THE PETERBROUGH DIOCESAN GUILD OF CHURCH BELLRINGERS

DAVENTRY BRANCH

WOMBEL

A Saxilby Ringing Simulator mounted on a Tower Frame

ASSEMBLY AND USE INSTRUCTIONS

A. SITE

1. The space needed to assemble and erect the unit is a flat area of at least 2m wide X 6m long. A minimum ceiling height of 3.5m is needed for assembly.

2. The floor space needed to operate the unit is about 2m X 2m and a ceiling height of 3.5m.

3. Power is only required if a laptop computer loaded with the Abel program needs it.

B. ASSEMBLY OF FRAME

1.Complete joining the two parts of the base frame by bolting together loosely. All bolts should be fitted with a washer under the head and under the nut with the nuts on the final inside of the tower.

Look out for colleagues when turning frames around

2. Similarly complete joining each of the two end frames.

Make sure each bolt has a washer under its head and under its nut

3. Complete joining the four brace beams.

4. Loosely bolt the end frames to the base frame. Get someone to support the end frame so that undue force is not exerted on the bottom bracket at this stage. Each joint is lettered and matched parts should be put together.

Keep the nuts on the inside of the frame

5. With two people lifting and holding in place the top frame with the small square space at the long end of the base, loosely bolt it to the end frames.

Take care of colleagues when swinging frames around

6. Loosely bolt the brace beams, with the two holes end at the base and one hole end at the top.

7. Shake the whole assembly, straighten the middle joints and tighten all bolts. All bolts are the same length and when tightened with a washer under the head and nut should be level with the nut thus presenting a smooth finish. Do not overtighten the bolts otherwise you will crush and weaken the box tubes.

Do not overtighten bolts

8. If the floor is precious and vulnerable, place a board or thick carpet under the two base joints of the end frame at the end where the top frame has its large opening.

Protect vulnerable floor before tipping tower.

9. Place a baulk about 25cm high suitable for this end frame to rest on.

10. Use two people to lift the other end frame (coinciding with the small square space in the top frame) and another two to help pivot it and assist tipping it over unit the end frame rests safely on the baulk so that the top frame is about vertical.

Have plenty of people power

C. ASSEMBLY OF SAXILBY SIMULATOR

1. Place the wooden bell frame with its base upright with the rope pulley wheel at the top and bolt it to the metal top frame with four long bolts, using a large diameter washer under the head and under the nut. The nuts should be at the wooden frame end so that in the final position the bolts are not protruding downwards as a hazard. Do not over tighten the bolts.

These bolts upwards

2. Remove the bearing caps by undoing the nuts and placing them ready at hand.

3. Use two people to lift the wheel upright with the garter hole nearest the frame, taking care not to damage the sensor attachment. The broad shallow pulley on one side of wheel axle should now be the same side of the wheel as the very small pulley assemblies on the inside of the wooden frame. Fit the ball bearings into the bearing bottom cups while another person refits the bearing caps and tightens the nuts – do not over tighten.

Have plenty of people power

4. Undo the two M12 countersunk setscrews on each side of the wheel with the Allen key supplied. With two people holding one bell plate with the plastic cushions between plate and wheel, another can install the setscrews and tighten using the Allen key. Repeat for the second bell plate. Store the Allen key properly.

Have plenty of people power

5. Fit the slider mechanism: there are two wooden arms each with a clamp end. Take the one that has a small metal pillar fixed on one side and push the larger diameter clamp up and over the copper-coloured portion of the wheel bearing shaft with the metal pillar on the same side as the two small pulley wheels fixed inside the wooden bell frame. Fix the other arm to the other side.

6. Now fix the 'slider' mechanism consisting of two long 23mm dia. wooden dowels connected by webbing straps to a 20mm dia. black metal tube. Take one of the dowels and place the end which has two black rubber rings into the deeper of the two holes between the bottom beams of the bell frame, then manoeuvre the other end into the shallow hole the other side and slide the outer of the two rings up to the frame to hold the far end in the shallow hole.

7. Make sure that the strap is not twisted then swing the two slider arms so that you can push up the black tube into the lower clamp ends.

8. Again making sure the strap is not twisted, install the other dowel in the same manner as at 5. above.

9. Take the small cord which has a small coil spring at each end and drape the middle over the silver flanged part of the wheel bearing shaft. Take one end through the far small pulley and turn it back and fix the end of the spring over the pillar on the slider arm. Take the other end of the cord and take it in the opposite direction to connect to the pillar.

10. Thread the rope and sally through the rope pulley

11. If there is a need to install the weather cover, place the three hoops (white at centre, red at ends) each through two eye screws on each side outside of the bell frame until the grommets stop further insertion.

12. Whether to install the plastic cover at this stage will need to be decided on site.

Have plenty of people power

13. Have four people at the bell end ready to lift and two at the frame base end ready to help lever the whole unit upright.

14. Make sure that a precious floor is well protected at the bottom of the base frame which will now be acting as the pivot points.

Protect precious floor during tipping of tower.

15. Lift and swing the unit upright, with two of the four being ready to move to the other end ready to assist in lowering the frame as the weight of the bell unit changes to that side.

16. Place the floor board over the two base frame cross tubes so that anyone using the unit adds their weight to increase stability even further.

17. The 'bell' is now ready to be raised and rung and lowered without making any sound.

Consider removing one brace to assist supervision

18. It may help in giving people 'having a go' more support if the most convenient of the cross brace beams at the rope end is removed. The frame has been tested and found fully satisfactory for strength and stability in this condition.

Beware theft of lap-top computer

19. When a laptop computer is available it should be set up so that it can be seen by the ringer when facing the rope. Connect the long white cable to the sensor already installed on the bell frame and to the 9-pin socket in the computer and run the Abel program.

Watch out for cable trip hazard

D. USING THE TOWER

1. The tower must not be used unless there is a competent member of the PDG supervising. Signs 'Please wait for an Instructor' are supplied.

A PDG RINGING MEMBER MUST SUPERVISE USE of the tower

2. The bell can be raised using minimal force and small length pulls until it is up and it sets fairly deeply so is easier to control.

3. Some people find it easier to ring the backstroke with one hand and the handstroke with the other.

There is very little risk of personal injury to those having a go due to the low weight of the rotating parts

4. Whilst over-pulling leads to the stay hitting the slider hard, the stay is short and stubby metal and the straps act as a bit of a shock absorber. The mode of ultimate failure is for a slider dowel to break. If this happens, a spare dowel is available in the plastic bag with the kit and can be replaced from below without dismantling the tower.

Beware trip hazard of the base frame and floor board

5. The Abel program can be used so that only the tower bell sounds. It can also be used with Abel ringing any selected method on any number of bells and the ringer rings the tower bell as one of the bells of the method (hopefully) in the right place!

E. PUBLIC RELATIONS

1. Depending on the occasion, we would appreciate any donations towards the Guild's Training Fund.

2. The Guild pop-up displays 'All about Bells' and 'All about Change Ringing' are also available for loan, but are not fit for outdoor use as they act as sails and may disappear!

Pop-up displays not suitable for out of doors use as they will readily blow over

3. Have recruiting leaflets available suitable for the occasion.

4. Have someone to collect contact details for anyone showing continued interest.

5. If using computer generated sound, have regard to not annoying others with excessive sound level

F. DISMANTLING THE EQUIPMENT

1. Lower the bell, unplug the computer sensor cable, remove the lap-top computer to secure location.

2. Remove the floor board to a safe storage position.

3. Protect the floor at the pivot point (base frame corners away from rope end) adequately to prevent damage.

Protect vulnerable floor

4. Place a baulk about 25cm high to hand for supporting the frame as it comes down.

5. With four people at the rope end lift the base frame upwards with two people at the far end from the rope ready to take the frame as it passes over the balance. Two of the four must be ready to make sure the pivot doesn't slip, place the baulk and to help take the weight of the bell frame as it lowers on to the baulk with the bell frame about vertical.

Have plenty of people power

Please refit two washers and a nut onto each bolt ready for next time.

6. Remove the cover hoops, slider mechanism and cord with two springs. Store them all safely.

7. With two people holding one of the bell plates, undo the M12 setscrews with the large Allen key, remove and safely store the plate. Refit the setscrews into the sockets. Repeat for the other plate and store the Allen key.

Have plenty of people power

Don't fall or trip over dismantled items!

8. With two people holding up the wheel, another person should undo the bearing cap bolts and remove the caps and put carefully aside.

Have plenty of people power

9. Lift out the wheel and store safely ready for transport, making care not to damage the bearing axle.

10. With someone holding the bell frame, undo the four fixing bolts and lift the frame away. Please refit the two washers and nut onto the bolts ready for next time. Store the frame ready for transport.

Have plenty of people power

11. Undo the brace beams and undo half of the middle coupling bolts. Please keep each bolt complete with two washers and the nut ready for next time. Store bolts in the box and put the frames where they will not be trodden on or cause a trip hazard until loaded for transport.

Please refit two washers and a nut onto each bolt ready for next time.

12. Undo one end frame at a time, making sure that someone supports the freed ends and base frame so as not to over stress the brackets still connected. Uncouple one end of the end frame middle plates. Please keep each bolt complete with two washers

and the nut ready for next time.

13. Undo the second end plate from the top plate and the base plate. Uncouple one end of the end frame middle plates. Please keep each bolt complete with two washers and the nut ready for next time.

14. Uncouple one end of the base frame middle plates.

15. Check the site for all parts, bolts, tools and other equipment.

Don't leave anything behind

G. TRANSPORT and STORAGE

1. The frame splits into pieces that can be carried without much difficulty in a hatch back style vehicle.

2. The simulator also comes in pieces that can be carried in (another) hatch back style vehicle. The best form of packing is to place the bell plates on the floor. Protect them from scratching with old cloth. Protect the eye screws on the outsides of the bell frame with stiff plastic pads and place the frame side down on the bell plates. Cover the top with more old cloth. Using two people to turn the wheel on its side and lift it clear above the frame, lower it so that the bearing axle sits in a space of the bell frame. Rope the upper bearing axle to the back of the vehicle to prevent forward sliding in the case of emergency braking.

Two people needed to lift wheel assembly into horizontal position and placing it in vehicle

3. If not assembled while stored, the wheel assembly is best stood up on end safely with care not to damage the bearing axle ends.

< Saxilby bell simulator bolted to tower frame:

< Top frame

< < Four brace beams,

one of which can be omitted for easier access

< Two end frames

< Floor board lays on

< Base frame

H. PARTS LIST

1. **Frame**

- Base frame (2 parts)
- End frame (2 X 2 parts)
- Top frame (1)
- Cross braces (4 each in 2 parts)
- Joining plates (20)
- M10 bolts (80) each complete with 2 washers and a nut.
- M10 bolts (4) each complete with 2 large diameter washers and nut.
- Floorboard (1)
- Ratchet M10 spanners (2)

2. **Saxilby Simulator**

- Timber and MDF bell frame complete with bearing holders, rope ground pulley wheel, sensor mounted on shelf with lead and plug, two small pulleys for slider mechanism.
- Bell wheel assembly complete with: bell rope with red, white and blue sally, clamped into place; mounting plate and 4 M12 setscrews for additional weight bell plates.
- Slider assembly consisting of two wooden dowels complete with three black rubber rings connected with webbing straps to a metal tube with rubber ends, separate cord with a coil spring at each end. One spare dowel and strap.
- Steel plate weights (2) shaped as bells to bolt to wheel assembly.
- Long white extension cable between sensor and computer and short adapter cable to 9-pin computer input.
- Set of tools, M8? spanner, cross-head screwdriver.

3. **Other**

- Covering for Simulator comprising three hoops, four elastic bands and plastic cover.

Don't leave anything behind

Last revised: 11/4/2016
This edition printed: 11 April 2016