GRAMPIAN 34 OWNER'S MANUAL

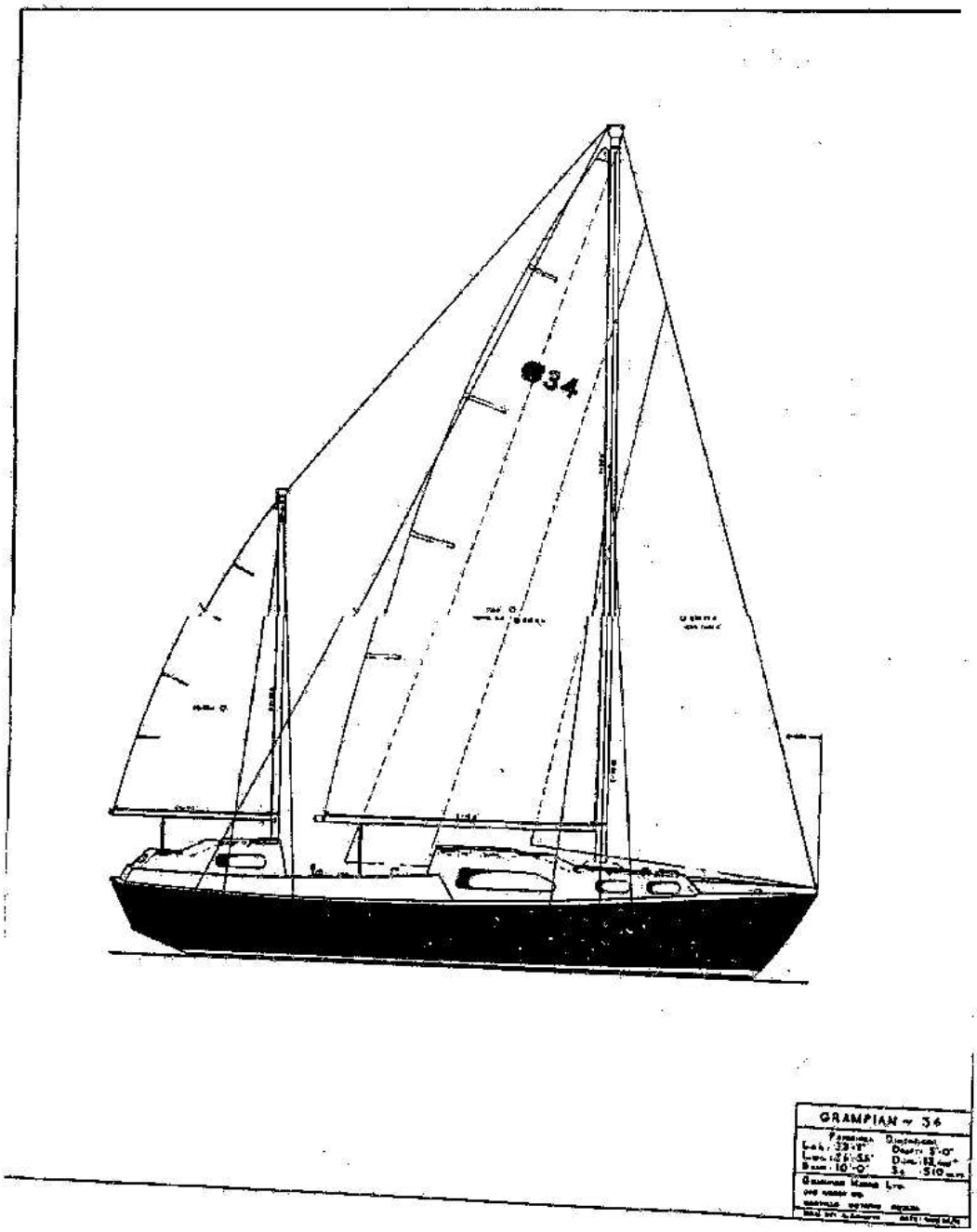


Table of Contents

INTRODUCTION

The purpose of this manual is to acquaint owners with some of the features of their Grampian sailboat and to offer assistance and advice concerning the upkeep and maintenance of their boat.

While all boats in the Grampian line are extremely well equipped and are ready for sailing, they may require minor adjustments at different times. This booklet should be of assistance in making these adjustments.

This manual covers the plumbing and electrical systems, gelcoat maintenance and repair, the upkeep of woodwork and the nature of rigging and sails. It also endeavours to describe, in simple terms, the procedures to be followed in the launching and rigging of a Grampian.

Although much of this information may be common knowledge, there are many "tips" which should be useful to the experienced sailor and the newcomer alike.

We hope you enjoy reading about your Grampian, and if there is something you need to know concerning your boat that the manual does not cover, please feel free to give us a call, (416) 221-1419.

LAUNCHING and COMMISSIONING

The following procedure is recommended for launching either for the first time or after winter storage.

1. Lifting straps should be placed in front of and behind the keel. Care should be taken to ensure that the straps are not twisted. When the tension is taken up by the crane, is should be done slowly to ensure that the strays do not bear against any sharp edges or rub against the lifelines stanchions or other non-structural parts of the boat. These items can easily be bent twisted or broken by the stresses generated during the launch
Warning: Under no circumstances should the straps be allowed to rest on the propeller, shaft or bearing.

2. Attach long mooring lines to deck cleats at the bow and the stern. These can be used to steady the boat when it is in the air and of course, secure it to the dock when it is in the water. Fenders should also be attached to the side at the boat which will be resting against the dock when it is lowered into the water.

3. Care should be taken to ensure that all sea cocks and gate valves are closed. This will prevent leakage when the boat is launched and they can be opened shortly thereafter to ensure: that all hose clamps and plumbing connections are tight.

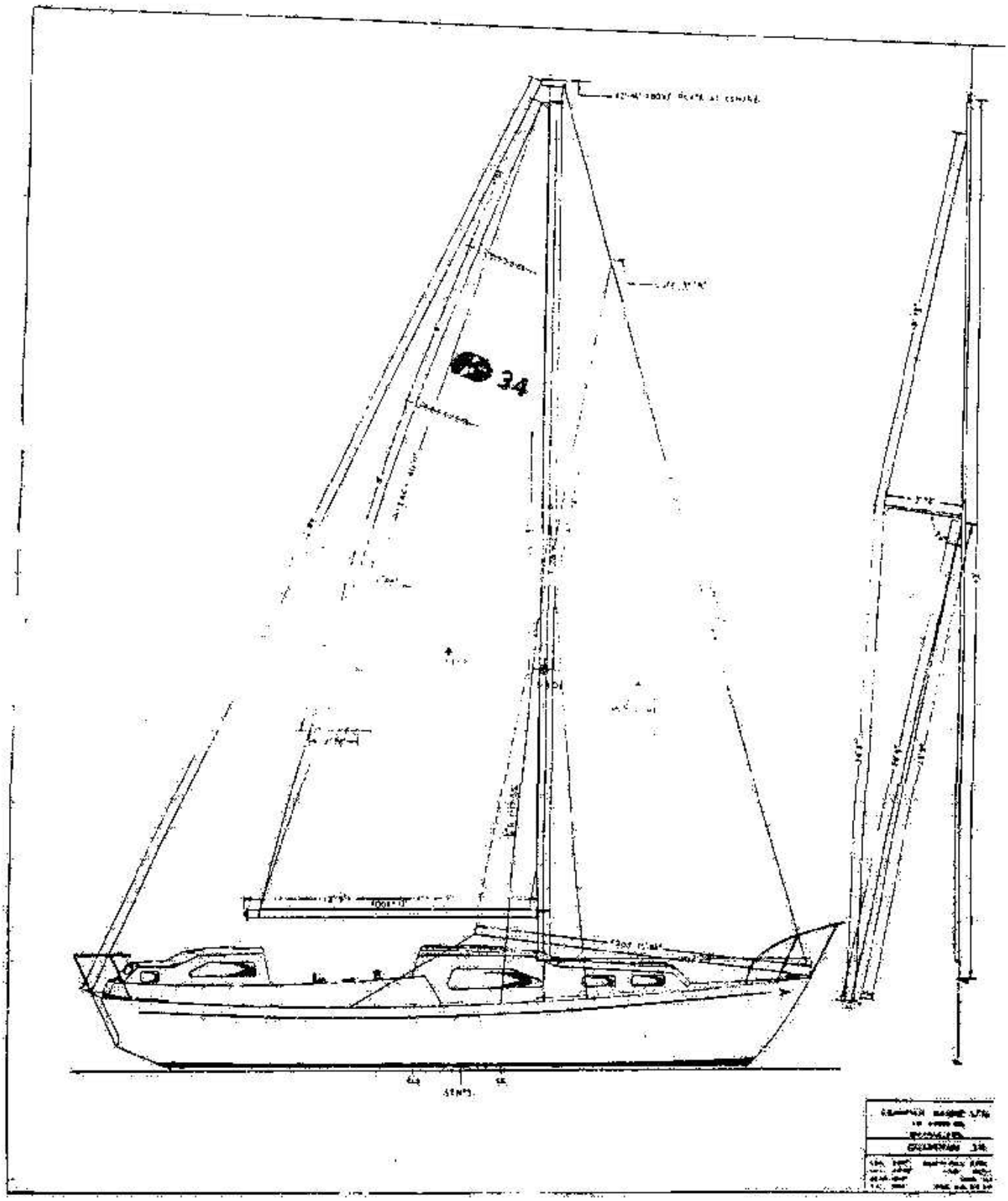
4. Launching is a good time to touch up those spots which were missed during bottom painting, especially those spots which were covered by the cradle pads.

5. Lift and launch the boat. When it is in the water, unhook each lifting strap from one side and carefully hold them away from the boat while the crane lifts them out of the water. (Be careful not to unhook both sides the lifting straps or you may have a number of fellow boaters somewhat annoyed with you.)

6. If you intend to move the boat away under its own power, either inboard or outboard, check the owner’s manual and see engine section of this manual. Ensure that the procedure for start-up and operation are followed thoroughly.

7. At this point you are ready to rig your boat

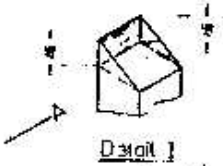
RIGGING



RIGGING

Each piece of the standing and running rigging is carefully marked and packed for each new boat. The following is the procedure for rigging your Grampian.

1. Place the mast on trestles or wooden boxes.
2. Feed the jib halyard over the sheaves at the top at the mast on the same side of the mast as the jib halyard winch, with the rope tail on the aft side of the mast. This is usually the port side.
3. Feed main halyard over the sheave on the other side of the mast, this time with the rope tail on the forward side of the mast (usually the starboard side of the mast).
4. Topping lift - the purpose of the topping lift is to support the boom when the sails are lowered. There are three types of topping lifts in use for Grampians. See drawing for type used in your boat and attach as shown in drawing.
5. Fix lower shrouds to their respective tangs. The Grampian 30 has four lower tangs - two forward, two aft. All others models have two.
6. Attach the main shrouds to the tangs at the top and side of spar.
7. The forestay is attached to the toggle on the forward side of the mast head fitting.
8. The back stay is attached to the aft toggle.
9. Remove the locking pins/split rings from the turnbuckles and remove the clevis pins. Keep the locking pins and clevis pins handy to secure the mast when it is lifted in place. The turnbuckles should be opened halfway and should all turn in the same direction when they are being tightened.
10. Attach the spreaders to the mast and put the main (upper) shrouds in the grooves in the spreaders. Tape and cover the spreaders at the mast and at their outboard ends. This will reduce chafing and possible tearing of the sails. Note: Although more expensive, we recommend rigging tape. It adheres to itself and can be removed easily without leaving any trace.
11. If a Wind indicator is required, install at this time.
12. Attach the backstay to the chainplate at the back of the boat
13. If a crane is being to used to step the mast a large rope or strap should be placed under the spreaders around the mast. A line should be attached to the strap which can be used to pull it clear when the mast is stepped.
14. Lift the mast into place and secure in place with standing rigging.
15. Attach forestay first and then secure upper shrouds. Lower shrouds can be secured as soon as mast lifting strap has been removed.
16. When all clevis pins have been secured with locking pins/split rings, tape around pins to eliminate the possibility of tearing or chafing of sails.
17. Tighten rigging (see section on "Mast Tuning").
18. Attach boom and main sail.



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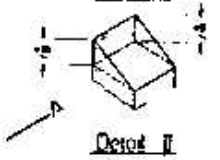

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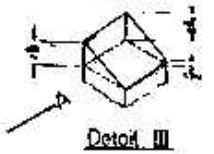

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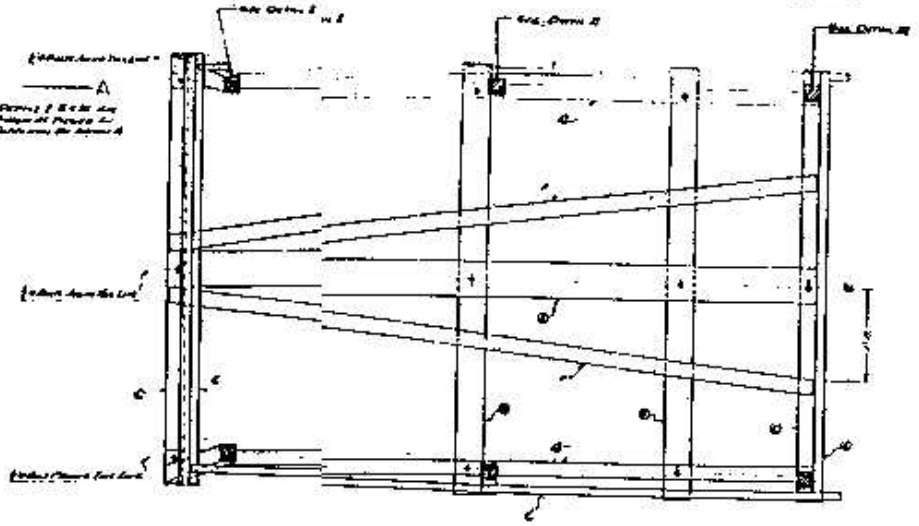
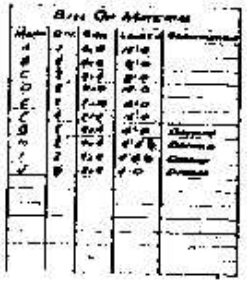
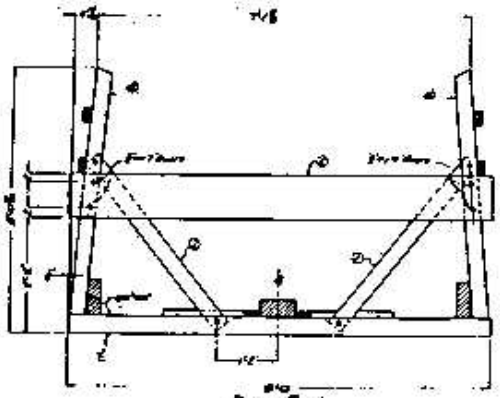
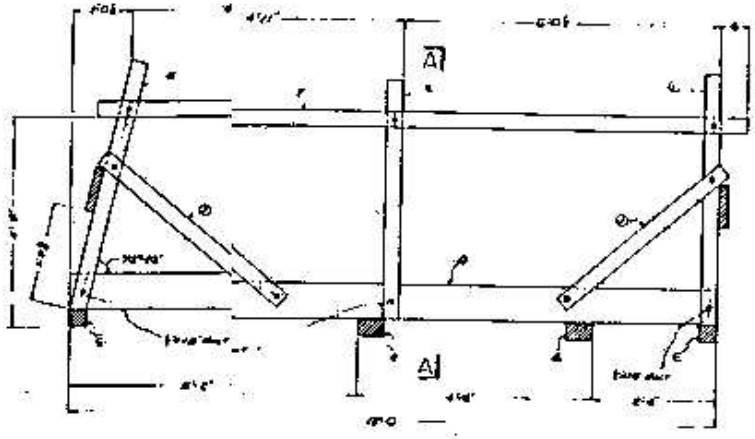
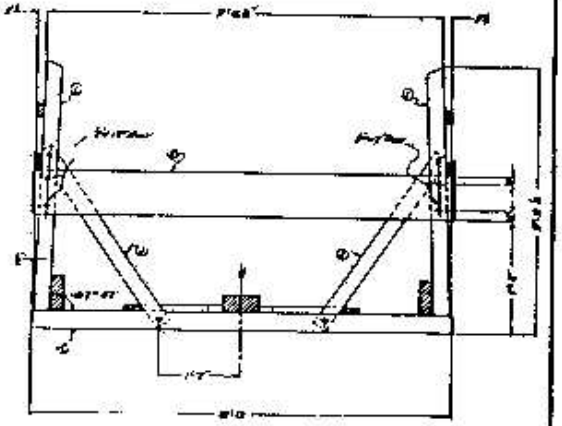




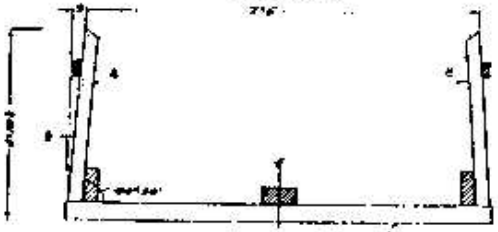


Bow End





Stern End



Section A-A

G34 Full Keel Cradle

WINTER STORAGE AND SPRING COMMISSIONING:

Preparing your Grampian for winter storage is perhaps more important than spring commissioning. The more time spent cleaning and preparing the boat for the winter storage, the less time required for commissioning in the spring. In addition the boat will winter better and not age as quickly, it is recommended that these procedures be followed for winter storage:

1. The Grampian should stand on its cradle or rest on blocks under its keel and braced fore and aft.
2. The engine should be winterized according to the engine manual and stored in a dry location, if it is an outboard
3. All moisture in the boat should be removed. It should be sponged out of the bilge if necessary. This is especially important because fibreglass will over time absorb any water with which it comes in contact
4. Clean all interior fibreglass & dirt, grease and other foreign sub-substances. This will help prevent the interior fibreglass from becoming stained or marked.
5. Remove all batteries, re-charge and store in dry location.
6. Pump out and drain head and related plumbing.
7. Empty water tank and related plumbing.
8. Ensure that the boat is properly ventilated. Do not close all hatches and restrict the circulation & air.
9. Cover the boat with a cover supported by a ridge pole. This can be a frame system made of wood or PVC pipe and fittings or the mast. If the mast is used, it must be supported and well covered in order to prevent damage to the mast and to keep it dry.
10. Store the mast in dry place. Spreaders should be removed, but standing and running rigging may be left attached to the mast.

In the Spring:

1. Clean deck and bull and thoroughly wax hull. The latter will help prevent the ultra violet rays of the sun from chalking and discolouring the hull.
2. Clean and oil all teak (see section on care of wood).
3. Touch up or re paint bottom as necessary (see section on bottom painting).
4. Carefully examine rigging, stuffing box and all mechanical gear for wear and replace if necessary. Much of this can be done after the boat goes in the water with the exception of the stuffing bar.

SAILS

Foresails

To raise the foresail start with the tack which is attached to the bow casting by means of a shackle (1/4" at 5/16"). The sail is then fastened to the foresail with piston hanks. This process should begin with the hank closest to the tack. Ensure that all hanks are facing the same direction and are not twisted. Attach jib halyard to the head of the sail and the jib sheets to the clue. The latter is lead aft outside of the stanchions and shrouds to the jib blocks on the toe-rail. It is recommended that figure of eight knots to tied in the ends of the jib sheet in order to prevent them from accidentally slipping out of the blocks at the wrong time.

MainSail

Hoisting the main is a similar process to hoisting the jib except that both the luff and the foot of the sail are fixed into position by the mast and boom respectively. In most instances the luff is attached the main by either a bolt rope or plastic slides. The foot is attached to the main by means of a bolt rope.
The main is first attached to the boom and pulled fully out to the loose end of the boom. The tack is attached to the boom at the gooseneck by inserting the tack pin through the grommet of the sail and tightened. The outhaul is then attached to the clew of the sail by means of the grommet at that end and pulled tight and cleated.
Now it is time to insert the luff at the main in the luff track on the mast. Before doing this, ensure that the sail is not twisted by running your hands the full length of the luff, starting with the tack, until you find the headboard. This process eliminates the chance of the sail being hoisted with a twist. At this point insert the bolt rope or plastic slides in the luff track starting at the headboard. On the models with the plastic slides (which should be the majority) there is a pin at the bottom of the luff track which has to be removed in order to insert the slides. The pin is used to prevent the slides from falling out of the track before the sail is raised or when it is lowered and stored on the boom. Now the battens should be inserted.

Battens

Battens are a very important part of any mainsail because they support the portion of the sails leech which is called the roach. Without battens the roach would curl inward and the main would not function properly. It is important to trim the luff at the jib and the leech of the main for optimum performance. Battens are inserted with the thinner end in the deepest part of the batten pocket Care should be taken to ensure that the battens are fully inserted in the batten pockets and will not pop out. If the pockets are worn, it is often advisable to lightly sew the pockets closed. Do not destroy the sail by over stitching.
With the battens inserted, the mainsail can now be raised. We recommend that all sails be raised while you are heading into the wind starting with the main first. The main sail should be hoisted to a point 6" below the top at the mast. This will prevent chafing of the headboard against the backstay.

Topping Lift

As was mentioned earlier all Grampians come equipped with a topping lift. In addition to supporting the boom when the sail is down, the topping lift is used in conjunction with the boom to support a boom tent. On the Grampian 20, 23 and 26 the topping lift is a short wire suspended from the backstay. On other models it is a separate wire which extends from the mast.

Downhaul

The downhaul adjustment is made by attaching the downhaul line with a shackle to an eye about 12 inches from the foot of the mast. This line is then run up to a single block which should be attached to the gooseneck unit. The line is then lead back to a cleat opposite the eye where the line is made fast.
Tension should be placed on the downhaul until the small wrinkles in the luff disappear. Downhaul tension can be used to adjust the position of the draft of the sail. Additional tension will move the draft forward, while easing of tension will move the draft aft. Generally the draft should be maintained about midpoint.

Outhaul

Outhaul tension is added until the small vertical lines in the foot of the sail disappear. If additional flattening of the foot of the sail is required, tighten the outhaul. Generally the foot is flattened more as the velocity of the wind increases.

Lowering the Sails

Sails should be lowered in the reverse order to the way in which they were raised. Jib sails should be lowered and secured on the fore-deck by means of a sail-tie. This will keep the sail on the deck until it can be safely and easily stored below deck or on-shore. This sail should be lowered as the boat is headed into the wind.
The mainsail should be lowered last and only after the engine has been started and has been running for a few minutes. It is not critical to do this when there is minimal wind, but it is a definite necessity when the wind is blowing and a good practise at all times. It is especially a good idea when the boat is crewed by inexperienced people.
The mainsail can be lowered and allowed to rest on the boom. (Ensure that the topping lift is attached before lowering the main.) One or two sail ties will secure it to the boom until it can be properly folded and covered at the dock. The mainsail can be flaked over the boom with the plastic slides left in the mast luff track. Obviously this will speed up and facilitate the easy raising of the sails on the next sailing day, but it is a practise which can wear out sails quicker.
It is recommended that the mainsail be rolled. This is achieved by starting at the headboard and rolling along the luff of the sail. A crew member must assist by rolling the leech at the same time. In order to keep the sail flat and not bunched up, pull the sail cloth between the leech and the luff every couple of turns. Support the rolled main to the boom by loosely tied sail ties. By rolling the mainsail the way a rug would be rolled, it will not have any folds in it and the cloth

and stitching will last longer. The jib can also be rolled and stored on a berth below with the jib sheets attached.

Important: Be certain to cover all sails left on deck, especially the mainsail. Sail covers will block out the ultra-violet rays of the sun which are very harmful to sail cloth and stitching.

STORING SAILS FOR THE OFF-SEASON

Although sails today are made of synthetic fibres, you will get the best use of your sails if you store them carefully for the off-season. Sails should be checked, cleaned and then stored.

Sail Inspection

Sails should be inspected closely for chafe. You may find only minor wear, two or three stitches gone, but these should be attended to during the off-season. These items will spread and can cause unnecessary loss of sailing time during the next season. The areas to examine carefully are the following:

- The area of the main which rubs the upper shrouds and spreaders.
- The leech of the main for rubbing by the backstay and topping lift.
- Both the inner and outer ends of the batten pockets.
- All grommet holes should be checked for distortion.
- All main sail slides and piston hanks on the jib. The latter should be given one small drop of oil once a year.
- The foot of the jib, especially where it comes in contact with rigging, lifelines and other parts of the boat.

Sail Cleaning

Cleaning all of your sails at least once a year will keep up their appearance and increase their effective life span. Small sails can be cleaned in a bathtub. Larger sails can be cleaned on a concrete surface. Both should be cleaned with a soft scrub brush, using like warm water and a non-abrasive household detergent. Sails should be thoroughly rinsed and allowed to dry spread out in the open air. If you can hang them where they will not be whipped around, all the better Hang them only from the head to the tack as they are hoisted on the boat.
Ironing is not recommended. This can cause localized fusing of the filaments and distortion of the cloth. This can never be cured. The safest treatment for sails which are badly creased is hosing them down with water and spread them out or hang them as discussed. Sails may also be laundered in their bag using a washing machine set at the permanent press setting. Alternatively, there are companies who specialize in cleaning sails. You local sail maker has this service.

Storage

Sails should be completely dry before being stored for a long period of time in order to prevent discolouration. They should be stored loosely in a dry area where the air can circulate freely. It is important to avoid creases and ensure that the area is dry. One of the best ways for storing sails is to roll them from the head to the foot keeping the luff together. If possible, we recommend you roll the main around the boom and hang the boom from the rafters.

ELECTRICAL

Electrical System - D.C

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The direct current electrical system derives its power from a l2 volt battery. This is supplied to the lights and other accessories through a central switch panel and various fuses. There is a master switch on the inboard models only. The negative terminals ground to a grounding strip next to the fuse box. This in turn is connected to the battery ground. The ground wire in all cases is black. This is an internal 12 volt ground and cannot be used for a 110 volt AC system. The interior lights are powered from the fuse panel by a blue positive wire. The running lights are powered from the fuse panel by a white positive wire. All extras are powered through the fuse panel by an orange positive wire.

The fuse panel and grounding bar are located as follows:

- G26 - on the bulkhead next to the ice box.
- G34, G2-34, G30 - in the engine compartment.
- G23 - inside the quarter berth.
- G28 - behind switch panel on starboard side.

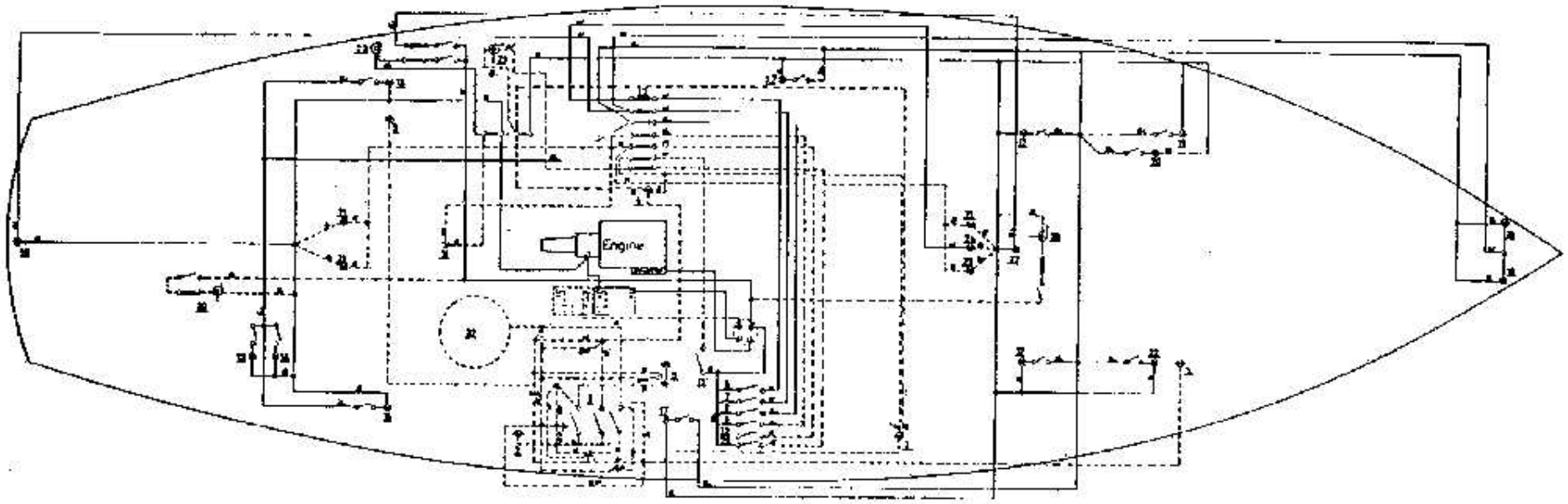
On boats with inboard engines, the batteries are charged by an alternator. The battery switch can control the charging of one or both of the batteries at the same time. The switch is generally left in the ALL position in order to charge both batteries and must not be left in the OFF while the engine is running. Damage to the regulator might result.

Shore Power

Shore power is an option on most boats. It is a beneficial option if you are planning to do a lot of cruising and living aboard your boat. It can allow you to have a lot more conveniences on your boat and run them without the concern of running down the batteries.

If you have shore power there will be a second electrical panel in your boat. All lights and extras, running lights excepted, will be wired to this panel. The wiring is the same as in your home and trouble shooting is similar to trouble shooting electrical problems at home. Caution and a circuit tester are your best tools. If you have shore power, we recommend that you have the appropriate attachments on board. Most marinas have the same universal receptacles which accept standard adapters, but some may not. This may cause you some inconvenience.

Caution - Always ensure that the shore power source is 110 volt, especially when cruising abroad. 220 volt will damage the whole boat's electrical system. Also ensure that the marina has a properly grounded system. Remember, your boat is floating on water - one of the best electrical conductors.



Symbols

CHAMPLAIN MARINE LIMITED
401 WOOD ST.
PORTAGE, ONTARIO, CANADA

TITLE:
334 Electrical Syst. n

DWG. NO. GM 3418

PLUMBING

The plumbing system for the Grampian is easy to understand. It can be traced using the drawings in this manual. The system should be checked for leaks periodically, and hose clamps should be checked especially where attached to through-hull fittings.

Through-Hull Fittings

All through-hull fittings, except engine cooling water which has a sea cock, are normally equipped with gate valves. These should be opened and closed at least once a month to keep them in working order. Do not force the valves. They should operate easily or they are corroded and need to be replaced. These valves should be closed when not regularly in use.

Toilets

There are several different types of toilets installed. It is important that you read the manufacturers instructions before using. The basic types of toilets are the following:

1. Regular marine toilet with direct overboard flush. These types are legal only in a few areas.
2. Regular marine toilet with direct overboard flush and holding tank. These are legal in all areas provided that you are only using the holding tank.
3. Recirculating chemical toilet which is self-contained.
4. Flush toilet with holding tank and pump-out fittings. Legal in all areas.

We recommend that the following hints be considered when using any of these types of toilets:

1. It is always best to use the manufacturers suggested type of chemical with a recirculating type. This will reduce the chance of the waste exploding. It is not dangerous, but it is not a lot fun if it does explode.
2. Always flush out the holding tank and toilet unit with fresh water when pumping out.
3. Do not leave waste sitting for a prolonged time. A weekly pump-out is recommended.

Pressure Water

The pressure water system depends on the 12 volt system. The power must be switched on for the system to recharge itself. Care should be taken to ensure that adequate water is in the water tank at all times. Generally more water is used with a pressure water system, than with a hand pump system.

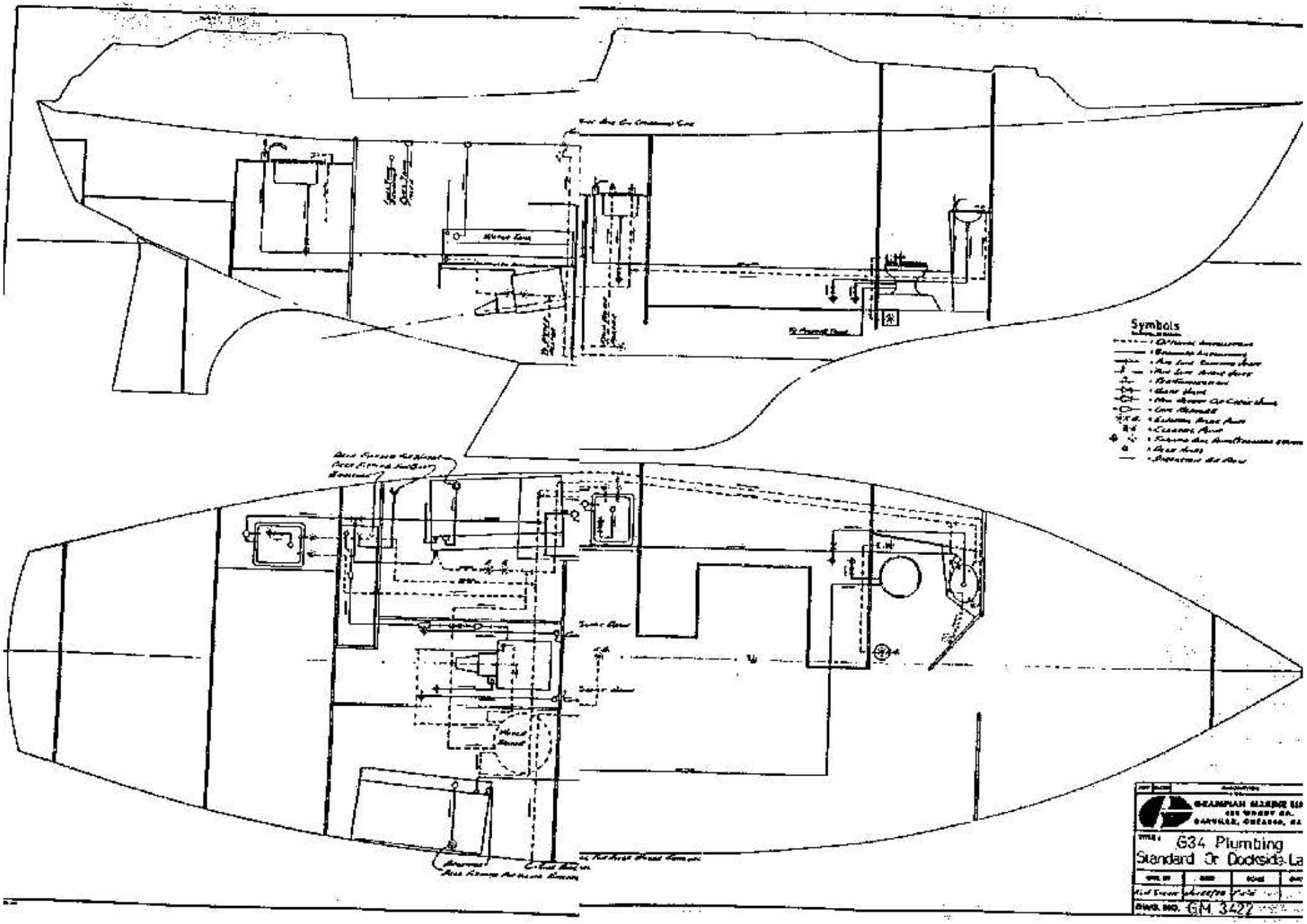
Hand Pumps

Sometimes these units can become plugged. If this happens, remove the whole pump from the sink and strip and clean. This will remove particles of foreign matter from the ball system. Occasionally the pin that connects the pump handle to the working parts inside has been known to slip, so the handle does not engage the pump. In the event of this problem, remove the entire pump unit from the sink, strip and position pin.

Ice Box
The ice box drains directly into the bilge by means of a hose. This hose can be plugged until you wish to drain it into the bilge or into a bottle or container for easy disposal

Stoves.
On stoves which have optional pressure tank for an alcohol stove, the following must be observed when filling the tank:

1. All burners must be OFF
2. Main alcohol shut-off valve on the top of the pressure tank is closed
3. Tank pressure is zero.
4. Remove stopper.
5. Fill tank three quarters full to allow for air pressure.
6. Replace stopper and screw down tight.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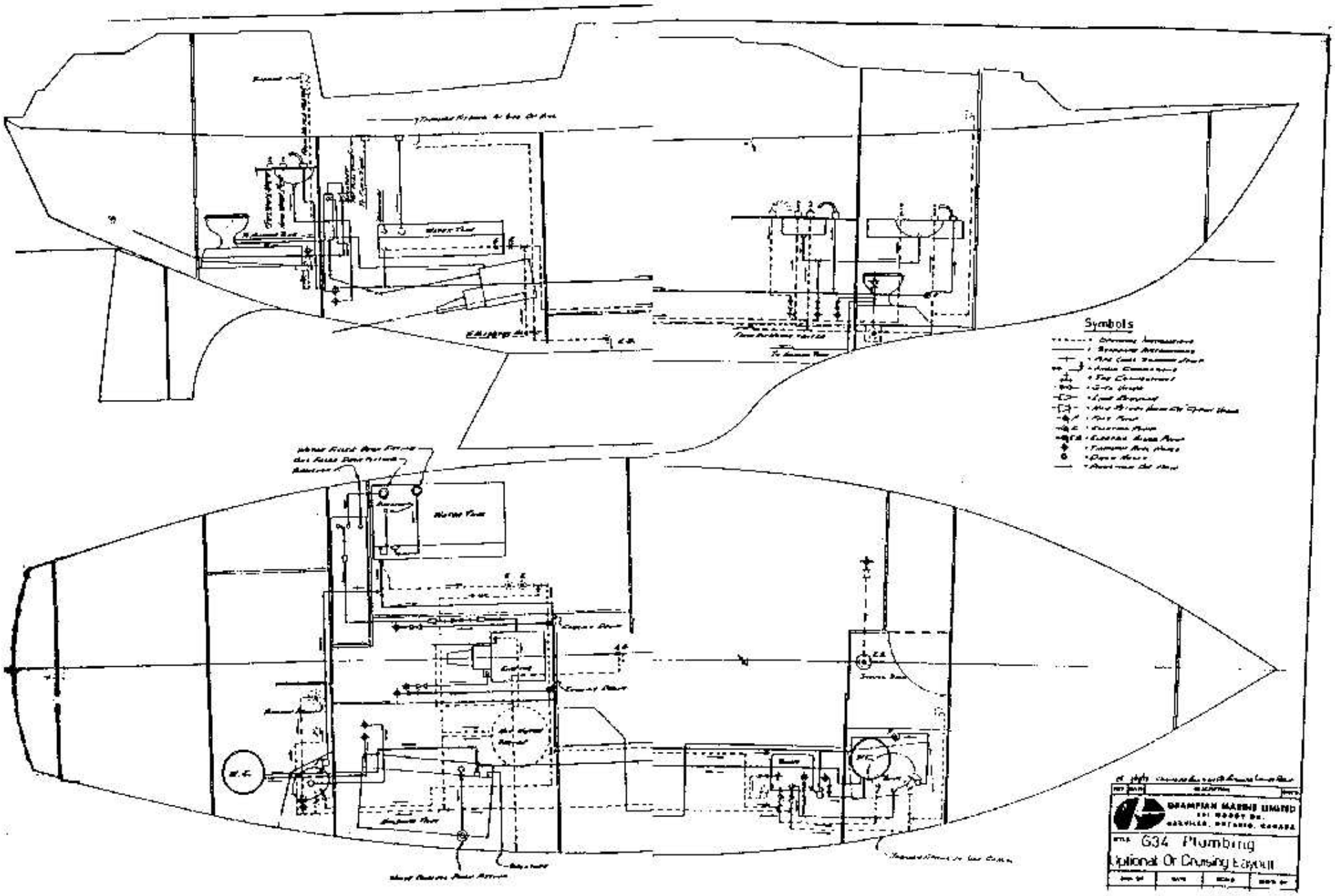

Symbols
CHAMPION MARINE LIMITED
634 Plumbing
Optional Or Cruising Layout

STEERING & CENTERBOARDS

Tiller Steering

Most Grampians are steered by means of a tiller connected to the top of the rudder shaft by means of a fitting called a tiller head and fork. This fitting interacts with the rudder shaft by means of a key. If the key is worn, then there will be play between the rudder and the tiller. If there is play, replace the key and do not over tighten the fitting. It can never be tightened to ensure there is no play. The tiller head and fork will crack well before a tight fit occurs. If your tiller head and fork does crack, Grampian Marine can replace it at a small cost. It is often a good idea the remove your rudder and lubricate the shaft each spring. This will ensure smoother operation of the rudder and less wear on the rudder shaft bearings.

Wheel Steering

Once installed wheel steering requires very little maintenance and only periodic adjustment. Each year you should check the following:

1. The gland packing box. This sits on the rudder post tube. It is located under the quadrant and should be checked about once per month for seepage. It can be tightened by the three bolts at the top of the unit. (Some models - 1974 and prior - do not have the gland packing box.)
2. The cable should be checked for play and tightened if necessary. The adjustment is located on the quadrant.
3. All sheaves are self-lubricating and do not need attention.
4. The emergency tiller is necessary with all wheel steering units. It attaches to the top of the rudder post which is behind the steering pedestal. On most boats a small plate or cover is on the cockpit sole over the top of the rudder post top.

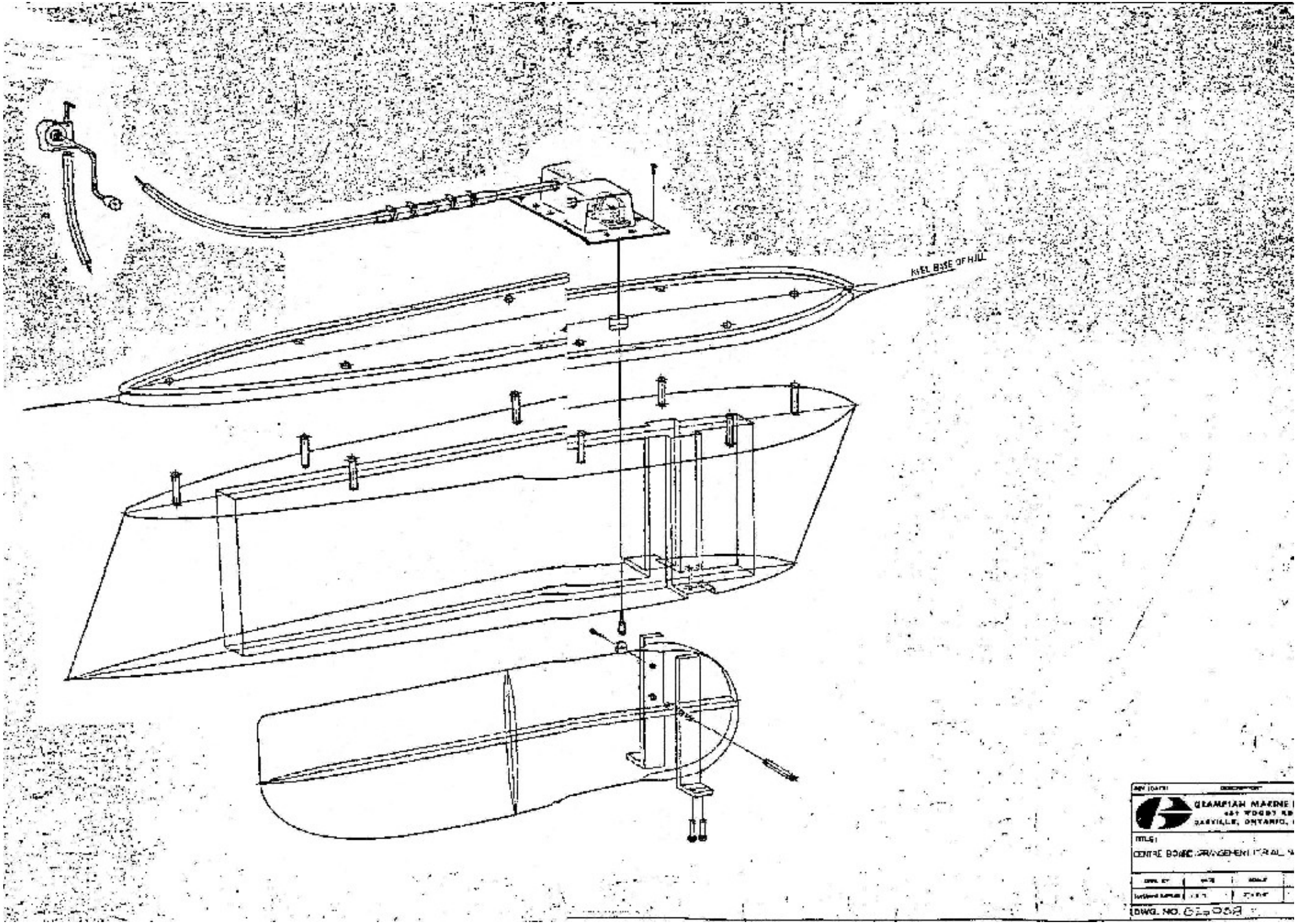
Centerboards (see diagram)

The centerboard assembly is the same for all Grampians - 23, 26, 30. The system should be checked at least once a year for fraying cables and other potential problems. Where electrolytic action is greater, the need for frequent inspection is greater.

It is also important to ensure that the boards are kept free of foreign matter. Regular cleaning and proper spring maintenance are essential for smooth operation of the Center board.

If the board cannot be raised, a weighted rope slung under the bow and walked aft can snag the board and hold it in a raised position until repairs can be made.

If the board cannot be lowered, then the board is most likely fouled. The boat will have to be removed from the water and the mechanism removed and both the board and the keel housing thoroughly cleaned.


KEEL BASE OF HULL

CARE OF INTERIOR AND EXTERIOR WOOD

Cleaning & Oiling

The interior wood in your Grampian is either teak, mahogany or mahogany plywood. The exterior wood is finished with a 50% mixture of boiled linseed oil and turpentine. The wood should be cleaned regularly and re-oiled as often as is necessary to prevent checking and splitting (once a month in hot weather).

One recommended mixture often used for cleaning wood is comprised of one fifth bleach, a squirt of liquid soap and hot water. When used with a plastic pot scrubber wood parts can be maintained with a minimum of effort.

Before oiling the wood should be sanded with a very fine sandpaper or bronze wool to remove all marks or discolouration. Avoid using steel wool. It leaves particles around afterward and these will rust. It is also recommended that you use a two part wood treatment system. One part is a cleaner and the other is the oil. When used properly, these systems can make your work a lot easier.

CARE AND MAINTENANCE OF FIBERGLASS

The outside of the hull and deck is a material called gelcoat. This is a specially formulated resin which is a "skin" coat of about a fifteenth of an inch thick. This layer is not impervious to moisture and is affected by the ultra-violet rays of the sun. Water can pass through the gelcoat to the fiberglass and the sun can cause the surface colour to breakdown over time. The effects of water and sun can be minimized.
A good procedure which costs a little extra, but will significantly reduce the chances of blistering due to moisture absorption, is to treat the boat s hull below the water line with an epoxy sealer. This process will protect the bull and ensure that blisters never form. The sealer can be rolled or sprayed on. It must be applied to a clean dry hull. It is preferable to apply the sealer to a boat before it ever goes in the water, but it can be applied to older boats with good success. There are many suppliers of this product and we suggest you enquire at your local boat yard for the product which they recommend.

Sun
Colour breakdown due to the rays of the sun cannot be totally prevented, but they can be slowed by a good and frequent waxing of the hull topsides, cabin sides and cabin top. A solid wax such as a Carnauba is the best protection. A proper application will result in the finish of the hull being maintained factory new for a much longer time.

Gelcoat Repair
If the gelcoat does develop cracks and chips due to use, they should be repaired. Although they will not affect the structural strength of the boat and are merely cosmetic, they can grow if not attended to properly and quickly.
Making Minor Repairs requires that the air temperature be over 60 degrees F. and that the day be dry. The lower the humidity the better the gelcoat will set and ultimately be finished. The procedure in making repairs is the following:

1. Remove any loose gelcoat around the chip, scratch or crack.
2. Mask of the surrounding area with tape.
3. Mix thoroughly a small amount of gelcoat (colour matched) and hardener in the correct proportions. The kit you use or the gelcoat supplier will specify proportions.
1. Apply the mixture to the damaged area. Do small amounts at a time.
2. If the damaged area is large, you will have to do the repair in stages, a little at a time. Allow mixture to harden.
3. Sand new gelcoat with #400 sandpaper. When the new gelcoat is almost even with the surrounding area switch to #600 sandpaper and finish the job. The latter type of paper will allow you to feather the repaired area into the surrounding area.
5. Complete the finishing process by polishing with a rubbing compound and wax

Note: Do note use acetone on the hull for cleaning unless absolutely necessary. It is a solvent for gelcoat and will dull the finished of the boat.
Work with clothing and materials you can dispose of or only use for this type of work. Gelcoat, hardener and acetone are products which should be handled carefully. They are poisonous and volatile.

WINDOWS - CLEANING AND MAINTENANCE

One of the items which over time must be dealt with are the windows of all Grampians. The flush mounted windows must be cleaned regularly and many need to be rebedded when the caulking breaks down.
Cleaning of the Plexiglas is achieved by using soap and water. For a clean finish wipe dry with a soft cloth or chamois. Similar to a car's finish the Plexiglas looks better if it is dried. If your windows are leaking the can be fixed by following this procedure:

1) Remove the windows carefully. Plexiglas can and will shatter if it is stressed in any way.

2) Remove all old caulking from the cabin side around the window opening. Ensure that the glass is completely clean.

3) Place a three-eights inch in diameter bead of caulking around the window opening as close to where the edge of the Plexiglas will be.

4) Replace the Plexiglas and lightly tighten the screws holding it in place. The object here is to allow all of the Plexiglas to come in contact with the caulking, but not to tighten the glass down flush with the cabin side.

5) Allow the caulking to harden and tighten the Plexiglas. The caulking is now a rubber seal and will, when the window is tightened, act as a gasket.

6) With the window firmly in place, run another bead of caulking around the edge of the Plexiglas Where it meets the cabin side. You may want to place masking tape on the cabin in order to make the job neater. A wet finger can be used to angle the caulking between the pledglass and the cabin side.

This procedure should solve any leaking problems which have resulted due to a deterioration of the caulking in the windows of your boat. When doing this job always ensure that the bead of caulking is all the way around the opening with no gaps. Also ensure that there is a good bond between the caulking and the cabin side and the caulking and the Plexiglas.

TUNING YOUR BOAT

Tuning

Mast tuning is a very simple exercise, but it can when done result in better boat speed. This can be more fun when cruising and better results when racing.

Tuning the Mast- Side to Side

1) Center the mast on the boat. Measure the distance from the mast to gunwhales. The distance from the mast to both the port and starboard sides must be equal.0n your Grampian these measurements should be equal unless a new mast step has been installed sometime after the boat originally left the factory. Minor adjustments can be made by lacing chocks in the mast step channel.

2) Tighten the upper shrouds until they are supporting the mast and it appears to be vertical. Using the main halyard and a tape measure, check the distance from the chain plates to the top of the mast. The distance should be equal on both sides. If not, adjust the upper shrouds until they are equal. You may have to take up on one shroud or adjust both depending upon how far out the two measurements are from matching each other.

3) Now tighten the lowers to eliminate center bend. The final step is done under sail, preferably in a medium range wind.

4) Sail upwind on starboard tack. When you are heeled about twenty degrees tighten the leeward upper shroud until all slack is eliminated. Switch to the port tack and tighten the other shroud. **Important:** Ensure that you tighten each upper shroud by the same amount. Only in this way will the mast remain square to the boat.

If your boat has two sets of lowers, the forward lowers which encourage fore-aft bend should be tighter than the aft lowers which reduce fore-aft bend. Two sets of lowers require more work to be properly adjusted, but they can tuned and can provide greater flexibility and control over sail shape.

Tuning the Mast- Rake

The fore and aft tilt of the mast is called rake. Rake is affected by the length of the forestay and the backstay. Rake affects the center of effort and can make the boat faster depending upon wind conditions. In heavy air it is advantageous to increase the take in your mast and increase forestay tension. In light air you will want to do the opposite. Consequently, a permanent rake setting which is appropriate for a Grampian is a matter of compromise. It is also a matter of trial and error.

Tuning the Mast - Bend

Mast bend is the part of tuning which is constantly changing due to wind and sea conditions. Mast bend affects depth and twist of the main sail.

Bend on Grampians can be achieved in several ways:

1. Tightening the backstay.

2. Tightening the forward lowers and loosening the aft lowers on the G30 and other Grampians with double lower shrouds.

3. Angle cutting the base of the mast on Grampians 28' and smaller which have single lower shrouds. The angle should be limited to 1 to 1-1/2 inches up the front side of the mast base. This works as the upper shrouds are tightened and the mast rocks forward in order for the base to sit flat under the tension. **NOTE:** This technique is suggested only if a finely tuned mast is required and the mast channel can handle an adjustment of this nature. Consult your marine yard for assistance.