# SIRIUS OBSERVATORIES AUSTRALIA Pty Ltd

# 5.0 metre COLLEGE Model Observatory

# ASSEMBLY INSTRUCTIONS

**Revised January 2008**

# SIRIUS OBSERVATORIES AUSTRALIA Pty Ltd

## 5.0 METRE 'COLLEGE' OBSERVATORY (Manual and motorised models)

## ASSEMBLY INSTRUCTIONS

- Thank you for choosing a Sirius Observatory.
- The following instructions will provide you with the easiest method of installation.
- Your new observatory has already been preassembled and operated at our factory. Adjoining parts have been numbered or lettered to assist with assembly.
- Important: The observatory must be placed on a flat and firm base. Any deviation from level will produce poor dome rotation and affect the weatherproofing seals. The base should be at least 150mm (6") thick and the diameter should be at least 100mm (4") larger than the diameter of the observatory.
- Numbered or lettered parts must adjoin during assembly.
- During assembly, you will note that there are coloured stickers placed on components to indicate the position and orientation.

**DOME ASSEMBLY**

a) The dome assembly should be carried out on your level base.
b) Place the dome sections together (as shown in Fig 1, using the timber support supplied) with matching numbers. Insert and tighten the supplied bolts and nuts. Making sure that the main insert is the one with the shutter motor mounted on it.

Fig 1

c) Continue to assemble the dome putting the panels opposite each other as you work your way around, finishing with the lower insert. Do not put the shutters on at this time. As shown in Figures 1, 2 & 3.
d) When the dome is assembled, then untie the electrical wiring harness inside the flange inside the right front panel and clip it into place inside the aperture and across the centre to the rear.

Fig 2

Fig 3 (Lower insert)

e) Figure 4 shows installation of the jointing plates (held in place underneath) which come in a pack of 4 in the parts pack (Install the 4 plates at the 4 joints of the drive track). These are placed underneath the aluminium tracks.

Fig 4

**INSTALLING THE (UPPER) SLIDING SHUTTER**

a) Before installing the upper shutter, remove the shutter cover and motor assembly.

b) Lay the shutter onto the dome opening with the arrow pointing upward.

c) Lower the shutter until the lower end wheels engage with the tracks (one wheel above and keeper block below).

d) Carefully roll the shutter up and over the dome until the wheels at the arrow (upper) end of the shutter have run over the end of the aluminium track. Pull the shutter back up the track so that the wheels engage on the track, with the keeper block on the underside (Figs 5 & 6.)

Fig 5

Fig 6

e) Slide the upper shutter up the track just clear of the holes of the track stops. Hold at that point with a pair of vice grips as shown in Fig 7. Install and fit the two track stops into the holes in the track from the parts supplied as shown in Fig 7

Fig 7

f) Now engage the upper shutter motor with the track by clipping the keeper block on to the track and rolling the motor up to mesh the gear with the track.

g) Connect the motor wires to the terminal block from the harness and the motor as indicated by stickers as shown in Fig 8.

Fig 8

h) Replace shutter motor cover.

i) To the right of the shutter motor, install the upper shutter limit switches from the parts pack.

j) Remove the covers of the limit switches and feed the wires from the harness through the cover and attach to the limit switches as indicated (Fig 9).

k) Using bolts supplied in the parts pack, install the internal spreader bar to the inside leading edge of the upper shutter (Fig 10).

NB: It is strongly advised that the limit switches should be manually tested by operating either the upper or the lower shutter for a short distance and physically depressing the appropriate limit switch to check that it will, in fact, stop.

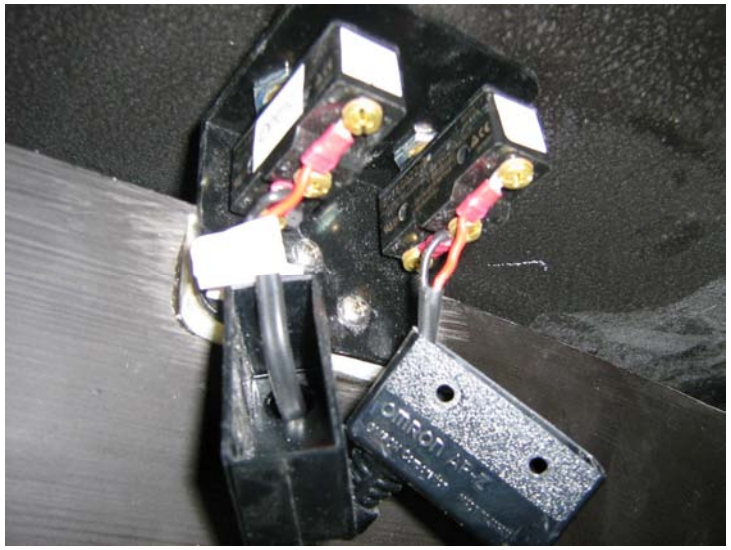



Fig 9

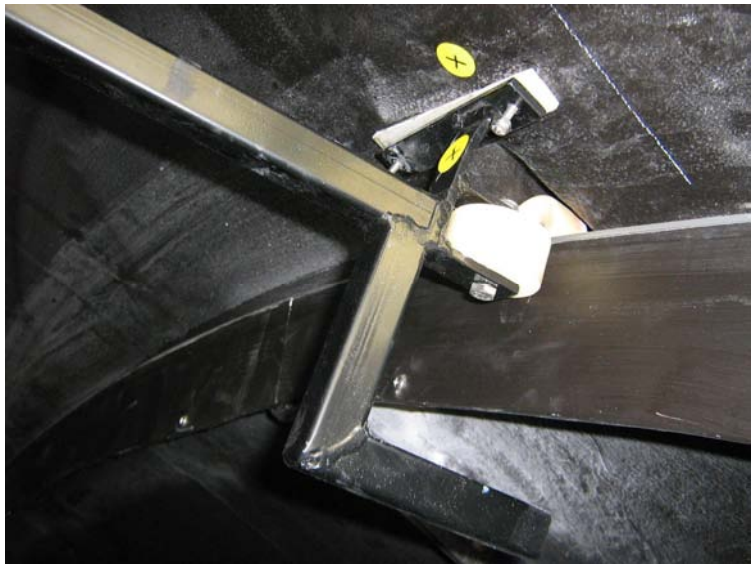


Fig 10

**MOUNTING BATTERY IN DOME ROTATION DRIVE BOX**

a) The battery is a maintenance free sealed lead acid type.
b) Place the battery into the drive box with the battery terminals to the left.
c) Connect the battery wires to the battery.
Red + (positive) Black – (negative)

**ATTACHING THE SHUTTER DRIVE (UPPER) SOLAR PANEL**

a) Attach the mounting bracket to the lower outside of the dome at the point marked, using the screws provided. Apply a small amount of sealant to the screw heads.
b) Feed the wire from the solar panel through the hole provided as shown in Fig 11 & 12.
c) The black battery holding bracket needs to be removed (2 screws) to enable the battery to be put in place on the horizontal plate.


Fig 11

Fig 12

d) Clip the solar panel onto the pre-sprung mounting bracket. (Fig 12a )


Fig12a

e) Attach the wires to the terminal strip just above the battery as indicated.

f) Use sealant to seal the wire where it passes through the stainless bracket and the observatory wall.

**FITTING THE LOWER SHUTTER**

a) Bolt the lower shutter arm mechanism into place across the inside of the lower insert as marked with stickers
b) Hold the lower hinged shutter in the open position and place the bolts through the hinges provided and support the shutter in the open position. Eg with a piece of timber and rag or some such..
c) Close the lower shutter from the inside and connect the two tie arms as shown in Fig 13.


Fig 13

d) Cut the cable ties holding the end of the actuator to the side of the dome and extend it out to meet the arm on the mechanism. Fit the bolt and tighten. (Do not over-tighten.) Now install the upper and lower limit switches to the positions as indicated in Fig 14.
e) Test that both shutters are opening and closing to their limit switches.

Fig 14

f) Remove the 4 bolts out of the upper section of the dome and install the 4 lifting eyes supplied in the pack as in Fig 15 and 15a.

Fig 15

Fig 15a

The complete dome assembly should now be able to be completely rotated on the floor and the shutters open and closed.

Using a crane or such lift the dome into the air approx 2.5 m.

**WALL PANEL ASSEMBLY (Fig 16 & 17)**

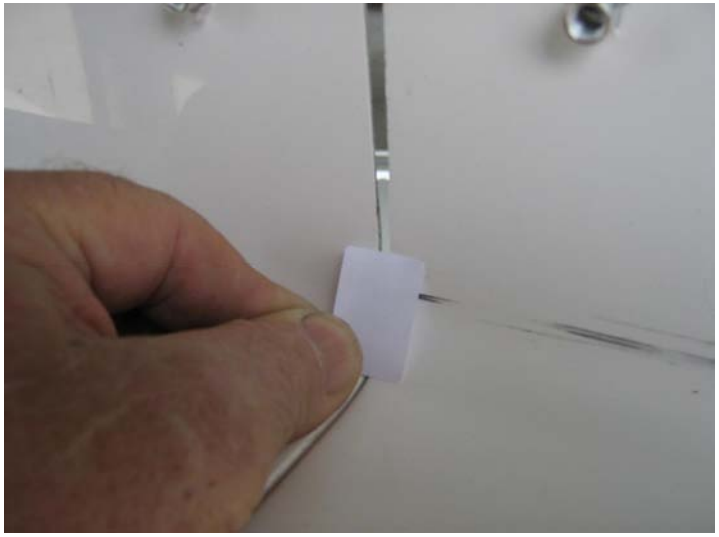
Fig 16

Fig 17

a) Stand the door on the base/slab, in the position where it is to be located.
b) Adjoin the wall panels to the door panel assembly.
c) Secure the wall panels, at the top and bottom, with the bolts and nuts provided, but DO NOT fully tighten the nuts at this stage.
d) When the walls are assembled into a complete circle, insert the remainder of the bolts and nuts.
e) Begin tightening these bolts from the TOP down making sure that the top wheel track flange is perfectly aligned (level) with each adjoining panel.
f) There could be very slight discrepancy in the total length of the wall panels. This is normal.
g) It is <u>important</u> NOT to fasten the walls or mounting ring to the concrete slab or other base material until such time as the dome has been placed onto the walls and rotated several times.

**WATERPROOFING THE TOP OF THE WALL PANELS**

a) After fitting the wall panels together on the slab or floor it is necessary to seal the top of each adjoining panel.
b) Apply the 'Wall top waterproofing adhesive label' (supplied) to the return flange at the top of the wall panels on the <u>outside</u> face as shown in Fig 17a. Cover the joint from the top return corner and approximately 25mm (1") up the riser where a 6mm (¼ inch) gap is seen. (This tape will remain in place at the completion of installation).

Fig 17 a 

c) Once the dome has been fitted onto the walls, apply a small amount of sealant (supplied) to fill this joint from the inside of the observatory. This sealant is applied against the adhesive side of the label. Smooth out with a palette knife or similar.

The sealant will be covered by the grey vertical trim and the black fibreglass dome wheel cover trim, on the finished observatory.

**LUBRICATING THE WALLS**

a) The dome wheels run along the horizontal surface on the top of the wall panels. The wheels may also touch the vertical section at the top of the wall panel. Smear generous amounts of the supplied lubricant on both the horizontal and vertical surfaces. Top up as required.

Fig 18 

a) Lower the dome over the tops of the walls using extreme care that the bottom flange is pushed clear past the nut inserts in the tops of the walls. To achieve this, start at one point and work your way around the dome as shown in Fig 18. BE CAREFUL NOT TO PLACE FINGERS UNDER THE EDGE OF THE DOME PANELS.

b) Once the dome is settled on to the walls, rotate it several times.

**ALIGNING THE WALLS**

a) Rotate the dome and if necessary move the walls in and out slightly until the dome rotates easily. (In the unlikely event that the rotation is difficult, it could be that the slab or base structure is not perfectly level. If this is so, shims will be required under the wall sections to level the wheel track.)

**ATTACHING DRIVE TRACK AND DOME ROTATION MOTOR**

a) The black metal serrated drive track is attached to the inside of the dome with the teeth facing downwards. Matching attachment points are labelled (this is important) and bolts and nuts are provided. Bolt into place as shown in Fig 19.

Fig 19

b) At the back of the drive box you will see a white nylon keeper block. To position the drive box, hook the nylon keeper block over the top of the drive track. Swing the bottom of the drive box in towards the wall panel so that you engage the motor drive gear with the serrated track.

c) Bolt the drive box to the wall panel in the position drilled and marked with the bolts and nuts provided.

**ATTACHING THE DOME DRIVE (LOWER) SOLAR PANEL**

a) Attach the mounting bracket to the outside of the wall panel at the point marked, using the screws provided. Apply a small amount of sealant to the screw heads.
b) Feed the wire from the solar panel through the hole provided.
c) Clip the solar panel onto the pre-sprung mounting bracket.
d) From inside the observatory, feed the solar panel wire through the hole in the motor drive box.
e) Attach the wires from the solar panel to the terminal strip just above the battery as indicated.
f) Use sealant to seal the wire where it passes through the stainless bracket and observatory wall.

**INTERIOR DOME WHEEL COVER TRIM (BLACK – Fig 20)**

Fig 20

a) Position the trims in place as marked on the trim and top of the wall indicated by stickers, inside the dome, at the top of the observatory walls so that they cover the dome wheels and drive track.
b) Bolt the cover panel to the wall first (middle holes) then screw each adjoining cover panel together. Do not tighten the screws at the joints at this stage.

**VERTICAL TRIMS (GREY - Fig 21)**

a) These trims hide the inside wall joints and the nuts and bolts.
b) Carefully slide the trim up under the black cover trim and attach the bottom with the two screws provided.
c) Now tighten the black corner trim bolts.

Fig 21

**WEATHER SEALING PLATE – EXTERNAL DOME FITTING**

a) Eight small white Weather Sealing Plates with two holes and foam backing are within the assembly box. This plate is fitted on the outside of the dome where the sections join, (at the lower point near the walls) and functions to prevent any dribbles of water getting under the weather strip.
b) Place the Weather Sealing Plate on the outside of the dome so it overlaps the weather strip. Insert the two screws so that the plate is fitted hard against the dome and the weather strip. (Fig 22).

Fig 22

**ATTACHING THE OBSERVATORY TO THE SLAB OR FOUNDATION**

a) Using 12mm (1/2") masonry anchors or similar, drill two holes of the appropriate size through the fibreglass flange at the bottom of each wall panel, and into the concrete. The holes should be drilled approximately 150mm (6") from the outer edge of each wall panel and in accordance with the masonry anchor manufacturer's instructions.

b) In the event that the observatory is to be assembled onto a timber platform then coach bolts should be substituted for the anchor bolts.
c) Where the dome is assembled onto a mounting ring (DOME ONLY) the ring should be fastened every 600mm (2') using the methods detailed above.
d) If a gap exists between the base of the wall and the slab at the anchor point, then the gap should be filled with a solid shim.
e) All fastenings should be tightened to manufacturer's instructions.

**WEATHER SEALING THE OBSERVATORY**

a) All the panels are equipped with their own integral panel to panel weather seals.
b) A quality sealant should now be applied to the outside of the wall panels where they make contact with the slab/base. We recommend a bead of 3M 4200 sealant or similar.
c) You may want to lightly sand the gel coat at the base of the wall panels to ensure the bonding of the sealant. The use of 'masking tape' to mask up the external lower section of the walls will provide a neat finish. Remove the masking tape before the sealant has cured. (Fig 23)

## Warranty

Sirius Observatories warrants the product against defective workmanship and faulty materials for a period of 12 months from the date of purchase.

Sirius Observatories undertakes, at its option, to repair or replace free of charge, each product or part thereof on the condition that the product or part in question is returned to Sirius Observatories, or one of its agents freight pre-paid, and on examination is found to be suffering from a material or construction defect.

Sirius Observatories cannot be held responsible for any repairs other than those carried out by the manufacturer or one of its agents.

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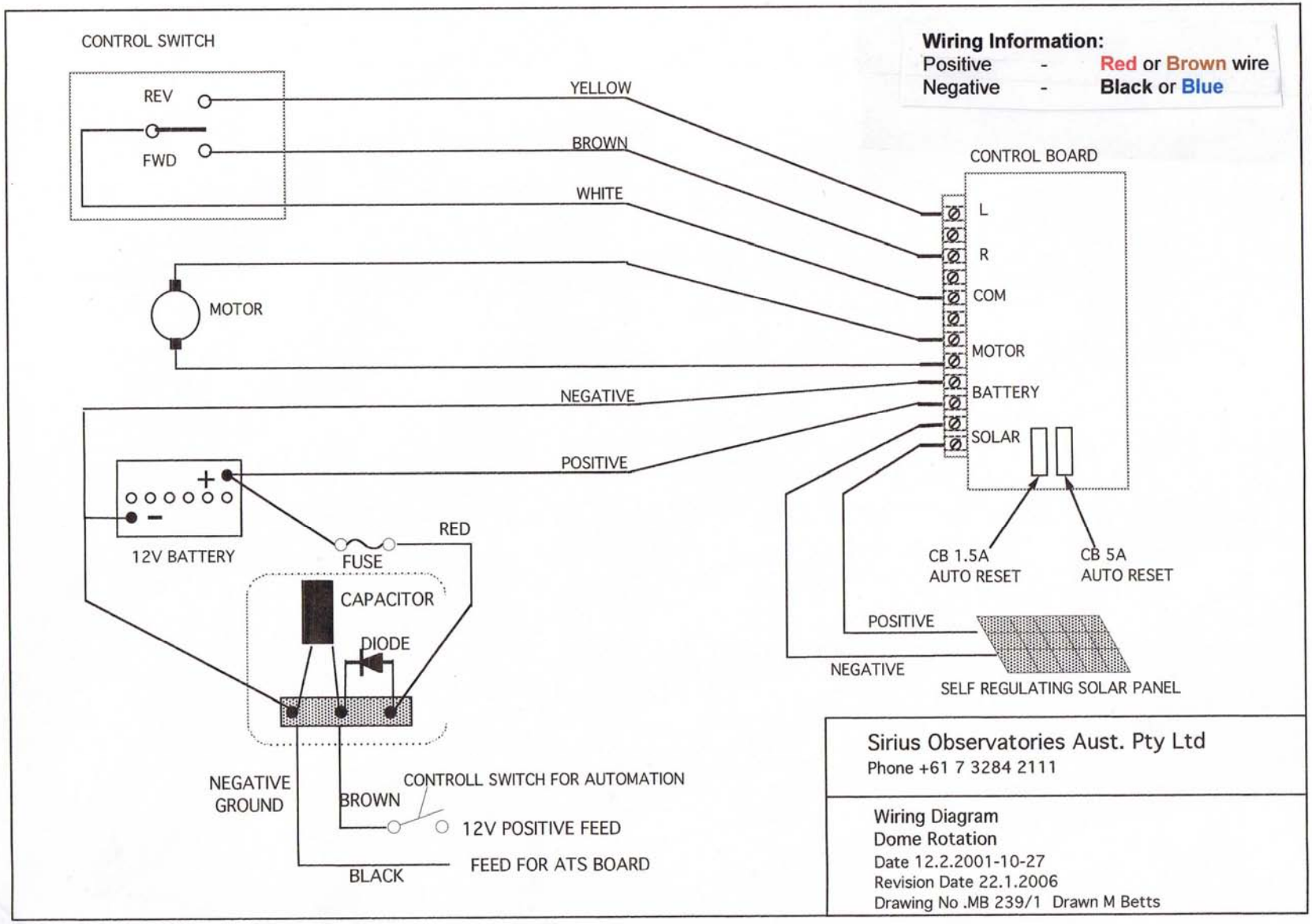
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BROWN
CONTROLL SWITCH FOR AUTOMATION
12V POSITIVE FEED
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FEED FOR ATS BOARD
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Negative - Black or Blue
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R
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BATTERY
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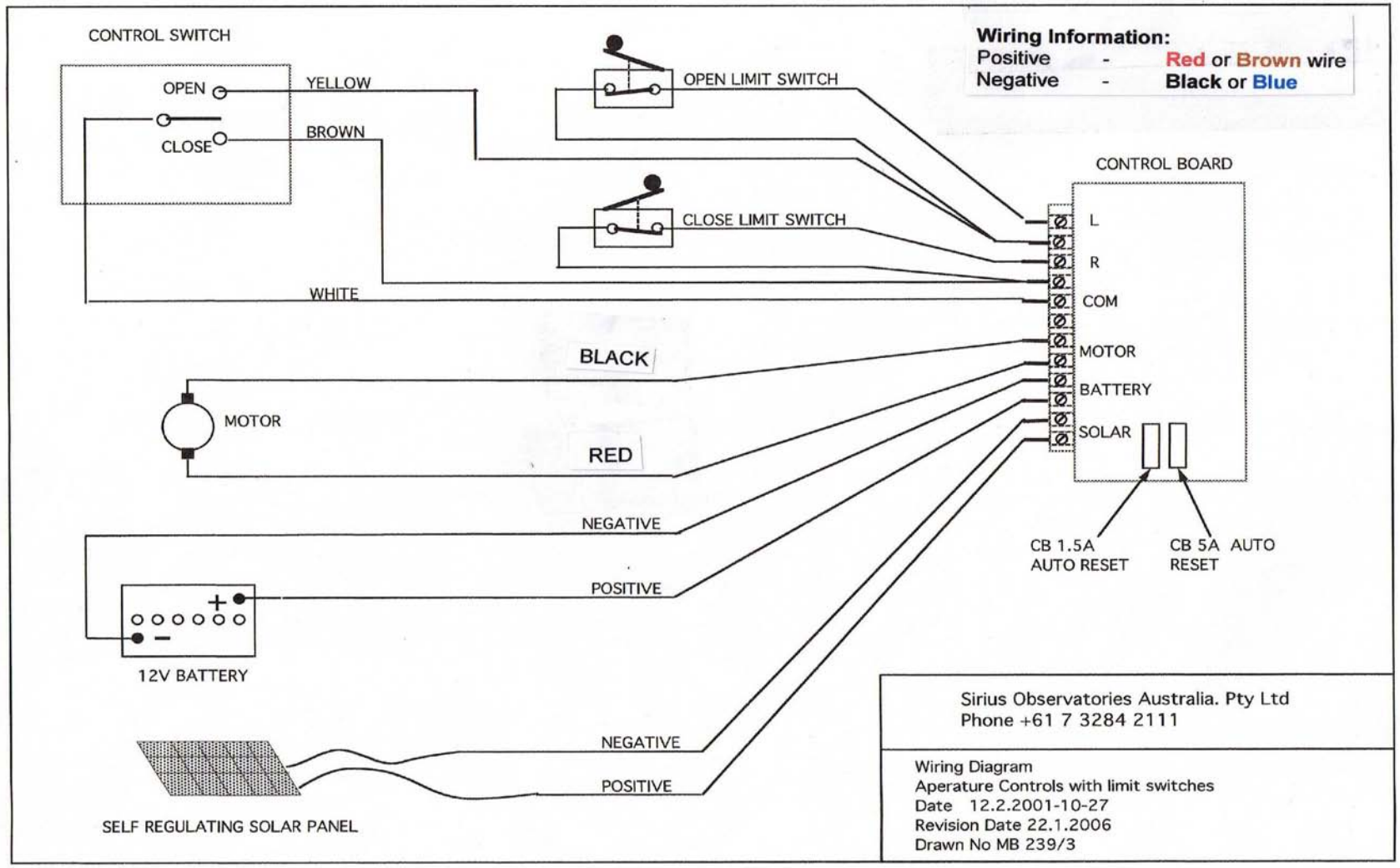
Sirius Observatories Aust. Pty Ltd
Phone +61 7 3284 2111
Wiring Diagram
Dome Rotation
Date 12.2.2001-10-27
Revision Date 22.1.2006
Drawing No .MB 239/1 Drawn M Betts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R
COM
MOTOR
BATTERY
SOLAR
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RED
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NEGATIVE
POSITIVE
12V BATTERY
NEGATIVE
POSITIVE
SELF REGULATING SOLAR PANEL
CB 1.5A AUTO RESET
CB 5A AUTO RESET
Sirius Observatories Australia. Pty Ltd
Phone +61 7 3284 2111
Wiring Diagram
Aperature Controls with limit switches
Date 12.2.2001-10-27
Revision Date 22.1.2006
Drawn No MB 239/3