

The SeaRey - An Introduction

Welcome to the beautiful Progressive Aerodyne SeaRey. The SeaRey is a very special aircraft. Created by a small team of engineers the SeaRey is perhaps the ultimate kit built aircraft. The SeaRey is equally at home on land or on the water making this little aircraft one of the most versatile ever built. Requiring approximately only 200ft for take-off and landing this is an aircraft that can be used on almost every airfield in the world. If you consider the use of an airfield somewhat pedestrian then the SeaRey with its rugged landing gear construction and terrain tyres can land on unprepared ground such as grass or sand!

We have chosen to model the version of the SeaRey with the 915hp Rotax engine, the most powerful of three options available from the manufacturer, guaranteeing that this little aircraft packs a punch in performance!

Customers of the SeaRey express their creativity in producing fully customised instrument panels for the aircraft. It is important to note that there is no formal standardised panel layout. Every aircraft is unique reflecting the needs of the purchaser. With that in mind, we have chosen to offer you a panel layout that will satisfy even the most die-hard instrument pilot with a full suite of navigation equipment, from VOR receivers to a large screen GPS! For added usability, we have also included a full Bendix-King autopilot that can be slaved to the GPS flight plan. In short, this "go anywhere" aircraft is superbly equipped for all your flying needs.

By way of introduction to the SeaRey, we will take a short introductory flight around Orlando, Florida. The Progressive Aerodyne factory is in Orlando, so this can be seen as something of a factory test flight before heading out to the Middle East.

Go right ahead and load a SeaRey of your choice at Lake Hiawasseee (89FL) - runway 35. You will immediately notice that you are on the water! This is going to be your first water take-off with the SeaRey before we land at Orlando Executive Airport. Feel free to select a full tank of fuel. A full tank will take us approximately 300 miles, but this flight around Orlando will be much shorter. In fact, the airport at Orlando Executive is a little over 7 miles away.



Let's go ahead with the startup checklist. Firstly, ensure that the landing gear is up, as obviously this is not required for our aquatic departure.

MASTER BATTERY - ON
MASTER ALTERNATOR - ON
MASTER AVIONICS - OFF

We keep the avionics off at this stage, to avoid a surge of power that might damage the aircraft systems.

We are now ready for engine start, with no further fuss. One of the great joys of the SeaRey is that complexity is kept to a minimum so the pilot can concentrate on the art of flying rather than managing arrays of switches!

We can now energise the fuel system.

FUEL CONTROL SWITCH - ON
FUEL PUMP SWITCH - ON

The engine can be started by rotating the start key to the START position, passing through the magneto settings as the key moves. This can be achieved by rotating the mousewheel downward whilst holding the mouse pointer over the starter key. Alternatively, the CTRL-E key combination will work just as well. We can now go ahead and engage the avionics.



MASTER AVIONICS - ON

That is essentially it, the SeaRey is now ready to fly! Go ahead and switch on the navigation lights at this time. We can now set up some basic navigation. The primary navigation instrument is the HSI that is located under the artificial horizon. This instrument is a multifunction device, acting as a compass, heading reference and navigational indicator. The heading select knob can be used to move the heading caret around the compass rose. Engaging the autopilot heading mode will have the aircraft follow this heading. Alternatively, a VOR receiver can be tuned on the navigation radio and the course to the VOR is highlighted here.

It is therefore appropriate at this juncture to quickly summarise the functionality of VOR beacons. At its simplest a VOR can be used as a homing beacon. Utilising the VOR receiver in the aircraft the direct track to the beacon can be established. Consider an analogy where the beacon is the hub of a wheel with spokes radiating at all the compass points around the wheel. The VOR transmits a unique signal along each radial for identification by navigation equipment. As such when in range of a VOR we can not only tune our NAV1 radio to the frequency of the VOR we can select one of the radials to provide a specific course into the VOR; essentially travelling along the chosen spoke into the hub of the wheel to continue the analogy. Each radial is referenced by its compass orientation 0-359. The course knob on the Horizontal Situation Indicator (HSI) instrument in the aircraft allows easy selection of the chosen radial.

There is only one caveat, all radials are quoted by the compass direction away from the beacon. As such if we are directly west of a chosen beacon and would fly a 90 degree course to it we are actually tracking the 270 degree radial, as this radial leaves the VOR at a heading of 270 degrees whilst we travel inbound along it at 90 degrees!. For our tutorial today this will not actually bother us but it is worth bearing in mind. We can tune the actual compass heading to the VOR and not worry about these VOR "reciprocals". We can think of our radial course as the course that we leave the VOR and this confusion is much simplified. For example, if we continue our hypothetical 90 degree course into the VOR and continue through the VOR we will leave the VOR on the 90 degree radial after passing directly over the beacon. As we are flying directly through each VOR and not following specific radials from a VOR we can merrily use the direct compass headings technique as described above. We can forget all about reciprocals and leave those for more complex VOR navigation techniques. So for our 90 degree heading to a beacon we can set 90 degrees on the course knob and life is simpler all around!. Most VOR beacons also have a device referred to as DME - Distance Measuring Equipment. In the SeaRey we have a DME indicator for both the NAV1 and NAV2 VOR sources. This can be found at the top of the panel. The flick switch allows the indication of DME for the NAV1 or NAV2 receiver. Go ahead and select NAV1 as the DME source. To the left of this is the GPS/NAV source selector. Select NAV to follow a VOR. If we were following the GPS course, we would select GPS as the input device here.





Go ahead and tune 112.20 on the NAV1 radio receiver. If you cast your eye over the HSI you will see that the course deviation needle for the VOR has now appeared. Rotate the course button until the course deviation needle centres with the course bars.

This gives us the direct course to the VOR at Orlando Executive Airport. Ensure that the large white triangular arrow pointer in the centre points outwards towards the edge of the instrument, this assures us that this is the course to, rather than from the VOR as it is also possible to select a specific course from a VOR if desired. The course should be around 82 degrees to Orlando Executive, almost a direct right turn after take-off will take us towards the airfield.

Once the autopilot is engaged, the current navigational mode will also be highlighted on the left side of the HSI.



Now we have the course to our destination airfield we can take-off and perform a few practice manoeuvres. For take-off, select 20 degrees of flaps (press F7 twice for two notches of flaps). Also, push the mixture levers fully forward. Go ahead and advance the throttle to full power. You may be surprised at the very short take-off roll required.

At 50MPH pull back on the controls gently and the aircraft will take to the air, having used less than 200ft of lake! As a rule of thumb take-off and landing can both be comfortably achieved, on land or water using 50MPH as a guideline speed. Once airborne go ahead and retract the flaps (F5) and the landing gear.

Spend a few minutes flying around the perimeter of the lake to really get the feel of the aircraft. The SeaRey is both nimble and responsive and we hope that you agree with us that she is a pleasure to fly. Regularly monitor the engine gauges ensuring that oil temperature, oil pressure, RPM and manifold pressure are in tolerance.



Reduce power and settle the aircraft into the normal cruise speed of 90MPH. Notice how light the controls feel. This is a deliberate part of the design of the aircraft. The SeaRey has been designed to be extremely stable at this cruising speed, something of which the manufacturer is rightly proud. With the landing gear still up, circle back to the lake for a water landing. Bring your airspeed down to about 60MPH as you deploy 20 degrees of flaps for landing. As you approach the water gently raise the nose slightly and reduce your airspeed to 50MPH for a smooth touchdown.

The manufacturer points out that the SeaRey can land in quite a heavy swell, but recommend that only waves of 12 inches or less are attempted for landing until you are fully used to the aircraft.

After bringing the aircraft to a halt, confirm that all is well and repeat the take-off procedure, this time making the turn to align the heading with the HSI needle direction of Orlando Executive. We shall be making a landing on Runway 07. If we wish, we could use the ILS, but the aircraft can be handled easily in a visual approach. Go ahead and line yourself up with the runway as it comes into sight and deploy the landing gear. Again, slow the aircraft to 50MPH with the flaps deployed at 20 degrees.



Gently guide the aircraft to the runway, ideally descending at around 500 feet per minute. For landing on land, use exactly the same approach as a water landing, with a very light flare just above ground level. Slow down to a gentle taxi speed of 10MPH.

You will notice in the taxi that the SeaRey is a tail-dragger, meaning that the normal tricycle arrangement of landing gear is reversed, with the single wheel towards the rear of the aircraft. Quite often, tail-draggers can be difficult to taxi, offering poor visibility, but thankfully the SeaRey is benign. Taxi the aircraft to a parking spot of your choice and we can shut down the aircraft.

MIXTURE - CLOSED
MASTER BATTERY - ON
MASTER ALTERNATOR - ON
MASTER AVIONICS - OFF

Congratulations on taking your first test flight in the versatile and wholly unique SeaRey. Please remember, that in addition to our included flight itinerary around Arabia this remarkable aircraft can be used for any flight of your choosing. We hope you enjoy flying the aircraft just as much as the enjoyment we had in making her for you!

Jane-Rachel Whittaker

Useful Reference

Length	22 ft—5in
Wing Span	30 ft—10 in
Height	6ft—5 in
Wing Area	157 sf
Wing Root Chord	6ft—4 in
Wing Tip Chord	4ft—2 in
Wing Aspect Ratio	6.055
Wing Taper Ratio	0.6
Wing Sweep	7.5°
Gross Wing Load	8.73 lbs/sf
Stabiliser Span	9ft—2 in
Main Wheel Stance	6ft—6 in
Standard Fuel Tank	18 gal US
Standard Fuel Range	3.5 hours
Long Range Tank	29 gal US
Useful Load	520 lbs
Empty Weight	850 lbs
Gross Weight	1370 lbs
Cabin Width	44 in
Cabin Height from seat	33.5 in
Cabin Height from floor	38.5 in
Baggage Area	13 cf
Baggage Area Size	44 x 48 x 17 in
Hull Draft in water	10 in

Performance

Never exceed speed: 120 mph (194 km/h)

Maximum speed: 120 mph (194 km/h)

Cruise speed: 85 mph (138 km/h)

Stall speed: 42 mph (68 km/h)

Service ceiling: 12,500 ft (3,700 m)

Rate of climb (fully loaded with passenger): 600 ft/min (3.05 m/s)

Wing loading: 8.73 lb/ft² (3.96 kg/m²)