# SIRIUS OBSERVATORIES AUSTRALIA Pty Ltd

# 2.3 METRE 'HOME' OBSERVATORY

# (Manual and motorised models)

# ASSEMBLY INSTRUCTIONS

**Revised February 2005**

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## 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 perfectly level and firm base. Any deviation from level will produce poor dome rotation and affect the weatherproofing seals. The base should be at least 100mm (4") 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.

**FOR 'DOME ONLY' UNITS - DISREGARD ALL REFERENCES TO WALL PANELS**

**DOME ASSEMBLY**

a) The dome assembly should be carried out on your level base.
b) Place the two main dome sections together, insert and tighten the supplied bolts and nuts.
c) Do not put the shutters on at this time.
d) When the dome is assembled, lift it onto stools or other supports to insert the wheels.
e) Should you choose to use the lifting eyes provided, screw them into the threaded holes near the top of the dome. The lifting eyes should be removed and replaced by the original bolts after the dome is in position on the walls.
f) With the dome suspended above the ground, press the red plastic wheels onto the wheel bearings and attach, with the screws and washers provided.

**WALL PANEL ASSEMBLY**

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 important 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 outside face. 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).

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.
d) 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) Smear some lubricant (supplied) on the wheel track as indicated on the jar. This will allow the dome to rotate easily.

**ASSEMBLY OF DOME ONTO WALLS**

a) Using manpower (two or more) or a small crane, lift the dome onto the walls.
b) Making sure that ALL of the wheels are outside the top flange of the wall panels, lower the dome into place. Be careful not to place fingers under the edge of the dome panels.

**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.)

**WEATHER SEALING PLATE – EXTERNAL DOME FITTING**

a) Two 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, at the lower point of where the two adjoining dome sections fit together in order to stop 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.

**INTERIOR DOME WHEEL COVER TRIM (BLACK)**

a) Position the trims in the place, inside the dome, at the top of the observatory walls so that they cover the dome wheels.
b) Bolt the cover panel to the wall first then screw each adjoining cover panel together.

**VERTICAL TRIMS (GREY)**

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.

**INSTALLING THE (UPPER) SLIDING SHUTTER**

a) Rotate the dome until the shutter aperture opening is directly opposite the door opening.
b) With the door open, place the top end of the shutter onto the aluminium track, with the arrow pointing upward and the lower end swinging into the observatory.
c) Roll the shutter up so that the wheels engage the track, making sure the lower end of the shutter doesn't swing out to place stress on the wheels.
d) Carefully roll the shutter over the dome and engage the wheels at the lower end.
e) Roll the shutter to the top of the dome.
f) Fix the black weather seal moulding to the underside of the leading edge of the shutter. (Can only go one way as holes are pre-drilled)

**ATTACHING THE SHUTTER STOPPER BLOCK**

a) Attach the back urethane stopper block - with the flat side uppermost - using the holes provided between the tracks at the lower part of the dome, opposite the shutter aperture.

**PULLEY BLOCK**

a) Attach the stainless steel pulley block (wheel up) to the lower part of the dome, adjacent to the stopper block, using the supplied fittings.

**ATTACHING THE SHUTTER CORD**

a) The shutter cord is designed to open and close the sliding shutter from inside the observatory at ground level.
b) Release the cord so that it hangs from the end of the shutter.
c) From outside the dome, using a small step ladder take the end of the cord and feed it through the stainless steel pulley block that you have just fitted to the dome and back up to the end of the shutter.
d) Feed the cord through the copper ferrule and (from inside the dome) over the stainless pulley that lines up with the ferrule through which you have just passed the cord.
e) From the inside of the dome take the cord and thread it down between the pulley wheel and the keeper/body of the pulley block so that it hangs into the dome.
f) Taking the end of the cord, feed it up between the keeper/body of the second pulley and its wheel, over the top of the pulley wheel and out through the hole which lines up with the second pulley.
g) From the outside, tie a knot in the end of the cord.
h) Using the large loop within the observatory, you will now be able to open and close the sliding shutter by pulling the shutter cord.
i) Attach the small black horn cleat to the lower end of the adjoining inside flanges opposite the hinged lid opening. This will enable you to tie the shutter cord out of the way when it is not in use.

**ATTACHING THE (LOWER) HINGED SHUTTER**

a) Two hinge points will be seen on the lower lip of the dome, below the aperture. Each of the hinge points will be complete with three bolts and nuts (or screws.) Hold the lower hinged shutter in the open position and place the bolts or screws through the hinges provided.
b) Take the two chains that are attached to the lower shutter and attach them to the anchor points on each side of the aperture. A cord is provided to assist with opening and closing the lower shutter.
c) Attach the cleat on the inside dome flange below the aperture. This cleat, in conjunction with the cord, is used to secure the shutter in the closed position.

**ATTACHING THE UPPER AND LOWER SHUTTER JOINT WEATHER SEAL**

a) Using the nuts and bolts provided, attach the fibreglass foam-lined weather seal to the inside lower edge of the upper shutter. This seal will butt up against the closed lower shutter lip.

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

a) Using 12mm (3/8") 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 (return flange) 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) 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.

## MOTORISED UNITS

**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.
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 two outer most connectors of the circuit board.
f) Use sealant to seal the wire where it passes through the stainless bracket and observatory wall.

**MOUNTING BATTERY IN DOME ROTATION DRIVE BOX**

a) The battery is a maintenance-free gel cell.
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)
d) Apply a small amount of lubricant (supplied) to the top and bottom of the serrated track.
e) The dome rotation mechanism will now be operational and can be controlled using the pendant switch attached to the drive box. NOTE: There is a one second delay in the operation of the dome drive motor.

**CONNECTION OF THE MOTOR TO THE (UPPER) SLIDING SHUTTER**

a) Unscrew the black motor drive cover at the top of the shutter aperture.
b) Unpack the limit switches which are attached to the inside of the dome inside a plastic bag.
c) Mount the limit switches to the top of the dome using the screws and holes provided.
d) Run the black electrical wire through the back of the motor mounting plate and attach it to the terminal on the mounting plate as marked.
e) Remove the white keeper block from the drive gear (three screws).
f) Engage the serrated drive track with the motor shaft gear and replace the keeper block to hold the gear and teeth in mesh.
g) Replace the motor drive cover.

**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.
c) Clip the solar panel onto the pre-sprung mounting bracket.
d) From inside the observatory, unscrew the cover box to the shutter drive mechanism.
e) Attach the wires from the solar panel to the two lower most connectors of the circuit board.
f) Use sealant to seal the wire where it passes through the stainless bracket and observatory wall.

**MOUNTING THE SHUTTER BATTERY**

a) Use the same method as with the dome drive battery, however place the battery with the terminals to the right.

**ATTACHING THE MOTORISED (LOWER) HINGED SHUTTER**

a) Hold the lower hinged shutter in the open position and place the bolts or screws through the hinges provided.
b) Inside the dome release the cable tie holding this drive mechanism.
c) Power the push rod out approximately half way, then connect to the push rod to the shutter using the hole provided.
d) The lower hinged shutter can now be operated using the switch on the inside of the observatory.

## RETROFITTING MOTORISED DOME ROTATION TO EXISTING NON-MOTORISED UNITS

a) With the observatory completely installed. Determine which wall panel faces the sun. This will determine the location of the solar panel.
b) Remove the interior dome wheel cover from this wall section.

**The Drive Box**

a) To gain access to the bolt holes for attaching the drive box to the wall of the observatory, it will be necessary to remove the circuit board and battery. The circuit board can be easily removed by depressing the locking edge of the circuit board and sliding it out.
b) The motor box must be positioned approximately 75mm (3") from the right hand vertical wall flange and tight up against the top flange of the wall. With the gear wheel above the top of the wall.
c) Drill four 6mm (¼") holes through the observatory wall using the existing holes in the drive box as a template. (DO NOT MOUNT THE BOX YET).

**Fitting the track**

a) Marking and drilling each of the track bracket mounting points should, for consistency, take place above the motor mounting point.
b) Place the timber spacer block (provided) onto the top of the wall where the wheels run, with the small lip facing you.
c) Place the track (teeth down) at a distance of 270mm (10 5/8th") to the left of the dome joint with the bracket attached against the dome. Mark and then drill the 6mm (¼") hole. (It will be necessary to remove the track on each occasion).
d) Bolt the bracket and track to the dome and proceed to the next bracket. Ensure that a stainless steel washer is under the head of each bolt when the bolt is inserted from outside the dome.
e) To complete the fitting of the track it will be necessary to cut the last track section (using a hacksaw) to the required length. Ensure that the position of adjoining teeth maintains the continuation of the tooth pattern.
f) The track must be drilled and mounted at each joint so that it aligns correctly.

**Fitting the Solar Panel**

a) There are two components (a) Solar Panel (b) Bracket
b) On the outside of the observatory locate the bolts used to mount the drive box.
c) Place the solar panel bracket with the pre drilled holes towards the observatory between the drive box and the wall joint. The top of the bracket should be positioned in line with the black rubber weather strip.
d) Mark and drill 2 x 5mm (3/16") holes and 1 x 6mm (¼") hole and bolt the bracket to the dome using the 2 x 5mm (3/16") bolts and nuts.
e) Clip the solar panel on the pre sprung bracket.
f) Push the wire through the 6mm (¼") hole into the observatory and connect in the position marked in the drive box.
g) Seal the 6mm (¼") hole on the outside with sealant.

**Fitting the Drive Box**

a) 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.
b) Bolt drive box to the wall panel in the position that you drilled with the drive box as a template, use the bolts and nuts provided.

# 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 can not be held responsible for any repairs other than those carried out by the manufacturers or one of its agents.**