LEICA ICON ICS50 · INDUSTRY GUIDE

Marine Guide

Decking, dash panels, dodgers, biminis and covers. On the trailer, on the hard or in the water. Use with the iCS50 General Guide.



SPEEDtemplate

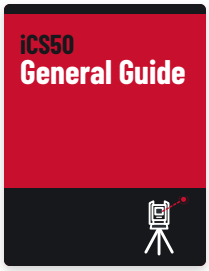
MARINE GUIDE

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HOW THE BOOKS WORK

Three books. Each has one job.

The **General Guide** says how. The **Industry Guide** says what. The **Industry Workbook** makes it stick.



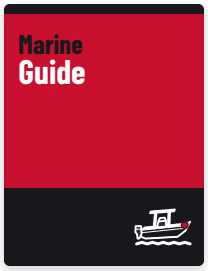
How the iCS50 works

For every crew in every trade: setup, measuring, planes, moving the iCS50, editing, layers and export.

USE IT
Read Sections 1 and 3 before onboarding. After that, look things up when you need them.

KEEP IT
In the iCS50 case. One per shop.

THIS BOOK

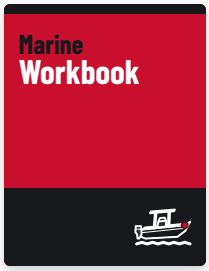


What to capture in the industry

What changes on a kitchen, a cabinet room, a millwork floor, a stair or a boat: what to capture, where to set up, the exact taps, the checks and the hand-off.

USE IT
Before the first job, then on every job, next to the General Guide.

KEEP IT
In the case, with the General Guide. One per shop, per industry.



Learn it by doing it

A self-paced course in the industry: six lessons with the real iCS50, three real jobs, a final project and SPEEDtemplate certification.

USE IT
After onboarding. Once, in order. Write in it.

KEEP IT
With the operator. One per operator.

Which book do I open?

THE QUESTION	OPEN
How do I set up, measure, move the iCS50 or export a DXF?	General Guide
What do I capture on this job, and what does the shop need back?	Industry Guide
I am new, or I want to get certified.	Industry Workbook
Something is not working.	General Guide, Troubleshooting. Then call 919-676-2244.

NOTE When the General Guide and an Industry Guide say different things, the Industry Guide wins for that industry. The website always has the latest version of every book.

What a great deck template looks like

Boats are curved, nothing is square, and the platform can move. This guide covers what changes on a boat. Everything else is in the iCS50 General Guide. Keep the two together.

The template the shop wants

- [ ] Every deck area as its own flat panel, with the true edge against the gunwale, console and coaming
- [ ] Hatches, lids and their gaps, captured separately
- [ ] Cleats, rod holders, fuel fills, drains and every fitting the pad must clear
- [ ] Steps, radius corners and transitions
- [ ] Panel breaks agreed with the owner
- [ ] Photos of every area on the job in SPEEDfolder
- [ ] The owner's choices recorded: color, groove pattern, logos

TIP Clean the deck and remove the owner's gear before templating. Every cooler and line left on deck is something to work around.



The finished result: fitted deck pads, cut from the template.

MARINE

Marine questions, answered

The questions boat shops ask most, in one place.

Can the head still see the pen when I reach around a console or T-top?

The tablet shows the head's camera view live, beside the drawing. A glance before each point shows whether the head can see the pen ball. If it can't, move the iCS50 and set up again from the control points.

What happens if the head loses the pen?

The tablet sounds an alert and flags it on screen. Hold the pen near the last point and the head locks back on. A person walking between the head and the pen causes the same short pause, and the head recovers once the view is clear.

Does it work in a dark hold or on dark gelcoat?

Yes. Automatic Spotlight lights the pen, and the VPen works in the dark up to about 26 ft (8 m). The pen is tracked by its ball, not by the surface, so hull color doesn't matter.

Can I switch between the pen and the laser on the same job?

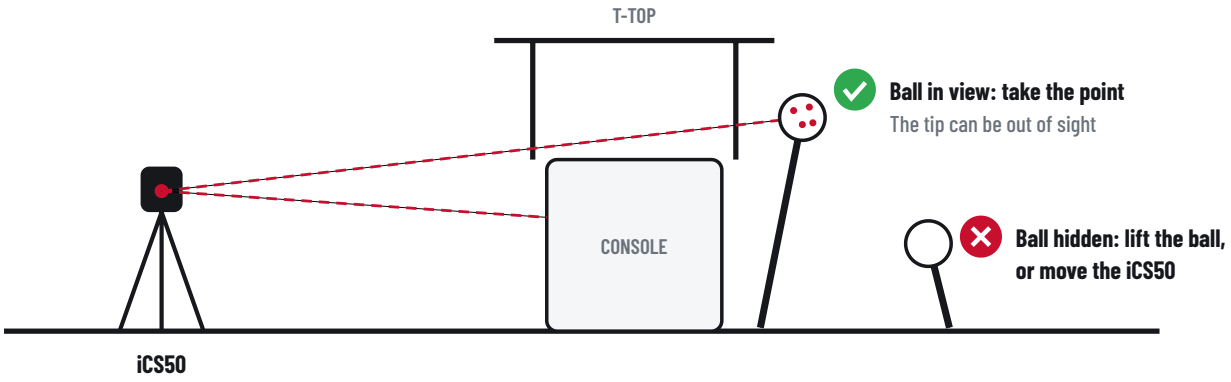
Yes, as often as needed, on the same file. Use the pen for most of the deck and the laser for a step or edge the pen doesn't need to touch. On glossy or very dark surfaces, painter's tape gives the laser dot a clean target.

How accurate is it?

The VPen is accurate to 1 mm (about 1/32 in) within 33 ft (10 m).

Does it matter if the boat is in the water?

Set the iCS50 on the boat for deck work. An iCS50 on the boat moves with the boat, so the points stay true to the deck. Moving Platform Mode allows the setup without leveling or movement alerts, on a trailer or in the water. Rain and wind don't stop it.



Reaching around a console. The head tracks the ball, not the tip. Keep the ball in view and the tip can be out of sight.

Can I trace curves instead of shooting points?

Yes. Long-press Measure and run the pen along a gunwale, coaming or radius corner. Points are captured continuously; tap Measure once to stop. Smooth turns the trace into clean lines and arcs with radius dimensions. The pen has no cable, so nothing rattles during the trace.

Do I still have to crawl around on my knees?

Much less. With the VPen on the Sky Reach pole, deck-level points are touched standing up.

Will I get a flat file my cutter can use?

Yes. Each deck area exports as a flat 2D DXF, ready for the cutter, with no 3D-to-2D conversion step. 3D DXF for canvas, CNC DXF and Shop Sheet PDF are there too.

What if I have to move the iCS50 mid-job, or come back another day?

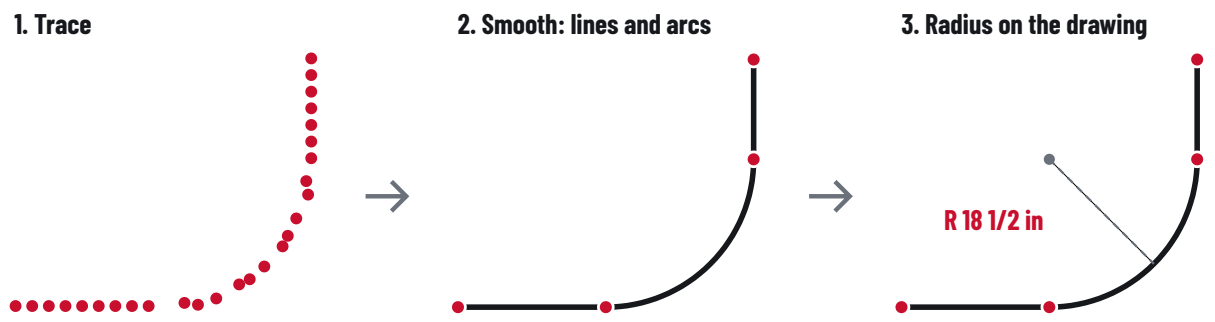
Set six control points on screw heads before measuring anything else. After a move, the iCS50 finds its place from them and the job carries on in the same drawing.

Can I reuse a template for the same hull?

Yes. Save every boat in SPEEDfolder by make, model and length. For the same hull model, start from the saved DXF and check it against the boat.

Who do I call when something goes wrong?

SPEEDtemplate's iCS50 Onboarding Specialists, by phone at 919-676-2244 or at support@fifthgeartech.com.



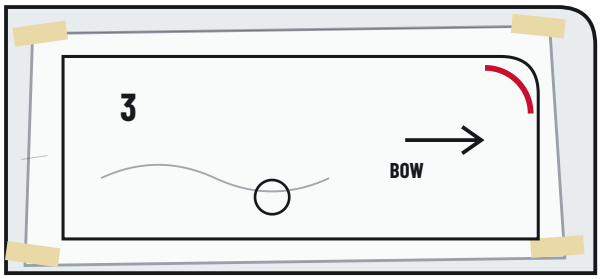
From trace to cut file. The raw trace becomes straight lines and true arcs, with the radius on the drawing.

MARINE

The mylar method vs the iCS50

Many boats are still templated with mylar sheet, a marker and plastic radius templates, then posted to the shop. Here is what changes.

THE MYLAR METHOD

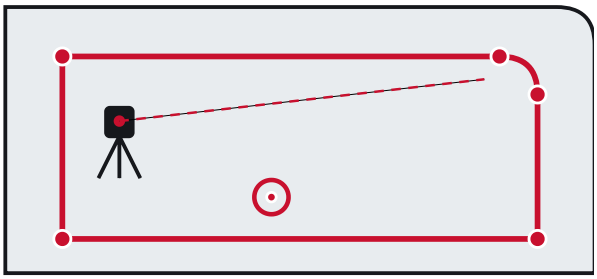


Tape, trace, number, post.

TUBE

Days in the post, then digitised by hand.

THE iCS50



Capture, check, export.

DXF

A cut file the same day. Nothing to digitise.

THE MYLAR METHOD	WHERE IT GOES WRONG	THE ICS50
A flat sheet taped onto a curved, cambered deck	Wrinkles, lifts in the wind, won't stick to a wet deck	Three points per deck area make a plane, so each panel comes out flat
Marker and ruler	As accurate as the hand and the pen line	VPen points 1 mm, traces 1.5 mm, within 33 ft (10 m)
Four plastic radius templates	Real corners rarely match one of four sizes	Fillet with a typed radius, or Smooth into true arcs with the radius on the drawing
Section numbers, a bow arrow, lines between pieces	The pieces only fit if every mark is right	One drawing, every area in its true place, on layers and named planes
Cutouts and fittings marked by eye	Holes in the wrong place	A Point or a three-point Circle gives the exact center
Photos before lifting the sheet	Easy to skip	Photos on the job in SPEEDfolder, tagged
Rolled into a tube and posted, then digitised	Days in the post, and a second place for errors	DXF the same day, straight to the cutter
A roll of mylar in storage	Lost or creased, start again	The file kept by make, model and length

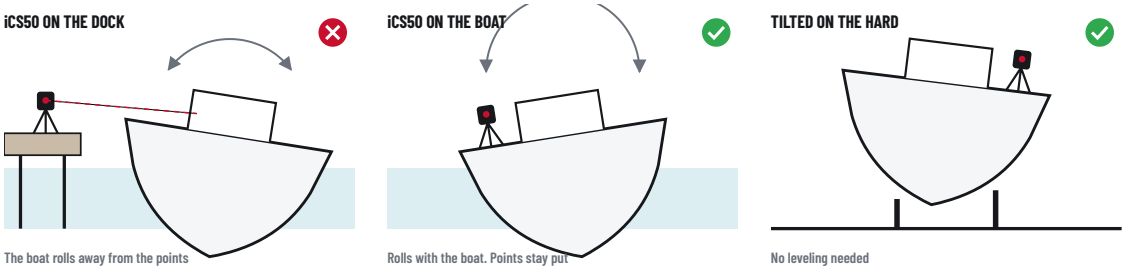
Working on a boat

Where the boat sits decides how the iCS50 is set up.



	IN THE WATER	ON A TRAILER	BLOCKED ON THE HARD
Deck, dash and canvas iCS50 on the boat, Moving Platform Mode on	✓ Moves with the boat	✓ Moves with the boat	✓ No leveling needed
Hull sides from outside iCS50 on the ground, leveled	✗ The boat moves against it	✓ Nobody aboard	✓ Best for hull work

Where the iCS50 goes depends on the job. On the boat for deck, dash and canvas. On the ground for hull sides.



Put the iCS50 on the boat. On the dock, the boat moves under the points. On the boat, the iCS50 moves with it.

Before you start

- **Moving Platform Mode:** Device Manager › Settings. On for any boat, trailer or water. Off for countertops and every job on land.
- Tripod legs fully extended and locked, feet on solid deck, not on a hatch lid. Near the leaning post or helm usually sees the most.
- iCS50 on the boat for deck, dash and canvas work. On the ground only for hull sides, with the boat on the hard or the trailer.
- Quick Start warns that Moving Platform Mode is on. On a boat, that's expected: tap Yes.
- Set six **control points** before measuring anything else (next page).

FIRST TIME Have SPEEDtemplate walk you through Moving Platform Mode and control points on your first boat.

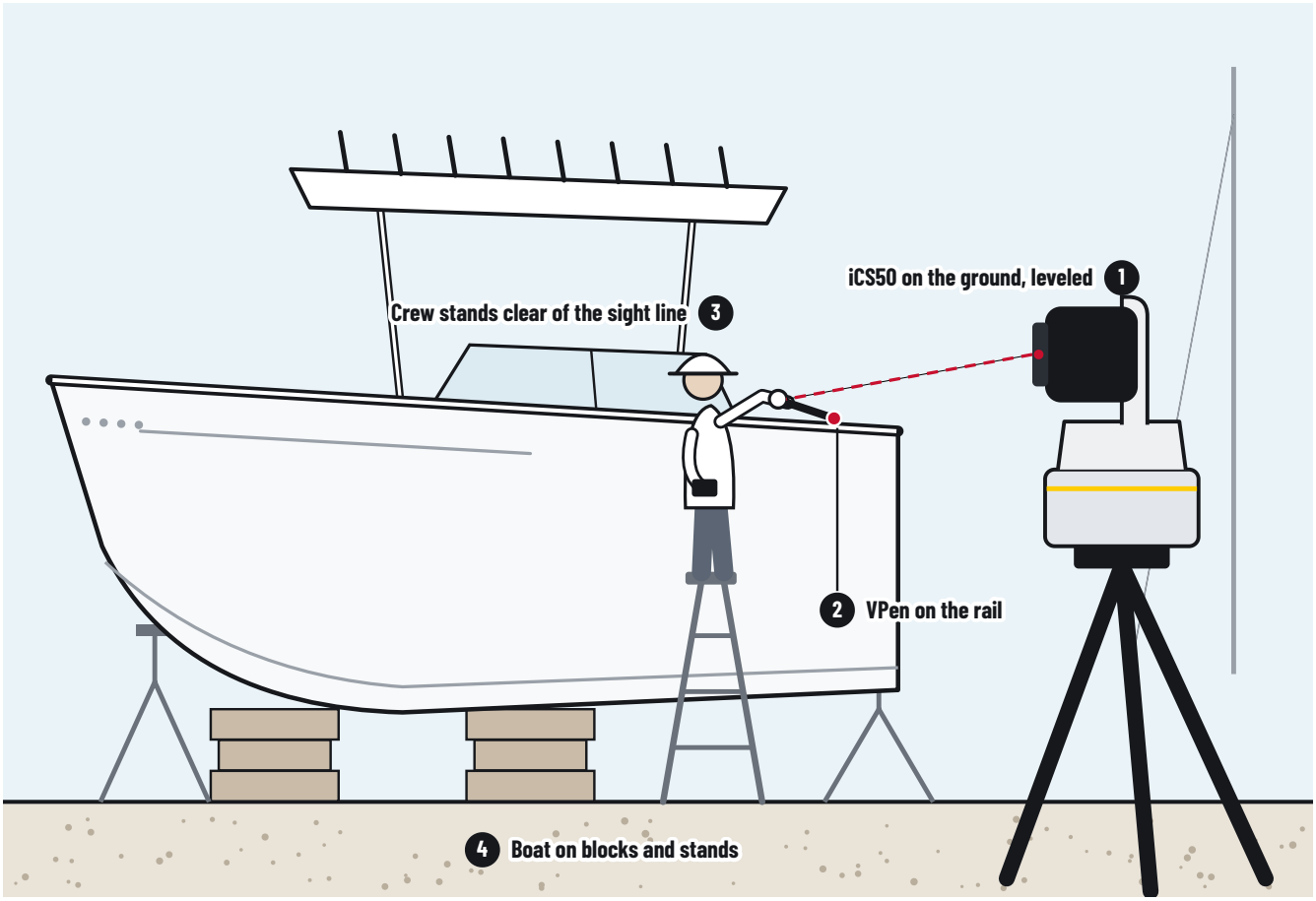
Before you climb aboard

- ☐ Owner's permission and access to the boat
- ☐ Deck clean and clear
- ☐ Devices charged; tablet, remote and VPen packed
- ☐ Weather and wake checked for the time on board

MARINE

Hull sides from the ground

Rub rails, sheer lines and hull trim, captured from outside the boat. The one marine job where the iCS50 stays on the ground.



Hull sides only. For deck, dash and canvas, put the iCS50 on the boat, in or out of the water.

1. **The boat:** blocked on the hard or on the trailer, with nobody aboard.
2. **The iCS50:** on firm ground, legs fully extended. Normal setup: leveled, movement alert on, **Moving Platform Mode off**.
3. **New 3D job.** A layer for each line: rub rail, sheer, boot stripe, trim.
4. **Capture:** trace the rails and curves, single points on straight runs and fixing points.
5. **Stand clear:** the crew stands on the far side of the pen from the iCS50, so nobody blocks the view of the ball.

AT THE DOCK Not from the dock with the boat in the water. The boat moves against the iCS50, and every move shows up in the points.

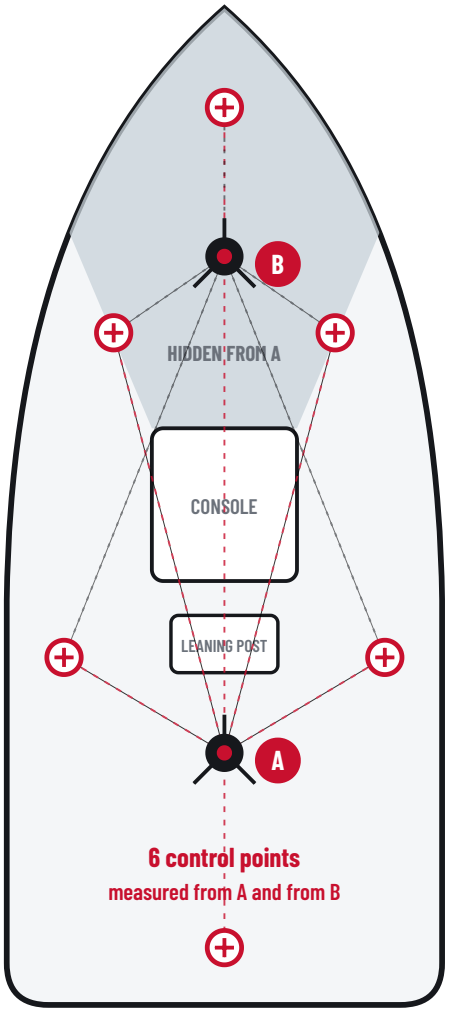
- Use a stable step ladder for the rail and the T-top edge. The Sky Reach pole reaches high points from the ground.
- A long hull may need more than one setup. Ask SPEEDtemplate support how to tie them together on the first hull job.

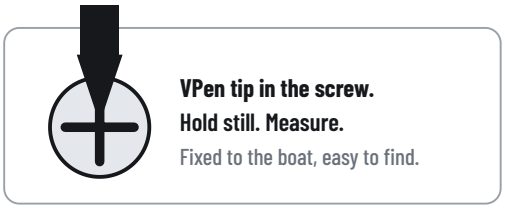
Job setup

Job type: 3D, with a plane per deck area

Decks have camber and sheer, so start every boat as a **3D job**. Then give each deck area its own **2D plane**, usually **Sloped**, because a pad is cut flat from a sheet.

1. New job, **3D**. Name it with the boat and the owner.
2. **Control points first:** Layer manager › Control points. Six points spread around the boat, each on a screw head: VPen tip in the screw, hold still, Measure. If the iCS50 has to move, or the crew comes back another day, the control points let it find its place in 3D again. V-Targets work too; screw heads leave nothing stuck on the boat.
3. **Layers:** Edit layers › New layer for each part, with its own color: Bow, Cockpit, Console top, Dash.
4. **Planes:** a new plane for each deck area or panel face, from **three points** on that surface, as far apart as possible. Every point after that projects onto the plane, so the panel comes out flat.
5. Capture that area (next pages), then move to the next.

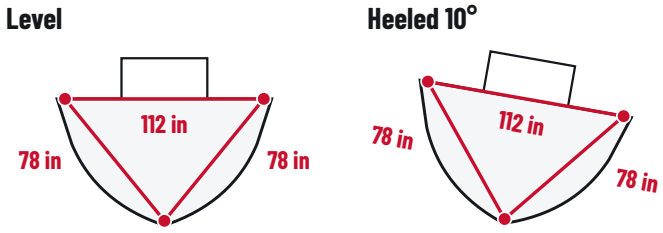




Two setups, one drawing. From A, the console hides the bow (shaded). Move to B and set up from the same control points.

Name the planes

Bow, cockpit port, cockpit starboard, swim platform, console top, dash. The names carry through to drafting and the cut files.



Same points. Same distances. Same panels.

Heights follow the boat; distances stay true. In Moving Platform Mode, level follows the boat, so each plane comes from three points on the surface.

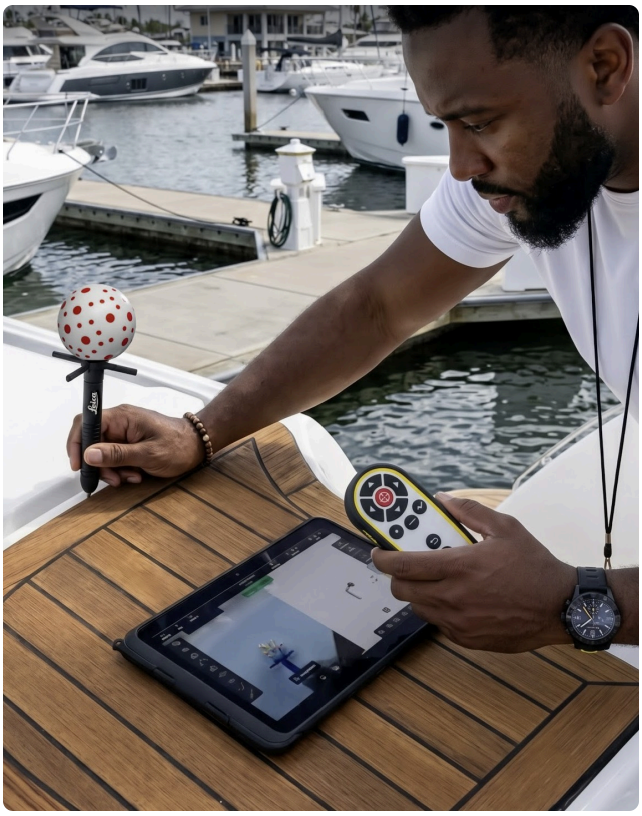
What to capture

Each deck area

- ☐ The outer edge against the gunwale, console, coaming and steps
- ☐ Radius corners and curves (trace them)
- ☐ Hatch openings, and each hatch lid as its own piece
- ☐ Drains and scuppers
- ☐ Cleats, rod holders, cup holders, fuel and water fills
- ☐ Seat bases, poles and anything bolted through the deck
- ☐ Where one panel ends and the next starts

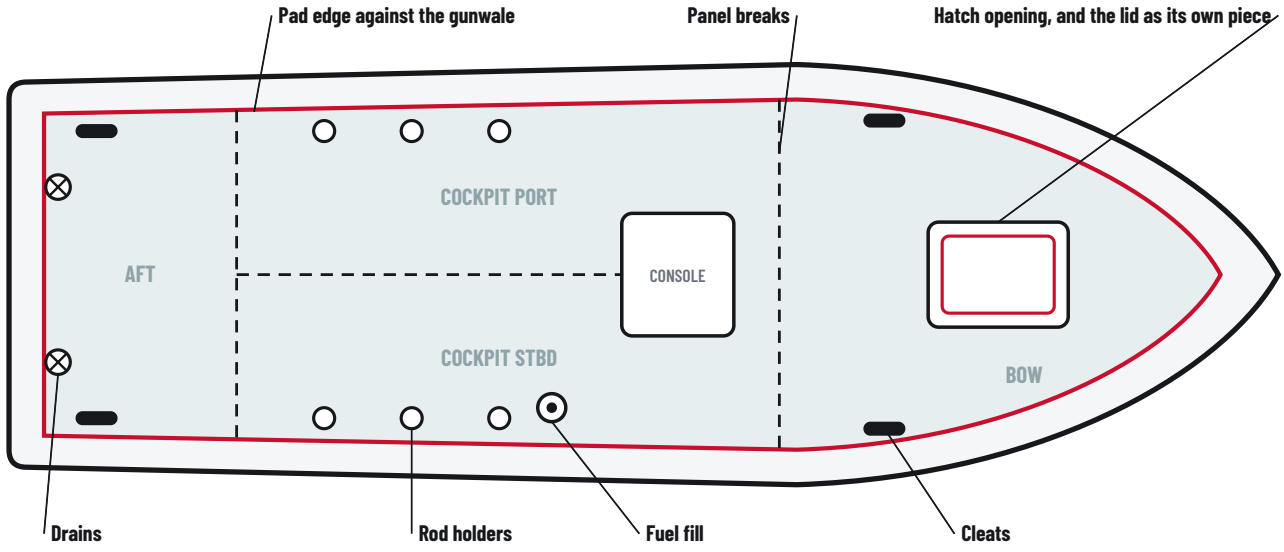
Covers and bolsters

- ☐ The frame or T-top tubes as a 3D wireframe
- ☐ Snap and fastener locations as Points
- ☐ Windshield and rail edges the cover meets



Tracing a curved edge with the VPen.

TIP Take a photo of every fitting before you capture it. A drain and a fill look alike in a drawing.

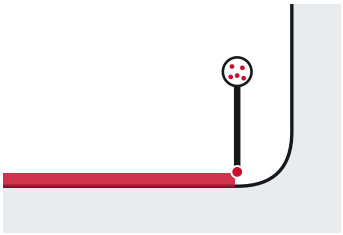


A center console deck. The pad edge (teal) runs inside the gunwale. Each area is its own panel and plane; dashed lines are the panel breaks.

Where the pen tip goes

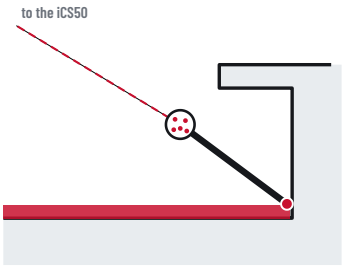
Most pads that come out the wrong size were captured at the wrong edge. Agree with the owner and the shop where each pad stops, then put the tip exactly there.

A Cove at the side



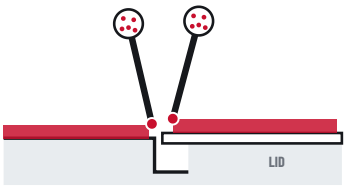
Tip where the flat ends.
A pad can't climb the cove.

B Under a coaming lip



Tip hidden, ball in view.
The head tracks the ball, not the tip.

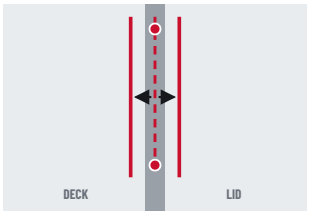
C Hatch and lid



Opening and lid: two pieces.
Keep the gap so the lid still opens.

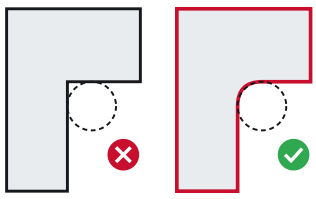
EDGE	WHERE THE TIP GOES	THEN
Border of the factory non-skid	On the line where the non-skid ends	The pad covers the non-skid exactly
Cove where the floor meets the side	Where the flat ends, before the curve starts	A pad can't climb a cove
Under a coaming lip	On the deck where the pad stops, under the lip	Keep the ball in view; the tip can be hidden. Extension rod for deep reaches
Hatch opening and lid	The opening edge, then the lid edge. Or one line down the middle of the gap	Hatch layer. From a center line, Offset both ways so the lid still opens
Toe rail or trim	The inside face, at deck level	Photo of the profile
Step nose	Where the round starts	Laser for the step above (Tight spots page)
Fittings and drains	The center, as a Point or a Circle	Fittings or Drains layer

ONE LINE, OFFSET BOTH WAYS



Capture the middle of the gap,
Offset both ways for two edges.

EVERY INSIDE CORNER GETS A RADIUS



A round router bit can't cut a sharp corner.
Fillet to at least the bit radius.

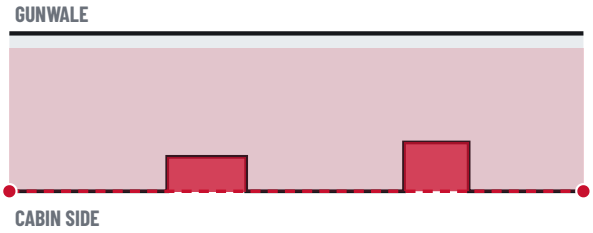
Gaps and tolerance on the tablet

- Capture the true edge in the field.
- Add the gap later: **Tools › Offset** (1/8 in for tolerance, 1/4 in for an inset).
- One edge, one rule, for the whole boat.
- Ask the shop for its smallest corner radius (the router bit). Fillet every inside corner to at least that.

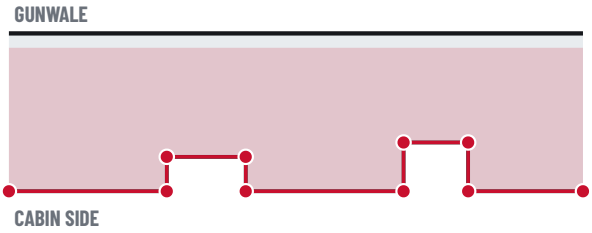
Long runs and undecided edges

Two things that look simple on the boat and cost a recut later.

A straight run usually isn't



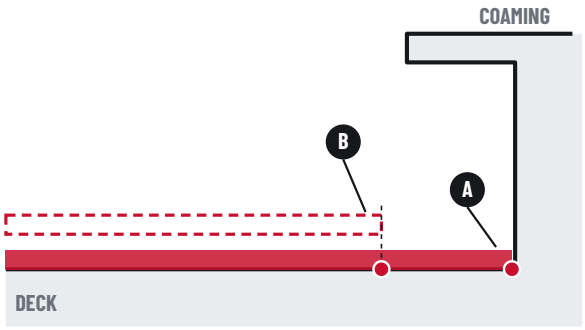
A Two points, one line
The pad runs past every step-in.



B A point at every jog
Each step-in is its own corner.

- A side deck that looks like one straight run often steps in: around a stanchion base, a cleat, a step or the end of the coaming.
- **Walk the edge with the pen** and capture every jog as its own corner: Line or Polyline, a point at each change in direction.
- Two points on a long run are only enough when nothing changes between them. Look along the whole edge before skipping.
- A photo of each jog, tagged in SPEEDfolder.

Not sure where a pad stops? Capture both edges



A: under the lip, to the coaming.
B: stops short of the lip.
Capture both. The owner picks one.

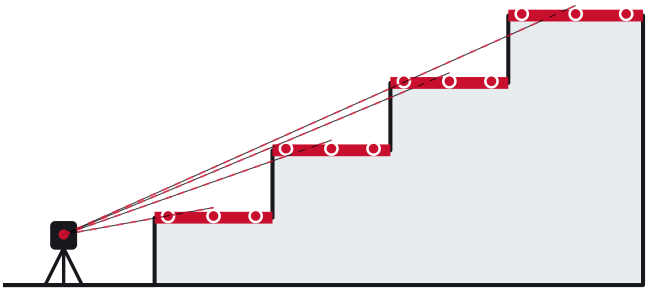
1. When the owner hasn't decided, capture **both** edges: to the coaming or short of the lip, over the step or stopping at it.
2. Put each on its own layer, named **Option A** and **Option B**.
3. Decide with the owner and the boat company from the **3D view** on the tablet, or share the job from SPEEDfolder so the boat company can show the owner.
4. Delete the edge that wasn't chosen, then export.

TIP Capturing a second edge takes minutes. Coming back to the boat for it takes a day.

Stairs and steps

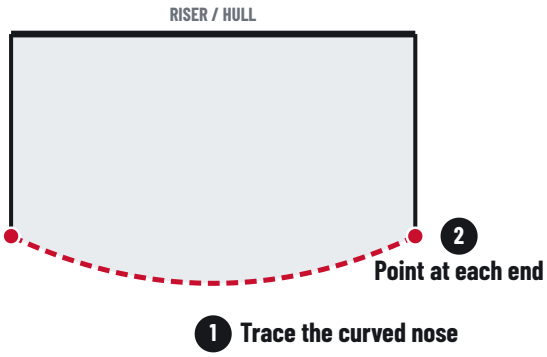
Curved stair treads on a yacht stern, swim platform steps, the step up to the bow. Every tread is its own flat panel.

SIDE VIEW



iCS50 at the bottom, looking up.
One plane per tread, three points each.

ONE TREAD, FROM ABOVE



Trace the nose, then Smooth.
Each tread exports as its own flat panel.

1. Set up at the **bottom** of the stairs, so the head looks up at every tread. Stairs that turn may need a second setup from the control points.
2. A **Stairs** layer, and a new plane for **each tread**: three points on the tread, as far apart as possible.
3. **Trace the nose** slowly, with a point at each end where the tread meets the riser or hull.
4. Back edge: points along the riser. **Laser** for an edge the pen doesn't need to touch.
5. **Smooth › Lines & Arcs** on each nose, then name each plane: tread 1, tread 2, from the bottom up.

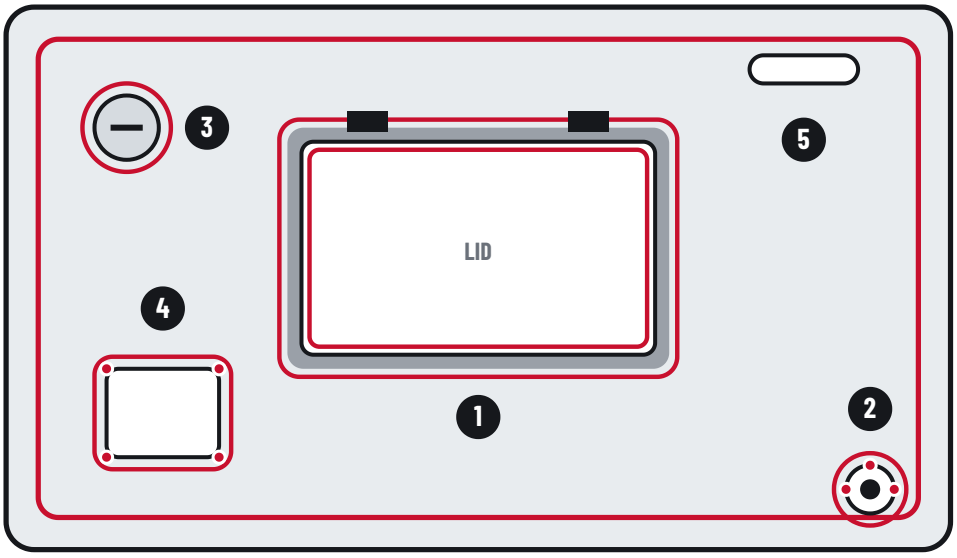
On the stairs

- Agree with the owner where the pad stops at the nose: flush, set back, or wrapped.
- Photo of every tread, tagged with its number.
- Check each tread in 3D before moving on. A tread on the wrong plane comes out the wrong shape.

NOTE Smooth works on 2D planes, so set the tread plane before tracing.

Hatches, drains and fittings

Every fitting is a cutout or an edge the pad goes around. Capture where it really is; the shop sets the clearance.



Teal: the pad edge and every cutout, as the shop will cut them.

1. **Hatch**
   Opening and lid edges, or one line down the gap
2. **Drain**
   Create › Circle: three points on the rim
3. **Fuel or water fill**
   Circle, plus a photo of the cap
4. **Seat base or post**
   A point at each corner
5. **Cleat or fitting on the edge**
   Points at both ends; the pad goes around

Capture each one

1. **Hatch**, **Drains** and **Fittings** layers before the first point.
2. Round things: **Create › Circle**, three points on the rim. Exact center and size.
3. Square things: a point at each corner.
4. Things on the edge: points at both ends; the pad edge goes around.
5. A photo of every fitting, close up and tagged.

Clearance around fittings

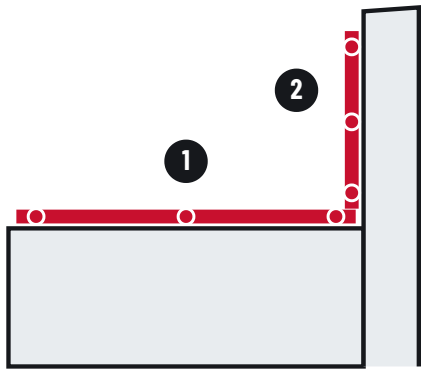
- Capture the fitting itself, not the gap around it.
- Add the clearance with **Tools › Offset**, or leave it to the shop.
- Ask the shop for its standard clearance and use it on every boat.

TIP A drain and a fill look alike in a drawing. Name them on the layer or in a note.

Seat pads, cushions and bolsters

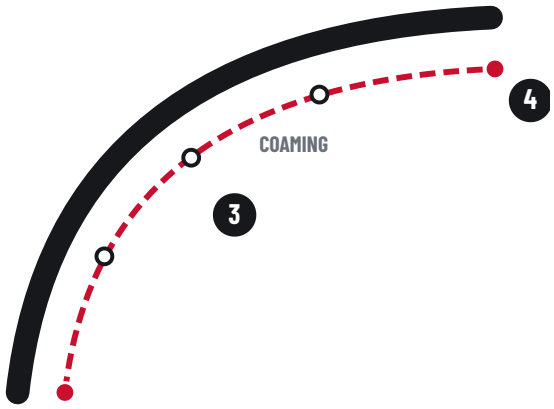
The same capture as a deck pad, on more planes: the seat, the backrest and the coaming a bolster follows.

SEAT AND BACKREST, SIDE VIEW



A plane for each face:
seat and backrest, three points each.

COAMING BOLSTER, TOP VIEW



Trace where the bolster sits,
a point at each end and each mount.

1. A **Cushions** layer, and a plane for each face: seat, backrest, side.
2. Seat: outline the base the cushion sits on. Points at the corners; trace the curves.
3. Backrest: its own plane from three points, then the outline.
4. Bolsters: trace where the bolster sits along the coaming, with a point at each end and each mount.
5. Hinges, latches and cup holders as fittings.

For the shop

- The template gives the shape. Foam, thickness and fabric are the shop's call.
- Name each piece by place: Cockpit seat port, Backrest port.
- A photo of the old cushion, if there is one. It shows the edge profile.

Best methods on a boat

FOR	USE	WHY
Curved edges	VPen Trace, slowly	1.5 mm accuracy within 33 ft (10 m)
Straight runs	VPen Line	Two clean points beat a wobbly trace
Traced edges for CNC	Edit › Smooth › Lines & Arcs	Clean arcs the cutter can follow (2D planes only)
Fittings and drains	Point, or a small circle	Exact centers for the cutouts
Gauges, compass, round cutouts	Create › Circle, three points on the rim	An exact circle and center, no tracing
Moving the iCS50, or coming back	Six control points on screw heads, set first	The iCS50 finds its place again; one drawing
Hull sides, from outside	VPen, 3D job, iCS50 on the ground and leveled	Rub rails and hull lines for trim and graphics



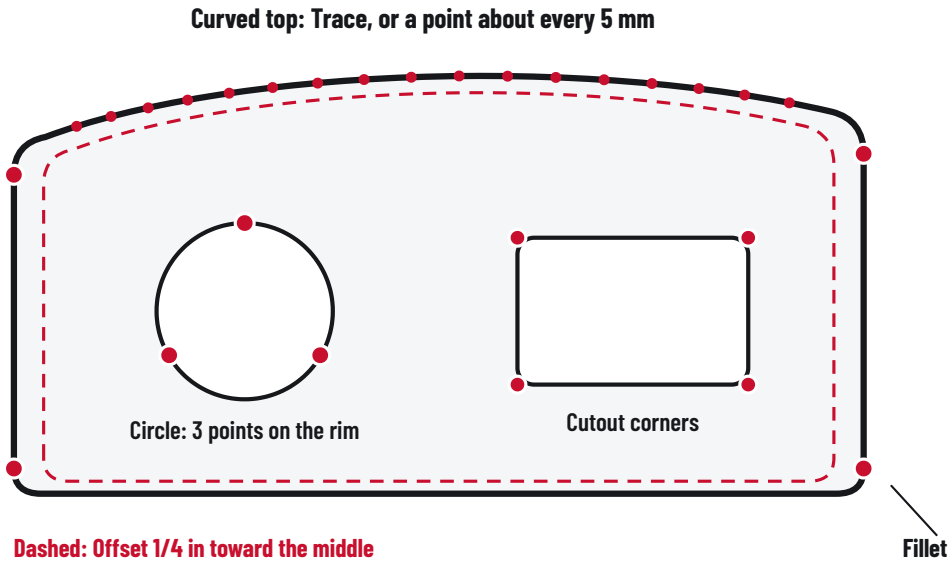
On the boat in the water, in the rain: Moving Platform Mode on.

Tracing on a boat

- Long-press Measure to start a trace; tap once to stop. Keep the tip on the edge and the pen upright.
- Slow down on tight radii. Faster on long, gentle curves.
- Stop and restart at corners rather than tracing around them.
- Trace the same edge twice if it looks wavy. Keep the better one.
- Gelcoat, black non-skid and stainless are all fine with the VPen.

Dash and console panels

Flat panels on a boat that is anything but flat. Each face gets its own layer and plane, then the tablet finishes the shape.



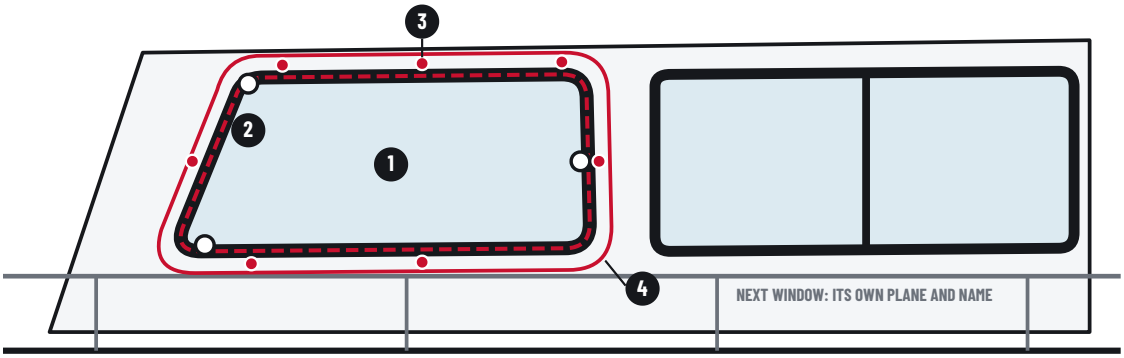
A dash panel. Outline, traced top edge, compass circle, a cutout and a 1/4 in offset.

1. **Layer and plane.** New layer for the part (Console top, Dash). New plane from three points on that face, as far apart as possible.
2. **Outline.** Polyline from the remote. Corners and straight runs as single points.
3. **Curved edges.** Trace, or a point about every 5 mm (3/16 in). Stop and restart at hard corners.
4. **Gauges and the compass.** Create › Circle: three points on the rim.
5. **Close it.** Create › Polyline and tap the first and last points.
6. **Finish on the tablet.** Edit › Fillet for rounded corners, Join to make one outline, Tools › Offset to bring the edge in (1/4 in for a panel inset, 1/8 in for tolerance).
7. **Check it in 3D,** then export each face as a flat 2D DXF.

TIP Someone walks between the iCS50 and the pen? A warning shows, and the iCS50 finds the pen again as soon as the view is clear.

Cabin windows and lenses

Replacing a cabin-side window, acrylic or glass: capture the opening on the cabin side, the bolt holes and the frame face it sits on.



A cabin-side window. Dashed: the opening. Solid: the new lens with its overlap. Dots: bolt holes.

1. **The opening**
   Trace the edge of the opening, then Smooth
2. **The frame face**
   A plane from three points around the frame
3. **Bolt or screw holes**
   A Point on each, for the drilling
4. **The lens**
   Offset out by the shop's overlap; Fillet the corners

1. Old window out, or measure with it in if the shop only needs the opening. Ask first.
2. A **Windows** layer, and a plane per window from three points on the frame face, as far apart as possible.
3. **Trace** the opening slowly; stop and restart at tight corners. Smooth into lines and arcs.
4. A Point on every bolt or screw hole.
5. Offset the outline by the overlap the shop wants, and Fillet the corners. Export each window as its own 2D DXF.

TIP Name each window by place: Saloon port 1, Saloon port 2. Capture both sides: port and starboard are rarely exact mirror images.

- Curved cabin sides: check the window plane in 3D before exporting.
- Photo of each window, inside and out, tagged with its name.

Tight spots, dark holds and your knees

The places where a tethered pen system struggles: around consoles, in dark holds, at deck level, and on the step above the deck.

Around a console or T-top

- The tablet shows the head's live camera view beside the drawing. Glance at it before taking a point: if the head can see the pen ball, take the point.
- Tracking drops? The tablet alerts. Hold the pen near the last point and the head locks back on. Someone walking past causes the same short pause.
- Still blocked? Move the iCS50 and set up again from the control points.

Dark holds and dark gelcoat

- Turn on **Automatic Spotlight** (Device Manager › Settings) so the head lights the pen.
- The VPen works in the dark up to about 26 ft (8 m).
- The VPen is tracked by its ball, not the surface, so hull color doesn't matter.



The spotlight, on.



No cable: the VPen goes anywhere on deck.

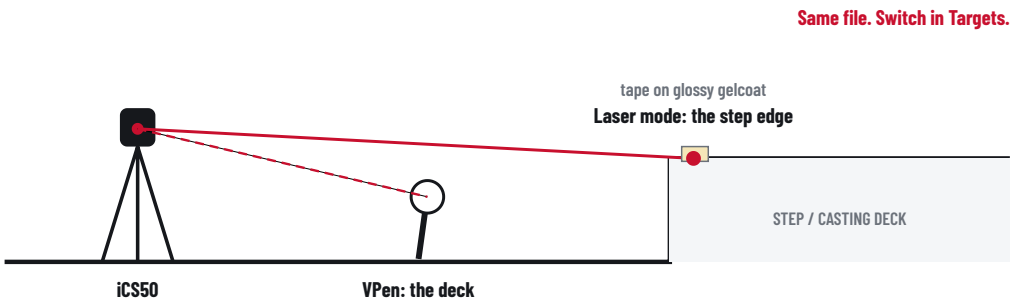
Save your knees

Put the VPen on the **Sky Reach pole** and touch deck-level points standing up.

Laser for the step above

- Switch mid-job, same file: **Targets › Any Surface › Laser**. Back with **Targets › VPen**.
- Dark or glossy gelcoat? A piece of painter's tape gives the red dot a clean target.

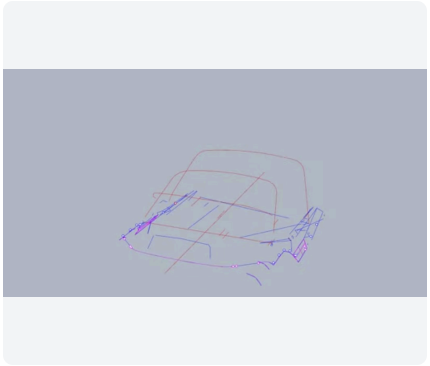
TIP No cable on the VPen means nothing drags or rattles during a trace, and nothing to trip over on deck.



Pen for the deck, laser for the step. Both go into the same drawing.

Canvas and covers: how it works

Dodgers, biminis, enclosures and covers. The iCS50 captures the frame and every edge the canvas meets, in 3D. The canvas maker builds the pattern from that in CAD.



1. The 3D wireframe from the iCS50: frame tubes, deck and coaming edges, snaps.



2. The surface built in CAD from the wireframe.

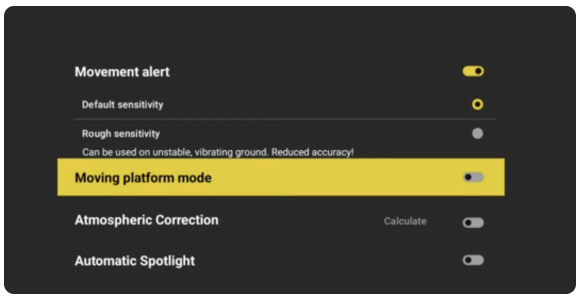


3. The finished enclosure.

The workflow

1. Set up the iCS50 **on the boat** with **Moving Platform Mode** on, on the trailer or in the water: tilted setups, no leveling needed.
2. New job, **3D**.
3. Bring the VPen into the iCS50 camera view. The iCS50 locks on and the robotic head follows the pen.
4. Capture the frame, the edges and the fasteners (next page). Trigger each point from the remote or the tablet.
5. Watch the drawing build on the tablet as you go, so nothing gets missed.
6. Export a **3D DXF** for the canvas maker's CAD software. Panels go from CAD to the CNC plotter.

TIP **Building a new frame?** Capture the deck hardware, base positions and fitting points first. The tubes, bends and bases are then designed in CAD to meet them, before any tube is bent.



Device Manager › Settings: Moving platform mode.

TIP Rain and wind don't stop the iCS50. Keep the tablet covered and the case closed between setups.

WATCH: CANVAS ON A BOAT

Canvas: what to capture

Frame

- [ ] Every bow and tube of the frame, as a polyline along its centerline or top
- [ ] Frame joints, hinges and mounting points
- [ ] The frame in the position the canvas will hold it

Edges the canvas meets

- [ ] Windshield top and sides
- [ ] Deck, coaming and cabin top along the canvas line
- [ ] Handrails, grab rails and stanchions the canvas wraps
- [ ] Hatches and vents the canvas must clear

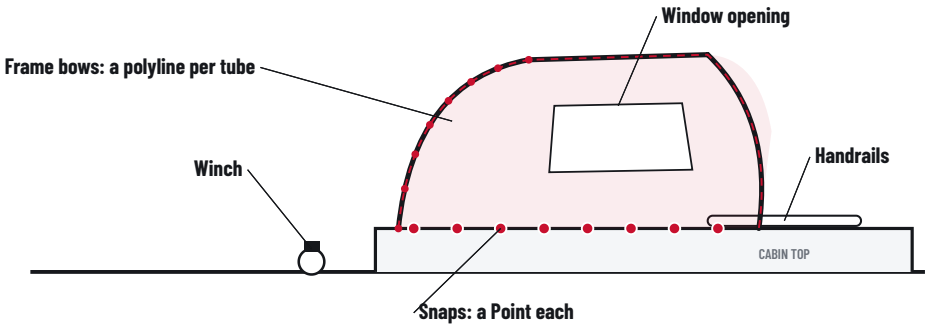
Fasteners and openings

- [ ] Every snap, twist lock and track, as a Point
- [ ] Zipper and window locations agreed with the owner
- [ ] Winches, cleats, sheets and anything that passes through the canvas



Capturing a deck edge next to a winch.

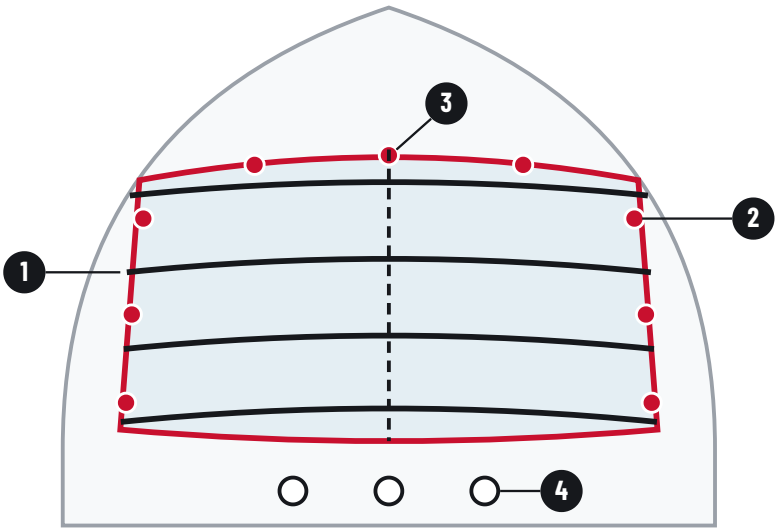
- The VPen reaches over winches, rails and lines: 1 mm accuracy within 33 ft (10 m), extended range up to 80 ft (25 m).
- Capture snaps from the same setup when you can. Move the iCS50 only when the frame blocks the view, and set up again from the control points.
- Rotate the 3D view before leaving. The frame should look like the frame.



A dodger, side view. Frame tubes as polylines, the canvas line along the cabin top with a Point at every snap, and every rail and winch the canvas must clear.

Biminis, T-top canvas and enclosures

The same method as the dodger: frame, edges and fasteners in 3D, exported as a 3D DXF.



Top view. A bimini over the cockpit.

1. **Frame bows**
   A polyline along the top of each bow
2. **Snaps and twist locks**
   A Point on every one, from the same setup
3. **Zippers and seams**
   Where the owner wants them, as lines
4. **Clearances**
   Rod holders, antennas, lights, the helm

1. iCS50 **on the boat**, Moving Platform Mode on, where the head can see the top of the frame.
2. **Frame bows** as polylines along the top of each bow.
3. Every **snap, twist lock and track** as a Point.
4. The **canvas line** along the windshield, rails and the T-top edge.
5. **Clearances:** rod holders, antennas, lights, and standing height at the helm.
6. Export a **3D DXF** for the canvas maker.

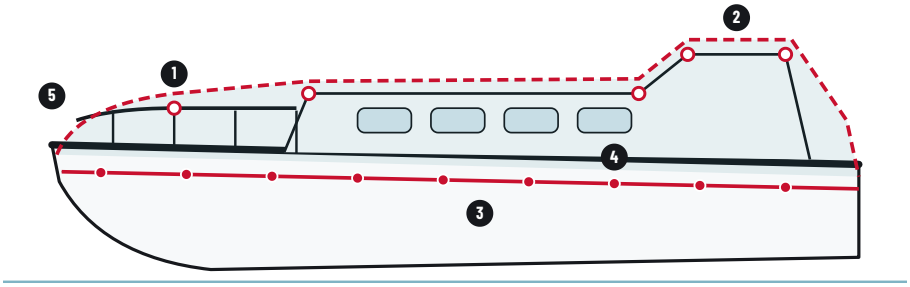
BEFORE THE FIRST POINT Frame up and locked in the position the canvas will hold it.

Enclosures

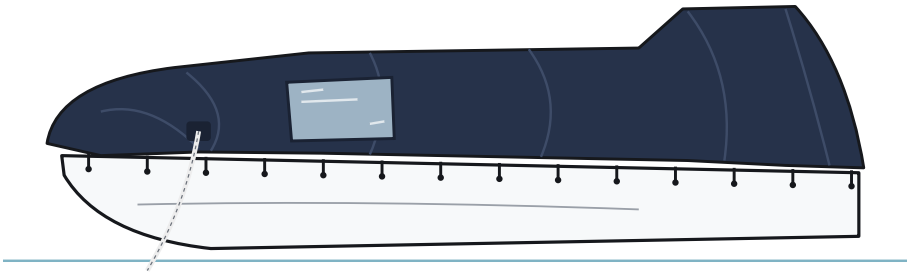
- Each side and front panel follows the frame above and the edge below: capture both.
- Zipper and window positions agreed with the owner, captured as lines.
- High edges: the Sky Reach pole brings the pen up from the deck.

Full and mooring covers

A cover goes over everything: rails, cabin top, windshield and any canvas left on the boat. Capture the shape it rests on and where it fastens.



What the iCS50 captures. 1 high points, 2 windshield and frame, 3 hem line, 4 fasteners, 5 bow rail.



The finished cover. Hem strapped under the rub rail, a clear window, the mooring line through a patch.

1. Take the old cover off, and any canvas the new cover goes over or replaces.
2. iCS50 **on the boat**, Moving Platform Mode on. A long boat needs a setup at each end, tied by the control points.
3. Rails as polylines along the top; a point at each stanchion.
4. Cabin top, windshield and frame: the high points the cover rests on.
5. The **hem line**, then every fastener as a Point.
6. Export a **3D DXF**, and check both sides meet in the 3D view.

ASK FIRST Ask how the cover is supported: poles, a frame, or straight over the top. The canvas maker needs the high points.

- Antennas, lights, horns, cleats and fairleads the cover must clear.
- Where mooring lines pass through the cover.

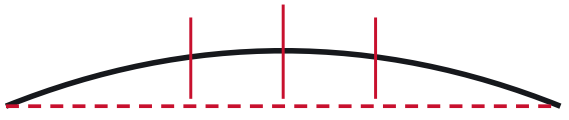
Common mistakes on boats

MISTAKE	WHAT HAPPENS	FIX
Moving Platform Mode off on the boat	Constant movement alerts, the job stalls	On for any boat, trailer or water: Device Manager › Settings
iCS50 on the dock	The boat moves against the iCS50	iCS50 on the boat for deck and canvas. Hull sides only with the boat on the hard
Tripod on a hatch lid or cushion	The setup drifts	Feet on solid deck, legs fully extended
One plane for the whole deck	Panels come out distorted	One plane per deck area
Tracing too fast	Wavy edges	Slow down, or trace again and Smooth
Missing a fitting	A pad covers a drain or fill	Photo and capture every fitting
No control points	Can't move the iCS50 or come back to the job	Six control points on screw heads, before anything else
Moving Platform Mode on for a countertop	No leveling, no movement alert on a land job	Boats only. Off for everything else
Point labels left on	Cut file is unreadable	All three label toggles off before export

Before you leave the boat

- [ ] Every deck area and fitting captured
- [ ] Planes named for each area
- [ ] Owner sign-off done
- [ ] Photos taken and tagged
- [ ] Anything taped down removed and the deck left clean

One plane for the whole deck



The camber is squashed flat: panels come out wrong.

One plane per deck area

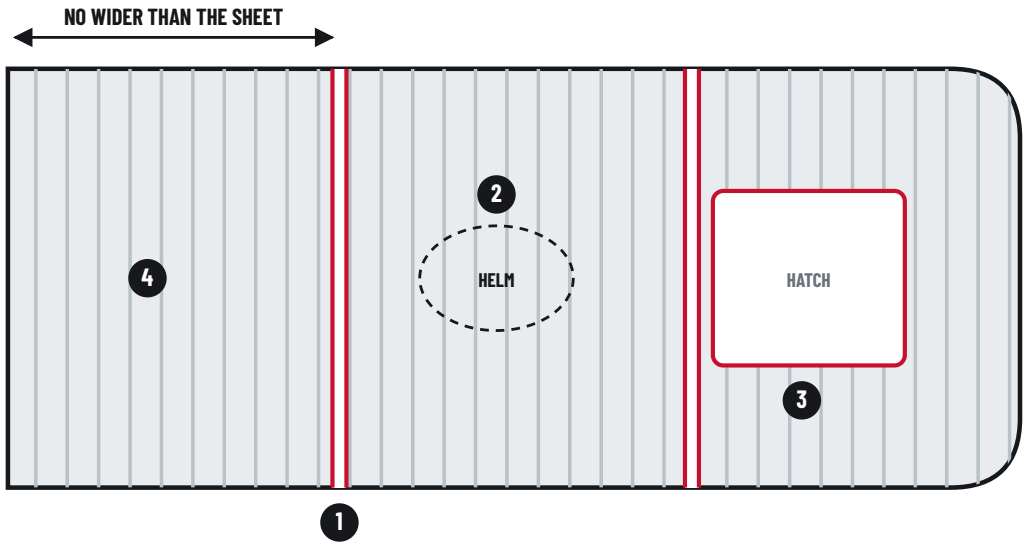


Each panel is flat and true to its own area.

Why one plane per area. Exaggerated camber to show the idea.

Panel breaks and seams

A deck wider than one sheet needs seams. Plan them with the owner before the first point, and put them where nobody notices.



1. **Seam gap**
   The shop sets the gap; offset both edges
2. **Not where people stand**
   Out of the helm and casting spots
3. **At a natural break**
   Hatch edges and steps hide a seam
4. **Pattern carries across**
   Lines run the same way on every panel

Plan the breaks

- Ask the shop for its sheet size and seam gap before the job.
- Agree the breaks with the owner, then capture to match.
- Capture each seam as one line, then **Offset** both ways by half the gap.
- Every panel no wider or longer than the sheet.

Where seams go

- At hatch edges, steps and corners, where a break looks planned.
- Away from the helm, the casting deck and the boarding step. Feet wear a seam first where people stand most.
- Pattern direction agreed with the owner and the same on every panel.

Export for the cutter

Which format

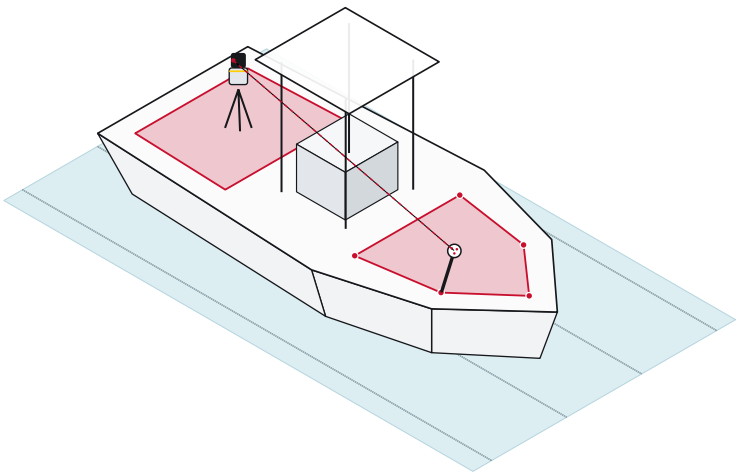
FORMAT	USE IT FOR
2D DXF	Each deck area or panel face laid out flat, ready for nesting and cutting. No 3D-to-2D conversion
CNC DXF	All panels combined, flat, no points or dimensions
3D DXF	Canvas, covers and bolsters: CAD builds the surface from the wireframe; panels go to the CNC plotter
Shop Sheet (PDF)	A page per panel for the shop

WATCH: EXPORTING

Marine layer plan

LAYER	FOR
Control points	The six screw-head points
Pad outline	Finished panel edge
Dash / console	Panel faces and cutouts
Hatch	Hatch openings and lids
Fittings	Cleats, holders, fills
Drains	Drains and scuppers
Panel breaks	Where panels meet
Snaps	Cover fasteners
Notes	Text and dimensions

Groove patterns and logos are designed in the office on top of the outline. Keep them off the field layers.

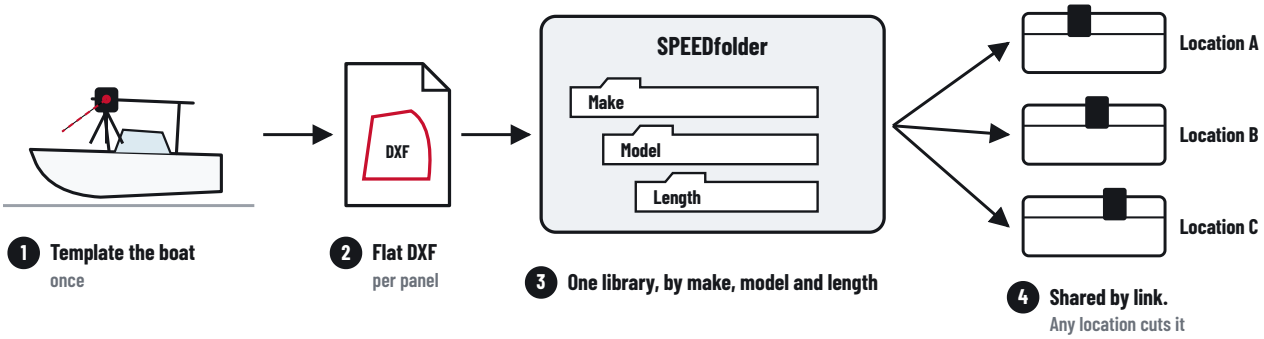


On the boat. The iCS50 aft on the deck, Moving Platform Mode on; the VPen on a pad corner; each pad its own flat panel for the cutter.

MARINE

Keep the file, not the pattern

Every boat templated once is a file the shop can cut again. For shops with more than one location or a dealer network, one library serves every location.



Same model comes in? Open the saved file, check it against the boat, then cut. No new pattern.

Every boat, saved

- Save every boat's files to the job in SPEEDfolder, named by make, model and length.
- Same hull model? Start from the saved DXF instead of templating from scratch, and check it against the boat.
- Replacement treads years later come from the same file.
- Handrails and trim: capture every fixing point where it really is, then design the part in CAD to meet each one.

NOTE Once you've digitally measured it, it means you don't have to keep these patterns. If you've got 50 of the exact same, once you've done it once you can just keep printing those out.

TIP Send your first few marine exports to SPEEDtemplate support for a quick review before cutting.

Sharing with another location

1. Open the job in SPEEDfolder and tap **SHARE**.
2. Turn on the files and photos, then send the link.
3. The link opens in any browser. No app, account or password.

Before cutting from a saved file

- Check a few key edges on the boat against the file.
- Hulls from the same mold still differ in fittings, hatches and options. Capture whatever is different.
- Save the checked boat as its own job, so the library keeps growing.

Owner sign-off

Go over these with the owner before leaving. Take a photo of this page and save it to the job in SPEEDfolder.

Owner _____ **Boat make / model / length** _____

Marina / slip or location _____ **Areas to cover** _____

Material and color _____ **Thickness** _____

Groove pattern _____ **Logo or name** _____

Panel breaks approved _____ **Hatch lids included?** _____

Fittings to cut around _____ **Install date** _____

TIP Not sure where a pad should stop? Capture both edges, then decide with the owner and the boat company from the 3D view before anything is cut.

Notes

Owner signature _____ **Templated by / date** _____

Canvas sign-off

Go over these with the owner before leaving. Take a photo of this page and save it to the job in SPEEDfolder.

Owner _____ **Boat make / model / length** _____

Product: dodger, bimini, enclosure, cover _____ **Fabric and color** _____

Window material _____ **Zippers: where and which way** _____

Roll-up or removable panels _____ **Fasteners: snaps, twist locks, track** _____

Frame changes needed? _____ **Clearance needed (standing height)** _____

Logo or name _____ **Install date** _____

Notes

_____

_____

_____

_____

Owner signature _____ **Templated by / date** _____

MARINE

Photo shot list

Photos answer the questions the shop would otherwise call about. Take them in SPEEDfolder and tag them.

- [ ] The whole boat, bow and stern
- [ ] Each deck area from above
- [ ] Every hatch, open and closed
- [ ] Every fitting, close up
- [ ] The dash and console, straight on
- [ ] Existing decking or damage (tag Before or Issue)
- [ ] Control point screws, close up
- [ ] Hull number or registration, for the job record

Photo notes

PRACTICE

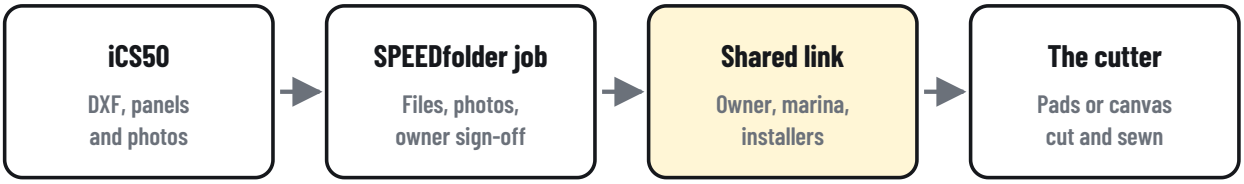
Marine quick reference

Keep this page with the iCS50.

STEP	DO THIS
Where the iCS50 goes	On the boat for deck, dash and canvas: **Moving Platform Mode on**. On the ground, leveled, for hull sides: Moving Platform Mode off
First	Six control points on screw heads, or V-Targets. Before anything else
Job	New **3D** job named for the boat and owner. A layer per part. A plane per area: three points, far apart
Corners and straight runs	Single points
Curves	**Trace**: long-press Measure, tap once to stop. Then **Smooth › Lines & Arcs**
Round things	**Create › Circle**, three points on the rim
Tip out of sight	Keep the pen ball in view; the head tracks the ball
Step above, or a dark hold	Laser for the step. Automatic Spotlight in the dark
Edges	Non-skid border, the end of the flat at a cove, the deck under a lip, one line down a hatch gap
Finish	**Fillet** to at least the router radius, **Join**, **Offset** (1/8 in tolerance, 1/4 in inset)
Export	2D DXF per area, CNC DXF, 3D DXF for canvas, Shop Sheet. Labels off
Keep it	Save to the job in SPEEDfolder by make, model and length, with photos and the sign-off
Stuck?	SPEEDtemplate support: 919-676-2244, support@fifthgeartech.com

Run the job on SPEEDfolder

No job system yet? SPEEDfolder comes with the iCS50 and is already on the tablet. One place for every boat, owner and photo.

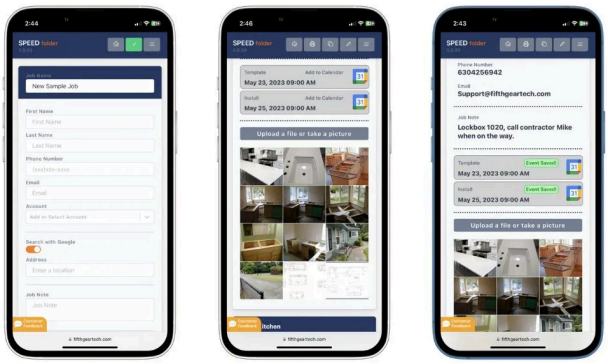


What goes on the job

- One job per boat: the owner, the boat, where it is kept, the DXF and the sign-off.
- Photos of every area, fitting and snap, tagged by area.
- Existing damage tagged **Before**, so nobody argues about it later.
- The office sees each photo as it is taken.

Who sees it

- Text a job link to the owner, the marina or the install crew. It opens in any browser: no app, no account, no password.
- No charge per user. Add the whole crew.



SPEEDfolder on a phone: the job, its events and its photos.

NOTE SPEEDfolder runs the job, not the money. Quotes and invoices stay in the shop's own system.

TIP SPEEDfolder is included with the iCS50. Call SPEEDtemplate support to set it up: 919-676-2244.

WATCH: EXPORT TO SPEEDFOLDER

SCAN: SPEEDTEMPLATE.COM

Notes

SPEEDtemplate

MARINE GUIDE



Need a hand on a marine decking and canvas job?

919-676-2244

support@fifthgeartech.com

GENERAL GUIDE
How the iCS50 works

INDUSTRY GUIDE
What to capture in the industry

INDUSTRY WORKBOOK
Learn it by doing it

Leica GEOSYSTEMS

The Leica iCON iCS50, sold, set up and supported by SPEEDtemplate.

Marine Decking and Canvas Guide · Edition 1.0 · October 2026

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