



Tollycraft

BOAT OWNER'S MANUAL AND EQUIPMENT GUIDE

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OWNER'S MANUAL

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We welcome you to our ever growing family of Tollycraft owners. A Tollycraft boat is second to none on today's market. Your boat was conceived and designed by people who know and use boats and have an intimate knowledge of every phase of boating. Tollycraft owners are the best salesmen we have because they are proud to own a Tollycraft. Your new boat will give you years of satisfactory service. To fully enjoy your new boat you should understand it completely. We suggest you read this booklet thoroughly so you can become familiar with the complexities of the boat and the equipment aboard thus providing you with many hours of care-free cruising.

This booklet is written for the new boat owner, but most of its contents can be used by owners of older boats.

Instructions pertaining to engines and accessories not of Tollycraft manufacture are contained in the manufacturer's pamphlets enclosed in this booklet together with pictures, plans and specifications of the model you have purchased.

The Tollycraft Boat Owner's Warranty is comprehensive. Please study it carefully. Your Dealer is prepared to administer its policies in an equitable and honest way. If necessary to contact the Company, address your letter as follows:

TOLLYCRAFT CORPORATION
P. O. Box 390 (2200 Clinton Avenue)
Kelso, Washington 98626

"WHEN ALL ELSE FAILS READ THE INSTRUCTIONS"

THE STORY OF TOLLYCRAFT

The Name TOLLYCRAFT is derived from a family nickname "TOLLY" which, by adding "CRAFT", has provided a product name now known and respected throughout the marine industry.

Production boat building for Tollycraft began fourteen years ago in a small 40 x 60 foot building in West Kelso, Washington. Custom boats up to 60 foot in length had been built by Tollycraft prior to this, however.

Additions to the first plant came each year as production increased until the original building was a sprawling affair of some 35,000 square feet. In October of 1959 a new plant was finished, located in the Kelso Industrial Park, which provided space of 180 x 360 feet, all on one floor. In July of 1960 an addition was added to provide a development shop and an upholstery shop. August of 1961 -- the completion of another addition, a building 92 x 192 feet, for construction of the new 43 foot Adventurer. In July of 1964 still another addition was made, a building 40 x 192 feet, to be used for boat storage. In June of 1965 another building 96 x 96 was built to house the fiberglass molding department.

The new plant is carefully designed to permit the even flow of boats and materials for maximum production. Each model has its own production line and expert craftsmen speed the boats toward the paint shop and outfitting department.

All Tollycraft boats feature hull designs by Ed Monk, well known Naval Architect. The plan and profile of each model is designed by R. M. "Tolly" Tollefson. Each hull is thoroughly tested at the plant, refinements are made from time to time, followed by more testing.

All Tollycraft models feature conically developed Vee bottoms, except the 43' Adventurer, with the vee carried all the way to the transom. The new 20', 26', 28', 32', 38' and 50' models feature the same conically developed hull in a modified deep-V design. The chine is carried parallel with the water line, producing a full-planing, level-riding hull that lifts itself bodily out of the water. This produces a boat with excellent speed together with a soft ride unequalled by any other manufacturer.

CHAPTER II

Placing Your New Boat Into OperationIntroduction

Your Dealer has carefully checked and tested your new Tollycraft, but for the benefit of the owner who takes delivery remote from his Dealer's place of business, we offer the following advice:

Inspect the boat carefully for transportation damage and check the equipment list shown on the Invoice or Bill of Lading. If damage or shortage is noticed, make a record of it on your receipted freight bill signed by the driver or carrier agent. Notify the Dealer at once.

In addition to the usual inspection and servicing of the boat, we recommend that special attention be given the following to prevent unnecessary inconvenience:

1. Check all electrical wiring, test for short circuits.
2. Inspect all gasoline line fittings and connections to be certain none are loose. Check filler hose connection and vents to tanks. Fill gas tanks and open valves in lines to engines. Inspect for leaks.
3. Examine stuffing boxes and make certain each engine and its shaft is properly aligned. Re-examine after the boat is in the water for a few days. (See instruction in later chapter on this.)

Before starting the engine there are some general precautionary measures with which each operator should familiarize himself. For detailed information on your new engine refer to the Engine Operator's Manual supplied with your boat. The following are general precautions:

1. Be certain there are no gasoline fumes in the engine compartment. (Use your nose or a bilge sniffer.)
2. Be sure all drain plugs are closed and that the sea water intake valve is open to the motor water pump.

3. Check the oil level. Normally all engines are shipped from the factory with oil in the engine and transmission. Always fill oil to high level mark, check the oil level in the hydraulic operated reverse gear.

After the engine is running check the following to be sure the engine is functioning properly:

1. Check the oil pressure gauge for normal reading - 40 to 60 lbs.
2. Check for proper water circulation by looking for water coming out the exhaust pipe. It sometimes takes a few minutes for the thermostat to open for the full stream of water to come out of the exhaust.
3. Make a visual inspection for leaks in manifold, oil, fuel or water and tighten, if necessary.
4. Check engine ignition timing. (See engine operator's Manual)

Water test your boat. After properly warming up the engine, run at various speeds and the test for maximum rpm's for one minute noting the general operation of boat, motor(s) and instruments. Follow the detailed instruction on "Engine Break-in" in Engine Operator's Manual which is contained in this portfolio.

Dealers Servicing and Responsibility

Tollycraft boats are not usually water-tested because our factory is not located on the water. We do test and inspect all mechanical equipment, engines and accessories. Our workmen are human and no matter how strict our inspection program is, problems will occur.

It is the Selling Dealer's obligation to carefully inspect, water test and make all adjustments and corrections required for satisfactory operation of the boat prior to delivery.

Special attention should be given to the special items shown on various warning tags attached to or furnished with the boat or included in boat, engine or accessory operator manuals.

Requesting or accepting delivery of the boat at any location other than the Dealer's place of business does not relieve the dealer from his primary responsibility for servicing, inspection and warranty.

The processing of claims against the transportation company for damage during shipment, either by deliberate act of vandalism or by normal in-transit hazards, shall be the dealer's responsibility.

It is the responsibility of the Selling Dealer during the warranty period to furnish guidance and information on matters pertaining to service and maintenance as well as to handle and process all claims under warranty.

The Responsibility of the Owner

The promptness with which all claims are handled depends on the manner in which the claim is presented and the cooperation of the owner in supplying the necessary information needed to verify the claim. The following are items that need careful attention:

1. Fill out and return warranty registration card within ten (10) days after taking delivery of the new boat.
2. Make sure you read the owner's manual and the instructions furnished for any accessories installed on the boat. Careful attention to these instructions will add to your trouble-free operation of the boat and its equipment.
3. All matters of service are handled with the Selling Dealer. The owner must notify his dealer regarding problems of warranty and service. Distance from the dealer in no ways modifies this responsibility.
4. Give the dealer an opportunity to supply parts for all repairs for which a claim is to be made.
5. It is assumed that the owner will use the boat in a reasonable manner. The speeds which most boats can attain makes it necessary for the operator to use judgment when operating a boat under all conditions.

Periodic inspection and servicing the motor(s), equipment and accessories by the owner in accordance with the Operator's Manual is his sole responsibility. Tollycraft or the Dealer cannot warrant any failure resulting from lack of maintenance or normal wear and tear.

6. Engines, engine parts, accessories and equipment not manufactured by Tollycraft which we use are generally warranted by the manufacturer of such items and we extend only the warranty which is extended by the manufacturer of such articles. Defective accessory parts must be returned for inspection and warranty payment.
7. Tollycraft will not pay a claim for fixing the same item twice. We expect when we authorize payment of a claim that the job is completed satisfactory and competently done. We will not pay claims which are normally covered by marine insurance. We assume that such claim(s) will be processed by the owner to his insurance company.
8. All contacts pertaining to your boat should be made with the Selling Dealer. He is competent, cooperative and has available a stock of parts and accessories for normal requirements. Factory service parts are readily available for his additional needs.

When necessary to contact Tollycraft, address your letters as follows:

TOLLYCRAFT CORPORATION
P. O. Box 390
Kelso, Washington 98626

TOLLYCRAFT WARRANTY

Hull No. _____

TOLLYCRAFT boats and TOLLYCRAFT parts manufactured by the company are warranted to be free from defects in material or workmanship under normal use and service and the company will replace or repair any part thereof, which shall disclose defects within ONE YEAR after date of delivery of such boat or part to the original purchaser, and which examination by Company shall determine to be defective; providing that Dealer shall make claim thereon and return said boat to Company, transportation prepaid, within 30 days after defect is discovered. The Company does not authorize Dealer to assume for Company any liability in connection with this warranty. Paints, varnishes and chromium plate finishes are believed by the Company to be the best obtainable; however, cannot be guaranteed because of the varying effects which different climates, care and use conditions have on the same.

This Warranty shall not apply to any TOLLYCRAFT boat or part manufactured by Company, which shall have been altered or repaired outside of the factory of the Company.

This warranty will not apply to any engines, engine accessories or trade accessories not of Company's manufacture which Company may use as these are generally warranted by their respective manufacturers.

This Warranty does not cover boats used for racing or marathons.

Catalogue speeds are estimated or are attained over a certified course at Kelso, Washington, under favorable conditions and are not guaranteed.

TOLLYCRAFT CORPORATION

Kelso, Washington

By _____
President

CHAPTER III

Operating Instructions

Marine Engine(s)

In this manual we will not dwell too much on the engine itself as you will find all the necessary information concerning your engine(s) in the Engine Operator's Manual printed and supplied by the engine manufacturer of the particular motor supplied in your boat.

It is necessary to mention here that the life and performance you receive from your engine depends to a great extent on how it is cared for. A good preventive maintenance schedule and the services of a competent dealer and his trained mechanics will bring you many hours of pleasant and care-free cruising.

The engine selected for your boat is the finest marine engine available and is backed by a service and warranty policy second to none. Tollycraft volume of purchases assures our customers of the best service possible. You will find many special features on the engine not normally found on stock boat engines. We have had them incorporated to give more safe and trouble-free operation.

Reverse Gear

Reverse gears are simple to operate. The position of the lever indicates the motion of the motor -- forward or back, the center position is neutral. Engine revolutions should not exceed 1000 rpm's when maneuvering ahead or astern (unless an emergency occurs). Higher rpm's will result in unnecessary wear and shortened gear life.

All inboard engines currently being used by Tollycraft (except out-drives) have Borg-Warner Hydraulic Reverse Gears. This hydraulic gear does not have a common oil with the engine. A separate reservoir of type "A" transmission fluid is used in this gear. The engine is shipped with oil in the gear. Check the oil level periodically with the engine oil. If the correct

oil level is not maintained, slippage will occur as well as damage to the clutch plates. Too much oil will cause foaming. For additional information see Engine Operator's Manual.

Reduction Gear

Reduction gears are used on larger boats to increase efficiency. Light free-running boats generally perform best with direct drive engines. Reduction gears reduce the speed of the propeller shaft permitting the use of larger diameter propellers, increasing the efficiency and allowing the engine to attain its rated hp and rpm's. The same oil lubricates the reverse and reduction gear. Reduction gears generate some additional noise or whine which is sometimes heard above the normal engine noise. For above normal noise consult your Dealer or his mechanic.

Alternators and Voltage Regulator

Each engine is equipped with a 30 to 40 amp alternator and voltage regulator. This provides you with current to the battery for starting and the 12 volt accessories on the boat. Careful watching of the ammeter gauge will indicate if both are functioning properly. With the motor running at 1000 rpm with no excessive load of 12 volt lights or equipment the ammeter should read in the charge or plus section of the gauge. Consult your Motor Operator's Manual for details or a competent mechanic for malfunctions.

Ignition and Starter

Boats powered with gasoline engines are started by turning a key ignition starter switch which energizes the electrical system and cranks the engine with the starter motor. As soon as the engine starts release the switch. DO NOT operate the starter for prolonged periods which will drain the battery or overheat the starter solenoid. The engine is stopped by turning the key to the off or locked position.

Gauges and Instruments

Watch the instruments. Many repair bills and inconveniences may be

avoided if you will maintain the habit of watching the instruments periodically especially when first starting the engine(s). These gauges are there for your protection, and if you watch them, you will be able to detect anything wrong before a great deal of damage is done.

We normally install 4 gauges for each engine. They are as follows:

Ammeter - This gauge indicates the net gain or loss of current in the storage battery. The rate will vary on the ratio of current generated and the rate of consumption by electrical units.

Tachometer - The purpose of this instrument is to indicate the number of revolutions per minute of the engine. It does not indicate speed as this is affected by propeller slippage, varying loads and hull conditions. Most Tollycraft tachometers have engine hour meters. In reality, this is an engine revolution counter which will read one hour if the engine is run at approximately 2300 rpm.

Oil Pressure Gauge - Very little trouble of a serious nature can happen to an engine that will not be reflected on the oil pressure gauge. When the boat is new, make a mental note of the reading which this gauge then records. This is the "norm" which you will make comparisons with during the life of motor. If a radical change occurs, turn off the engine at once. You have lost oil pressure needed and continued running will cause added damage. Consult your Tollycraft Dealer. During operation there may be some slight fluctuation in the gauge reading which is common and is caused by the lubricating oil.

Temperature Gauge - This gauge records the water temperature inside the engine. Marine engines draw external water, circulate it through the engine and then expel it through the exhaust

system. The engine is equipped with a thermostat preset to operate below 150°. The engine will reach operating temperature soon after the engine is started and will maintain a constant temperature while the engine is running. If temperature goes way above normal, shut down and check for trouble and its source. Some engine installations have a warning light instead of a gauge or both.

Propeller Shaft and Coupling

Tollycraft pays a premium to secure true shafting. The shafts are checked for trueness three times. The final inspection and alignment is done just before the boat is shipped. One should remember that after transit and after the boat is placed in the water there will necessarily need to be additional checking and realignment. On all Tollycraft installations the motors have quick-align motor mounting which permit both up and down and side adjustment. Consult the Motor Manual.

Remember, it is impossible to align a bent shaft. If you line it up in one position, by turning the shaft one-half turn it will again be out. A straight shaft properly lined up will require very little attention and will add many hours of life to the rubber bearings, packing, and alleviate excessive wear on reverse and reduction gears. Many cases of excess vibration and loss of rpm's are found to be due to an improperly aligned shaft.

When checking the parallel faces, use a feeler gauge or shim stock of not more than .002 or .003 of an inch thickness. When the coupling faces are brought together by hand (not bolted) the .003 feeler should be tightly gripped at all points around the edge of the coupling. In aligning, it is sometimes necessary to lift lightly on the shaft and coupling to compensate for the weight of these two items, but be very careful that only their weight is lifted and the shaft is not sprung.

When checking for alignment when the boat is out of the water, make

sure the shaft is in the center of the shaft log and hole through the hull. Any whip or contact with the casting or hull will cause excessive noise and vibration. Never make final alignment of the shaft when the boat is out of the water.

Propeller Selection and Installation

There are right and left hand propellers. In a twin screw boat the right hand prop will be on the starboard or right hand side looking forward from the stern and it will rotate in a clockwise manner. On single screw boats, a right hand propeller is used (on inboard powered boats only), (on outdrives you may have a left hand rotation).

The standard propeller supplied with the boat is a specially designed super cup, Ni-bral wheel manufactured by Federal Propeller Company, which we have found by experience to be best suited for normal all around service.

It may be found that a slight change in size will be beneficial if the operating condition of the boat has been changed due to the addition of weight. Frequent inspection of your propeller is recommended. Do not attempt to straighten a damaged propeller yourself. If you cruise extensively it is a good idea to carry a spare propeller.

Cavitation and vibration can occur if there are nicks or bent blades on the propeller. On direct drive motors the high speed of the wheel tips can cause cavitation. Cavitation can be defined as slipping of the prop in the water caused by an air pocket around the prop. When this happens, the prop cannot get a good grip on the water, but only on air bubbles and, consequently, loses a good deal of thrust.

The change or problems with propeller are best left to an expert. Your Dealer can assist you if problems arise.

Shaft Log and Stuffing Box

The shaft log is designed to provide an opening through the bottom of the boat for the propeller shaft. A short length of flexible hose connects the shaft log to the stuffing box. The hose is used to absorb some shaft vibration

and slight mis-alignment. The stuffing box is to prevent leakage of water into the bilge. The packing gland is filled with wax impregnated flax rings which are compressed around the shaft by a packing nut.

If the stuffing box is leaking it is only necessary to loosen the lock nut and lighten the packing, normally only hand tight, then retighten the lock nut. In a new boat one should watch the stuffing box for overheating. If one cannot hold his hand on the stuffing box then the packing gland should be backed off. Overheating can cause damage to the shaft and may even seize. Watch the stuffing box during the first 10 hours of operation or until the packing is set and no excessive heating occurs.

When it becomes necessary to repack the stuffing box do so during the annual haul out and have it done by a competent and experienced mechanic.

Rudder and Rudder Stuffing Box

The rudder, of course, steers the boat and its stuffing box is constructed similar to the shaft stuffing box except it has no flexible hose. It is packed the same way but is not subject to the high rpm of the shaft. If there is leaking around the rudder post, then tighten the packing nut and reset the lock nut. Normally, the rudder will require very little attention once the packing is in place. Too light a packing will cause the boat to steer hard.

Strut and Bearings.

The strut is of cast manganese bronze which is bolted to the underside of the hull supporting the propeller shaft. A rubber bearing is installed to minimize wear where the shaft passes through the strut.

Depending on the size of the boat and the length of the shaft there may be more than one strut and bearing.

Never turn the shaft with the motor if the boat is not water borne as this will ruin the rubber bearing. They depend on the water for lubrication.

Under normal wear a shaft bearing should last 2 or 3 years, however, the bearing(s) should be check during each haul out or annually

Fuel

It is very important that the fuel being used meets the requirements set forth by the engine manufacturer. Use of fuels of low octane rating can result in burned pistons and valves, poor engine performance and shortened engine life.

Fueling Safeguards

Before fueling, close windows, doors and hatches. Do not run engine(s), electrical equipment or stove while fueling. Do not operate bilge blower while refueling. NO SMOKING.

Always ground the nozzle of the gas hose to the fill pipe. Sparks from static electricity can occur.

Do not overfill fuel tanks, 2% of the tank capacity should be allowed for expansion due to normal temperature variation.

After taking on fuel, open windows, hatches, doors and ventilate all enclosed areas. Operate the bilge blower. For safety sake, ventilation can not be too strongly emphasized.

Fuel tanks are provided with shut off valves, one at the tank and one at the engine. It is good practice to close the valves when the boat is left unattended for long periods of time.

The tank fill pipe is sized to assure easy and safe fueling. The fill pipe cap is located on deck so any overflow will drain overboard and not into bilge. There is a fuel tank vent--it serves a dual purpose of pressure and vacuum release and a safety overflow. Keep your tank full to minimize condensation or accumulation of moisture in the fuel due to continually changing temperature during a 24-hour period.

Ventilation of Bilges

Do not start engine or electrical equipment until it is certain all compartments are free of gasoline fumes. Operate bilge blower (if available) for at least 5 minutes, if fumes are detected, or until all trace of fumes and

smell is removed. Be sure if fumes are detected that the source of fumes is found and has been corrected before running the engine (s) or any electrical equipment, or stove and NO SMOKING.

Tollycraft has provided ventilation to the bilges by a number of case louvered vents in the hull sides just below the deck line. These vents provide a flow of fresh outside air to all the bilge areas thus providing air to assist in keeping the below deck and floor areas free from dry rot, fungi and odors.

Oil and Lubrication

The Operator's Manual on the motor will give complete instruction on the type and weight of oil to use in the crankcase and hydraulic reverse gear. It is very important to the life of the motor that these instructions are followed.

On V-8 engines the break-in period (the first 25 hours) is the most important to the life and performance of the motor. You should follow this break-in schedule to keep the motor within warranty.

0 - 5 hour 1600 rpm maximum

5 - 10 hour 2500 rpm maximum

10 - 25 hour 3200 rpm maximum

During the break-in period DO NOT run the engine at full throttle for more than one minute. Do not run the engine for long periods in neutral. Do not shift into reverse at high engine speeds (1000 rpm).

Throttle and Clutch Controls

On all inboard models Tollycraft uses Morse single lever clutch and throttle controls. This is a single lever which when pushed or pulled in the logical direction actuates the reverse gear forward for ahead and back for reverse. The lever will travel a short distance to engage in the direction desired, then the throttle is engaged and will increase the motor rpm's to the desired speed. The same is true in reverse.

The lever is connected to a push-pull cable running to the throttle arm on the carburetor. Another push-pull cable is connected to the clutch

arm on the hydraulic shifting valve on the reverse gear. Care should be taken to see that the cables are lying free and that they are not stepped on. Frequent checking for alignment from the holding brackets on the motor to the lever arm will assure free operation of the clutch and throttles. The cables are factory lubricated and require little or no attention. A few drops of light oil on the slide shaft at both ends will help in keeping them easy working.

NOTE: On outdrives and dual station installations other types of clutch and throttle controls are used, however, they all use push-pull cables and require the same servicing as single lever controls.

Steering

All steering on Tollycraft Inboards use push-pull heavy duty cables and rack and pinion gears at the wheel. These provide easy and trouble free operation. Care should be exercised to see that nothing is jammed or stepped on in the area of the rudder as this will bend the slide shaft and bind the cable causing hard steering. Occasional lubrication at the rack and pinion and slide bar at the rudder will assure easy operation. The cable is factory lubricated but there are Zerk fittings at each end which should be lubricated annually.

Electrical System

Battery

The storage battery(s) receives and stores energy from the alternator on the engine. It acts as a reservoir when the motor is not running. It supplies the starting, ignition and various 12 volt electrically operated accessories. The battery has limited capacity and it is necessary to keep it fully charged either by the alternator or by a battery charger operated from shore power or auxiliary generator. Maintain the battery water level approximately 1/4" above the plates. Add only distilled or chemically pure water. DO NOT OVERFILL. Before adding water check with a hydrometer. A fully charged

battery has a specific gravity of 1.260. Consult your dealer or a competent mechanic if the battery fails to take and keep a charge.

Caution: Battery water is diluted sulphuric acid--highly corrosive--and will eat through clothing and many other materials. In the event of spillage, apply baking soda to the spill with lots of pure water. When a battery is being heavily charged it gives off a certain amount of free hydrogen and is highly explosive. Avoid striking sparks near a battery. Never use matches or open flame near a battery that is still warm after use or charging. Do not short across cells or remove or attach a battery cable carrying a load. Always be sure that battery terminals are clean and free of corrosion, and securely connected to the battery.

In the event a battery is not being used over an extended period, see that it is stored in a cool place and charged periodically. An idle battery will lose its charge.

Shore Power

The larger boats are equipped with 115-V AC wiring systems as a convenience to operate lamps, small appliances, battery charger and hot water heaters.

This system comprises convenience outlets at various locations on the boat and a cord is attached to a 115-V AC power source. The cord should be kept as short as possible to reduce power loss. Remember most shore power outlets on the dock will only permit up to 2500 watts of power. Excessive load will blow the dockside fuses and overheat the circuits.

Boats equipped with auxiliary 115 Volt AC generating plants have a fused double pole throw switch which permits the selection of shore power or generator but not both at once. All of the interior boat circuits are fused with circuit breakers for safety.

Connecting Additional 12 Volt Accessories

There are spare circuits available for additional accessories on the DC

fuse panel. See the wiring diagram. Do Not Remove Insulation From Any Wire with the intention of splicing another wire to it. This will void our warranty as well as violate the insurance on your boat. All Tollycraft boats have a negative DC ground system.

All wiring for AC 115 volt equipment installed on your boat is grounded through the shore power connector and future or additional installation must follow the same system for your protection.

Wiring Diagram

In the first chapter there is a typical wiring diagram for your boat. While this is not in complete detail it is helpful in checking for trouble and to understand the color coding system used on the boat. It is wise to leave both 12 DC and 110 AC wiring to a competent electrician.

Navigation Lights

All Tollycraft cruisers are wired and equipped with International Running Lights and may be shown on inland waters, western rivers, and the Great Lakes and are required on the high seas. These lights are required to be turned on while running from sunset to sunrise.

There is an all around white anchor light which is required to be on when at anchor from sunset to sunrise.

Periodic checking of these lights is necessary to make sure they operate and the light globes are not burned out.

Marine Compass

A compass is a sensitive and useful instrument requiring little or no attention once it is installed and adjusted. A common problem is the deflection of the compass-caused by a magnetic influence of metal objects, cans, wires, and other instruments which will cause compass error.

A new compass must be adjusted to compensate for these influences. It is wise to have a competent compass adjuster adjust and correct your new compass and it should be rechecked annually. An adjuster will provide a

deviation chart on which will be recorded the amount of error in the compass reading. With this deviation chart you can feel safe in plotting your navigational calculations.

After the compass is adjusted keep all metals, wires, etc. at least 3 or 4 feet away or they will affect the compass.

CHAPTER IV

Interior Facilities

Marine Toilets

A marine toilet will give trouble-free service and operation if not misused. Make sure the operating instruction plate is mounted in a place where it can be seen and read by your guests. Emphasize to them that cigarettes, paper towels, cloth, etc., should not be disposed of in the head. The major cause of faulty operation is traced to this practice. Be sure the hand pump is operated long enough to assure that all refuse is pumped overboard and does not remain in the overboard discharge line.

There is a manufacturer's instruction pamphlet included in this packet. Compliance with his instructions will assure you trouble-free operation.

Caution: When making toilet repairs while in the water, be sure the intake valve on the thru-hull fitting is turned off if you disconnect. It is also wise to plug the outlet with a rag or wooden plug even though the outlet is above the waterline.

Stoves - Propane Gas

Boats 27' and above are equipped with three-burner gas stove and oven. There is a valve at the tank and one in the stove which will be found by lifting the entire top. For safety sake, the gas should be shut off at the tank after using the stove. There is an instruction pamphlet included in this packet.

Care must be exercised in removing the tank(s) for filling to make sure the fittings are tight and leak free. Leaking or escaping gas is explosive, but has a definite odor. When a tank is full it has a high pressure and is subject to increased pressure from heat. The regulator valve should be checked periodically by an experienced propane gas mechanic.

Stove-Alcohol

The alcohol stove found on smaller boats are simple to operate if one follows the instructions found with the stove. These stoves must be primed or heat generated by running a small quantity of fuel into a cup under the burner. Be extremely careful not to run over and spill alcohol under the stove as it could cause a fire. Periodic cleaning of the burners and needle valve will assure continuous and safe operation.

Ice Box and Refrigeration Units

Maintenance procedures for marine ice boxes or electric refrigeration units are much the same as they would be at home. During extended lay up remove all food and thoroughly scrub the interior. Be sure with electric units that all switches are "OFF" and finally leave the door open for ventilation.

Where electric refrigeration is used and one is on shore power or using 110 volts it is best to leave the refrigeration unit on during the season keeping the box cold and ready for immediate use. On 12 volt units an automatic battery charger in connection with the refrigerator will allow one to leave the refrigerator on for extended periods when on shore power. Without an automatic charging device a 12 volt unit will run down the batteries in less than 24 hours.

There will be found instruction pamphlets in this packet for the refrigerator installed in your boat. Please read and follow the directions.

Fresh Water Systems

Tollycraft uses two types of water systems. One uses an adjacent and hand pump to the sink or wash basin. The second type is an electrical pressure pump which gives a flow of water when the faucet is opened. Both systems are connected to a fresh water storage tank which is filled and vented outside. The cap to the tank is marked "Water".

It is wise to instruct one's guests on the use of water aboard as the

supply is limited. The proper use will assure an adequate supply of fresh water for several days cruising.

Flushing of the fresh water tank on a new boat will assure one of good tasting water. There are additives which can be purchased and used to clean and sweeten tanks. During lay up or long period of non-use tanks should be emptied, flushed and cleaned to assure one of continued fresh, clean tasting water.

Cushions and Mattresses

Most cushions and mattress pads are made of polyfoam and are covered with fabric, vinyl or ticking. These are made with a zipper cover for easy removal for cleaning and airing. If polyfoam is subject to moisture within the cushion the moisture or wetting will remain. It is necessary to remove the zippered cover and dry the polyfoam thoroughly. Periodic airing of the polyfoam on warm sunny days will keep it dry, resilient and clean smelling.

Carpet and Drapes

The carpet in your boat is of the finest synthetic fibers, either nylon or acrylan. These materials are resistant to staining, rot and fungi and easy to clean. Normally a stain or spot can be removed by merely wiping with a damp rag. There are cleaners especially made to clean this material. The carpet is laid over a sponge pad and is laid in the boat loose for easy removal for inspection of bilges or for periodic cleaning. If a large area of carpet is wet or damp it should be immediately removed and dried. Some shrinkage will be noted if the carpet is allowed to become wet. It will be noted that in all Tollycraft cruisers an area in front of the galley is tiled to prevent soiling of carpet in an area most susceptible to hard use.

Drapes are provided as standard on all larger boats and are made of fine synthetic fibers and are resistant to fading and mildew. The drapes are hung on a special track and there are plastic slides sewn into the drapes for easy and silent closure. The drapes are easily removed by loosening a

small stop at one end of the track. The drapes should be dry cleaned. If excessive moisture is allowed to form on the inside of windows the drapes will become water stained, also the bedding of the glass will ooze out between the glass and the wood. This should be removed as it occurs to prevent this material from staining the drapes. This will occur for several months on a new boat and should be watched closely.

Hot Water Tanks

If your boat has an electric and engine heated hot water tank there are certain precautions to take. Each tank has a thermostat to automatically regulate the water temperature. This should not exceed about 170°. There is a safety pressure relief valve. This is set to release the pressure in the tank at under 100 lbs. These are mechanical features and should be checked periodically under a preventative maintenance program to assure safe and satisfactory service. Included in this packet is an instruction sheet on their operation and installation.

CHAPTER V

Boat Handling

Boat handling and maneuvering is not difficult but is important for pleasant and safe cruising. This chapter is not written to cover all the tricks or niceties of seamanship but rather to acquaint the new boat owner to simple fundamentals. The new boat owner who lacks operating experience should be accompanied by an experienced boat handler until he is familiar with the controls and maneuvering. After learning the fundamentals only practice with your new boat will perfect and make you adept in maneuvering your boat. It is equally important to train your crew in line handling and docking and anchoring as all operations are necessary for good seamanship.

Single Screw

As one becomes familiar with the handling of the boat's controls, you will note that a great deal of maneuvering can be done by taking advantage of torque which is caused by the rotation of the propeller. This torque on a single screw boat will cause the stern to swing to the right or starboard. The action is more pronounced when shift lever is in reverse position, the stern will then swing to the left or port. This action can be used to the operator's advantage when approaching a dock. A dock can be approached on a slight angle and then by reversing, the stern will swing into the dock.

This same action can be used for turning in a restricted area or when it is necessary to back out of a long slip or channel. The backing to the port or left will make it necessary to put the rudder hard right and put the control lever in forward position and give the throttle a quick thrust forward which will straighten up the direction--repeated. this will back a boat for a long distance in a reasonably straight course. This action is normally called "Backing and Filling".

Twin Screw

In a twin screw boat, one engine will be an opposite rotation engine

causing the torque to be balanced. Maneuvering may be accomplished by engaging one engine in forward gear and the other in reverse gear, in the desired direction, remembering the stern will swing or pivot around the bow in the direction of the forward rotation engine and rudder position. On some boats a side movement can be accomplished by working the rudder in the opposite direction to the forward and reverse motion of the stern. A twin screw boat can normally be turned in its own length.

Docking

In maneuvering either single or twin screw boats, wind and current must be allowed for. It is always best to head into the wind and/or current whichever is the stronger. If it becomes necessary to land with the wind or current, then it is best to swing the stern in first-then the current or wind will assist in bringing the bow alongside.

When making a landing where the wind or current will hold the boat off the dock it is wise to use a spring line amidship and secured to the dock, then by going slow ahead the action of the spring line will force the boat in. By leaving the motor (s) running slowly in gear, a bow and stern line can be secured.

At slow speeds the rudders are somewhat ineffective in maneuvering due to the low velocity of water flowing past the rudders. As the rpm's of the motor(s) increases the velocity of water flowing by the rudders assist in the action and efficiency. When the rudder(s) is turned it obstructs the flow of water resulting in a sideward movement of the stern.

Rough Weather Operation

Since water and wave action vary greatly, it is impossible to advise one on any set procedure or directions for handling a boat under adverse weather conditions. It suffices to say that the boat will stand for rougher sea conditions than the passengers aboard care to endure. For real

pleasurable cruising most boat owners avoid rough weather as much as possible. In case you are caught in rough weather or a storm it is well to take the following precautions.

All hatches and ports must be secured. Any loose gear aboard must be secured and properly stowed. Loose equipment rolling around can cause extensive damage. It is wise for all passengers to locate themselves and not try to move around in rough weather.

In most cases, a boat should be operated at reduced speed. When heading into the waves it is usually better to do so at an angle rather than head on. Common sense and experience with your Tollycraft is the most important factor. When traveling with the waves it is best to travel at the same speed or a little faster than the speed of the waves. Avoid breaking seas. Unless the waves or swells are large and well spaced, do not run parallel to the waves.

After the owner and his family have experienced rough weather in their Tollycraft, you will be amazed how beautifully the boat handles in rough water. Each individual must experience a rough passage before you appreciate the exhilaration and excitement of running your Tollycraft in adverse weather condition. Caution and common sense will dictate just what kind of water conditions you and your crew care to endure.

Mooring and Anchoring

In many areas there are mooring buoys provided to tie to. Approach into the wind or current. A pike pole is most useful in picking up the pennant or ring in the top of most mooring buoys. Slip a line through the ring in the top of the buoy after pulling the cable or pennant line up to the deck line. Secure the line to the forward deck cleat and let the line form a bridle through each of the chocks. Leave enough slack in the line to permit the boat to drift at least 8 or 10 feet away from the buoy. When mooring buoys are available use them instead of dropping an anchor as they are safer and

more secure and one need not worry about drifting or not holding.

When dropping an anchor, lower it slowly in the water fluke first-- the boat should be completely stopped. When the anchor hits the bottom, back slowly away playing out the line until the desired amount of anchor line or chain is out then secure and set the anchor by backing slowly. The length of line or scope depends on weather conditions, current and wind, size of boat and the type of bottom. The anchor will hold well in mud but may drag in sand. A rocky bottom will hold an anchor sometimes too well. If you anchor where there are rocks (most charts indicate the type of bottom) it is wise to use a buoyed trip line which will permit the anchor to be hauled up fluke first.

The scope (the distance from the anchor to the bow) is generally of sufficient length if from 3 to 5 times the depth of the water. After the anchor is down you must then determine if the anchor is dragging. Bearings taken on stationary objects on shore. As you recheck these bearings, note if they are changing (allow for swinging), if they are you know the anchor is dragging and you must correct the situation. Usually letting out more line will stop the dragging, if not haul up the anchor and reset.

Aids to Navigation

The location of red and black buoys are often confusing to the new boat operator. The plan by which they are positioned is pictured herein. The following information is given to familiarize the new boatman with buoy color and positions.

Red and black buoys are generally the most frequently sighted when entering a channel. The red buoy denotes the right hand side of the channel, the black buoy denotes the left side-- entering from seaward.

As you proceed from seaward or up stream, the buoys will be numbered. The buoy on your left or port, or black buoys, will begin with number 1 and continue with odd numbers while the first right or starboard

buoy will be number 2 and continue with even numbers.

There are several expressions commonly used, and to remember, as a guide. B. P. O. E. (Black Port on Entering) or Red Right Returning.

Red and black horizontal banded buoys mark an obstruction or a junction of one channel with another. If the top band is red, the preferred or primary channel will be located by proceeding to the left of the buoy. The primary channel will be found to the right if the top band is black. A black and white vertically striped buoy indicates the middle of the channel and most generally the deepest. It is best to pass close to these buoys. A white buoy marks anchorages, a yellow buoy marks quarantined areas and a white with green top denotes dredging or surveying areas. A shore mounted light indicates there is navigable water all the way to that shore.

Until you are oriented as to the position of buoys in relationship to you in any given area, try and locate both buoys and pass between them. Once you have located their relative position, you will have no difficulty in that channel.

The navigator must not place too much reliance upon buoys as aids to navigation. Buoys are liable to be carried away, shifted or sunk. Lighted buoys may be extinguished and sound buoys may not function. All of which can make for interesting navigation and cruising.

Boating Manners

Good boating manners are for the most part determined by the same standard as good personal manners. Most courtesies are self evident. Here are a few rules to which one should adhere.

1. Don't throw garbage or refuse overboard while in harbors or anchorages. Be sure to punch holes in both ends of cans before dropping overboard regardless of where you are.
2. Always proceed slowly when passing small boats, entering moorages, anchorages or crowded waters or when passing

work equipment where divers may be working.

3. Never make a nuisance of yourself with your horn, searchlight or radio, and don't pass too close to swimmers or scuba divers.
4. Know and recognize common distress signals and never pass up a ship in distress.
5. Keep an alert lookout. Serious personal injury or damage to a boat can be caused by neglect.

Regulations

Boats like automobiles, are subject to traffic laws, and like automobiles, boating laws differ according to the locality. It is the responsibility of the boater to know these laws. We now have regulations published and enforced by cities, counties, states and the U. S. Coast Guard. These laws are published and are available for the local areas where you cruise. One should secure and study these various applicable regulations.

Safety Equipment

Many safety features have been incorporated into the Tollycraft boat you have purchased. Many more can be added as extra or optional equipment. The following is a list of equipment which will add to the safety of your crew and boat.

- | | |
|-------------------------------------|------------------------|
| 1. Radio telephone | 7. Bilge blowers |
| 2. Depth sounder | 8. Dinghy or life raft |
| 3. Gas detector | 9. First aid kit |
| 4. Audio-visual motor alarm system | 10. Life jackets |
| 5. Automatic CO ₂ system | 11. Anchor and line |
| 6. Bilge pumps | |

CHAPTER VI

Maintenance

TOLLYCRAFT takes great pride in the quality of its products, particularly in its finishes. Only the finest materials are used, starting with the wood itself on to the final finish coats of varnish and enamel. Given the proper care and maintenance, these finishes will hold their appearance and give good service for many years.

The purpose of this Section is to acquaint the TOLLYCRAFT owner with the proper methods of caring for and maintaining the boat finish.

Hull Bottom

The hull bottoms of all Tollycraft boats are fiberglass covered over the wood. This overlay of fiberglass is then covered with two heavy brush coats of hard racing bronze paint.

Lasting qualities of this bronze paint will vary with the area in which the boat is kept, the amount of time the boat is run, as well as the care given the hull bottom.

By its very nature, bronze paint will dull after a period of time regardless of whether it is in the water or not. This dulling is due to oxidation or tarnishing, not to deterioration, of the copper particles in the paint.

Trailer Boats

Two factors govern the frequency with which the bottom bronze should be refinished. The first factor is appearance of the boat, the second is the actual need for refinishing.

If the owner desires to keep his boat in like-new condition at all times he may wish to refinish each year. In addition, he may wish to touch up small areas which have been scuffed or scraped from beaching.

If the bronze paint area has only small scuff marks then a light sanding and touch up is all that is necessary. However, if there is large areas which show scuff or scraping marks, the complete bottom should be

refinished. The procedure for complete refinishing is explained under the paragraph headed "Bottom Refinishing Procedure."

Non-Trailer Boats

Boats which are kept in the water the year around require a different bottom maintenance procedure. The usual rule of thumb is to have the bottom refinished with one good coat of bottom bronze paint each year.

In some cases, after careful visual inspection, it may be possible to go two years before the refinishing is necessary.

Bottom Refinishing Procedure

When the boat is first hauled out of the water, (and while it is still wet), scrub down the entire bottom with a brush and fresh water. Rinse thoroughly with fresh water to insure that all dirt and sea growth has been removed.

Allow time for the hull bottom to fully dry.

Scuff sand the entire bottom to remove oxidation and any loose paint. This sanding will help smooth up the hull bottom and give a good paint surface. Wipe down with tack rags to remove all sanding dust.

Use any of the leading manufacturers bronze bottom paint (Salt Water Bronze or Anti-Fouling) in accordance with the instructions on the paint can.

Hull Sides and Transom

General Description

All Tollycraft hulls (except the smaller runabouts and the lapstrake cruisers) have the fiberglass overlay on the bottom, sides and transom. This overlay of fiberglass is applied to the hull planking, allowed to properly cure, and then is thoroughly sanded. It is then painted (or varnished) using three applications of undercoater, sanded, glazed, and three coats of high gloss enamel complete the finish. The transom area is varnished over the fiberglass overlay using a high gloss marine spar varnish.

With proper care this quality finish, thanks to the degree of care

Tollycraft uses in this operation, will last for many years.

Hull Side and Transom Maintenance

Here are a few tips to prolong the life of the hull and transom finish:

1. Wash the boat down with fresh water to remove any salt spray accumulated during the days cruise. DO NOT wipe the hull down with a dry cloth to remove this salt spray as this will put scratches in the finish as well as dulling it. It is also a good idea to occasionally wash the hull down with a mild soap. When doing this use a sponge or soft bristle brush, then rinse in fresh water.
2. Prevent gasoline from the gas tank vent from staining the hull side paint. The enamel we use has a long curing cycle and will not reach its ultimate cure and resistance to staining for six months.

Avoid over-filling your gas tanks during this curing period.

Excess fuel will escape from the vent, causing stains.

3. Try to remove scuff marks with a mild soap rather than a scouring powder. If the marks cannot be removed with the mild soap, use plenty of fresh water with the powder and be careful not to excessively dull the finish.

Hull Side and Transom Repair

The repair of small scratches and gouges in the hull surface can be successfully repaired by following this procedure:

1. Thoroughly dry the damaged area.
2. Glaze in the scratch or gouge with a white surfacing putty. (Duratite makes a good putty for this purpose.) Use a putty knife for this glazing. It dries fast, but be sure it is completely dry before proceeding with step three.
3. Carefully sand the damaged area to get a flat, smooth surface. Lightly sand the area a few inches away from the damaged section. Wipe clean.

4. Lightly prime this area with a marine white primer.
5. Allow priming coat to dry, then lightly sand the primed area.
6. If at all possible, spray on the high gloss enamel finish coats.
Feather out the finish coats so that the repaired portion will blend in with the rest of the hull finish.

If you must use a brush, thin the enamel down and put on several coats, feathering it into the existing finish.

7. If you use spray paint and have an overspray around the repair, use a fine hand rubbing compound to remove. Be careful with the compound as it can dull the finish.

Hull Side and Transom Refinishing

If closely followed this procedure will result in a factory like job:

1. Wash the entire hull with fresh water. Allow it to dry thoroughly.
2. Glaze in all scratches and gouges as detailed in item 2, page 30.
3. When glazing is completely dry, sand the entire hull area. First use 120 grit paper and finish up with 220 grit paper.
4. Remove all sander dust with a tack rag.
5. Brush, or spray, on a coat of high gloss marine enamel.

Try to choose a day with a minimum of wind so that dust or other particles will not be blown into the fresh paint.

Varnished Surfaces

General Information

We use a semi-gloss varnish on interior surfaces for a "hand-rubbed" appearance. On the exterior surfaces we use a high gloss varnish to give the luster and depth we feel is necessary.

The high quality finish on your new Tollycraft is achieved by the process of sealing, filling, staining, sanding, and then the final varnish coats. With proper protection against moisture--varnishes worst enemy--entering under the varnish film through expansion cracks, these varnished surfaces

will hold up for years.

Varnished Area Maintenance

Follow these tips to prolong the beauty of the varnished surfaces on your new boat:

1. Keep the varnished surface clean of dirt and salt spray. Rinse salt spray off with fresh water when returning from a cruise. DO NOT wipe off dirt or salt with a dry cloth as this will scratch the surface and dull the finish.
Keep the boat as clean as possible by frequent clean up of the dust and dirt accumulated while at moorage. The dust and dirt so accumulated will hold moisture -- when the sun hits this moisture steaming results and the varnish is affected.
2. DO NOT WAX either varnished or painted surfaces. It is almost impossible to remove wax from varnish when refinishing is required. Varnish applied over a waxed surface will scale and flake off.
3. It is wise to make frequent inspections of areas where moisture could get under the varnish film. When moisture gets under this film it causes the wood to darken -- it is almost impossible to bring back the woods' original color when this happens.

Breaks in the varnish film is caused by expansion of the wood, by bruises, and by surface checking.

By frequent inspection you will be able to find these trouble spots and seal them up before discoloration of the wood can occur. Use either a varnish seal or a regular caulking compound such as Polyseamsel, Thiokol, Silicone Sealer, or Bedlast.

Varnished Area Repairs

Where dents or bruises have actually broken the varnish film and compressed the wood, repair as follows:

1. Fill the dent or bruise with a plastic wood such as Fam-o-wood or like product. Use a material with color to match the damaged area.
2. When the filler material is thoroughly dry, sand down so that the repaired area is flush with the surface.
3. Stain and fill the damaged area with the filler stain originally used on the wood. Allow stain to dry, then wipe smooth.
4. Varnish over this with either the semi-gloss or high gloss varnish to match the surface being repaired. Use a thin coat of varnish for this.
5. When completely dry, lightly sand the first varnish coat and attempt to feather it out. Use 220 grit paper.
6. Follow step 5 for two more coats, feathering out each coat a little farther from the damaged area.

Minor scratches and scuff marks can usually be repaired by using a light coat of stain-filler to bring back the color, then applying several coats of thinned varnish, feathered out as explained above.

Refinishing Varnished Areas

When the area to be refinished requires skinning down to the bare wood we recommend that a professional shop do the job. If you are experienced in refinishing you should be able to get a satisfactory job done.

If the refinishing required does not require complete skinning down the following steps will insure a competent job:

1. Be sure that the surface, and the wood, is completely dry.
2. Sand the area to be refinished with 6/0 220 grit sand paper.
DO NOT sand through the varnish film.
3. If bare wood shows in any of the area to be refinished, it will be necessary to fill and stain to match the color of the surrounding wood. Seal this area with varnish, than sand it lightly.

4. Flow on a coat of any good quality Marine Spar varnish, in either semi or high gloss as applicable. These varnishes are available at most paint or marine stores. Follow instructions on the paint can.

Be sure the surface to be refinished is free of dust, and that there is as little wind as possible to blow dust and dirt into the fresh varnish.

Apply as many coats as necessary. Sand lightly between each varnish coat.

Fiberglass Molded Areas

General Information

Your new boat contains numerous molded fiberglass parts. These parts consist of cabin top, hard top, hatch covers, control consoles, some sink tops and ledges, shower stalls, bait and propane boxes, some deck assemblies, and other small items. All of these are fabricated from the finest materials available. They do, however, require procedures of care and repair.

Fiberglass Maintenance

Molded fiberglass parts can be maintained with much the same procedure as that used on automobile finishes. Wash them often with a mild soap. It is a good idea to wax them with automotive wax which will help retain the original luster. Should oxidation or dulling occur, polish with a mild automotive rubbing compound. This will help restore the original luster.

DO NOT scour with ordinary kitchen powder as this will dull the surface luster.

If your deck is molded fiberglass you should not wax it, as the non-skid effect is desirable. Wash this area often with fresh water.

Fiberglass Repair

Unless you have had considerable experience in repairing molded fiberglass, we do not recommend that you attempt it.

Small bruises or fractures, as well as fire cracks, can be easily repaired by the experienced molder. Surfaces which get excessive wear -- such as a molded ledge and sink -- can be completely resurfaced with a polyester spray type paint. We suggest that you hire an experienced repairman whenever any of the molded parts require repair.

CHAPTER VII

Laying Up Instructions

Lifting and Drydocking

When lifting or drydocking a boat the bow should be higher than the stern. This will assist in draining the engine and exhaust lines. When lifting a boat with slings or straps there should be a spreader bar between slings to prevent squeezing and damage to the hull. When setting the boat on blocks for storage or repairs be sure the weight of engines is supported athwartship--while the weight of the boat can be supported on the keel, this is usually not deep enough to clear the propellers and rudder. A boat should never be left for a long period without proper support both lengthwise and athwartship. Failure to properly support the bottom will result in distortion of the hull and it will materially affect the future performance of the boat.

Draining the Boat

It is important to drain the bilge completely before a prolonged lay-up or winter storage. Each compartment should be checked for water, pumped and sponged out until completely free and dry of water. Drain the toilets, fresh water system, pumps and engines. Draining is very important in areas subject to freezing weather.

Cleaning the Bottom

The bottom of the boat should always be cleaned immediately after the boat is lifted from the water while the marine growth and organisms are soft. A stiff brush and a high pressure hose will make the job quick and easy. A flat edge putty knife will work on large barnacles and putty. Be careful not to damage the fiberglass covering on the hull. Do not paint the bottom until the day the boat is to be placed back in the water. See section on "Cleaning and Refinishing Bottom".

Storage

Covered winter storage is a must for boats. It will save many dollars

in maintenance and prolong the life of the boat and its finish. If you keep your boat stored inside either afloat or in dry storage, ventilation is the most important factor since your boat will not be in use for several months and the air can become quite stagnant. The importance of ventilation cannot be over-emphasized. Free air circulation is imperative within the building and within the hull of the boat.

Within the boat itself, there are precautions which should be taken. All drawers, clothes lockers, cabinets and doors should be left partially open. Special attention should be given to carpets and upholstered cushions and mattresses. If possible, remove them and store them where dirt and moisture cannot affect them.

Miscellaneous

1. Clean chrome hardware with a chrome cleaner then coat with a rust inhibitor, oil or grease.
2. Check all underwater gear for wear, for bent shaft, strut or propeller.
3. Make a complete list of parts and accessories required for the next boating season and enter your order for future delivery.
4. Don't wait until the last minute to have painting, repair work and equipment checked. Plan ahead.

CHAPTER VIII

General Information

Repair Techniques

In the event of boat hull or cabin damage, proper repairs must be employed to assure a watertight hull and a workman-like job. The following section is devoted only to minor damage or trouble. Tollycraft strongly advises you to consult with an experienced marine yard or your Tollycraft dealer if major damage should occur.

The use of plywood covered with fiberglass as a hull material has initiated new concepts in hull repairing. Damaged plywood sides or bottoms need not be replaced even if all plies are cracked or broken. The use of butt-blocks and fiberglass overlays make for fast and economical repairs and provide an easy surface to refinish.

Because Tollycraft hulls are all encased in a fiberglass cloth, there are no end grain exposed or areas not adequately sealed. This eliminates the entering or absorption of water. The fiberglass overlay materially strengthens the hull and provides a hard, resilient surface easy to paint or refinish. Tollycraft was one of the first boat builders to employ the use of fiberglass overlays on plywood hull. To our knowledge no fiberglass overlay has ever separated from the plywood except when caught or torn by striking a submerged object which allowed the water action to tear off the fiberglass. When this occurs it will usually tear or take at least one ply of the veneer with the glass. If this occurs then the surface should be built up with a layer or two of 2 oz. fiberglass matting. The area should be thoroughly dry and free from paint, oil or other foreign matter before attempting the use of resins and matting to repair.

Occasionally a fracture will show at the transom, chine or keel. This is normally caused by expansion and contraction of the solid wood used in framing the boat. The same technique is used in these areas. It may be

necessary to remove the outer chine guard or keep to repair these areas.

Expansion and Contraction

All solid woods expand or contract (swell or shrink). This is a major cause of leaks or paint and varnish failures. Unfortunately, this is a characteristic of wood and only careful attention to certain critical areas will prevent damage or discoloration of the wood. If the owner will periodically check for cracks appearing in the windshield corners, joints in handrails and bow chocks, serious damage can be prevented. The use of sealants in a small tube in these cracks will prevent paint blistering or varnish and wood discoloration.

Leaks

Unfortunately all boats develop leaks. Leaks in or around cabin sides, hatches, window glass will take constant work and attention. Let no one kid you that leaks will not occur. They do in all boats. This writer in 35 years of cruising has never owned or seen a boat that did not leak at some time or under certain weather conditions. The use of a tube of sealant whenever and wherever a leak occurs will keep the problem under control.

There is nothing worse than a leak over a bunk or living area. Sometimes these leaks are difficult to find. Quite often a leak will occur in a place far away from the dripping spot. Some real detective work is necessary to find and repair a small but troublesome leak.

Loss of Speed

The catalog or advertised speed of a boat is not guaranteed. It is the speed attained at the factory under favorable conditions or is estimated based on engineering and design calculations.

A normal loss of speed is to be expected after the boat is placed in the owner's service. Many of them are normal and expected, others can develop and be eliminated. The following paragraphs discuss some of these factors.

Atmospheric Conditions

Generally a motor will develop more horsepower in the cooler seasons than in the summer when the temperature is higher. Tests have shown this variation to be from one to five percent. It is therefore to be expected some loss of speed during the summer when the air is very warm.

The Effect of Altitude

At high altitudes air has less density and will materially affect engine rpm if modifications are not made. It is customary to reduce the pitch of the propellers to help compensate for loss of horsepower. It is advisable to use smaller size carburetor jets to attain the proper fuel to air ratios.

A rule of thumb which is generally followed by Tollycraft owners when operating at higher elevation is to reduce the pitch 1 inch for each 2,000 to 3,000 feet of elevation above sea level. We suggest you contact the local Tollycraft Dealer. He will be familiar with local situations and can be of service to you.

Personal Equipment and Accessories

The personal equipment on a boat can amount to a good deal of weight many times overlooked by the boat owner. No doubt you have noted loss of speed when you have several additional guests aboard. But sometimes an owner will load the boat down with supplies, personal equipment and many accessories without taking into consideration the effect on the performance of the boat.

If you place a goodly amount of equipment and personal gear aboard your boat permanently, it may be necessary to change the pitch of the propeller to compensate for a loss of engine rpm. Your dealer can make recommendations and assist in correcting this problem. Remember the manufacturer or dealer cannot anticipate the amount of personal gear and equipment aboard a boat when wheeling your new boat, thus a change in propellers is the owner's responsibility.

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There is nothing worse than a leak over a bunk or living area. Sometimes these leaks are difficult to find. Quite often a leak will occur in a place far away from the dripping spot. Some real detective work is necessary to find and repair a small but troublesome leak.

Loss of Speed

The catalog or advertised speed of a boat is not guaranteed. It is the speed attained at the factory under favorable conditions or is estimated based on engineering and design calculations.

A normal loss of speed is to be expected after the boat is placed in the owner's service. Many of them are normal and expected, others can develop and be eliminated. The following paragraphs discuss some of these factors.

Atmospheric Conditions

Generally a motor will develop more horsepower in the cooler seasons than in the summer when the temperature is higher. Tests have shown this variation to be from one to five percent. It is therefore to be expected some loss of speed during the summer when the air is very warm.

The Effect of Altitude

At high altitudes air has less density and will materially affect engine rpm if modifications are not made. It is customary to reduce the pitch of the propellers to help compensate for loss of horsepower. It is advisable to use smaller size carburetor jets to attain the proper fuel to air ratios.

A rule of thumb which is generally followed by Tollycraft owners when operating at higher elevation is to reduce the pitch 1 inch for each 2,000 to 3,000 feet of elevation above sea level. We suggest you contact the local Tollycraft Dealer. He will be familiar with local situations and can be of service to you.

Personal Equipment and Accessories

The personal equipment on a boat can amount to a good deal of weight many times overlooked by the boat owner. No doubt you have noted loss of speed when you have several additional guests aboard. But sometimes an owner will load the boat down with supplies, personal equipment and many accessories without taking into consideration the effect on the performance of the boat.

If you place a goodly amount of equipment and personal gear aboard your boat permanently, it may be necessary to change the pitch of the propeller to compensate for a loss of engine rpm. Your dealer can make recommendations and assist in correcting this problem. Remember the manufacturer or dealer cannot anticipate the amount of personal gear and equipment aboard a boat when wheeling your new boat, thus a change in propellers is the owner's responsibility.

Damaged Underwater Equipment

Elsewhere we have discussed loss of speed and vibration that can result from a damaged propeller, shaft and strut. We refer you particularly to the subjects of "Propeller Selection" and "Shaft Alignment".

Engine Efficiency

It must be remembered that to maintain maximum speed and performance, the engine must maintain its maximum power. Normal care, proper lubrication, the right kind of oil and an engine requires very little attention except a periodic check of points, condenser, coil and spark plugs. The engine is the heart of your boat. The performance and pleasure you receive from your boat is dependent on the care you give the engine. Neglect leads only to disappointment and expense. The care and maintenance of the engine is your responsibility. Refer to the "Engine Operators Manual" for details on engine maintenance.

Stern Wedges

At cruising speed your Tollycraft is designed to "plane" in accordance with the equipment originally designed for and placed aboard the boat. The addition or rearranging of equipment and the addition of accessories -- and the boat may not plane to your satisfaction.

All Tollycrafts have stern wedges or shingles built into the bottom at the stern. The original installation at the factory is designed to lift the stern and lower the bow for the proper planing attitude. Because of its permanency this wedge is designed for maximum speed, which means the bow attitude at cruising speed may be slightly higher than desired for visibility. It is impossible to design a permanently installed wedge to cover all speeds and load conditions. There are adjustable trim tabs available which will correct the bow attitude at all but slow speeds.

A great deal can be done to keep or correct the bow attitude or bow angle if accessories, equipment and personal gear is properly stored.

Consult your Tollycraft dealer before making any major additions or changes which will affect the weight of your boat as this can affect its speed and performance.

Vibrations

Vibrations are not common in Tollycraft boats. Sometimes due to unforeseen circumstances an excessive vibration will occur. This will not only be an annoyance, but if not corrected will cause extensive damage.

The following are the major causes of vibration:

1. The engine is out of alignment
2. Shaft and/or motor coupling out of true
3. Bent propeller or shaft
4. Engine out of tune
5. Loose stuffing box
6. A bent rudder

There are also many additional causes of vibration. The flexible shaft log and rubber engine mounts allow a limited movement of the engine. If some part of the engine pan, reverse gear or other engine part is close enough to a frame or keel vibration will be apparent. If there is a slight whip in the shaft it will hit the side of the shaft log hole.

A slight vibration in any of the items mentioned will cause all loose or attached accessories and equipment to vibrate so it is necessary to find the basic source and correct.

Electrolysis

The corrosion of metals on boats is serious and feared by everyone connected with the industry, whether owner or manufacturer.

The boat owner whose boat is used in salt water must be aware of the possibility of galvanic action or electrolysis on underwater parts and fittings.

It is extremely important that all electrically operated accessories

be wired so the ground polarity of the device is the same as the battery.

Some electrolysis is due to stray current caused by a minor fault in the installed electrical equipment on the boat. It is not possible to always find or determine where the trouble is until electrolysis occurs.

Tollycraft installed a zinc plate on the transom of your boat and have wired all underwater fittings to this plate. The zinc plate is replaceable without taking the boat out of the water. Since zinc is a less noble metal than copper alloys we use in underwater hardware, it will deteriorate first. As this occurs, a new one should be installed. Do not install more than one plate as too much zinc will increase the galvanic action rather than prolong it.

Marine Growth

Growth will occur on the bottom but it will not harm the basic hull because of the fiberglass sheathing. To our knowledge there is no type of growth or fouling which will penetrate the layer of fiberglass covering the entire hull.

A good bottom paint of a anti-fouling type should be used in salt water. There is a toxic pigment in anti-fouling paints which slowly dissolve in sea water. The pigment usually contains mercury and copper bound together in a vehicle. The best bottom paint is none too good for your boat.

There are many factors which influence the degree fouling organisms will attach to a boat--light, water temperature, currents, speed, mooring location--and this will vary from one season to the next. A large concentration of boats in one location can increase fouling.

You should inspect your boat at least annually for marine growth and paint the bottom at least once a year or oftener depending on your location and the conditions. Sometimes just a good scrubbing of the bottom will suffice in fresh water.

Dry Rot

Dry rot or decay is a fungus, a micro-organism that feeds on the cellulose contained in the wood cell. There must be four factors present for the growth of decay. They are (1) Proper temperature (70° to 90°); (2) Right amount of moisture (25-30%); (3) Air (stagnant atmosphere); (4) Wood cellulose (food).

Dry rot seems most prevalent during extended lay up periods. Dry rot sometimes cannot be detected until it is already in the advanced stages. Therefore, it is most important that preventative measures be used. Visual inspection or probing with an ice pick will usually locate areas of dry rot.

There are two procedures used in the manufacture of Tollycrafts which will help or eliminate some of the danger of rot. All underfloor and unseen areas are coated with "Pentaclorophinol" which helps prevent fungi from forming. Secondly, we provide some hull side ventilators to keep a constant flow of air circulating within the hull.

The development of dry rot within a boat is not a manufacturing defect. Keep in mind that dry rot spores can develop at any time when the four decay factors are present.

When evidence of dry rot occurs the only cure is removal of the infected portion. Be careful to get rid of it all and replace with sound new wood.

CHAPTER IX

Hull Numbering

All hulls are numbered, these numbers will be found on the starboard outside chine guard, near the transom. Also on the inner bow stem, which is visible through the forpeak locker.

24' ROYAL EXPRESS

STANDARD EQUIPMENT

Inboard outdrive power	Side window screens
Power tilt	Vented fly bridge windshield
Adjustable rubber mounts	Zinc electrolysis plate
Alternator	Bow eye
Heavy duty 12 volt battery with cover	Hinged forward deck hatch
Instrumentation	Cockpit storage hatch
Tachometer	Two covered storage compartments in aft deck
Electric fuel gauge	Aft seat in cockpit with cushion
Electric horn	Stainless steel cabin top handrails
International running lights	Stainless steel cockpit handrails
Stern flagstaff with light	Transom drain plug
Fully enclosed head with marine toilet	Self bailing cockpit
Mirror in head	Fire extinguisher
Hanging clothes locker with door	Hand water pump in galley, stainless steel tank
Carpeted cabin floors	Dish storage locker
Carpeted interior hull sides	Pastry board
Vinyl floor covering in head	
Sliding cabin windows	

SPECIFICATIONS AND EXTRA FEATURES

Centerline length	23' 8"
Gunwale length	24' 10"
Beam	8' 0"
Freeboard fore and aft	43" and 29"
Draft	34"
Fuel capacity	45 gallons
Approximate weight	3960 lbs.
Sleeping accommodations	4
PLiCOR fiberglass double hull, I-Beam construction	Hinged engine cover
Molded fiberglass deck and cockpit, one piece	Ventilated engine and gas tank compartments
Molded fiberglass control console	Chrome plated deck hardware
Molded fiberglass longitudinal stringers	Vinyl insert on gunnel guard
Textured walk-around side decks	Semi-gloss African mahogany interior
Textured molded cockpit deck	Headliner in cabin top and V-bunk area
	Individually fused electric circuits, color coded

24' ROYAL EXPRESS (continued)

SPECIFICATIONS AND EXTRA FEATURES (continued)

12 volt dome lights in cabin	One piece molded fiberglass counter top and sink in galley
12 volt dome light in head	Anodized extruded aluminum window frames
Dinette converts to bunk	Chain locker in forepeak
Color coordinated interior	Owners manual
Choice of two color combinations in upholstery	Tollycraft pennant
Polyfoam mattresses and cushions	

OPTIONAL EQUIPMENT

See our current price list for a complete selection of factory installed accessories.