



NORTH RIVER INBOARD JET BOAT MODELS MAINTENANCE AND OPERATION

Maintenance Schedule

Refer to the engine manufacturers Maintenance Schedule to ensure that all of the maintenance items listed are checked and replaced at the recommended hours.

Routine Maintenance

Routine maintenance provides the best solution for making sure that the engine is ready when you are. The following are some routine service points:

- The engine oil level should be checked daily. It is recommended that the oil be checked just before the engine is started for the first time for the day. The oil level should be between the 'ADD' and the 'FULL' marks on the dipstick.
- Check the coolant level of the heat exchanger daily and only when the engine is cool. Generally a good time to do this is just prior to starting the engine for the first time each day.
- Check coolant protection during extreme ambient temperatures.
- Keep the fuel tank filled. A full tank of fuel reduces the possibility of condensation forming in the fuel tank and moisture entering the fuel system.
- The water separating fuel filter should be replaced annually or if you have trouble with water in your fuel.
- Check all hoses, clamps, motor mount bolts, etc. on a regular basis for tightness and condition.
- Make frequent checks for engine oil, fuel and coolant leaks.
- Repair any oil, fuel or coolant leaks.
- Check battery condition and cables frequently clean as necessary.
- Keep the engine air filter and/or spark arrestor clean.
- Monitor engine coolant temperature.
- Monitor engine oil pressure.
- Check voltmeter and charging system.
- Lubricate jet drive's thrust bearing every 30 hours or monthly. Grease with a good quality lithium based ball bearing grease. Do not over grease.
- Inspect the sacrificial anodes on a regular basis. Do not change or add anodes without consulting an authorized service center.

CAUTION: Neglecting proper maintenance can cause premature component failures.

WARNING

- When the warning system buzzer sounds and the red light(s) come on while the engine is running, check the oil pressure gauge and water temperature gauge immediately. Then if the oil pressure is below 15 psi or the water temperature is over 200 degrees **immediately shut the engine off! Continued operation will cause engine damage.**
- Your Inboard engine is equipped with a freshwater cooling system that includes the exhaust manifolds. It is possible that sand or silt can block water flow through the heat exchanger. If you notice higher than normal water temperature; it could be caused by sand build up at the raw water intake side of the heat exchanger. You may clean this by removing the end cap and gasket then flushing the sand out.
- **NEVER START YOUR ENGINE DRY. ONLY START ENGINE WHEN JET INTAKE IS COMPLETELY UNDER WATER (IN WATER SOURCE AT BOAT RAMP OR DOCK).**

ALWAYS REFER TO THE ENGINE MANUFACTURERS OPERATORS MANUAL FOR PROPER MAINTENANCE PROCEDURES AND FLUID REQUIREMENTS.

KEM – GM Marine Engine Manuals

<http://www.kemequipment.com/manuals/>

INDMAR – Raptor Operator's Manual

http://www.indmar.com/Service_Support/manuals.aspx

Your dealership is a valuable resource of information, support and strives to provide the best service after the sale with one common goal; your complete satisfaction!

Saltwater Care and Maintenance

- After running your boat in saltwater, it is always best to run the engine in a freshwater source (lake or river) to flush the engine and jet (see engine owner's manual). Wash the entire boat, inside and out, as well as the trailer with fresh water immediately after pulling the boat out of the water. Washing the boat is a critical means of reducing the risk of crevice corrosion and paint related corrosion. Washing should include: complete flushing of the entire boat inside and out using freshwater and boat soap.
- We also recommend that you wax your boat's painted surfaces as often as possible especially prior to using your boat in saltwater (***do not use wax or polish on the painted surfaces for the first 30 days***). North River Boats also recommends the use of aftermarket products (Salt-X, Salt Away, and Salt Terminator) that can help with saltwater corrosion. Please carefully follow the directions on the container for use of these types of products.
- Inspect the Sacrificial Anode on a regular basis. North River Boats recommends using Aluminum Sacrificial Anodes ONLY and NEVER mix anode alloy type. Do not change or add anodes without consulting an authorized service center.
- Because saltwater corrosion is not warrantable we don't recommend mooring or excessive use in saltwater. Should you drill any holes through the painted surfaces you must seal these holes with silicon or a rubber gasket. This is not a guarantee that corrosion won't occur, but it will help keep it to a minimum.

Finish Care & Maintenance

- North River Boats only recommends the use of boat soap and freshwater to clean all material surfaces and/or finishes.
- Hand wash only and remove water spots with a soft cloth or chamois.
- Do not use wax or polish on the painted surfaces for the first 30 days.
- North River Boats does not recommend polishing the natural aluminum material or the use of any aluminum cleaning products; including but not limited to: Abrasives, Acids, Detergents and Aluminum cleaner or polish.
- Spilled fluids and chemicals should be immediately wiped away.
- Protect your boat from extreme high or low temperatures; avoid parking under trees or near facilities with heavy fallout or smoke.

Canvas & Upholstery Care

- **Top Gun Canvas Top:**
General or light cleaning: brush off loose dirt, hose down and prepare a cleaning solution of water and mild soap (Ivory Snow, Dreft or Woolite – NO DETERGENTS). Use a soft bristle brush to clean, allow solution to soak into fabric, rinse thoroughly until all soap residue is removed and air dry only.

- **NAUGAHYDE® vinyl seat covers:**

For light soiling: use a solution of 10% household liquid dish soap with warm water applied with a soft bristle brush. Wipe away the residue with a water dampened cloth.

Operation Tips

Comfort Level:

- Never try to run your boat in waters you do not feel comfortable in. Don't let your peers talk you into running water you're not ready for.

Starting your boat:

- Run your bilge blower for the recommended 4 minutes prior to starting the engine. We also recommend that on the first start up of the day, you physically open the engine cover to check for gas leaks, oil leaks and water leaks.
- Turn the key to the on position and wait until you hear the fuel pump stop running. Don't pump the throttle. Once the fuel pump has stopped running, turn the key to the start position. If the engine doesn't start, repeat the same operation. Remember to wait for the fuel pump to stop running prior to turning the key to the start position. Always have the throttle at idle position before starting. Allow your boat to warm up on the trailer at about 2000 rpms for a few minutes before you begin to back off the trailer. Be sure your warning buzzer system is on and working to warn you of oil pressure loss or overheat conditions.

Unloading your boat from the trailer:

- Back the trailer in so that water is about half way up on the rear upright leg of the load guide. Don't forget the drain plug! Once the engine is started and you have checked for water leaks, use short bursts of throttle to start the boat moving backwards. Don't use long bursts of throttle, as you may suck debris into the intake or cause cavitation overrev. You may want to shut the engine off for a second once you have completely cleared the trailer; this will allow debris that may be sucked up against the intake to simply fall away.

Getting underway:

- Remember all of your safety equipment, especially your life jackets. Watch your gauges to see that your oil pressure is up and your water temperature is at least 150 degrees. Also, check your fuel gauge while you are at the idle speed with the boat sitting level in the water, as this is the only time you will get a good reading. When underway, the fuel gauge will indicate a higher than actual fuel level due to the sending unit being located at the rear of the tank. Make sure you have plenty of fuel for your planned trip. Always try to load your boat so that the majority of the load is located mid ship. This will make your boat plane

quickly and handle properly. Remember that with a heavy load it will take longer to plane and the boat will handle differently than with a light load. Give thought as to how much room you will need to turn and the distance and speed you will need to get onto and maintain a solid plane. Give your boat full throttle to quickly get on plane and then bring your boat at the slowest speed that will maintain a solid plane and adequate handling. This will conserve fuel, give you more time to reckon and leave you with plenty of throttle should you need it to emphasize turns or stops.

Steering your boat:

- With a jet powered boat, remember that throttle is just as important as the steering wheel. When in precarious water, always keep one hand on the throttle! Short bursts of throttle, coordinated with turns of the wheel, will greatly emphasize turning quickness and precision. Get to know how your boat reacts by spending several hours in deep water where a mistake won't be costly. Always look and think ahead when you are running in white water or shallow water. You should always have a safe place to stop and restart in sight or you are out of your comfort zone. Always stay in your comfort zone! Expanding your personal comfort zone will take some practice and patience. The basic rule is: if you aren't sure, don't try it!

Shifting from forward to reverse:

- Your boat is equipped with a dash mounted single lever shift and throttle control. This system allows you to shift your boat using one smooth movement. Being dash mounted lets you operate the boat either sitting or standing. When shifting your boat from forward to reverse, use one swift fluid movement from idle forward to idle reverse position. As you enter the reverse mode, slowly continue into the throttle mode using more and more throttle as needed. If you are shifting the boat into reverse at cruising speed, it is important to get the boat shifted before the boat begins to come off of a plane. The reason for getting the boat shifted into reverse prior to coming off of the plane is it will be an easier shift as you won't be fighting the resistance of the reverse bucket dragging in the water as you come off plane. Shifting back into forward from the reverse position will be slightly easier as the thrust from the jet is also helping to push the reverse bucket up.

Turning engine power off:

- Always allow your engine to come to a complete smooth idle before turning the key off! Turning the engine off too quickly, or with the idle set too fast, can cause hydrostatic lock; engine ingesting water through the exhaust system. Hydrostatic lock can cause severe damage to your engine, and is not covered by warranty. Another tip to help prevent hydraulic lock, is too always keep your hand on the key when you turn it off. Should the engine not shut off cleanly, immediately turn the key back to the on position. If your engine will not turn

over, and appears to be “seized”, remove all spark plugs, disconnect the coil wire and turn the engine over for short 3-5 second period. You will notice water exiting the spark plug holes. Once there is no more water coming from the spark plug holes, reinstall the plugs and connect the coil wire. The engine should now start. If you notice a loss in power or engine noise you did not have prior to the hydraulic lock, take your boat to a certified marine repair center as soon as possible.

Loading your boat onto the trailer:

- It is best to have a passenger on your boat safely dropped off at the boat ramp or dock to retrieve your tow vehicle and trailer, or tie your boat up to the bank or dock securely. There are many variables with the angle of the boat ramp, but the basic idea is to have just enough water over the trailer bunks to allow the boat to load under power. The shallower your trailer, the better the boat will self center onto the trailer. Having the water level approximately 4-6” up on the side load guide should be about right for loading. If the water is near the top of the side load guide or over, the distance between the load guides will be too great and cause the keel to miss the bow stop on the trailer as you ease onto the trailer. If there is a choice of sides of a dock, check the direction of the wind or the flow of water current. It is best to have the wind or current pushing you away from the dock if possible. You may also want to kick the trailer slightly into the wind or current at about 10 – 15 degrees. This will help when driving the boat onto the trailer and keep you away from the dock.
- Once you have the trailer backed in at the right depth, set your emergency brake and turn the tow vehicle engine off. Board your boat and untie from the dock or bank. Check the wind and or current direction. It is best to set your boat up slightly up wind or up current and allow the wind or current to push you towards the trailer instead of pushing you into the dock or bank. In some situations, you will have to actually approach the trailer at a severe angle so that the bow will be headed for the load guide and not the center of the trailer. If there is little or no wind or current, approach the trailer straight on, keeping the point of the bow headed directly at the bow roller on the trailer. It is best to maintain as slow of speed as possible and use the throttle as little as necessary. Again, in shallow water you don’t want to disturb the bottom causing debris to possibly block your intake on the jet drive. As the boat makes contact with the trailer bunks, allow the boat to “settle” into the bunks and center up on the trailer. At this point, the boat should be approximately ½ of the way onto the trailer and the boat will not be moving forward. Now you want to make sure you are headed straight for the bow roller and the jet is going to push you straight. Slowly increase your throttle until the boat starts to move forward, as the boat progresses onto the trailer you may need to increase the throttle and the boat will no longer be floating as it is resting on the trailer bunks. If you reduce throttle speed before the bow touches the roller on the trailer, it will be difficult to regain momentum and you

may have to winch the boat the rest of the way to the roller. Be careful not to use too much speed as you approach the roller as slamming into it at speed will cause damage to trailer and boat hull. Turn engine off.

- Practice loading and unloading your boat at a time when there is no traffic at a boat ramp so you are comfortable with the process and not creating delays for other boaters.
- Once the boat is loaded onto the trailer, make sure to attach the winch strap and safety chain to the bow eye before pulling out of the water. Failure to do this could cause the boat to slide off the trailer causing damage to the jet drive and hull. Once you have secured the winch strap and safety chain, pull out of the water and park at a designated tie down area. Attach your tie downs to the transom eyes and the trailer. Remove your drain plug.
- Turn off all electronics and the main battery switch. Make sure all canvas and gear is stowed and ready for travel.
- It is a good idea to check the trailer coupler and make sure it is properly attached to the ball of the tow vehicle and lights are plugged in and working.

Courtesy:

- When out on the river or lake, remember that everyone has a right to use the same water. When others are near, give a wide berth and/or slowdown to an idle especially for swimmers or fisherman if at all possible. Always help out if you see someone in danger or broken down. When you come to a blind corner on a river, make sure that no other boat or floater is coming down. Always give way to the down river vessel as it is easier for you to hold in the current than for them to try to stop or turn around. Our sport will stay healthy and safe only if we drive defensively and courteously at all times.

Common Sense:

- When preparing to run sections of white water you are not familiar with, it is recommended that you park your boat, walk to a vantage point where you can get a view of the entire rapid. Plot your course and run the rapid only if you are certain that you understand the entire run and know you are capable of handling any and all turns, stops, obstacles or circumstances involved. You might even want to run it several times to help remember it later. It is always best to run new water heading up river if at all possible, as it is easier to read water from below, plus you can hold in the current to look things over before proceeding. Again, if you are not certain of any stretch of water or your ability to handle it, don't run it! You will naturally improve and expand your ability comfort level with practice in safe waters. The enjoyment you received from your new North River will be greatly enhanced by knowing you are always operating safely and courteously and well within the limits of your own personal abilities.

HAPPY BOATING!

