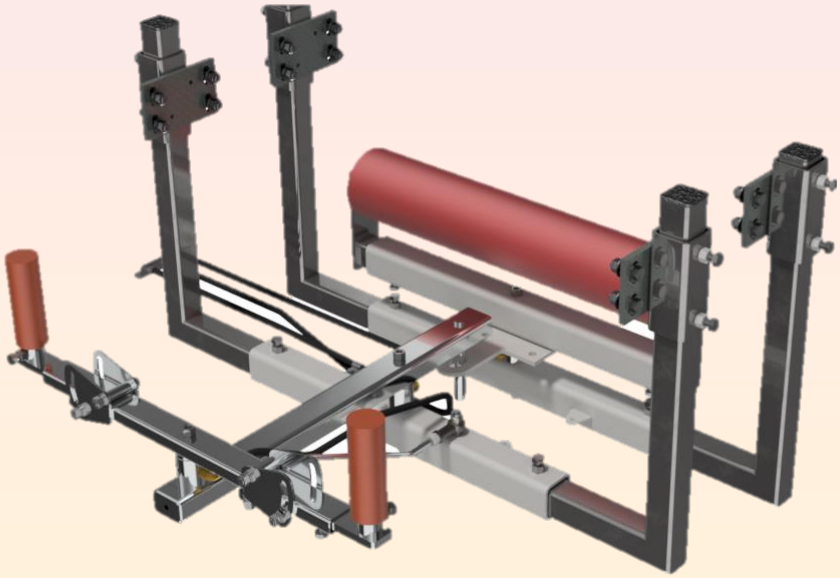
ENGINEERING SERVICES & SUPPLIES PTY LTD
Ph: 1800 074 446 www.esseng.com.au

Upper & Lower Belt Tracker 600-1350 Belt Widths

Installation, Operation & Maintenance Manual



Location	Address	Phone & Email
CURRUMBIN	11 – 13 Traders Way PO Box 121 Currumbin QLD 4223	(07) 5589 2000 esscur@esseng.com.au
GLADSTONE	Shed 2, 4 Helen Street PO Box 1475 Clinton QLD 4680	(07) 4972 3759 essgla@esseng.com.au
KALGOORLIE	Unit 1 / 182 Boulder Road Kalgoorlie WA 6430 PO Box 10471 Kalgoorlie WA 6433	(08) 9021 7991 esskal@esseng.com.au
KARRATHA	26 Midas Road Malaga WA 6090	(08) 9248 4111 esskar@esseng.com.au
MACKAY	1 Progress Street Paget, QLD 4740 PO Box 5755 Mackay Mail Centre QLD 4741	(07) 4952 4600 essmac@esseng.com.au
MAITLAND	Unit 2 Barton Court 6 Johnson Street Maitland NSW 2320	(02) 4932 3544 essmai@esseng.com.au
PERTH	26 Midas Road Malaga WA 6090	(08) 9248 4111 essper@esseng.com.au
TOWNSVILLE	Unit 4/ 585 Ingham Rd Mt St John Townsville QLD 4818	(07) 5589 2032 esstow@esseng.com.au
VICTORIA	Unit 4 / 238 Governor Road Braeside VIC 3195	(03) 9587 3979 essvic@esseng.com.au
WOLLONGONG	Unit 1 / 20 Doyle Avenue PO Box 343 Unanderra NSW 2526	(02) 4272 4422 esswol@esseng.com.au
TOLL FREE 1800 074 446 FROM ANYWHERE IN AUSTRALIA		

WARRANTY

ESS WARRANTS the Upper & Lower Belt Tracker 600-1350 Belt Widths to be free of defects both in materials and workmanship for a period of 12 months from the date of despatch of the product from the *ESS* factory. The warranty given by *ESS* in this regard will extend only to replacing or repairing product shown to be defective.

The warranty also is subject to the following restrictions:

(a) Installation of the product contrary to the instructions contained in the supplied manual will void such warranty absolutely;

(b) The warranty will not extend to any liability for injuries incurred and which result from the use of the product contrary to the instructions in the manual;

(c) Save as prescribed by law, *ESS* will not be liable for any damage sustained by a purchaser or a third party by way of consequential loss arising out of defects in the product.

You are asked to note that *ESS* offers purchasers a service whereby either:

(a) It will install the product and certify the correctness of such installation, or

(b) Certify the correctness or otherwise of the installation of the product by third parties.

This certification service is designed to ensure that you obtain the full benefit of the *ESS* warranty hereby provided. If you would like to take advantage of the installation certification service provided, please contact *ESS* regarding the service.

Refer to the Final Checklist at the back of this manual.

Visit the *ESS* website www.esseng.com.au to register your product warranty.

CONTENTS

1.0 SAFETY

The **Belt TRACKER** is designed to be quickly and easily serviced by appropriate personnel.

Under no circumstances should servicing or installation of the Belt tracker be carried out whilst the belt is in operation.

The conveyor must be shut down and locked out before any person enters or reaches into the conveyor enclosure.

Ensure that only suitably qualified and trained personel install and service this product. Ensure that all site and statutory safety procedures are followed.

1.1. SAFETY LABELS

Pictograph labels are used to show graphically where potential safety hazards exist around this product. These labels do not represent every possible hazard. They are not intended to be a substitute for safe work practices and good judgment. These labels and *ESS* technical manuals use specific words to identify the severity of the hazard. They are described below. Take time to read and understand the meaning of these words and symbols.

Danger labels call attention to imminently hazardous situations that will result in serious personal injury or death if not avoided. Injury from these hazards is immediate in nature and has a high probability of resulting in a serious or fatal accident if proper precautions are not followed.

Warning labels call attention to potentially hazardous situations that could result in serious personal injury or death if not avoided. Injury from these hazards is usually serious in nature, and a severe or fatal accident can occur if proper precautions are not followed.

Caution labels call attention to potentially hazardous situations that may result in minor or moderate personal injury if not avoided. Injury from these hazards is normally less serious than those from Danger or Warning hazards. However, there is still the potential for an accident resulting in serious injury if proper precautions are not followed.

2.0 INTRODUCTION

The **BELT TRACKER** Belt Tracking Systems automatically sense and continuously correct belt tracking. A light touch of the belt against the guide rollers creates precision correction. The patented tie rod aligner translates the action of the guide roller pivot assembly to the training idler. The upper guide unit is used on the carry side of the belt, the lower guide unit is used on the return side.

A steering roller must be supplied by the client. Typically the roller removed from the system will suffice. For greater efficiency of the **BELT TRACKER,** ESS recommends the steering roller be coated with a rubber lagging.

ALTERNATE TRACKING SYSTEMS

For conveying systems that reverse or have substantial roll back the **SMART BELT TRACKER** is available.

The **HEAVY DUTY BELT TRACKER** is available for belt widths from 1500-2000.

3.0 PREPARATION FOR INSTALLATION

1. **CHECK INSTALLATION DRAWINGS** – Ensure that you have the correct drawings and equipment for your conveyor/s.

2. **PRE-ASSEMBLE THE BELT TRACKERS AND MOUNTS** – Do this in your workshop or similar area, rather than at the conveyor. This will enable you to:
   (a) Verify all required equipment is present.
   (b) Familiarise yourself with the Belt Tracker assembly.
   (c) Allow you to plan the installation, reducing installation time.

3. **ASSEMBLE THE FOLLOWING TOOLS;**

- Wrenches (for M16, M10, M12 Bolts)
- Adjustable Wrenches (300mm) x 2
- Metric/ Imperial Allen Keys
- Measuring Tape and Steel Rule
- Electric Drill & Grinder (if allowable)
- Welding and Cutting Equipment
- G-Cramps
- Square, Level, Straight Edge
- Chalk or Marker
- Lead Lights, Flash Light
- Safety Equipment
- Scaffolding as required

4.0 INSTALLATION

Lower Belt Tracker Locate the lower guide unit approximately three times the belt width before the point where the belt adjustment is needed or before any major pulley. If installing multiple units, allow 21 to 50m between units depending on the severity of mistracking.

Upper Belt Tracker Locate the upper guide unit beyond the loading point or three times the belt width before the point where the belt adjustment is needed. If installing multiple units, allow 21 to 50m between units depending on the severity of mistracking.

Remove existing troughing idler. Set aside for later use.

Step 1.
Refer to the installation drawing F0154 (lower) or F0155 (upper) attached.
Mark out the four hole patterns at 300mm centres on the stringers as shown.
Check before drilling the hole patterns are perpendicular to each other from the left to right stringers.
If measuring from the tail pulley, first ensure the tail pulley is square with the stringers.

Step 2.
Refer to the exploded parts drawing F0158 (lower) or F0159 (upper) attached.
Install the rear cross section. Mounts should be fastened after the rear cross section is in place.

Step 3.
Fit the cross section/pivot plate into position using the M12 x 210 lg. bolt & nyloc nut.
Tighten the nut & check that the cross section pivots freely.

Step 4.
Adjust both the rear cross section and cross section/pivot plate.
Ensuring that they are both centralised and the cross section/pivot plate is adjusted correctly for the Idler (client supply), tighten the adjustment screws.

Step 5.
Adjust the rear cross section to engage the training idler to the belt. The idler should be elevated 20-25mm from the standard return idler alignment as shown on the installation drawing.

Step 6.
Install the front cross section.
Mounts should be fastened after the front cross section is in place. Adjust the front cross section, ensuring the torque arm pivot point is aligned centrally with the cross section/pivot plate pivot point.
Fit the torque arm using the M12 x 175 lg. bolt & nyloc nut. Tighten the nut and ensure the torque arm pivots freely.

Step 7.
Fit the guide frame (without guide arms) to the torque arm using the M12 x 135 lg. bolt & nyloc nut. Tighten the nut and ensure the guide frame pivots freely.

Step 8.

Fit the parallel stay to the guide frame and front cross section using an M12 nyloc nut.
Adjust the parallel stay if required to ensure the guide frame is parallel with the front cross section and perpendicular with the torque arm when the unit is centralised.

Step 9.

Rotate the torque arm so the centre pivot of the guide frame is in line with the centre of the belt. Fit the guide roller arms (including guide rollers) allowing 3-6mm gap between the belt and the guide rollers. Ensure the guide arms are extended an equal distance from the guide frame and tighten adjustment screws.

Step 10.

Adjust the guide arms on the upper belt tracker to the belt trough angle.
Adjust the front cross section to allow the belt to contact as close to the middle of the guide roller as possible.
Note that the torque arm must have clearance from the cross section/pivot plate.

Step 11.

Finally the grease nipples on the torque arm, front and rear cross sections should be lubricated adequately.

Note: Regrease nipples at regular service intervals.

5.0 COMMISSIONING

Step 1.
Manually move the guide rollers from side to side to check the system function.
Ensure all bolts have been tightened adequately.

Step 2. Is the belt empty?
Make sure there are no tools left on the belt
They may clog up conveyor systems.

Step 3. Start the conveyor.
Follow the established safety rules.

Step 4. Observe the action of the Belt Tracker.
Check the Belt Tracker action to ensure it is functioning correctly. Allow at least 10 revolutions of the belt.
If adjustment is required, turn off and lock out/tag out the energy source to the conveyor and conveyor accessories.
Check and tighten all fasteners after running the belt.

Step 5. Demonstrate the system to the Operating Supervisors and Crew.
Call the Supervisors responsible for the maintenance and operation to the site. Make a short run of the system. Show the operator how to adjust the system.

Step 6. Secure the system for production.
Follow plant procedure to secure the conveyor for production.

6.0 OPERATOR TRAINING

The last step is the correct training of personnel to maintain and service the equipment or employ ESS on a contract basis to service and maintain ESS equipment keeping it in its optimum working condition.

If using your own personell to maintain the equipment, train them as follows;

1. Adhere to all local safety rules.

2. Give a “hands on” instruction with your conveyor system shut down.

3. Give a “hands on” instruction with your conveyor system running.

4. All services must be recorded and given to a person of responsibility.

5. Encourage the person being trained to look out for possible problems developing on the system. eg. Belt tracking excessively, tears or damage to the belt, excessive carry back, seized idlers, missing bolts etc. A warning to the Maintenance Department to rectify small problems can save the company a lot of money in repairs and production costs.

6. Impress how important it is to maintain and service ESS equipment correctly.

7.0 ROUTINE

Regular inspections and servicing is the key to an efficient conveyor system. It is recommended that the Belt tracker be inspected once per week. Actual intervals will vary considerably from plant to plant.

Inspection
Inspect the condition of the Belt Tracker. Check the pivot points and guide rollers for free movement.

If maintenance is required

Step 1 Shut down and lock out the conveyor.

Step 2 Grease the service nipples on the torque arm and the front and rear cross frames. If required replace guide rollers.

Step 3 Remove locks or tags and restart belt. Observe Belt Tracker action. Clean up work area.

8.0 TROUBLE SHOOTING

PROBLEM – Mounts don't fit in desired location

CAUSE	SOLUTION
Belt is too far below the stringers	Use alternative mounts available from ESS
Belt returns between the stringers	The belt will need to be deflected into position along the length the Belt tracker will be mounted.

PROBLEM – Groove worn into the guide roller

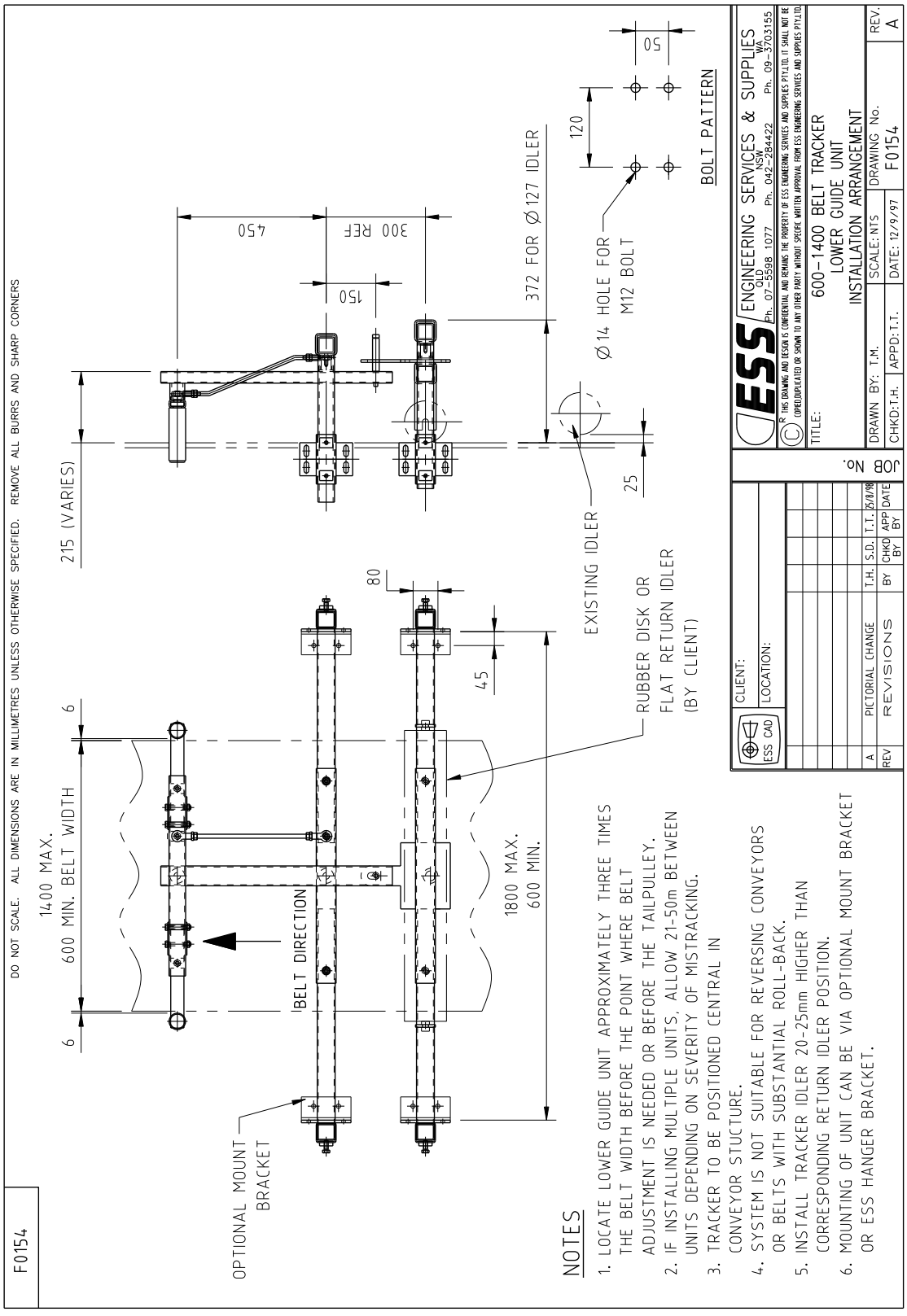
CAUSE	SOLUTION
Guide roller bearing may be seizing	Replace guide rollers
Torque arm, Front or Reat pivot points may be seizing	Check pivot points and replace bushing and grease if required

PROBLEM – Belt is not Tracking correctly

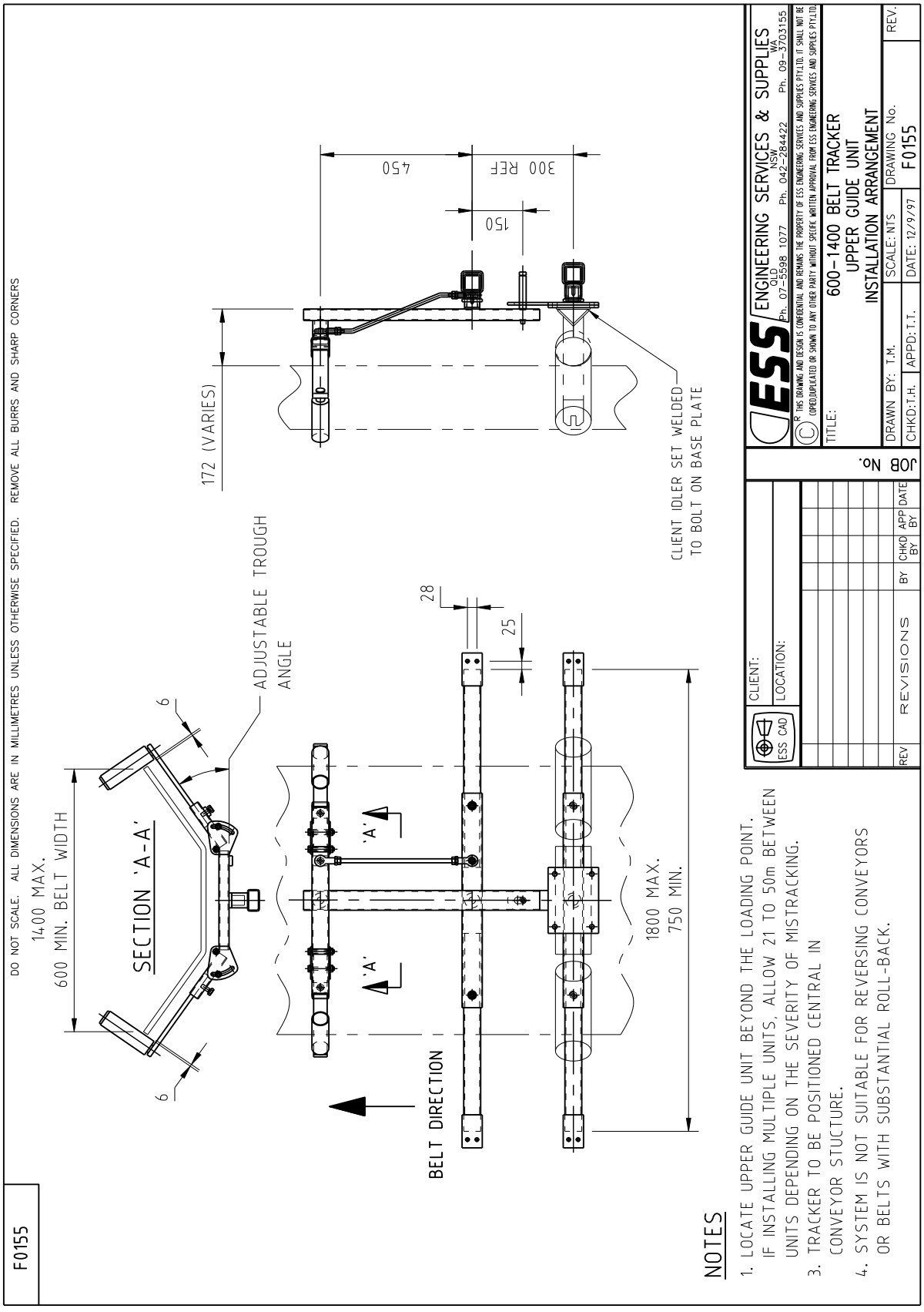
CAUSE	SOLUTION
Belt Tracker may not be adjusted correctly	Adjust Belt tracker as mentioned in Installation
There may be multiple points of misalignment in the structure	Multiple Belt Trackers may be required

9.0 INSTALLATION DRAWINGS

F0154 600 – 1400 Lower Guide Unit

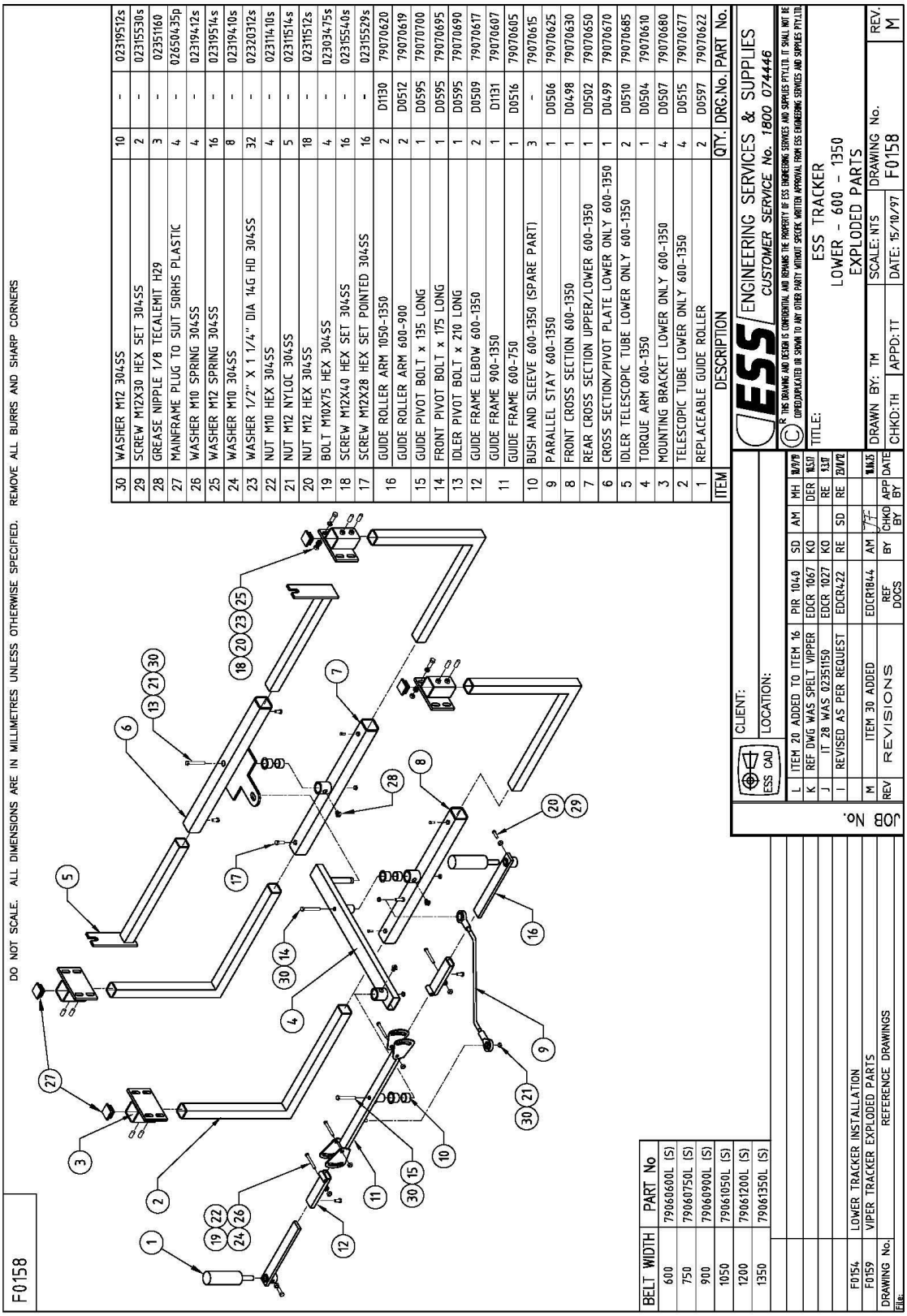


F0155 600 – 1400 Upper Guide Unit

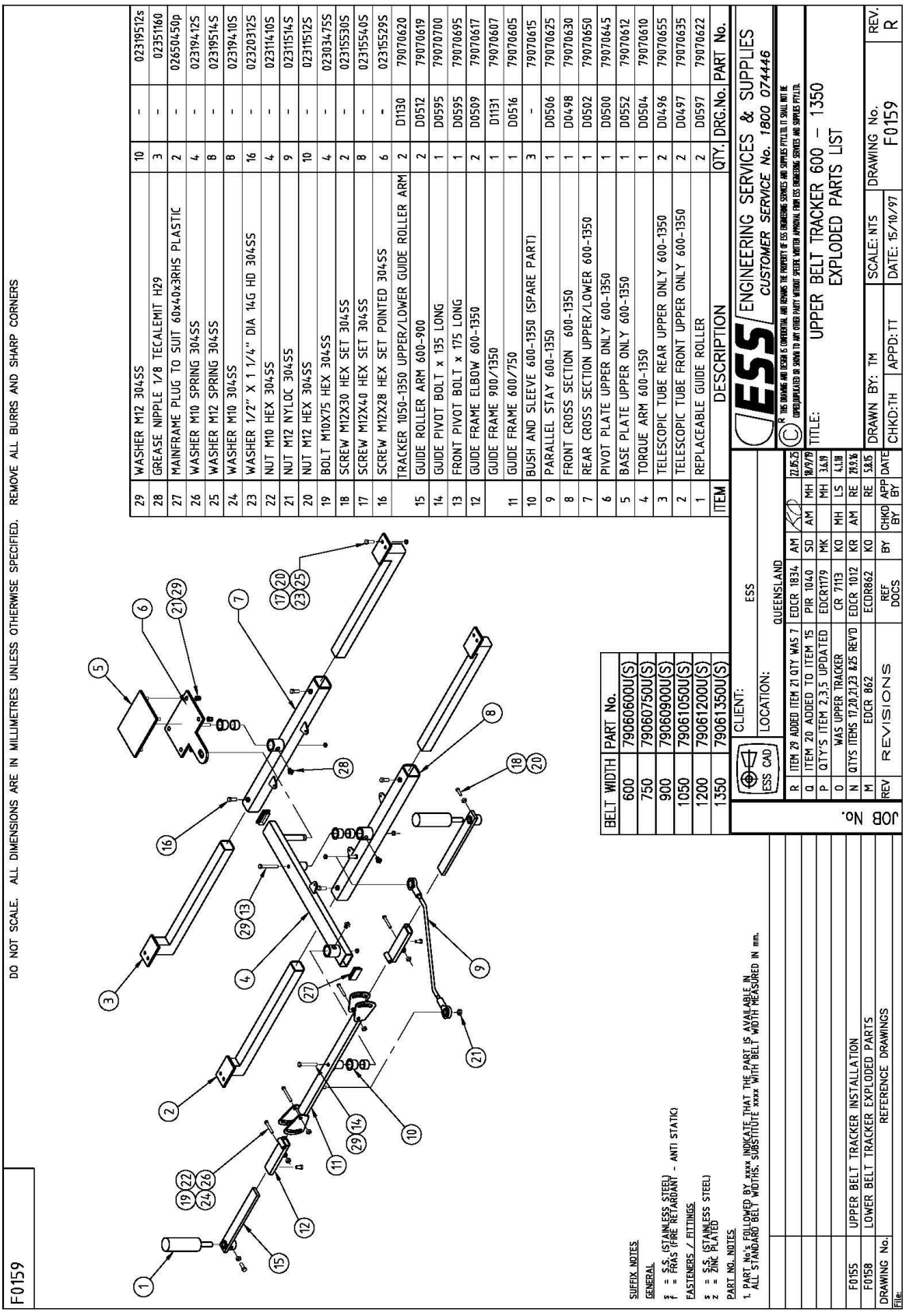


10.0 EXPLODED PARTS DRAWINGS

F0158 600 – 1350 Lower Guide Unit



F0159 600 – 1350 Upper Guide Unit



11.0 FINAL CHECKLIST

Site:_____ Number: _____ Date:_____

Site Equipment No./Location: _____ Site Contact: _____

Completed By: _____ **(Circle Yes or No Below)**

1. **Was equipment to ESS Specification?** _____ **Yes/No**

   Drawing No. Ref: _____ **Attached? Yes/No**

   If No, WHY _____

   _____

   Will this affect performance? Yes/No

   If Yes, WHY _____

   _____

2. **Was this a standard ☐ service ☐ inspection ☐ installation? Yes/No**

   If No, WHY _____

   _____

3. **Was work carried out as per procedure and JSA? Yes/No**

   If No, WHY _____

   _____

4. **Is equipment fit for commissioning? Yes/No**

   If No, WHY _____

   _____

5. **Was a final inspection carried out while plant was running? Yes/No**

   If No, WHY _____

   _____

6. **Has anything changed from previous service / inspection / installation? Yes/No**

   If Yes, WHAT_____

   _____

7. **Is equipment performance to Client expectations? Yes/No**

   If No, WHY _____

   _____

ESS Signature: _____ **Client Signature:** _____

12.0 NOTES