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Anchoring and Anchor Watchkeeping Handout

This handout summarises the key knowledge and decision-making principles students need for effective revision and practical application. It is intended to complement, not replace the complete course materials.

Anchoring Principles and Equipment

Worked Example: Brake Slips

Here is a worked response to a slipping anchor brake. The ship is moving astern, and the cable continues to run. The bridge stops the planned anchoring evolution and controls the vessel. At the forecastle, the team stays clear of the moving cable and reports the amount that has run. The master needs the vessel position, cable length, equipment condition, nearby hazards and the team's safety before agreeing a new plan. Nobody should try to catch or restrain moving gear by hand. Use the vessel's anchoring procedure and the equipment instructions.

Brake slips while the vessel moves astern

1

OBSERVE

The brake slips. Cable continues to run as the ship moves astern.

2

STOP THE EVOLUTION

Bridge controls vessel movement. Forecastle team stays clear of moving cable.

3

REPLAN WITH THE MASTER

Confirm cable length, brake condition, sea room and team safety before deciding what to do next.

Check: cable run • vessel movement • clear zone • brake and stopper condition

Checklist: Stop the sequence, keep clear of the cable, establish the ship's position and brief the master.

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Holding Ground Scope and Cable

Worked Example: Calculating Cable to Veer

Illustrative data: water depth 22 m, predicted tide 2 m and hawse height 8m. Effective height H is 32 m. At an illustrative 5:1 starting scope, $L = 5 \times 32 = 160$ m. Six 27.5 m shackles are about 165 m; the actual ratio is $165 \div 32 = 5.16:1$. Choose the actual scope under the master's plan after checking weather, ground, vessel movement, equipment and available room.

MODULE 02 · A WORKED METHOD

Calculate cable before rounding to shackles

Cable to veer (L) = chosen scope ratio (k) × H

1 Find H
22 m depth + 2 m tide + 8 m hawse
H = 32 m

2 Apply scope
Illustrative starting ratio: 5 : 1
L = 5 × 32 = 160 m

3 Round up
1 shackle ≈ 27.5 m
160 ÷ 27.5 = 5.82

Veer 6 shackles ≈ 165 m → actual scope = 165 ÷ 32 ≈ 5.2 : 1

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Checklist: confirm water depth, tide, hawse height, chosen ratio, shackles and room to swing.

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Letting Go and Heaving Up

Worked Example: Letting Go is Paused

Consider the vessel nearing the chosen drop position when the forecastle reports that the brake condition is uncertain. The forecastle repeats the report and keeps people away from the running path. The bridge holds the vessel clear, stops the letting-go sequence and tells the master. After a competent inspection, the bridge and forecastle agree whether a new approach is safe. They confirm the brake, speed, traffic, drop position and exact orders before resuming. Missing the original drop point is preferable to acting on an uncertain brake condition.

Brake condition uncertain at the letting-go point

1

REPORT

Forecastle reports that the brake condition cannot be confirmed.

2

HOLD CLEAR

Bridge holds the ship clear. The team pauses the letting-go sequence.

3

REBRIEF THE APPROACH

Confirm brake state, ship speed, traffic, new drop point and readiness before a fresh approach.

Check: read-back • speed • equipment • drop position • team readiness

Checklist: read back the report, keep clear, confirm the brake, then rebrief a new approach.

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Dragging Indicators and Response

Worked Example: Two Radii

For clearance planning, the example safety swinging radius is 220 m maximum usable cable + 100 m vessel length + 185 m allowance = 505 m. For drag monitoring, the nominal radius is 165 m cable actually veered + 75 m hawse-to-position-reference offset = 240 m. Both circles are centred on the plotted anchor position; the vessel's position uncertainty and actual procedure require separate consideration.

MODULE 04 · NUMERICAL EXAMPLE

Work both radii from the same anchor position

SAFETY SWINGING CIRCLE	DRAG-MONITORING CIRCLE
220 m maximum usable cable	165 m cable actually veered
100 m vessel length	75 m hawse to tracked point
185 m safety margin	
Radius = 505 m	Nominal radius = 240 m

Plot the anchor centre accurately; add position tolerance under the ship's procedure.

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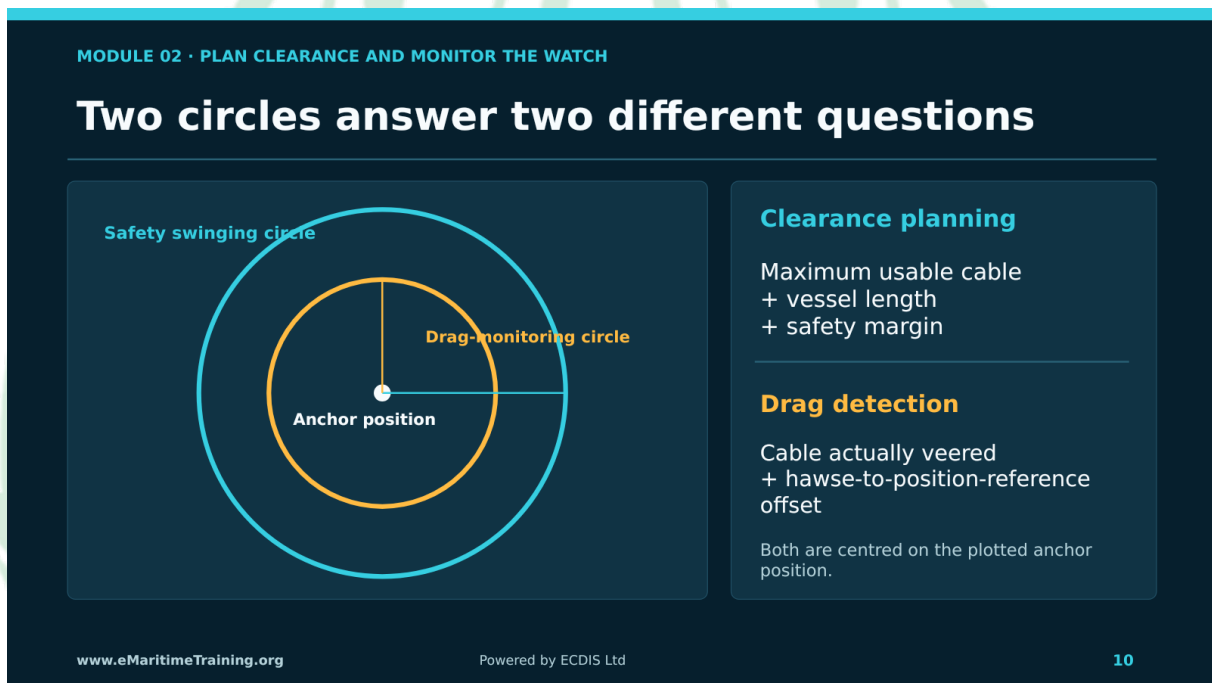
Checklist: plot the correct anchor position; distinguish maximum cable from cable veered; apply the vessel's position tolerance.

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Weather Traffic and Swinging Room

Worked Example: Diagram Swinging Room and Drag Monitoring

The larger circle is used to check room for the ship to swing, allowing for the maximum cable that could be used, vessel length and a safety allowance. The smaller circle is a nominal monitoring boundary based on cable actually veered and the offset to the position reference. Plot both from the anchor position and check the vessel's approved monitoring method.



Checklist: verify the anchor position, charted hazards and the ship's actual position tolerance.

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Emergency Anchoring and Records

Worked Example: Lee shore

In this example the anchor begins to drag toward a lee shore. The bridge checks the track using independent fixes, then calls the master early. The team checks nearby traffic and available sea room and keeps propulsion ready in accordance with the ship's plan. More cable is not automatically a safe solution when there is little room to swing. The master decides whether to use propulsion, weigh anchor or move to an alternative berth. The bridge briefs the forecastle and records the observations and decisions.

Anchor drags toward a lee shore

1

VERIFY THE DRAG

Independent fixes confirm movement beyond the expected position trend.

2

ESCALATE EARLY

Call the master. Check traffic, available sea room and engine readiness.

3

KEEP A WAY OUT

Master decides on propulsion, weighing or moving to a safer berth. Brief the forecastle.

Check: independent fixes • sea room • traffic • propulsion • alternative berth

Checklist: verify movement independently, alert the master early, preserve sea room and brief the forecastle.

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Module technical checkpoints

Use each checkpoint with the module decision map. Confirm the current ship procedure, equipment limits and operating conditions before taking action.

Module	Worked action	Evidence and decision
1. Anchoring equipment holding power and limitations.	Stop the evolution.	Confirm cable length, brake condition, sea room and team safety before deciding what to do next.
2. Selecting an anchorage and calculating cable.	Calculate cable before rounding to shackles.	Cable to veer (L) = chosen scope ratio (k) × H. Veer 6 shackles ≈ 165 m → actual scope = $165 \div 32 \approx 5.2 : 1$.
3. Approach letting go weighing and communications.	Hold clear.	Confirm brake state, ship speed, traffic, new drop point and readiness before a fresh approach.
4. Anchor watch and dragging response.	A fix at 260 m is past the 240 m nominal movement limit.	The 505 m clearance screen does not prove the anchor holds. A fix at 260 m is past the 240 m nominal movement limit.
5. Worked anchoring plan and emergency scenarios.	Escalate early.	Master decides on propulsion, weighing or moving to a safer berth. Brief the forecastle.

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Anchoring and Anchor Watchkeeping Key Checklist

Vessel or workplace	Date	Completed by	Reviewed by

Prepare

- ☐ Confirm scope, authority and applicable current procedure.
- ☐ Identify hazards, operational limits and interfaces.
- ☐ Confirm competent people, equipment, communications and contingency.
- ☐ Brief roles, stop criteria and reporting expectations.

Execute

- ☐ Follow the approved sequence and verify critical steps.
- ☐ Maintain situational awareness and challenge unexpected conditions.
- ☐ Stop, make safe and escalate when limits or assumptions are no longer valid.

Monitor

- ☐ Use objective indicators and independent checks where appropriate.
- ☐ Record significant events, deviations, decisions and communications.
- ☐ Manage fatigue, workload and handover.

Close out

- ☐ Verify safe restoration or completion.
- ☐ Account for people, equipment and records.
- ☐ Debrief, report defects and assign corrective actions with effectiveness checks.

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Anchoring and Anchor Watchkeeping Pre Task Briefing Checklist

Vessel or workplace	Date	Completed by	Reviewed by

- ☐ Objective and scope understood.
- ☐ Applicable procedure and current information available.
- ☐ Authority and responsible person confirmed.
- ☐ Hazards, limits and interfaces identified.
- ☐ Roles, communications and cross checks agreed.
- ☐ Equipment, PPE and contingency ready.
- ☐ Stop criteria and emergency actions understood.
- ☐ Fatigue, workload and environmental conditions acceptable.
- ☐ Questions answered and understanding confirmed.

Briefing record

Name or role	Responsibility	Question or concern	Confirmation