. You will soon learn the difference between standard and “overdrive” by checking boat speed and engine RPM/ sounds.

When maneuvering around the marina you may well remain in “overdrive”. Therefore when leaving the marina and beginning your trip always check that you are in the drive position you want.
**Aster:**
In the reverse position the blades swivel 180° opposite the forward position which ensures the same blade shape and leading edge to the water ... resulting in higher efficiency. This will also greatly reduce or even eliminate prop-walk when maneuvering in reverse in the marina. If the boat has not been used for sometime, it is wise to shift cautiously between fwd and reverse a few times before going out sailing in order to clean the teeth of the blades and the gears from further fouling.
In the reverse position the pitch on the blades is at a greater angle then when in standard fwd. This is done purposely as many transmissions have higher ratios in reverse then fwd and so require a greater pitch to take into account the slower shaft rpm when in reverse.

**Overdrive:**
As mentioned above this position is obtained when the blades are set in the reverse position ... but the blades and shaft are rotating fwd. In this situation you will have a propeller with an increased pitch setting. Overdrive allows a lower cruising RPM for the same boat speed. It will be as much as 300~600 engine RPM lower than when in standard fwd.

**How to get into or out of “overdrive”?**

**Overdrive » standard drive:** Be sure that you are moving ahead at around 3~4kts ... now move your shift lever into the neutral position (if you have dual lever control then reduce RPM accordingly) ... wait several seconds, to allow the blades to fold to their sailing position ... now reengage fwd with the shift lever (and if necessary increase engine RPM with the second lever). You should now be in standard fwd and this will show with increased engine RPM, which perhaps were not attainable, while in “overdrive”. On some larger vessels it has been found that to stop the shaft rotation even more quickly than as above ... simply put the shift lever into the reverse position momentarily, this will cause the shaft to stop its freewheeling more quickly than just relying on the water flow. Once the shaft has stopped re-engage fwd and increase engine RPM.

**Standard » overdrive:** Reduce RPM and move the shift lever into neutral ... now go into reverse and increase engine RPM to around 1000 RPM. This will set the blades into reverse. Now go from reverse to fwd position without hesitation ... you will now be in “overdrive”. By moving the shift lever smartly from reverse thru to fwd the shaft and blades will not have the opportunity to stop and the water flow fold the blades as for sailing ... thereby remaining open in the reverse or “overdrive” position.
Do not press the engine to the max RPM when in “overdrive” as this will result in overloading.

*Gori propeller disclaims the responsibility for any damage caused by overloading the engine. In case of doubt about the engine loading, you should contact the authorized engine service agent and Gori propeller as well.*

**Sailing:**
When sailing the blades will fold and the shaft will stop spinning giving you less drag and more speed. With mechanical transmissions you should put the shift lever into reverse (per the engine manufacturer’s instructions), this will further hold the shaft stationary. Hydraulic transmissions will not rotate when under sail with the Gori propeller.

**WARNING!!!**
• Do not start the engine while the boat is out of the water
• The prop may have sharp edges... be careful not to cut yourself
• Make sure the blades do not open or close suddenly and trap your fingers
• Stop the engine before diving or swimming in the vicinity of the boat
• Propeller blades can cause considerable damage when rotating ... be careful.
• Do not remove fish nets, rope or similar from the prop with the engine running.
• Check that the prop works in both fwd and reverse before each trip.
• If any strange sounds or vibrations are noticed coming from the propeller stop the engine and investigate the reasons/solve the problem.
• In case of problems in connection with the mounting, use or other function of the propeller, contact Gori propeller or the local agent/importer.

Schematic Drawings:

*Not for 15” & 16½” propellers
PARTS LIST:

1. Jacket
2. Hub (Cone)
3. Shaft Nut
4. Allen Screws (3) for Locking Shaft Nut
5. Lock Bolts (3) for Jacket (Item 1)
6. Blade Housing
7. Aft Zinc Anode
8. Fixing Bolt for Zinc
9. Threaded pin
10. Fixing bolt for Blade pins (Item11)
11. Blade Pins (3)
11.1. External Pin Locking Bolts
12. Propeller Blades (3)
13. Gear-Wheel
14. Spacer
15. Flexible Stops (3)
16. C - Spanner
17. Propeller Puller
18. Allen Key 4mm
19. Allen Key 5mm
20. Allen Key 6mm
21. Loctite (Blue) 243
22. Fwd collar zinc
23. Collar zinc fixing bolts

* Not for 15” and 16.5”
# 8 is the fixing bolt

Note: Do not take the blades off to fit the propeller.
For any additional questions or assistance with the installation or removal of your Gori propeller please contact AB Marine, Inc at:

- Tel: 401-847-7960 • Fax: 401-849-0631 • Email: sales@ab-marine.com