

SUN POWER CORPORATION

USER MANUAL

Version - 0.1



Sun Power Corporation
(SPC)

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POWER OF THE SUN, WORKING FOR YOU

CAUTION

1. While commissioning cold water should be allowed into the tank only when the system is cool(I.e Before 7AM or After 6 PM only)
2. When the system is not in use for more then three days, drain out the water from the tank and cover the collectors with thick cloth.
3. The system should not kept in open atmosphere with out water loaded, since hot air may damage the internal parts of the system.

GENERAL INSTRUCTION

- Read this manual thoroughly before **“USING THE SYSTEM”** observe the precautions detailed in the manual.
- Do not use the hot water for drinking applications
- Do not touch the tube surface /back sheet during sunshine hours as it could lead to burn injury.

CONTENTS

SECTION 1

INTRODUCTION	4
--------------	-------	---

SECTION 2

GENERAL INFORMATION	5
---------------------	-------	---

SECTION 3

SYSTEM SPECIFICATION	6
----------------------	-------	---

SECTION 4

INSTALLATION	7
--------------	-------	---

SECTION 5

MAINTANANCE	7
-------------	-------	---

SECTION 6

TROUBLE SHOOTING	8
------------------	-------	---

SECTION 7

SCHEMATIC LAYOUTS & STAND ASS.	9
--------------------------------	-------	---

SECTION 8

HEALTH.SAFETY & ENVIRONMENT.	13
------------------------------	-------	----

SECTION 9

WARRANTY	14
----------	-------	----

SECTION 1

INTRODUCTION

Congratulations on becoming a proud owner of Sun Power Corporation's product.

SUN POWER CORPORATION, Leader in design, development, Manufacturing and marketing of solar water heating is a company promoted by the reputed SUN POWER.

SPC SOLAR is in an unique position of being able to supply totally integrated solar thermal systems, Comprising of various components viz: solar collectors of both Flat plate and Evacuated tube technology, Insulated steel storage tank, Sacrificial Anode rod, Pumps, Pumps control panel Etc.

As a member of SPC Group, we are in position to enjoy substantial Technical, Marketing and financial support and are committed to provide professional and reliable **SERVICE** Before, During and After SALES.

SPC SOLAR – THERMAL Systems have a wide spectrum of Applications as below.

- Domestic Uses : Laundry, Cleaning, Bathing and Others
- Industrial Applications : Boiler Feed, Cleaning & Washing
- Hotels : Bathing, Cleaning, Washing, Laundry and swimming Pool
- Educational Institutions: Bathing, Cleaning and Washing
- Hospitals : Washing, Cleaning, Bathing
- Dairies : Washing Cans & Cattle and Boiler Feed.

SECTION 2

GENERAL INFORMATION

2.0 ENERGY

Energy is the lifeblood of our society. Whatever the source –oil, coal, hydro, nuclear, gas- the use of energy is all- Pervasive. Energy lights and heats our homes, offices, and factories.

Energy Can be classified into RENEWABLES and NON RENEWABLES. Fossil fuel like oil and gas are limited resources and are hence non-renewable. However Renewable energy sources are available in abundance and can be harnessed in unlimited way.

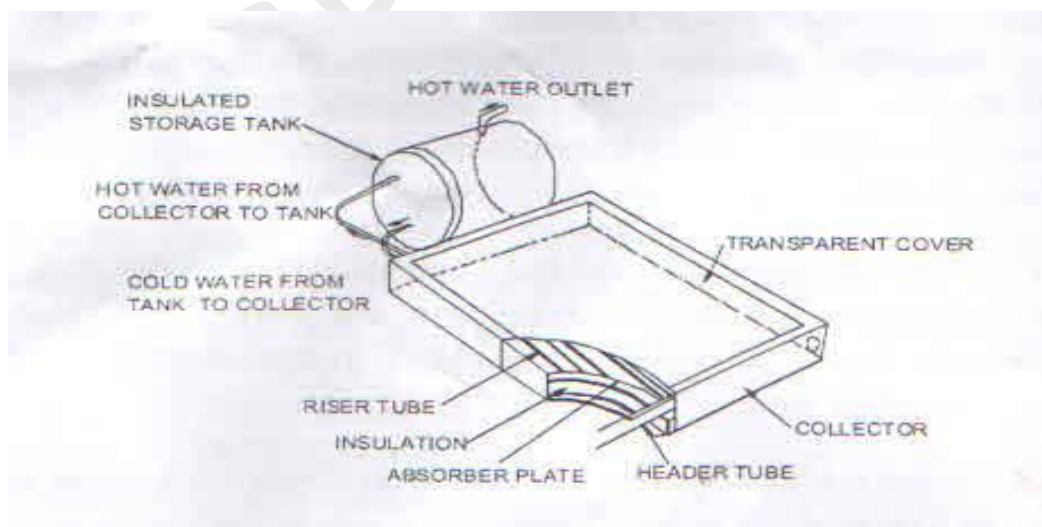
Every day SUN Showers Earth with several thousand times te energy we use. In other words the entire stock of fossil fuels on earth is not worth more than few days of sun light.

2.1 BASIC OPERATION OF SOLAR WATER HEATING SYSTEM

Solar water heating system consist of following major components.

- ❖ Flat Plate Solar Collector
- ❖ Evacuated Tube Collector
- ❖ Insulated Hot Water Tank

2.2 WORKING PRINCIPLE



Flat Plate collector are comprised of:

- An Airtight box with a transparent cover.
- A selectively coated, Metallic Absorbing plate containing water pipes.
- Insulation to reduce heat loss from the back & sides of the absorber tank.

The Solar radiation falling on the collector passes through the external glass and is absorbed by the metallic absorber and is converted to heat. This heats up the water contained in the absorber pipes. The heated water becomes less dense than the water in the storage tank and starts rising through the tube due to "THERMOSYPHON" effect eventually reaching the tank. Simultaneously cold water from the tank descends to the tube, gets heated up in the absorber and rises back to the hot water tank and the cycle's repeats.

SECTION 3 SYSTEM SPECIFICATION

1	SYSTEM CAPACITY	100,150,200,250,300,500 & ABOVE
2	System Temp Output	60 * Degrees Celsius
3	Evacuated Tube	Triple layer selective coated Vacuum Insulated glass tubes
3	Flat Plate Collector	Selective Coated CU-CU
4	No of Fins per collector	9
5	No of collector per system	100 FPC - 1 Nos 100 ETC - 10 Tubes 200 FPC - 2 Nos 150 ETC - 15 Tubes 300 FPC - 3 Nos 200 ETC - 20 Tubes 500 FPC - 4 Nos 500 ETC - 50 Tubes
6	Collector Frame	Extruded Aluminium
7	Frame finish	Powder Coated
8	Circulation	Thermosiphon type
9	Glazing	Toughened Glass/Textured glass
10	Max working Pressure	5 Kg for PR System
11	Hot water Storage tank	Steel Tank with inner protective coating for corrosion resistance.
12	Support Structure	Innovative design structure and powder coated surface protection for corrosion resistance

SECTION 4

INSTALLATION

INSTALLATION GUIDELINES:

- The Tank and structures are to be properly grouted. Customer has to ensure the grouting to prevent any damage arising out of high velocity winds, physical disturbances etc.
- Airvent, ARV & Pressure release valve as shown in the system schematic diagrams, is a must for all installation. Absence of which, will damage the system & any damage arising out of this will not covered under warranty.
- System should be installed only by our authorized dealer / SPC solar representative as per layout given in the Manual.
- Use only recommended pipe size for hot water external piping.
- Ensure proper insulation of complete hot water piping.
- External piping should not exceed 10 Mtr/ 30 feet. If this exceeds the system output will be reduced on account of increased HEAT LOSSES in the pipe line.
- Grouting of the system is mandatory as shown SEC7

SECTION 5

MAINTENANCE

- ✓ Before the onset of monsoon, check the pipe and tank insulation for possible leakage. If damage occurred to the tank or collector due to tempering, ensure that the water doesn't seep into the insulation.
- ✓ Once in a year drain the system by opening the cold water inlet side after

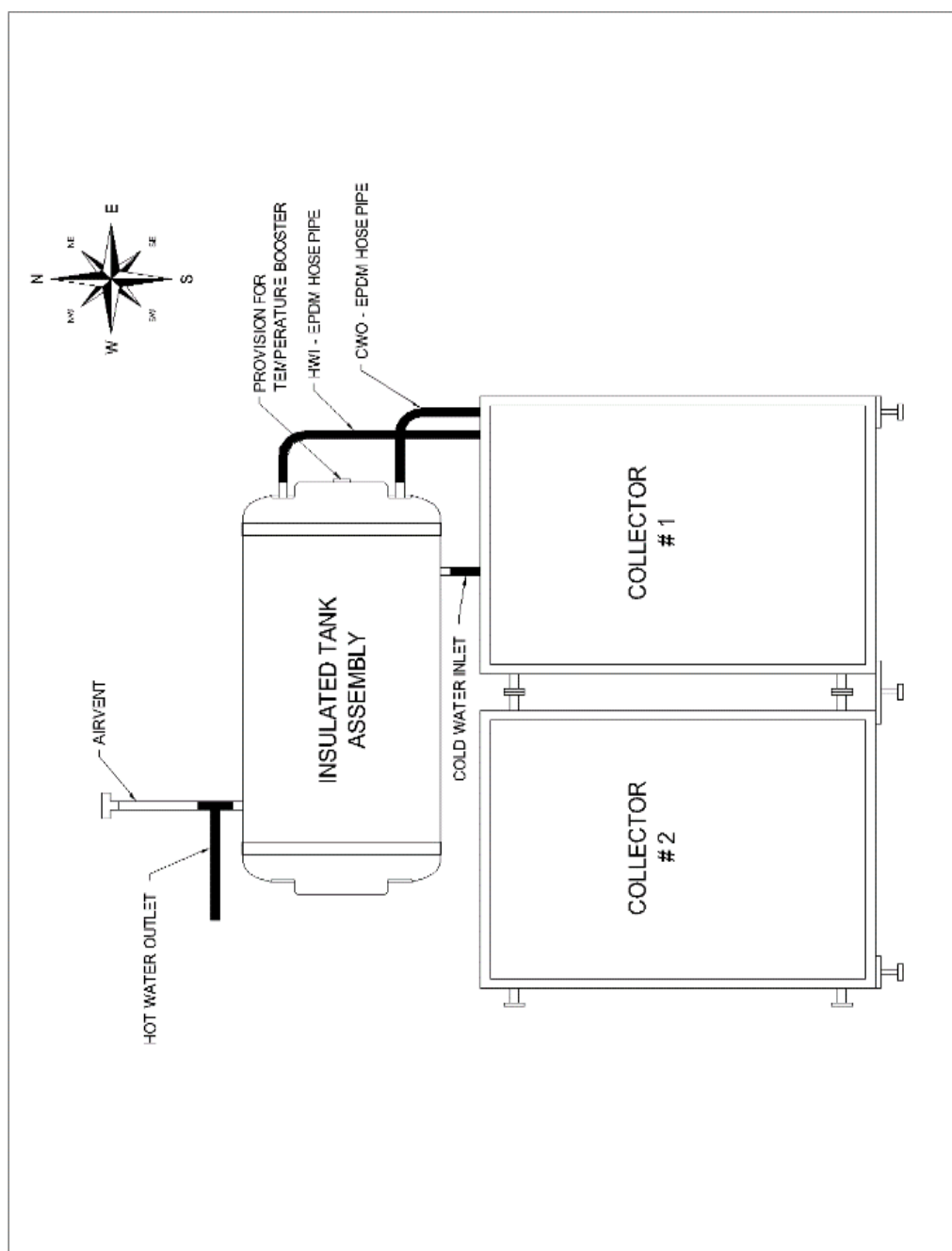
SECTION 6

TROUBLE SHOOTING

SYMPTOM	COMPLAINT	POSSIBLE CAUSE	CHECK/REMEDY
Not Enough Hot water	Flat Plate Collector& EVT	1. Shading 2. Unclean Glazing	1. Remove Shading 2. Clean with mild soap & water when Cool
	Piping	1. High Heat Losses	1. Check insulation
		2. Gate valves partially closed	2. Open Gate valves
		3. Flow Blockage	Flush System
		4. No Insulation	Insulate the piping
	Tank	1. High Storage Losses	1. Check insulation
		2. Loss of hot water due to leakage	2. Check for any leakage
No Hot Water at usage point	Piping	1. Gate Valve Completely closed	1. Open Gate Valve
		2. No Hot Water supply to the system	2. Open CWI Gate Valve
		3. Flow Blockage	3. Flush System
		4. Overhead tank Empty	4. Fill the overhead tank
Cold Water At usage point	Piping	1. High Heat Losses/Over Usage	1. Reduce the time interval between usage. Use complete qty of hot water with in a span of morning once in 24 Hrs
	Piping	1. Loose Connection of pipe fittings	1. Tighten the fittings properly
	Tubes	1. Damage to tube or gasket	Inform Dealer/SPC Solar
	Tank	1. Damage to tank	Inform Dealer/SPC Solar

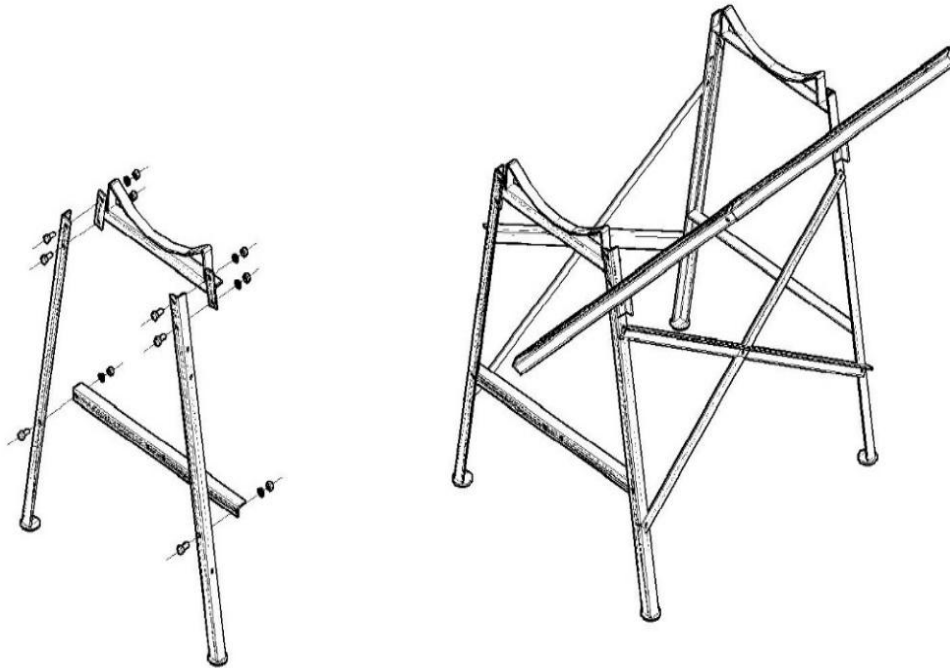
SECTION 7

SCHEMATIC LAYOUT

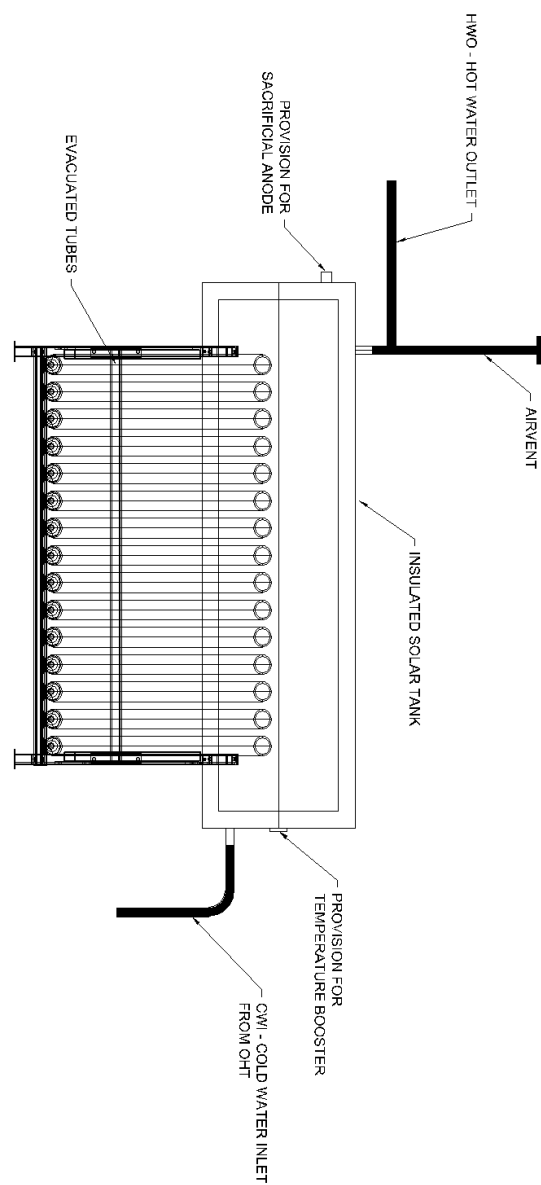


7.1 SCHEMATIC LAYOUT FOR FLAT PLATE COLLECTOR SYSTEM

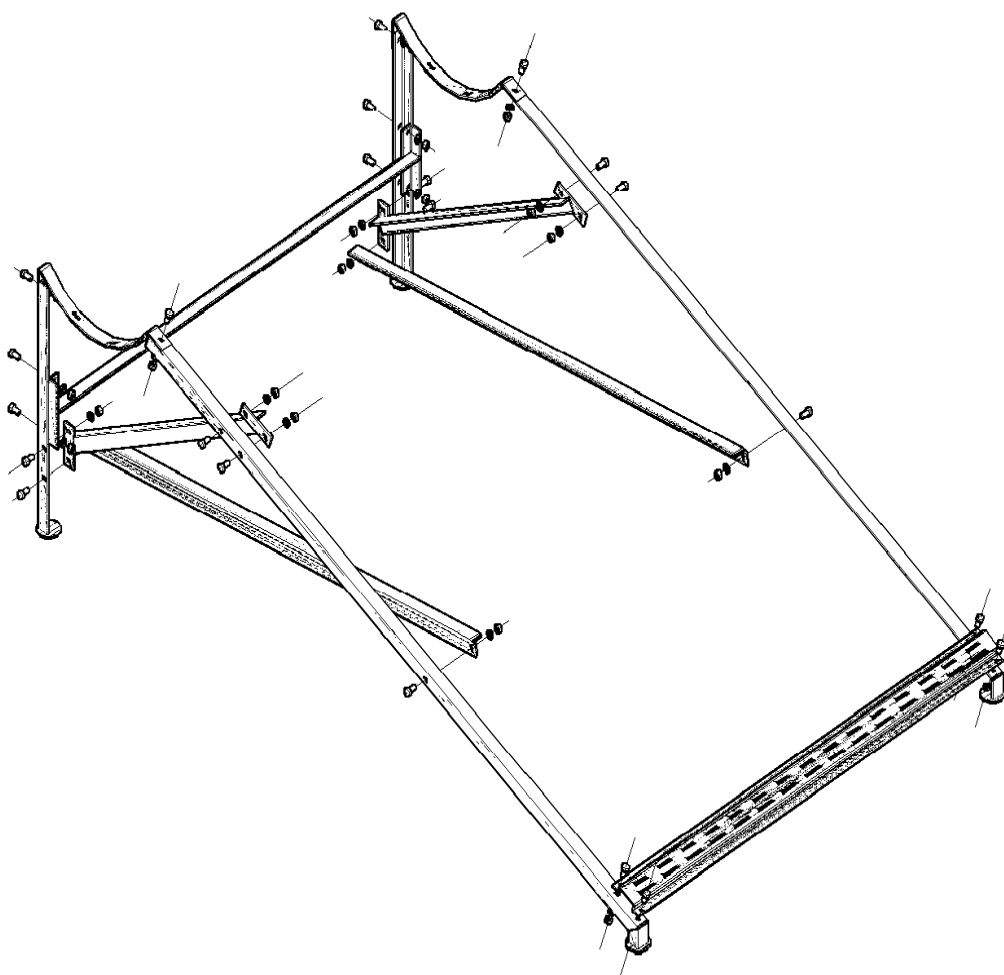
7.2 FPC-STRUCTURE



7.3 SCHAMITIC LAYOUT FOR ETC SYSTEM



7.4 ETC-STRUCTURE



SECTION 8 HEALTH SAFETY& ENVIRONMENT

All our Products /Systems confirm to the specification claimed by SUN POWER CORPORATION. You are requested to use the product / System in accordance with the user manual and under normal conditions.

SPC Solar systems disclaims any liability for the damage which may result due to any one of the following

- ❖ Non Familiarization of caution/Informative symbols pasted on the products / Systems
- ❖ Improper use or use contrary to the instructions contained herein.
- ❖ Any attempt made to service or modify the product/System by the user.
- ❖ Any service / repair to the product /system attended by the user himself or any other person, either during warranty period or out of warranty period, other than sun power authorized/Trained personal.

SECTION 9 WARRANTY

FIVE YEAR PERFORMANCE WARRANTY

Sun Power Corporation warrants the solar water heating systems for a Five-year period provided that the system is installed and serviced as per instruction given in the owner's manual by SPC or its authorized service agents.

If a defect occurs under normal use and service during this five year, SPC Solar will at its discretion, either repair or replace the defective component and/or part within a reasonable time without charges for parts and labour required for the same. Also the Cost of any field inspection necessary to determine the extent of damage is including within this warranty. Costs towards transportation of defective part, to the nearest dealer/SPC service Centre is also included in the scope of this warranty

This Warranty does not cover any items that are in one or more of the following categories

- Support Structure and fixing system
- Glass and other breakable plastic items
- Hardware items like Nut & Bolt, Etc.
- Rubber items like Gaskets etc.

The warranty provided herein does not cover damage, service failures caused by: -

- ✓ Failure to follow SPC Soar's operation or maintenance instructions.

- ✓ Repair, Modifications or movement of systems or components thereof by someone other than a service technician approved by SPC solar.
- ✓ Abuse, Misuse, Or Negligent acts; and not used according to the instructions given in the user manual.

SYSTEM WARRANTY INFORMATION

System No		Inv No		Customer Details
Model				
Tank Capacity				
Collector /EVT Tubes				
Date of Purchase				