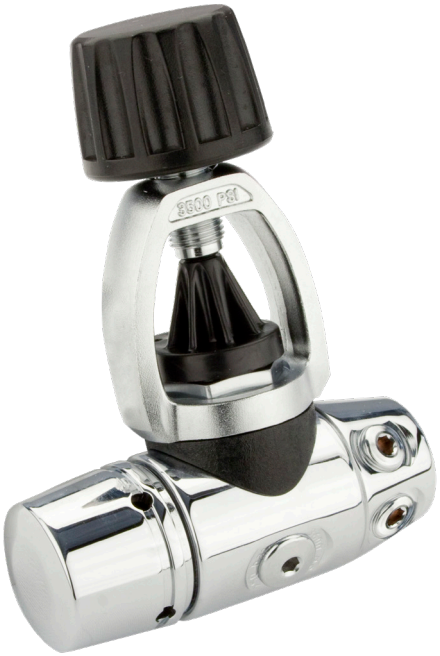
User Guide For

SuperFlow® First Stage Scuba Regulator Assembly

(Regulator P/N 305-161)



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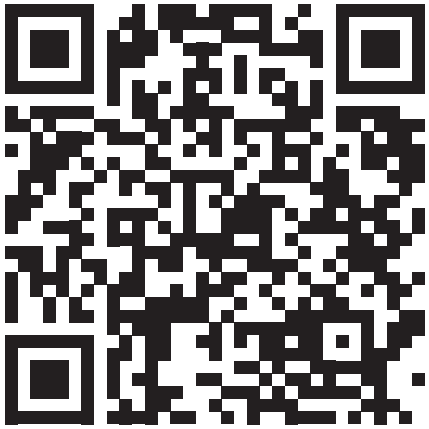

WARRANTY

https://www.kirbymorgan.com/support/warranty

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Definitions of Signal Words Used in this Guide

The original language of the Kirby Morgan Manuals is English. Translation into other languages will be provided upon request. KMDSI may charge a fee for these services.

Throughout this user guide we will use certain words to call your attention to conditions, practices or techniques that may directly affect your safety. Pay particular attention to information introduced by the following signal words:

⚠ DANGER

This word indicates an imminently hazardous situation, which if not avoided, could result in death or serious injury.

⚠ WARNING

This word indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

⚠ CAUTION

This word indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

This operation user guide contains important safety information and should always be available to those personnel operating this equipment. Read, understand, and retain all instructions before operating this equipment to prevent injury or equipment damage.

If you sell or loan this equipment to another person, be sure that this user guide accompanies the gear when you transfer possession to them.

It is important for the user of this equipment to understand that we at Kirby Morgan consider ourselves to be only a part of the process of diving equipment design. We welcome and encourage all input from our customers. Our goal is to provide the highest quality diving equipment and service possible. If you have any questions or comments, please feel free to contact us at (805) 928-7772 or visit our web site at www.kirbymorgan.com.

⚠ CAUTION

By using this equipment the diver acknowledges that he has read and completely understands the instruction manual provided with it, and hereby agrees to hold harmless Kirby Morgan Dive Systems, inc. from any accident, malfunction, or other event arising from the misuse of the equipment, or from any lack of, or incomplete understanding of its operation and function.

⚠ DANGER

This scuba regulator assembly has not been designed or tested for use with breathing gas mixtures containing greater than 40% oxygen.

Do not use this regulator assembly with breathing gases containing more than 40% oxygen. Use with gas mixtures containing in excess of 40% oxygen could lead to fires or explosions.

⚠ WARNING

The maximum approved depth for the use of this equipment is 50 meters (164 FSW) @ 62.5 RMV (heavy work load). Do not exceed this limit. The use of open circuit scuba at depths below 164 FSW poses extreme risks including out-of-air emergencies and decompression sickness, which can lead to serious personal injury or death.

⚠ DANGER

Never use solvents or aerosol sprays on our around the regulator assembly. Certain solvents and propulsion agents attack and damage rubber and certain plastics. This could lead to regulator failure. Drowning could result.

This user guide gives basic daily operational information for the Kirby Morgan® SuperFlow® First Stage Scuba Regulator.

Before each use, the regulator assembly should be carefully checked and submitted to the operational tests. Never dive with a regulator showing any signs of deterioration or a below normal performance.

⚠ CAUTION

Always allow pressure to build up slowly in the regulator by turning on the cylinder valve slowly.

Use only silicone grease on the rubber components. Never grease the parts of your regulator with a lubricant containing hydrocarbons, household oil, or motor oil.

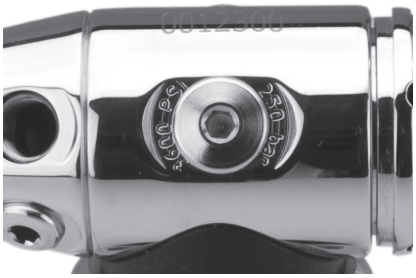
Cold Water Diving

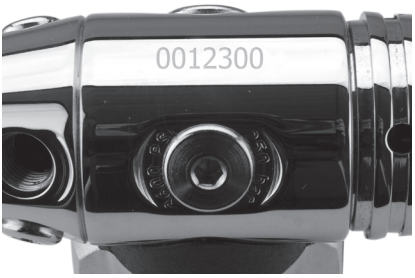
Before diving in cold water (water temperature below 10 °C/50 °F), the diver should be trained and have mastered the techniques of cold water diving, learning techniques and all precautions necessary to avoid freezing of the regulator. All of this is included in the training programs of organizations offering courses in diving in cold water or under ice. You should also use equipment intended for this purpose.

In order to reduce the risks of regulator freezing when diving in cold water (below 10 °C), consider doing the following:

1. Protect your regulator from any water entering.
2. Protect your equipment from cold before the dive. Keep your regulator and all its accessories in a warm dry place.
3. Carry out all pre-dive checks of your equipment in a warm dry place if necessary, before even going to the dive site.
4. Check that the air used to fill your cylinder is dry. The water vapor contained in this air should have a condensation point below -54 °C. Excess water vapor can freeze, causing a free flow, or blocking the air flow completely.

Working Pressure & Serial Number Location





On the bottom part of the 1st Stage the Working Pressure is reported in “PSI” and “Bar“. The serial number is printed on the frame.

1st Stage Scuba Regulator and 2nd Stage Regulator Maximum Work Pressure

REGULATOR	PSI	BAR
1st Stage	145	9.99
2nd Stage	150	10.34

Divers Work Rate Expressed as Respiratory Minute Volume (RMV)*

WORK LOAD	RMV	CUBIC FEET/ MINUTE (CFM)	EQUIVALENT LAND BASED EXERCISE
Rest	7–10 RMV	0.2–0.35 CFM	
Light Work	10–20 RMV	0.35–0.7 CFM	Walking 2 miles per hour
Moderate Work	20–37 RMV	0.7–1.3 CFM	Walking 4 miles per hour
Heavy Work	37–54 RMV	1.3–1.9 CFM	Running 8 miles per hour
Severe Work	55–100 RMV	1.94–3.5 CFM	

** source: U.S. Navy Diving Manual*

First Stage Regulator Transport and Storage

- The kind of package is a plastic bag that is sealed;
- The weight of the bag is usually 2 pounds (.9 Kg);
- The package dimension is 6 × 12 inches (152.4 × 304.8 mm);
- One regulator is packed per bag;
- The regulators are sent to dealers by air or truck, depending on dealer request.

Kirby Morgan SuperFlow First Stage Scuba Regulator (P/N 305-161)

Thank you for choosing a Kirby Morgan product, the SuperFlow First Stage, P/N 305-161.

Your new first stage regulator has been designed and manufactured with pride, according to Kirby Morgan's world renowned exacting standards for quality and performance.

The SuperFlow First Stage regulator offers exceptionally high air flow with a minimum pressure drop. The balanced piston design ensures a minimum cracking pressure and a minimum pressure drop across the entire breathing cycle. It has four standard low pressure outlets plus one "straight through" high flow port designed to be used with an optional big bore low pressure hose. Two high pressure ports are standard as well.

Provided it has been purchased new from an Authorized KMDSI Dealer, your regulator assembly is covered by KMDSI's Limited Warranty. Be sure to read and fill out the warranty card completely and register your purchase online at www.kirbymorgan.com within ten (10) days of purchase. Also save your sales receipt. A copy of your receipt must be presented whenever obtaining warranty service.

Perhaps more than any other piece of diving equipment, your regulator's function and performance relies greatly on the care and maintenance it receives, in addition to regularly scheduled dealer service. Before you dive with your new Kirby Morgan regulator, it is important to read this guide in its entirety; to become familiar with its features, as well as the correct procedures for setup, pre-dive inspection, and post-dive maintenance.

General Precautions and Warnings

Before using this regulator assembly, you must have successfully received training and certification in the technique of scuba diving from a recognized certification agency (or any U.S. Military or government operated diving school).

Use of this equipment by a person who is not certified by a recognized agency shall render all warranties, express or implied, null and void. Use of scuba equipment by uncertified, or untrained persons, is dangerous and can result in serious injury or death.

⚠ WARNING

Never lubricate any part of the regulator or cylinder valve with any lubricant. Lubrication must only be performed by a KMDSI factory trained technician. Improper lubrication can lead to regulator malfunction. Drowning can result.

⚠ CAUTION

Do not use the regulator first stage as a carrying handle when lifting or transporting the cylinder. Always lift the cylinder by the cylinder valve handle without the regulator attached. The regulator can be damaged if you use it to lift the cylinder.

⚠ CAUTION

Factory prescribed service for this regulator assembly must be performed at least once each year by a factory trained technician. Repair, service, disassembly, or first stage adjustment must not be attempted by persons who are not factory trained and authorized by KMDSI.

⚠ CAUTION

Do not leave a cylinder standing unsecured with the regulator attached to the valve. Doing so may cause permanent damage to the regulator and cylinder valve if the cylinder falls over against the first stage.

Preparation and Setup

KMDSI recommends that you bring your regulator assembly to your Authorized KMDSI Dealer for the installation of any accessory items, including instrumentation, LP quick disconnect hoses, and alternate air sources. Your dealer can also answer any questions you may have pertaining to the information in this guide.

Mounting the First Stage Onto the Cylinder Valve (Yoke Connector)

1. Inspect the cylinder valve O-ring for any wear or damage.
2. Partially unscrew the yoke screw of the first stage regulator so that the protector cap can be removed from the filter and air inlet.
3. With the cylinder valve facing away from you, release a small amount of air from the cylinder. When air is heard exiting, immediately close

the valve. This will clear any moisture or debris that may be inside the cylinder valve outlet opening.

4. Place the first stage regulator over the cylinder valve so that the inlet fitting aligns with the O-ring of the cylinder valve and your hoses are routed correctly. While holding the first stage in place, turn the yoke screw clockwise. Ensure that the yoke screw mates into the small dimple on the backside of the cylinder valve, and tighten finger tight only.

5. If a submersible pressure gauge is attached to the first stage, ensure that the gauge is facing away from you. Pressurize the regulator by slowly turning the cylinder valve handwheel counter-clockwise. Continue turning the cylinder valve hand wheel counter-clockwise until it is fully open, and then turn back clockwise ¼–½ turn.

6. Listen near the first stage to check for any leakage. If leakage is detected, immerse the first stage and cylinder valve while pressurized to determine the source.

7. If leakage has been detected, follow the procedure for removing the regulator from the cylinder valve. If air was leaking between the first stage and cylinder valve, replace or reseat the cylinder valve O-ring as needed and repeat the above procedure. If leakage persists, do not dive with the regulator! Return the regulator to a KMDSI Dealer.

Pre-Dive Checkout

Before each use, the regulator assembly must be given a thorough visual inspection and functional test. **NEVER** dive with a regulator that shows signs of damage, or provides substandard performance until it has received complete inspection and service from an Authorized KMDSI.

Inspection Checklist:

1. Remove the dust cap and closely inspect the condition of the first stage filter. It should appear clean and free of any corrosion or discoloration. If a green residue is visible on the surface of the filter, moisture has entered the first stage and may have caused corrosion to begin forming inside which can seriously impair the regulator's performance.

Other colored residue may indicate that the regulator has been used with an internally corroded aluminum (white/ gray powder) or steel (rust) cylinder. In this event, the cylinder in question should be returned to the dive store for internal visual inspection.

⚠ WARNING

If discoloration or contaminant residue is found to be present on the surface of the first stage filter, do not dive with the regulator until it has received factory prescribed service from an Authorized KMDSI Dealer. The presence of contaminants could cause the regulator to malfunction, leading to serious personal injury or death.

2. Prior to each use, the regulator assembly must be given a thorough visual inspection and functional test. Carefully inspect all hoses at their fittings to ensure they are securely connected into their respective ports on the first stage.

If hose protectors are present, slide the protectors back to expose the hose fittings, and inspect the fittings. Inspect the length of each hose to ensure that the hoses are not blistered, cut, or otherwise damaged.

3. Visually inspect the first stage regulator for any signs of external damage.

After the Dive

If fresh water is available, rinse your regulator completely while it is still connected to the tank before depressurizing it. This helps to prevent any contaminants from entering sealing surfaces inside the regulator. If this is not possible, follow the procedure for removing the regulator assembly from the cylinder valve (below) and then rinse.

Removal of the Regulator Assembly from the Cylinder Valve

1. Shut off the cylinder air supply by turning the cylinder valve hand wheel clockwise until it stops.

2. If using the first stage with a 2nd stage scuba regulator, while observing the submersible pressure gauge, depress the purge button of the second-stage. When the gauge reads zero and airflow can no longer be heard from the second stage, release the purge button. If no 2nd stage scuba regulator is present, make sure to relieve the remaining pressure to the first stage.

3. Turn the yoke screw counter-clockwise to loosen it and remove the first stage from the cylinder valve.

4. Dry the dust cap (protector cap) with a towel or other lint-free cloth. While you may use air from your tank valve to blow water off the dust cap, you run the risk of blowing out the dust cap O-ring and losing it.

5. Place the dust cap over the first stage inlet fitting and seal it securely in place by tightening down the yoke screw. Do not overtighten the cap.

Safety Precautions

⚠ WARNING

Use only genuine Kirby Morgan replacement parts.

⚠ WARNING

Unlike many of the other Kirby Morgan products, the First Stage should not be used with oxygen-enriched gas mixtures greater than 23% oxygen.

To ensure the best possible regulator performance and to avoid damage to regulator components, use only KMDSI original factory replacement parts.

To avoid damage to regulator components, only the correct size and type of tools should be used. The use of adjustable wrenches should be avoided whenever possible to avoid damage to soft brass parts.

Should you encounter technical difficulties in servicing a Kirby Morgan regulator, please contact Kirby Morgan or Dive Lab directly for assistance.

Specifications

First Stage Type: Balance Piston
Maximum Supply Pressure: 3500 PSIG
Intermediate Pressure: 135-145
Intermediate adjustment: Shim
Low Pressure Ports: 5
High Pressure Ports: 2
Body Material: Chrome plated brass

Routine Maintenance

Routine maintenance is the best way to ensure long regulator assembly life and optimum performance. All end users should be instructed in the proper procedures for regulator care.

Daily Pre-Dive Maintenance

1. Check the maintenance log to insure the regulator has been overhauled during the past 12 months.

2. Visually inspect the first stage to ensure all unused ports are plugged.

3. Visually inspect all hoses for signs of damage such as cracking, fitting slippage, cuts or abrasions.

4. Visually inspect all regulator components including submersible pressure gage, inflator hose and other components.

5. Visually inspect the first stage filter in the yoke for signs of dirt and corrosion.

6. With it attached to a scuba 2nd stage (or other piece of equipment to vent the residual pressure upon completion), attach the first stage regulator to a fully charged scuba cylinder. If an adjustable 2nd stage is attached, make sure the adjustment knob is rotated in clockwise. Slowly open the cylinder valve.

7. Listen for the sounds of air leaks. Perform accessory checks as necessary for the equipment in use.

Post Dive Maintenance

1. Secure the cylinder valve, depressurize the regulator assembly and remove it from the cylinder.

2. Whenever the Regulator is removed from the Scuba Cylinder, the Dust Cap should be dried and installed over the First Stage Inlet Port. It is very important to dry the Dust Cap to prevent water from the cap from entering the First Stage. Screw the regulator set screw down until snug and the rubber dust cap is slightly compressed.

3. At a minimum, the entire regulator should be thoroughly rinsed with fresh clean water after every dive. Mild hand washing type dish soap can be used to remove grime.

4. If possible, the first stage regulator should be soaked in fresh warm water, between 70–120 °F, for 15 minutes or longer. Soaking in warm water will remove salt and mineral deposits more effectively than a fresh water rinse alone.

5. Allow the regulator to dry completely before storage. Do not leave the regulator sitting in direct sunlight. Clean, oil-free, low-pressure (< 30 psig) (1.8 bar) air can be directed into the first stage sensing holes to help displace water. This is helpful if the regulator is to be packed for travel.

6. Ensure the regulator is completely dry before storing. Store only in a clean, cool, dry place.

⚠ WARNING

Never store the Regulator while still connected to a scuba cylinder. This could lead to damage of the regulator which may result in personal injury or death.

⚠ WARNING

DO NOT carry a Scuba Cylinder by the Regulator or Hose. This abuse will lead to damage of the Regulator or Hose failure. Hose failure can result in personal injury.

⚠ WARNING

DO NOT use cleaning solvents on any parts or components of this Regulator. The use of solvents may lead to failure of the Regulator parts.

⚠ WARNING

NEVER pressurize the First Stage without having a 2nd stage scuba regulator, or breathing apparatus with demand regulator (e.g. helmet or full face mask with demand regulator) attached.

Scheduled Maintenance

Do not assume that a Regulator is in good working order because of infrequent use. Prolonged or improper storage can result in O-ring deterioration or internal corrosion, resulting in poor performance.

1) The minimum maintenance suggested for all regulators is an annual inspection / soft goods overhaul by a qualified KMDSI technician. However, regulators that are used more than 20 times a month or under severely harsh environmental conditions should be serviced more often. For example, a regulator used as a rental or for training purposes may require service every two to three months or more. Whenever a regulator has been inactive for longer than three months, it should be carefully inspected and surface function checked prior to use.

2) The first stage sintered filter, located in the yoke assembly, should be

visually inspected on a regular basis. If a visual inspection reveals discoloration or obvious signs of dirt or corrosion, the regulator should be thoroughly serviced. In addition, the scuba cylinders used must be internally inspected and cleaned if necessary.

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Maintenance Record

DATE	DEALER NAME	TECHNICIAN

1430 Jason Way, Santa Maria, CA 93455
Phone: 805/928-7772 Fax: 805/928-0342
www.kirbymorgan.com E-mail: kmdsi@kirbymorgan.com