

## OVERVIEW

Thank You, for purchasing a Flat 50 Silo from Flat Pack Silos Australia. Flat Pack Silos Australia, is lucky enough to take over the manufacturing and sales of the Flat 50T Silo, as Parker Silos is no longer trading.

We are still proud to introduce the new and improved Flat Pack 50T Silo/Mobile Field Bin with the unique 'Butterfly Lid' and 15" Auger. These products have been available fully assembled units for many years in Esperance and now as a bolt together kit that is fully accessible throughout Australia and the world.

Building your Flat 50 Silo, you will go through various stages of assembly:

- Base Frame
- Cone Sheeting
- Butterfly Roof and Panels
- Side Wall Sheets
- Auger Installation
- Drive Carriage

Some of these steps are self-explanatory and practical, while others will be completely new concepts i.e. The Butterfly Roof.

By following the instructions in this booklet, you should be able to successfully build your Flat 50.

Please note: that you as the builder, are responsible for:

- Your own safety and for anyone working with you
- Wearing suitable personal protective equipment
- Using tools and equipment that are suitable for the job and are in good condition

If any doubt, please ring us and ask. We are available to help and can answer any questions you may have as you work your way through this project.

Phone: 08 9071 4425 or Mark Elliott: 0417 902 690

Email: [admin@flatpacksilosaustralia.com.au](mailto:admin@flatpacksilosaustralia.com.au)

There will also be a series of videos available off our website which may help you through your installation.

Website: [www.flatpacksilosaustralia.com.au](http://www.flatpacksilosaustralia.com.au)

Thank-You, we appreciate your business!

Flat Pack Silos Australia

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**COMPONENT LISTING**

Unpack and check quantity of components – Flat level ground is best.

<b><u>BASE COMPONENTS</u></b>	
<b>5 @ 75mm x 75mm RHS Base bottom ring segments</b>	
1 @ 75mm x 75mm RHS Right Hand Base bottom ring segment.	
1 @ 75mm x 75mm RHS Right Hand Base bottom ring segment.	
1 @ 75mm x 75mm RHS Right Hand Rear Base bottom ring segment.	
1 @ 75mm x 75mm RHS Left Hand Rear Base bottom ring segment.	
1 @ 75mm x 75mm RHS Front Base bottom ring segment.	

<b><u>BASE COMPONENTS</u></b>	
5 @ Base Top ring segments	
1 @ base Right Hand Rear Top ring segment	
1 @ base Left Hand Rear Top ring segment	
1 @ base Right Hand Front Top ring segment	
1 @ base Left Hand Front Top ring segment	
1 @ base Rear Top ring segment	

<b><u>BASE COMPONENTS</u></b>	
<p>4 @ Wheel legs all with holes                      3 X 75 X 75 X 3 mm galv                      1 X 75 X 75 X 5 mm galv                      The 5mm legs to be used only on Auger silos on left hand side.</p>	
<p>18 @ Pressed Base legs</p>	
<p>2 wheel slides                      L/H and R/H</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>R/Hand</p>  </div> <div style="text-align: center;"> <p>L/Hand</p>  </div> </div>
<p>8 @ Angle Braces</p>	
<p>6 Leg Washer Plates</p>	
<p>SHORT LEG SILO                      1 R/H Top Wheel Mount                      1 L/H Top Wheel Mount</p>	<div style="display: flex; justify-content: space-between;"> <p>R/Hand</p>  <p>L/Hand</p> </div>
<p>LONG LEG SILO                      1 R/H Top Wheel Mount                      1 L/H Top Wheel Mount</p>	
<p><b>BOLT KIT 1</b></p>	<p>REFER TO PAGE 14</p>
<p>216 @ 12x14x20 TEK screws                      (5/16")</p>	

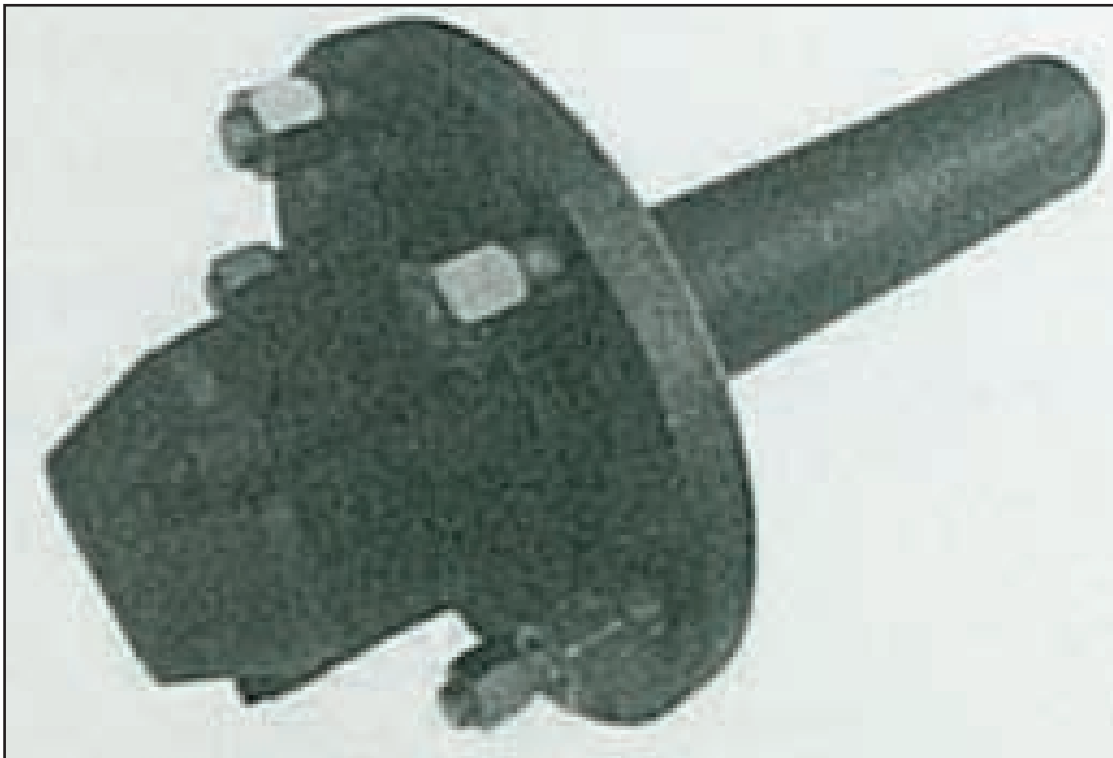
<b><u>TOW HITCH</u></b>	
1 @ Tow Hitch	
1 Right Hand Tow Hitch Stay 1.65 x 50 x 50 x 8 gal	
1 Left Hand Tow Hitch Stay	
1 @75 x 75 x 200mm galvanised Square Tube with chain	
1 PTO Shaft Hook (Miscellaneous Kit)	
BOLT KIT 1	REFER TO PAGE 14

## HUBS AND WHEELS

2 @ Wheels  
16"



### Off Road model





Aline Trading AL03448 1.6T






<b><u>HYDRAULIC WHEEL LIFT</u></b>	
2 @ 18" x 2" Hydraulic cylinder B3080	
4 @ 3/4 Uno Male to 1/2" BSP Male B3401	
2 @ 1/2" Male Quick Release Tip BP8010-29	
2 @ 1/2" Male 'T' B3436	
8 @ 1/2" Female Swivel Straight B8036	
2 @ 1/2" Female Swivel 90 B3384	
12 @ 3/8" Double Braid Hose Shells B8058	
2 @ 1/2" Male hose end B8033	
2 @ 2 metres 3/8 Double braid hydraulic hose	
2 @ 5.2 metres 3/8 Double braid hydraulic hose 2 @ 4.8 total 25m	
8 @ 40mm Insulated mounting clips WURTH 05424020	
2 @ Wheel lock pin (B408) (Miscellaneous Kit)	
OPTIONAL EXTRA: Silo spring lift: to be used only in silos without Auger.	



<b><u>CONE COMPONENTS</u></b>			
13 Cone Segments 1 Cone Segment with a Hole			
Manhole Entry			
Manhole Cover			
Butterfly Boot (In kit - without Auger)		Auger Sump (In kit - with Auger)	
1 @ Handle (In kit - without Auger)			
3 @ Height Cylinder Jig			
Manhole Lock Brace			
Brace Lock Nut			
2 @ tubes silicone (Miscellaneous Kit)			
BOLT KIT 5	<b>REFER TO PAGE 14</b>		
182 @ 12x4x20 TEK screws			







<b><u>BUTTERFLY ROOF FRAME</u></b>	
<p>4 @ Butterfly Frame Ring Sections (32mm EXTRA LITE) 3.26</p>	
<p>2 @ Tri Leg Peak Brackets</p>	
<p>25 x 25 XL □ 2 @ Mid Peak Sections 2.8</p>	
<p>40 x 40 EL □ 2 @ L/H Side Sections 2.85</p>	
<p>2 R/H Side Sections</p>	
<p>2 @ Cross Braces (1050x50mmx50mmx5mm)</p>	
<p>2 @ Handles 2m x 20mm XL</p>	
<p>2 @ Handle Holders</p>	

<b><u>BUTTERFLY ROOF FRAME</u></b>			
4 @ Butterfly Support Brackets		4 @ 25x50x50 RHS Locking Collars	
2 @ 3000mm Butterfly Pivot Extension Arms 40 x 40 EL □			
175 stop 50 x 50 4 @ Butterfly Extension Arms 1200mm + 100mm socket			
1 @ butterfly lever arm. (1000x50x50x4mm) (80x50x50 RHS)			
1 @ butterfly lever arm (1000x50x50x4mm) (200x50x50 RHS)			
Butterfly Lid support arms 4 @ 2500mm x 25nb (EXTRA LITE)			
80 x 50 x 50 RHS 4x Butterfly Crank Arms 370 x 50 x 50 x 4mm			
2x Butterfly Hinge Plates			
BOLT KIT 3	REFER TO PAGE 14		

<b><u>BUTTERFLY ROOF</u></b>	
16 @ Roof Sections	
2 @ Roof Flashings	
2 @ Collar Half Sections	
1 @ 760mm Diameter roof cap	
300 @ 12x14x20 TEK screws	

<b><u>MISCELLENEOUS KIT</u></b>	
3 Perspex Square & 3 Metal Frame	 
10 'Z' Clips & Roll of Fibreglass Tape	 



<b><u>BARREL COMPONENTS</u></b>	
2 @ Barrel rolls	
2 @ barrel top ring with brackets	
2 @ barrel top ring with hooks	
2 @ barrel top ring	
2 @ 2600 Flanged Top Ring Braces 25mm XL	
622 @ 12x14x20 TEK screws (5/16')	
BOLT KIT 1	REFER TO PAGE 14

<b><u>TOTAL TEK SCREW COUNT</u></b>		
<b>12x14x20 TEK screws (5/16')</b>		
Barrel = 620	Leg = 216	Auger = 28
Lids = 256	14g Tec screws Cone = 182	<b>TOTAL = 1302 (1500)</b>
<b>We supply you with 3 Boxes of 500 TEK Screws</b>		



<b><u>BOLT KITS &amp; BOLT COUNT</u></b>			
<b>BOLT KIT 1</b>	<b><i>1/2" X 1 1/2"</i></b>		
	Cone ring = 25	Braces = 32	Barrel Brace = 4
	Base ring = 30	Tow Hitch = 6	<b>TOTAL = 97 (100)</b>






<b>BOLT KIT 2</b>	<b><i>1/2" X 1 1/2"</i></b>	<b><i>1/2" X 2"</i></b>	<b>TOTAL = 18 (18)</b>
	Auger Bolts = 4	PTO Bearing Mounts = 4	
	PTO Drive = 10		

<b>BOLT KIT 3</b>	<b><i>1/2" X 1 1/2"</i></b>	<b>TOTAL = 26 (26)</b>
	Butterfly Roof Frame = 26	

<b>BOLT KIT 4</b>	<b><i>3/4" X 5"</i></b>	<b>TOTAL = 16 (16)</b>
	Wheel Leg = 16	

<b>BOLT KIT 5</b>	<b>M8 ZINC PLATED CUP HEAD BOLTS</b>	<b>M10 ZINC PLATED FLAT WASHERS</b>	<b>M8 ZINC PLATED NUTS</b>
	500	500	500

<b><u>TOTAL 1/2" X 1 1/2"</u> <u>BOLT COUNT</u></b>	<b><u>TOTAL 1/2" X 2"</u> <u>BOLT COUNT</u></b>	<b><u>TOTAL 1/2"</u> <u>NYLOCK NUT COUNT</u></b>	<b><u>TOTAL 3/4"</u> <u>NYLOCK NUT COUNT</u></b>
133 (134)	4 (4)	138 (140)	16 (16)

<b><u>AUGER COMPONENTS</u></b>	
<p>1 @ 13" Auger Assembly - includes:                      2x Support Arms                      3.5m x 50M                      1x PTO Cradle                      1x PTO Drive Shaft                      1x 2.10 m Drive Shaft                      Double Yoke assembly</p>	
<p>Barrel Protector Tube and Flashing</p>	
<p>1 @ Plastic Spout</p>	
<p>Auger Collar                      With 1/2" bolt &amp; 3 TEK Screws</p>	
<p>90 HP                      45 degree gear box</p>	
<p>Double Yoke assembly with Uni Joint. CODE: A622138/A622</p>	
<p>BOLT KIT 2</p>	<p>REFER TO PAGE 14</p>

<b><u>Manual Wheel Lift (Optional)</u></b>	
1x Manual Jack	 
<b><u>PTO Drive</u></b>	
2 @ 200mm x 50mm x 10mm cradle support legs	
BOLT KIT 2	REFER TO PAGE 14
BEARING KIT	SEE BELOW

<b><u>BEARING KIT</u></b>	
2 @ UC 208-24 Bearing	
2 @ P208 Bearing Housing	



## **TOOLS REQUIRED**

<input type="checkbox"/>	2 @ ¾" Ring spanner	<input type="checkbox"/>	Builders Square
<input type="checkbox"/>	¾" Socket	<input type="checkbox"/>	20 Metre Steel Tape Measure
<input type="checkbox"/>	1 1/8" Ring spanner	<input type="checkbox"/>	Tapered Punch or Podge Bar
<input type="checkbox"/>	1 1/8" Socket	<input type="checkbox"/>	Bearing Grease
<input type="checkbox"/>	TEK Gun	<input type="checkbox"/>	Hammer
<input type="checkbox"/>	5/16" TEK Driver Bit	<input type="checkbox"/>	Thread Tape
<input type="checkbox"/>	13mm Socket	<input type="checkbox"/>	4 Thin Levers
<input type="checkbox"/>	Shifting Spanner	<input type="checkbox"/>	Mineral Turpentine
<input type="checkbox"/>	Pliers	<input type="checkbox"/>	Grinder and Cutting Blades

## **MACHINERY REQUIRED**

Shed with Block and Tackle

OR

Hiab, Telehandler or Loader to lift 500kg at 5 metres

## **STEP 1 - ASSEMBLE BASE RING**

### **Materials**

5 @ 75mm X 75mm RHS Base Ring Segments

BOLT KIT 1

- 30 @ ½" X 1 1/2" Bolts
- 30 @ ½" X 1 1/2" Nylock Nuts

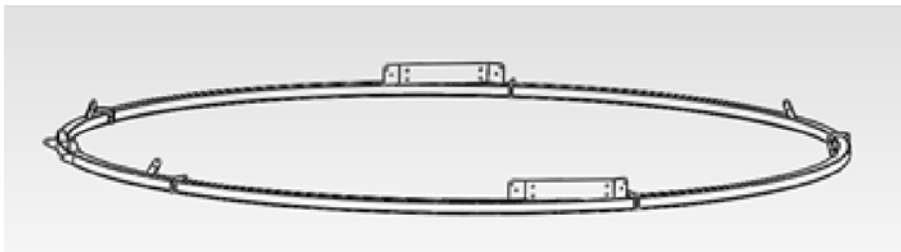
### **Tools**

2 @ ¾" Ring Spanner

### **Method**

Lay out 75mm x 75mm base ring segments.

- Start with front (drawbar) section and lay out sections in a circle.
- Align marks on inner edge of the ring to assemble in correct sequence.
- Butt each end together and bolt together. (*Leave all bolts firm but loose*)
- Check base ring for round.



**LEAVE ALL BOLTS FIRM BUT LOOSE.**

**THESE BOLTS WILL BE FULLY TIGHTENED AFTER THE TOP RING AND BRACING  
HAS BEEN ASSEMBLED.**

## **STEP 2 - ASSEMBLE WHEEL SLIDE LEG**

### **Materials**

4 @ 75mm X 75mm RHS Leg Segments

BOLT KIT 4

- 16 @ 3/4" X 5" Bolts
- 16 @ 3/4" Nylock Nuts

4 @ 120mm X 65mm X 10mm Washer Plates

### **Tools**

1 1/8" Ring Spanner

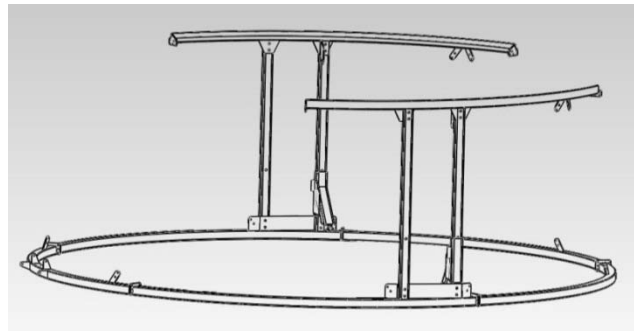
1 1/8" Socket

### **Method**

Place 2 left wheel slide legs against the bracket and secure using a washer plate and 4 bolts and nuts. (*Leave all bolts firm but loose*)

Repeat for right side.

This Segment will self-support, while the top ring is being positioned



### **With Auger**

Place wheel leg slide assembly over rear most wheel slide leg.

Ensure the axle is facing to the centre of the silo.

### **Without Auger**

Place wheel leg slide assembly over forward most wheel slide leg.

Ensure the axle is facing to the centre of the silo.

## **STEP 4 - ASSEMBLE TOP RING**

### **Materials**

5 Top Ring Sections

8 Angle Braces

Bolt Kit 1

- 57 @ ½"X 1 ½" Bolts
- 57 @ ½"X 1 ½" Nylock Nuts

### **Tools**

¾" Ring Spanner

¾" Socket

Builders Square



### **Method**

Bolt top ring section onto Left wheel leg assembly. *(Leave all bolts firm but loose)*

Bolt 3 angle braces between top and bottom ring sections.

Bolt top ring section onto Right wheel leg assembly. *(Leave all bolts firm but loose)*

Bolt 3 angle braces between top and bottom ring sections.

Bolt rear top rail section into place. *(Leave all bolts firm but loose)*

Bolt left front angle brace to the top and bottom ring.

Bolt left front top rail section into place and bolt to angle brace. *(Leave all bolts firm but loose)*

Bolt right front angle brace to bottom ring.

Bolt right front top rail section into place and bolt to angle brace. *(Leave all bolts firm but loose)*

At this stage the frame of the base should be fully assembled.

- Using a Builders square check that the wheel slide legs are at right angles to the base ring and tighten into place
- Using a Builders square check that the wheel slide legs are at right angles to the top ring and tighten into place

**DO NOT TIGHTEN UP BOLTS UNTIL COMPLETED STEP 5 – BASE LEGS**

## **STEP 5 - ASSEMBLE BASE LEGS**

### **Materials**

18 X Pressed Leg Sections  
216 @ 12x14x20 TEK Screws

### **Tools**

TEK Gun  
5/16" TEK Driver Bit  
Builders Square

### **Method**

Each leg can now be placed into position.

*Note: Each TEK screw hole is elongated to allow movement. Place TEK screws close to the middle of the slot.*

Bend the centre top tab of each pressed leg to 90 degrees into the pressing.

*See photos below:*

***Place a leg onto a block of wood and use the foot to help bend the tab to 90 degrees***



***Turn the leg upside down, this will then become the top of the leg.***

Legs are centred over the painted dot on the base ring.

Place the bottom of the leg onto the base ring

- Then push the top of the leg into place under the top ring,
- This should be a snug fit and may need a good push

Use a **builders square to ensure each leg is 90 degrees** to the base ring.

TEK Screw the leg from the inside bottom first.

Apply enough pressure to the top ring to pull the top ring onto the pressed leg.

*It may be necessary to use a winch strap or similar to help pull this into place.*

TEK screw upwards into the bent tab to pull the top rail onto the pressed leg

Continue placing legs into position around the silo base paying particular attention to pulling the top ring down onto the top of each pressed leg.

Complete TEK screwing all legs into place.

**Tighten all the bolts at each joint and all bracing.**

**Please note that all the joints are still flexible and care should be taken to ensure that components are properly aligned during the bolt tightening process.**

**Make sure 50x50 Angle is flat from the outside**



## **STEP 6 - ASSEMBLE TOW HITCH**

### **Materials**

1 X Tow Hitch Assembly

1 @ 80mm X 200mm - Galvanised Square Tube with Chain Attached

2 X Tow Hitch Braces

Bolt Kit 1

- 6 @ 1/2" X 1 1/2" Bolts
- 6 @ 1/2" X 1 1/2" Nylock Nuts

### **Tools**

3/4" Ring Spanner

3/4" Socket

### **Method**

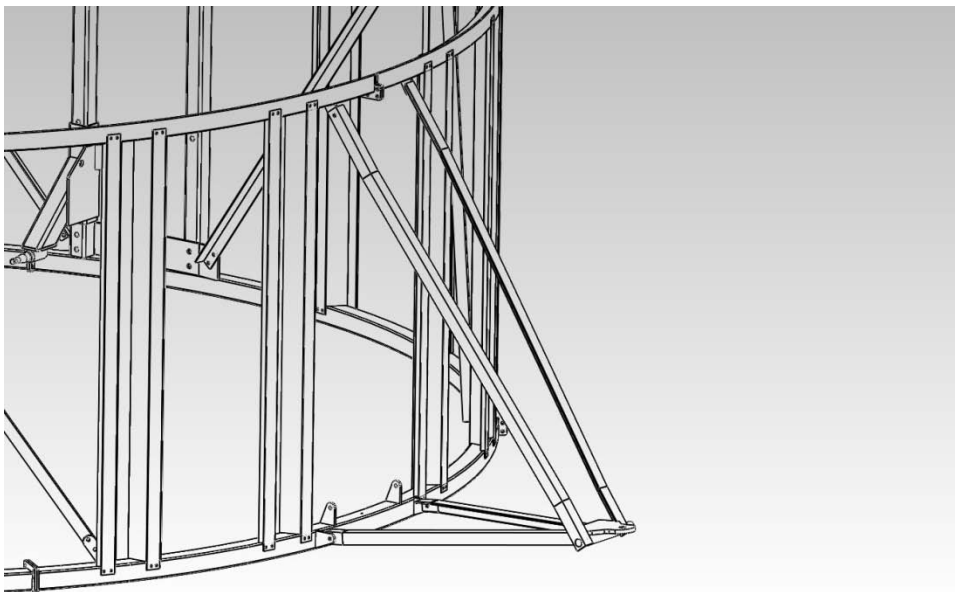
Attach tow hitch to front of bottom ring. *Ensure the tow plate is located at the top.*

Slide the 75mm x 200mm galvanised square tube over the tow hitch brace with the slotted tab. The chain will fit into the slotted tab and support the pipe while the bolts are being tightened.

Bolt the tow hitch bracing to the tow hitch. *Ensure that the tongue swivel is on the inside of the tow hitch brace angle.*

Bolt the tow hitch braces to the top ring brackets.

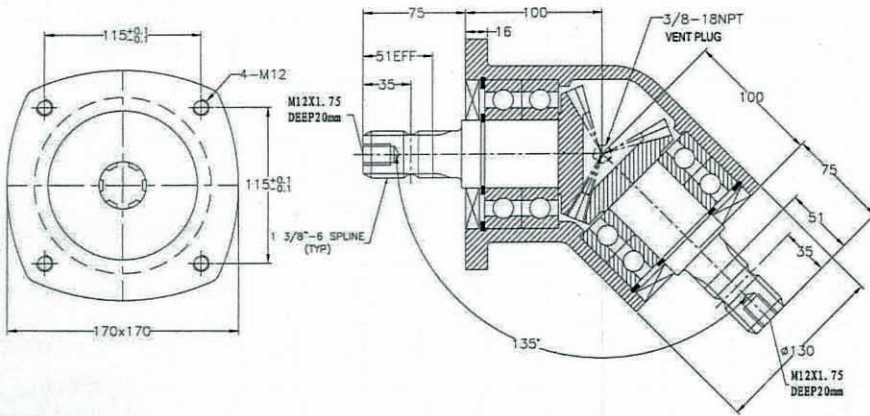
**ALL BOLTS MUST REMAIN LOOSE ENOUGH TO ALLOW THE TOW HITCH TO MOVE AS REQUIRED.**



## STEP 7 - 90HP 45° GEAR BOX

### B45--02--1 90HP

The B45-02-1 gearbox is a compact 45 degree gearbox designed for use on grain bin / silo out feed augers.



Part Number	AL01264
Model	B45-02-1
Power rating	90 HP @ 540 RPM
Torque	540 Nm
Shafts	1 3/8 6 spline
Gears	Helical
Bearings	6310
Unit Weight - Dry	16.5 Kg
Lubricant	SAE 90 EP Gear Oil





## **STEP 8 - HYDRAULIC CYLINDER INSTALLATION**

### **Materials**

2 @ 18" X 2" Hydraulic Cylinder	2 @ 4.5 Meters Hydraulic Hose
4 @ ¾ Uno Male to ½" BSP Male	2 @ 5 Metres Hydraulic Hose
2 @ ½" Male Hose End	TEK Screws
2 @ ½" Male Quick Release Tip	11x Hose Clamps
2 @ ½" Male 'T'	
6 @ ½" Female Swivel Straight	<b>Tools</b>
4 @ ½" Female Swivel 90	Ring Clamps
12 @ 3/8" Double Braid Hose Shells	TEK Gun
2 @ 2 Metres Hydraulic Hose	



### **Method**

The supplied hydraulic fittings are a reusable type and easily fitted to the supplied hydraulic hose.

- 2 @ 5.2 metres ½" Female swivel straight & ½" Female swivel 90
- 2 @ 5.2 metres ½" Female swivel straight & ½" Female swivel 90
- 2 metres with ½" Male quick release tip with Female swivel straight

Attach top mount of cylinder Body to mount at the top of the wheel slide leg.



NO AUGER LEG SILO MOUNT



AUGER LEG SILO MOUNT



Attach cylinder rod onto Wheel Slide assembly.

BACK OF  
SILO

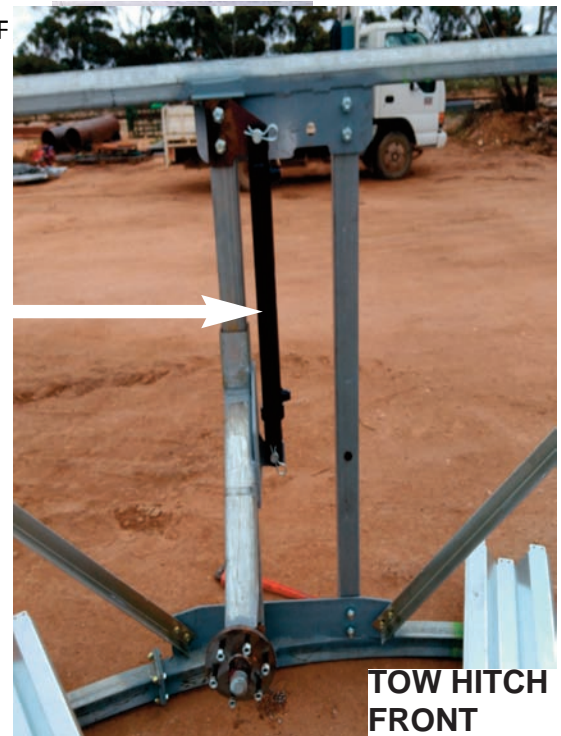


TOW HITCH  
FRONT

NO AUGER – HYDRAULIC  
CYLINDER ON FRONT LEG

LEFT HAND  
LEG

BACK OF  
SILO

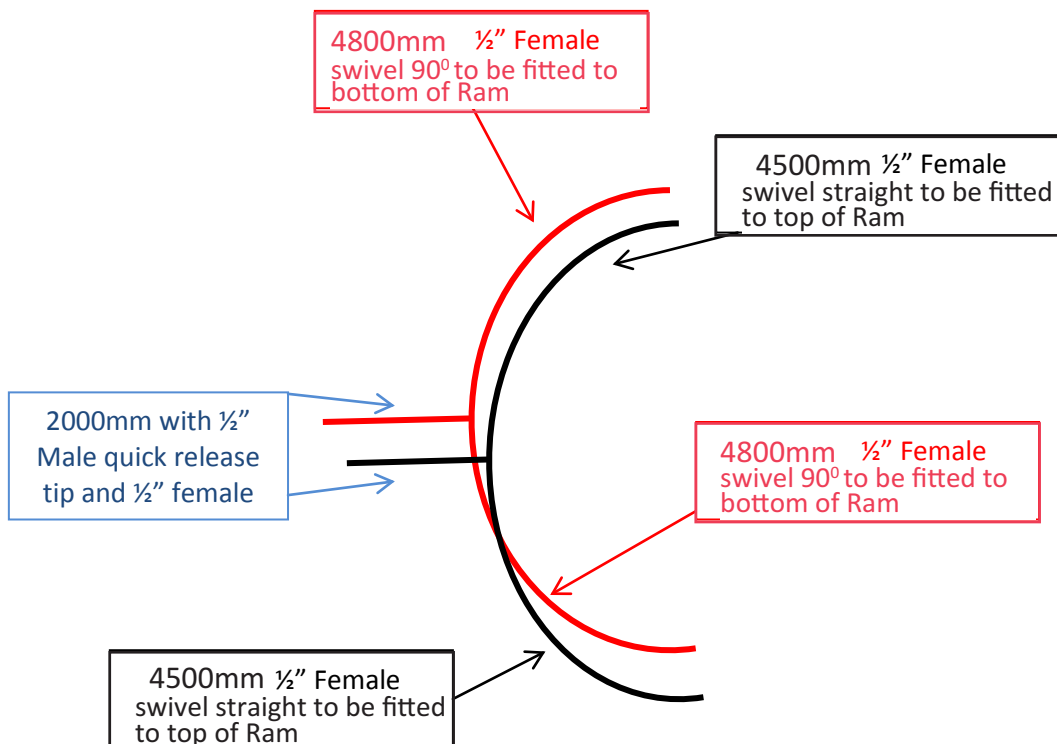


TOW HITCH  
FRONT

AUGER - HYDRAULIC  
CYLINDER ON BACK LEG

Attach Hydraulic hoses to hydraulic cylinders.

Lay hydraulic hoses around the top of base legs and TEK screw to legs using insulated clips.



## STEP 9 - BARREL TOP RING ASSEMBLY

### Materials

- 6 x Barrel Top ring segments  
(25mm EXTRA LITE)
- 2 @ 2600mm brace sections.
- 12x14x20 TEK screws (5/16")

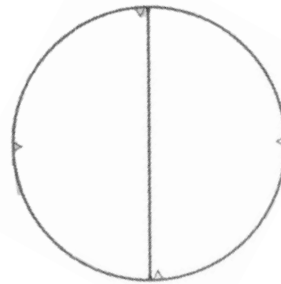
### Tools

- TEK gun
- TEK driver bit
- 20 metre steel tape measure

### Method

Assemble the Barrel Top Pipe Ring under the hoist.

**MAKE TWO RINGS EXACTLY THE SAME CIRCUMFERENCE**



**TOP & MIDDLE RING CIRCUMFERENCE**

Measure the circumference of the top pipe ring of the base section.

This must be accurate because all measurements for the barrel top ring and barrels are based on this measurement.

**MAKE A NOTE OF THIS CIRCUMFERENCE.**

	<b>EXAMPLE</b>			<b>ACTUAL MEASUREMENTS</b>
<b>TOP RING CIRCUMFERENCE</b>	<b>16627</b>	+ 4mm	=	.....
	+ 4mm			+ 4mm
<b>TOP BARREL CIRCUMFERENCE</b>	<b>16631</b>		=	.....
<b>MIDDLE BARREL CIRCUMFERENCE</b>	<b>16636</b>		=	.....
<b>BASE BARREL CIRCUMFERENCE</b>	<b>16631</b>		=	.....

Once measured, the **TOP RING** will need to be cut slightly to get your correct measurement, do this by cutting evenly over the 6 pipe sections of the female ends.

### **START FROM BASE MEASUREMENTS**

*TEK screws must be placed from the top and the inside edge. Do not screw from the outside, as the side wall sleeting will be fixed on to the outside edge.*

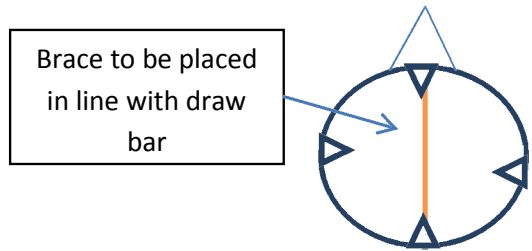
*Use four TEK screws at each joint.*

TEK screw together five joints leaving the sixth joint free to move.

By moving this loose joint, make the circumference of the Barrel Top Ring the same as your calculations and TEK screw together

Bolt the two 2600mm Flanged Top Ring Braces together.

Bolt this brace into place on the brackets welded to the Barrel Top Ring.



## **STEP 10 - BARREL CONSTRUCTION**

### **Materials**

- 2 @ Barrel Rolls
- 2 @ Barrel Top Tube Brace
- 620 14x12x20 TEK Screws
- BOLT KIT 1
  - 4 @ ½ X 1 ½” Bolts
  - 4 @ ½ X Nylock Nuts
- 1 @ PTO Safety Cover, if fitting an Auger
- 3 @ Perspex square (Miscellaneous Kit)

### **Tools**

- TEK Gun
- TEK Driver Bit
- Clamp
- 20 Metre Steel Tape Measure
- Thin Levers
- Grinder & Cutting Blades

### **Method**

#### **USING YOUR MEASUREMENTS FROM THE PREVIOUS PAGE – FIND THE TOP BARREL CIRCUMFERENCE**

Place barrel pack under the hoisted Barrel Top Ring.

Unroll the barrel pack and form one barrel into a circle.

Using the Circumference measurement, form the barrel into an accurate size making sure the top and bottom circumference is the same.

Use a clamp to hold this overlap in position.

#### ***RECHECK ALL MEASUREMENTS.***

Join the barrel together using 2 rows of 14x12x20 TEK screws with 50mm vertical spacing commencing under the pressed top rib. *(See picture)*

Align one of the Barrel top ring lifting hooks with the barrel joint.

Lower the Barrel Top Pipe Ring into the assembled barrel and join barrel and top ring together using 14x12x20 TEK screws at 300mm spacing, this is easily done by lowering the pipe ring in on an angle, and then lifting or hitting it up into place with a hammer.

TEK the Barrel top ring brace into position.



Note.

The Barrel Top Ring sits about 10mm above the Barrel Sheeting.

The TEK screws are screwed at the centre of the Barrel Top Ring, at about 300mm centres



**THIS IS THE TOP BARREL OVERLAP**  
**DO NOT TEK TOGETHER UNTIL SLEEVED**  
**OVER BOTTOM BARREL**



**THIS IS TOP BARREL SLEEVED OVER BOTTOM**  
**BARREL**

THEN USING CUMALONG TO TIGHTEN TOP  
BARREL ONTO BOTTOM BARREL SO THAT IT IS  
FIRM AND NOW YOU CAN TEK OFF MIDDLE  
SECTION



**THIS BARREL JOINS HAVE BEEN TEKED**  
**(TOP AND BOTTOM BARRELS TEKED)**

WHEN YOU ARE LIFTING TWO BARRELS  
YOU CAN PULL OUT MIDDLE RING AND  
DISASSEMBLE.

**DO NOT TEK BOTTOM JOIN TOGETHER**  
**UNTIL SLEEVED ON BASE**

## **STEP 11 - BUTTERFLY LID HINGE ASSEMBLY IN TOP BARREL**

### **Materials**

- 4 @ Butterfly Crank Arms
- 2 @ 3000mm Butterfly Pivot Extension Arms
- 4 @ Butterfly Extension Arms 1200mm
- 2 @ Hinge Assembly
- 2 @ 25x50x50 RHS Locking Collars
- BOLT KIT 3
  - 26 @ ½" x 1 ½" Bolts
  - 26 @ ½" x Nylock nuts
- 12 @ 12x14x20 TEK screws

### **Tools**

- TEK gun
- TEK driver bit
- ¾" Socket
- ¾" spanner
- Grinder with cutting discs

### **Method**

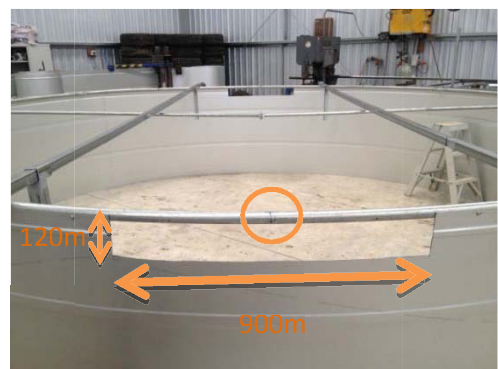
Locate the 2 centre marks on the top pipe ring sections; they should be at 90 degrees to the pipe brace that spans across the silo barrel assembly, inside of the lifting hooks.



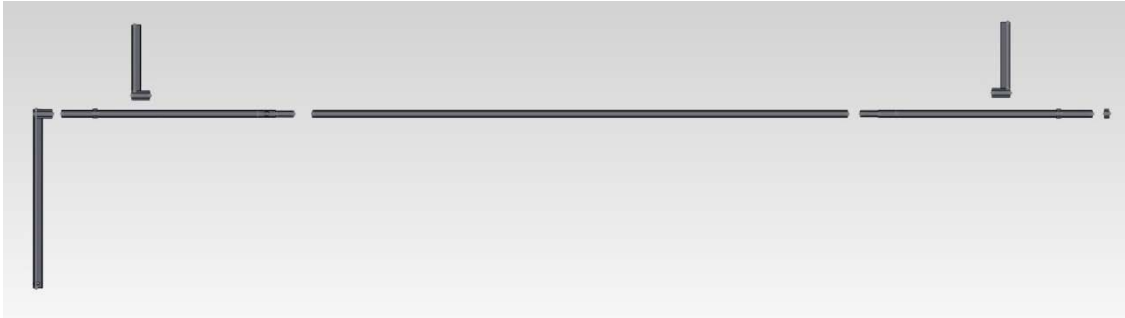
Measure the required cut outs on both sides of the silo for the hinge plate to fit into, 120mm x 900mm and mark this out, keeping the centre mark in the centre of the 900mm length (450mm CENTRE LINE 450mm)

Cut the sheeting out with a grinder fitted with a cutting disc

**BE CAREFUL NOT TO CUT THE PIPE RING BEHIND THE SHEETING.**



Assemble the 40x40 butterfly roof pivot extension arms and pivot arms, as per the illustration below. Fit the butterfly crank arms so that the outer edges are the flat edge of the angle.



Pass the two assembled butterfly pivot arms through the 120x900 rectangular cut outs in the side wall sheeting.



Fit the butterfly lid hinge plates, slide these over the 40x40 pivot arms from the outside of the top barrel sheeting, position the centre mark of the hinge plate with the centre mark on the top pipe ring. The bend on the hinge plate should be facing down, push the plate upwards so that the pivot pipes touch the top pipe ring and screw into position.

**REPEAT THIS FOR BOTH SIDES**

On one side of the assembly fit a 25mm locking collar to each pivot arm, TEK screw these into place. This side becomes the “passenger” side when the silo is fully assembled.





On the remaining side, fit the butterfly lid lever arms. The lever arm with the 80mm long RHS is fitted to the front hinge arm. The lever with the 200mm long RHS is fitted to the rear hinge arm.

The lever arms should be fitted so that they point in the opposite direction to the crank arms.

The four crank arms can be slid in from the edge of the barrel about 500mm, leave these free until the roof is fitted.

Raise the completed assembly into the air.



## **YOU ARE NOW READY TO FIT YOUR SECOND BARREL**

### **SECOND BARREL**

Measure the circumference of the bottom of the first barrel.

### **USING YOUR MEASUREMENTS FROM THE PREVIOUS PAGE –**

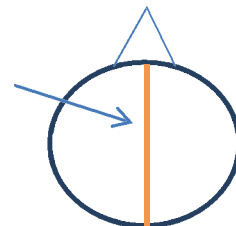
### **FIND THE BOTTOM BARREL CIRCUMFERENCE**

Unroll the second Barrel under the hoisted assembly and using Circumference measurements, form the barrel into accurate size making sure the top and bottom circumference of this barrel is the same and join using 2 rows of 14x12x20 TEK screws with 50mm vertical spacing commencing under the pressed top rib.

Place 'Z' clips evenly spaced onto the top edge of the bottom barrel. *This will help hold the top barrel into place.*



Brace to be placed in line with draw bar



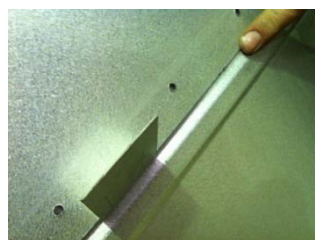
**Ensure that the barrel joints are opposite each other. (See diagram)**



Lower the hoisted first barrel assembly onto the outside of the formed second barrel, use thin levers or screw drivers to work the overlap into place, some sheet metal shims have been provided to assist in this stage.



The Top barrel will now sit into the 'Z' clips.



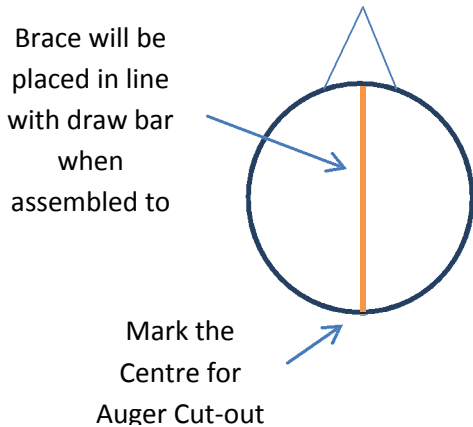
Screw both barrels together using 14x12x20 TEK screws.

Straighten the 'Z' clips and pull them out and TEK screw any remaining holes.



Mark a centre line along the long axis of this safety cover.

At the rear of the silo, measure between the rear joining flanges on the top Cone Ring and mark the centre.



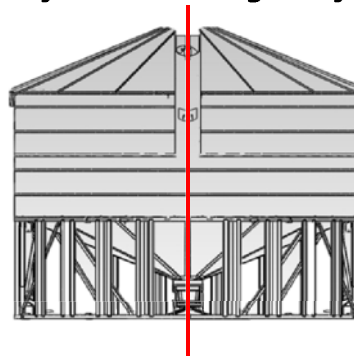
This should be vertically over the joining flange on the base ring.

Run a string line vertically between the two points approximately 2 metres up the silo barrel and draw a line.

Measure 915mm up from the ground and mark this measurement on the centre line.



**Cut barrel protector tube out after fitting of barrels. To base silo rings after barrels have been fitted onto base.**  
*Please refer to the diagram for reference.*

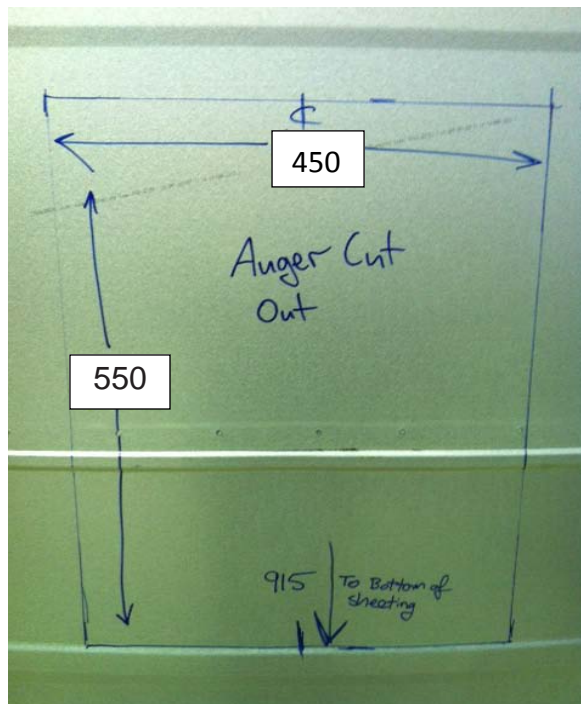


Place the centre line of the Safety Cover / Template onto the vertical line and align the bottom edge.

Draw around the template and cut this rectangular hole in the barrel of the silo.

**THE ACCURATE PLACEMENT OF THIS CUTOUT IS ESSENTIAL**

**PLEASE MEASURE EVERYTHING TWICE**



Mark out the position of the sight glass cut out (use you the inner square of the metal frame) You can choose to position the sight glass where they will best suit your requirements, normally placed in line, at the top, middle or bottom barrel.



Use the inner square to mark out your sight glass cut out

Use some silicone to secure the Perspex sight glass into the metal frame, then TEX screw the metal frame into position

Hoist this entire roof/barrel assembly above head height and roll the silo base under the barrel assembly, take particular care to align the Auger over the centre of the rear of the silo.

Lower the barrel assembly onto the silo base. Use thin levers or screw drivers to work the overlap into place.



Centre Lines Match



The barrel will sit on the top of the leg tabs on the top ring of the silo base; it may need to be tapped into place if the barrel is a snug fit



TEX screw the barrel section onto the silo base using 14x12x20 TEK screws at 100 mm spacing's.

## **STEP 12 - CONE ASSEMBLY**

### **Materials**

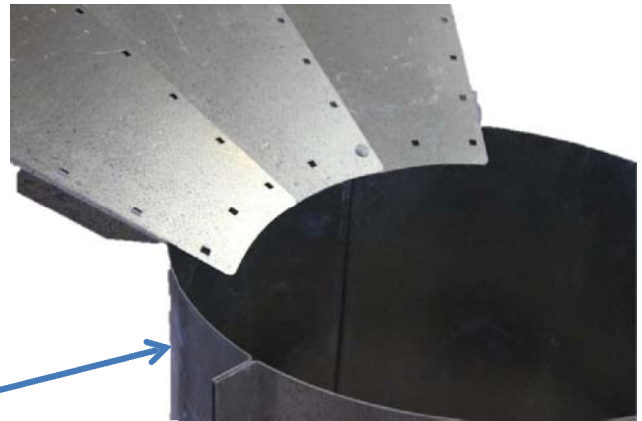
- 13 Cone Segments
- 1 Cone Segment with a Hole
- 250 - 14x22 TEK screws
- BOLT KIT 5

- 492 M8 x 20 Zinc plated Cup Head Bolts
- 492 M10 zinc plated Washers
- 492 M8 x 20 Zinc Nuts

**Fitting cone after mounting of barrel onto base.**

### **Tools**

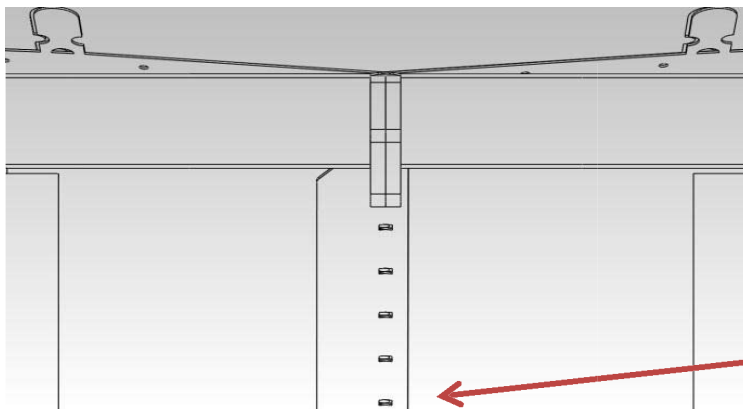
- Height Cylinder Jig
- 20 Metre Steel Tape Measure
- 13mm Socket
- TEK Gun & 5/16" TEK Driver Bit
- Tapered Punch or Podge Bar
- 1 Roll of Duct Tape
- 1 Roll of Fibreglass Tape (supplied)



### **Method**

1. Place Height Cylinder Jig on the ground in the centre of base ring.
2. Measure from the jig to the base ring to locate a centre

### **THE MANHOLE SEGMENT IS THE LAST SEGMENT TO BE INSERTED**



This row of Bolts is the Centre Line from the first panel



3. Place a cone segment into place at the front of the silo ensuring that the bolt holes line up with the joint of the front top ring flange, put a TEK screw in this panel to locate and fix the seam.

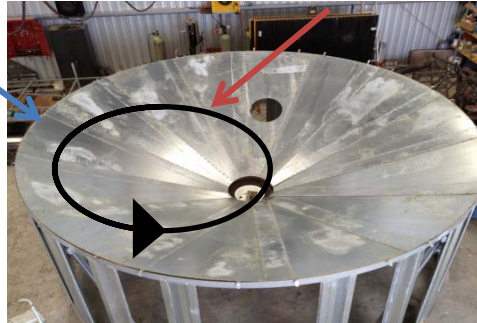
*This will rest easily on the base top ring and the centre height cylinder jig.*

*The flange end on the Cone Segment will rest against the outside of the Jig.*

**BUILD**

**FIRST**

**THIS**



4. Place a second Cone segment into position to the left of the first segment and join both segments together, by inserting all bolts and running a layer of Fibreglass Tape over the cup heads then put washer and nuts on loosely.



Fibreglass Tape over the cup

5. *This process can be completed until half the cone segments are in place.*  
**CHECK THE LOCATION OF THE CENTRE JIG AS IT MAY HAVE MOVED.**
6. Continue placing cone segments and bolting together until a complete cone is formed.
7. If there is an overlap or a gap when completing the last joint then this can be eliminated by a minor movement of the cone section.  
*Use a tapered punch or Podge bar to achieve this.*
8. When the cone is complete, use 3 TEK screws to secure each cone segment to the top ring of the silo base.
9. Complete TEK screwing all cone segments into place  
*10. (This will pull the cone into the top ring and form a very strong and stable silo base)*
11. **Insert all the bolts from the inside of the cone and run a length of duct tape over the heads to hold them into place while the washers and nuts are screwed from the outside and tighten to specifications.**
12. It may be necessary to trim any overlap of the cone segments and the base top ring.

## **STEP 13 - MAN HOLE ASSEMBLY**

### **Materials**

1 x Manhole unit

1 x bracket

1 x handle nut

BOLT KIT 5

- 8 M8 x 20 Zinc plated Cup Head Bolts
- 8 M10 zinc plated Washers
- 8 M8 x 20 Zinc Nuts

### **Tools**

13mm Socket

### **Method**

Bolt manhole onto cut out area of cone using 8 Cup Head bolts: the domed lid should be on the inside of the cone so that the weight of grain holds the lid shut.

***TIGHTEN TO SPECIFICATIONS***



## **STEP 13.5 - OUTLET VALVE / AUGER SUMP ASSEMBLY**

### **OUTLET VALVE/ AUGER SUMP FOR SILOS WITH NO AUGERS**

#### **Materials**

- Outlet valve body
- 1 x Handle
- 1 @ 75mm x 6 mm bolt
- 1 x Nylock nut

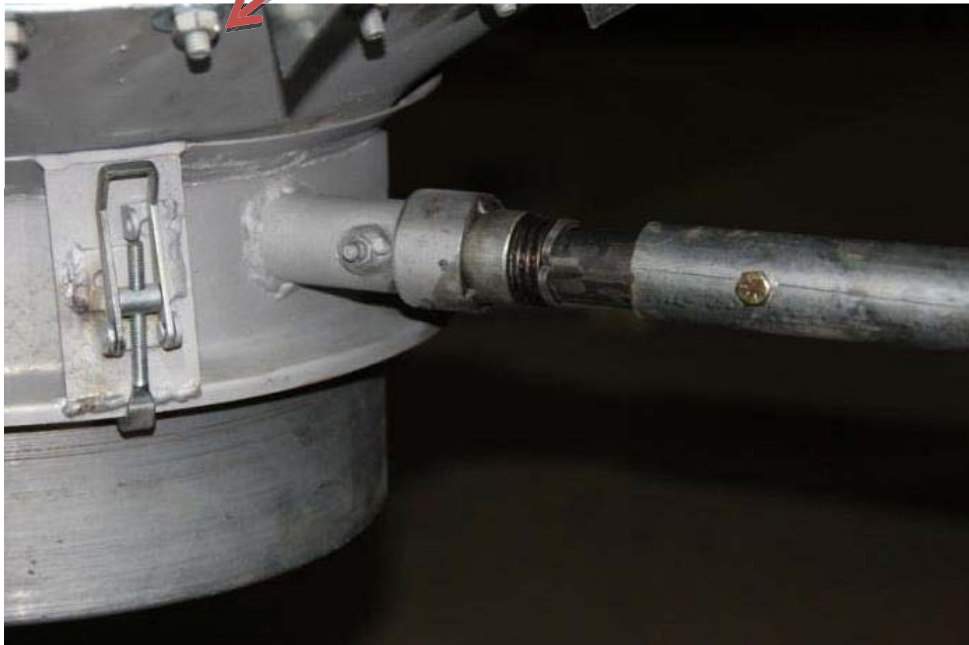
#### **Method**

The outlet valve is located on the outside of the Cone.

Bolt the outlet valve into position.

Attach handle to Outlet valve using 6mm bolt and Nylock nut.

14 gauge tec screws to be used.  
Once butterfly shoot is in place.





**STEP 14 - PTO DRIVE****Materials**

1 @ PTO cradle	
1 @ AB 8105 PTO drive + clutch	2 @ UC 208-24 Bearing
1 @ 2.10 m drive shaft	
2 @ 200mm x 50mm x 10mm cradle support legs	2 @ P208 Bearing Housing
2 @ shaft yokes (CODE: A622138) 1-3/8 X 6 Spline + Uni Joint (CODE: A622)	BOLT KIT 2
1 @ 2.1m x 5m safety cover	<ul style="list-style-type: none"> <li>• 10 @ ½" x 1 ½" bolts</li> <li>• 14 @ ½" Nylock nuts</li> <li>• 4 @ ½" x 2" Bolts</li> </ul>

**Method**

**Before tec Auger sump mount cradle to sump and aline with mounting brackets. The Auger Cradle is installed with the bearing support channels at the bottom facing towards to outside. These support the bearings for the Drive shaft.**

**Mount 45° Gear box after you have installd the 13 inch auger into silo position, line up the spline of the 45° gearbox with the female spline of Auger, line up and put the four holding bolts into position and tighten evenly.**

Tec Screws 14g

Bolt the 2 @ 200mm x 50mm x 10mm cradle support legs onto the Base ring frame.

Bolt the PTO Cradle onto the Auger sump using 2 @ ½" x 1 ½" bolts.

Bolt the PTO Cradle onto the 2 @ 200mm x 50mm x 10mm cradle support legs using 2 @ ½" x 1 ½" bolts.

*This will centralise the PTO cradle in the silo frame.*

Use a jack to lift the Auger Sump upward and align the Auger Sump with the bolthole pattern on the Cone.

**INSTALL THE AUGER FOLLOWING THE AUGER INSTALLATION NEXT STEP****THEN CONTINUE INSTALLING THE PTO DRIVE.**

Bolt the Auger Sump onto the Cone using 14g Tec screws.

**First 45° gearbox next is universal joint then driveshaft and then clutch PTO connection.**

Install both the UC 208-24 Bearings into the P208 Bearing Housings.

*Apply a small amount of grease to the drive shaft ends to aid the bearing installation.*

Install the complete bearings onto the 2.1m drive shaft.

Bolt the complete Drive shaft assembly onto the PTO Cradle.

Equalise the ends of the drive Shaft in the Bearings and tighten the grub screw in the bearings.

*Apply grease to the Auger Spline and the Drive shaft spline.*

Attach the wide boot end of the WB 8105 PTO drive onto the Auger Spline.

Attach the other end to the drive shaft spline.

TEK screw the 1 @ 2.1m x 500mm safety cover into place over the Drive Shaft.

The AB 8105 PTO drive attaches between the Drive shaft and the tractor

The AB 8105 PTO drive attaches between the Drive shaft and the tractor

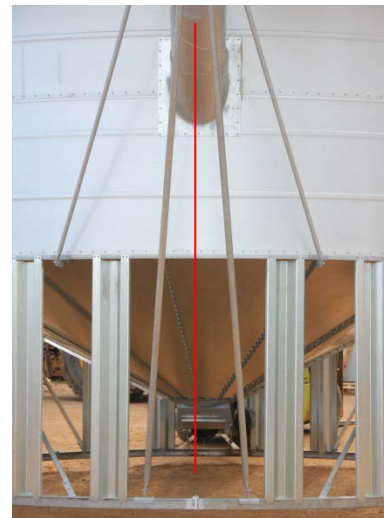
## **STEP 15 - AUGER ASSEMBLY**

### **Materials**

- 1 @ 15" Auger assembly
- Barrel protector tube & flashing
- Barrel protector tube & flashing
- 2 @ 3490mm auger support arms (40mm medium)
- 2 @ bottom auger support brackets
- 1 @ Auger sump
- 1 @ Plastic spout
- BOLT KIT 2
  - 4 @ ½"x1 ½" Bolts
  - 4 @ ½" Nylock nuts
- Silicone
- 26 @ 12x14x20 (5/16") TEK screws

### **Tools**

- ¾" Ring spanner
- ¾" Socket
- TEK Gun
- Silicone Gun



### **Method**

1. Slide the Barrel protector tube & flashing over the bottom end of the Auger, sliding it all the way up until it touches the welded Auger support brackets.  
*(It may be necessary to remove the bolts in the bracket at the bottom of the Auger to gain more clearance.)*
2. Fit the plastic spout to the Auger using TEK screws and the strap.
3. Rotate the Auger so that the plastic spout is facing vertically down.
4. Hitch a sling or chain around the Auger barrel and pick the auger up.
5. The hitch point should be 3 metres from the spout end of the Auger.
6. The auger inserts at an angle of about 40 degrees.  
*(The ideal hitch point is at 3.2 metres but this point is inside the silo barrel, so while some manhandling will be necessary to feed the auger into the silo, the 3 metre point is a compromise on the balance point which will still achieve a result.)*
7. Position the Auger through the hole in the silo barrel sheeting and locate the female splined drive shaft through the hole in the Auger sump.

8. 45° Gearbox
9. Fit the bearing assembly externally to the Auger sump over the splined drive shaft.
10. Bolt the bearing and the Auger to the Auger sump using 4 @ ½" x 2" bolts.  
**LEAVE THE BOLTS FIRM BUT LOOSE UNTIL THE AUGER SUPPORT ARMS ARE IN PLACE.**
11. Continue to support the Auger with the hoist and move the Auger up and down and use a tape measure so that the Auger is located centrally in the rectangular hole in the Silo barrel sheeting.
12. Bolt the 2 @ Auger support arms onto the bottom Auger support brackets that are welded to the base ring
13. Bolt the 2 @ 3790mm auger support arms (40mm medium) onto the welded brackets on the Auger. Choose a pair of holes that positions the Auger centrally in the cut out
14. The hoist can now be released from the Auger.



## **STEP 15.5 - BARREL PROTECTOR TUBE AND FLASHING**

Working on the outside of the silo place the Barrel protector tube and flashing centrally onto the cut out area and screw into place using 26 @ 12x14x20 (5/16") TEK screws with 50mm spacing all around

Remove all these TEK screws and remove any drilling swarf

Place a good bead of silicone around the edge of the cut out and around the top edge and sides of the Barrel protector tube and flashing.

*This will create an effective seal to stop water entering from the outside and also stop grain getting in between the flashing and the silo barrel. Leaving the bottom edge open will allow any condensation to escape*

Replace the Barrel protector tube and flashing and reinsert all the TEK screws

Take the Auger Collar and place around the join of Auger and Auger Pierce tube, and bolt together, this will become a weather seal around the silicone.



*The Auger Collar becomes a weather seal*

Fill any gaps with silicone

Clean up neatly with a cloth moistened with Mineral Turps

Lay a bead of silicone around the joint in the barrel protector tube and finish this neatly with a cloth moistened with Mineral Turpentine

## STEP 16 - LID FRAME ASSEMBLY

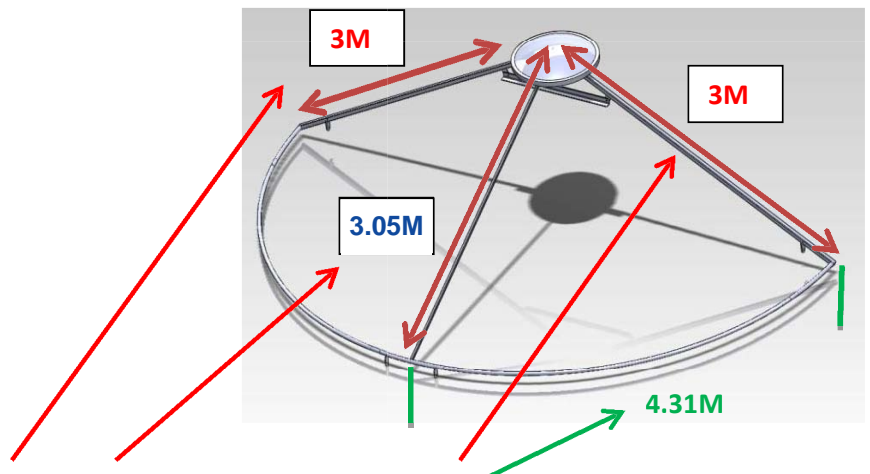
### Materials

2 @ Tri Leg Peak Bracket 2 @ Left Hand Side Sections 2 @ Right Hand Side Sections 2 @ Mid Peak Sections 4 @ Frame Ring Sections (32mm EXTRA LITE)	2 @ Cross Braces 50x50x1050mm BOLT KIT 1 <ul style="list-style-type: none"> <li>• 4 X Bolts @ 1/2" @ 1 1/2"</li> <li>• 4 X 1/2" Nylock Nuts</li> </ul> 28 X TEK Screws (12x14x20) 5/16 <sup>th</sup>
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### Tools

TEK Gun  
 5/16" TEK Driver Bit  
 3/4" Spanner  
 3/4" Socket  
 Hammer

### Method



**ALL FOUR OF THESE MEASUREMENTS MUST BE CORRECT**

**Note.** All these joints are a sleeved fitted but will need a tap with a hammer to assist with bedding home. The joints should fit neatly together.

Insert the Frame ring sections onto the lower end of the mid peak section.

Insert the Left side section into the Frame ring sections.

Insert the Right side section into the Frame ring sections.

Insert the Mid peak and Left and Right side sections into the Tri leg peak bracket.

**Ensure that the distance from the outside radius to the peak of the TRI LEG bracket is equal on the left and right sides. This will be about 3000mm.**

**REMEMBER TO SUPPORT THE CROSS-BRACES TO STOP SAGGING**

**-THIS CAN BE DONE WITH A 44 GALLON DRUM**

Bolt the cross brace onto the inside of bracket on the Left and Right side sections.

Use 2 TEK Screws 12x14x20 (5/16") on each joint to secure into place.

**DO NOT SCREW FROM THE TOP**

**AS THIS WILL INTERFERE WITH THE ROOF PANELS GOING ON**

The frame is now ready to accept the roof lids.

**REPEAT FOR THE SECOND ROOF FRAME**

## **STEP 17 - LID ASSEMBLY**

### **Materials**

- 16 x Lid panels (8 per side)
- 2 x Flashings
- 2 x collar half sections
- 1 x 750mm Diameter lid
- 2 x lifting lugs
- 300 12x14x20 TEK screws (5/16")

### **Tools**

- TEK gun
- 5/16 TEK driver bit

### **Method**

Layout lid panels on the ground adjacent to the completed roof frame, one half at the back and one half at the front.

#### **Make a front roof.**

Align 8 roof panels and TEK screw together.

*There should be 7 TEK screws placed evenly along each rib.*



Screw lifting lugs onto 2 flanges

Measure 1030mm from the top of the lid section to the centre of the lifting lug



Attach a collar half to the top of roof half with 2 TEK screws on the outer edge





Pull the completed front lid half over the front half of the completed roof frame.

Align the roof panel on the roof frame and TEK screw into place.



There should be 5 TEK screws along the bottom in each segment.

There should be 1 TEK screw in each panel segment.

Use silicone to seal the collar to the roof.

Attach left and right roof flashing to front section of roof



Attach 750mm lid to collar on front roof section.



Ensure the Lid sits central to the collar on the lid.

**REPEAT FOR THE REAR ROOF PANEL –**  
**No Flashings or 750mm Lid Fitted to the Rear Roof**



## **STEP 18 – BUTTERFLY LID ASSEMBLED TO SILO**

Lift the FRONT LID onto the silo in a closed position and bolt the lid onto the Butterfly Cam Arms using 2 @ ½" x 1 ½" bolts.

**Note: that the Cam Arm is located inboard of the welded bracket. This photo shows the lid in the open position.**

Place the 30mmx30mm RHS between the lid frame and the Barrel Top Pipe Ring at the MID Peak Section next to the welded flange.

This RHS is here to support the butterfly frame on the top ring while the support arm brackets are being TEK Screw into place.

### **SEE PHOTOS**

Bolt 2 @ 2500mm support arms onto the welded brackets on the lid frame.

**Note: that the Support arm is on the outside of the bracket.**

Bolt a Butterfly support bracket onto the bottom of a support arm.

Position the Support arm bracket onto the underside of the Cone ring and TEK screw into position using 14x10x25 (3/8")

Be sure to push the bracket firmly into position.

### **REPEAT FOR THE SECOND SUPPORT ARM**

Remove the 30mm x 30mm block.

Bolt a handle onto the Butterfly Lever arm.

### **REPEAT THIS PROCESS FOR THE REAR LID**



**ATTACH BUTTERFLY LID HANDLE HOLDERS.**

The Handle Holders are designed to apply pressure to the Lids and prevent them from rattling when in the closed position.

Place the Handle Holder into the end of the Butterfly Handle.

Locate this onto a Pressed Base Leg.

Mark this position.

Remove the Handle Holder from the Handle.

Place the Handle Holder onto the marked position and raise the Holder 25mm.

TEK screw the Handle Holder into position.

The same procedure can be applied to the rear lid.



*In the photo note the markings of the original position.*

**STEP 19 – ATTACHING STICKERS TO SILO**

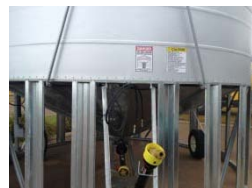


This sticker should be stuck just inside the lip of the man hole. Visible from outside of Silo, when Man Cover is open



These stickers should be stuck to the silo barrel, close to the man-hole or PTO Shaft area.

Normally we place the Danger sticker above the shaft on the barrel and the Caution Sticker to the right of the PTO shaft on the barrel.



Capacity = 69m <sup>3</sup>			Capacity = 69m <sup>3</sup>		
77 <sub>KGHL</sub>	WHEAT	53T	77 <sub>KGHL</sub>	TRITICALE	39T
60 <sub>KGHL</sub>	BARLEY	41T	60 <sub>KGHL</sub>	SORGHUM	45T
50 <sub>KGHL</sub>	OATES	34T	50 <sub>KGHL</sub>	MAIZE	45T
68 <sub>KGHL</sub>	CANOLA	47T	68 <sub>KGHL</sub>	MUNG BEANS	47T
80 <sub>KGHL</sub>	LUPINS	55T	80 <sub>KGHL</sub>	SUNFLOWER SEED	26T



This Sticker is normally placed to the left of the PTO shaft on the barrel.

**2 Hazard Flags to be attached to Left and Right hand legs.**

# CONGRATULATIONS

YOUR FLAT 50 SHOULD NOW BE  
COMPLETED

HAVE A GREAT SEASON

