



berenzoni
LUXURY YACHT SOLUTIONS

MANUALE D'USO PASSERELLE IDRAULICHE ESTERNE NON GIREVOLI

OPERATING MANUAL HYDRAULIC EXTERNAL NOT TURNING GANGWAYS



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ATTENZIONE

Il presente manuale è parte integrante del nostro articolo e deve essere posto a disposizione di ogni utilizzatore al fine di assicurare il corretto funzionamento dell'apparecchiatura e dei dispositivi di sicurezza previsti.

Il prodotto Besenzoni deve essere installato da personale qualificato

Nell'ottica di un miglioramento continuo del prodotto ci riserviamo il diritto di modificare i dati inseriti in questo manuale senza dare alcun preavviso.

Riproduzione e traduzione anche parziale sono vietate.

WARNING

This manual is integral part of our product and must be provided to any user to ensure the correct functioning of the equipment and safety devices.

Besenzoni product must be installed only by qualified technicians

The data contained in the catalogue are guideline and in order to continuously improve the product we reserve the right to make changes without notifications

Reproductions and translations , even partially, are prohibited.



Dear Customer,

We would like to thank you for having chosen to buy one of our products and are pleased to be able to include you amongst our customers. It is our sincere hope that this piece of equipment will bring complete satisfaction both to you and your assistants.

All our products have been designed in-house on the basis of our extensive knowledge and include all the most recent mechanical and electronic developments. They are built using top quality materials and techniques and undergo extensive testing according to your particular operational requirements.

Our technical services remain at your complete disposal for any present or future requirements you may have and in the meantime, we would like to extend our thanks to you once again.

Yours faithfully,

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The company

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BESENZONI S.p.A. first started designing, producing and developing accessories for the nautical business in 1967. Since the firm was set up, its ability to offer new solutions to the sector has enabled it to achieve leading position on the market.

“DESIGN”: A GUARANTEE

The quality of the BESENZONI products is the result of careful design, the choice of the best materials and precise machining attentively monitored during each production phase. Gradually the company has introduced quality procedures required to obtain Quality Certification in accordance with the **ISO 9001:2008** standards.

The same attention to safety is also given during the design of all the other products. This is the case for the infrared remote control, the only one that can truly be described as “directional”, insofar as it ensures an automatic movements is not performed accidentally and that the operator is always in visual contact with the product when it is being operated.

“WELDERS”: A QUALIFICATION

Safety is also the company’s prime concern during the machining work. Due to the innovations introduced into its products, BESENZONI has patented some of its devices. In some cases, such as the stern bathing platform for example, although they cannot be patented, the BESENZONI products have even influenced boat design, which in some circumstances has been developed to accommodate the new type of accessories.

“INSPECTION”: A RULE

Every single product, although built according to the instructions approved during the design phase, undergoes a strict cycle of testing before being placed on the market and is then regularly tested. For some products, on the other hand, such as the bathing ladders and the hydraulic davits, each single structural component undergoes testing during assembly.

“MATERIALS”: A CHOICE

The materials used for the BESENZONI products are chosen in the aim of optimising the technical and aesthetic features while respecting the functional requirements. As a result, the materials used include stainless steel, light corrosion-resistant alloy with various types of surface finish, tempered glass and teak.

“ORGANISATION”: A SERVICE

The experience acquired over the years and the development of the commercial network have encouraged BESENZONI to be represented either directly or indirectly in all the countries where there is a market for pleasure craft. The sales organisation consists of agents or area dealers and authorised sales points. The Customer Service Centres are of considerable prestige as they are able to service the BESENZONI S.P.A. products to a very high professional standard. The attention to quality together with the versatility of the production department have meant that BESENZONI has been chosen as a partner by numerous Italian and overseas shipbuilders who recognize the company as one of their official suppliers

ATTENTION

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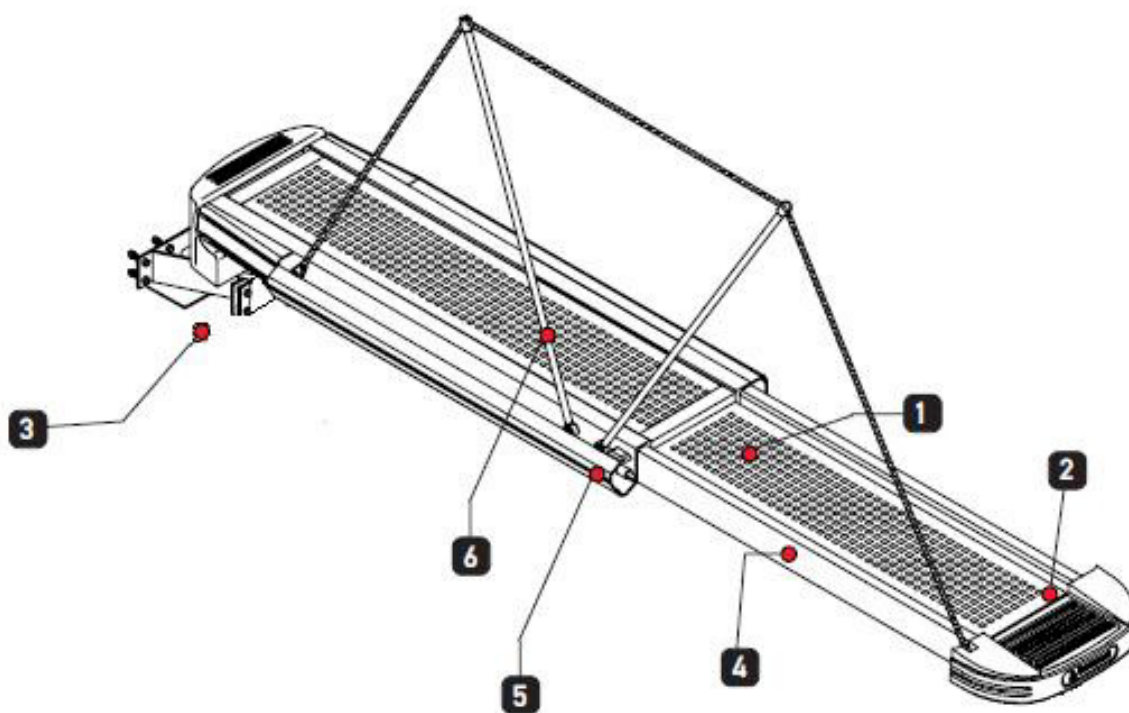


The features listed below are referer to our article in its standard configuration and are not binding. They also can be changed at any time without prior notice.

EXTERNAL GANGWAYS MODELS

MODELLO	Automatic Stanchions	Manual stanchions	Kit Lights	Rotation function	Footboard	Possibility to go under horizontal position	Lifting capacity [kg]
PI 459	no	si	no	no	Simil_teak rigato	si	110 Kg 200 kg (solo modello da 2510 mm)
PI 460	si	si	no	no	Simil_teak rigato	si	110 kg
PI 359	si	si	no	no	Carabottino teak	si	110 Kg 200 kg (solo modello da 2660 mm)
PI 357	si	si	si	no	Carabottino teak	si	250 kg 300 kg (Opt)
PI 357 LUX	si	si	si	no	Carabottino teak	si	250 kg 300 kg (Opt)
PI 369	si	si	no	no	Carabottino	si	110 Kg 200 kg (solo modello da 2530 mm)
PI 457	si	si	no	no	Carabottino teak	si	250 kg 300 kg (Opt)
PI 382	si	si	si	no	Carabottino teak	si	350 kg
PI 482	si	si	si	no	Carabottino teak	si	450 kg
PI 482 LUX	si	si	si	no	Carabottino teak	si	450 kg
PI 389	si	si	si	no	Carabottino teak	si	200 kg
PI 488	si	si	no	no	Simil_teak rigato	si	200 kg
PI 375	si	si	si	no	Carabottino teak	si	250 – 300 kg 350 – 400 kg
PI 387	si	no	no	no	Vetroresina	si	100 kg
PI 388	si	no	no	no	Vetroresina	si	100 kg
PI 358	si	si	si	no	Carabottino teak	si	--
PI 759	si	si	no	no	Simil_teak rigato	si	130 Kg 250 Kg (Opt) solo modello da 2900 mm





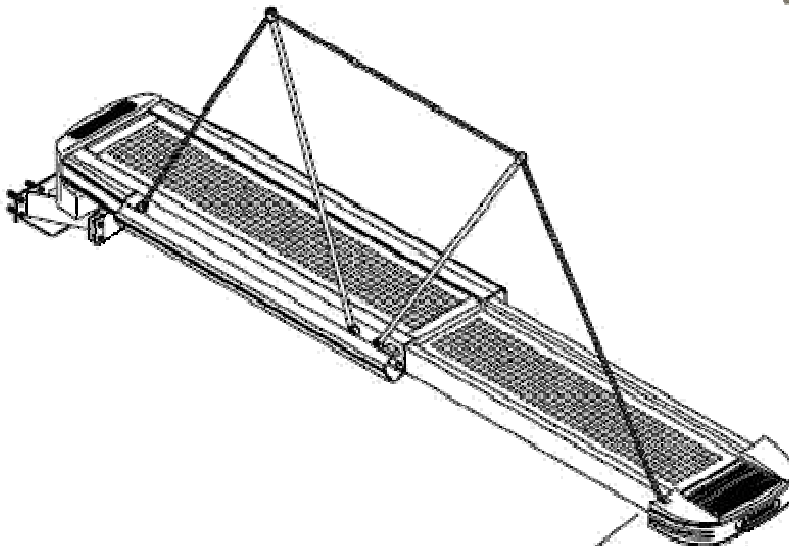
Pos	Description
1	Foot board
2	Polymeric top cover
3	Fixed plates
4	Telescopic part
5	Side Carter Stanchions
6	Manual or automatic Stanchions

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MACHINE RATING PLATE

The gangway identification plate, while the plate concerning the model you have purchased is attached to the lower part of the third extension section of the gangway .



 <small>dal 1967, unità capo dell'innovazione ITALY</small>	
SARNICO (BG) TEL. +39 035 910456 FAX +39 035 4289533	
MATRICOLA NUMBER CODE:	_____
SOLLEVAMENTO LIFTING CAPACITY (Kg):	_____
PORTATA STATICA STATIC WORK LOAD (Kg):	_____
ANGOLO LAVORO WORKING ANGLE (°):	_____
ASSORBIMENTO ABSORPTION (Amp):	_____
TENSIONE POWER SUPPLY (V):	_____
ATTENZIONE: PASSARE UNO PER VOLTA ATTENTION: WALKING A MAN AT TIME Non sostare sotto il braccio di azione – Tenere pulito Do not stay under the JIB – Must be cleaned 4CA01005.1 A23.12.06 0028	

	
24067 SARNICO (BG) Tel. 035 / 910456 - Fax 035 / 911394 CONTROLLO QUALITÀ	
M. 21.00 n°	SY 5772
CODICE	STW 2002
MATRICOLA	0702563
COLLAUDATORE	MS DATA 22/07/2007
<small>RIPORTARE QUESTI DATI PER COMUNICAZIONI UNIT THIS DATES FOR COMMUNICATIONS</small>	



These plates **must never** be removed for any reason whatsoever, even in the case of equipment resale.

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Safety is one of the most important objectives of the Besenconi production range. During the design phase, the definition of the sizes of each part is entrusted to a team of naval engineers who calculate the figures according to the most stringent safety standards.

The structures are calculated based on the harshest conditions. Therefore, when defining the loads consideration is given to the fact that a boat is not a fixed object and that the movement can have a detrimental effect on the working loads of the accessories.

This instruction and maintenance manual forms an integral part of the equipment and must be easily accessible to those responsible for the operation and upkeep of the same.

The user and the person responsible for the maintenance must be fully aware of the contents of this manual. The descriptions and illustrations contained in this publication are not binding. Although the essential characteristics of the type of equipment described will remain the same, the manufacturer reserves the right at any time to make any modifications to parts, details and accessories that are believed to improve the equipment or as a result of construction or commercial requirements, without any obligation to update this manual at the same time.



ATTENTION

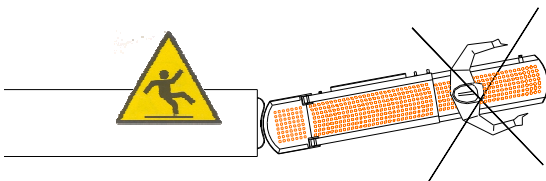
The equipment and safety devices must be installed by qualified staff to ensure their correct operation. If you read this manual carefully, you will become more familiar with the product you have purchased.

- In producing this item, great attention has been given to the design, which is naturally important, but especially to your **SAFETY** and that of your guests. However, we kindly ask you to take all the necessary precautions in order to ensure that the item is used correctly.
- Although the hydraulic GANGWAYS are easy to manoeuvre, they exert a **considerable** force and could cause damage both to people and objects and should, therefore, only be used by responsible people.
- Pay much attention to the passage on the trampling plan, in presence of holes or steps, to avoid to stumble and, consequently, wound yourselves.



Do not use the GANGWAY to lift people, even though it has been designed and tested to lift much greater weights. Gangway motion during raising and lowering operations, or during rotation can provoke loss of balance if passengers are present and can cause falling and injury.

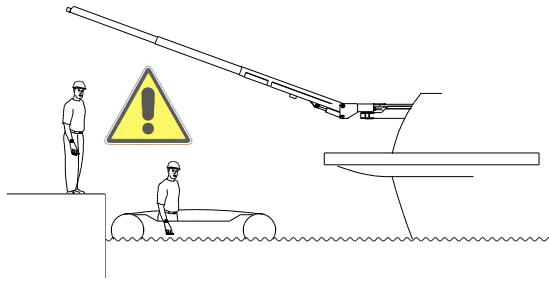
Walking a Man at time



Do not operate the GANGWAY while people are passing by. Gangway motion can provoke loss of balance if passengers are present and can cause falling and injury

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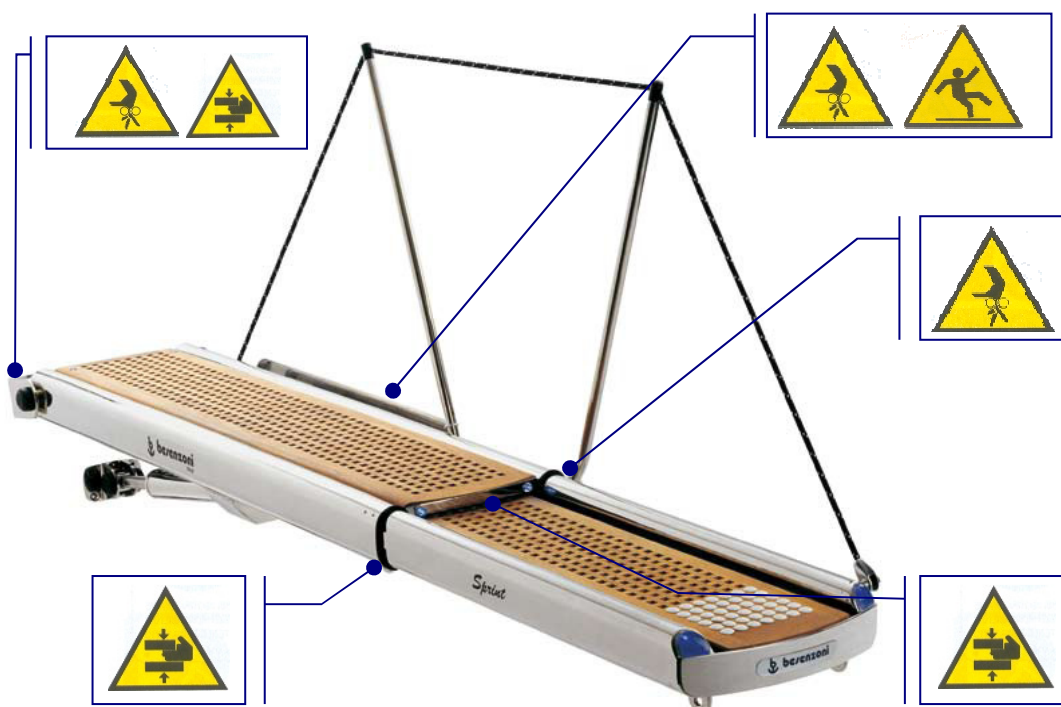


Do not move the GANGWAY while people are working underneath in slings.



Each articles with Hydraulic or electric movement must be followed at this warning plate which contain the following admonition

- During cleaning and maintenance operations, make sure that no-one can move the gangway, otherwise serious injury could be caused to the people working on it. **The GANGWAY power supply should be cut off.**
- Take great care to ensure that no personnel or passengers are in the operation vicinity during gangway rotation or near the retraction area of the extension sections, or the zone where the raising hook is lowered.
- Special attention must also be paid to the walk-surface area. The surface of these areas presents slot openings wide enough to insert fingers. Make sure no persons are on the gangway or in the vicinity before starting extension operations. For gangway raising operations, attach slinging equipment to the container crate or the gangway itself (if it has been already removed from the packing crate) in at least two points; raise the gangway only a few centimetres and avoid any excessive swaying.
- When walking across the gangway, take care to hold onto the handrail, whether it is of the type that is lowered into place automatically or positioned manually. As this handrail consists of ropes, it does not have a solid structure and, as such, should not be considered as a firm and safe handhold, but only as an aid to enable users to keep their balance.



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GENERAL SAFETY SPECIFICATION

1. Do not change or modify any type of valve, connector, fitting or component on power packs: simply loosening a valve could provoke the free fall or collapse of a load or structure.
2. In the hydraulic system the pressure must be zero and it is important that there is no load on the structure or the machine to which the power pack is connected,
3. Before proceeding with any type of operation or modification of the power pack, the electric power supply must be disconnected from the motor and any other electrical component; Together with the power pack, it is important that any electrical wiring includes a safety device (fuse, relay,...).
4. It is very important that, for any chosen application, a competent person identifies and analyses all possible problems. The user is also responsible for all safety equipment for the chosen application and for ensuring that any other safety concerns are addressed:
 - Use accident prevention equipment;
 - Work in a clean environment
 - Work in safe environment;
 - Use clean and correct instruments, tools and work benches.

During the operations of starting, normal work, maintenance, system adjustment and blow-off, operating valves and different control elements:



IT IS POSSIBLE THAT SUDDEN SPRAYS AND LEAKS OF HYDRAULIC FLUID MAY REACH TEMPERATURES THAT WILL BURN THE SKIN



IT IS NECESSARY TO COMPLETELY DRAIN THE ENTIRE SYSTEM BEFORE CHANGING THE HYDRAULIC FLUID



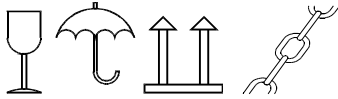
HYDRAULIC FLUID MAY DAMAGE YOUR HEALTH. CONTACT WITH THE SKIN AND THE EYES CAUSE SERIOUS INJURY



In case of transport of the machine, a protection with barrier sack is provided. It is then placed in a wooden case or container in order to facilitate transport and handling.

All the data necessary for transport and handling are indicated on the case.

Furthermore the symbols concerning the transport mode are shown with black paint.



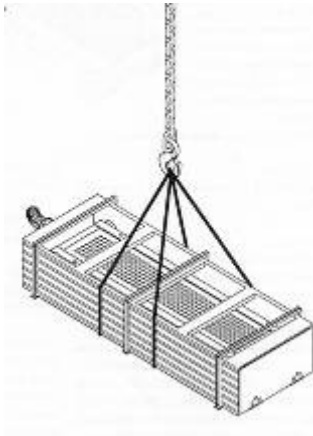
When you find these symbols, you must pay attention to the unloading and transport operations of the cases, because:

- the case content is fragile, even if sturdily protected;
- the electric or electronic devices don't stand moisture, even if protected with barrier sack;
- **the cases must not be overturned; the opening sense is indicated by the arrow.**



The box can be handled with a fork-lift truck; for all the operations it is necessary to use proper hoisting equipments with lift corresponding at least to the weight of the machine besides the additional capacity required by the safety norms.

Before opening the cases, be sure that there is enough space for the unpacking.



To lift the gangway, sling it in at least two points.

Lift the gangway just a few centimetres and avoid excessive swinging movements

Use of a different lifting system could seriously damage the gangway.

Open the box without inserting into it any cutting blade or pointed object (screwdrivers, scissors, etc...) that could damage, ruin or break off the structure of the gangway.

Remove the packing with maximum care, taking all necessary measures and cautions so as to avoid causing any possible damage to the surface and covering fabric of the gangway.

INSTALLATION

Before using the gangway, check that it has not been subject to any damage during transport or stockage. Also control that all standard components are included in the packing crate. Gangway installation must be performed by authorised qualified personnel.

For installation, please follow the instructions below with utmost care.

ATTENTION make sure that the surface where the gangway is to be fitted is sufficiently reinforced to withstand the weight of the equipment and its load. When positioning the gangway on the craft, lift it by hooking it as shown in concerning paragraph of lifting the equipment



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GANGWAY INSTALLATION

The gangway is delivered in a wooden packing case suitable for guaranteeing ideal transport and storage conditions. Store in a dry, well-aired place.

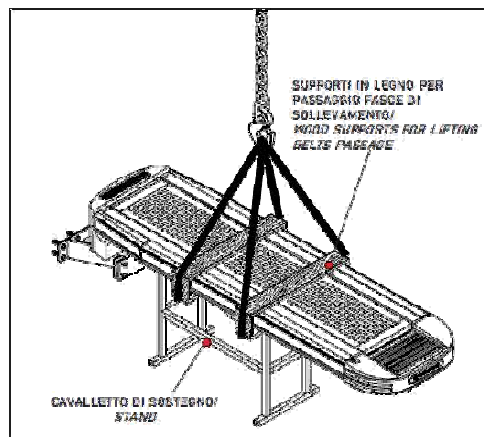
If the packing case should accidentally be damaged on the Customer's premises, check in good time that the item inside is unaffected and repair the case immediately, if necessary, to avoid further damage to the product and poor performance of the same in the future. **We would like to remind you that any damage caused at the Boatyard or on the Customer's premises is not covered by the guarantee and, therefore, we advise you to take the utmost care when handling our products!**

The procedures described below must be performed by technical members of staff who have been adequately trained and equipped for the purpose.

Remove the lid, taking care never to place the packing case in any other position than a vertical one. Remove the wooden retainers used to stop any movement. Remove the fasteners that secure the wooden retainers, ensuring that they do not project so that they cannot damage the gangway when it is removed.

Lift the gangway using belts fitted in points at an equal distance from each other. Proceed gradually and carefully, trying to pinpoint the barycentre of the gangway and never trying in any way to balance the moment with the weight of the body. Never stand within the operating radius of the load and keep at a distance from its vertical.


Lift the gangway just enough to be able to place it on a sturdy, mobile flat top for further movement.



Remove the plastic bubble pack that provides further protection against external agents. For this operation, blades or blunt instruments should not be used, but the adhesive tape should be pulled by hand from where it has been wound.

Use of blades or blunt instruments could cut the surface underneath and any hydraulic pipes or electric cables that may be there. Consequently, we advise you to remove the adhesive tape just by pulling it by hand.

The gangway is now ready to be fitted on the craft.

	<p>Attention:</p> <p>If the housings provided on the craft by the Boatyard require particular solutions, you are invited to contact the Boatyard directly or our Customer Assistance Service. If any problems should arise with the installation, or if further information is required, you should contact our Customer Assistance Service.</p>
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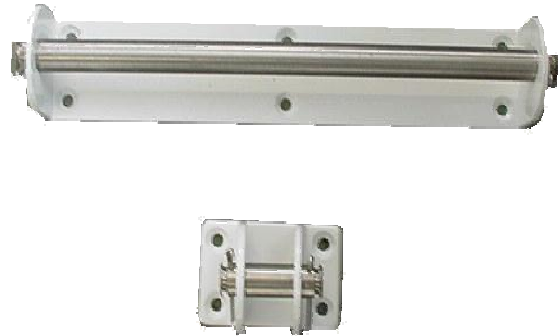


The brackets that we supply as a standard feature for the retracting gangways are of the type as shown on the left.

The thickness and the height vary according to the weight, the length and the height of the gangway. The bolts are also provided as a standard supply for fitting the brackets correctly to the gangway.

The bolts are supplied in exactly the right number for all the brackets.

If any bolts should be lost, they must be replaced with others of the same or a superior class (with the same diameter).



We wish to remind you that salt water is corrosive and damages the item very quickly. Correct maintenance prevents phenomena linked to corrosion and oxidization.

<p>WARNING: if longer screws are used, they will project from the internal part of the box and interfere with the movements of the gangway!!</p> <p>A check should be made beforehand of the resistance of the securing point on the craft under dynamic conditions (vibrations and rocking of the craft at sea). As the many solutions provided by the Boatyards are not known in advance, it is not possible to outline solutions on this matter. In case of doubt, the Boatyard should be contacted for more precise indications.</p>	
<p>Take care during installation not to twist the structure in any way and check, using a spirit level if necessary, the correct parallelism of the structure in the three main directions (length, width, height).</p> <p>WARNING: any twisting caused by the positioning of the brackets not on a straight line or on an uneven surface will lead to an incorrect sliding of the carriage, bending of the piston that is connected to it and eventual damage or breakage of the whole sliding part!</p>	



• POWER PACK INSTALLATION



The instructions supplied for the gangway hold good, and also the power pack requires utmost care with the storage and handling.

The power pack is delivered a carton box.

Maximum attention must be paid during transportation on the Customer's premises to avoid rocking movements, vibrations and shocks, as for the gangway, which could damage the product and are not covered by the guarantee.

Remove the power pack from the packing case and rest it on a stable and sturdy top.

Remove the plastic bubble pack that protects the surface. Follow the instructions provided for the gangway taking care not to damage the electric cables and the other surfaces of the power pack.

Connect the hydraulic pipes following the colours assigned to them.



Example picture

Tighten the nuts securely using an adjustable wrench of the right size and not using makeshift tools that just happen to be at hand.

Having started the item up, check that there is no oil leaks out as a result of insufficient tightening.

Remove any traces of oil that may have leaked during the assembly phase and remove any impurities or residues present on the power pack. Check that the caps of the solenoid valves are fitted firmly to their housings.

Note: the power pack is supplied without oil. For correct operation, add oil following the instructions given in the next chapter



Place the box of the electronic power pack in a position that is protected from sprays of water and oil. Place it in a vertical position and remember to close the front panel screwing the screws right down every time it is opened to gain access to the power pack.

The remote control switches supplied have already been registered.

If it should be necessary to memorize others, follow the instructions given in the next chapter.

Take the utmost care and use the individual means of protection as provided for.

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Position the photoeye in a point so that there are no obstacles between the infrared transmitter and the photoeye. Connect all the cables securely and check that during the movement of the gangway the gangway itself does not come between the infrared remote control and the photoeye.



Fix the button panel to the craft **taking care that the surface on which it rests is perfectly flat and not bent.**

It must be remembered that any anomalous bending could damage the front indicator panel and prevent the buttons from operating correctly



It should be remembered that in order to take greater advantage of the guarantee we recommend that the whole item be fitted by a qualified and responsible technician.

Furthermore, we also recommend that the maintenance and operating condition of the item are checked every so often and that each part is cleaned often using

only soft water.

Avoid contact of the electrical parts of the system with liquids of any type at all times.

For any repairs you are advised to contact only the BESENZONI Customer Assistance Service. All the connecting operations must be carried out with suitable tools (Phillips or crosshead screwdrivers, wrenches, Allen wrenches, etc. of a suitable size).

Makeshift tools should not be used and operations other than those provided for are not permitted.

It is strictly forbidden to modify pins, bolts and safety devices, adapt the hydraulic system, remove the seal from the power pack regulating valve or reduce the steel or aluminum load-bearing sections.

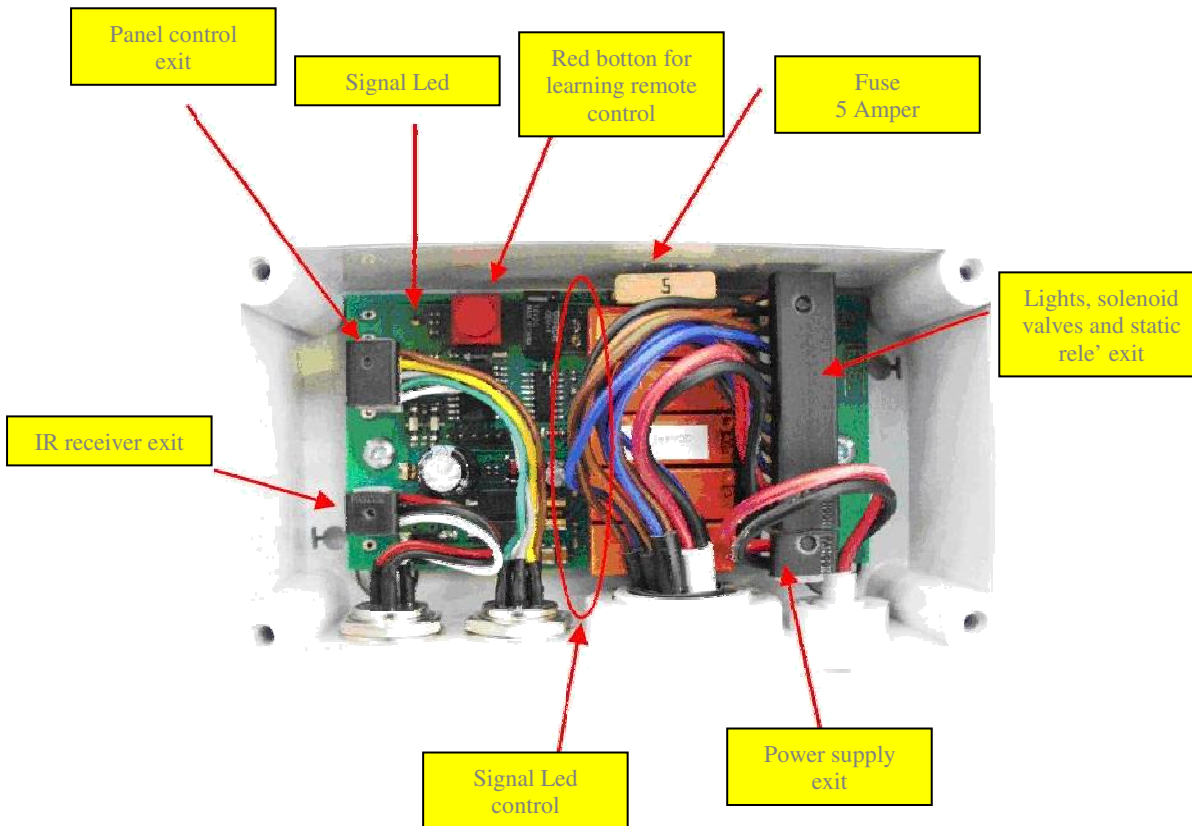
Work carried out at Boatyards or at the Customer's premises is only permitted if prior communication is sent to this effect and authorization is received from BESENZONI.

If such authorization is not obtained, the guarantee will immediately become null and void as it will no longer be possible for BESENZONI to check that the original safety conditions have been maintained.

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• TRANSMITTER LEARNING



ATTENTION:

all the operations at points 3, 4, and 5 have to be executed in the time limit of 20 second.

1. Open the box cover of the electronic board;
2. Check that the remote has the battery inserted with right polarity and with a good level of charge;
3. Press the red button: the electronic board a emits “beep”
4. Press any key of the remote control, being sure to direct the same one to IR Infrared receiver mounted outside the boat within 20 seconds;
5. The remote is memorised if the electronic board emits several “beep”. Than realise the Remote control button

ATTENTION:

In case it does not got memorised within 20 seconds await, the system automatically interrupts the procedure.

MEMORY RESET:

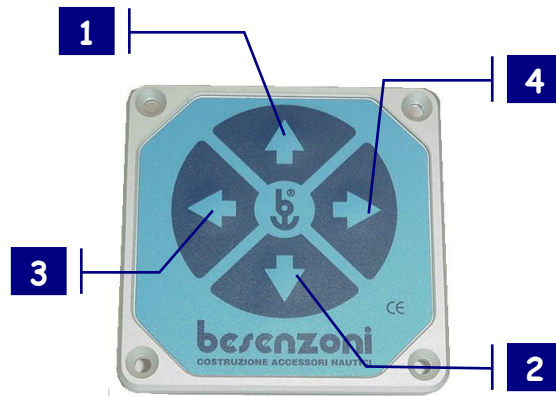
Press for about 10 seconds the red button on the electronic board, till the signalling LED diode flashes regularly meaning that memory is empty.



• REMOTE CONTROL AND DIGITAL PANEL



Remote control



Digital panel

Remote control		Digital panel	Description
button n.	n.	button	
1	1	RAISE	RAISING THE GANGWAY The gangway can be raised by keeping pressed RAISE on the digital panel or number 1 on the remote control (pointing the remote control at the receiver).
2	2	LOWER	LOWERING THE GANGWAY The gangway can be lowered by keeping pressed LOWER on the digital panel or number 2 on the remote control (pointing the remote control at the receiver).
3	3	TELESCOPIC IN	RETRACTING THE GANGWAY The gangway is retracted by keeping the button with TELESCOPIC IN pressed on the digital panel or number 3 on the remote control (pointing the remote control at the receiver). When the press button is released the gangway movement is arrested at the position it has reached.
4	4	TELESCOPIC OUT	EXTENDING THE GANGWAY The gangway is extended by keeping the button with TELESCOPIC OUT pressed on the digital panel or number 4 on the remote control (pointing the remote control at the receiver). When the press button is released the gangway movement is arrested at the position it has reached

- Tasto ← Press and keep pressing for the TELESCOPIC OUT function
- Tasto → Press and keep pressing for the TELESCOPIC IN function
- Tasto ↑ Press and keep pressing for the RAISER function.
- Tasto ↓ Press and keep pressing for the LOWER function.

1.1. TECHNIC FEATURES

TRANSMISSION	IR
Hertz	30 KHz
Digital modulation	27 bit
Power supply	5V ÷ 6V
Stand-by Absorption	8 µA
Work Absorption	6 mA
Work temperature	- 10 °C ÷ + 70 °C
IP protection	IP 44

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HOW TO CHOOSE THE HYDRAULIC FLUID

All hydraulic fluids viscosity 46 with mineral base are useable.

It is necessary to know the viscosity / optimal machine working temperature, working cycle and ambient temperature in which the machine has to work.



Remember to replace the oil after the first 100 hours of service or after the first 1000 working cycles and after 3000 hours (or at last once each year).



Clean the suction filter (or eventually the return line filter) during the oil change and if necessary, replace with a new one.



The fluid that you are using must be in the class of contamination specified in the following schedule

CONTAMINATION – FILTRATION

TYPE OF SYSTEM TYPE OF VALVES	MINIMUM VALUE REQUIRED	RECOMMENDED VALUES		
	NOMINAL FILTRATION (micron)	GRADE OF ABSOLUTE FILTRATION ISO 4572 BETA _x = 75	CLASS OF CONTAMINATION ACCORDING TO	
			ISO 4406	NAS 1638
Systems or components working at HIGH PRESSURE > 250 bar HIGH FREQUENCY CYCLES Systems with components HIGHLY sensitive to contaminants. PROPORTIONAL VALVES	10	X = 10 - 12	17 / 14	8
Systems or components working at AVERAGE PRESSURES up to 250 bar	15	X = 12 - 15	18 / 14	9

CONDITION OF USE

- **Minimum hydraulic fluid temperature: -15 °C**
- **Maximum hydraulic fluid temperature: 80°C**
- **Optimal working temperature: 30÷60 °C**
- **Minimum ambient temperature: -15°C**
- **Maximum ambient temperature: 40°C**



It is important that the hydraulic fluid is always new and well filtered.

Do not mix different brand name hydraulic fluids or different types. Doing so, the additives used by the fluid manufacturers may cause the fluid mix to congeal and this could damage the system



• ELECTRONIC SYSTEM TO SUPPLY AND CONTROL

The hydraulic items produced by **BESENZONI S.p.A.** are provided with an electronic system to supply and control the individual movements. The whole system and all the connections are tested by our technical staff and do not require any further adjustments.

▪ **In order to prevent any damage to the circuits, it is advisable to avoid possible infiltrations of water by avoiding washing the electrical parts and the connections of the electric circuit with jets of water, taking the utmost care if accidental contacts should occur or infiltrations of liquids to contact our nearest service centre as soon as possible.**

For the retracting gangways, **BESENZONI S.p.A.** provides the item as a standard feature with special electromagnetic sensors which signal information concerning the position of the gangway, facilitating or preventing certain movements.

These sensors must not under any circumstance be moved or covered with material of any type as this could alter the input necessary for the logic circuit and block the gangway.

Moreover, all the gangways are supplied with one or two (according to the models) infra-red remote controls that guarantee maximum safety and prevent involuntary movements.

In order to work correctly, they must be fitted with a battery with a sufficient charge and they must be set following a specific procedure; in fact for safety purposes, each item produced has its own remote control (on request up to 8 different remote controls are available).

The IR photocell must be fitted on the craft in an accessible position that cannot be screened by any foreign objects, moreover the surface of the receiver requires cleaning to enable the signal to be picked up.

The IR remote control must be pointed in the direction of the photocell and there must not be any obstacles between the two.

The GANGWAY is provided with a manual panel with keys or pushbuttons which enable the same functions as the remote control to be performed.

For use of both, adhere strictly to the indications given.

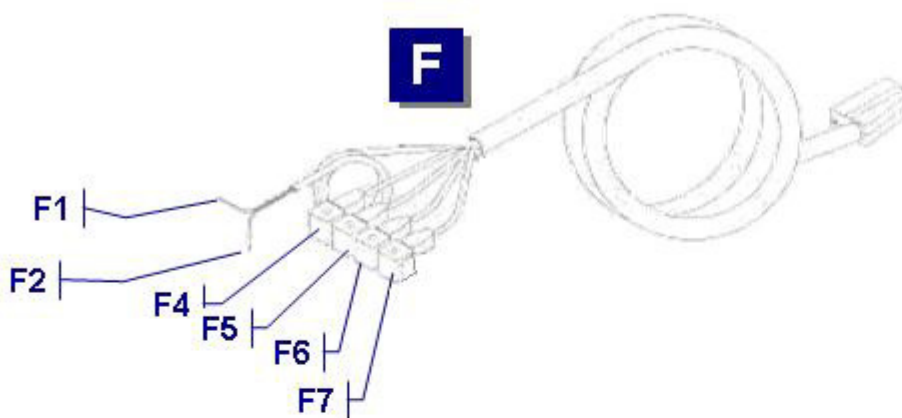
• CONNECTION OF THE ELECTRICAL CIRCUIT

The electrical circuit is supplied completely wired and tested - connect the cables as follows:

- Connect the passerelle cable provided to the operating sequence control box.
- Connect the junction box to the operating sequence control .
- Connect the wiring coming from the junction box to the power supply:
 - RED WIRE : POSITIVE
 - BLACK WIRE : NEGATIVE

b e s e n z o n i





Pos	Description:
F1	Static relè: negative polarity (black wire)
F2	Static relè switch: positive polarity (red wire)
F4	Out solenoid valve (T/F) telescopic out
F5	Out solenoid valve (T/D) telescopic in
F6	Out solenoid valve (up) raiser
F7	Out solenoid valve (down) lower

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USE WITH THE MANUAL PUMP (WHERE APPLIED)

- 1° MODEL -

If the pump should be faulty, the gangway can be used with the emergency manual pump.

To move the gangway with the manual pump, proceed as follows:

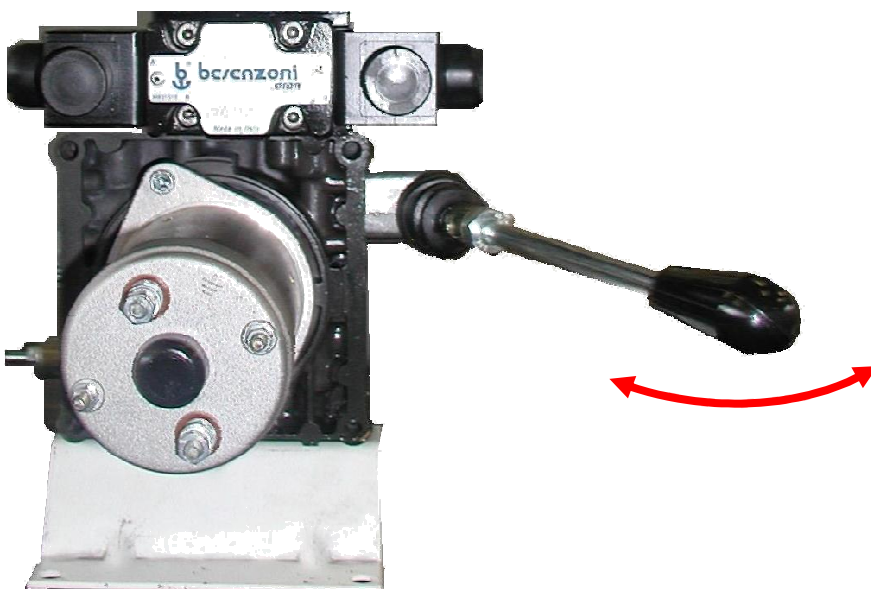
WHERE APPLIED

To move the gangway with the manual pump, proceed as follows:

- 1) Position on the valve to be excited and push.
- 2) Keeping pressed the caps, handle of the manual pump on the hydraulic power pack.

By moving the cap onto the different ends of the solenoid valves, all the gangway functions can be performed manually.

EXAMPLE: TO RAISE OR LOWER THE GANGWAY, KEEP PRESSED THE RELATED CAP AND OPERATE WITH MANUAL PUMP TO ACTION THE RAM.



- 2° MODEL -

In case of a power failure, the gangway can be operated manually using the emergency pump provided for this purpose. Proceed as follows:

- 1) Fit the handle into the space provided.
- 2) Remove the rubber cap protecting the coils.
- 3) Fit the solenoid valve pressing cap into place (see figures) making sure that the central pin of the cap corresponds to the hole at the side of the solenoid valve for the manual activation of the same.

NOT E:

The cap must be fitted on the solenoid valve that corresponds to the movement to be performed.

EXAMPLE

To raise or lower the passerelle, operate the pump pressing cap fitted on the end of the solenoid valve corresponding to the function required.

Remember that each coil corresponds to an operation of the gangway.

EXAMPLE:

if the left-hand coil performs the lifting operation, the right-hand coil performs the lowering operation.



WARNINGS

1. The gangway is controlled by an electronic control logic system. This system must have a power supply according to the characteristics specified in the technical chart enclosed;
2. The Boat power supply must be stabilized and work in this range:
for 24 volt min. 21V to max. 31V;
for 12 volt min 10.5V to max 15.5V.
3. The electronic card must not, under any circumstance, be connected directly to the battery charger.
4. The power supply must be stabilized by the batteries (even during recharging);
5. Care should be taken with the connection and with the correct polarity;
6. Care should be taken of any possible seepage of water that could damage the various connections and the electronic card itself;
7. The electronic and Hydraulic power pack must be installed away from vapors or by direct contact with water. The system must be installed in a protected place
8. Make sure that all the plugs are connected properly and firmly secured. If just one of these plugs should be loose, the correct functioning of the electronic system would be put at risk . It may cause water infiltration which can not be passed under warranty;
- 9.
10. Our systems are tested and designed for an temperature work ambient of -10°C to $+60^{\circ}\text{C}$, so different work ambient temperatures must be declared to prior, during the offered phase;
11. The degree of protection of our electronic systems as standard IP55;
12. Possible electromagnetic interference due to other equipments on board must be verified during the initial installation under responsibility of the shipyard/installer;
13. Do not make any modifications to the receiver or sensor cable (as it is screened).
14. The motor (or the motors) and all the system are dimensioned for a not continuative use of the gangway;
15. Continuous and uninterrupted use of the system may cause the motor to overheat;
16. All systems must be subjected to periodic cleaning / maintenance, as indicated on the Operating and maintenance manuals that accompany the article;
17. If the maintenance program described in the manuals were not scrupulously followed our articles may be degraded / damaged prematurely.



MINIMUM POWER SUPPLY CABLE SECTION

		CARICO UTILIZZATO 12 V						CARICO UTILIZZATO 24 V					
		200 W	500 W	800 W	1000 W	2400 W	3000 W	200 W	500 W	800 W	1000 W	2400 W	3000 W
LUNGHEZZA LINEA	$L \leq 2 m$	8 mm ²	8 mm ²	10 mm ²	25 mm ²	50 mm ²	50 mm ²	8 mm ²	8 mm ²	10 mm ²	10 mm ²	25 mm ²	25 mm ²
	$L \leq 8 m$	12 mm ²	12 mm ²	50 mm ²	70 mm ²	100 mm ²	100 mm ²	10 mm ²	10 mm ²	25 mm ²	50 mm ²	50 mm ²	50 mm ²
	$L \leq 15 m$	25 mm ²	50 mm ²	70 mm ²	100 mm ²	100 mm ²	100 mm ²	25 mm ²	25 mm ²	50 mm ²	70 mm ²	70 mm ²	70 mm ²

MOTOR CHARACTERISTICS

MOTOR CHARACTERISTICS							
MOTOR	POWER SUPPLY (Vdc)	SPIN SPEED (giri/min)	PRESSURE (BAR)	S2 (min)	S3 (%)	IP	ABSORPTION (Amp)
350W	12	2500	140	3.5	18%	54	65
400 W	24	2800	120	4.30	19%	54	40
500 W	24	2500	150	9.0	35%	54	50
700 W	12	2500	130	2.3	7%	54	65
700 W	24	2800	150	3.0	20%	44	55
800 W	12	2500	145	2.0	6%	54	90
800 W	24	2500	150	3.2	11%	54	55
1600 W	12	2200	160	3.3	10%	54	160
2200 W	24	2500	150	6	18%	54	115
2400 W	24	1950	160	3	20%	44	125
3000 W	24	1600	140	5	20%	44	150
MOTOR AC	VAC	SPEED (giri/min)	PRESSURE	Performance		IP	AMPER
2,2 KW Trifase 50Hz	400	2891	170	86.2%		65	10
4 KW Trifase 50Hz	400	1442	170	89.1%		55	16

(*) These values are only indicative and can be change in function of the power line and the pressure

Our technical staff is at your disposal to give further information concerning specific and often unique problems.

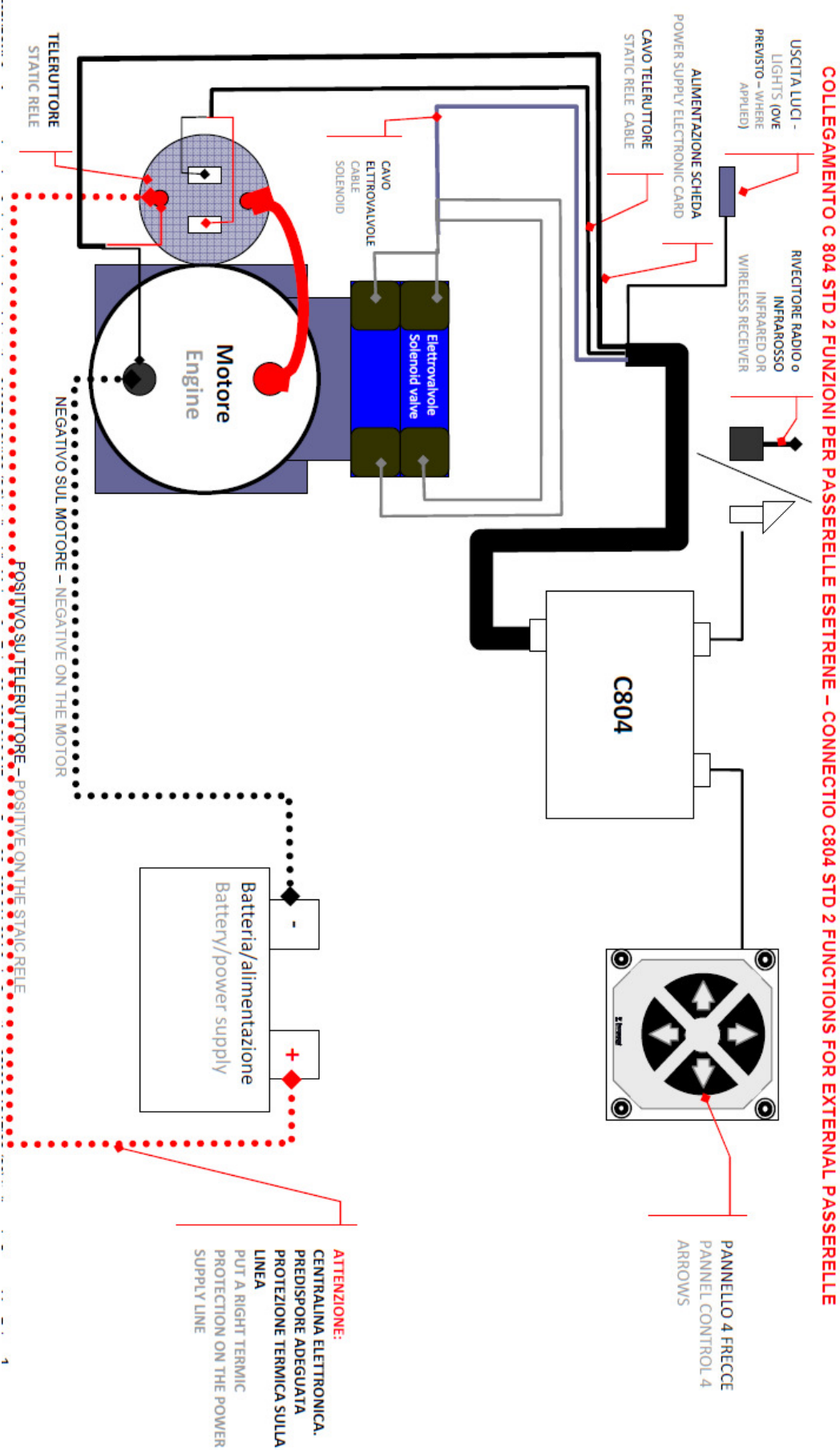
CUSTOMER SERVICE: TEL. ++39 035 4262938 - FAX ++ 39 035 4261633 e-mail: customer.service@besenzoni.it

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Electric-Hydraulic System

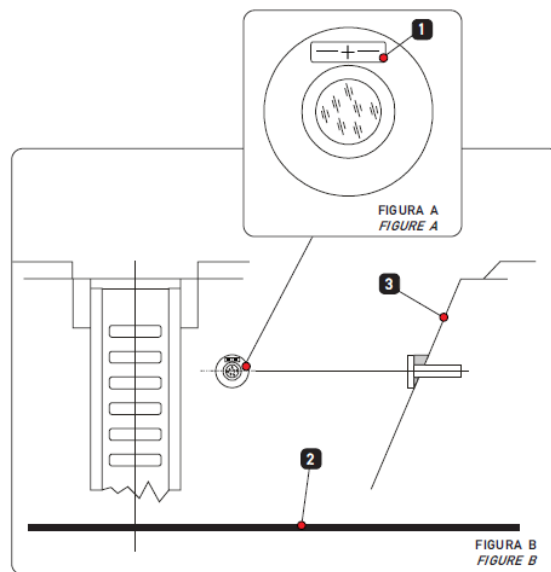
CONFIGURATION SCHEME



• IR RECEIVER POSITION

Place the photocell on the gangway side by following the instructions given below to make the working area optimum.

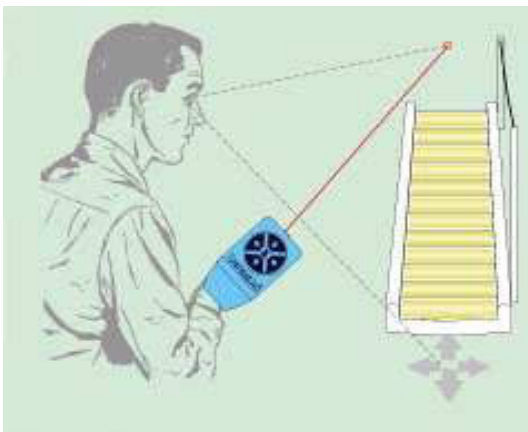
- 1) The photocell IR must be put on a visible place and it must be not covered by obstacle
- 2) The photocell must be perpendicular to water: if the transom frame (figure B - ref.3) is inclined, the photocell must be placed according to the boat inclination, by making up for the lacking space (see figure B).



if the receiver was a radio mode, in this case it is possible to let the receiver inside the boat. With this configuration it is very important to keep away the receiver from electromagnetic disturbances. For this reason it is important to do not roll the wire in order to avoid to capture of electromagnetic interference in the area.

It must be realized a correct screening, that it must be done by the shipyard during the installation

The gangways can be remote controlled by means of an infra-red remote control.



The signal sent by the infra-red remote control reaches a IR receiver, which is situated outside the boat, (see the side) in a straight line and thanks to the fact that it is visible, it assures the complete control of its movement to the user, giving the greatest safety.

The maximum distance covered by the remote control is 6/8 meters.



ATTENTIONS

The GANGWAY is fitted with a hydraulic movement system that enables it to work under the harshest load and operating conditions.

The sizes of the individual components take into account the specific operating requirements of the hydraulic item and, consequently, they are designed with safety coefficients established by BESENZONI S.p.A. It is advisable to follow the indications given below very closely in order to use the hydraulic system correctly and to keep it in good operating condition:

- When installing our product for the first time on the craft, take the utmost care when following the diagrams showing the connections of the tubes to the power pack and to the gangway.
- Take the utmost care when handling the tubes to ensure that no dust, residue plastic material, water or impurities of any kind enter them.
- Tighten the individual connections applying the correct torque and avoid tightening the screws too loosely or too tightly with the risk of damaging the seal and compromising the watertightness of the connection.
- Operate the system checking that the functions of the power pack actually correspond to the movements made by the product. Check the correspondence of the remote control, the manual panel or the control panel if they are included in the supply or requested by the customer.
- Fill the tank to $\frac{3}{4}$ of its capacity and then check the level visually using the opening provided for filling operations. Then add more oil to the power pack if necessary, keeping the level to $\frac{3}{4}$ of the maximum tank capacity.
- Operate all the hydraulic movements fully several times in order to discharge any air that may be present in the circuit as this will enable the product to slide more smoothly.
- Tighten the cap of the power pack securely after the last top up of oil.
- Dry and clean all the system; check for any leakages in the various connections of all parts of the circuit that may be due to an incorrect installation.
- Every so often check the tightness of the connections in every part of the system and check for any damage to the tubes, such as bent or crushed tubes or contact with sharp corners.
- Every so often check the oil level and keep it to $\frac{3}{4}$ of the tank capacity.



WARNING Any knocks or damage to the hydraulic circuit or to the hydraulic power pack must be repaired as soon as possible at our nearest service centre



WANRRNING: never install the electrohydraulic system inside the engine compartement. Hydraulic passerelles are generally remotely controlled. Prior to boarding, and before the extractor fans have removed flammable fumes from the engine compartement, there is the risk an explosion could occur .



INSTRUCTIONS FOR OIL-PRESSURE EQUIPMENT CONNECTION

All piping used is identified with coloured tape at connections, and the oil-pressure unit and cylinder connections are identified with coloured strips to make connection operations easier and to prevent any mistakes in oil-pressure piping connection.

The color code and relative piping are provided below:

Tape colours on piping	function	Strip colours on connections
YELLOW	Telescopic out	YELLOW
RED	Telescopic in	RED
BLU	Gangway up	BLU
GREEN	Gangway down	GREEN



Attention: Never remove the coloured strips and tape on pipes and connections. If these are damaged for any reason, replace the color code strip and tape with others of identical color.

TYPE OF OIL

The oil to be used to fill the power packs of the hydraulic circuit of the system

are the following types:



TAMOIL	=YDRAULIC OIL 46
OLIO / FIA	=T F 46
SHELL	=TELLUS OIL 46 - HYDRAULIC OIL 46
TEXACO	=RANDO OIL HD 46
TOTAL	=AZOLLA ZS 46
ELF	=ELFOLNA 46
ESSO	=NUTO H 46
FINA	=HYDRAN 46
IP	=IP HYDRUS OIL 46 - IP HYDRUS OIL X 46
AGIP	=OSO 46
BP	=ENERGOL HLP 46 - ENERGOL HLP - D 46

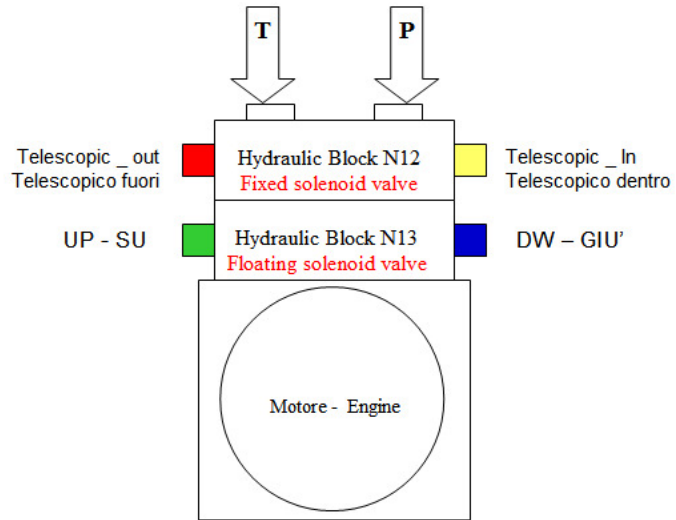
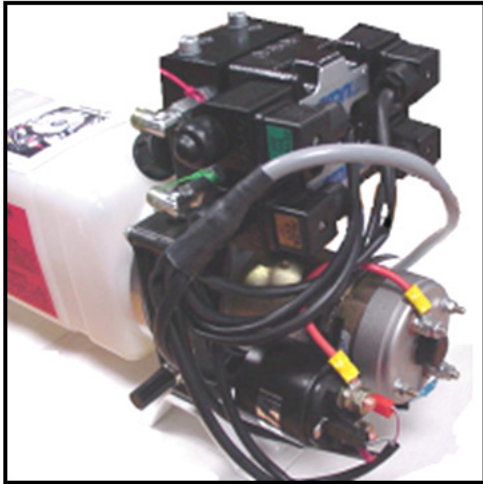
USE ONLY HYDRAULIC OIL VISCOSITY 46



Our power packs are supplied without oil.

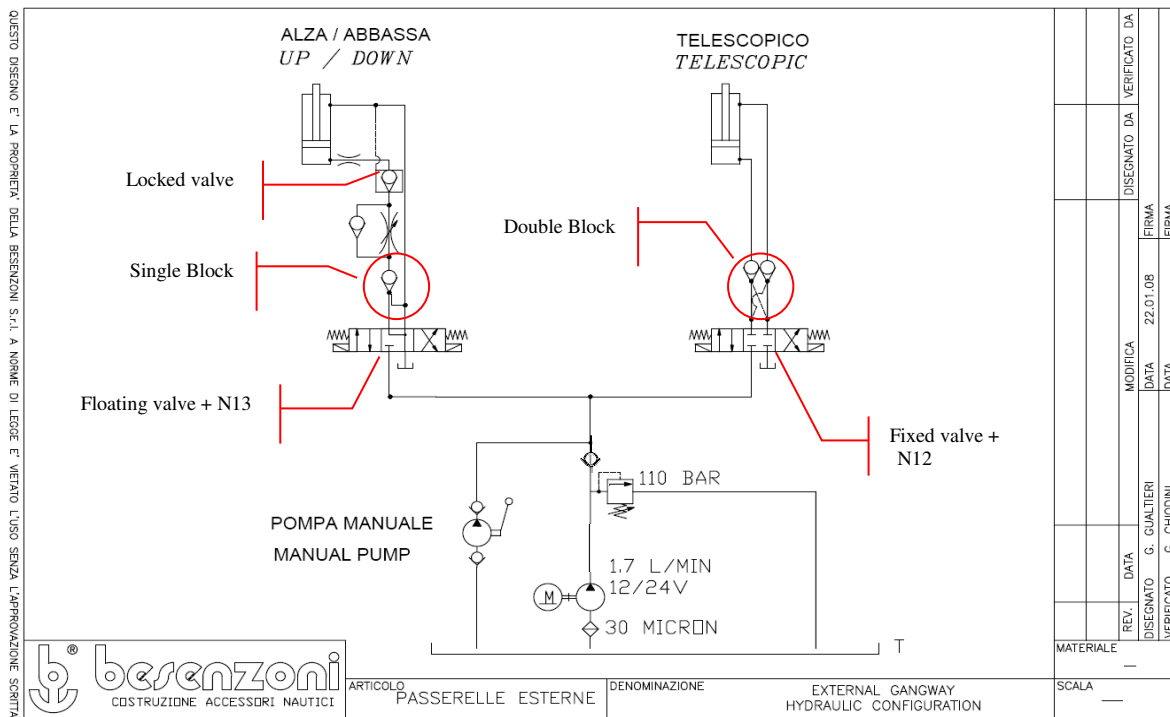


HYDRAULIC POWER PACK CONNECTION DIAGRAM



Colore - Color	Funzione - Function		Colore - Color
Rosso - Red	Telescopic _out	Telescopic _In	Giallo - Yellow
Green - Verde	UP - SU	DW - GIU'	Blu

ELECTRO - HYDRAULIC CONNECTION DIAGRAM



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STARTING THE SYSTEM

1. After starting the system, check that all controls are working correctly and check the settings of the adjustable valves.
2. If it is necessary to adjust the relief valve, be careful not to adjust beyond the limit of spring calibration; **screwing the relief valve in completely can cause serious damage to all system components**
3. We remind you that safety standards require the provision of a lead seal to prevent the relief valve setting being tampered with.
4. Be careful when filling up the system, as the oil level in the tank may be subject to shrinkage due the movement of oil to other parts of the system.
5. Check that the tank capacity is suitable for the demands of the hydraulic system.
6. when first operating the system, it is necessary to bleed any trapped air from inside the circuit to avoid foam formation inside the tank and to avoid erratic movement of the actuators.
7. After several working hours, check the level and state of the oil in the tank and check the fittings
8. The hoses connecting the power pack to actuators must have a diameter equal to or greater than the size of the ports on the power pack. As indicated, follow the given speed parameters of the fluid in the hoses.
 - Pressure line: 4÷6 m/s
 - Tank line: 1.5÷3 m/s

In many cases, the temperatures reached by the motor and the reservoir can exceed the “burn threshold”, as defined in the standard UNI EN 563.

Since it is not possible to consider a technical solution with respect to “reduction of the surface temperature” (UNI EN 563 appendice C), the end user must consider the use of appropriate protection, warning signs and personal protective measures.

□ WARNINGS USE THE PASSERELLE

Being the system “at present man” any movement of the passerelle must always be followed and controlled by the operator.

In the event of a malfunction of the system, the operator is required to immediately release the command to avoid damage to persons or on the passerelle itself.

The operator is required to carefully follow the return and exit phase of the passerelle, as this is a particularly critical phase, and in the event of anomalies, stop the function immediately.

In order to provide the operator with maximum visibility of the passerelle during all its movements, the control panel must be located near the passerelle to allow the operator to see it in each movement.

Damages resulting from non-observance of such behavior will not be recognized by Besenzoni SpA



TECHNICAL FEATURES OF THE OL7 SERIES HYDRAULIC PIPES

Reference	Ø				PRESSURE AT 23°C						RADIUS		Weight
	Internal in inch.	External in inch.	Internal in mm	External in mm		Internal in inch.	External in inch.	Internal in mm	External in mm		Internal in inch.	External in inch.	Internal in mm
OL710000	1/8 "	0.334	3.5	8.5	920	13340	460	6670	230	3340	30	1.18	57
OL720000	3/16 "	0.393	4.8	10.0	840	12180	420	6090	210	3045	35	1.38	73
OL730000	1/4"	0.464	6.4	11.8	800	11600	400	5800	200	2900	50	1.96	90
OL750000	3/8 "	0.629	9.5	16.0	700	10150	350	5075	175	2535	75	2.95	155

Technical-constructive features:

Internal core in thermoplastic polyester, reinforcement polyester fiber, exterior covering in polyurethane; on request it is also available micronperforated

Applications:

The OL7 series hoses have been created for oleodynamic use a medium pressure

Utilization Temperature (From – 40°C to + 100°C):

Max. Working temperature of air, water and fluids containing water: + 65°C

Working pressure:

As prescribed by SAE standards safety ratio 1:4

Specifications:

Hoses are in compliance with standards SAE J517 sec. SAE 100 R7, EN 855, ISO 3949

Note:

The OL7 series hoses also available in twin and, on request, multiple versions, with the same features as the single version.

Reference	Ø				PRESSURE AT 23°C						RADIUS	
	Internal in inch.	External in inch.	Internal in mm		Internal in inch.	External in inch.	Internal in mm		Internal in inch.	External in inch.	Internal in mm	External in inch.
OL8-1-12	1/8 "	0.279	3.2	7.1	1400	20300	700	10150	350	5075	30	1.18
OL8-2-12	3/16 "	0.437	4.8	11.1	1400	20300	700	10150	350	5075	35	1.38
OL8-4-12	5/16"	0.563	8.0	14.3	1300	18850	650	9425	325	4710	60	2.36

Technical-constructive features:

Internal core in thermoplastic polyester, aramidic fiber reinforcement and exterior covering in polyurethane

Applications:

The OL8 series hoses have been created for oleodynamic use at high pressure

Utilization Temperature (From – 40°C to + 93°C):

Max. Working temperature of air, water and fluids containing water: + 65°C

Working pressure:

As prescribed by SAE standards safety ratio 1:4

Specifications:

Hoses are in compliance with standards SAE J517 sec. SAE 100 R8, EN 855, ISO 3949

Note:The OL8 MARINE series hoses also available in twin and, on request, multiple versions, with the same features as the single version



AMOMALY	RIMEDY
<u>VIBRATIONS AND NOISE DURING VARIOUS MOVEMENTS</u>	<ul style="list-style-type: none"> • check that the electrical connection is correct • check the switching of the solenoid valves • check that the hydraulic connection is correct • check that none of the tubes are choked
<u>LOAD SPECIFICATIONS EXCEEDED</u>	<ul style="list-style-type: none"> • check the operation of the motor • check that the system power supply is correct • heck that none of the tubes are choked
<u>NON PERFORMANCE OF THE CONTROLS</u>	<ul style="list-style-type: none"> • check the magneto-thermal switch • check the pushbutton – electronic card connections
<u>THE 5 AMP FUSE IN THE CONTROL BOX HAS BLOWN, THE GANGWAY DOES NOT OPERATE</u>	<ul style="list-style-type: none"> • check that the switch connections have been made correctly consulting the instruction book (the infra-red box is inspected by our company).
<u>THE POWER PACK ONLY OPERATES CORRECTLY USING THE SWITCHES WHILE WITH THE REMOTE CONTROL IT OPERATES ERRATICALLY</u>	<ul style="list-style-type: none"> • check that the power cables are of the correct section (chap. vi) • each function of the transmitter is controlled by a servo-relay inside the electronic card: if there is a drop in the power supply, the relays operate erratically, preventing the power pack from working correctly, while with the switches, the current passes through and the power pack operates correctly when the pushbutton is pressed. • check that the batteries onboard, where the power pack power supply is connected, are charged. • this problem is caused by a flat battery or a battery with a high sulphurous content.
<u>THE RELAY REMAINS ENERGIZED EVEN WHEN NO CONTROL IS BEING USED.</u>	<ul style="list-style-type: none"> • check the consumption in amps of the motor (at 12 or 24 volts) according to the power pack requested, an excessive consumption of over 30 amp may be noted when the circuit does not remain under pressure (i.e. when the gangway is moving); this may be caused by an incorrect connection of the hydraulic system (choking of the tubes, etc.). also check that the switches have been connected correctly and that they have not become oxidized.
<u>THE GANGWAY DOES NOT OPERATE USING THE INFRA-RED REMOTE CONTROL.</u>	<ul style="list-style-type: none"> • check whether the infra-red receiver has been positioned correctly on the transom (as specified in the instructions for use).
<p>A GANGWAY operating fault may depend on the electrical connection, the hydraulic system and on the lifting of excess loads</p>	

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SAFETY REGULATIONS DURING MAINTENANCE WORK

If maintenance is carried out correctly, the equipment will last longer and give perfect results as far as operation and performance are concerned and operational reliability will be guaranteed. The maintenance operations should be carried out by trained staff.

The design and materials used to build the bathing ladder have reduced ordinary maintenance procedures to just lubrication and periodic cleaning procedures.

Staff must be equipped with individual means of protection commonly used for similar work and the safety procedures described in the paragraph below must be followed. A

All the connecting operations must be carried out with suitable tools (Phillips or crosshead screwdrivers, wrenches, Allen wrenches, etc. of a suitable size).

Makeshift tools should not be used and operations other than those provided for are not permitted. It is strictly forbidden to modify pins, bolts and safety devices, or reduce the steel or aluminium load-bearing sections.

Work carried out at Boatyards or at the Customer's premises is only permitted if prior communication is sent to this effect and authorization is received from BESENZONI S.p.A..

If such authorization is not obtained, the guarantee will immediately become null and void as it will no longer be possible for BESENZONI to check that the original safety conditions have been maintained.

ATTENTION:



- Specialized technicians informed on the functioning conditions of the chair must do the control and maintenance operations.
- The spare parts must correspond to the technical requirements determined by the manufacturer, which is always guaranteed if you use original spare parts.
- Disconnect the electrical power supply before removing any of the protective panels or replacing any of the parts.
- Do not wear rings, watches, chains, bracelets etc. during maintenance operations.
- Always use individual means of protection (gloves)
- Do not use naked flames, prongs or pins for cleaning operations.
- Do not smoke.



• ORDINARY CLEANING PROCEDURES

To keep all our equipment and parts in good operating order, it is advisable to perform a careful and attentive cleaning procedure as often as possible.

As the gangway is located in a critical position compared with all other on board accessories, being in constant contact with water and acid exhaust fumes, it requires careful cleaning.

As far as the coated parts are concerned, use polish or a past / cream.

• ORDINARY AND PREVENTIVE MAINTENANCE

- Periodically grease the steel rope races on the brass pulleys.
- During installation, the joint pins and the sleeves are greased for life.
- It is advisable to check the locking bolt tightening and to lubricate them slightly at the beginning of each season.
- Before using the gangway make sure there are no oil leaks from the cylinders inside the jib.
- Periodically check that all the external nuts and bolts are tight.
- Check the oil level: if it is below minimum level, top up with oil type OIL OSO 46 or an equivalent.
- Check that the emergency pump is operating correctly.
- Not clean with pressure washer

• ELECTRIC INSTALLATION

Check that the battery is charged and the oil level followings the builder dispositions. Check that the push – button panel remains intact day by day.



Make sure that during the first installation a fuse or a magnetic-breaker protection will be inserted on the power supply line (see pag 23).

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STORING THE EQUIPMENT

The gangway is delivered in a wooden packing case suitable for guaranteeing ideal transport and storage conditions.

Store in a dry, well-aired place.

Take maximum care when moving and stacking the packing cases.

Do not stack more than 4 cases and if they are stored in a loft make sure that the load bearing capacity is greater than the specific pressure exerted by the pile.

It should be noted that it is prohibited to stack objects to heights of over 4 meters.

If the gangway is not to be used for a certain period, the following operations are recommended:

- Disconnect the equipment from the power supplies.
- Empty the hydraulic oil from the tank.
- Clean the davit thoroughly to remove any residues and deposits.
- Protect the gangway with a waterproof cover;

DISPOSING OF THE EQUIPMENT

If for any reason, the gangway is to be disposed of, some fundamental regulations for safeguarding the environment must be followed.

Sheathing, flexible pipes, plastic or non – metal components must be removed and disposed of separately.

The equipment contains **pollutant oils** which must be disposed of at authorized centers.



ATTENTION: When the gangway is not in use, protect it with a cover made of waterproof material to guarantee maximum protection of the parts exposed to water and atmospheric agents. It is necessary also to keep the gangway fully lower and fully inside.



The hydraulic fluid used may be a pollutant

To avoid loss of hydraulic fluid it is important to use a drip tray and protect yourself from leakage or spillage hydraulic fluid by using oil absorbent products.

The disposal of hydraulic fluid is governed by special regulations: it is prohibited of hydraulic fluids in the environment, it is therefore important to respect the information and instructions given by the manufacturer and stick to guidelines with respect to the legislation (DPR 691/82).

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• LIST OF PARTS SUBJECT TO WEAR

These parts are subjected by wear and so they are not cover under warranty

Parts subject to wear	Limits of wear
O-rings, gaskets and similar parts	They must be replaced as necessary to guarantee perfect operating order. Frequent use leads to rapid wear.
Remote control batteries	The outside temperature, the cleanliness and the frequency of use can compromise the perfect operating order even during the first 6 months of use.
Bushings and pins	Grease at the beginning of each season and do not wash with salt water or water under high pressure.
Fairings, surfaces made of plastic reinforced with fibre glass or NCL	If these parts are cleaned with unsuitable products they may become opaque. Use only soft water to clean them (or a neutral soap if required).
Electric cables, hydraulic pipes	Do not allow them to rub against blunt instruments that could lead to rapid wear.
Lifting cable	According to the use made of the item, the cable may wear quickly. Grease the pulleys at the beginning of each season.
Self-locking nuts, split pins, safety washers	Every time the safety element is removed, replace it with a new one!
Nylon guides	Frequent sliding movements lead to rapid wear of the nylon guides. Replace them as necessary to prevent worn guides from damaging the metal parts.
Electrical system, motor, position sensors	Seepage of water is due to an incorrect positioning on the boat, failure to tighten the screws or incorrect washing with water.
Lubricants, oil and tightness control	Check the levels and top them up at the beginning of each season according to the instructions given in the maintenance book. Grease parts that come into contact with each other.
Courtesy lights	Frequent stress and exposure to salt water can cause rapid wear of the courtesy lights even after the first six months. Wash only with soft water.
Motor	It is of a size suitable for occasional and not continual use. It is provided with a heat sensor that cuts off the power if it overheats. Frequent overheating may cause damage to the windings.
Polished stainless steel structures, satin finish aluminum structures, coated structures.	Wash frequently using only soft water. Then rub polish over them and a light coat of lubricating oil. Oxidation and corrosion are due to improper maintenance.
Teak	Only use products designed specifically for teak.
Flexible pipes and hydraulic fittings	Check the connections are tight at the beginning of each season as the vibrations of the boat may cause them to become loose.

berozoni





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