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# TL MEWP Basket Levelling Drive Motor Replacement Procedure

## Report Nº 601022-05

| Rev No.: | Date: | Author: | Description: |
|---|---|---|---|
| | 04-05-2021 | Adrien Vigoulette | Original |

## Reference Documents:

| | | |
|---|---|---|
| 1. | 01E065 | Parker TE165 Motor Upgrade Kit for Basket Levelling Drive |

**Applicable Vehicles :** TL MEWPs

**Overview:** This procedure outlines the steps required to replace the hydraulic motor for the TL MEWP basket levelling drive. The motor is replaced with an alternative model to reduce noise and vibration during operation. The fastener torque seal needs to be checked periodically as per the operator manual specification.

**Parts & Equipment Required:**

| Item No | Description | Comment |
|---|---|---|
| 1. | Safety Glasses & relevant PPE | |
| 2. | 01E065 | Parker TE165 Motor Upgrade Kit for Basket Levelling Drive – Refer to Annex A for drawing |
| 3. | White paint and primer | White paint to touch up exposed locations |
| 4. | Spanner size 19 | To suit M12 fastener |
| 5. | Allen keys size: 10, 8, 5/16” and 5 | To suit M12, M10, 3/8” and M6 cap screws respectively |
| 6. | Torque seal | For future inspection of fasteners |
| 7. | Loctite 243 or equivalent | For all fasteners |
| 8. | 6 mm earth strap |  |
| 9. | Crane and slings (or equivalent) | To support the basket before dis-assembly. |
| 10. | Pallet and mat (or equivalent) | To protect the basket rim from being damaged |

*Table 1 – Parts and equipment table*

**Please contact Redmond Gary if you have any further questions.**

**Procedure:**

1. Ensure that the area for the repair is demarcated. Personnel must not stand under the booms or the basket.

2. Deploy the MEWP jacklegs to operate the booms

3. Lower the booms so that the basket is close to the ground. Leave enough clearance for the basket to tilt without contacting the ground. See Figure 1 as an example.


*Figure 1 – Example MEWP configuration to lower the basket to the ground*

4. Switch the operation mode to Base Controls using the lever illustrated in Figure 2 and tilt the basket down, ensuring the basket does not contact the ground

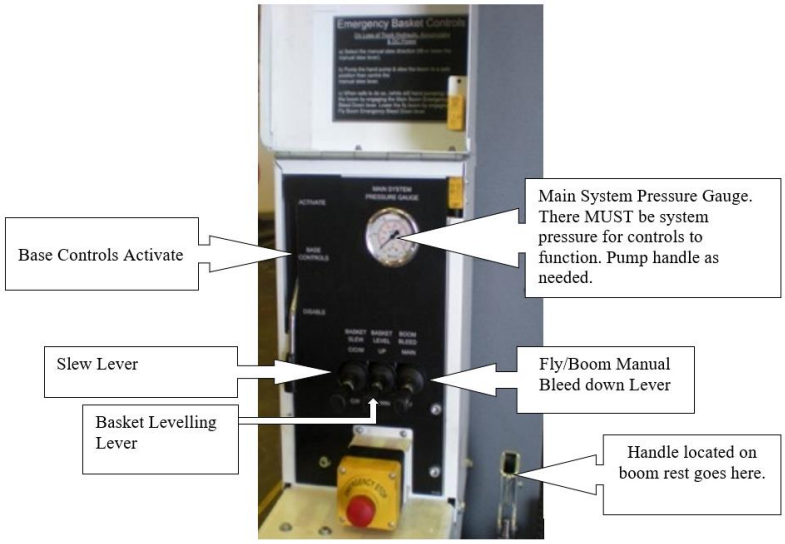


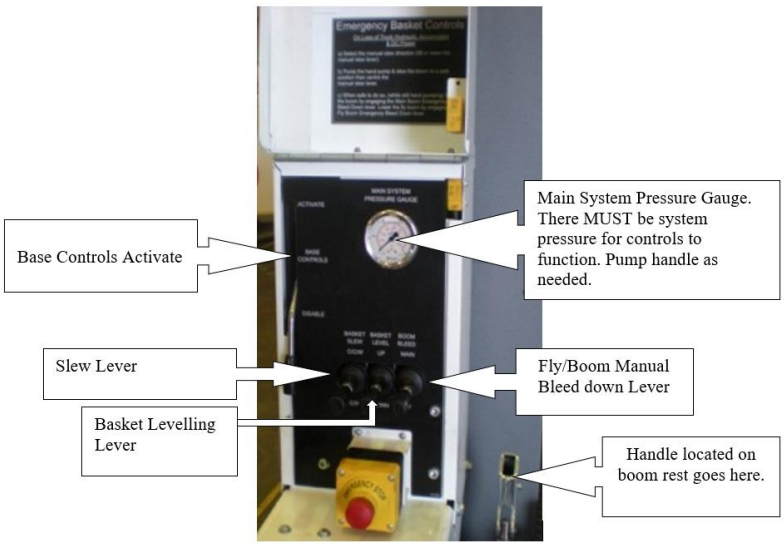

*Figure 2 – Base control at the rear kerb side jackleg*

5. Support the underside of the basket rim as illustrated below (using a pallet with a mat or equivalent support). Place a sling around the basket as shown and attach to a crane. Lightly tension sling via crane to just hold the basket weight.

*Figure 3 – Basket must be supported through a sling with rim protected by a pallet and a mat (or equivalent)*

6. Disengage the PTO and switch off ignition to dump any stored accumulator pressure

7. At the manual control station, lift and lower the basket levelling lever a couple of times to release any trapped oil pressure.



8. Remove LV FRP cover at the fly boom end and the bulkhead LV cover (levelling drive access covers)


9. Disconnect the old levelling drive motor and close the motor supply hoses with blanking plugs

10. Replace the levelling drive end cap with 01E064 as illustrated below using 4 x M10 low head cap screws. Apply Loctite 243 or equivalent to each fastener thread before inserting and torque to approx. 50 Nm.

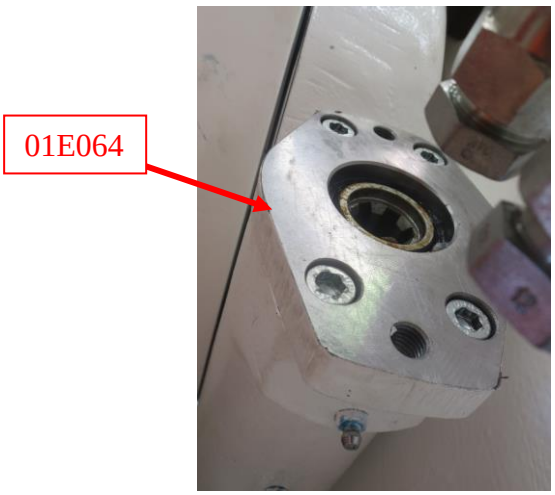



*Figure 4 – Replaced levelling drive end cap 01E064*

11. Insert M12 bolt and cap screw into 01E063 (as they will not fit if fitted later). Assemble the Parker motor with plate 01E063 using the 4 x 3/8 low head cap screws torqued to approx. 50 Nm as shown in Figure 5. Apply Loctite 243 to each fastener thread before inserting.

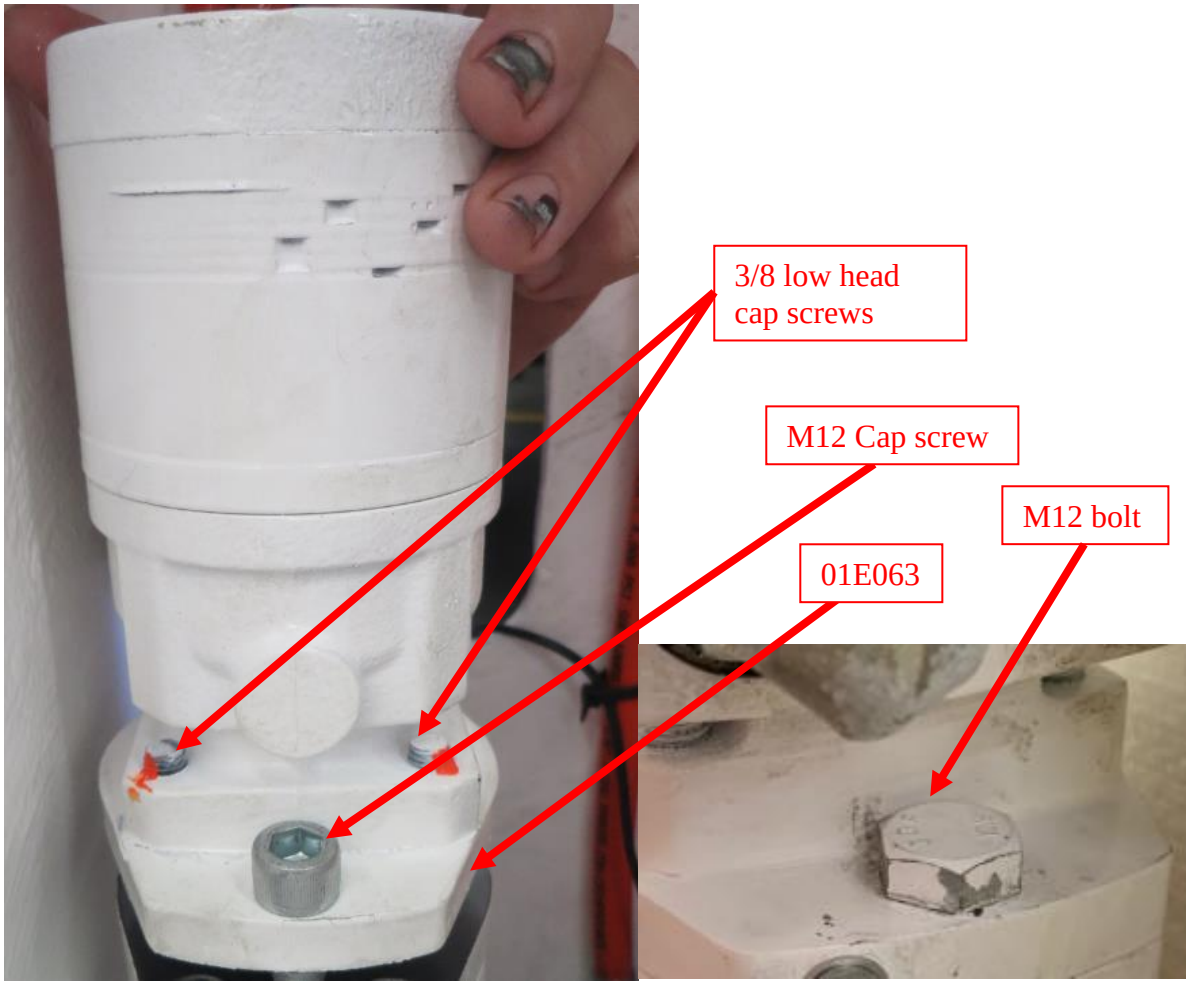



*Figure 5 – Parker TE165 motor assembled with 01E063 plate*

12. Assemble the motor and the worm drive as shown in Figure 6. Torque M12 bolt and cap screw to approx. 50 Nm.

13. Replace the 8 mm earth strap with a 6 mm one to suit new bolt connection (refer to Figure 6 for illustration)

14. Touch up exposed surfaces with white paint. Add torque seal to the M12 bolt and screw. Add torque seal to the screw thread protruding from the motor flange. Re-connect the hydraulic hoses to the motor.

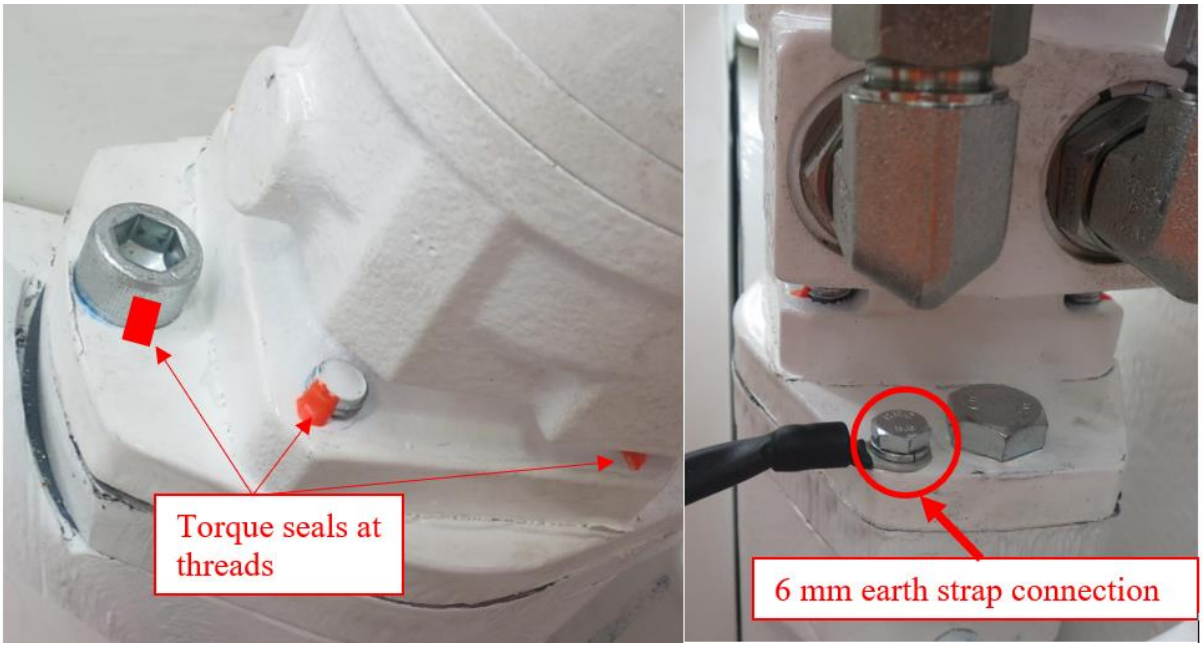



*Figure 6 – Assembled Parker TE165 and worm drive*

15. Switch on the ignition and engage the PTO

16. Level the basket with manual controls and check for leaks, then if the basket levelling works correctly switch back to normal controls. If the levelling direction is wrong, follow the steps 17 and 18 below.

17. **Only if the levelling direction is incorrect**, repeat steps 6 and 7 to de-energise the system. Remove the LV FRP cover circled below and, swap the hoses at the fly boom as indicated in Figure 7

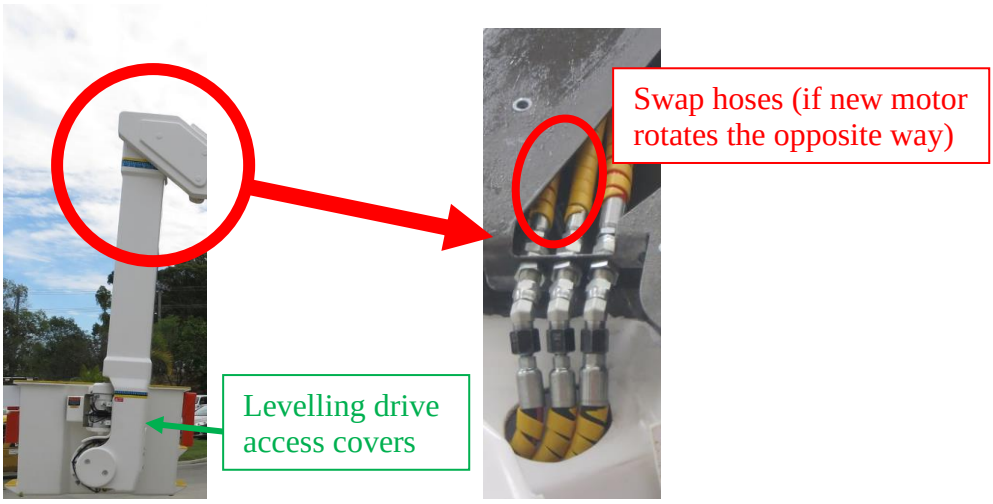



*Figure 7 –Kerb side Hoses (marked BU and BV) above bulkhead to be swapped for the Parker motor to run in the correct direction*

**⚠WARNING**

**The hoses indicated at the fly boom must be swapped if the levelling direction is incorrect. Serious damage to the MEWP can occur if this is not done.**

18. Refit the LV FRP covers at the fly boom end (levelling drive motor access cover) and at the top of the fly boom (if it was removed)

19. Ensure that all surfaces are free from oil – especially the fly boom and LV covers

**⚠WARNING**

**All surfaces must be free from oil as the fly boom is the main insulator of the MEWP. Oily surfaces pose a risk of serious injury or death by electrocution.**

20. Repeat steps 15 and 16 to re-energise the system and change from manual to normal controls

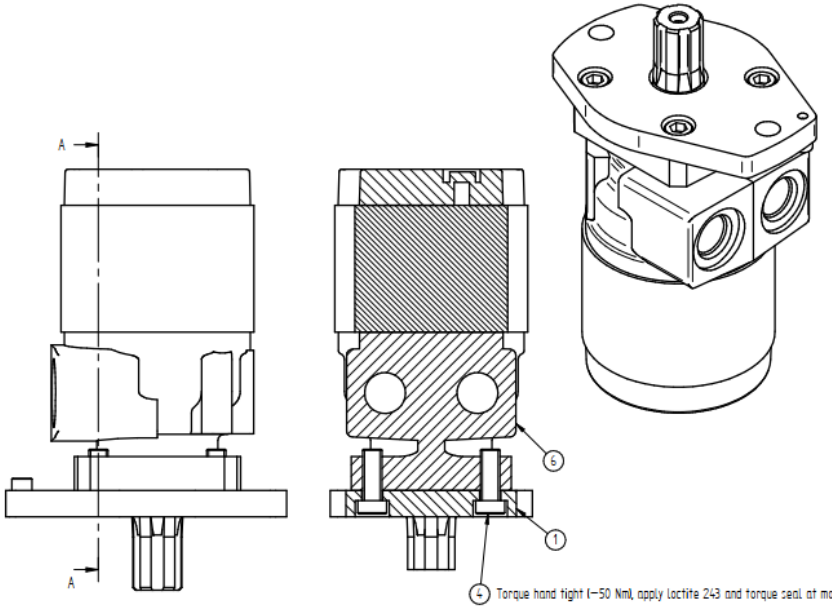
21. Load the basket up to rated capacity and operate the fly boom up and down to check that the levelling drive operates as expected. Re-check for leaks and repair if needed.

## ANNEX A – Worm Drive Motor Replacement Kit – 01E065

| Item | Dwg No. | Rev | Drawn | Description | Material Size | Material | Qty |
|---|---|---|---|---|---|---|---|
| 1 | 01E063 | | | Parker Motor Slew Drive Adaptor Plate | Plate 16 mm | | 1 |
| 2 | 01E064 | | | Bracket Worm Drive Motor Replacement Plate | Plate 25 mm | | 1 |
| 3 | N/A | | No | Hex Head Bolt M12 x 25 | | Class 10.9 Zinc Plated | 1 |
| 4 | N/A | | No | Low Socket Hd Capscrew 3/8 in x 1 in UNC | | Grade 8 Zinc Plated | 4 |
| 5 | N/A | | No | O-Ring 236 - ID 3.234 x Ø 0.139 inch | | Nitrile 90 Duro | 1 |
| 6 | N/A | | No | Parker Hydraulic Motor | TE - 0165 - FS - 41 - D - AAAB | | 1 |
| 7 | N/A | | No | Radial Seal - AS40 x 55 x 8 | | Nitrile 90 Duro | 1 |
| 8 | N/A | | No | Socket Head Capscrew M12 x 25 | | Class 12.9 Zinc Plated | 1 |
| 9 | N/A | | No | Socket Head Capscrew M6 x 10 | | Class 12.9 Zinc Plated | 1 |
| 10 | N/A | | No | Socket Low Head Cap Screw M10 x 30 | | Grade 12.9 Zinc Plated | 4 |
| 11 | N/A | | No | Worm Drive Without Motor or SAE Flange | W012-160-A-9001_RevB | Steel | 1 |

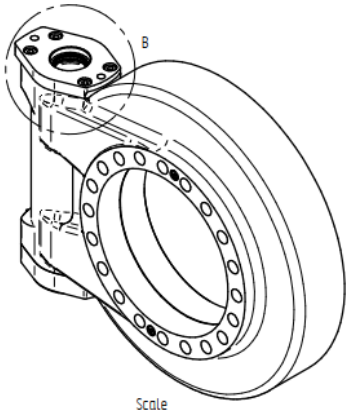
Assembly steps

1. Assemble the Parker motor and 01E063 :

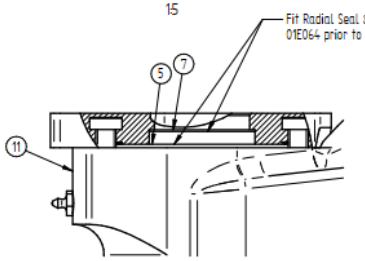



Section A-A

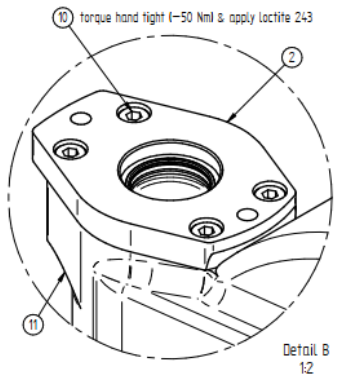
2. Assemble the slew bearing and 01E064:




Scale 1:5




Scale 1:2




Detail B 1:2

Directory: J:\Product Models and Drawings\Solid Edge Model and Drawing\EWP\Drawing\W00-Master\W01-FLY\W012\W012.dft

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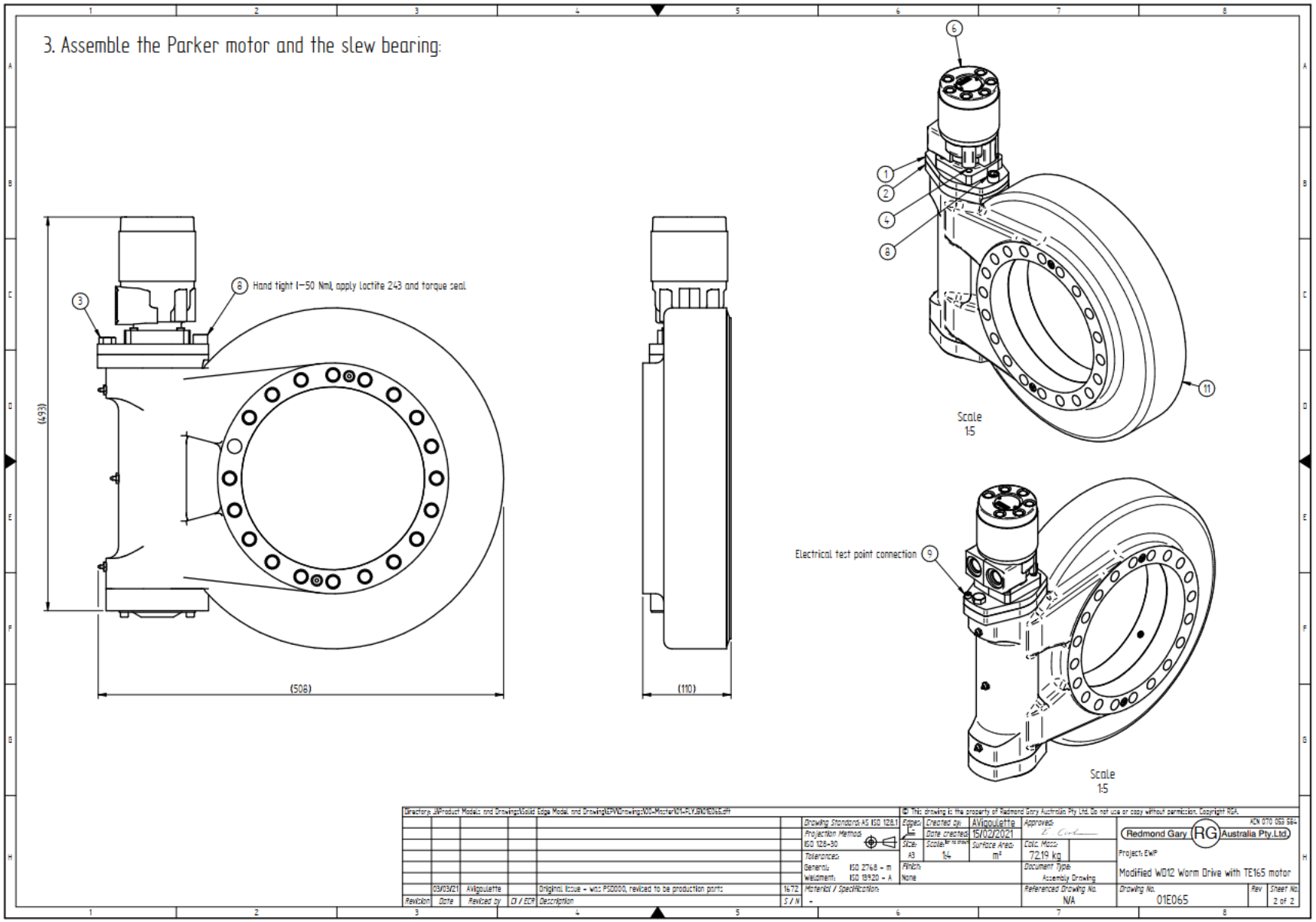
Projection Method: ISO 128-30
Tolerances: General: ISO 2768 - m; Weldment: ISO 13920 - A
Edges: Sharp
Created by: AVigoulette
Date created: 15/02/2021
Size: A3
Scale: 1:2
Surface Area: m²
Approved:
Calc. Mass: 72.19 kg
Finish: None
Material / Specification: 1672
S / N: -
Document Type: Assembly Drawing
Referenced Drawing No.: N/A
Redmond Gary (RG) Australia Pty Ltd. ACN 070 059 984
Project: EWP
Modified W012 Worm Drive with TE165 motor
Drawing No.: 01E065
Rev:
Sheet No.: 1 of 2

| Revision | Date | Revised by | CR / ECR | Description |
|---|---|---|---|---|
| | 03/03/21 | AVigoulette | | Original Issue - was P50000, revised to be production parts |


3. Assemble the Parker motor and the slew bearing:
8 Hand tight (~50 Nm), apply Loctite 243 and torque seal
(493)
(508)
(110)
Scale 1:5
Electrical test point connection 9
Scale 1:5
Modified WD12 Worm Drive with TE165 motor
01E065