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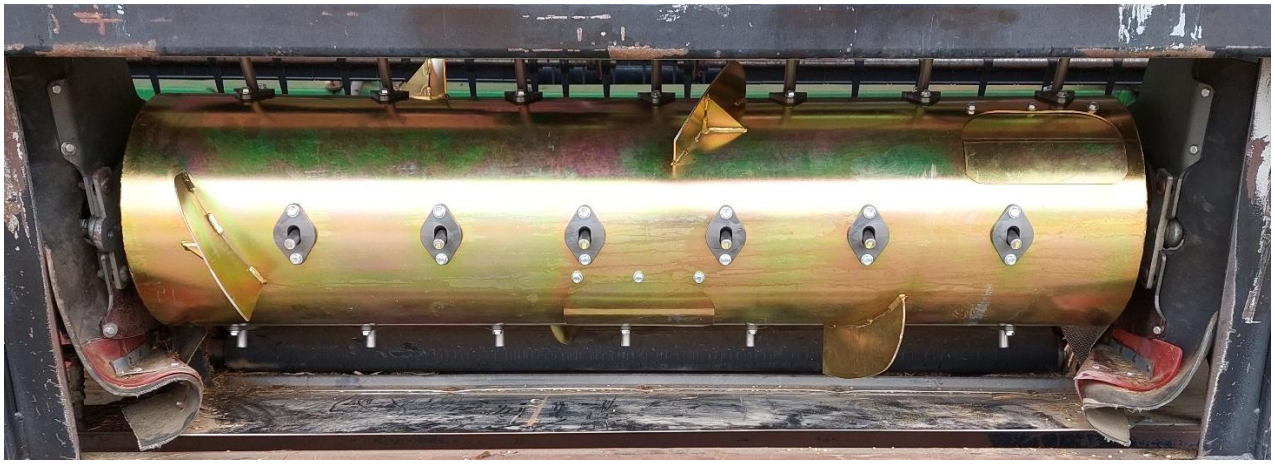


Midwest Durus & Crophawk Draper Platform

Operation and Adjustment: i-paddock Typhoon Feed Drum

(Right and left refer to as facing forwards)

The **i-paddock Typhoon** for Midwest fronts has been designed specifically to maximize performance in these fronts. The unique cluster of i-paddock's patented Paddle Flights, “overreach” long throw finger pattern, and reduced barrel diameter, maximize smooth flow and minimize the dead zone, particularly on the edges coming off the side mats, into the feed drum on these fronts.

Retractable Finger Timing

Adjust the finger timing by rotating the original timing lever at the right-hand end of the adaptor, as per the Midwest instructions. NOTE: It is important to fine-tune the finger timing with small incremental adjustments until you find the optimum timing to suit the crop conditions.

The recommended initial position for the retractable fingers on the i-paddock Typhoon is at setting 7. In this setting the fingers reach maximum extension around 45 degrees forward from top dead center (about 2 O'clock when looking from the RH side of the machine), allowing them to be fully retracted by the time they are coming up the back side of the rotation, which minimizes the chance of catching crop and creating repeats over the drum.

If you experience repeating around the drum, this is generally improved by advancing the finger timing. This is done by rotating the timing lever anti-clockwise to a higher setting number. Feeding issues are most commonly a result of excessively retarded finger timing.

Typhoon height adjustment

The ideal height varies for different crop conditions. The operating height can be adjusted higher for more volume crops and lower as the crop volume decreases. Remember to check the finger and drum clearances after adjustment as when the height is adjusted the timing will also change. a table with the available timing range for each height setting can be found under the section 1.1.3.

Light and Droughted Crops

In very short and light crops it may be an advantage to retard the finger timing (i.e., rotate the timing lever clockwise or reduce the setting number) to maximize the length of the fingers at the bottom of the stroke.

If light crop material is perching on the deck in front of the center mat, adding sections of corflute (or similar plastic or rubber batts) to the reel fingers with self-tapping screws may help move the material further toward the back of the mats, while creating a fan effect in the center, both of which can help to minimize this issue.

Canola, frosted and bulky/fluffy Crops.

Advancing the finger timing (i.e., rotating the timing lever anti-clockwise or increasing to a higher setting number) may be useful in crops that sit up very high in the front. For full performance from your i-paddock Typhoon, it is critical to also optimize the top cross auger. Adding rubber paddles in the center of the top auger can significantly assist in pushing high or fluffy crops down for collection by the i-paddock Typhoon feed drum. In lighter bushy crops, moving the auger forwards and down can also increase harvest speed with an i-paddock Typhoon fitted.

Figure 1: Rubber paddles in the center of the top auger

1 INSTALLING I-PADDOCK TYPHOON FOR MIDWEST DURUS & CROPHAWK DRAPER PLATFORM

1.1 INSTALLATION OF THE I-PADDOCK TYPHOON FEED DRUM

1.1.1 Removing the Original Feed Drum

The following instructions are to function as a guide for the removal of the original feed drum. Refer to the Midwest manual for further details.

It is not necessary to remove the adaptor for this job. However, it will be necessary to remove the front from the harvester (header/combine) to allow access for removing the drum and installing the i-paddock Typhoon.

1. **Disconnection**

Disconnect the front from the harvester (header/combine) and place it on the trailer. Remove the PTO shaft and drum rubbers (items A and B in Figure 3). Secure the existing feed drum using a ratchet strap as shown in figure 2 below. An extra strap and wooden planks may be used as levers to assist in lifting and strapping the feed drum securely. Alternatively, use a forklift or similar if available as the feed drum weighs more than 80kgs.

Figure 2: Securing the feed drum with a ratchet strap.

2. **Bolt Removal**

Disconnect the height adjustment bolts (C), bearing pivot mounts (D), and feed drum pivot bolts (E) on both sides of the feed drum.

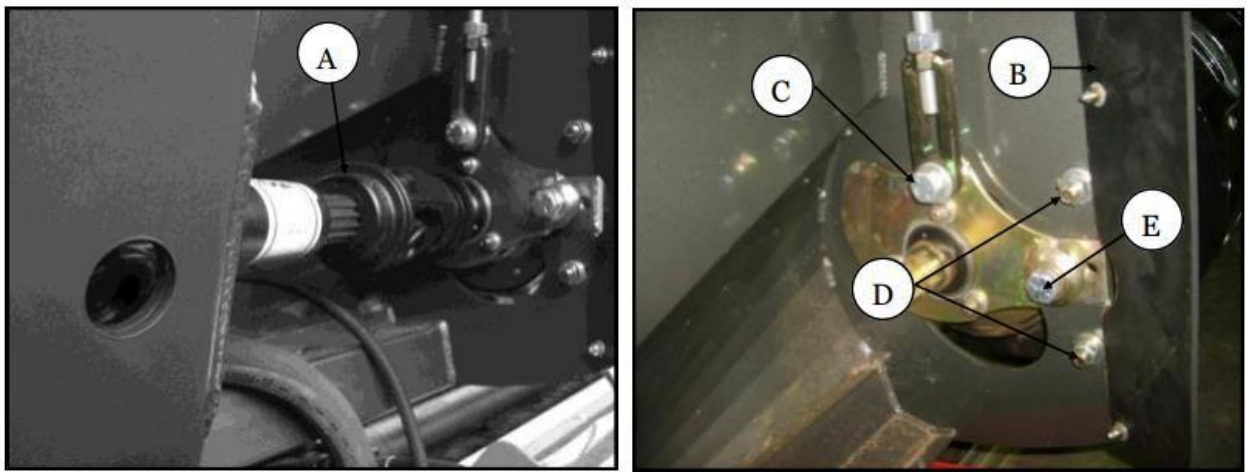


Figure 3 : Disconnecting Bolts (Image: Midwest)

3. **Remove Drum**

The feed drum can now be removed from the front. Use straps, levers, slings, and/or a forklift for easier removal.

1.1.2 Remove mounting brackets and replace Yoke and Cross

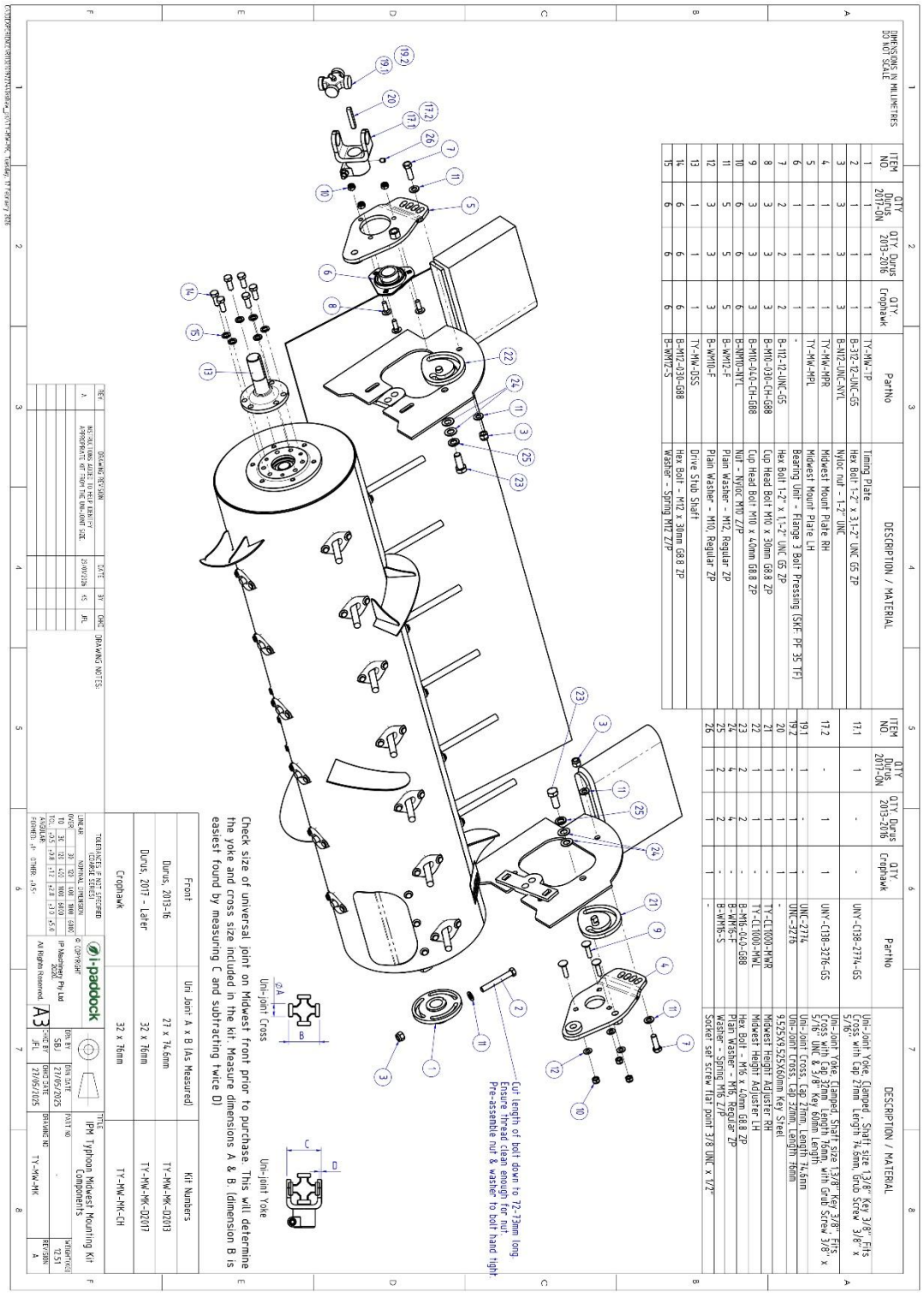
1. **Yoke and Universal Joint Cross replacement**

Replace the OEM yoke and universal joint cross on the PTO connecting to the Typhoon shaft as seen in Figure 3 Item A with the yoke and universal joint cross supplied in the Mounting Kit (Items 17.1,17.2,19.1&19.2 in drawing TY-MW-MK). The Mounting Kit will have different yokes & universal joint cross for the different model fronts (Durus 2017 & Later, Durus 2013-2016 & Crophawk).

Figure 4: PTO with OEM and NEW yoke & universal joint cross.

Remember to slide the PTO arm back into position as shown in Figure 3 before installing the Typhoon. Installing the PTO arm with the typhoon in the front is difficult. The appropriate yoke size is determined per

the instructions in the drawing below:



i-paddock TYPHOON Built, tried and tested in the real world by real farmers

2. Removal of the OEM mounting brackets

Remove all the mounting items and only keep the highlighted items for reuse (Figure 4 Items 12,22&34).

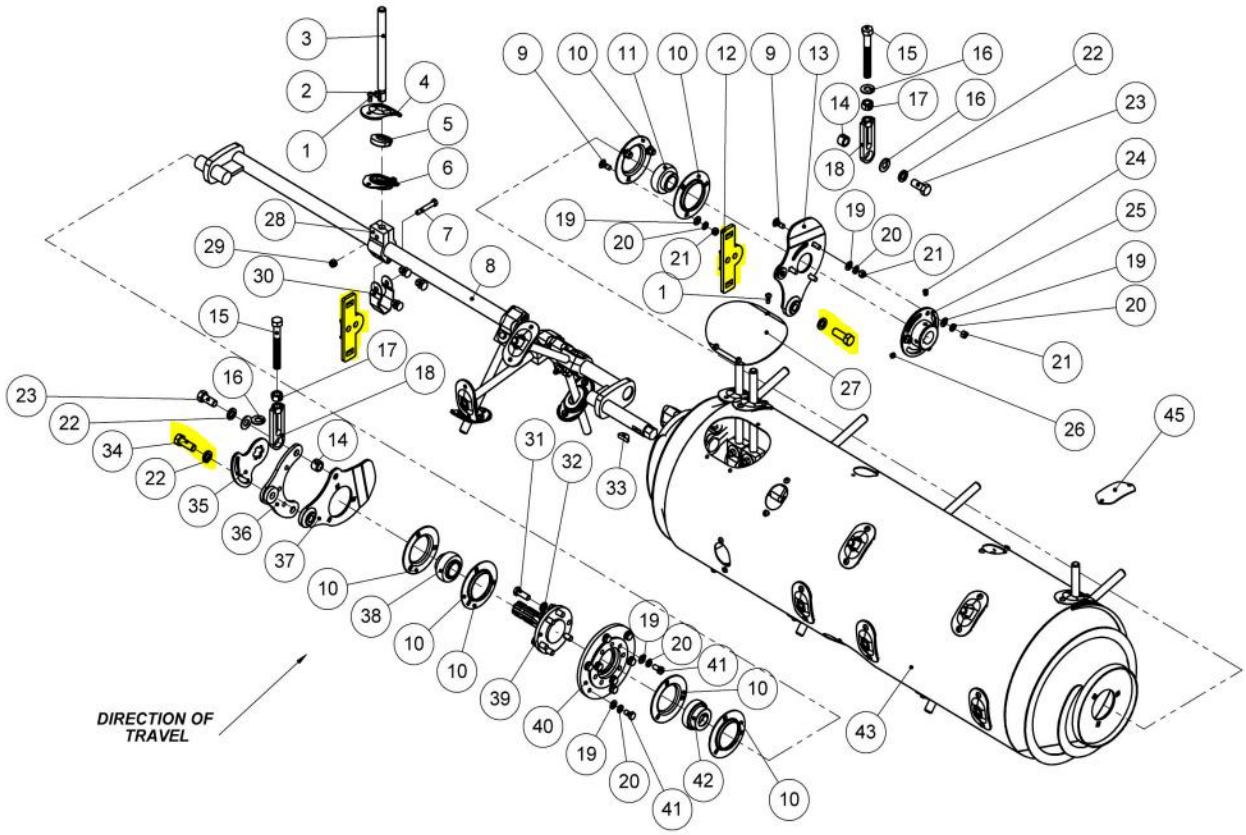


Figure 5: Items highlighted reuse (Image: Midwest)

3. Drill Mounting Hole in Front.

By using the correct Drill Template for your front (TY-MW-D-DT or TY-MW-CH-DT) supplied to mark out and drill the needed mounting holes into the front. Using magnets and a light can help to line up the template before marking and drilling, see below.

Figure 6: Drill Template position in front.

4. Assembling Drive Hub & Timing plate to i-paddock Typhoon

Loosely bolt the drive hub onto the i-paddock Typhoon. Ensure it all seats down properly before tightening the bolts, taking care not to strip any threads. Depending on the Adaptor on the front it might be easier to install some of these parts when the typhoon is already inside the front.

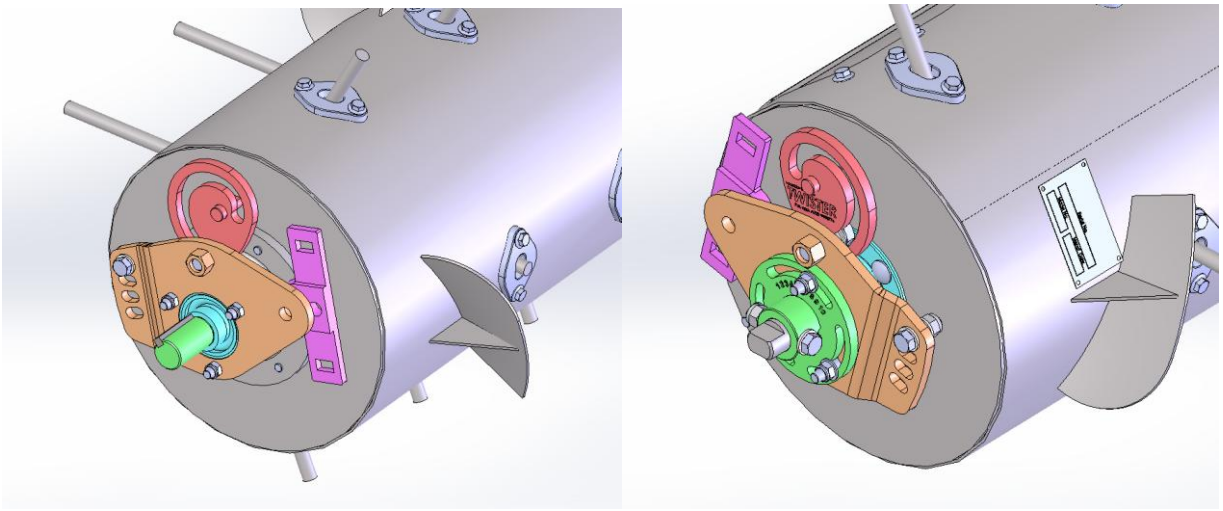


Figure 7: After bolting mounts onto the i-paddock Typhoon (left: drive end, right: idle end)

1.1.3 Installing the i-Paddock Typhoon

Before installing the Typhoon remember to slide the PTO back into position as shown in Figure 3 (A).

1. Insertion and Bolting

Using straps, wooden planks as levers, and/or a forklift, insert the i-paddock Typhoon in place of the stock feed drum on the draper front, reversing the steps described in section 1.1.1,. Beware of the correct orientation of the idle and drive ends.

Install the new timing hub ensuring the orientation as shown below. The height can be adjusted by turning the i-paddock Twister (A, Figure 8) and adding the bolt after the desired height is achieved. Unfortunately, in the Crophawk fronts space is limited and the Twister can't be used, levers (wooden planks) will be needed to lift the Typhoon until it is at the desired height. The recommended initial height for the Durus setting is 3 as noted below with 1 being the lowest position and 4 being the highest position, for the Crophawk the initial setting would be 1.

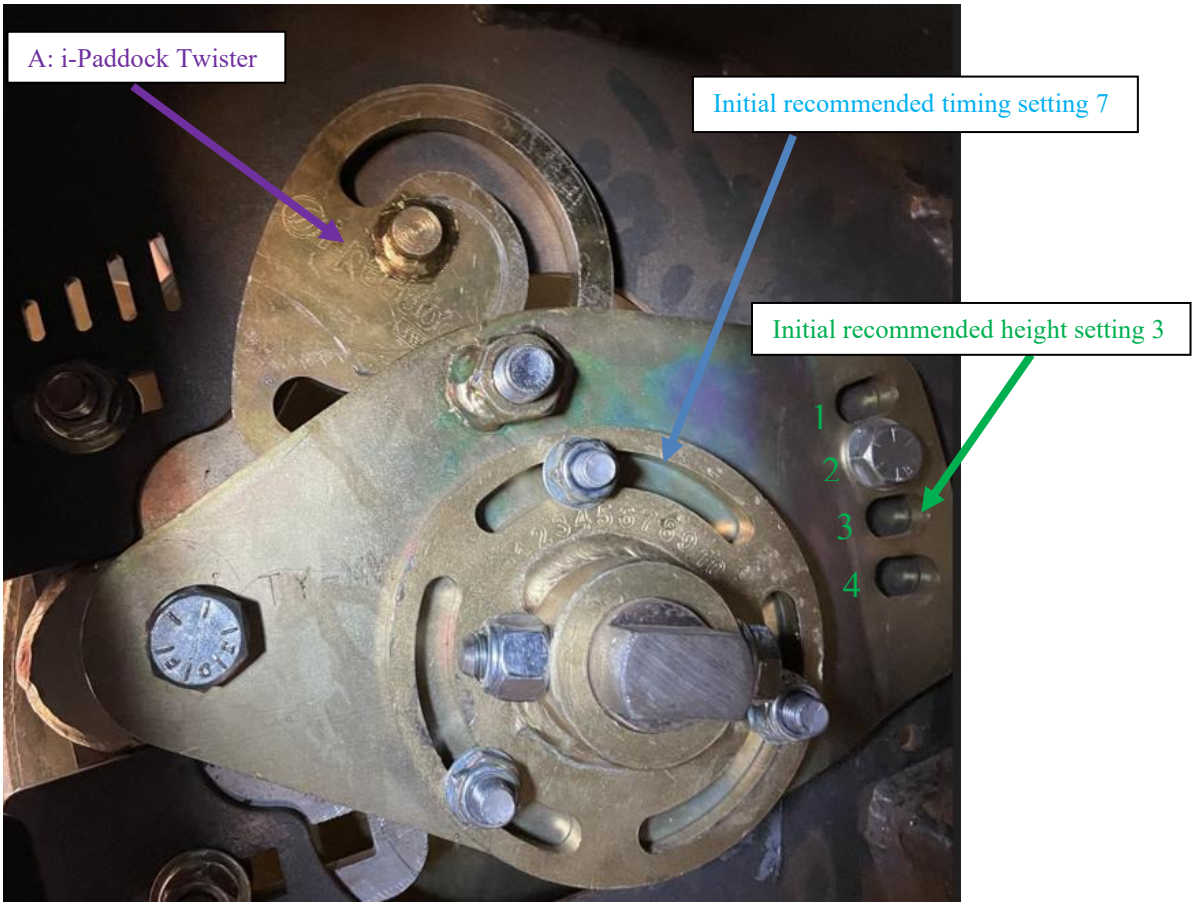


Figure 8: Durus, Timing & height adjustment plates (Note timing and height setting in the photo isn't at the recommended settings, follow instructions instead)

IMPORTANT: Once installed, ensure the internal crankshaft is orientated towards the cutter bar. As a guide, the fingers should be fully extended near the forward horizontal position when the timing adjustment lever is in mid-range. This is critical to allow the recommended timing to be set for the correct performance of the

feed drum.
The timing range is limited at different height settings, the fingers will contact the center draper when the timing is set too low. See the suggested timing range at the different height settings for the Durus front in the table below.

Height Setting	Available Timing Range
1	6 to 10
2	5 to 10
3	4 to 10
4	2 to 10

IMPORTANT: Check the clearness between the finger and the draper, at least 15mm between the finger and center draper, if left unchecked may cause damage.

Figure 9: Measure the clearness between the finger and center draper.

IMPORTANT (RISK OF FIRE OR DAMAGE): Due to the large diameter flights on the Typhoon there may be minimal clearance to the feeder house chain on the harvester. It is important to check that there is at least 10mm clearance between the drum shell and the side drapers when fully tensioned allowing for stretch. Additionally, it is important to ensure the side drapers, when fully stretched, have sufficient clearance that they will not contact the Typhoon's outer flight or finger. The drapers may need to be shortened to avoid clashing.

Figure 10: Excessive feed drum clearance to side drapers

The flighting on the Typhoon should be checked using a straightedge as shown below that it does not protrude past the mounting face of the adapter. On some older Crophawk machines, there may be limited adjustments to move the Typhoon far enough forward. It may be necessary to further drill/slot the existing Midwest mounting holes to allow the flighting to not protrude past the adapter mount face.

Figure 11: Typhoon flights excessively protruding past the adapter mount face.

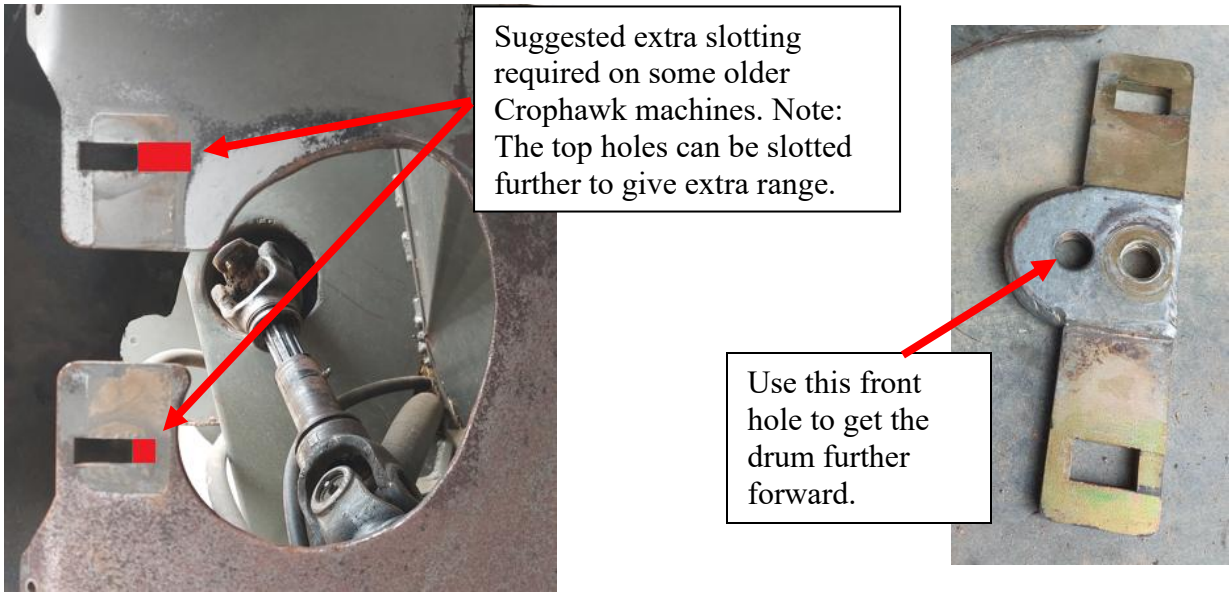


Figure 12: Extra slotting if required on older machines.

Ensure the feeder-house chain has sufficient clearance so that it will not protrude past the adapter mount face even when stretched. It may be required to remove a half-link in the chain to give sufficient clearance.

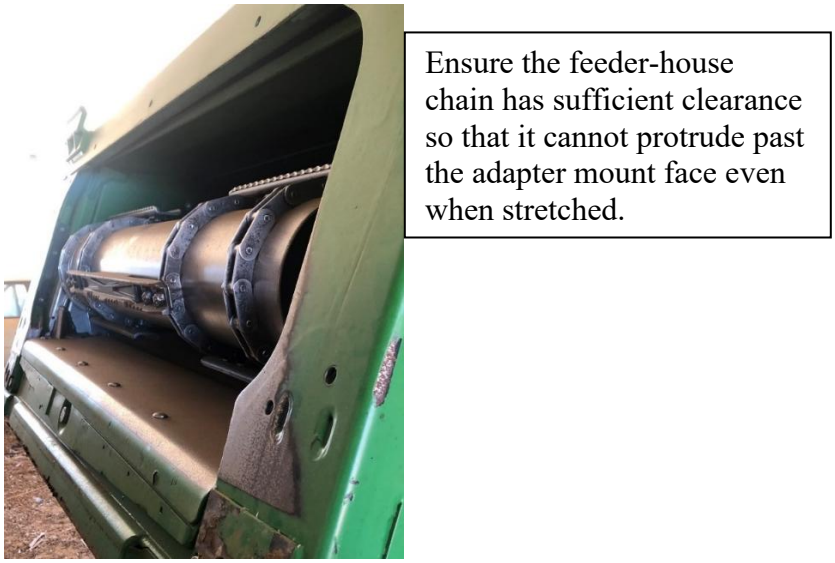


Figure 13: Feeder house chain

IMPORTANT (RISK OF FIRE OR DAMAGE): Check that all moving parts have sufficient clearance when rotating to avoid any contact. Rotate the drum manually before startup to confirm that there are no points of seizure or contact.
Connect the front to the harvester and check that there are no clash points with the Typhoon flights and the feeder house chain allowing for wear in the chain and any movement of the adapter.
It is recommended to run the i-paddock Typhoon for 2-5 minutes at full operating speed and check the temperatures of the fingers thereafter for any excessive points by hand or using a temperature gun.

2 HEIGHT & FINGER TIMING ADJUSTMENTS OF THE I-PADDOCK TYPHOON IN OPERATION.

Height adjustment when harvesting with the Durus

To adjust the height of the typhoon or the timing of the finger to suit the crop conditions, follow the steps outlined below. With the twister installed on the Durus fronts, a single person should be able to make these adjustments while the front remains attached to the harvester (header/combine). However, for safety reasons, it's crucial to turn off the harvester before making any adjustments.

1. Ensure it is safe to work on the front.
2. Loosen the two M16 bolts on the mounting bracket (A, Figures 14 & 15) on both sides.
3. Remove the height adjustment bolts (B, Figures 14 & 15) on both sides; these are easily accessible from the draper's side of the front.
4. Adjust the height by rotating the twister with a 10mm spanner or a shifting tool (C, Figure 14). This can also be accessed from the draper's side. Keep in mind that the twister's full range cannot be used; refer to the 4-height setting slots.
5. Once the desired height is reached, reinstall the height adjustment bolts removed in step 3 (B, Figures 14 & 15), and tighten the M16 bolts loosened in step 2 (A, Figures 14 & 15).
6. Verify that the timing is still correct, as adjusting the height may affect it. There is a limited usable timing range at different heights due to potential contact between the fingers and the draper. Consult the table in section 1.1.3 for the usable range.

Height adjustment when harvesting with the Crophawk

To adjust the height of the typhoon or the timing of the finger for optimal crop conditions, please follow these steps. Note that due to limited space on the Crophawk, the Twister cannot be used, so you'll likely need access to the back of the front without the header connected.

1. Ensure it is safe to work on the front.
2. Loosen the two M16 bolts on the mounting bracket (A, Figures 14 & 15) on both sides.
3. Place levers (wood planks) under the Typhoon drum.
4. Remove the height adjustment bolts (B, Figures 14 & 15) on both sides.
5. Adjust the height using the levers. Once the desired height is achieved, reinstall the height adjustment bolts removed in step 4 (B, Figures 14 & 15), and tighten the M16 bolts loosened in step 2 (A, Figures 14 & 15).
6. Verify that the timing is still correct, as adjusting the height may affect it. Keep in mind that there is a limited usable timing range at different heights due to potential contact between the fingers and the draper.

How to change Finger Timing.

The timing adjustment is the same on the Durus and the Crophawk front.

1. Ensure it is safe to work on the front.
2. Loosen the three bolts attached to the timing plate (D, Figure 15).
3. Adjust the timing plate to the desired setting by turning the timing crankshaft (E, Figure 15), then tighten the three bolts from step 2(D, Figure 15). Note that there is a limited usable timing range at different heights due to potential contact between the fingers and the draper. Refer to the table below for the usable range.
4. Verify that finger clearances are at least 15mm from the drapers.

Figure 14: Durus, Typhoon from drapers side

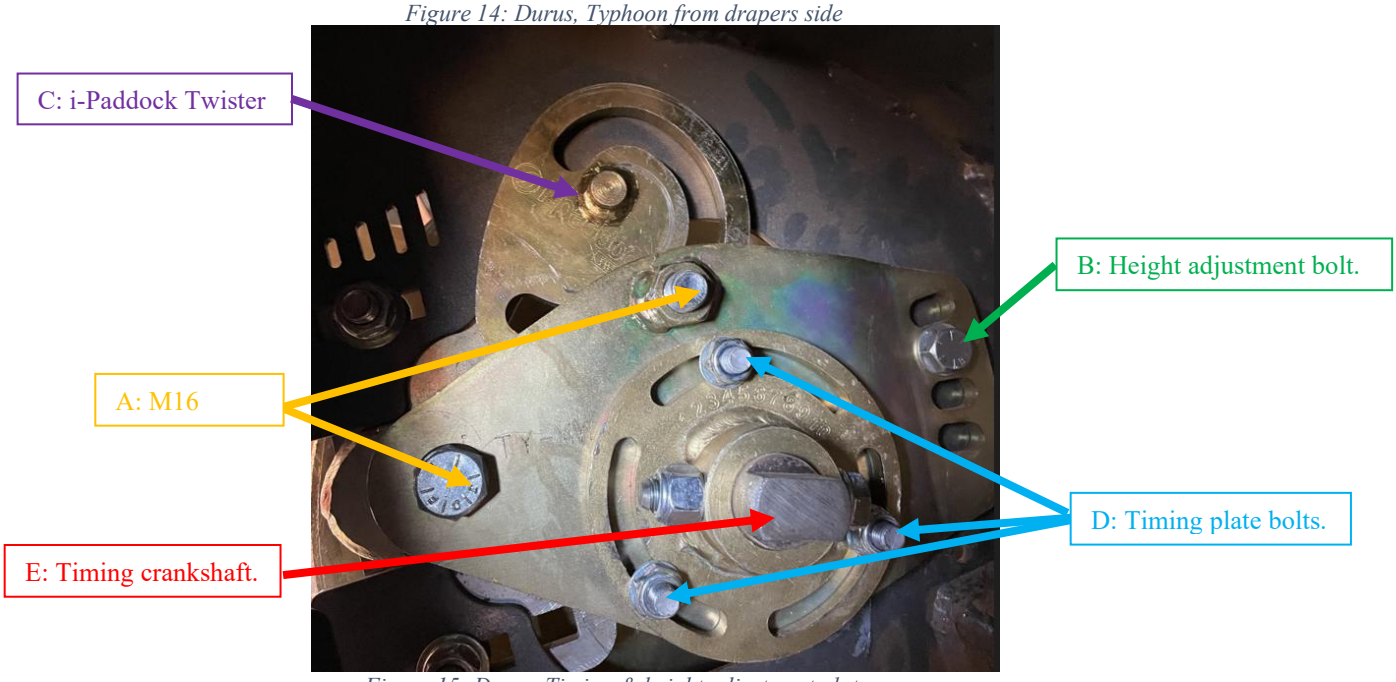


Figure 15: Durus, Timing & height adjustment plates.

IMPORTANT (RISK OF FIRE OR DAMAGE): Ensure that all moving parts have adequate clearance during rotation to prevent any contact. Manually rotate the drum before starting up to confirm there are no points of seizure or interference. Connect the front to the harvester and check for any clash points between the Typhoon flights and the feeder house chain, allowing for potential wear in the chain and movement of the adapter.

It's advisable to run the i-paddock Typhoon at full operating speed for 2-5 minutes, then check the temperatures of the fingers for any hotspots, either by hand or with a temperature gun.