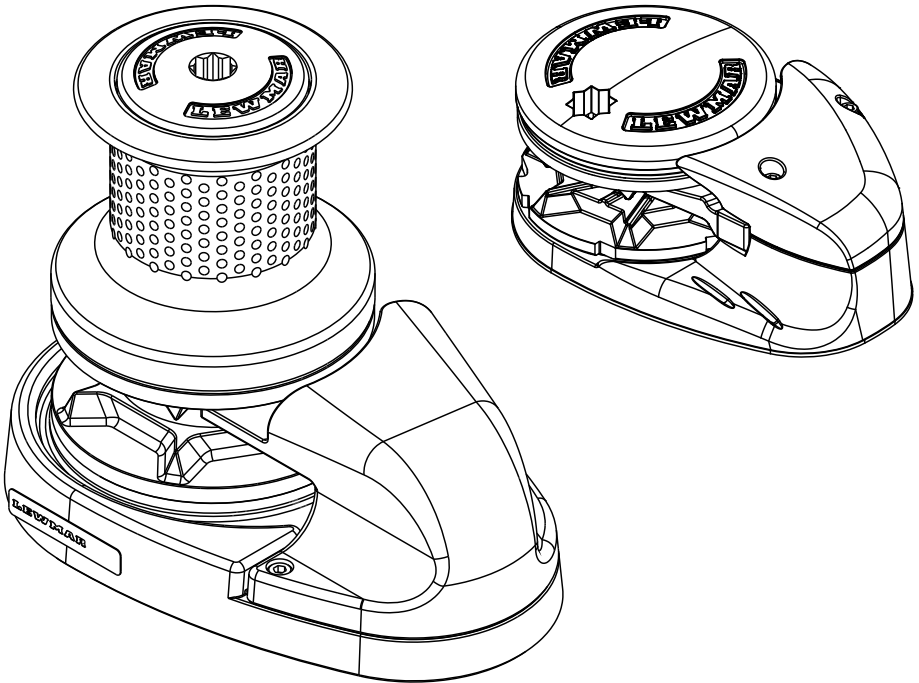


Lewmar V1-6 Windlass

65001201 Issue 9



1. Introduction

Dear Customer,

Thank you for choosing Lewmar. Lewmar products are world renowned for their quality, technical innovation and proven performance. With a Lewmar product you will be provided with many years of outstanding service.

Product support

Lewmar products are supported by a worldwide network of distributors and Authorised Service Representatives. If you encounter any difficulties with this product, please contact your national distributor, or your local Lewmar dealer. Details are available at: www.lewmar.com


CE Approvals


For CE approval certificates contact Lewmar.

Important information about this manual

Throughout this manual, you will see safety and product damage warnings. You must follow these warnings carefully to avoid possible injury or damage.

The type of warnings, what they look like, and how they are used in this manual are explained as follows:

 **WARNING!**
This is a warning against anything which may cause injury to people if the warning is ignored. You are informed about what you must or must not do in order to reduce the risk of injury to yourself and others.

 **SAFETY SYMBOL**
When you see the safety symbol it means: "Do not..."; "Do not do this"; or "Do not let this happen".

2. Safety Notice

 **WARNING!**

IMPORTANT: Read these notes before continuing.

2.1 Windlass general

Classification Societies and Lewmar require that a vessel at anchor must have its chain/rode held by a chain stopper or equivalent strong point at all times

At all times it is the responsibility of the boat operator to ensure that the anchor and rode are properly stowed for the prevailing sea conditions. This is particularly important with high-speed powerboats, because an anchor accidentally deploying while under way can cause considerable damage. An anchor windlass is mounted in the most exposed position on a vessel and is thus subject to severe atmospheric attack resulting in a possibility of corrosion in excess of that experienced with most other items of deck equipment. As the windlass may only be used infrequently, the risk of corrosion is further increased. It is essential that the windlass is regularly examined, operated and given any necessary maintenance.

Please ensure that you thoroughly understand the operation and safety requirements of the windlass before commencing the installation. Only persons who are completely familiar with the controls and those who have been fully made aware of the correct use of the windlass should be allowed to use it. If there is any doubt of how to install or operate this unit please seek advice from a suitably qualified engineer.

- ▶ Windlasses used incorrectly could cause harm to equipment or crew.
- ▶ Windlasses should be used with care and treated with respect.
- ▶ Boating, like many other activities can be hazardous. Even the correct selection, maintenance and use of proper equipment cannot eliminate the potential for danger, serious injury or death.
- ▶ Lewmar windlasses are designed and supplied for anchor control in marine applications and are not to be used in conjunction with any other use.
- ▶ Keep limbs, fingers, clothing and hair clear of windlass, rode and anchor during operation. Severe bodily harm could result.
- ▶ Ensure there are no swimmers or divers nearby when dropping anchor.
- ▶ Windlasses must not be used as the sole means of securing the anchor to the bow fitting especially under storm conditions. Anchors should be independently secured to prevent accidental release.
- ▶ Classification Societies require that a vessel lying at anchor must have its anchor rope/chain secured to a chain stopper or other suitable independent strong point.
- ▶ A windlass should never be used as a mooring bollard, the anchor rode **MUST** be secured to a mooring cleat, chain stopper or other designated strong point. Using the windlass to secure the rode will damage the windlass.
- ▶ Do not use windlass for ANY purpose other than deployment and recovery of anchor.
- ▶ The circuit breaker in this product must never be deactivated or otherwise bypassed, it is intended to protect the motor and cables from overheating and damage.
- ▶ Always switch off this windlass at the circuit breaker/isolator when not in use.
- ▶ It is the unavoidable responsibility of the owner, master or other responsible party to assess the risk of any operation on the vessel.
- ▶ Windlass must not be operated whilst under the influence of alcohol or drugs.

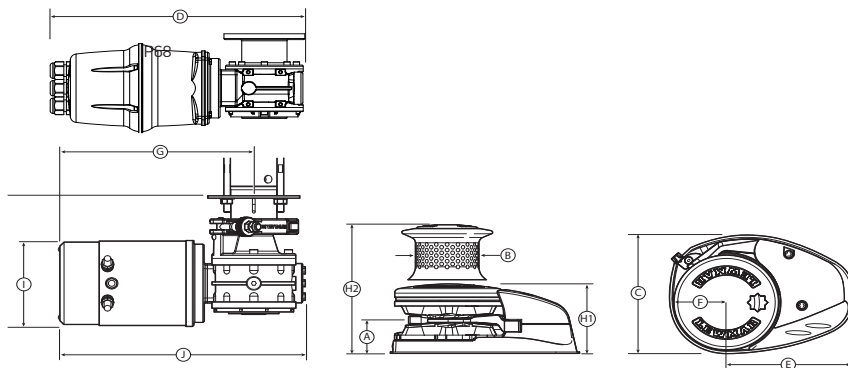
2.2 Fitting

- ▶ This equipment must be installed and operated in accordance with the instructions contained in this manual. Failure to do so could result in poor product performance, personal injury and/or damage to your boat.
- ▶ Consult the boat manufacturer if you have any doubt about the strength or suitability of the mounting location.

2.3 Electrical

- ▶ Make sure that the boat's battery power supply has been switched off before starting the installation.
- ▶ This product requires installation by a suitably qualified electrical engineer.

3. Specifications



MODEL	A		B		C		D		E		F		G		H1		H2		I		J		K	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V1	42	1 11/16	-	-	161	6 5/16	348	13 3/4	157	6 3/16	70	2 3/4	237	9 1/4	92	3 5/8	-	-	114	4 1/4	310	12 3/16	173	6 13/16
V2	42	1 11/16	75	3	161	6 5/16	348	13 3/4	157	6 3/16	70	2 3/4	237	9 1/4	92	3 5/8	168	6 5/8	114	4 1/4	310	12 3/16	173	6 3/16
V3	42	1 11/16	75	3	161	6 5/16	348	13 3/4	157	6 3/16	70	2 3/4	237	9 1/4	92	3 5/8	168	6 5/8	114	4 1/4	315	12 3/8	173	6 3/16

MODEL	A		B		C		D		E		F		G1		G2		H		I		J	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V4	51	2	91	2 7/16	188	7 7/16	185	7 1/4	89	3 1/2	277	10 7/8	107	4 1/4	215	8 7/16	112	4 7/16	366	14 7/16	156	7 5/16
V5	51	2	91	2 7/16	188	7 7/16	185	7 1/4	89	3 1/2	289	11 1/8	107	4 1/4	215	8 7/16	125	4 15/16	378	14 7/8	174	6 7/8
V6	77	3 1/32	105	4 1/8	212	8 11/32	326	12 7/8	82	3 7/32	366	14 3/8	145	5 3/4	257	10 1/8	122	4 13/16	484	19	193	7 5/8

4. Installation

4.1 Basic requirements

Each installation requires the following tools:

Windlass Installation

An appropriate marine sealant and the following:

V1-3

- ▶ 10 mm (3/8") Drill
- ▶ 14 mm (9/16") Drill
- ▶ 75 mm (3") Hole Saw

V4-5

- ▶ 12 mm (7/16") Drill
- ▶ 77 Ø 90 mm (3" Ø 4 1/2") Hole Saw

V6

- ▶ 5 mm (3/16") Drill
- ▶ 12 mm (7/16") Drill
- ▶ 115 mm (4 1/2") Hole Saw

Wiring Installation

- ▶ Crimping Pliers / Wire Stripper
- ▶ Suitable electrical cable and crimp terminals

4.2 Accessories

Use only genuine Lewmar parts and accessories to ensure top performance and eliminate the risk of voiding your warranty. For replacement parts, please visit your dealer or www.lewmar.com

4.3 Gypsy Suitability

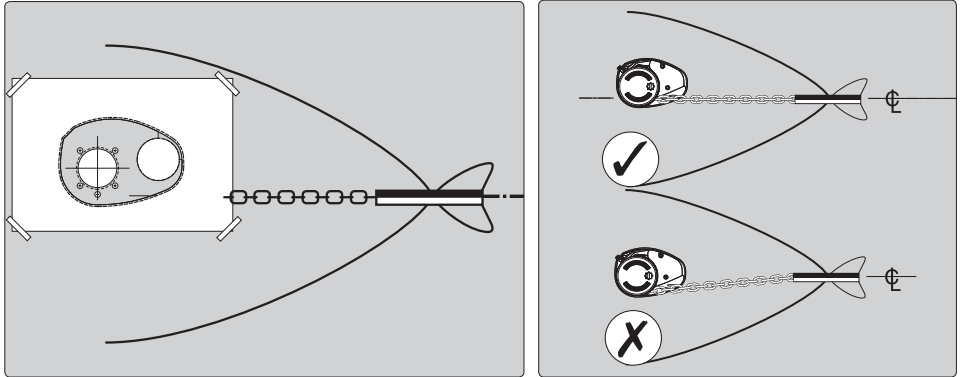
Gypsies fitted to the V1-5 range of windlasses are ideally suited to handling our factory made Rope/Chain combination rodes, which consist of rope spliced to a chain tail. The V6 range is chain only. See Specifications section for details.

Ropes used must be windlass grade, medium lay nylon. Ropes from different manufacturers have wide variations in stretch and consistency in diameter. Therefore, rope and chain from other manufacturers may require some experimentation to determine the optimum size.

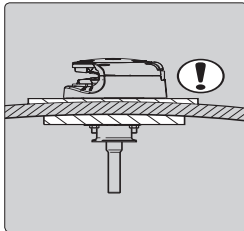
Should you have difficulty in matching a gypsy to your chain please consult your local agent or our international network of distributors.

4.4 V1-6 Above deck preparation

IMPORTANT - Plan location carefully and allow for the following:

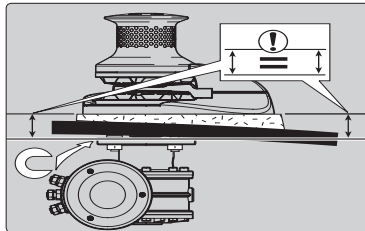


1. Make an accurate drilling template using the product dimensions from the dimension template and decide upon a position for it with reference to the vessel's bow roller and the chain locker below and the rotation of manual operating handle. If possible, select a flat area of deck.



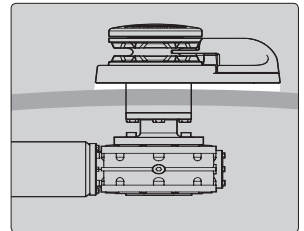
2. Models V1-3

If the deck is not flat, a suitable mounting pad may be required to take up camber or sheer.



3. Models V4-5

If a pad is required for these models, care must be taken to ensure that the windlass base is parallel to the motor/gearbox mounting flange. Shims may be used, before the motor/gearbox is installed, to correct minor misalignment.



4. Model V6

If the deck is not flat, a suitable mounting pad may be required to take up camber or sheer.

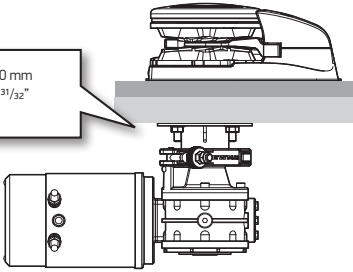
Notes

- ▶ If in doubt about the suitable construction of the pad consult a qualified marine engineer.
- ▶ Decks that are thin, or of foam or balsa laminate construction, will require reinforcement in order to spread the loads that will be applied to the deck while the windlass is in use

4.5 V1-6 Deck thickness

4.5-1

25 - 50 mm
1" - 1 3/32"



The deck is an integral component of the windlass it has to secure the windlass and be strong enough to cope with the high torque stresses involved in recovering the anchor.

1. Models V1-3

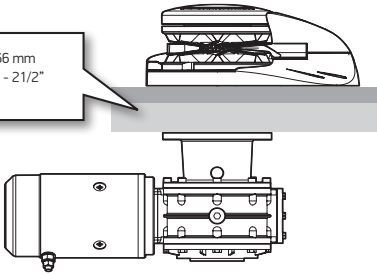
Lewmar recommends a minimum deck thickness of 25 mm (1"),

M8 Studs suit deck and packing thickness of 25-50 mm (1" - 1 3/32").

NOTE: An optional extended version can be used on decks up to 127 mm thick.

4.5-2

40 - 66 mm
1 1/2" - 2 1/2"



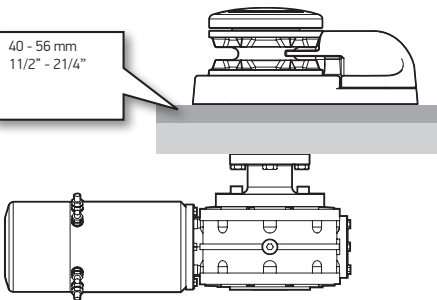
2. Models V4-5

Lewmar recommends a minimum deck thickness of 40 mm (1 1/2").

M10 studs suit deck and packing thickness of 40-66 mm (1 1/2" - 2 1/2").

4.5-3

40 - 56 mm
1 1/2" - 2 1/4"



3. Model V6

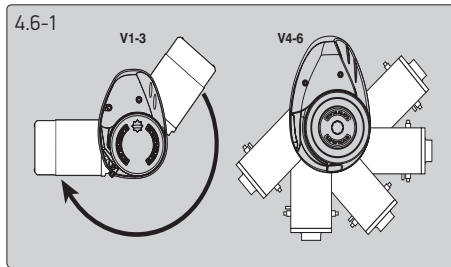
Lewmar recommends a minimum deck thickness of 40 mm (1 1/2").

M10 studs suit deck and packing thickness of 40-56 mm (1 1/2" - 2 1/4").

4.6 V1-6 Below deck preparation

IMPORTANT:

The positioning of the windlass must be checked prior to cutting for deck/hull and bulkhead clearance.



1. Models V1-3

The motor/gearbox is connected by a fast fit clamp enabling it to be rotated and fixed in any position 360 degrees.

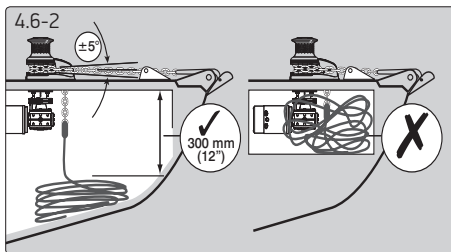
Models V4-5

The motor/gearbox is bolted via the through deck mounting bolts.

Models V6

The motor/gearbox is bolted directly to the base via a down tube.

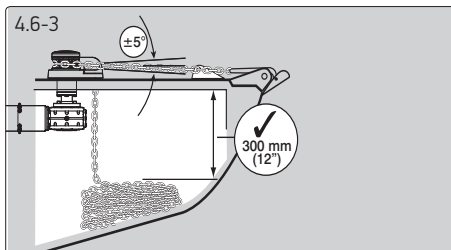
NOTE: In either case do not position motor/gearbox below rode/chain pipe fall area.



2. Models V1-5

Lead from the roller should be fed horizontally back to the top of the gypsy and along its centre line within $\pm 5^\circ$. There must be sufficient vertical fall for the chain or rope when hauling in.

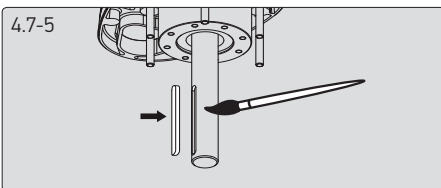
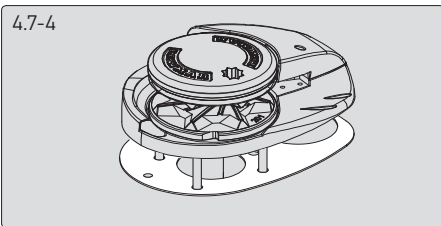
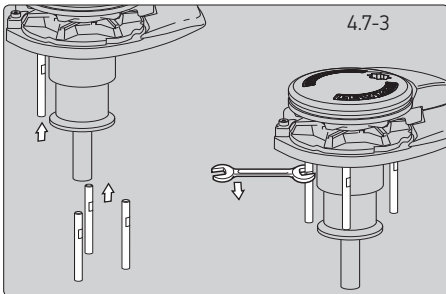
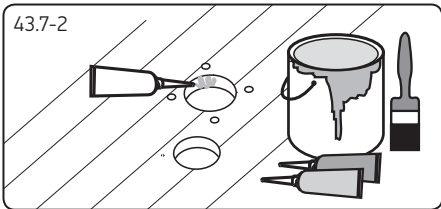
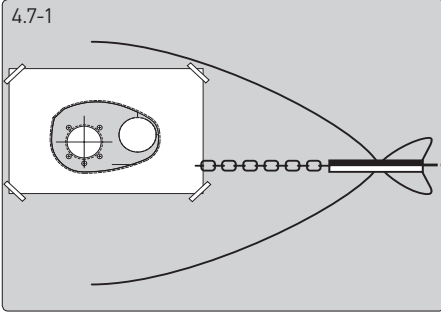
⚠ WARNING! Failure to provide minimum vertical fall will cause jamming.



3. Model V6 (Chain Only)

Chain from the roller should be fed horizontally back to the top of the gypsy and along its centre line within $\pm 5^\circ$. There must be sufficient vertical fall for the chain when hauling in.

4.7 V1-6 Above deck fitting



1. Using your template and after you have checked all the above and below deck requirements cut the following holes.

Model V1-3

Using a 10 mm (3/8") diameter drill, make the five holes for the mounting studs and sensor. With a 75 mm (3") diameter hole saw, make two holes for the rode and down tube to pass through.

Models V4-6

Using a 12 mm (7/16") diameter drill, make the five holes for the mounting studs and sensor. With a 115 mm (4 1/2") diameter hole saw, make two holes for the rode and down tube to pass through.

2. When all the holes have been made, remove the template. To help avoid water absorption by the deck, apply an appropriate marine sealant to the freshly cut hole edges.

3. Assemble and tighten studs into base until they bottom out in their holes. Some studs have a flat. Position the flats of the studs nearest the base of the windlass.

4. Models V1-5

Place the base mat in position on the deck.

Optionally, apply a suitable sealant to the base of the windlass, any mounting pad or around the studs.

Model V6

This model is not supplied with a base mat.

Use sealant

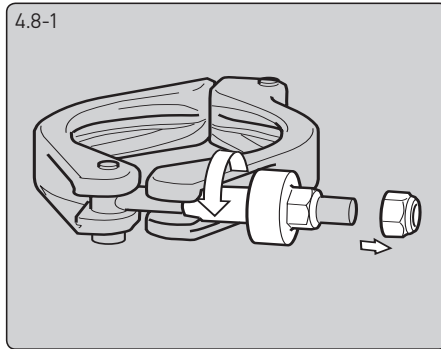
NOTE: If using silicone or other rubbery type sealant, it is advisable to allow curing of the sealant before final tightening of the mounting nuts.

5. Lightly coat the shaft with grease and ensure the drive key is in place before assembly to motor/gearbox.

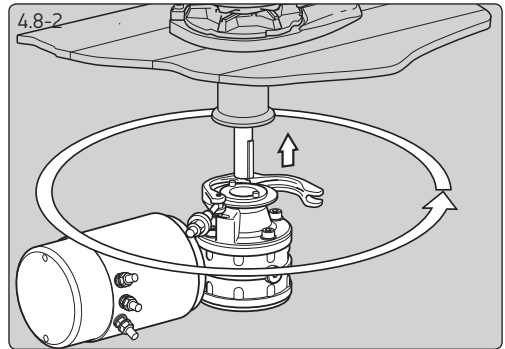
⊘ DO NOT use a permanent adhesive/sealant eg.5200

4.8 V1-3 Under deck fitting

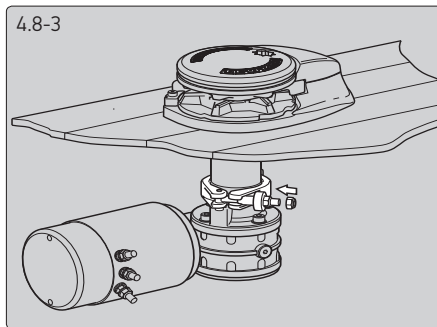
Lightly grease all moving parts.



1. Remove the Nyloc nut from the end of the Fast Fit clamp bolt and screw the bronze nut up to the end of the thread.



2. Open up the Fast Fit clamp and offer the gearbox up to the above deck unit, sliding the shaft into the gearbox. Ensure the drive key is in place.

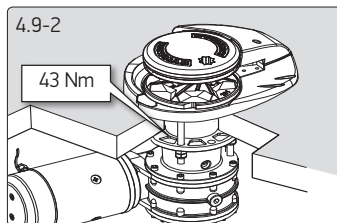
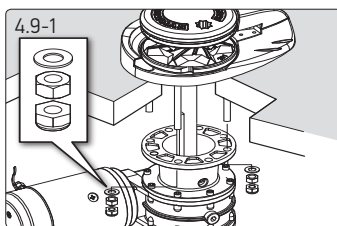


3. Slide the gearbox up the shaft and rotate it into a suitable position before finally pushing home onto the location dowels.

Swing the Fast Fit clamp shut and tighten up the bronze nut by hand. If required you can remove the plastic location plug holding the Fast Fit clamp in place and rotate the clamp around the gearbox flange to give a better location for tightening up the nut.

Tighten up the bronze nut to 15 Nm (11 lb/ft) before adding the Nyloc nut. Tighten the Nyloc nut up behind the bronze nut.

4.9 V4-5 Under deck fitting



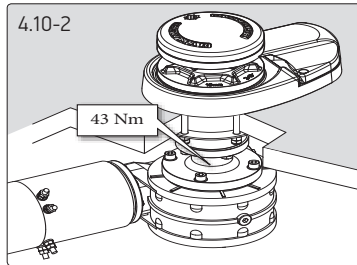
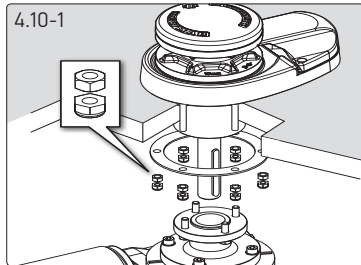
Lightly grease all moving parts.

1. Ensure drive key is in place then gently slide the motor/gearbox up the drive shaft until it contacts the deck
NOTE: Position the motor/gearbox away from the rope/chain pipe fall.

2. Check the motor/gearbox and windlass mounting surfaces are parallel. Assemble the M8 nut first, secure with Loctite® threadlock to 43 Nm torque. Lock tightened nut with spanner and then secure with the M8 Nyloc nut.

NOTE: If using silicone or other rubbery type sealant, it is advisable to allow curing of the sealant before final tightening of the mounting nuts.

4.10 V6 Under deck fitting



Lightly grease all moving parts.

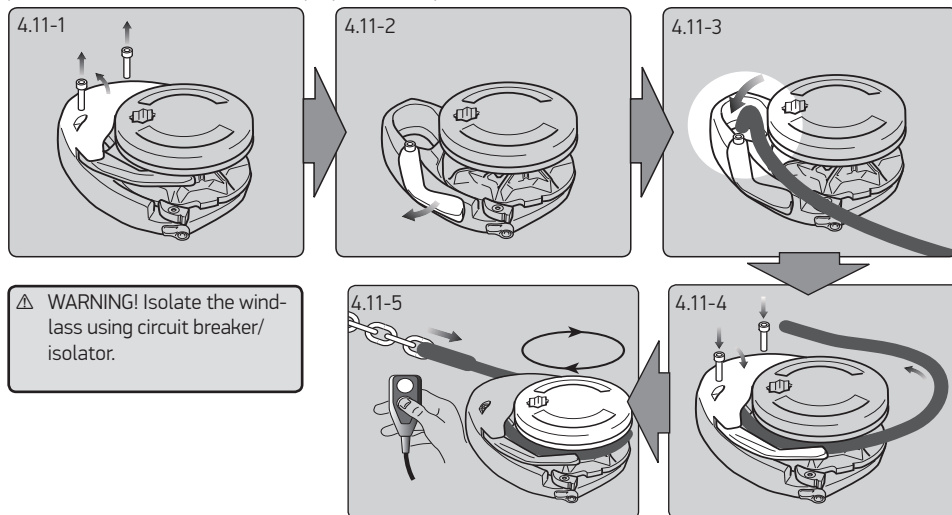
Slide the deck backing plate onto the windlass studs. Assemble the M10 nut first, secure with Loctite® threadlock to 43 Nm torque. Lock tightened nut with spanner and then secure with the M10 Nyloc nut.

NOTE: If using silicone or other rubbery type sealant, it is advisable to allow curing of the sealant before final tightening of the mounting nuts.

Ensure drive key is in place then gently slide the motor/gearbox up the drive shaft until motor/gearbox mounting plate meets the windlass downtube. Assemble the M10 bolts secure with Loctite® threadlock to 43 Nm torque. NOTE: Position the motor/gearbox away from the rope/chain pipe fall.

4.11 V1-6 Loading rope/chain

Use this method for quicker anchor deployment, in an emergency involving loss of power or to save battery power. Observe maritime anchor deployment safety rules.



For safety and performance Lewmar recommends the use of matched Lewmar anchor rodes.

1. Remove cover.
2. Pull out control arm.
3. Feed anchor rope/chain into entry hole. Tie off to suitable strong point.

4. Replace cover. Release control arm and wrap rope/chain around gypsy.

5. Power load rest of anchor rope/chain.

Model V6 chain only

These models have the same loading procedure as above but do not have a control arm.

5. Electrical wiring

⊘ DO NOT confuse cable length with the length of the vessel

5.1 Electric cable selection

Lewmar recommends the installer source and install cable that meets the requirements of the standards and regulations relevant to the installation and codes of practice. The cable table gives recommended cable sizes based on total length of cable required, from the battery, following the route of the cables.

Windlass performance is directly related to cable size and length. Voltage drop over the complete wiring run must not exceed 10%.

5.2 Wiring

Plan the installation to suit the controls and give the operator a full view of the windlass. The wiring system should be of the fully insulated type, which avoids possible electrolytic corrosion problems. We recommend the use of type III stranded, tinned copper wire with copper crimp terminals. Most modern installations are negative return (negative ground) but polarity should be checked.

Overload protection, in the form of the circuit breaker/fuse supplied, must be built into the windlass wiring circuit.

⚠ WARNING!

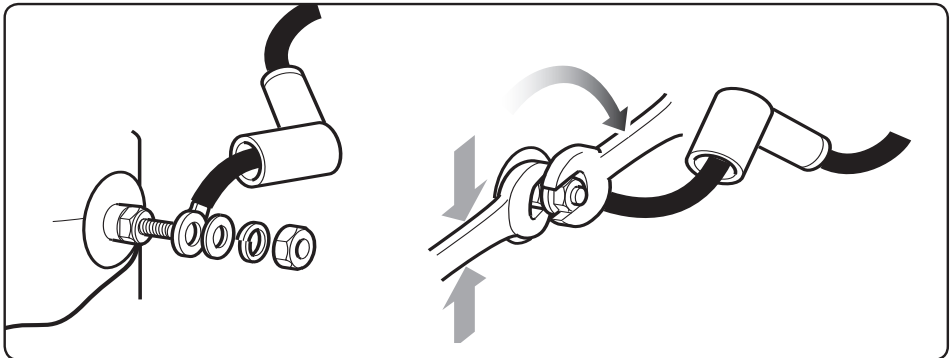
NOTE: The circuit breaker should be positioned close to the battery in a dry, readily accessible place.

The breaker must be manually reset should an overload occur that causes it to trip to the off position. If you are not sure you understand these guidelines, seek professional help. Ensure that the installation complies with USCG, ABYC, NMMA or other local regulations.

5.3 Electric motor terminal connections

- ▶ When wiring Lewmar electric motor into the ship's electrical system the following caution must be taken.
- ▶ When tightening the front nut hold the back nut with a separate wrench to make sure the back nut does not turn. If the back nut turns, serious damage will occur, voiding Lewmar's warranty on the electric motor.

⊘ DO NOT overtighten electric motor terminal nuts.



5.4 Control switch installation

Installation of this product should meet the regulations and standards or codes of practice relevant to the craft to which it is being fitted. As a minimum the installer should conform ISO 10133.

Lewmar recommends the installer use cable with insulation rated at 90°C or higher.

Length = Length of cable from battery '+' terminal and back to battery '-' terminal including breaker and switch gear if fitted

Cable size guide given is for guidance only.

It is the responsibility of the installer to confirm the capacity and voltage drop for the installation. If in any doubt, contact your local marine electrician.

MODEL	CURRENT DRAW AT WORKING LOAD	BREAKER SUPPLIED AMPs	CSA TO MEET ISO 10133 ANNEX A FOR 20 M	AWG TO MEET ABYC E11 FOR L= 66 FEET
V1	126	90	25	2
V2 12V	120	90	25	2
V2 24V	60	50	10	8
V3 12V	131	110	25	2
V3 24V	70	90	16	8
V4 12V	125	150	25	2
V4 24V	70	110	10	8
V5 12V	120	150	25	2
V5 24V	60	110	10	8
V6	90	150	16	6

MODEL	CIRCUIT BREAKER	CONTACTOR	CONTROL BOX
V1/Sport	90 A (68000349)	68000318	68000129
V2/Sport	90 A (68000349)	68000318	68000129
V2/Sport	50 A (68000348)	68000319	68000130
V3/Sport	110 A (68000350)	68000318	68000129
V3/Sport	90 A (68000349)	68000319	68000130
V4	150 A (68000351)	68000320	18000200
V4	110 A (68000350)	68000321	18000237
V5	150 A (68000359)	68000318	68000128
V5	110 A (68000350)	68000318	68000130
V6	150 A (68000351)	68000321	18000237

NOTE: Wireless remote also available.

NOTE: Wireless remote can only be used if a contactor is fitted. See wireless remote instructions for wiring details.

WIRELESS REMOTE 3 BUTTON WINDLASS ONLY

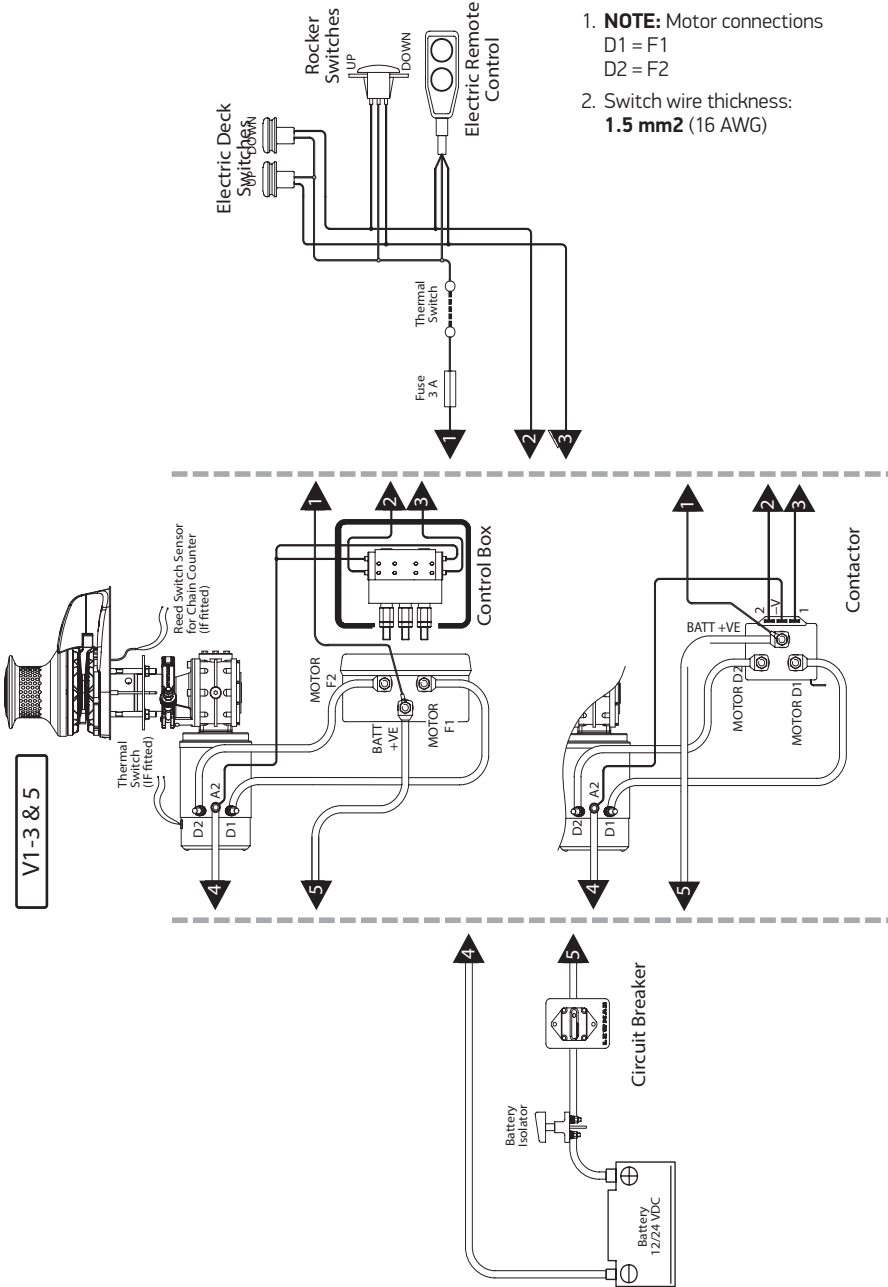
WIRELESS REMOTE 5 BUTTON WINDLASS AND THRUSTER

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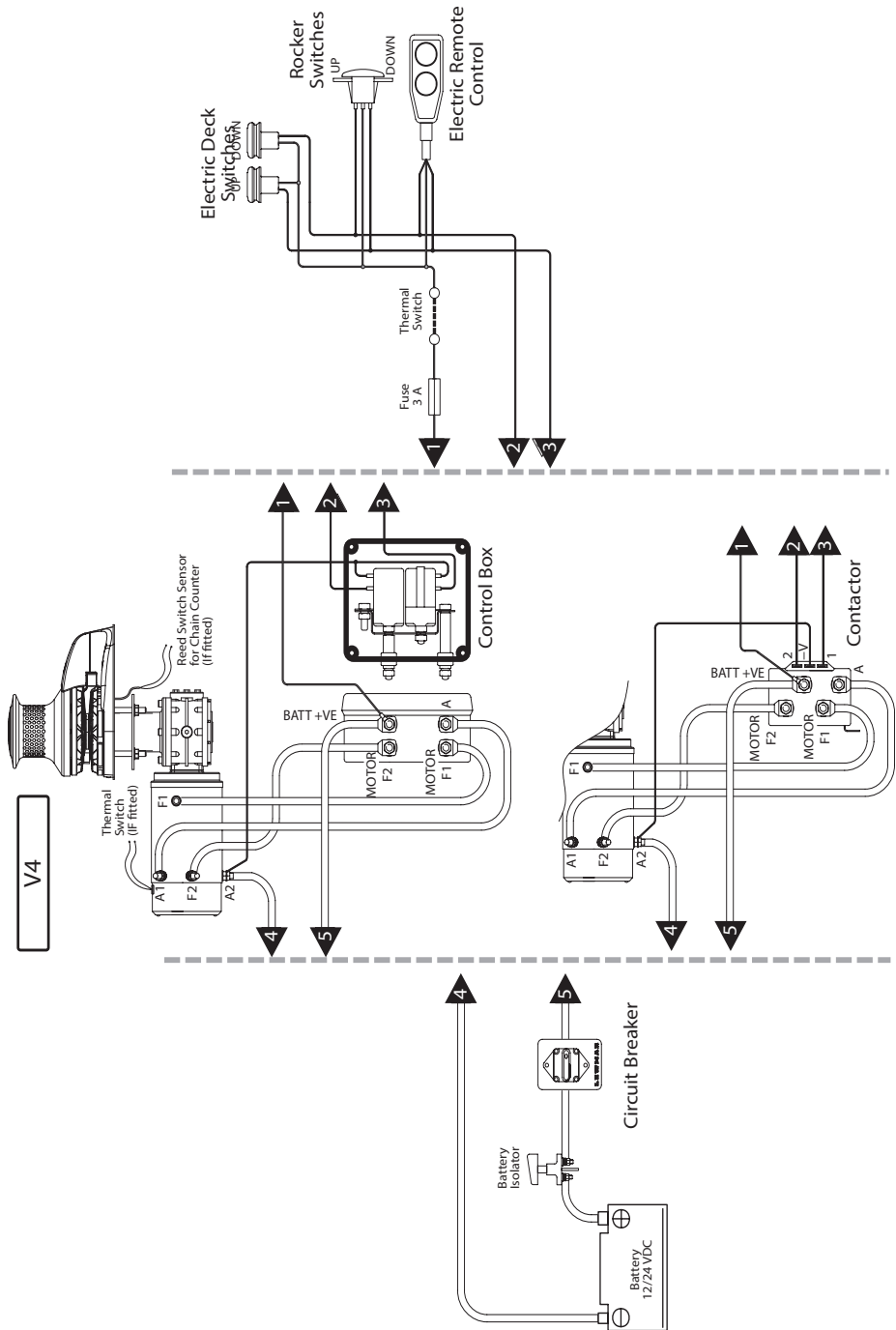
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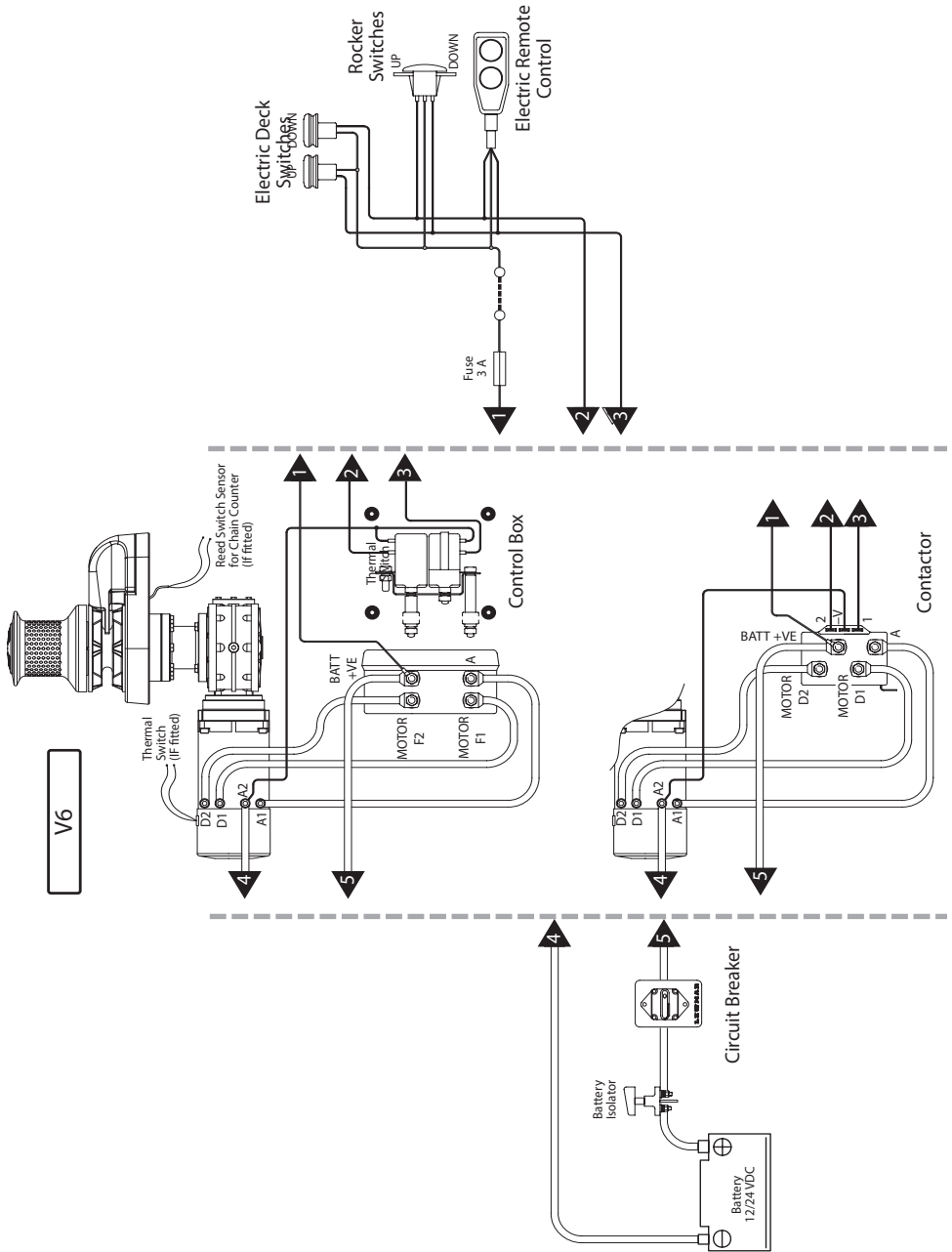
5.5 V1-6 Wiring diagram

Installation instructions are supplied separately with any accessories.



1. **NOTE:** Motor connections
D1 = F1
D2 = F2
2. Switch wire thickness:
1.5 mm2 (16 AWG)



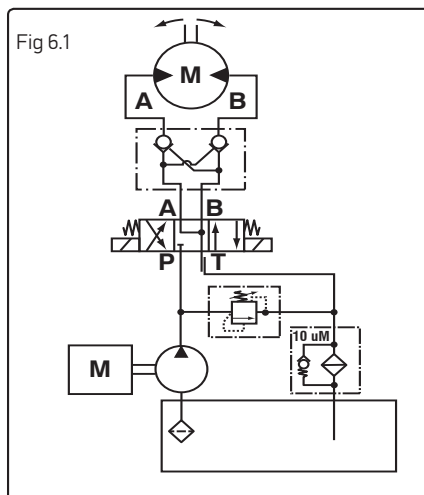


6. Hydraulic System

6.1 Installation

NOTE: Hydraulic system installation is NOT covered in this publication.

- ▶ Lewmar hydraulic windlasses have been designed for ease of installation and follow a straightforward hydraulic and mechanical installation procedure.
- ▶ Windlass unit should be connected to a hydraulic powerpack with directional control valve installed to control the windlass movement.
- ▶ Fig 6.1 shows a typical hydraulic circuit for a V6 windlass.
- ▶ The purpose of this manual is to provide the reader with sufficient information to install and operate a hydraulic windlass. It assumes the reader will be familiar with sailing craft, marine hydraulics and mechanical installation and safety requirements. If in any doubt consult a qualified marine engineer.
- ▶ The installation of hydraulic systems requires a high level of cleanliness. The ingress of dirt will dangerously impair the safe operation of the system and cause premature wear of hydraulic components.



6.2 Hydraulic motor/gearbox

- ▶ The hydraulic motor/gearbox consists of a high torque hydraulic motor fitted to a 7:1 90 degree gearbox.
- ▶ The hydraulic motors have a maximum pressure rating of 180 bar and can be used with an oil supply of up to 57 l/min.
- ▶ The motor gearboxes are not self sustaining. A dual Pilot Operated Check Valve (POCV) must be installed in the system to temporarily sustain any load. The POCV can be line mounted (as shown in Fig 6.1-1) or modular type if for example a CETOP 3 directional valve is being used.

NOTE: To permanently sustain a load a Chain Stopper must be used.

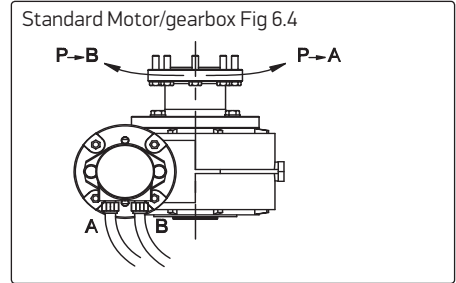
6.3 Hose types

1. For reliable operation and safety it is essential to use reinforced braid hose for connecting to the motor A and B ports which conforms to SAE 100R2A or DIN 20 021 Part 2.
2. The recommended hose sizes are:
 - ▶ Up to 30 l/min + 1/2" (13 mm) bore diameter.
 - ▶ Up to 40 l/min + 5/8" (16 mm) bore diameter.
 - ▶ Up to 57 l/min + 3/4" (19 mm) bore diameter.
 - ▶ Ref: 3.78 litres = 1 US gallon
4.54 litres = 1 Imperial gallon

6.4 Motor ports - standard motor/gearbox

- ▶ The location of the ports for the standard motor/gearbox is shown in Fig 6.4 (no drain connection).
- ▶ The Lewmar hydraulic motor ports are:
A & B ports ½" BSP.

NOTE: Refer to your installed hydraulic system manual for hydraulic drives.



7. Operation

7.1 V1-6 Braked anchor free-fall

Use this method for quicker anchor deployment and to save battery power.

Models V1-3

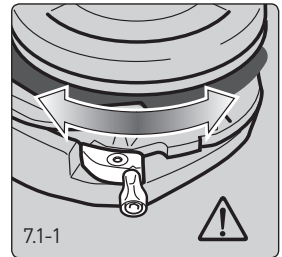
Check fall-safe pawl is in vertical disengaged position and held clear by fall safe lever.

Models V4-5

Check pawl is in disengaged position.

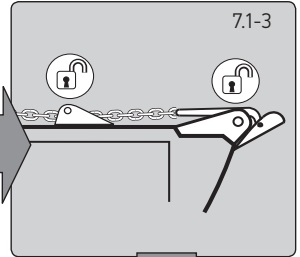
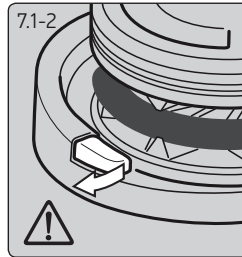
Models V6 & V-Sport

This model has no fall-safe pawl.



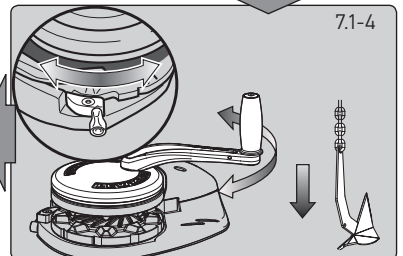
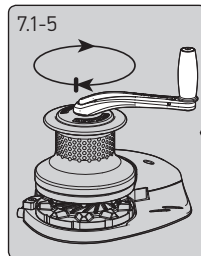
Gypsy only

1. Release any anchor locks and when safe rotate handle anti-clockwise until anchor pays out.
2. Adjust rate of fall with handle.
Once paid out fully tighten gypsy drive cap.



Gypsy/drum

3. Place a Lewmar handle into the drum top nut and operate as gypsy version above.



⚠ WARNING! Always remove winch handle after use.

⚠ WARNING! Isolate the windlass using circuit breaker/isolator.

7.2 Power up/down

To release anchor.

1. Models V1-3

Check fall-safe pawl is in vertical disengaged position and held clear by fall safe lever.

2. Models V4-5

Check pawl is in disengaged position.

V6 & V-Sport versions

Operate as below, this model has no fall-safe pawl.

3. Release any anchor locks.

4. When safe, operate DOWN control.

To retrieve anchor.

When retrieving the anchor rode, ensure the top nut is tight

Note: For V6 only, Tighten top nut to 250Nm to achieve maximum load.

- ▶ Retrieving the anchor is the reverse to the above.

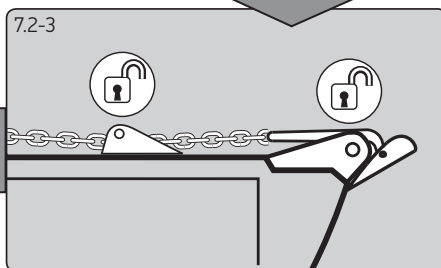
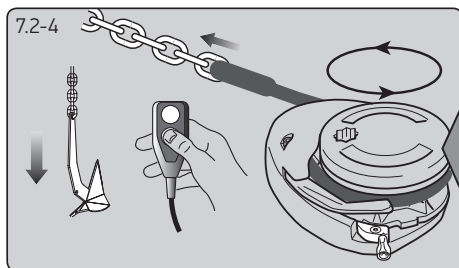
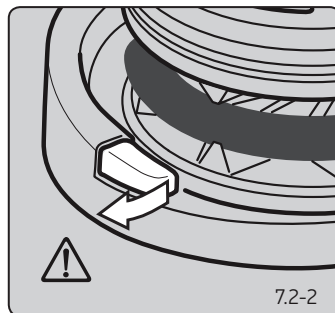
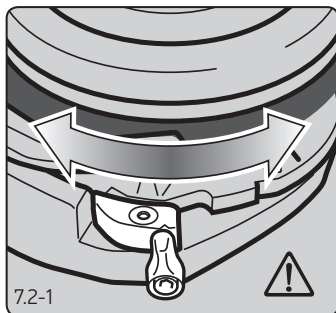
NOTE: Models V1-3 fall-safe does not need to be disengaged during retrieval as it acts as a ratchet.

- ▶ When safe, operate the UP control. When anchor has been retrieved and stowed, the fall-safe pawl should be left engaged.

NOTE: Remember, on models V1-3 the fall-safe does need to be disengaged before anchor can be let go again.

- ▶ Once anchor is retrieved, ensure it is adequately secured to an independent strong point.

⚠ WARNING!
Check Fall-Safe pawl is disengaged and held clear by Fall-Safe lever - Except Sport & V6.



7.3 V1-3 manual recovery

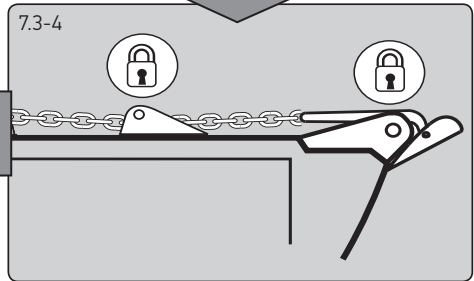
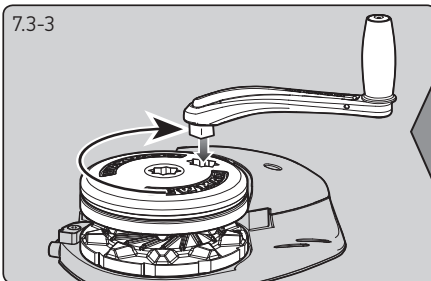
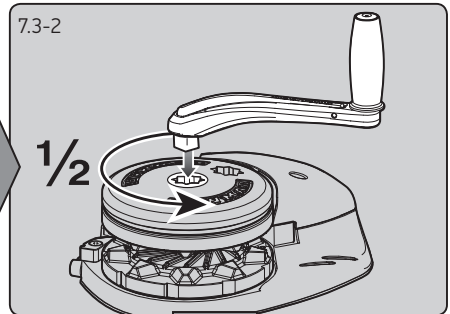
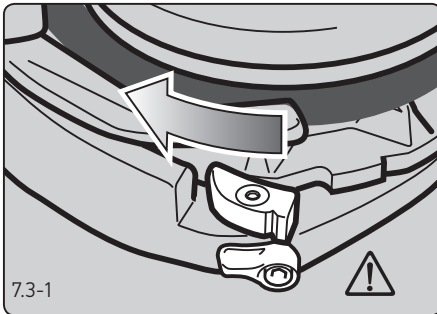
- ▶ Gypsy only (optional manual recovery Kit No.66840054)
- ▶ Gypsy/drum (optional manual recovery Kit No.66840056)
- ▶ Sport versions: These units have no manual recovery.

1. Engage fall safe pawl.
2. Place a Lewmar winch handle into gypsy drive cap/drum top nut and rotate anti-clockwise by half a turn.
3. Remove handle and place into the bi-square in the cap and rotate clockwise.
4. Once anchor is retrieved, ensure it is adequately secured to an independent strong point.

Gypsy/drum versions

These units use emergency manual recovery attachment 66840056. See document 66300003 RevA for fitting and operating instructions.

⚠ WARNING! Isolate the windlass using circuit breaker/isolator.



7.4 V2-6 Independent warping

NOTE: V6 do not have Fall-Safe.

Gypsy/drum only

1. Lock anchor chain before warping.

2. Models V2-3

Engage fall safe pawl.

Models V4-5

Check pawl is in disengaged position.

3. Place a Lewmar winch handle into top nut. Disengage clutch by turning anti-clockwise by half a turn. Remove handle.

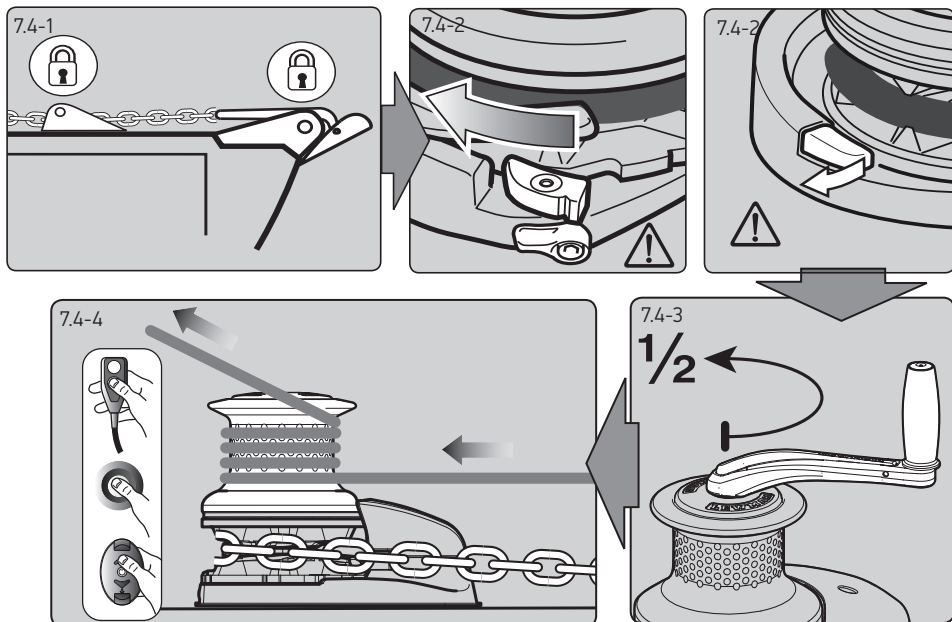
4. When safe, operate the drum.

If warping speed is too fast, ease tension in rope.

When finished re-engage clutch by tightening the drum top nut.

⚠ WARNING! Always remove winch handle after use.

⊘ DO NOT wrap chain around the capstan drum.



7.5 Operating tips

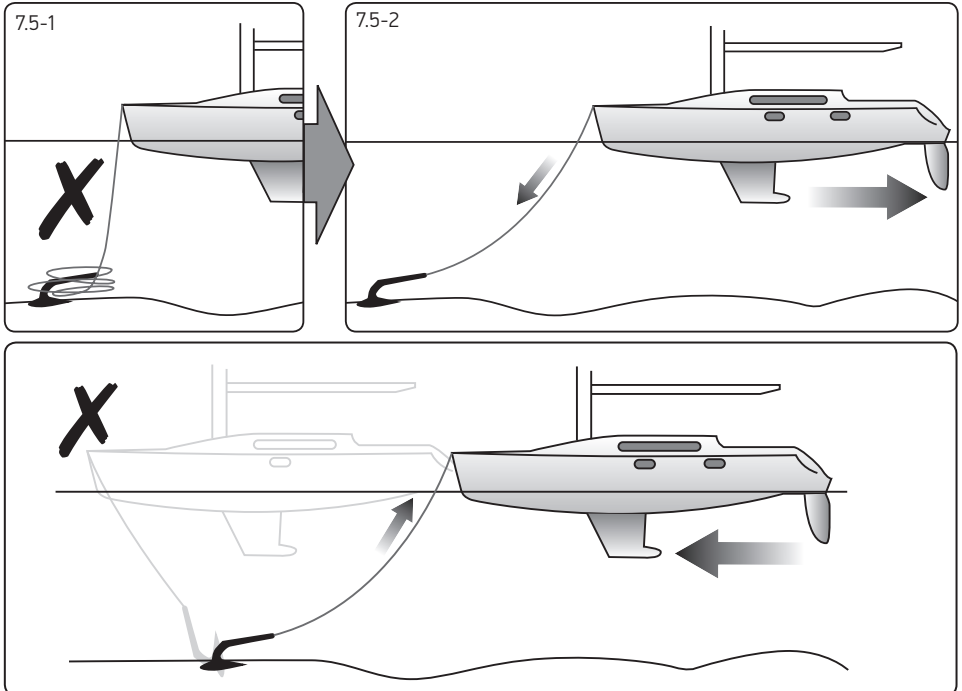
Vessels at anchor will snub on the rode and this can cause slippage or apply excessive loads to the windlass.

⚠ **WARNING!** When at anchor, always ensure a chain stopper is used, or the anchor rode is tied off to a "strong point"

1. When anchoring, power rode out allowing the vessel to take up stern away preventing the rode tangling with anchor. Use this method for mooring stern first to a jetty.
 2. To aid recovery, under power, move vessel towards anchor but not over and beyond, as this can cause damage to topside.
- ▶ As anchor approaches the vessel, use careful adjustments of controls to avoid damaging vessel.
 - ▶ Scope: As a guide it is recommended that the depth of chain to rope is 7 to 1 at anchor.

⊘ To prevent damage the fall-safe pawl **MUST NOT** be left to take the entire force from the anchor rode while at anchor. The rode should be secured directly to a bollard, sampson post or cleat and a chain secured by a chain stopper.

⊘ When retrieving anchor do not overload or stall in windlass.



8. Servicing

⚠ WARNING! Ensure rode is adequately secured to an independent strong point.

⚠ WARNING! Isolate the windlass using circuit breaker/isolator.

8.1 Servicing schedule

Regularly:

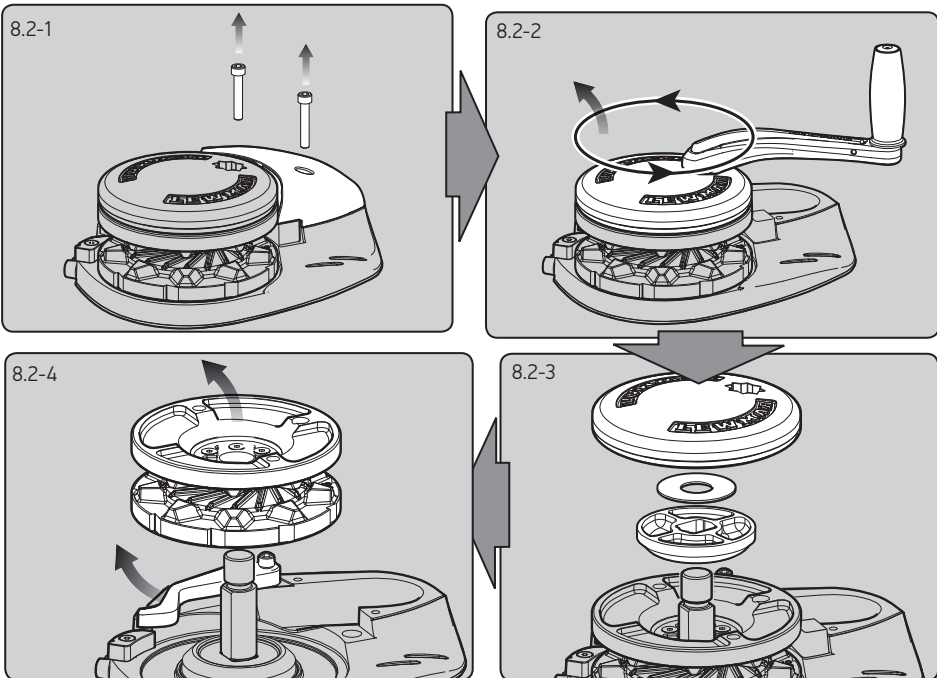
- ▶ Wash down the windlass using fresh water.
- ▶ Examine all electrical connections for corrosion, clean and lightly grease.
- ▶ Check anchor locker drain to avoid water damage to motor/gearbox.
- ▶ If anchor locker fills with water, check motor is dry and free of rust.
- ▶ Check anchor rode splice for wear.
- ▶ Check gypsy as it is a high wear item and will last longer if properly used. When re-assembling the cone and gypsy, add a small smear of grease to the contact surfaces.
- ▶ Check mounting studs after first two or three recoveries and regularly thereafter.

Annually:

- ▶ Check electric cables for damage. Repair/renew as required.
- ▶ Strip the above deck components, clean and lightly grease.
- ▶ Check motor/gearbox for corrosion, clean and repaint with a suitable marine grade oil based enamel paint.
- ▶ Remove electric motor cover and blow dust away from brushes using foot pump or similar taking care not to breathe any dust.

8.2 V1-6 Gypsy replacement/service

Illustrations based on V1-3.



1. Remove chain pipe cover screws using 5 mm Allen key.
2. Place winch handle into gypsy drive cap, rotate anti-clockwise and remove.
3. Remove washer and top cone.
4. Pull control arm back to clear gypsy and remove gypsy assembly.

Wash with clean water - DO NOT JET WASH.

NOTE: Model V6 does not have a control arm.

Assemble in reverse order greasing threads of chain pipe and washer and stripper screw.

When re-assembling the cone and gypsy, add a small smear of grease to the contact surfaces.

8.3 Manual recovery gypsy replacement

Proceed as 8.2.

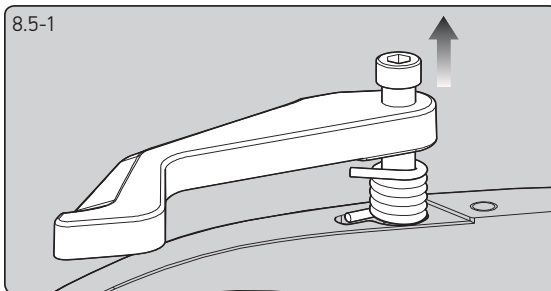
8.4 Gypsy/drum replacement

Proceed as 8.2 except place the winch handle into the drum top nut and remove drum assembly to get to gypsy.

8.5 V1-5 Control arm replacement/service

Remove gypsy, proceed as sec. 8.2.

1. Unscrew control arm shoulder screw using a 4 mm Allen key.
 - ▶ Remove control arm and torsion spring from the base plate.
 - ▶ Wash with clean water (Not Jetwash). Replace components, (if necessary) and assemble in reverse order



⚠ **WARNING!** Isolate the windlass using circuit breaker/isolator.

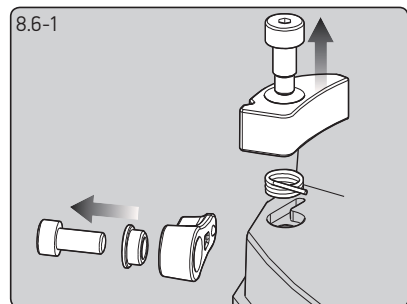
⚠ **WARNING!** Ensure rode is adequately secured to an independent strong point.

8.6 V1-3 Fall-safe pawl and lever replacement/service

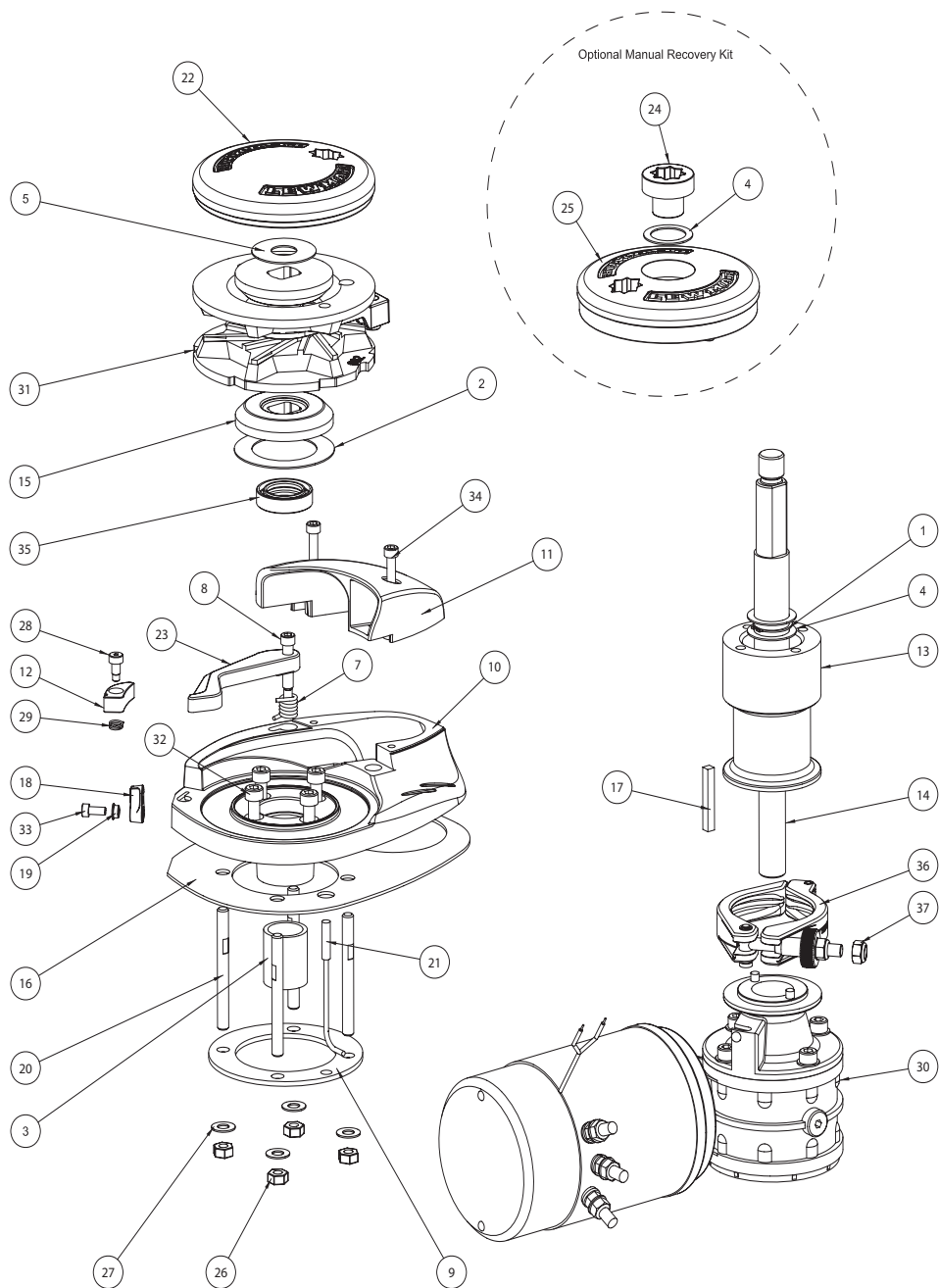
NOTE: V-Sport & V4-6 do not have fall-safe.

Remove gypsy, proceed as sec. 8.2.

1. Turn fall-safe lever so it is horizontal and remove shoulder screw.
 - ▶ Lift fall-safe pawl and spring, fall safe lever and spacer.
 - ▶ Replace components and assemble in reverse order.
2. Remove screw from inner edge of fall-safe pawl.
 - ▶ Lift off pawl and replace components.

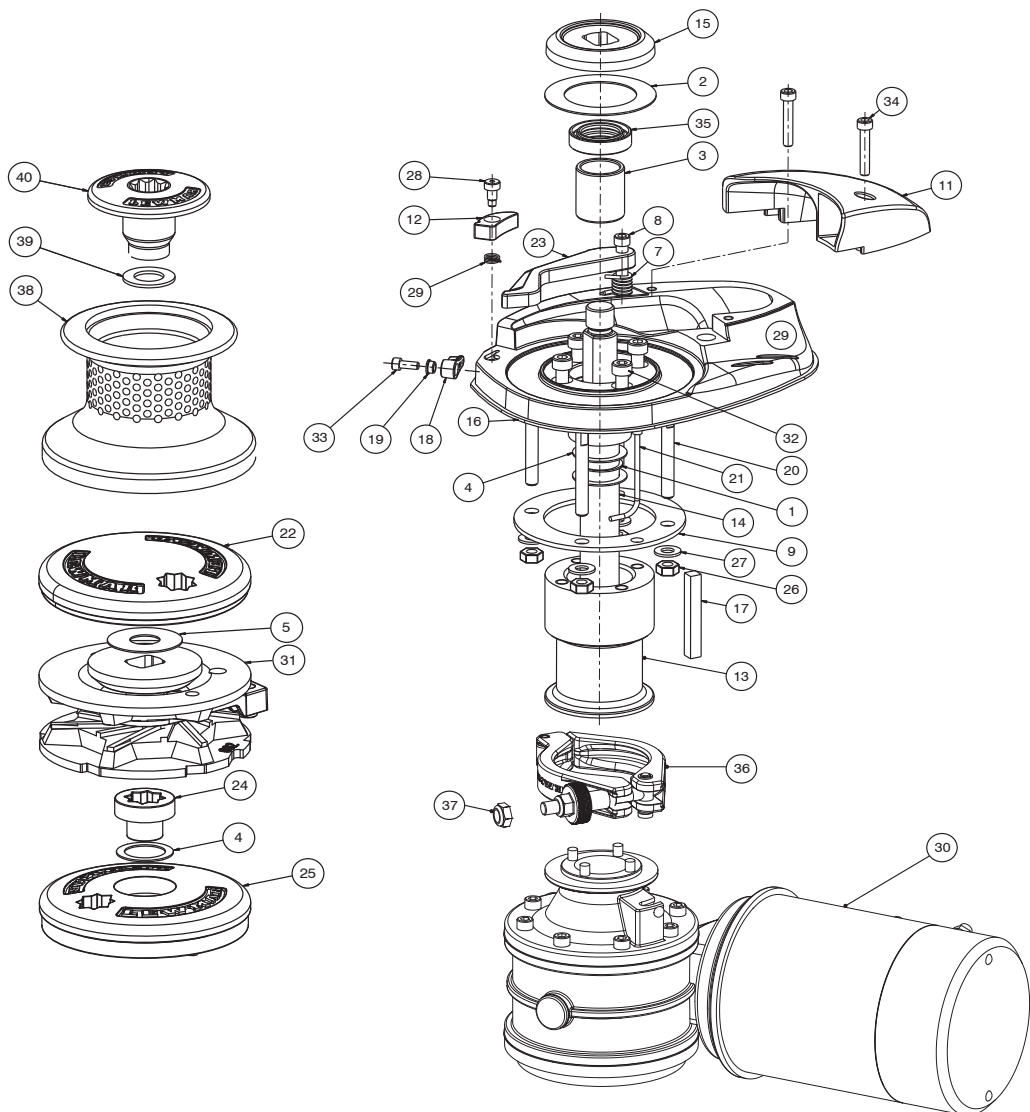


8.7 V1 Exploded view



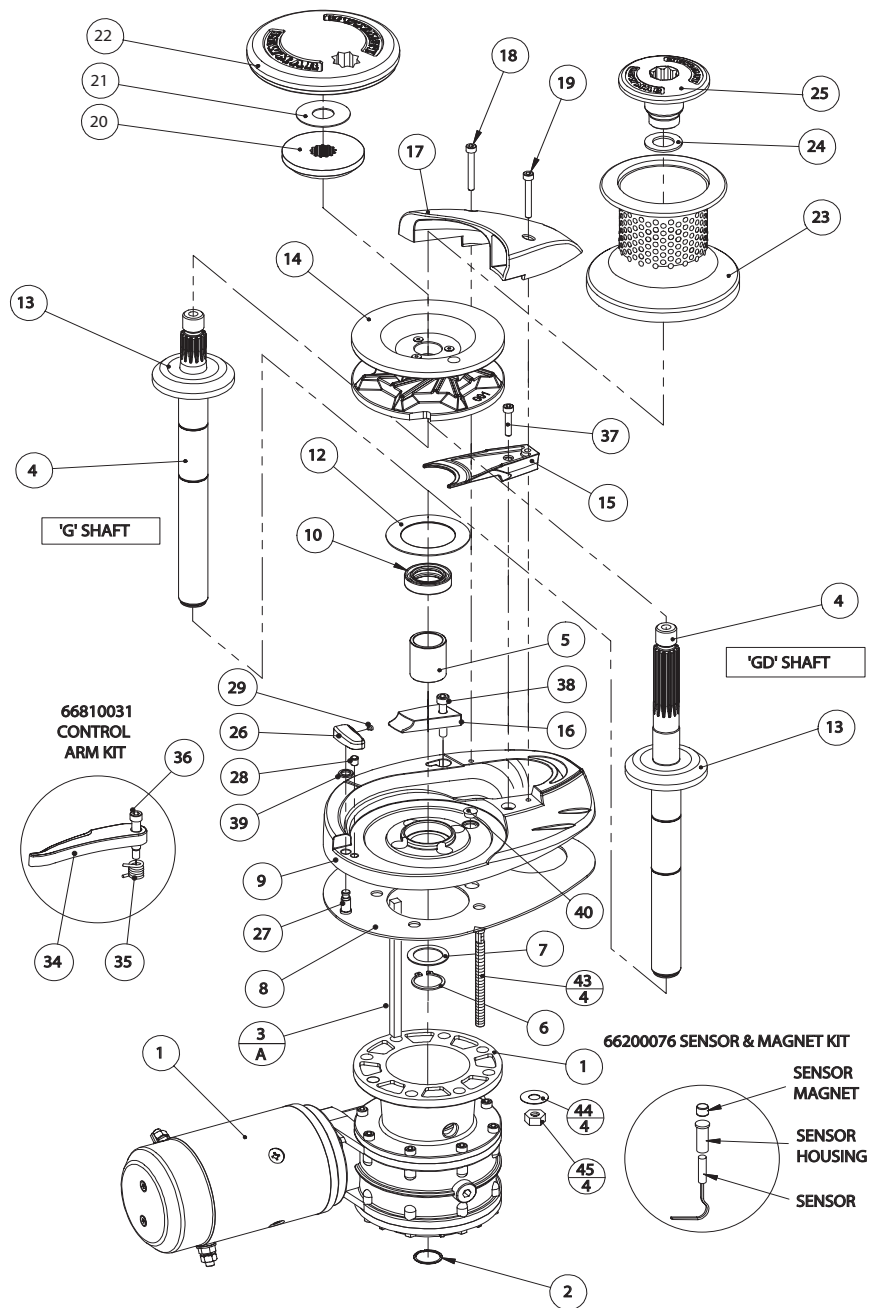
V1 PARTS LIST		
KIT NO.	KIT DESCRIPTION	ITEMS INCLUDED (QTY.)
6600060	Cap Kit	22(1)
66000624	V½/3 Base	3(1), 10(1), 34(1)
66000625	Chain Pipe Cover	11(1), 35(2)
66000626	Fastener Kit	1(1), 2(1), 4(3), 5(1), 8(1), 17(1), 28(1), 33(1), 34(2)
66000627	Drive Kit	1(1), 2(1), 3(1), 4(3), 5(1), 14(1), 15(2), 17(1), 35(1)
66000628	Manual Recovery Pawl Kit (Fall Safe)	11(1), 17(1), 18(1), 27(1), 28(1), 32(1)
66000629	Motor Gearbox	30(1)
66000631	Mounting Kit (Metric)	9(1), 16(1), 20(1), 26(4), 27(4)
66000632	Fast Fit Assembly	36(1), 37(1)
66000633	Deck Spacer Kit	13(1), 32(4)
66200076	Sensor & Magnet Kit	21(1), Magnet(1)
66810030	Control Arm Kit	7(1), 8(1), 23(1)
66810065	Motor Gearbox Kit	17(1), 30(1), 36(1), 37(1)
66840054	Manual Recovery Kit	4(1), 24(1), 25(1)
68000360	V Range Gypsy & Stripper Kit (000)	31(1), Magnet(1)
68000361	V Range Gypsy & Stripper Kit (001)	31a(1), Magnet(1)
68000362	V Range Gypsy & Stripper Kit (002)	31b(1), Magnet(1)
68000840	V Range Gypsy & Stripper Kit (006)	31c(1), Magnet(1)

8.8 V2 & V3 Exploded view



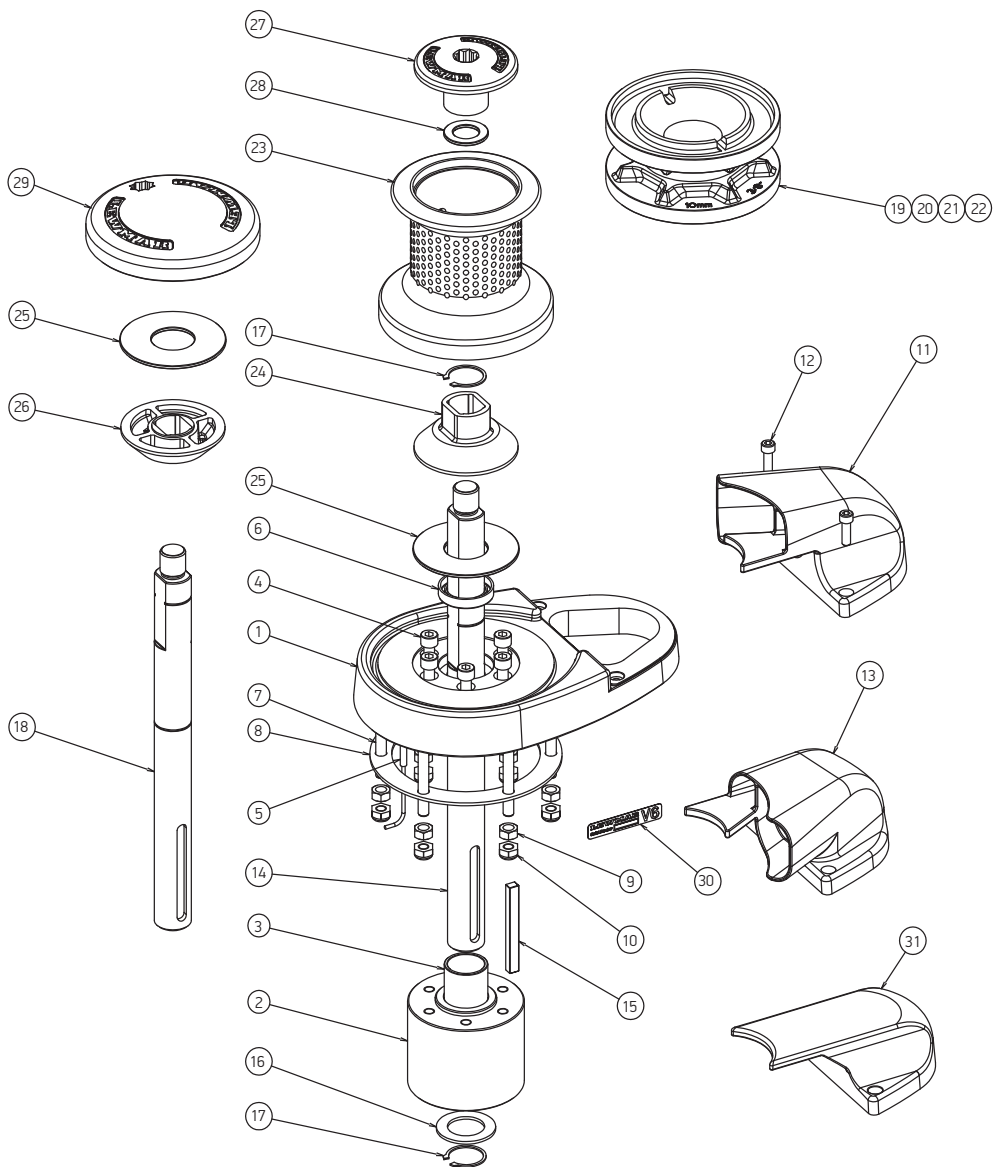
V2-3 PARTS LIST		
KIT NO.	DESCRIPTION	ITEMS INCLUDED (QTY)
66000060	Cap Kit	22(1), 5(1)
66000624	V1/V2/V3 Base	3(1), 10(1), 35(1)
66000625	Chain Pipe Cover	11(1), 34(2)
66000626	Fastener Kit	1(1), 2(1), 4(3), 5(1), 6(1), 8(1), 17(1), 28(1), 33(1), 34(2)
66000641	Drive Kit V2/V3 Gypsy Only	1(1), 2(1), 3(1), 4(3), 5(1), 14(1), 15(2), 17(1), 35(1)
66000628	Manual Recovery Pawl Kit (Fall Safe)	12(1), 18(1), 19(1), 28(1), 29(1), 33(1)
66000640	Drum Kit V2/V3 Fast Fit	38(1), 39(1), 40(1)
66000065	Drum Top Nut	39(1), 40(1)
66000642	Drive Kit V2/V3 Gypsy Drum	1(1), 2(1), 3(1), 4(3), 5(1), 14(1), 15(2), 17(1), 35(1)
66000631	Mounting Kit (Metric)	9(1), 16(1), 20(1), 26(4), 27(4)
66000632	Fast Fit Assembly	36(1), 37(1)
66000633	Deck Spacer Kit	13(1), 32(4)
66200076	Sensor & Magnet Kit	21(1), Magnet(1)
66810030	Control Arm Kit	7(1), 8(1), 23(1)
66840054	Manual Recovery Kit (Gypsy Only)	4(1), 24(1), 25(1)
68000360	V Range Gypsy & Stripper Kit (000)	31(1), Magnet(1)
68000361	V Range Gypsy & Stripper Kit (001)	31(1), Magnet(1)
68000362	V Range Gypsy & Stripper Kit (002)	31(1), Magnet(1)
68000363	V Range Gypsy & Stripper Kit (003)	31(1), Magnet(1)
68000813	12V V2 Fast-Fit Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000814	24V V2 Fast-Fit Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000815	12V V3 Fast-Fit Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000816	24V V3 Fast-Fit Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000817	12V V2 M/O Ride Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000818	24V V2 M/O Ride Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000819	12V V3 M/O Ride Motor Gearbox Assembly	30(1), 36(1), 37(1)
68000820	24V V3 M/O Ride Motor Gearbox Assembly	30(1), 36(1), 37(1)
66840056	V2/V3 Gypsy/Drum Manual Recovery Kit	Not Shown

8.9 V4 G V5 Parts list



KIT NO.	KIT DESCRIPTION	ITEMS INCLUDED (QTY.)
66000065	Drum Top Nut	24(1), 25(1)
66000070	Fastener/Drive	2(1), 3A(1), 3B(1), 6(1), 7(1), 18(1), 19(1), 21(1), 24(1), 28(1), 29(1), 32(4), 33(8), 37(1), 38(1), 40(5), 43(4), 44(4), 45(4), Hex Keys 2, 4, 5 & 6 mm
66000071	Mainshaft Assembly, Gypsy/Drum	4A(1), 13(1)
66000072	Mainshaft Assembly, Gypsy Only	4B(1), 13(1)
66000073	Bearing/Seal	5(1), 8(1), 12(1), 12A(1)
66000075	Stripper/Pawl	15(1), 16(1), 26(1), 28(1), 29(1), 37(1), 38(1), 39(1), Hex Keys 2, 4, 5 & 6 mm
66000076	Base	5(1), 9(1)
66000077	Chain Pipe Cover	17(1), 18(1), 19(1), Hex Key 5 mm
66000079	Spacer	3B(1), 30(1), 31(1), 32(4), 33(8)
66810031	Control Arm Kit	34(1), 35(1), 36(1), Hex Keys 4, 5 & 6 mm
66200076	Optional Sensor & Magnet	Sensor(1), Magnet(1) & Housing(1)

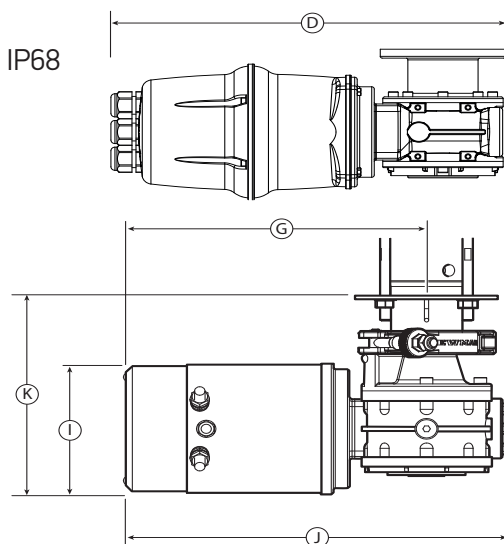
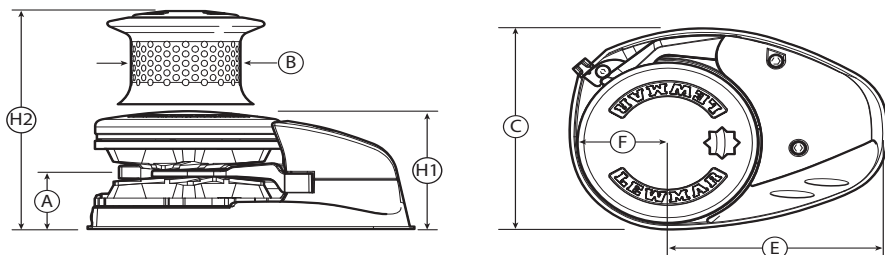
8.10 V6 Parts list



KIT NO.	KIT DESCRIPTION	ITEMS INCLUDED (QTY.)
66000692	Blank Cover with Stripper	31(1), 12(2)
66000688	Top Cap (Gypsy Only)	29(1), 25(1)
66000687	Top Nut (Gypsy/Drum)	27(1), 28(1)
66000686	Cone (Gypsy Only)	24(1), 25(2), 26(1)
66000685	Cone (Gypsy Drum)	24(1), 25(1)
66000684	Drum	23(1)
66000683	14 mm Gypsy	22(1)
66000682	1/2" Gypsy	21(1)
66000681	12 mm Gypsy	20(1)
66000680	10 mm Gypsy	19(1)
66000679	Mainshaft (Gypsy Only)	18(1), 15(1), 16(1), 17(2)
66000678	Mainshaft (Gypsy/Drum)	14(1), 15(1), 16(1), 17(2)
66000677	R/H Chain Cover	13(1), 12(2)
66000676	L/H Chain Cover	11(1), 12(2)
66000675	Mounting	7(6), 8(1), 9(6), 10(6)
66000674	Base	1(1), 2(1), 3(1), 4(6), 5(1), 6(1)

9. Specifications

9.1 V1-3 Dimensions

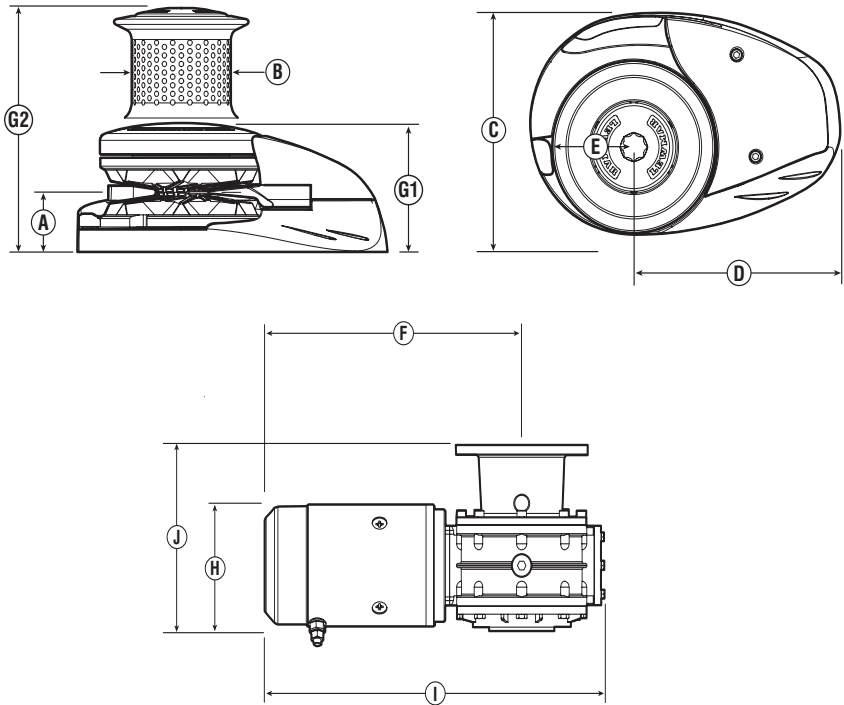


IP68

MODEL	A		B		C		D		E		F	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V1	42	1 ¹¹ / ₁₆	-	-	161	6 ⁵ / ₁₆	394	15 ³³ / ₆₄	157	6 ³ / ₁₆	70	2 ³ / ₄
V2	42	1 ¹¹ / ₁₆	75	3	161	6 ⁵ / ₁₆	394	15 ³³ / ₆₄	157	6 ³ / ₁₆	70	2 ³ / ₄
V3	42	1 ¹¹ / ₁₆	75	3	161	6 ⁵ / ₁₆	394	15 ³³ / ₆₄	157	6 ³ / ₁₆	70	2 ³ / ₄

MODEL	G		H1		H2		I		J		K	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V1	237	9 ¹ / ₈	92	3 ⁵ / ₈	-	-	114	4 ¹ / ₄	310	12 ² / ₁₆	173	6 ¹³ / ₁₆
V2	237	9 ¹ / ₈	92	3 ⁵ / ₈	168	6 ⁵ / ₈	114	4 ¹ / ₄	310	12 ² / ₁₆	173	6 ¹³ / ₁₆
V3	237	9 ¹ / ₈	92	3 ⁵ / ₈	168	6 ⁵ / ₈	114	4 ¹ / ₄	315	12 ² / ₈	173	6 ¹³ / ₁₆

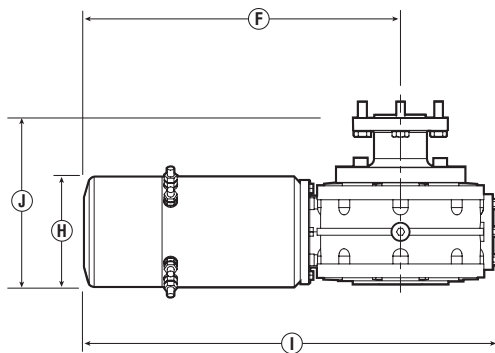
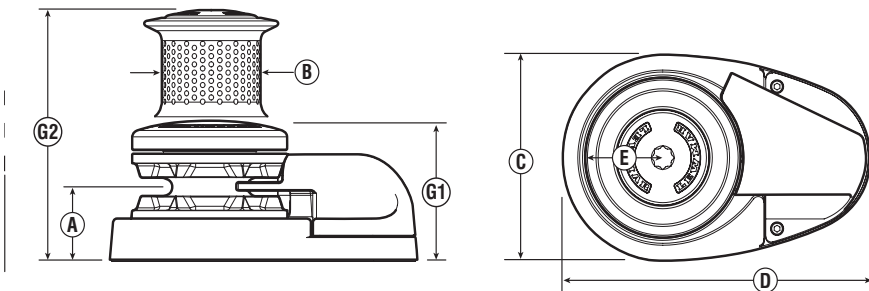
9.2 V4-5 Dimensions



MODEL	A		B		C		D		E		F	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V4	51	2	91	27/16	188	7 1/16	185	7 1/4	89	3 1/2	277	10 7/8
V5	51	2	91	27/16	188	7 1/16	185	7 1/4	89	3 1/2	289	11 3/8

MODEL	G1		G2		H		I		J	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V4	107	4 1/4	215	87/16	112	47/16	366	147/16	156	75/16
V5	107	4 1/4	215	87/16	125	415/16	378	14 3/8	174	6 3/8

9.3 V6 Dimensions



MODEL	A		B		C		D		E		F	
	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
V6	77	3 ¹ / ₃₂	105	4 ¹ / ₈	212	8 ¹¹ / ₃₂	326	12 ⁷ / ₈	82	3 ³ / ₃₂	366	14 ² / ₈

G1		G2		H		I		J	
MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
145	5 ³ / ₄	257	10 ¹ / ₈	122	4 ¹³ / ₁₆	484	19	193	7 ⁵ / ₈

9.4 Gypsy Sizing



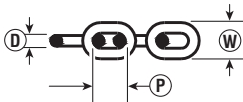
Part No.	Gypsy Number	Chain Description	Rope size		Rope description
			mm	in	
68000840	006	6mm ISO 4565, ¼" G40*, ¼" BBB	12-14	½	3-strand and 8-plait
68000360	000	7mm ISO 4565, ¼" G40*, ¼" BBB	12-14	½	3-strand and 8-plait
68000361	001	8mm DIN 766, 8mm ISO 4565	12-16	½ - 5/8	3-strand and 8-plait (% only)
68000362	002	10mm DIN 766, Campbell ¾" S4, 5/16" G40	12-16	½ - 5/8	3-strand and 8-plait (% only)
68000363	003	10mm ISO, Campbell ¾" S3, Lewmar 9.5mm G40	16	5/8	3-strand and 8-plait

V4/5

			Rope size		
			mm	in	
68000356	201	8mm DIN 766, 8mm ISO 4565, 5/16" G40, 5/16" Campbell S4	12-14	½	3 strand medium lay up
68000357	202	10mm DIN 766, 5/16" Campbell S3, ¾" Campbell S4, 9.5mm G30	16	5/8	3 strand medium lay up
68000358	203	10mm ISO 4565, ¾" Campbell S3, Lewmar 9.5mm G40	16	5/8	3 strand medium lay up
68000359	204	12mm ISO 4565, 13mm DIN 766	18-20	¾	3 strand medium lay up

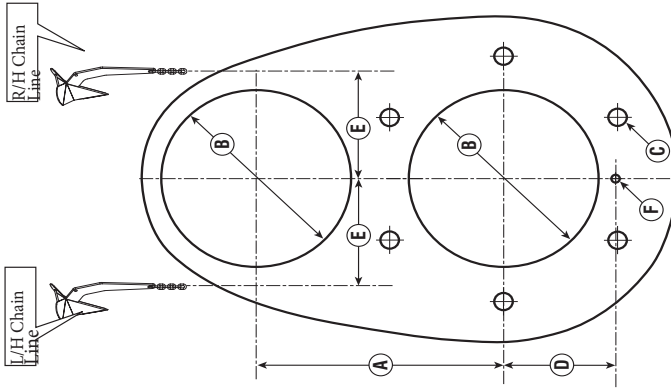
V6

68000903		10mm DIN 766, 3/8" ISO G4, Lewmar 9.5mm G40
68000904		11mm Short Link, Lewmar 12mm G30/G40, 13mm DIN 766 7/16" G40 Recommend remote chain pipe version
68000905		Lewmar 14mm G30/G40, 14mm DIN 766,
68000906		½" ISO G4, Lewmar 12mm G30/G40, Lewmar ½" G30/G40

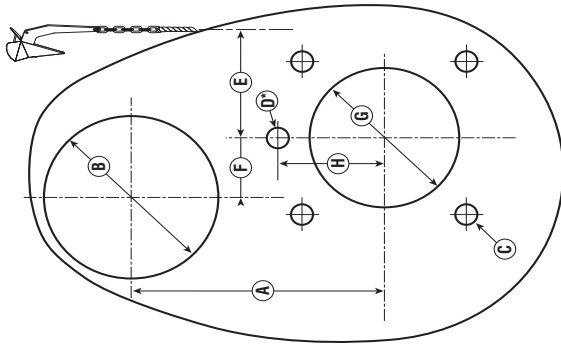


		6 mm DIN 766	6 mm ISO 4565	¼" ACCO ISO G43 (G4)	7mm DIN 766	¼" ACCO BBB (3B)	8mm Din 766	8mm ISO 4565	5/16" ACCO ISO G43 (G4)	Lewmar 9.5mm G40	¾" Cambell S4	10mm ISO 4565	¾" Campbell S3	10mm DIN 766	¾" ACCO ISO G43 (G4)	11mm Short Link	11mm DIN766	7/16" ACCO ISO G43 (G4)	Lewmar 12mm G30/G40	12mm Short Link	13mm DIN 766	½" ACCO ISO G43 (G4)	Lewmar 14mm G30/G40	14 mm Short Link	14mm DIN 766	14mm S.tudlink
D	mm	6	6	7	7	7.14	8	8	8.4	9.5	10	10	10	10	10	11	11	11.8	12	13	13	13.2	14	14	14	14
	inch	0.236	0.236	0.276	0.276	0.281	0.315	0.315	0.329	0.374	0.39	0.394	0.37	0.394	0.394	0.433	0.433	0.464	0.472	0.512	0.512	0.520	0.551	0.551	0.551	0.551
P	mm	18.5	18	21.3	22	22.1	24	24	26.2	31.5	29	30	35	28	31	33	31	35.5	36	36	40.4	42	41	41	56	56
	inch	0.728	0.709	0.840	0.866	0.870	0.945	0.945	1.030	1.240	1.15	1.181	1.36	1.102	1.220	1.299	1.22	1.4	1.417	1.417	1.591	1.654	1.614	1.614	2.205	2.205
W	mm	20.4	21.6	24.4	23.8	25.2	27.2	28.8	29.7	31.6	35	36	34	36	35	39	40	40.1	40.5	47	45.7	49	50	50	50.4	50.4
	inch	0.803	0.85	0.962	0.937	0.992	1.07	1.134	1.168	1.244	1.3	1.417	1.31	1.417	1.378	1.535	1.575	1.578	1.594	1.850	1.799	1.929	1.969	1.969	1.984	1.984

9.5 V1-6 Deck template guide

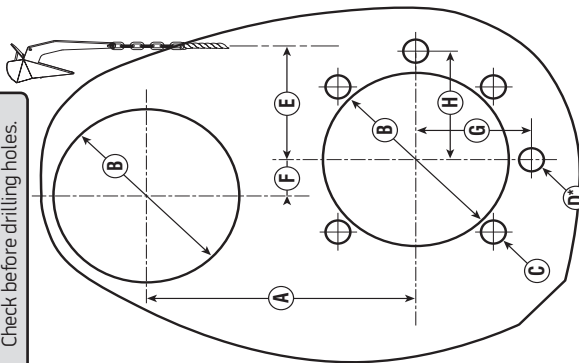


V6					
A	150 mm (5 ⁷ / ₈ ")	D	68 mm (2 ⁷ / ₁₆ ")		
B	Ø115 mm (4 ¹ / ₂ ")	E	70 mm (2 ³ / ₁₆ ")		
C	6 x Ø11 mm (7 ¹ / ₁₆ ") PCD 160 mm (6 ¹ / ₁₆ ")	F	Ø5 mm (1 ¹ / ₁₆ ")		



V4-5					
A	131 mm (5 ¹ / ₈ ")	E	60 mm (2 ³ / ₈ ")		
B	Ø90 mm (3 ⁹ / ₁₆ ")	F	33 mm (1 ¹ / ₁₆ ")		
C	4 x Ø10 mm (1 ¹ / ₈ ") PCD 120 mm (4 ⁷ / ₁₆ ")	G	Ø77 mm (3"		
D*	Ø12 mm (1/2"	H	55 mm (2 ¹ / ₁₆ ")		

⚠ DO NOT use this template as a cutter. It is supplied as a guide only. Check before drilling holes.



*Optional hole for anchor sensor

V1-3					
A	110 mm (4 ³ / ₁₆ ")	E	50 mm (2"		
B	Ø75 mm (3"	F	16 mm (5 ¹ / ₈ ")		
C	5 x Ø10 mm (1 ¹ / ₈ ") PCD 90 mm (3 ³ / ₁₆ ")	G	47.5 mm (1 ⁷ / ₈ ")		
D*	Ø14 mm (9 ¹ / ₁₆ ")	H	47.5 mm (1 ⁷ / ₈ ")		

9.6 Electric specifications

MODEL	POWER OPTION	MOTOR	TYPICAL MAX. PULL		MAXIMUM LINE SPEED		TYPICAL WORKING LOAD	
	V	W	KG	LB	M/MIN	FT/MIN	KG	LB
V1	12	700	750	1653	28	92	188	414
V1 MO	12	700	750	1653	28	92	188	414
V2	12	700	850	1874	29	95	213	470
V2	24	900	850	1874	29	95	213	470
V3	12	1000	1025	2260	39	128	257	567
V3	24	1000	1025	2260	39	128	257	567
V4	12	1600	1360	2998	25	82	136	300
V4	24	2000	1600	3528	27	90	136	300
V5	12	2000	1860	4100	27	90	136	300
V5	24	2000	2000	4410	29	97	136	300
V6	24	2000	1800	3960	16	52	450	990

MODEL	NORMAL CURRENT DRAW	TOTAL WEIGHT GYPSY ONLY		TOTAL WEIGHT GYPSY/DRUM		CIRCUIT BREAKER
	A	KG	LB	KG	LB	A
V1	112	19	42	-	-	90
V1 MO	112	19	42	22	48.5	90
V2	121	19	42	22	48.5	90
V2	60	19	42	24.5	54	50
V3	131	21.5	47	24.5	54	110
V3	74	21.5	47	36	79	90
V4	125	29	64	36	79	150
V4	70	29	64	38	84	110
V5	120	31	68	38	84	150
V5	60	31	68	63	139	110
V6	60	60	132	-	-	150

10. Trouble shooting

10.1 Electric windlass

1. Anchor rode pays out independently while windlass is not in use.

This problem is a result of not securing the anchor rode combined with the gypsy drive cap being slack. Tighten the gypsy drive cap using the winch handle and always secure the anchor rode independently of the windlass when not in use.
2. Failure to operate or sluggish operation.
 - ▶ The majority of these problems are electrical in nature. It is essential that the proper voltage be maintained. The proper voltage on a 12 Volt system is 13.5 Volts (24 Volt system is 26.5 Volts), constant low voltage will damage motor.
 - ▶ Ensure electrical cable size is large enough to handle the current draw and keep voltage drop within acceptable limits.
 - ▶ Check control switches, connections, battery condition, isolator switch, fuse and motor for operation failure.

10.2 Hydraulic windlass

Hydraulic leak

The following are possible causes for hydraulic oil leakage from hydraulic drive unit:

- ▶ Excessive pressure.
- ▶ Dirt obstructing a seal.
- ▶ Loose or badly fitted connections.
- ▶ Damaged or broken components.
- ▶ When an hydraulic oil leak is detected, identify the true cause of the leakage before remedial action is taken.
- ▶ Do not attempt to remove hydraulic components or repair the hydraulic system whilst pressured.
- ▶ To prevent accidental operation, switch off power before removing any system component.

10.3 Hydraulic question & answer

Windlass will not start

1. No power to Commander
 - ▶ Check unit is switched on
 - ▶ Check electrical connections to Commander
 - ▶ Check fuses & safety cut-outs
2. Insufficient hydraulic fluid
 - ▶ Check Commander fluid level.
3. Incorrect electrical or hydraulic connections
 - ▶ Refer to your Lewmar Commander manual

See the button sheet for correct function identification.

Windlass motor is running but the windlass is not workin

1. Check the drive between the gypsy and capstan (friction drive or dog drive).
2. Check the drive shaft between the hydraulic motor and windlass gearbox.

Windlass runs very slowly

1. Check sufficient flow is being provided by the hydraulic system as windlass speed is directly related to hydraulic oil flow.
 - ▶ Refer to Lewmar Commander fault finding.
2. Hydraulic pipes connected to the wrong motor port.
 - ▶ Swap hydraulic connections on the winch motor.
3. Deck switch connected to wrong function.
 - ▶ Refer to Lewmar Commander manual.

Windlass does not pull sufficient load

1. Check sufficient flow is being provided by the hydraulic system as windlass speed is directly related to hydraulic oil flow.
 - ▶ Refer to Lewmar Commander fault finding.
2. Hydraulic pipes connected to wrong Commander function.
 - ▶ Refer to Commander manual. Examine the Button Sheet to identify correct function.
3. Sharp bends or kinks in the hydraulic pipes starving the winch of fluid.
 - ▶ Check pipe runs for sharp bends or kinks.
 - ▶ Minimum bend radius is 6" (150 mm).
4. System pressure too low.
 - ▶ Refer to fault diagnostic charts in the Commander manual.

11. Warranty

Limited Warranty and Key Terms of Supply by Lewmar

Lewmar warrants that in normal private pleasure boat usage and with proper maintenance its products will conform with their specification for a period of three years from the date of purchase by the end user, subject to the conditions, limitations and exceptions listed below. Any product, which proves to be defective in normal usage during that three-year period, will be repaired or, at Lewmar's option, replaced by Lewmar.

A CONDITIONS AND LIMITATIONS

- i Lewmar's liability shall be limited to the repair or replacement of any parts of the product which are defective in materials or workmanship.
- ii Responsibility for the selection of products appropriate for the use intended by the Buyer shall rest solely with the Buyer and Lewmar accepts no responsibility for any such selection.
- iii Lewmar shall not be liable in any way for Product failure, or any resulting loss or damage that arises from:
 - a. use of a product in an application for which it was not designed or intended;
 - b. corrosion, ultra violet degradation or wear and tear;
 - c. a failure to service or maintain the product in accordance with Lewmar's recommendations;
 - d. faulty or deficient installation of the product (unless conducted by Lewmar);
 - e. any modification or alteration of the product;
 - f. conditions that exceed the product's performance specifications or safe working loads.
- g. Abuse
- iv Product subject to a warranty claim must be returned to the Lewmar outlet that supplied the product for examination unless otherwise approved by Lewmar in writing.
- v This warranty does not cover any incidental costs incurred for the investigation, removal, carriage, transport or installation of product.
- vi Service by anyone other than authorized Lewmar representatives shall void this warranty unless it accords with Lewmar guidelines and standards of workmanship.
- vii Lewmar's products are intended for use only in the marine environment. Buyers intending to use them for any other purpose should seek independent professional advice as to their suitability. Lewmar accepts no liability arising from such other use.

B EXCEPTIONS

Cover under this Warranty is limited to a period of one year from the date of purchase by the end user in the case of any of the following products or parts of products:

- Electric motors and associated electrical equipment
- Electronic controls
- Hydraulic pumps, valves and actuators
- Hatch & Portlight weather seals
- Products used in "Grand Prix" racing applications
- Products used in commercial or charter applications
- Anchor rodes

C LIABILITY

- i Lewmar's liability under this warranty shall be to the

exclusion of all other warranties or liabilities (to the extent permitted by law). In particular (but without limitation):

- a. Lewmar shall not be liable for:
 - Any loss of anticipated turnover or profit or indirect, consequential or economic loss;
 - Damages, costs or expenses payable to any third party;
 - Any damage to yachts or equipment;
 - Death or personal Injury (unless caused by Lewmar's negligence).
- Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you
- b. Lewmar grants no other warranties regarding the fitness for purpose, use, nature or satisfactory quality of the products.
 - ii Where applicable law does not permit a statutory or implied warranty to be excluded, then such warranty, if permitted by that state or country's law, shall be limited to a period of one year from the date of purchase by the end user. Some states and countries do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

D PROCEDURE

Notice of a claim for service under this warranty shall be made promptly and in writing by the end user to the Lewmar outlet that supplied the product or to Lewmar Limited at Southmoor Lane, Havant, Hampshire PO9 1JJ, England.

E SEVERANCE CLAUSE

If any clause of this warranty is held by any court or other competent authority to be invalid or unenforceable in whole or in part, the validity of the remaining clauses of this warranty and the remainder of the clause in question shall not be affected.

F OTHER RIGHTS

This warranty gives you specific legal rights, and you may also have other legal rights, which vary from state to state and country to country.

In the case of European States a Consumer customer (as defined nationally) has legal rights under the applicable national law governing the sale of Consumer Goods; this Warranty does not affect those rights.

G LAW

This warranty shall be governed by and read in accordance with the laws of England or the state or country in which the first end user is domiciled at the time of purchase of the product.

H DISPUTES

Any dispute arising under this warranty may, at the option of the end-user, be referred to alternative dispute resolution under the rules of the British Marine Federation or to the Courts of the State whose law shall govern the warranty or to the Courts of England and Wales.

The British Marine Federation may be contacted at Marine House, Thorpe Lea Road, Egham, England, TW20 8BF

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