**Navigation through Weighting and Ballasting Tool Using HELP**

**NOTE:** To gain a better understanding on the program procedure, please see the tutorial instructions to ballast a Case IH tractor using the Weighting and Ballasting Calculator.

**Explanation on Ballasted Results:**

Once you have selected all of the criteria and specifications for the tractor being ballasted, the results will be displayed on the screen.

The first box at the top of the results page (Gray) called “Target” will display the desired or the best results for the tractor and the application. The gray box shows:

The targeted ratio for the application selected represents the correct ratio that the tractor should be weighted at, based on the application selected.

Based on the targeted field travel speed for a 2WD / MFD tractor, the calculation will be based on the pounds per PTO HP that the PTO HP should be able to pull. For a 4WD tractor, the calculation will be based on the pounds per Engine HP that each engine HP should be able to pull.

The desired weight of the tractor – represents the front, rear and total the tractor should weigh based on the ratio and field speed required for the application.

The second box at the top of the results page will be colored (Green, Yellow or Red) called “Recommended Results” and will display the recommended results based on the actual specifications, targeted ratio and targeted field travel speed selected for the application to be performed.

The targeted ratio for the application selected represents the correct ratio the tractor should be weighted at, based on the application selected.

Based on the targeted field travel speed for a 2WD / MFD tractor, the calculation will be based on the pounds per PTO HP that the PTO HP should be able to pull. For a 4WD tractor, the calculation will be based on the pounds per Engine HP that each engine HP should be able to pull.

The actual weight of the tractor – represents the front, rear and total the tractor weighs based on the ratio and field speed required for the application.

**Top Toolbar:**

Across the top you will find a tool bar that has the following topics:

 Region – means the region of the globe – which will default to North America

Language – means the language that is preferred to view the program in – the default will be English

Unit of Measurement – Standard – US standard (pounds/lbs., Miles per hour/MPH) or Metric – (kilograms/kg., kilometer per hour/km/hr)

Tutorial – The Instructions or the “How to” in ballasting a Case IH tractor using the Weighting and Ballasting Calculator

Legal – the legal statement is the software copyrighted work of CNH INDUSTRIAL and Case IH pertaining to the Weighting and Ballasting Calculator

**Getting Started:**

To get started, click on the “Get Started” button. As you select the specifications of your tractor, the information will show to the left side of the screen, then click on “NEXT”.

As you begin to use the weighting and ballasting tool, you will be selecting all available or required tractor information to begin the automatic ballasting process.

1. As you select your tractor specifications (required or optional), they will appear to the left side of the program.
2. Should you want to make a change to a selection or specification, click on the topic on the left hand side of the screen and make the new selection, which will then appear on the left hand side of the screen.
3. **NOTE:** When you change a selection or specification, the information following that change will be deleted, meaning the remaining items will have to be re-selected.
4. **REMEMBER:** Always consult the proper tractor Operator Manual on any questions or limitations which may apply.
5. This Weighting and Ballasting calculator is not intended to go against the Operator’s Manual or any limitations or restrictions set by CNH INDUSTRIAL / Case IH.

**Selecting the tractor, specifications, options, application and tires:**

Family – A group of tractor models of similar type. When a family is selected from the drop down selection menu, it will display the available tractor family names of Case IH tractors available in the program.

Tier – In order to select the correct model to be ballasted, you must select either Tier 4A or Tier 4B referring into the Environment Protection Agency (EPA).

Model – A particular tractor in a family selection. The model drop down selection menu will display the available models per the selected family and Tier level that are available in the program.

**NOTE:** For non-current models, please refer to the weighting and ballasting links provided on the home page or contact your local Case IH dealer.

**Selecting Options:**

**Transmission** – Each family of tractor models may have transmission options. The drop down menu will display the available selections for the model of tractor you selected.

* 25 MPH Full Powershift Transmission (FPS)
* 30 MPH Full Powershift Transmission (FPS)
* Full Powershift Transmission (FPS)
* 25 MPH Continuously Variable Transmission (CVT)
* 30 MPH Continuously Variable Transmission (CVT)

The 25 MPH Full Powershift Transmission will be the default transmission, if it is available for the selected model being ballasted.

**NOTE:** When selecting the 30 MPH FPS or CVT transmission, you must select the proper front suspended axle option for the tractor being weighted and ballasted.

**Front Axle** – Each family of tractor models have selected front axles available.

* **MFD Class 4.0 –** 12 bolt hub with adjustable space settings of 66-88 inches, not front dual compatible, up to 10,000 lbs. weight carrying capacity over 10 mph.
* **MFD Class 4.5 –** 12 bolt hub with adjustable space settings of 66-88 inches, not front dual compatible, up to 10,000 lbs. weight carrying capacity over 10 mph.
* **MFD Class 4.75 –** 12 bolt hubs with adjustable space setting of 66-88 inches, front dual capable, up to 14,300 lbs. weight carrying capacity over 10 mph, capable of 120 inch tread spacing and greater with limited front ballast.
* **MFD Suspended Class 4.75 –** 12 bolt hub with adjustable space settings of 66-88 inches, front dual capable, up to 14,300 lbs. weight carrying capacity over 10 mph, capable of 120 inch tread spacing and greater with limited front ballast and tire selection.
* **MFD Class 5.0 –** 12 bolt hubs with adjustable space settings of 66-88 inches, front dual capable, up to 17,000 lbs. weight carrying capacity over 10 mph, capable of 120 inch tread spacing and greater with limited front ballast and tire selection.
* **MFD Suspended Class 5.0 –** 12 bolt hubs with adjustable space settings of 66-88 inches, front dual capable, up to 17,000 lbs. weight carrying capacity over 10 mph, capable of 120 inch tread spacing and greater with limited front ballast and tire selection.

**Rear Axle** – Each family of tractor models have a selected rear axle lengths and axle diameter available. The diameter and length of the axle (flange or bar) will vary by family and the models within the family. The rear axle selected will determine if duals or triples can be added to the tractor.

**Rear 3-point hitch** – Each family of tractor models have 3-point hitch option(s) available. The options include – NO rear 3-point hitch or a 3-point hitch. The 3-point hitch primary function is for the hook-up of full 3-point mounted or semi-mounted implements.

**Front 3-point hitch** – The front 3-point hitch option is available on some of the MFD tractor models within certain families. The selections available include – NO front 3-point hitch, front 3-point hitch or front 3-point and PTO. The proper selection is important as the hitch selection will have an effect on the leverage weight and transfer weight of the tractor.

**Drawbar** – Each family of tractor models have a drawbar on them. The selection of the drawbar that is standard on the unit will be automatically selected. Some family models may have an optional drawbar selection available.

**Selecting of Rear Tires:**

Based on the selected family, model and / or options available for the tractor, the proper list of rear tires will be listed in the drop down menu for selection.

**NOTE: When you choose a rear tire selection, make sure that the load capacity is within the tire manufacturer set recommendations.**

Duals or triples are available in certain tires sizes, the drop down menu will allow for selecting the proper configuration.

When duals or triples are selected or available for the tires size, a drop down menu will allow for selecting the required spacers for the row spacing desired.

Steel wheels will be the default wheels unless within the family models cast wheels will be an option. The selection of the steel wheel or cast wheels will be used in determining the appropriate weighting and ballasting requirements for the selected tractor.

**Selecting front tires:**

Based on the selected rear tires, family, model and / or options available, the front tires available will be listed in the drop down menu for selection.

NOTE: If applicable, front duals are available for the family models to select, but must be applicable to the proper front MFD axle. The Class 4 and 4.5 front axles CANNOT have duals mounted.

When front duals are selected the required front spacers will be available and listed in the drop down menu. The 16 inch front spacer will be the default for Magnum tractors.

**My tires are not found or listed:**

If the tire size you use on your tractor is not found or listed, select a size that closely matches the tires you prefer. Tire availability in this program is based upon manufacturing and engineering specifications and tire offerings from Case IH and tire manufacturers.

**Application:**

**Application** – Refers to how the implement is attached to the tractor and the effects of attaching the implement on the tractor.

Select the type of application you intend to apply. Choices are:

**Drawbar** – Drawn implements attached to the drawbar at the rear of the tractor

**3-point Hitch** – Implements which are attached to the 3-point hitch of the tractor. The calculator will prompt you to enter the leveraged application weight of the implement (if known) that you intend to use on the 3-point hitch when the implement is in the raised position on the tractor.

**High Vertical Load** – Drawn implement, is an implement which exerts a high down force on the drawbar and on the rear axle and tires of the tractor. The calculator will prompt you to enter the approximate weight of the implement to be pulled by the tractor. The application weight drop box will appear with the following selections:

No weight added –

Light Application –

Medium Application –

Heavy Application –

Custom Application weight –

**Field Speed:**

**Field Speed** – Is the work travel speed in the field which is usually expressed in miles per hour (MPH) or kilometers per hour (KPH). The selection chosen will dictate the ballasted weight for the specific tractor based on the application to perform the requested task.

Select the intended travel speed you desire to travel at to maintain the maximum tractor and implement performance and productivity.

**NOTE:** Any of the specifications, application and field speed can be changed by clicking on the area you want to change, but remember that the selections below the item changed have to be re-selected.

**The “RECOMMENDED AND CUSTOM” Worksheet:**

On the left hand side of the screen you will see all of the selections you have chosen to properly weight and ballast your tractor.

**Ballasted Results:**

The first box at the top of the result page (Gray) called “Target” will display the desired or the best results for the tractor and the application. The gray box shows:

The targeted ratio for the application selected represents the correct ratio that tractor should be weighted at, based on the application selected.

Based on the targeted field travel speed for a 2WD / MFD tractor, the calculation will based on the pounds per PTO HP that the PTO HP should be able to pull. For a 4 wheel drive tractor, the calculation will be based on the pounds per Engine HP that each engine HP should be able to pull.

The desired weight of the tractor – represents the front, rear and total the tractor should weigh based on the ratio and field speed required for the application.

The second box at the top of the results page will be colored (Green, Yellow or Red) called “Recommended Results” and will display the recommended results based on the actual specifications, targeted ratio and targeted field travel speed selected for the application to be performed.

The targeted ratio for the application selected represents the correct ratio the tractor should be weighted at, based on the application selected.

Based on the targeted field travel speed for a 2WD / MFD tractor, the calculation will be based on the pounds per PTO HP that the PTO HP should be able to pull. For a 4WD tractor, the calculation will be based on the pounds per Engine HP that each engine HP should be able to pull.

The actual weight of the tractor – represents the front, rear and total the tractor weighs based on the ratio and field speed required for the application.

The colored box display represents one of the following explanations:

* Green – means the ballasting of the tractor was successful
* Yellow – is a caution which indicates the tractor is within the 2% range of the ratio or the weight distribution ratio.
* Red – is an indication that a change may be required to the tractor specifications, application or field speed.

The colored box will coincide with the message symbols displayed below the colored box display.

**Recommendations if the tractor cannot be ballasted based on the criteria selection:**

If the tractor cannot be ballasted per the desired criteria, a message will be shown to direct you to possible options.

Green check mark **“✓”** means successful,

The Yellow Caution symbol **“!”** means you are within the 2% range of the ratio or the weight distribution ratio.

The Red **“X”** means that a change may have to be made to the tractor specifications, application or field speed.

**Unballasted Setup, Recommended Ballast Weight and Tire Pressure:**

**The Unballasted Setup –** this will show the tractor weight and the weight of the tires selected for the tractor which will include the duals for front and rear, and triple tires if they were selected. The total of the tractor weight and the tires will equal the total unballasted weight.

**The Recommended Ballast Weight –** will show what weight was added to the tractor in the front and / or in the rear. There are times when there will be no recommendations as the tractor is already at the recommended balanced ratio for the application or it cannot be ballasted based on the criteria selection.

**Tire Pressure –** for the front and rear and the individual tire load – the tire pressure (PSI) shown is the recommended tire pressures for the application, load and speed of travel. There will be a field operating tire pressure recommended and a transport tire pressure recommended for the front and the rear tires. The tire pressure (PSI) is the pressures set and recommended by the appropriate tire manufacturer. For more information, consult the proper tire manufacturer load and inflation tables.

**NOTE ABOUT FIELD AND TRANSPORT TIRE PRESSURE:** At times, the field tire pressure and the transport tire pressure will be different. The field tire pressure shown will be the recommended for the application traveling at field speed to help minimizes soil compaction and maximize the tractor and implement performance and productivity. The transport tire pressure will usually be at a higher PSI level to protect the tire from excessive wear, tire breaking the “bead”, damage to the rim and damage possibly to the tractor transmission when traveling at road speed. It is highly recommended that the transport PSI pressures be adhered to.

**Individual Tire Load –** this represents the amount of weight each tire on the tractor will be carrying based on the number of front tires single or duals and for the rear of the tractor the same, single, dual or tripled tires. The minimum and the maximum weight each tire can carry, is based on the tire manufacturer load and inflation tables.

**Tractors with Power Hop –**

Should a tractor go into power hop, there are certain procedures that can be done to eliminate the hop.

**MFD Tractors –**

First, check the air pressure of the tires making sure that the PSI recommendations for the tire and the load being carried are correct. When power hop occurs, be sure that the rear tire pressure remains at the correct pressure for the load being carried. When the tractor power hops, increase the air pressure in the front tires by 8 PSI, then by two PSI increments until the hop subsides, but not to exceed 6 PSI above maximum rated pressure for the tire. If that does not work, the ballast on the front of the tractor is too much, therefore weight must be removed and tire pressures adjusted.

**NOTE:** When the tire pressure is too high or exceeds the maximum pressure recommended, the tractor will have excessive slip, the tire tread is not making the proper contact to the ground, the tractor is prone to power hop and the tires will have extreme wear.

**NOTE:** For more information, refer to the tire manufacturer tire handbook and to the proper tractor Operator’s Manual for restrictions and limitations that may apply.

**4WD Tractors –**

First, check the air pressure of the tires making sure that the PSI recommendations for the tire and the load being carried are correct. When power hop occurs, start with raising the rear inflation pressure by 8 PSI and then by 2 PSI until the hop subsides, but not to exceed 6 PSI above maximum rated pressure for the tire. If that does not work then set the rear tires back to the correct tire pressure for the load and follow the same procedure with the front tires. The one thing to remember is that one of the axles must remain at the correct pressure for the load. Should it be that the changing of the tires pressures does not work, the ballast the tractor is carrying is either too much, which means weight must be removed and the tire pressures adjusted.

**NOTE:** When the tire pressure is too high or exceeds the maximum pressure recommended, the tractor will have excessive slip, the tire tread is not making the proper contact to the ground, the tractor is prone to power hop and the tires will have extreme wear.

**NOTE:** For more information, refer to the tire manufacturer tire handbook and to the proper tractor Operator’s Manual for restrictions and limitations that may apply.

**At the top you will find a “Custom” area to customize the tractor to the application selected.**

The custom worksheet will allow you to re-ballast your tractor by adding weight in the custom ballast weight area.

Add weight to the front of the tractor – click on the weight frame to manually add the weight frame to the tractor. In the weight segment box select the number of fronts weights desired to add to the weight frame. The program will automatically add the appropriate weight value for the segments and the weight frame to the front, rear and total tractor weight.

Add weight to the rear of the tractor – click on the rear weight segment desired to be added to the rear of the tractor. The program will automatically add the appropriate weight value for the segments the front, rear and total tractor weight.

This will give you the ability to compare the recommended ballast to the new weight ballast you have selected in the custom worksheet.

**NOTE:** The intent of this worksheet is to allow the user to manually input weight as desired and compare the results of the worksheet to the Case IH recommended results. The Custom worksheet results are not to be construed as a CNH INDUSTRIAL or Case IH recommendation. Use of the custom worksheet to weight and ballast a tractor is the sole responsibility of the person(s) using the worksheet.

Remember to always consult your proper tractor Operator Manual on any questions or limitations which may apply. This Weighting and Ballasting calculator is not intended to go against the Operator's Manual or any limitations or restrictions set by CNH INDUSTRIAL or Case IH.

**Print:**

At the top right-hand corner of the worksheet, you will find a PRINT button to print out the Ballasting results from the Recommended or the Custom worksheet screen.