



English

Installation, Operation and Maintenance Instructions

Hybrid Drive System

Solar Water Pumping Systems

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Warranty

Warranty Statement

1. The Hybrid Drive System manufactured by Mono Pumps is covered by warranty for a period not exceeding twenty-four months from the date of purchase.
2. Mono Pumps will make good by repair, or at their option, the replacement of faulty parts under warranty, providing always that:
 - (a) The equipment was correctly installed and properly used in accordance with Mono Installations and Operating instruction and accepted codes of good engineering practice.
 - (b) The claim for goods under warranty arises solely from faulty design, material or workmanship.
 - (c) The repair is carried out in the Mono Pumps factory or by an authorised agent or distributor appointed by Mono Pumps.
 - (d) All freight costs to and from the factory or repair agent are to be paid by the purchaser.
3. In the case of equipment or components which are not of Mono Pumps manufacture, but supplied by them, the warranty is limited to that extended by the suppliers or manufacturers of such equipment.
4. Mono Pumps warranty does not cover any of the following:
 - (a) Claims for third party liability of damage caused by failure of any of the company's products.
 - (b) Damage caused by abnormal operating conditions, war, violence, storm cataclysm or any other force.
 - (c) Damage caused by the equipment being used for an application for which it is not recommended.
 - (d) Damage caused by sand or abrasive materials, corrosion due to salt water or electrolytic action.
 - (e) Damage to the Controller if the Controller has been opened by removal of the back plate before being returned to Mono.
 - (f) Damage to the alternator if the alternator is found to have been disassembled before being returned to Mono Pumps.
 - (g) Damage caused by running the pump dry.
5. The decision of Mono Pumps in relation to any claims or disputes over warranty is final.
6. The warranty is in lieu of all other warranties and conditions expressed or implied, written or oral, statutory or otherwise, which are hereby negated and excluded.
7. This express warranty does not exclude any conditions or warranty implied by the Trade Practices Act 1974 or separate State laws and in addition to any other right, that the original purchasers or any subsequent purchaser may have at law.

In case of claim please contact your Authorised Mono Pumps dealer or contact Mono Pumps (Australia) Pty Ltd.

Introduction

Intended Use

The Hybrid Drive System is intended to be used with the Mono Pumps Sun-Sub Solar Water Pumping system.

It is intended to be powered by mechanical means through a merry-go-round (human power). The drive component is not part of this system. Mounting and protection of the unit is the responsibility of the customer

System Overview

Mono Pumps Hybrid Drive comprises:

- 1 Alternator Assembly
- 2 Hybrid Drive Control Panel
- 3 Associated Mounting and Drive Components

Warnings



The alternator can deliver voltage levels up to 180V DC whilst spinning. Always isolate the unit prior to maintenance or electrical work.



The components supplied are intended to be part of a customer assembly. All set up and guarding is the responsibility of the customer. A risk assessment should be done on the final assembly prior to operation.



The alternator assembly is heavy and will require an assisted lift

Specifications

Specifications

Alternator Specifications

Electrical Characteristics

Maximum Output Voltage (unloaded)	150 VAC
Maximum Current (loaded)	4 amps

Mechanical Specifications

Weight (alternator only)	15.7 kg
Maximum Design RPM (at alternator)	200 RPM
Minimum Design RPM (at alternator)	75 RPM

Materials

Casing	Powder Coated. Anodised Aluminium
Shaft	316 stainless steel
Cable	4 core 1.5mm ² 10 metres length

Environmental

Storage Temperature:	-10 to 60C
Operating Temperature:	-10 to 50C
IP Rating:	IP65
Humidity:	95% Max.

Drive Chain

Belt Tension:

Approx. 5mm perpendicular deflection with 20 N force

Chain Lubrication: Rocal Chain & Drive Spray (or equivalent)

Alternator Assembly Environmental

Operating Temperature: -10 to 50C
To be protected from direct rain and dust by customer cover/ equipment
All guarding is responsibility of the customer

Hybrid Controller Specifications

Electrical

Solar Array Input

Voltage :	30 to 100 VDC
Current :	0 to 5 A
Solar Array:	350W Max.
Electrical Connection:	MC Connector

Alternator Input

Voltage :	0 to 150 VAC
Current :	0 to 5 A

Hybrid Control Output

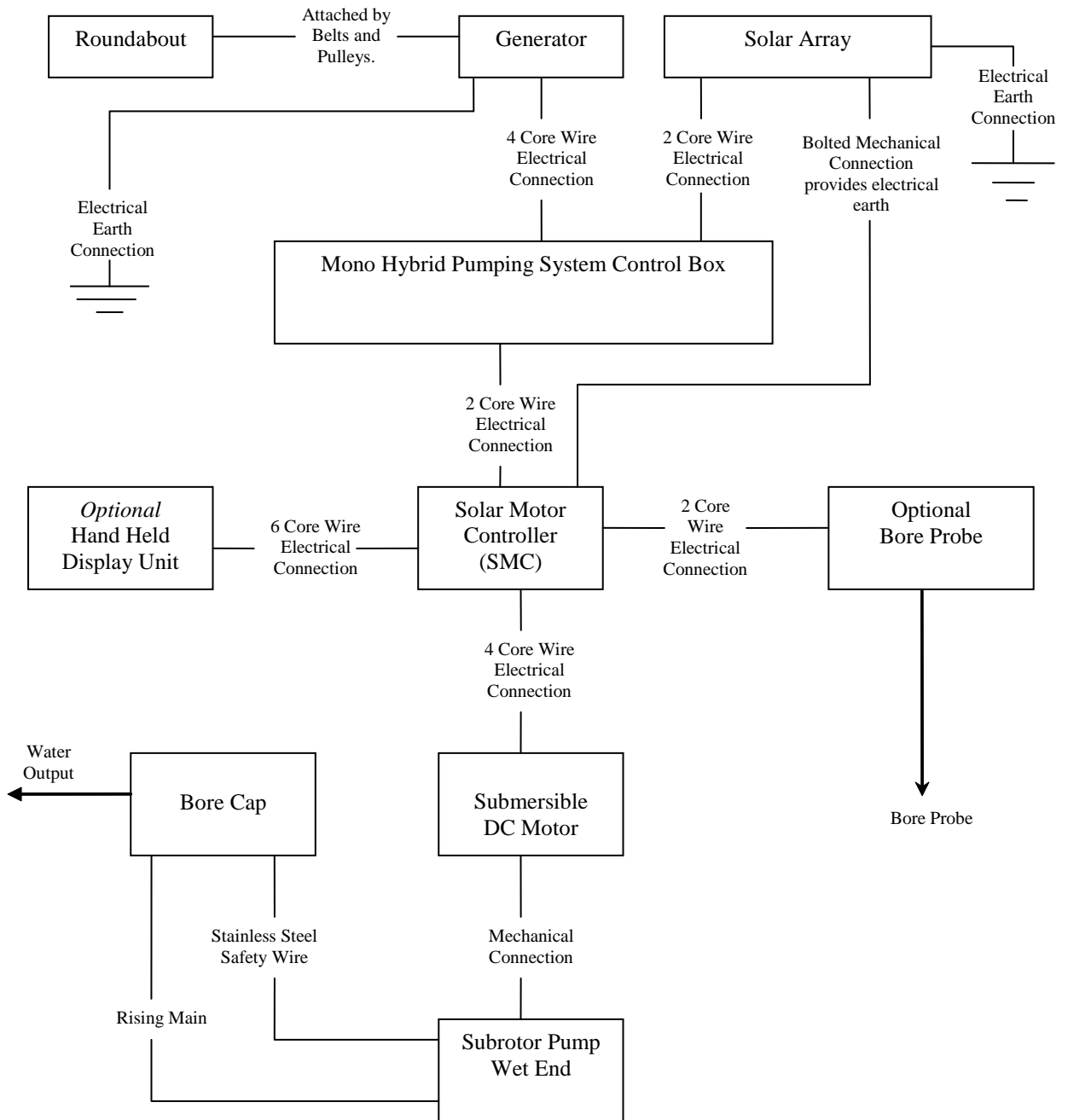
Voltage :	30 to 100 VDC
Current :	0 to 5 A
Power:	350W Max.
Electrical Connection:	MC Connector

Environmental

Storage Temperature:	-10 to 60C
Operating Temperature:	-10 to 50C
IP Rating:	IP67
Humidity:	95% Max.

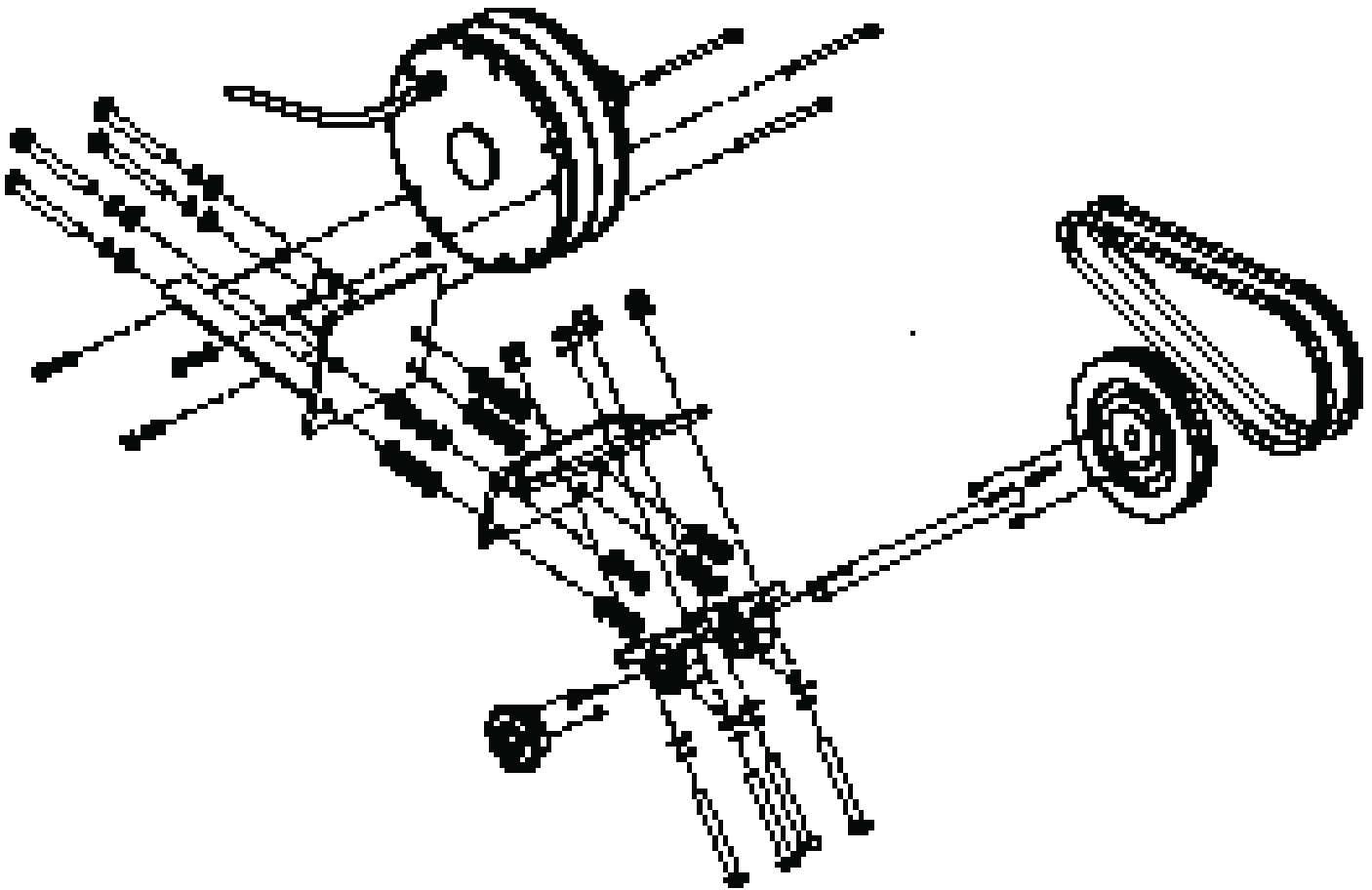
Assembly

Whole System Schematic



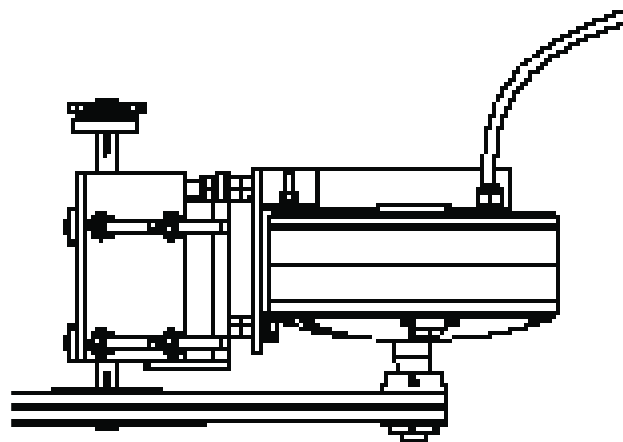
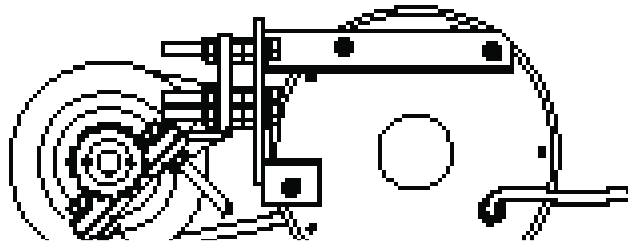
Assembly

Assembly Exploded View



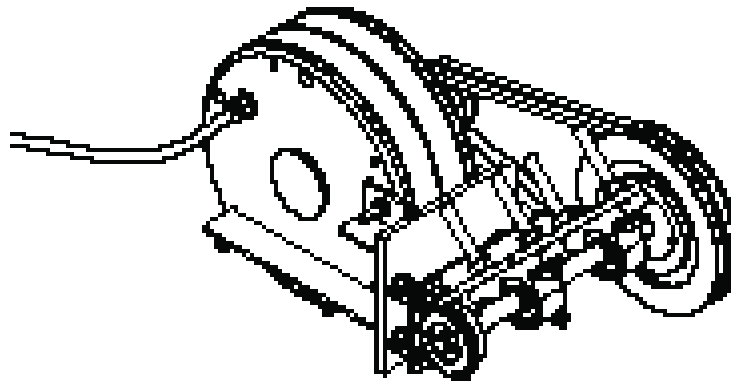
Assembly

Final Assembly



Correct Mounting Position

Ensure pulleys and belts are parallel and in line



Earthing

An earth loom is supplied connected to the controller. This needs to be connected to the controller mounting bolts which need to be earthed, possibly through a metal post.

An eyelet is supplied loose as part of the alternator assembly. Together with the M8 Star Washer (to be placed against the power coated surface), this needs to be attached to one of the alternator mounting bolts and connected to an earth stake via suitable earth cable.

Maintenance

The system requires very little maintenance except for the drive chain components. All belts will need to be checked periodically for wear, correct alignment and tension. The chain drive will need to be also checked for correct lubrication, alignment and cleaning of excessive dust.

Europe

Mono Pumps Ltd, Martin Street, Audenshaw
Manchester, M34 5JA, England
T. +44 161 339 9000
E. info@mono-pumps.com

D.M.I EST, 56, rue du Pont
88300 Rebeuville, France
T. +33 3 29 94 26 88
E. dmi-est@dmi-est.fr

Americas

Monoflo Inc., 10529 Fisher Road
Houston, Texas 77041, USA
T. +1 713 980 8400
E. monoflo@nov.com

Monoflo S.A., Ing Huergo 2239
(1842) Monte Grande
Pcia. de Buenos Aires, Argentina
T. +54 11 4290 9940/50
E. info.monoflo@nov.com.ar

Monoflo Canada, 6010 – 53rd Ave
Alberta, Lloydminster
T9V2T2, Canada
T: + 1 780 875 5584
E: info.monoflo@nov.com

Asia

Mono Pumps Ltd, Building 5,
Madong Industrial Park, 1250 Sicheng Rd
Malu Town, Jiading District, Shanghai 201801
T. +86 21 3990 4588
E. monoshanghai@nov.com

Australasia

Mono Pumps (Australia) Pty Ltd
338-348 Lower Dandenong Road
Mordialloc, Victoria 3195, Australia
T. 1800 333 138
E. ozsales@mono-pumps.com

Mono Pumps (New Zealand) Ltd
35-41 Fremlin Place, Avondale
Auckland, 1026, New Zealand
T. +64 9 829 0333
E. info@mono-pumps.co.nz

Melbourne	T.	03 9580 5211	F.	03 9580 6659
Sydney	T.	02 8536 0900	F.	02 9542 3649
Brisbane	T.	07 3350 4582	F.	07 3350 3750
Adelaide	T.	08 8447 8333	F.	08 8447 8373
Perth	T.	08 9303 0444	F.	08 9303 4430
Darwin	T.	08 8931 3300	F.	08 8931 3200
Kalgoorlie	T.	08 9022 4880	F.	08 9022 3660
Christchurch NZ	T.	+64 3 341 8379	F.	+64 3 341 8486

www.monopumps.com

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