

Technical Service Bulletin No. **22-294-A**

√ PIP - Action required

The documents published in POTAIN e-Tech were written by POTAIN for a specific crane model. They cannot be duplicated, transferred, or applied to any other crane model (unless otherwise specified in the documents). The most recent document is the one with the latest index. We remind you that the crane's instruction manual and any updates are the reference documents for all crane users.

Recipients
 POTAIN service network and representatives, all regions.

Subject
 Basic chassis mast S41A and S41A1 with welded fishplates.

Tower crane models
 All GME cranes on K masts – 1.6 meters.

A	Technical Support	01/03/2022	Creation
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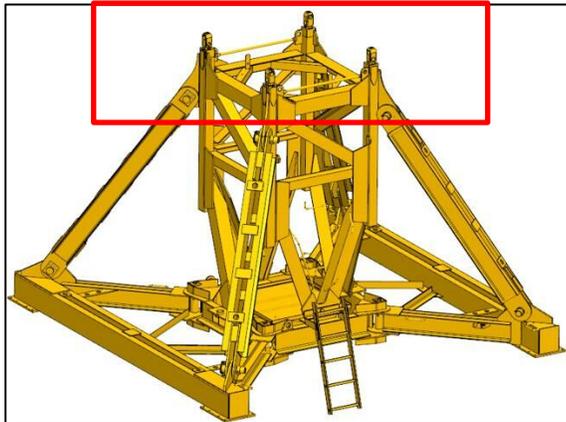


Risk of crack on the welded fishplates (2-pin), on basic chassis mast S41A and S41A1, possibly resulting in breakage of the fishplate and in some conditions, causing the crane to fall.

1. Origin and description of the required update:

- Warning of a risk of breakage of a **welded fishplate** – also called "2-pin fishplate" or "flash-welding fishplate" – of basic chassis mast S41A and S41A1, when the basic chassis mast is fitted:
 - under certain crane configurations, and
 - if the fishplate grooves were not checked during preventive maintenance.

POTAIN is launching a preventive program to update the entire fleet of these basic chassis mast manufactured from 2003 to December 2019.



Basic mast unit with welded fishplates (2-pin) ▼



- **The update requested does not concern** the basic chassis mast equipped with 4-pin fishplates and manufactured from 2003 to 2019, and the basic chassis mast manufactured in series since January 2020 with 4-pin fishplates only.

Basic chassis mast S41A with 4-pin fishplates not concerned ▼



Step 1 of the update program - Cranes in operation on basic chassis mast S41A and S41A1 with welded fishplates.

Upon receipt of this service bulletin, the current composition of the cranes concerned must, without any exception, be validated in order to confirm in full or under certain conditions that the crane can continue to operate on the job site until the next time it is dismantled. **During dismantling, the basic chassis mast available goes to step 2.**

Step 2 of the program - S41A and S41A1 basic chassis mast with welded fishplates, available at the warehouse.

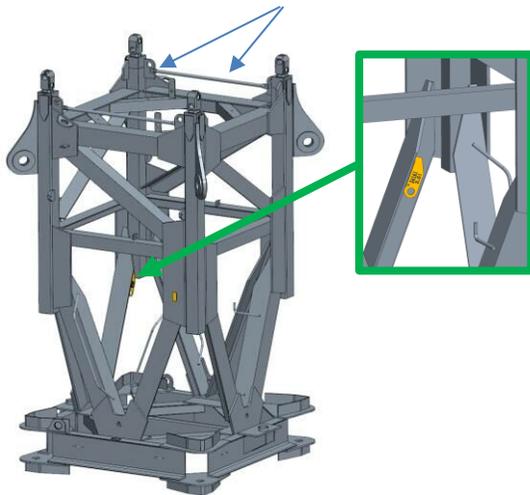
Upon receipt of this service bulletin, POTAIN requests that an inspection be performed on the fishplate groove of the dismantled basic chassis masts and that, following compliant inspections, the reinforcement operation defined in this document be carried out. **After the reinforcement operation, the basic mast section will return to the available fleet.**

Step 1 of the program must be initiated upon receipt of this service bulletin and the entire update program completed **within 24 months of receiving this bulletin**. POTAIN must receive proof of completion within this 24-month period.

2. Identification of the basic chassis mast S41A and S41A1 concerned - welded fishplates (2-pin):

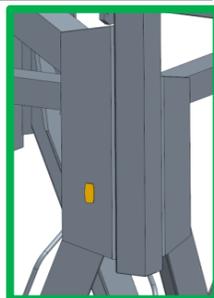
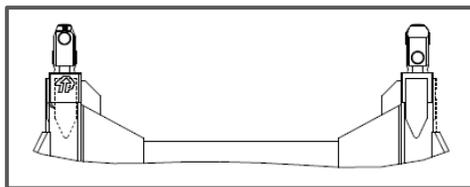
To perform this update, the basic chassis mast must be listed with the S41As concerned on one side and the S41A1s on the other, since the reinforcement parts for the **generation A basic chassis mast are different from those of the generation A1 basic chassis mast**.

- Basic chassis mast **S41A1** *with gussets and two tubes*



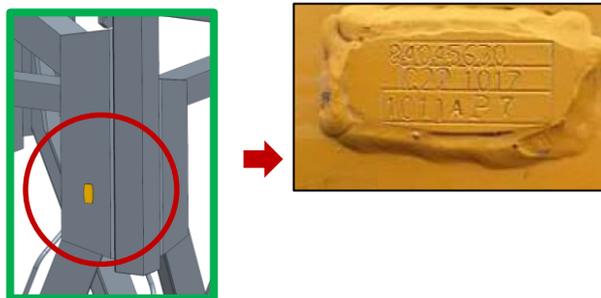
List 1	Unequipped code
S41A1	84045630

- Basic mast section **S41A** *without gusset, without tube*



List 2	Unequipped code
S41A	E-93109-56

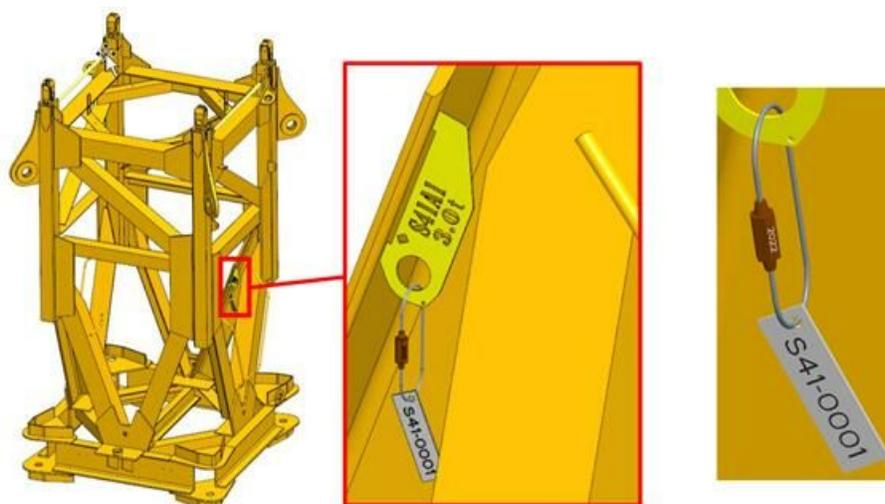
- The photo of the identification plate welded to the basic chassis mast must be returned to us with the request to validate the crane configuration.



If the welded identification plate is not readable, please indicate the flash-welding record engraved on the four fishplates of the basic chassis mast.



In order to facilitate the follow-up of inspections of a fleet of chassis masts and to serialize them, Potain will send you serialization plates (see photo below), which we ask you to install on each S41A and S41A1 chassis mast in your fleet. The plate should be installed as shown below and a photo of the plate will be requested in the proof of completion.



4. Step 2 of the program - Basic chassis mast S41A et S41A1 available, principle of reinforcement in workshop:

4.1- Preliminary condition:

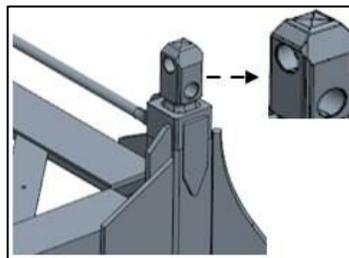
Before any operation, it is essential to check that the four fishplates of the basic chassis mast are in good condition and that there are no cracks in the grooves. It is requested to perform a **non-destructive test (NDT)** on each of the fishplates in accordance with the detailed checks required at 8,000 hours or 4 years, whichever comes first, described in the crane technical manual. The instructions for dye penetrant testing are described in BST21-293 available in POTAIN e-Tech.

- Only basic chassis masts with fishplates free of any cracks can be reinforced.
- If a crack is detected in the fishplate groove of a basic chassis mast, the mast must be scrapped.

Exemple of a crack ▼



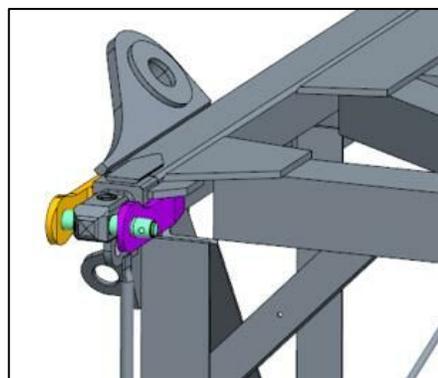
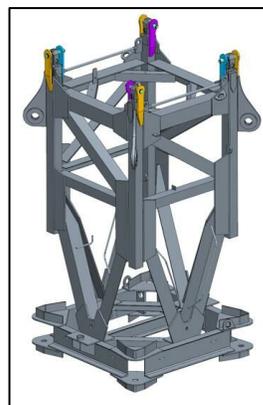
To put it out of service, either cut the groove or the top of the fishplate with an angle grinder or a torch. **A photo of the destruction of the fishplate will be required with the completion form.**



4.2- Reinforcement principle:

The reinforcement solution is then carried out to make the basic chassis masts safe, regardless of the crane configuration. The operation consists of welding reinforcement plates called counter-fishplates on each side of the four welded fishplates.

Principle for reinforcing the basic chassis mast fishplates in the workshop: Welding counter-fishplates ▼



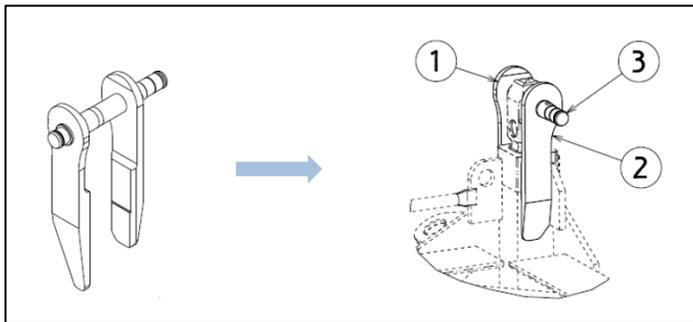


5. Preparing the operation:

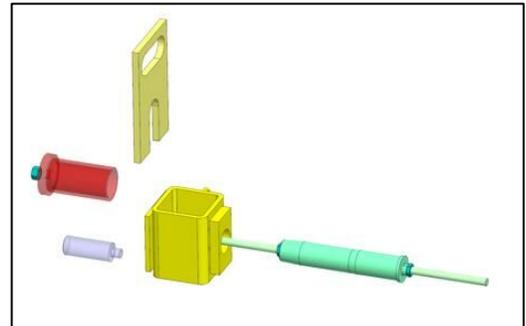
5.1- Procurement of the parts and tools required:

The reinforcement parts and **Tools**, whose codes are detailed below in this document, must be ordered from the POTAIN Spare Parts department.

Composition of the parts kit ▾



Drawing of the tool ▾



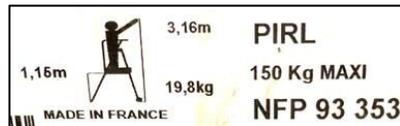
5.2- List of equipment required:

- 1 arc welding set E 694 Mn2 NiCrMo B32 H5 (mandatory for sealing beads).
- 1 shielded-metal arc welding set, to save time, but everything can be arc-welded.
The welds can be made using the MAG process with G69 4M Mn3NiCrMo rod.
- 1 air-arc cutting set to remove the mating plates or an angle grinder.
- 1 angle grinder with discs to clean the surfaces.
- Hammers, wedges, blocks.
- 24 mm wrench to install the tool used to hold the reinforcement plates.
- 4 clamps.
- Grease type G2 - POTAIN codes Cartridge H-01032-54 - Can 1 kg J-12032-07.
- Paint for touch-up.
- Personal protective equipment suitable for the work.

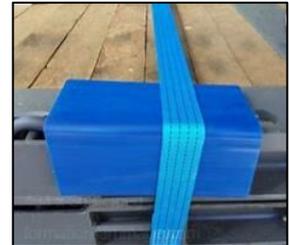
- Trestles to raise the basic chassis mast, minimum height 500 mm.



- An approved stepladder, namely a type of light individual rolling platform, with 5 steps.



- Appropriate textile handling slings and rubber protections for the sharp edges.



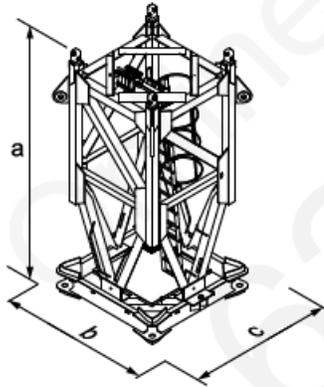
5.3- List of additional instructions:

The service bulletins provided in POTAIN e-Tech must be made available to the technicians and strictly applied:

- **Dye penetrant testing – method and principle:** BST21-293
- **Instructions and qualifications required for welding on tower crane parts:** BST11-046
- **Instructions for paint touch-ups:** BST10-026

5.4- Mechanical handling:

The operation must be carried out in a workshop equipped with a traveling crane of minimum capacity 5 metric tons, by **personnel authorized to operate cranes and gantries and trained to rotate parts such as the basic chassis mast**.



Basic mast unit

Technical data	
a	3.85 m (12.631 ft)
b	2.06 m (6.759 ft)
c	2.01 m (6.594 ft)
Mass of basic mast unit	3,235 kg (7,132.0 lb)

General tolerance of the masses



Note

This tolerance is given as a guide only for the purpose of dimensioning the capacity of the lifting equipment.

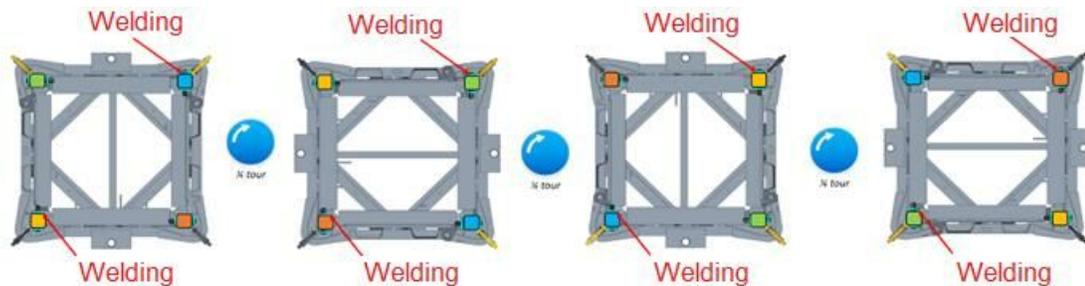
Technical characteristics

General tolerance of the masses	+/- 5 %
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Sling

- 5 m
- 4 parts

During the reinforcement operations, the basic chassis mast must be rotated through a quarter-turn three times.



5.5- Order for executing the procedure for reinforcing a welded fishplate in the workshop:

- 1 Prepare the surfaces
- 2 Position the tool and the counter-fishplates
- 3 Spot-weld the plates
- 4 Make the sealing weld bead
- 5 Weld the plates
- 6 Remove the tool
- 7 Check the welds
- 8 Apply the finish paint

6. Procedure for reinforcing the basic chassis mast S41A1:



Code for the unequipped basic chassis mast: 84045630

6.1- Parts to be ordered for 1 basic chassis mast S41A1:

- 4 tools 84117536 + 1 set of counter-fishplates, either with standard pins or Tirax pins.

details

TOOLS	QUANTITY	CODE
Positioning tool	4	84117536
Included: Weld bead inspection gauge 84117724		

SET WITH STANDARD PINS	QUANTITY	CODE
Counter-fishplate 4 x 84117237	1	84117244
Counter-fishplate 2 x 84117238		
Counter-fishplate 2 x 84117239		
With new fixing pins 4 x 84117240		

or

SET WITH TIRAX PINS	QUANTITY	CODE
Counter-fishplate 4 x 84117237	1	84117245
Counter-fishplate 2 x 84117238		
Counter-fishplate 2 x 84117239		
With new TIRAX pins 4 x 84117241		

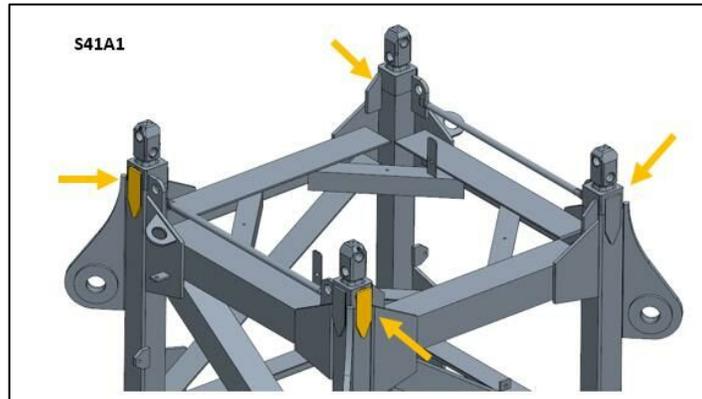
Counter-fishplates delivered and engraved with their code ▾



6.2- Preparing the outer surfaces:

Basic chassis mast horizontal, supported on trestles or blocks,

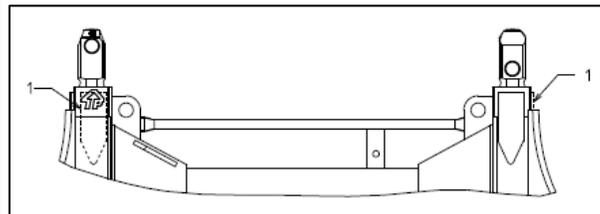
- Using the air-arc cutting set or the angle grinder, remove the 4 outer plates welded on the uprights of the basic chassis mast,
- Clean the surface with the angle grinder,
- Visually check the cleaned surfaces and ensure that there are no holes in the metal caused during the air-arc cutting.
If any holes are detected, it is essential to plug them and smooth the surface.



- ▶ With the basic chassis mast placed on the ground, the mast section must be rotated to remove all the reinforcements.
Basic chassis mast supported on trestles, no need to rotate.
- ▶ Use a cutting disc to cut the plate on the side of the strut lug, since the area is more difficult to access with an air-arc cutting nozzle.



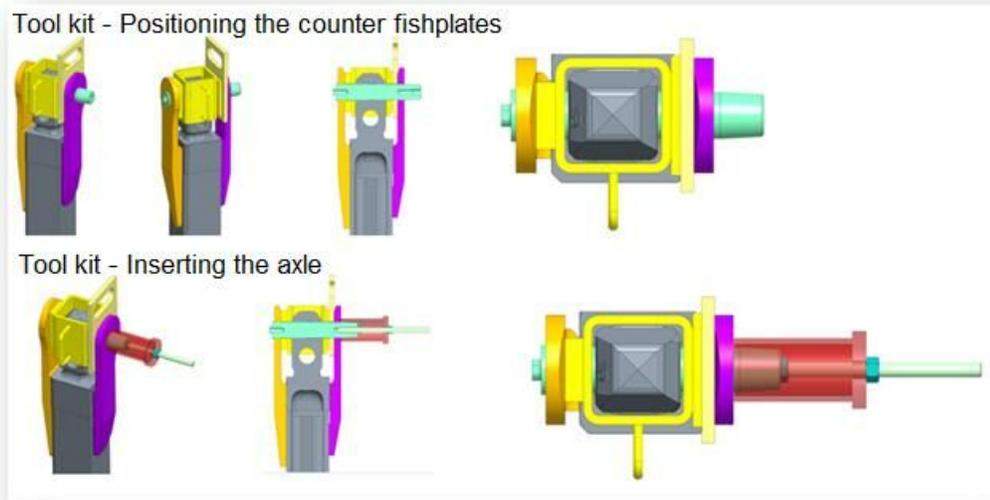
Result obtained:



6.3- Positioning the tool and the counter-fishplates:

With the basic chassis mast in the same horizontal position on trestles, install the positioning tool, then the counter-fishplates, and pin the assembly with the special pin supplied with the tool to obtain the hole-to-hole distance and co-axiality required for the pin-connection.

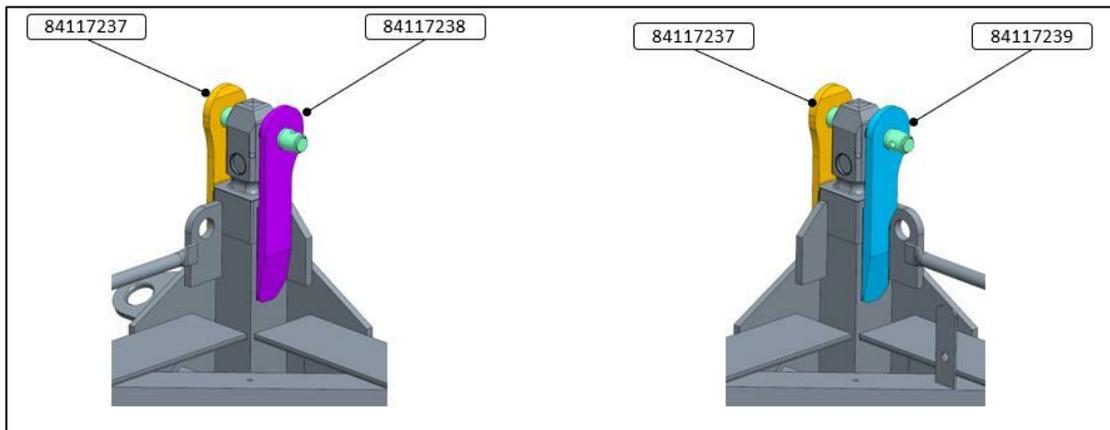
- Principle:



- On the outer surface of the upright, position 1 counter-fishplate 84117237,
- On the inner surface of the upright,
position 1 plate 84117238 if the inner gusset does not act as slinging point, diagram 1.
position 1 plate 84117239 if the inner gusset acts as slinging point, diagram 2.

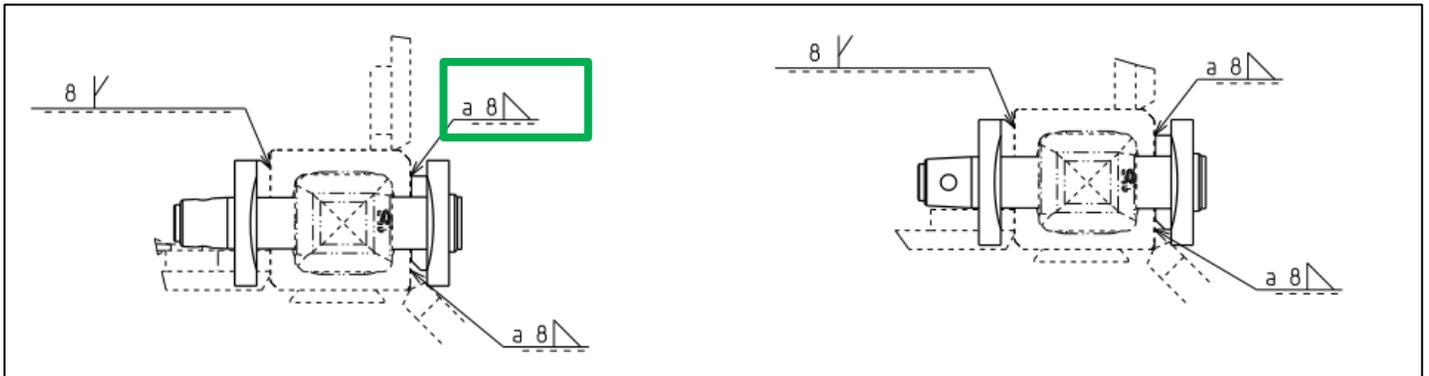
Diagram 1 ▼

Diagram 2 ▼



6.6- Welding the counter-fishplates:

Welding must be carried out by qualified personnel according to the instruction in the service bulletin.
The size of the weld beads is **a= 8**.



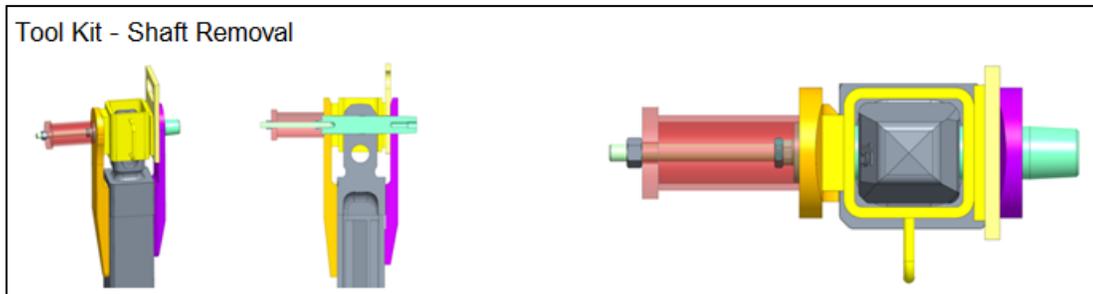
Result obtained:



6.7- Removing the pin and the tool:

Wait until the welds on the four fishplates of the basic chassis mast have cooled down completely.

Then remove the four tools, starting by removing the special pin supplied with the tool.



Result obtained:



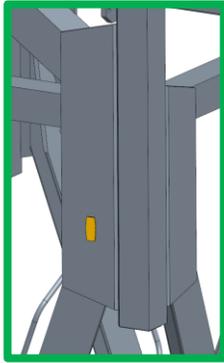
6.8- Check:

Check the conformity of the weld beads using the gauge provided - 84117724.



6.9- Perform the paintwork in accordance with the service bulletin.

7. Procedure for reinforcing the basic chassis mast S41A:



Unequipped basic chassis mast code: E-93109-56

7.1- Parts to be ordered

- 4 tools 84117536 + 1 set of counter-fishplates, either with standard pins or Tirax pins.

details

TOOLS	QUANTITY	CODE
Positioning tool	4	84117536
Included: Weld bead inspection gauge 84117724		

SET WITH STANDARD PINS	QUANTITY	CODE
Counter-fishplate 4 x 84117237	1	84117242
Counter-fishplate 4 x 84117246		
With new fixing pins 4 x 84117240		

or

SET WITH TIRAX PINS	QUANTITY	CODE
Counter-fishplate 4 x 84117237	1	84117243
Counter-fishplate 4 x 84117246		
With new TIRAX pins 4 x 84117241		

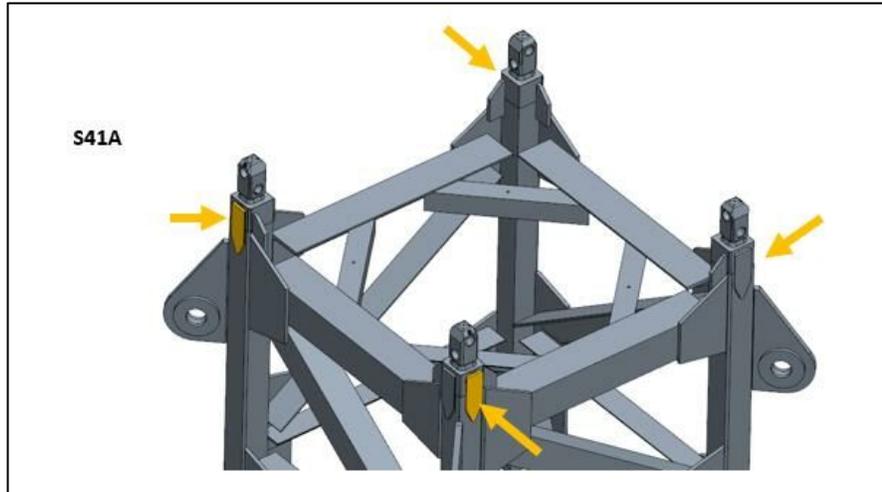
Counter-fishplates delivered and engraved with their code ▼



7.2- Preparing the surfaces

Basic chassis mast horizontal, supported on trestles or blocks,

- Using the air-arc cutting set or the angle grinder, remove the 4 outer plates welded on the uprights of the basic chassis mast,
- Clean the surface with the angle grinder,
- Visually check the cleaned surfaces and ensure that there are no holes in the metal caused during the air-arc cutting. If any holes are detected, it is essential to plug them and smooth the surface.



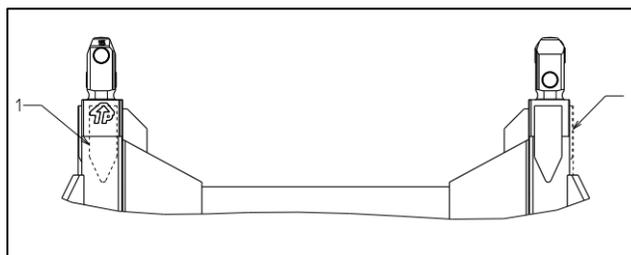
- ▶ With the basic chassis mast placed on the ground, the mast section must be rotated to remove all the reinforcements.

Basic chassis mast supported on trestles, no need to rotate.

- ▶ Use a cutting disc to cut the plate on the side of the strut lug, since the area is more difficult to access with an air-arc cutting nozzle.



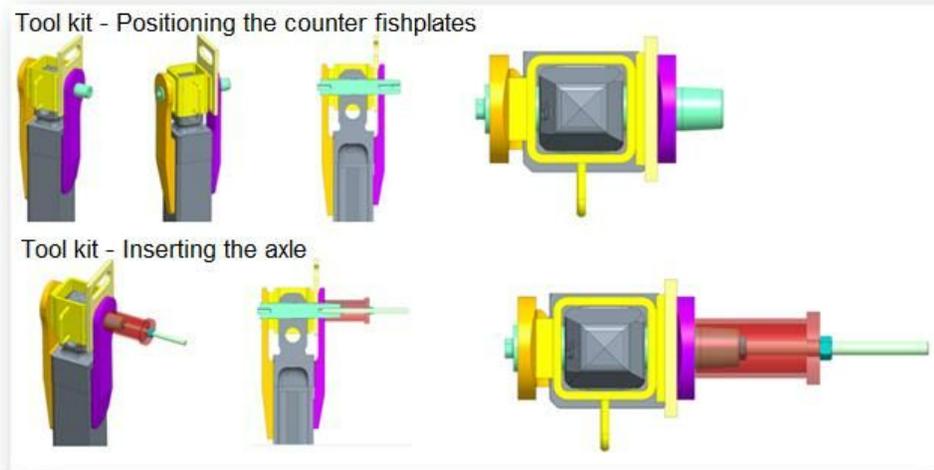
Result obtained:



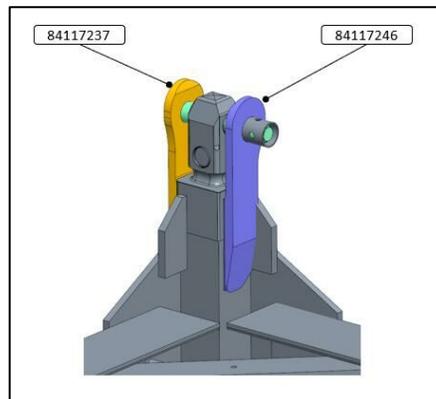
7.3- Placing the tool and the counter-fishplates:

With the basic chassis mast in the same horizontal position on trestles, install the positioning tool, then the counter-fishplates, and pin the assembly with the special pin supplied with the tool to obtain the hole-to-hole distance and co-axiality required for the pin-connection.

- Principle



- On the outer surface of the upright, position 1 plate 84117237,
- On the inner surface of the upright, position 1 plate 84117246.



- Then check that the counter-fishplates are parallel to the basic chassis mast upright and hold in position with clamps.

Result obtained:



7.4- Spot-welding the counter-fishplates

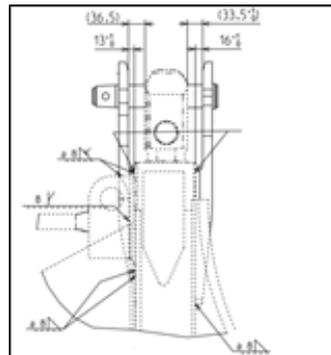
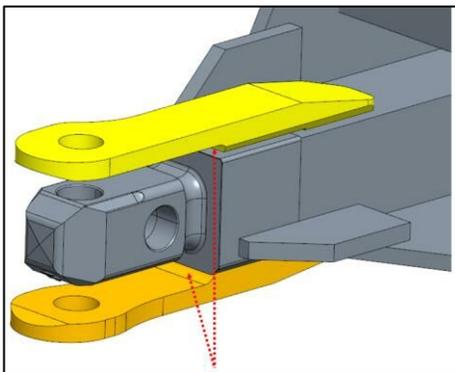
Spot-weld each plate at several positions. All spot-welding operations can be performed regardless of the mast section position.

Result obtained:



7.5- Making the sealing weld bead

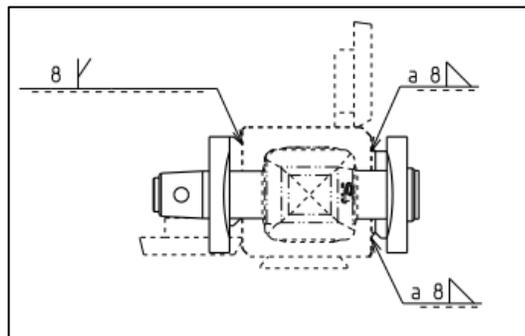
Make the sealing weld beads of the reinforcement plates using E 694 Mn2 NiCrMo B32 H5 rods, as shown below



Mini sealing cord

7.6- Welding the counter-fishplates:

Welding must be carried out by qualified personnel according to the instruction in the service bulletin. The weld sizes are given below:



Result obtained:



7.7- Removing the pin and the tool:

Wait until the welds on the four fishplates of the basic chassis mast have cooled down completely.

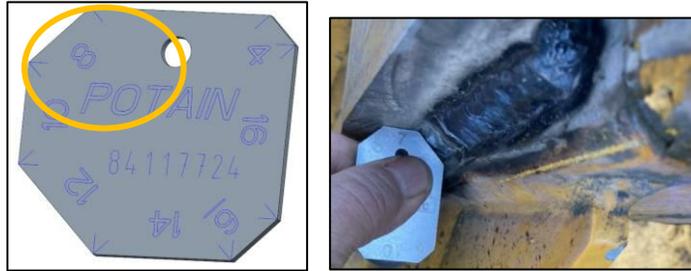
Then remove the four tools, starting by removing the pin.

Result obtained:



7.8- Checks:

Check the conformity of the weld beads $a=8$ using the gauge provided – 84117724



7.9- Perform the paintwork in accordance with the service bulletin.

8. Technical manuals:

The technical manuals for the crane models MDT219 and MDT249 are modified as below. It is prohibited to use a basic chassis mast S41A or S41A1 that has not been reinforced.

Example :

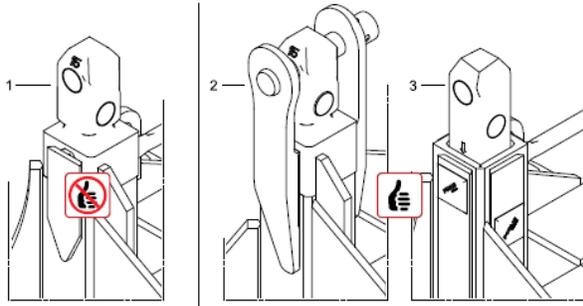
3. Fitting / Adjustments / Dismantling
3.1 Fitting base chassis S41A

2. Crane and site data
2.1 Mast composition, base ballast and reactions

3 Fitting / Adjustments / Dismantling

3.1 Fitting base chassis S41A

3.1.1 Assembling chassis S41A



⚠ DANGER Risk of crane falling

It is strictly prohibited to use non-reinforced S41A chassis (1).

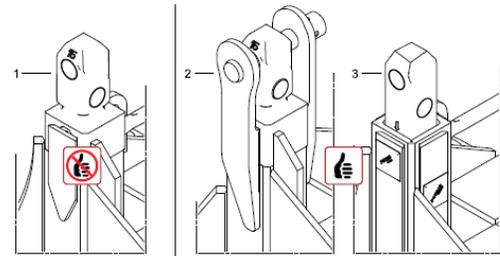
- ▶ Only the reinforced type S41A chassis with 2-pin fishplates (2) or the S41A type chassis with 4-pin fishplates (3) can be used.
- ▶ The reinforcement of the S41A chassis must be carried out by qualified personnel, rigorously respecting the procedure as described in BST 22-294 "S41 chassis".

2 Crane and site data

2.1 Mast composition, base ballast and reactions

2.1.1 Information relating to the S41A chassis

The dimensions of the chassis are given in the chapter entitled "Dimensions and mass / Base / Chassis".



⚠ DANGER Risk of crane falling

It is strictly prohibited to use non-reinforced S41A chassis (1).

- ▶ Only the reinforced type S41A chassis with 2-pin fishplates (2) or the S41A type chassis with 4-pin fishplates (3) can be used.
- ▶ The reinforcement of the S41A chassis must be carried out by qualified personnel, rigorously respecting the procedure as described in BST 22-294 "S41 chassis".

The composition of the base ballast is given in the chapter "Erection, Adjustments, Dismantling / Fitting the chassis / Ballasting the chassis".

Base ballast composition with BB blocks for chassis S41A

9. Reimbursement:

The reimbursement request will be made in GWX, in accordance with the identification as exemplified below, and entering it as **the serial number** of the basic chassis mast in the *serial number* field. *Example: S41A - 2010 – 17.* POTAIN will reimburse you for parts, labor and other expenses following the GWX – PIP 22-294 procedure, according to the following schedule:

- **Temporary reinforcement of a mounted crane (regardless of the age of the chassis)**
 - Parts (securing plates): On invoice.
 - Labour: 1 day of 8 hours for 2 people.
 - Displacement according to the scale of the Guarantee in force in a maximum of 4 hours and 320 km.

- **Final reinforcement of a mounted crane (regardless of the age of the chassis) :**
 - Parts (reinforcement plates): According to invoice.
 - Labor: 1 x 8-hour day with 2 persons.
 - Travel expenses according to the current warranty schedule, for a maximum of 4 hours and 320 km.

- **Final reinforcement of a mast, on the ground:**
 - Basic chassis masts manufactured from 2003 to December 2009: no reimbursement.
 - Basic chassis masts manufactured from January 2010 to December 2019:
 - **Replacing the basic chassis mast in case of cracked fishplate groove:**
 - According to invoice
 - Proof of destruction of the basic chassis mast with cracked fishplate(s) will be requested.
Place an order for either:
 - A new **S41A1** mast code equipped **84045629** + a cassette of four standard axes **84034361** or a cassette of Tirax axes **84036346**.
 - A new **S41A** mast code **F-09680-29** (standard axis) or a new **S41A** mast code **H-09680-31** (Tirax axis).
 - **Final reinforcement in the workshop:**
 - Parts (counter-fishplates): According to invoice.
 - Labor: 3 x 8-hour days with 1 person.
 - Transport costs for returning the basic chassis mast to the workshop: According to invoice.

Cost reimbursement requests must be made as "PIP" warranty claims in GWX. The code "ET22-294" must be quoted in the "Claim" field, and the claim must be submitted within 24 months of receiving this service bulletin or by 18/03/2024 at the latest.

POTAIN will not accept any requests for reimbursement after that deadline.

The following must be attached to the warranty claim: - The PIP proof of completion (Form)
- The receipts.

10. Reminder of obligations:

In accordance with the terms of the distribution contract signed with POTAIN, the Representative must perform, at the Company's request and within the time limits indicated, all PIP operations on the cranes in the distribution territory which it has been assigned.

For further information, please contact your usual Potain customer support agent or Tower Crane Potain Product Support.

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Email: euoperange-pip@Manitowoc.com