

PRE-DIVE CHECKS (Power-LEAPS)



Technical diving is an equipment-dependent sport with complicated planning and in-water procedures. If divers can ensure that the team begins the dive with perfectly functioning gear and a clear understanding of the dive plan, most dangerous gear failures and dive plan errors can be avoided. Pre-dive checks are one of the most important things you can do to ensure successful dives.

☐ KEY POINT 1: CHECK YOUR BUDDIES!

Checks are done as a team, emphasizing checking your teammates to ensure they have not made mistakes with gear or dive planning. Consider that if your teammate has an issue underwater, you have to help them, which may ruin everyone's dive. Your teammates should have the same mentality when checking you.

☐ KEY POINT 2: TEAM MENTALITY

All gear and planning errors are team failures if not corrected. If you let a buddy dive with a gear issue or a bad dive plan, it's your fault, too.

THE BIG PICTURE: Power-LEAPS

It is important to have this memorized before starting your course. Be warned, this is a lot of information and you must have it mastered before certification.

Keep in mind that certain items are not listed in checks below, as they have been reviewed with the team before entering the water such as arm, thigh pocket, and butt pouch (sidemount) accessories. Masks, fins, and hood should be donned before beginning any checks.

The pre-dive checks are broken down into six basic categories, which should be completed in order. When learning the pre-dive checks, it's best to commit the categories to memory first, and then fill them in when you have the categories memorized. If you are an acronym person, you can use the mnemonic **power-LEAPS**. The categories are:

Power-LEAPS

- ☐ Powered items
- ☐ Leak check
- ☐ Equipment matching
- ☐ Accounting (numbers)
- ☐ Plan/visualization
- ☐ Signs/signals



PRE-DIVE CHECKS (Power-LEAPS)

1. POWERED ITEMS

As a technical diver, you will be taking electronic items underwater. If there is one thing that can be certain when using technology underwater, it is that it will, at some point, fail. This is not to disparage equipment manufacturers. It's just the reality of the situation.

Powered items must be checked before every dive in the water. For example, a back-up light that functioned on land might flood upon submersion, rendering it unusable during the dive. You will not catch this if you do not check the light underwater. The same goes for all other electronic items.

Checking powered items in the water before anything else has several benefits.

- The diver can immediately exit the water before putting any additional gear on (stages, side-mount tanks, etc.). This saves time.
- If a diver catches a leak quickly, it's possible to save the powered item before it fully floods and the lithium battery explodes.

Teams should check the following powered items on every dive:

❑ Lights

Check a minimum of two back-up lights and your primary light underwater. Turn each light on and verbally confirm that your team can see it. Be sure to hold each light in front of you and bubble-check it.

❑ Computers

Check five things with the computer:

1. Computers turn on/ have sufficient power
2. Correct gasses selected/active
3. Transmitters have comms if applicable
4. Compass calibrated (where's north?)
5. Gradient factors/conservatism settings

It's important to check these in the water because it's easy to accidentally nudge a button when entering the water and change a setting. Checking the compass heading before starting your dive will help you establish a sense of orientation as a standard operating procedure before the dive. Be sure to bubble-check your computers!

It's helpful to review these parameters in whatever order they appear on your computer screen, using the screen as a visual cue for each parameter.

❑ Other items

Check any other powered items for function and lack of bubbles. For example, take a test shot with your camera and check camera lights, scooters, scientific equipment, and survey devices before you put on any other gear.

SIDEMOUNT DIVERS/ MIXED TEAMS

Sidemount divers should don their tanks at this point. For sidemount divers, it makes sense to check powered items before donning tanks because they would need to remove their tanks to get out of the water and repair or adjust any electronics that did not pass checks. Backmount divers simply need to remove their fins and walk out of the water.

In a mixed team of sidemount and backmount divers, all divers enter the water at the same time, don their fins and masks, and then immediately check powered items. The backmounters then wait while the sidemounters don their tanks in the water.

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2. LEAK CHECK

In the cenotes, we have the luxury to float calmly on the surface without the need to descend quickly, so we can take the time to check for and solve leaks before descending. In other diving scenarios, such as hot drops for wreck diving, choppy waters, or very low visibility, it may be more logical to leak check underwater during the descent.

There is a zero-tolerance policy for major leaks in technical diving. It is required to get out of the water and fix any significant leaks before continuing. The leak check is composed of two parts: a valve check and a bubble check.

☐ Valve Check

Show that all your valves are fully open, and check that your teammates' valves are fully open, including the manifold for backmount divers.

If your valves were closed and you had a leak, it could depressurize the regulator. No bubbles would escape during the leak check because the regulator is not pressurized, and the leak would not be visible.

☐ Bubble Check

Submerge all pieces of your equipment in the water. Your teammates should visually scan you for leaks and quickly confirm that all gear looks to be in place. Repeat for each team member.

3. EQUIPMENT MATCHING (OVERVIEW)

Lead the equipment matching in the *exact* same order each time. Otherwise, it's easy to skip a piece of gear. The most efficient order we've found is listed below – as it works regardless of gear configuration. If you have a different equipment matching order, it's okay to use it, provided that you mention all the points listed below and do your equipment matching in the same order each time.

Remember, the point of equipment matching is to check your teammate's gear. Your attention should be on them.

The diver leading the pre-dive checks walks the team through the equipment-matching piece by piece, stating each item's location and showing team members that the item functions. Team members check the same piece of gear and answer with one of four verbal responses shown to the right:

1. "Check"

The item is functional and in the same location.

2. "Check" + location

The item is functional and in the stated location.

3. "Don't have it"

The teammate does not have the item, and that's okay (an example would be a primary reel, which only the team leader carries in cave diving).

4. "🔧🔧🔧🔧"

The item is not working. Go fix it.

If you are an acronym person, use **TARA** to remember the equipment-matching steps.

TARA

- ☐ Tanks
- ☐ Attachment Points
- ☐ Regulators
- ☐ Accessories



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3. EQUIPMENT MATCHING STEP-BY-STEP (TARA)

The suggested order for the equipment matching step of Power-LEAPS follows the acronym **TARA**.

☐ Tanks

State the **volume** and **breathing gas** in your tanks, for example: "I have sidemounted aluminum 80's filled with 32% nitrox." This step is a placeholder for when you are doing mixed-gas diving and need to review multiple cylinders filled with different mixes and confirm their position.

☐ Attachment points

- **Backmount:** confirm that the waistband is secured through the crotch strap loop and that the buckle is positioned correctly.
- **Sidemount:** check three things:
 1. **Bungee:** visually confirm the tank bungee is correctly routed around the tank valves.
 2. **Tank clips:** visually confirm the tanks are clipped to the desired hip D-ring
 3. **Long hose position on the tank:** the long hose is behind the right tank clip and not trapped in it.
- **Stages/deco cylinders:** check the top and bottom attachment points for each tank.

☐ Regulators:

Start with the left first stage and check everything coming off of it. Then, move to everything coming off the right first stage. Finally, check stage or deco cylinder regs if present.

• Left first stage

1. **Short hose:** breathe at least three times underwater to confirm function.
2. **LPI hose:** the LPI hose on your left first stage runs to either your drysuit or wing. For the wing, check that the wing inflates and deflates from the k-inflator, orally inflates, and vents from the wing dump valve. If you have a manual back-up wing, check it at this time. For the drysuit, check that it inflates and deflates.
3. **Pressure gauge:** confirm that your pressure gauge is accessible and legible.

Continuing to the right first stage:

• Right first stage

1. **Long hose:** two checks are required for the long hose: (1) breathe it three times underwater, and (2) show your buddies that it can be deployed.
 2. **LPI hose:** depending on your configuration, you may or may not have an LPI hose on your right first stage. If you do have one attached to your wing or drysuit, check it as you would on the left side.
 3. **Pressure gauge:** if you use sidemount, you have a pressure gauge on the right side. Check it using the same process as the left side
- **Stages/deco cylinders:** check everything coming off the first stages in a similar manner.

☐ Accessories

Most accessories have already been checked during dry checks/electronics checks and can be assumed to work. However, line cutters on the harness and items clipped to the butt D-ring may have become entangled/ loose during the previous checks.

- **Line cutter:** if not inside a pocket/pouch, touch the line cutter to confirm it's still velcroed down and not coming out of the pouch.
- **Butt/ hip D-ring items:** unclip each item, show it to your teammates, and return it to position.
- **Sidemount pouch:** tug the pouch to make sure it's still clipped.
- **Anything else?** check that there's nothing you missed or that your buddies have that you do not.

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4. ACCOUNTING (NUMBERS)

The “accounting” refers to the numbers portion of Power-LEAPS. State these clearly and concisely before each dive and get confirmation from your teammates. **Write the accounting on your slate or wetnotes in advance as a reference.** There are five key points.

- ☐ Gas plan
- ☐ Max and average depth
- ☐ Time (turn and total time if cave diving)
- ☐ Stops/no stops
- ☐ Direction of travel

5. PLAN/VISUALIZATION

The plan or visualization is a verbal “walk-through” of the dive. It should include team order, the tasks each team member is expected to complete (such as who releases the SMB in open water), and key navigation points (such as intersections in cave diving). The level of detail depends upon the team members’ familiarity with each other. With new teammates, explain procedures you have not yet done together in detail.

6. SIGNALS

Review signals with a new team and periodically throughout a dive trip to aid with clear communication. Always review signals that will be used during your planned dive. The standard hand signals are listed here, but don’t panic! **You do not need to have the list memorized to pass entry-level training.** Be familiar with the signals. If your team has difficulty with hand signals during a dive, write on your slate or wetnotes.

☐ Command signals

- End the dive
- Okay
- Exit direction
- Hold

☐ Swimming/movement

- Direction of travel
- Come up/go down
- Slow down/speed up
- Switch positions
- Turn around

☐ Cave line and navigation (cave diving only)

- Line
- Tie off
- Jump
- T-intersection
- Restriction

☐ Gear

- Lights
- Mask
- Line cutter
- Tank
- Valve
- Bungee
- Clip
- Wing
- Pressure gauge
- Reel/spool
- Personal marker
- Slate/write
- Dive-specific tools

☐ Problems

- Broken
- Simulated failure
- Not okay
- Out of gas
- Dangling
- Pick up/put down
- Bubbles
- Open/close (valve)
- Feather
- Entanglement
- Silt
- Stuck
- Cramp
- Question
- Yes/no

☐ Numbers

- Zero through nine

☐ Deco/safety stop

- Deco stop
- Level off/safety stop
- Go up to next stop
- Final ascent

☐ Additional signals for advanced diving