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CYRANO

PNEUMATIC AIR SPEARGUNS CYRANO



WARNING

CAREFULLY READ THIS INSTRUCTION MANUAL BEFORE USE, AND KEEP IT FOR FUTURE REFERENCE.

INTRODUCTION

Congratulations. You have purchased one of the finest Pneumatic Spearguns available in the world today. The end result of 25 years of "evolutioneering", your Mares CYRANO Pneumatic Speargun uses processes and materials that are the result of thousand of hours of research. These techniques are backed up with the assurance that every part of your Mares CYRANO Pneumatic Speargun was manufactured in our facility in Rapallo, Italy. This means reliability, a feature that's in high demand and found in every Mares product.



WARNING

Read this manual carefully. The improper use of any diving equipment can result in a serious injury or death. SCUBA Diving Equipment should be used by certified divers only. Professional training should be obtained exclusively from a certified instructor. For your protection, your equipment should be serviced by Mares or a Mares Authorized Dealer.

FEATURES OF THE CYRANO GUNS

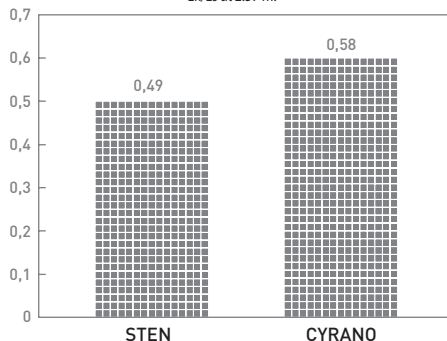
- Positive buoyancy when the shaft is removed. Except CYRANO 550.
- Anatomic handle in combined stiff-soft material.
- Power regulating system.
- Side line release (patented).
- Fluorescent viewfinder.
- Fast-hook shaft holder.
- Hydrodynamic cross-tied line hole.
- New safety bar (patented).
- Technopolymer shock-absorbing piston and bushing
- Anatomic loader in the handle (patented).
- Head with large drain ports.
- Positive buoyancy when the shaft is removed.
- Harmonic steel \varnothing 7 mm shaft (also available in the Tahiti model).

GENERAL WORKING PRINCIPLE

All Mares CYRANO Pneumatic Spearguns are supplied from the factory with compressed air. The air originally introduced into the speargun is recaptured with every shot and not dispersed when the shaft is released. The amount of compressed air the spear gun contains depends upon the amount of air pumped into it (see Fig. 1).

The air contained in the tank (3) is introduced through the inlet valve (7) with the use of an appropriate pump. When the shaft (1) is loaded, the piston (5) is moved down the barrel (4), thus further increasing the air pressure, until it engages the catch hook (6). When the trigger is pulled, the piston is released by the catch hook. The expanding compressed air propels the piston the length of the barrel, thus propelling the shaft. The piston is stopped at the barrel head (2), ready for reloading. Mares has taken its pneumatic spear gun performance another step with the CYRANO Line. Years of research and testing jointly with the Institute of Mechanical Technology of the University of Genoa, Italy, have led to the exceptional performance of the CYRANO spear gun. The internal diameters and compression ratios were optimized so that the CYRANO spear guns now outperform traditional spear gun efficiency by more than 15% (Mares patent).

Ek/Es at 2.57 m.



Ratio between kinetic energy (Ke) and energy stored during the loading phase (Es) when the same loading effort is applied.

The efficiency of the CYRANO is 20% greater than of the STEN (Competition line).

ASSEMBLY PROCEDURE

- 1) Important: do not start by loading the shaft.
- 2) SHOCK LINE - The shock line is packaged independently, unassembled along with the elastic expansion ring.

Assemble as follows:

- a) Tie one end of the shock line to the line retainer on the shaft (see Fig. 10).
- b) Slide the shaft into the muzzle of the gun until it touches the piston.
Important: do not load gun now.
- c) Wind the shock line at least twice, from the line release on the handle to the line holder on the nose cone (see Fig. 2).
- d) Approximately 12 inches from the line holder on the nose cone, tie the elastic expansion ring to the shock line leaving approximately 4 inches of slack line in the center of the ring (see Fig. 8).
- e) Thread the remaining end of the shock line through the line holder on the nose cone. Pull on the loose end of the shock line until the elastic expansion ring has expanded approximately $\frac{3}{4}$ of an inch. Tie the shock line to the nose cone maintaining this tension (Fig. 9).
- f) Attach your spear tip by screwing it on (except Tahitian shafts).

LOADING



WARNING

Never load, unload or fire your speargun out of water. Know the total distance your shaft can be propelled underwater. Never shoot the speargun where you cannot see, or in the direction of other people or stationary objects. Violation of these warnings could cause the speargun to wound you or someone else causing severe injury or death.

- 1) Check the shaft and line retainer to be assured they are working properly before loading.
- 2) Make sure your spear tip is tightened securely.
- 3) Before entering the water, wrap the shock line around the line release at the handle then around the line holder at the nose cone until slack is used up. Secure the shaft by placing the rear of the shaft in the hole in the trigger guard, then snap the front end of the shaft into the shaft holder on the nose cone (see Fig. 4).

- 4) Move the safety bar to the "safe" position prior to loading, by rotating it downward towards the trigger. Only when you are ready to shoot should the safety bar be moved to the "fire" position, by rotating it upward away from the trigger. The CYRANO speargun features a patented safety bar system which, when in the "safe" mode, mechanically blocks the trigger and prevents finger access to it. Be sure to check the operation of the safety bar periodically. With the speargun unloaded, move the safety bar to the "safe" position. In this mode the trigger should not be able to be depressed, the trigger should only be able to be depressed when the safety bar is moved to the "fire" position. Do not load or use the gun if any sign of malfunction exists (Fig. 3).
- 5) In surf entries, load the speargun only once you are beyond all turbulence. In boat entries, load the speargun only once you are out of all turbulence and away from all divers and the boat.
- 6) Loading.
Remove the loader from the handle. Support the handle of the gun against your thigh or foot, depending on the length of the gun (see Fig. 11). Grasp the gun by the nose cone (see Fig. 6) and insert the shaft into the gun, being sure that the shaft is centered in the muzzle. Avoid inserting the shaft at an angle which may cause internal damage to the gun. Place the loader over the spear tip and push the spear straight down the barrel of the gun until it latches. If your spear shaft becomes bent replace it. Do not attempt to force it into your gun as this can lead to internal damage.



WARNING

CHECK LOADER BEFORE EVERY DIVE FOR WEAR. It should be replaced if there are any cracks in the plastic. Using a loader with the above wear can allow the spear to break through the loader and could result in severe injury.

- 7) After the gun has been loaded, the shock line should immediately be wrapped. Take the shock line at the shaft end and wrap it around the line release at the handle then around the line retainer on the nose cone until all line is used. The elastic expansion should be one the last wrap and will provide the necessary tension to keep the shock line in place (Fig. 2).

POWER ADJUSTMENT LEVER

Your CYRANO speargun is equipped with a power adjustment lever which gives the diver the option of selecting the minimum or maximum power of the gun. This lever is located on the left side of the handle and may be changed from minimum to maximum at any time during the dive. With the power adjustment lever in the forward and down position the gun is in the minimum power setting. With the power adjustment lever in the up and rearward position the gun is in the maximum power setting (see Fig. 7). Choose between the maximum and minimum power setting based on the distance and size fish being shot.

UNLOADING

- 1) While still under water, visually check the area thoroughly and when you are sure no one is in firing range, place the safety bar in the "fire" position and with the barrel parallel to the surface above, discharge the gun by depressing the trigger.

POST DIVE CARE AND MAINTENANCE

Your Mares CYRANO Pneumatic Speargun is an exceptionally powerful and accurate speargun. By following the recommended care and maintenance procedures it will provide you with many years of trouble-free use.

- 1) Thoroughly rinse your CYRANO speargun and shaft, especially around the muzzle and power adjustment lever after each use with fresh water.
- 2) Check your loader for wear, replace if necessary.
- 3) If your shaft becomes bent replace it. Do not attempt to force it into your gun, this can damage the gun internally.
- 4) Your CYRANO speargun should be stored in a dark cool place. Do not expose your speargun to heat or direct sunlight.
- 5) Make sure the power adjustment lever is in the maximum power position when storing it.

- 6) ALL PNEUMATIC SPEARGUNS SHOULD BE STORED IN A MUZZLE DOWN, HANDLE UP POSITION. This allows oil in the barrel to keep the piston lubricated while not use. Small amounts of oil deposits can be expected to appear at the muzzle end.

CHECKING SPEARGUN PRESSURE

At the factory the gun is precharged to approximately 15 to 23 bar (217.5 to 333.5 psi), depending on length. Under normal conditions and usage your CYRANO speargun will remain fully charged regardless of the number of shots taken. However, a minor loss of pressure may occur due to extraordinary use.

- 1) If any of the following conditions exist, check the pressure in your speargun as it may mean that additional pressure is required.
 - a) If the shaft is excessively easy to load.
 - b) If the shaft velocity and range are less than normally experienced.
 - c) Install your hand pump and pump in a few strokes. If the entire stroke of the pump induces pressure your gun may need to be repressurized. If the pump does not activate or induce pressure into the gun until the end of the stroke, your gun is fully charged.
- 2) There are two (2) ways to verify the pressure in your gun.
 - a) Use a Mares pneumatic speargun pressure gauge. (Available through an Authorized Mares Dealer. Not included with gun)
 - b) Empty the gun completely and repressurize using the appropriate number of pump strokes for your model of speargun which are listed in the attached chart.

PRESSURIZING SPEARGUN



WARNING

DANGEROUS EXPLOSION HAZARD! Do not pressurize your pneumatic speargun above the maximum values listed in the enclosed pressure chart. Over pressurization can result in an explosion which may cause serious injury or death. When adding pressure to the speargun, the power adjustment lever must be set to the MAXIMUM POWER position.

- 1) When adding pressure only use the hand pump provided and do not exceed the maximum operational pressure.
- 2) If a Mares pressure gauge is not available and it becomes necessary to discharge the pressure from your gun to verify correct pressure use the following procedure.



WARNING

Pneumatic spearguns are highly pressurized. When working on them always keep both ends pointing away from yourself and any one else in case gun pressure accidentally dislodges and releases parts which can cause personal injury. The power adjustment lever must be in the MAXIMUM POWER position to insure that all of the pressure is released.

- a) Place your unloaded speargun in the muzzle down position to allow oil to drain away from the inlet valve.
 - b) Remove the inlet cap located in the rear of the handle. If resistance is felt when unscrewing the inlet cap do not proceed. Screw the inlet cap back in and send your speargun to Mares or a Mares Authorized Service Center.
 - c) Slightly depress the ball in the inlet valve, using a blunt point, allowing the air to escape slowly. Do not use a sharp object as it may damage the inlet ball. Be sure to keep your face and body away from escaping air as small amount of oil vapor can be expected as the air escapes. It is best to hold a rag around the rear of the gun while the air escapes. Hold the inlet ball down until all air escapes.
- 3) To repressurize your CYRANO speargun use the following procedure.

DANGER

The power adjustment lever must be in the MAXIMUM POWER position when repressurizing. Repressurizing with the power adjustment lever in the minimum power position can result in an explosion which may cause serious injury or death.

- Screw the threaded end of the pump into the inlet valve until it stops.
 - Pump full strokes using the number of pump strokes indicated on the attached chart for your model of CYRANO.
 - When the appropriate number of pump strokes has been reached unscrew the pump and reinstall the inlet cap.
- 4) To suit your spear fishing conditions particularly in confined areas you can vent off some of the pressure and later repressurize your system fully using the above methods.

If constant repressurizing is required this is likely to be a result of a damaged O-ring and the speargun should be serviced by an authorized repair station.

Description	Pressure in bars				
	10	15	20	25	30
	Approx. pump strokes				
CYRANO 550	125	185	250	330	410
CYRANO 700	150	230	310	390	480
CYRANO 850	210	330	450	580	710
CYRANO 970	260	395	575	755	925
CYRANO 1100	320	510	700	870	1055

DANGER

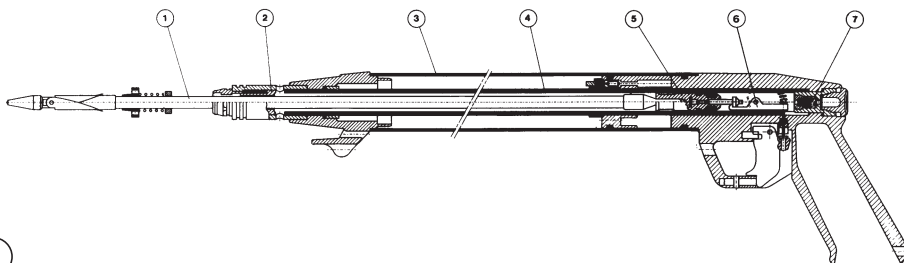
DANGEROUS EXPLOSION HAZARD! Do not pressurize your pneumatic speargun above the maximum values (30 bar/435 psi) listed in the enclosed pressure chart. Over pressurization can result in an explosion which may cause serious injury or death. When adding pressure to the spear-gun, the power adjustment lever must be set to the MAXIMUM POWER position.

The number of pump strokes listed in the Pressure Table refers to a COMPLETELY EMPTY GUN TANK. If it is not possible to determine the existing pressure in the gun, all pressure must be released from the gun prior to repressurizing it.

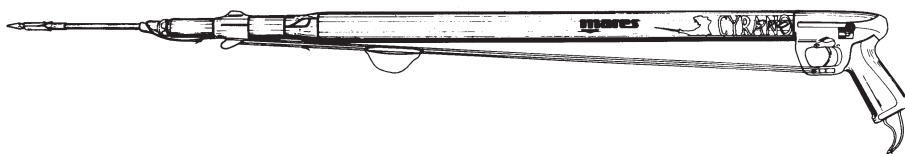
If the existing pressure in the gun is known and it becomes necessary to add pressure, only increase it the amount of the difference. For example, to increase the pressure of a CYRANO 700 from 20 to 30 bar (290 to 435 psi), 170 pump strokes are required not the full 480 pump strokes shown in the table.

SERVICING YOUR CYRANO SPEARGUN

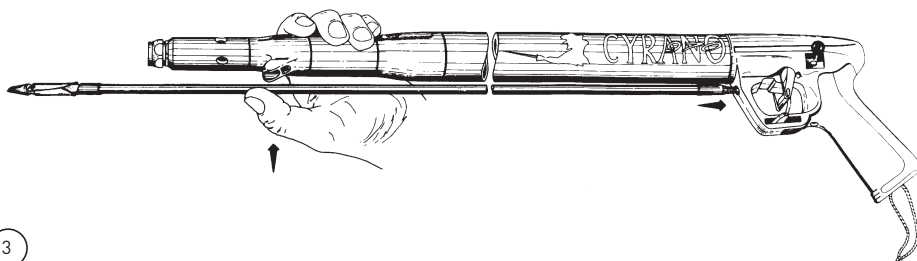
ONE YEAR SEVICING - Your CYRANO speargun should be serviced every year to insure the performance level remains as its peak. With extraordinary use your speargun may require servicing more often. For servicing, contact your local Mares dealer or, for USA, Mares America Corporation (tel. 203-8550631) for their service charges and policies.



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2



3

Asta
Shaft
Fleche
Flecha
Flecha
Schacht
Skafth
Берга
Keihäs
Drzewiec
Szigony

2 Testa
Head
Tete
Cabezal
Tanque
Reservatório
Fles
Reservoar
Σαλινγας
Säiliö
Zbiornik
Tartály
Fej

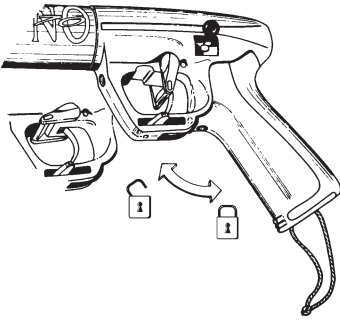
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Tank
Reservoir
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Reservatório
Fles
Reservoar
Σαλινγας
Säiliö
Zbiornik
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4 Canne
Barrel
Canon
Cañón
Cano
Vat
Pipa
Κανη
Purki
Lufa
Cső

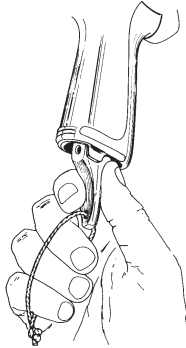
5 Pistone
Piston
Piston
Pistón
Émbolo
Zuiger
Kolb
Εμβόλο
Mäntä
Tlok
Dugattyú

6 Meccanismo di
sgancio
Catch hook
Gâchette
Mecanismo de
zafado
Mecanismo de
engate
Vanghaak
Spärrhake
Αγκιστρο
συγκρατησης
Lukitusalpa
Haczyk zaczepowy
Visszatartóhorog

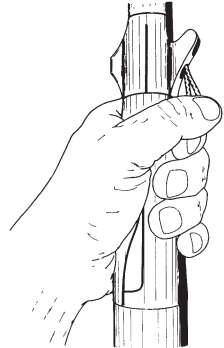
7 Valvola
Inlet valve
Soupape
Válvula
Válvula de entrada
Inlaatventiel
Ingångsvalv
Βαλβίδα εισόδου
Täyttöventtiili
Zawór wlotowy
Bemenőszелеp



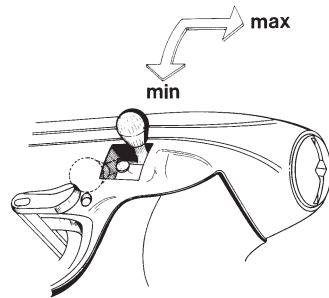
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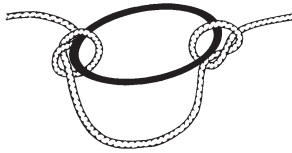
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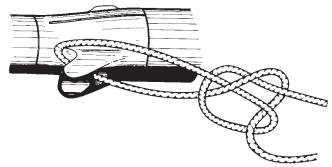
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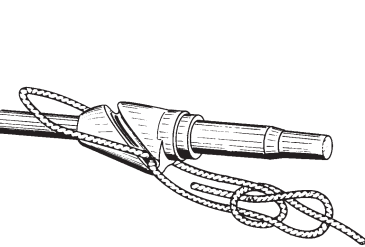
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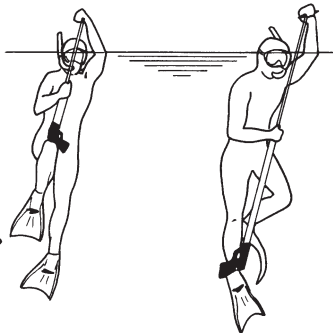
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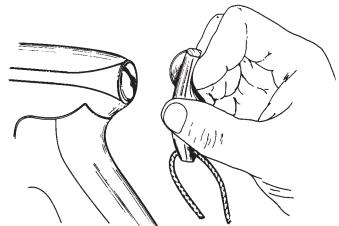
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