## **SOLARIS**

## **Operating Instructions**

Group 12 Sponsor: Dr. Krothapalli

C. Christopher Newton R. Hunter Ashmore Asegun Henry Dustin Harrelson

FAMU-FSU College of Engineering Mechanical Engineering Senior Design

March 2004

## **Table of Contents**

Table of Contents	2
WARNINGS	3
Parts List	4
Tools Needed	10
Package Contents (Hardware)	11
Assembly Instructions	12
Operation Instructions	16

#### **WARNINGS**

**CAUTION** – REFLECTION OF DISH CAN BE EXTREMELY BRIGHT. WEAR EYE PROTECTION AND DO NOT STARE DIRECTLY AT DISH.

**CAUTION** – EDGES OF FRAME ARE SHARP. TAKE PRECAUTIONS WHEN NEAR FRAME

**CAUTION** – TAKE PRECAUTIONS FROM UV RADIATION. DO NOT STARE DIRECTLY AT SUN.

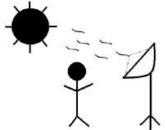
**CAUTION** – AREA AROUND DISH CAN BECOME EXTREMELY HOT. KEEP FLAMABLE MATERIALAS AND OBJECTS AWAY FROM DISH. DO NOT TOUCH DISH WHILE IN OPERATION.



# NOTICE

PUBLIC NOTICE AS REQUIRED BY LAW:
Any Use of This Product, In Any Manner Whatsoever,
Will Increase the Amount of Disorder in the Universe.
Although No Liability is Implied Herein, the Consumer
Is Warned That This Process Will Ultimately Lead to the
Heat Death of the Universe.





UV RADIATON FROM SUN FOCUSED TO AN INTENSE POINT EXTREME HEAT AND LIGHT

USE PROTECTION WHEN OPERATING

DO NOT STARE DIRECTLY AT SUN OR DISH

AREA SURROUNDING DISH CAN BECOME EXTREMELY HOT DO NOT TOUCH DISH WHEN IN OPERATION

## Parts List

## A1 Foot Peg



A2 Leg



A3 Nut



A4 Screw



### A5 Base Plate



A6 Ankle Bracket



A7 Stand



**A8** Adjuster Holder



### **A9** Elevation Plate



A10 Elevation Chassis



A11 L Bracket



A12 Rotator Plate



### A13 Elevation Rein forcer



A14 Dish Clamps



A15 Cross Bar



A16 Long L Bracket



A17 Shaft Holder



A18 Bearing



A19 Shafts



A20 Shaft plate



A21 Dish



## **Tools Needed**



- 1. 5/8" wrench
- 2. 9/16" wrench
- 3. 7/16" wrench
- 4. Adjustable Crescent Wrench
- 5. 5/32 Allen
- 6. 3/32 Allen

## Package Contents (Hardware)

- $16 \frac{1}{2}$  inch 5-40 socket head screws
- 49 1/4-20 screws 1/2 inch long
- 1 ½ inch bolt 2 ¼ inches long
- 2 3/8 inch blot  $\frac{3}{4}$  inch long
- 21 3/8 inch nuts
- $22 \frac{1}{4}$  inch nuts
- $8 \frac{1}{4}$  inch lock washers
- 16 3/8 inch lock washers
- 3 foot pegs

## Assembly Instructions

#### STEP 1

#### Base

- 1. Screw each foot A1 into each leg A2 (1 foot per leg, 3 total)
- 2. Tighten down with nut A3



#### STEP 2

1. Use screw A4 to attach legs to base plate A5 (3 screws per leg)



#### STEP 3

#### Stand

Screw in four A6 ankle brackets to base plate
 A5



2. Screw in stand A7 to ankle A6



#### STEP 4

#### Elevation Adjuster

1. Screw adjuster holder A8 into stand A7



2. Screw elevation plate A9 into stand A7



3. Screw elevation chassis A10 into stand A7



4. Screw in and attach top of adjuster holder A8 into stand A7



## 5. Screw L brackets A11 into rotator plate A12



## 6. Screw Rein forcer A13 into L bracket A11



#### 7. Screw Rotator plate A12 into stand A7



#### STEP 5

#### Cross Members

Screw dish clamps A14 into cross-bars
 A15



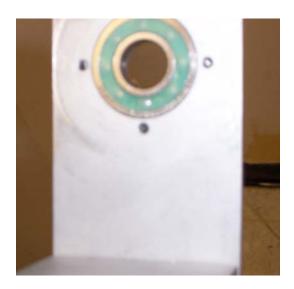
2. Screw long L bracket A16 into Shaft holder A17



3. Screw Long L Brackets A16 into Cross Bar A15 to make a square



4. Fit Bearing A18 into Rotator plate A12



- 5. Insert Shaft A19 through Bearing A18
- 6. Screw Shaft plate A20 into Rotator plate A12 to lock shaft into place



#### STEP 6

#### **Dish**

1. Attach and clamp down Dish A21 to cross bar frame



## **Operation Instructions**

- 1.) Once assembly is complete, the assembly can be moved outdoors.
- 2.) Place assembly in open field, away from hanging brush and flammable materials.
- 3.) Face dish towards sun.
- 4.) Use the elevation adjusted to set the angle of the dish to that of your latitude.
- 5.) System is now ready for use.