Information and Basic Field Settings for TUCANO *2017*

Contents

Introduction

This quick reference guide has been produced to aid operators with familiarisation and settings of CLAAS TUCANO combine harvesters.

CLAAS combines are designed for output and efficiency but this can only be achieved with correct operation and maintenance of the machine.

This guide is not designed to replace the Operators Manual but merely as a reference document. More in depth information is available in the Operators Manual.

ALWAYS READ THE OPERATORS MANUAL BEFORE OPERATING YOUR COMBINE.

Down time costs output

To get the most from the machine, the wheels must be turning. In order to keep downtime to a minimum, it's vital that routine maintenance is not neglected. As well as servicing the machine according to the operator's manual, a good check of the machine is essential.

It is false economy to put off the replacement of worn parts until they break. For example, a cracked knife section will take 5 minutes to change before starting work, but usually a minimum of 10 minutes output will be lost, once work has begun.

Abbreviations

Throughout this guide the following abbreviations are used:

'LHS' and 'RHS' refer to the Left Hand Side and Right Hand Side of the machine respectively, taken from the rear of the machine facing in the direction of travel

APS – Accelerated Pre-Separation, refers to the accelerator drum in front of the main drum

Safety

Safety is of the utmost importance whilst you are operating and maintaining your combine harvester. Make sure that all of the risks are assessed to reduce the likelihood of an accident.

Make sure you are familiar with the controls and operation of the machine and have read the operators manual

The combine harvester has many moving parts, guards are designed to keep you safe, please ensure that all guards are kept in place and in good condition when operating the machine.

When doing any maintenance work or making adjustments outside of the machine make sure that the engine is switched off and the battery isolator key is removed.

If you need to go underneath the front elevator/ cutterbar to make adjustments/ clean concaves, preparation pan, etc. Make sure that the cutterbar lift cylinder lock is in place.

Some of the maintenance has to be carried out at height, please assess the risks that this poses and ensure that the task is carried out safely.

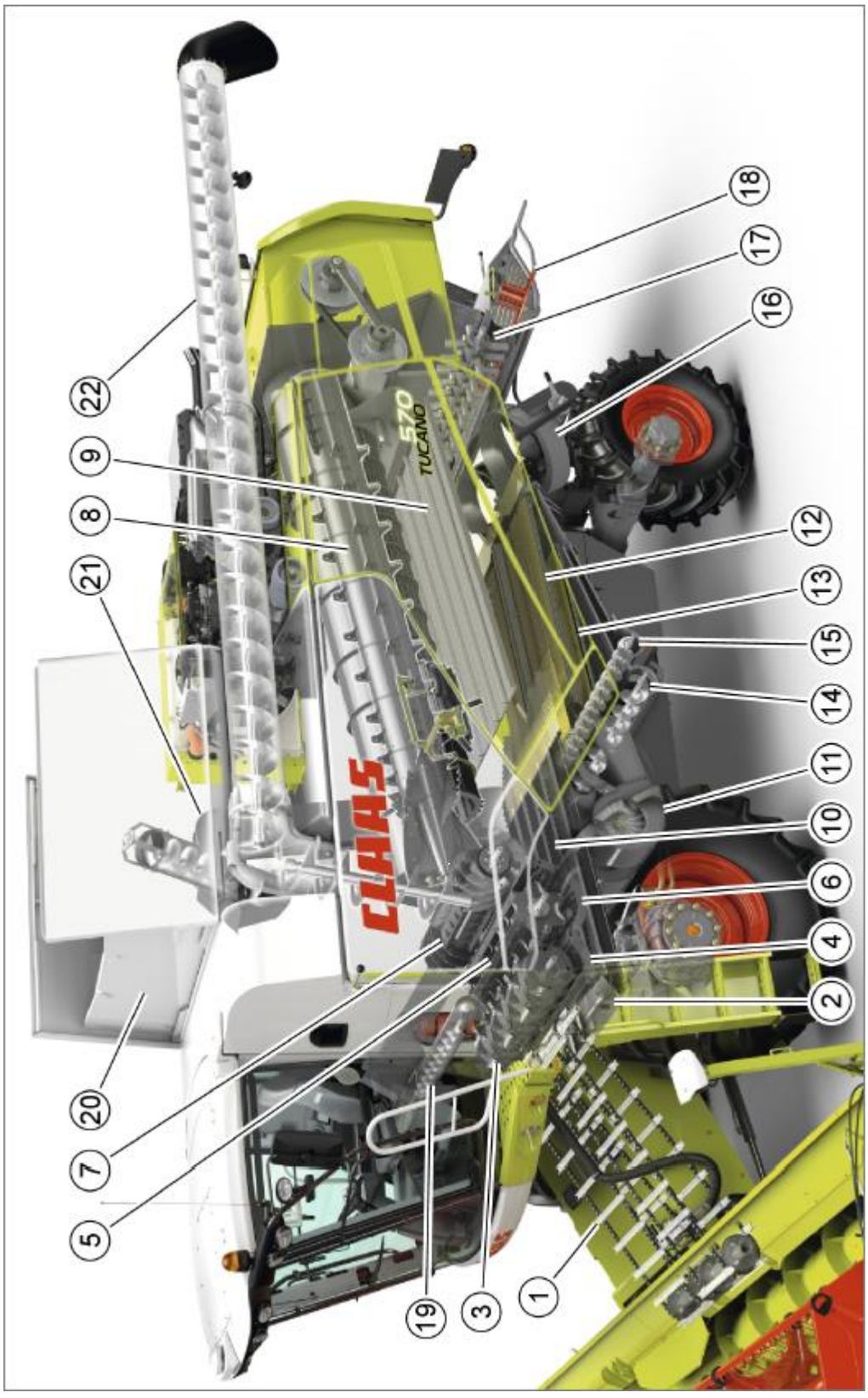
When operating the machine be aware of the presence of people particularly in farmyards, always get someone to help you when reversing in confined areas.

Be aware of the size of your machine, particularly the height, you may be at risk from contact with overhead power lines and overhead obstructions particularly but not exclusively when the grain tank lids are up and if extra aerials have been fitted to your machine.

For more in depth safety information please consult your operators manual. Other information is available on the HSE website: www.hse.gov.uk

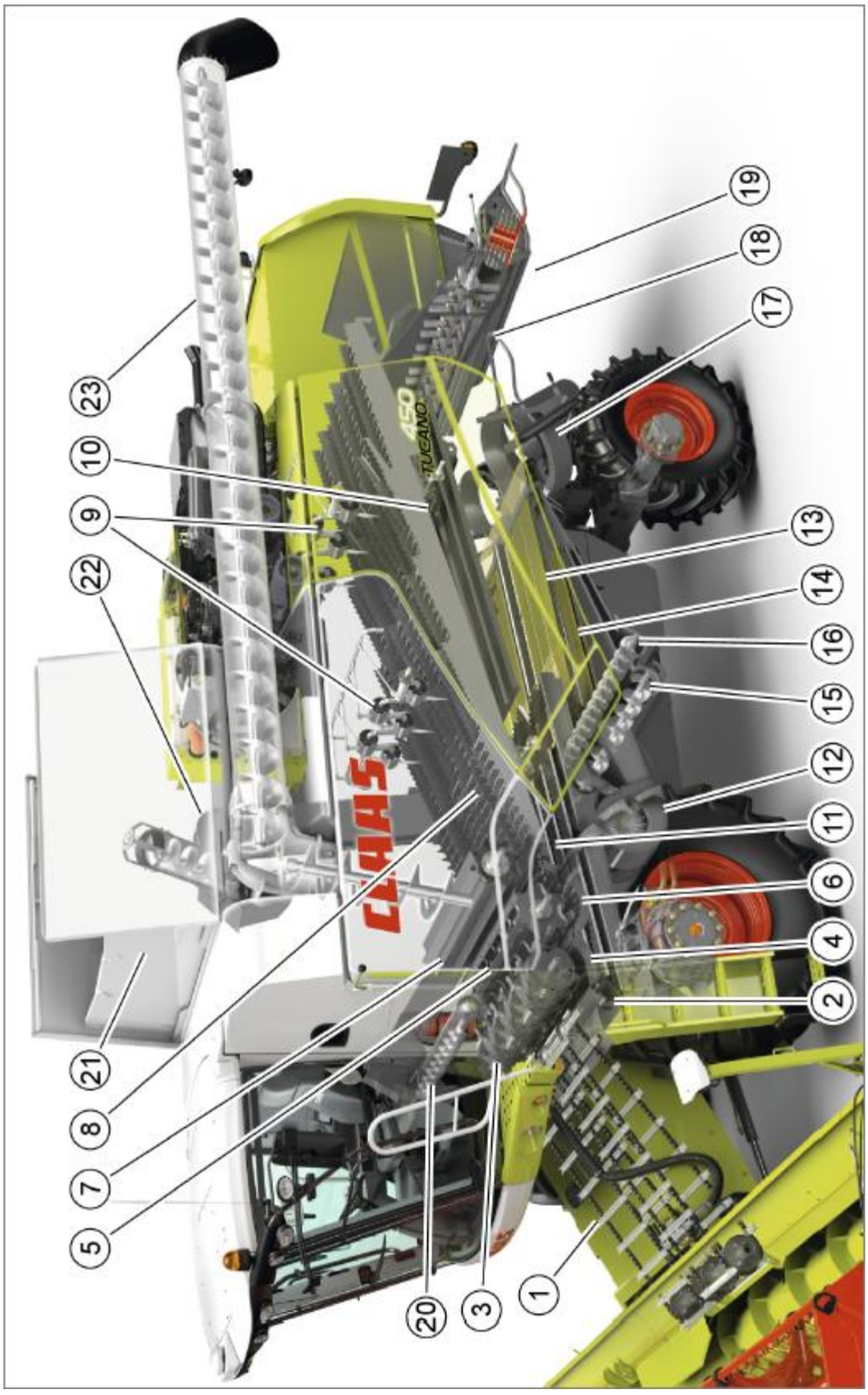
Always read the Operators Manual before using any new machine.

Overview Hybrid



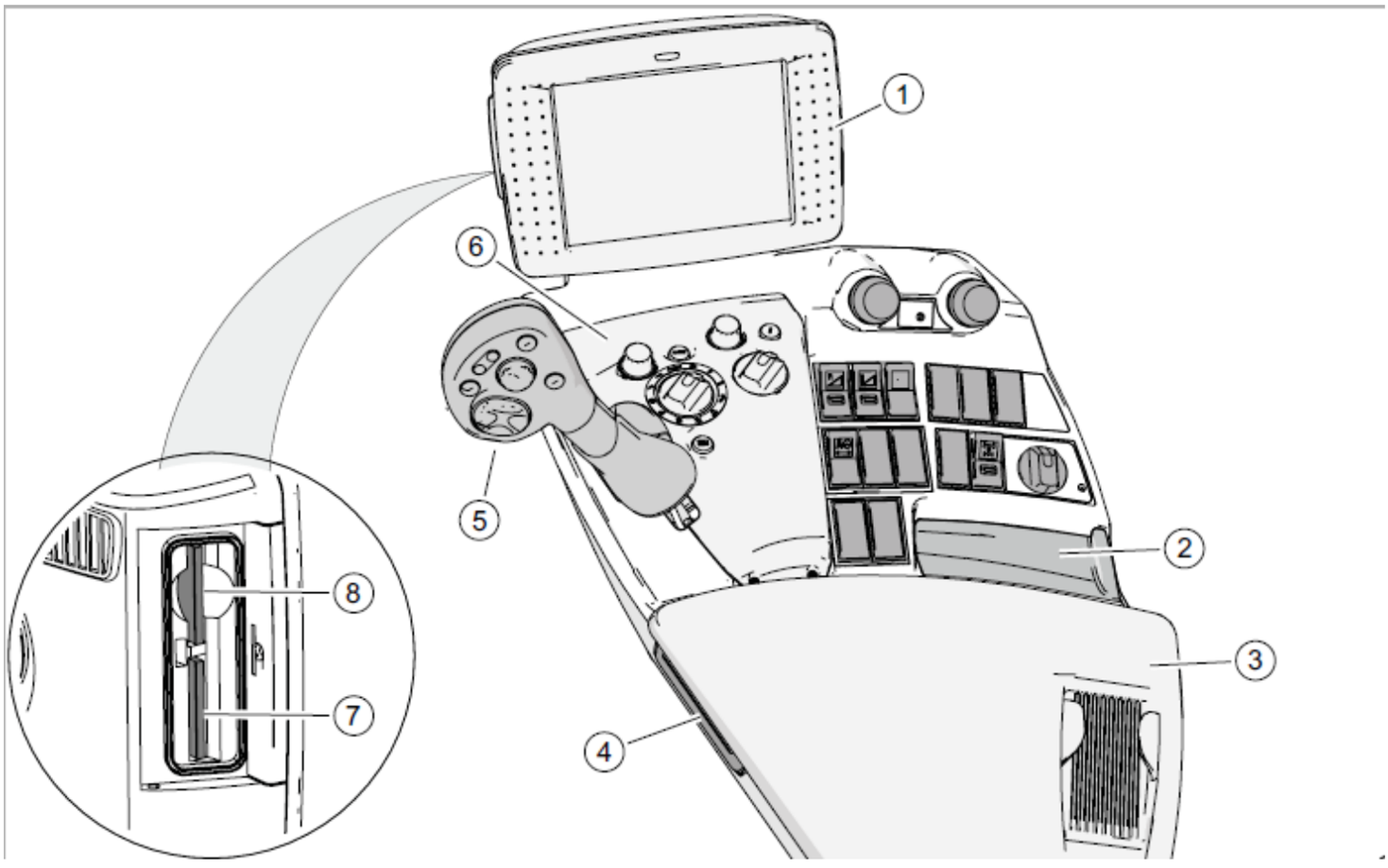
1. Feeder Chains
2. Stone Trap
3. Accelerator
4. Preconcave
5. Threshing Drum
6. Main Concave
7. Impeler
8. Rotor Puss system
9. Return Pan
10. Preparation Floor
11. Fan
12. Upper Sieve
13. Lower Sieve
14. Grain Auger
15. Returns Auger
16. Chaff Spreader
17. Straw Chopper
18. Deflector
19. Returns Elevator
20. Grain Elevator
21. Grain Tank
22. Unloading Auger

Overview Walker



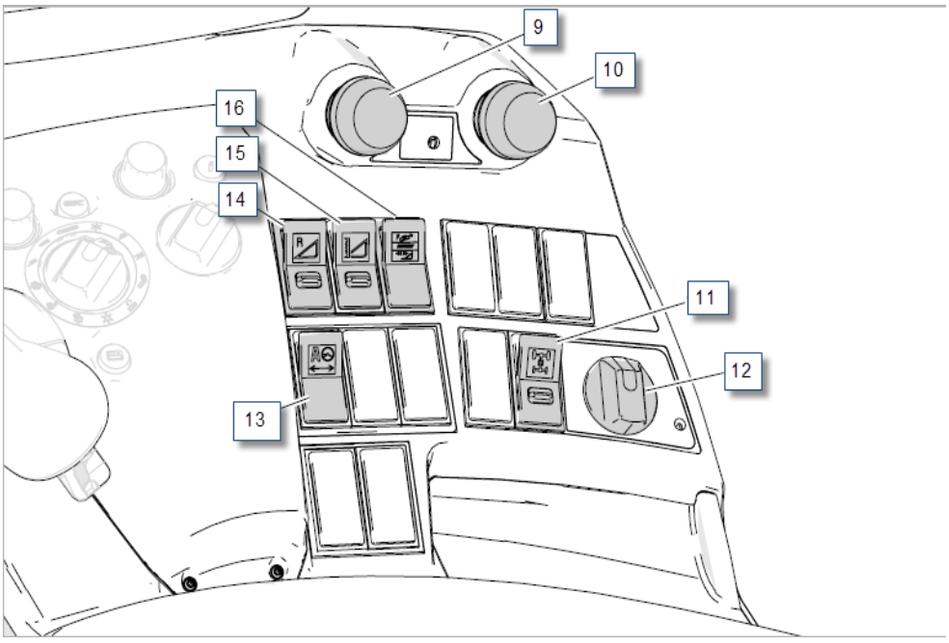
1. Feeder chains
2. Stone trap
3. Accelerator
4. Pre-concave
5. Threshing drum
6. Main concave
7. Impeller
8. Straw walkers
9. Intensive separation system
10. Return pan
11. Preparation floor
12. Fan
13. Upper sieve
14. Lower sieve
15. Grain auger
16. Returns auger
17. Chaff spreader
18. Straw chopper
19. Deflectors
20. Returns elevator
21. Grain elevator
22. Grain tank
23. Unloading Tube

Right Hand Consoles



1. CEBIS information screen
2. Storage box
3. Folding armrest
4. Ashtray
5. Groundspeed lever with multifunction handle
6. CEBIS control panel
7. Module slot for CF memory card
8. Module slot for CF memory card

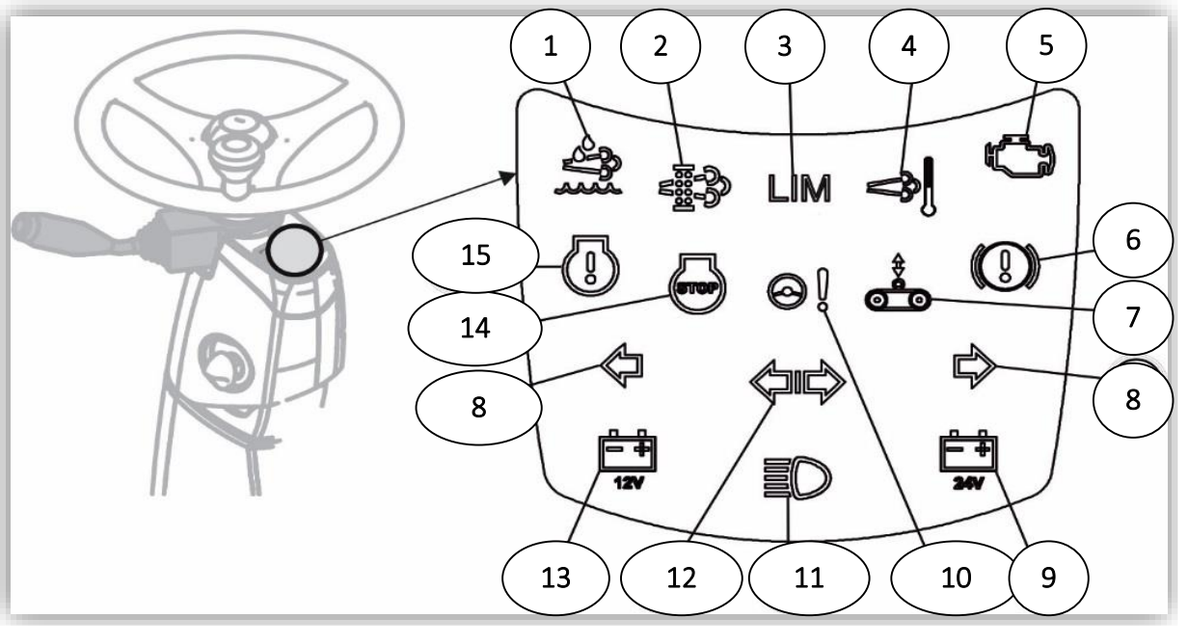
Right Hand and roof Consoles



9. Front attachment switch
10. Threshing mechanism switch
11. CLAAS 4-TRAC system switch
12. Diesel engine speed switch
13. LASER PILOT left/right switch
14. Reverse front attachment switch
15. Left rape cutter drive switch
16. Left side knife drive switch
17. Fold front attachment switch (if fitted)

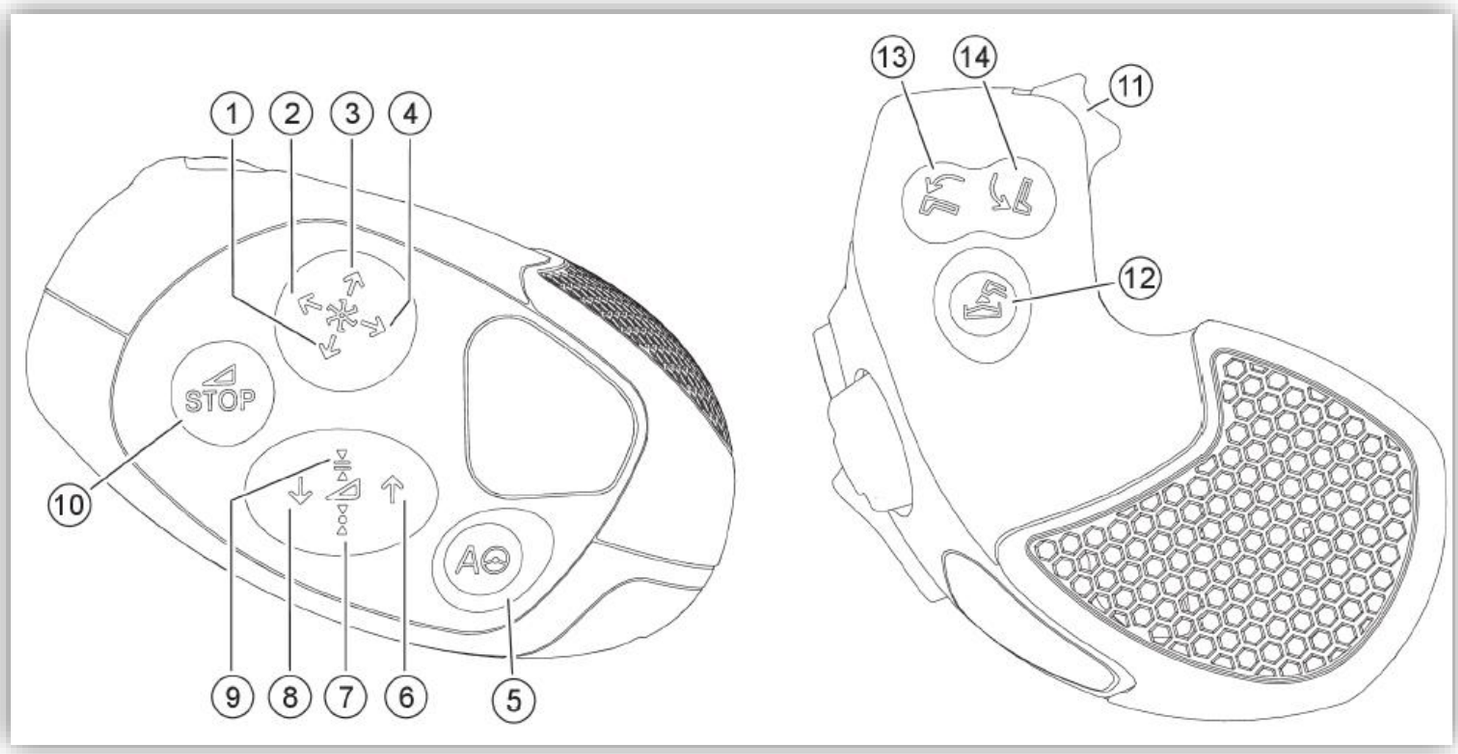
1. Hazard warning light
2. Road travel safety switch
3. Fold maize picker if fitted
4. Tyre pressure control system
5. Lighting panel
6. Air conditioner

Steering column



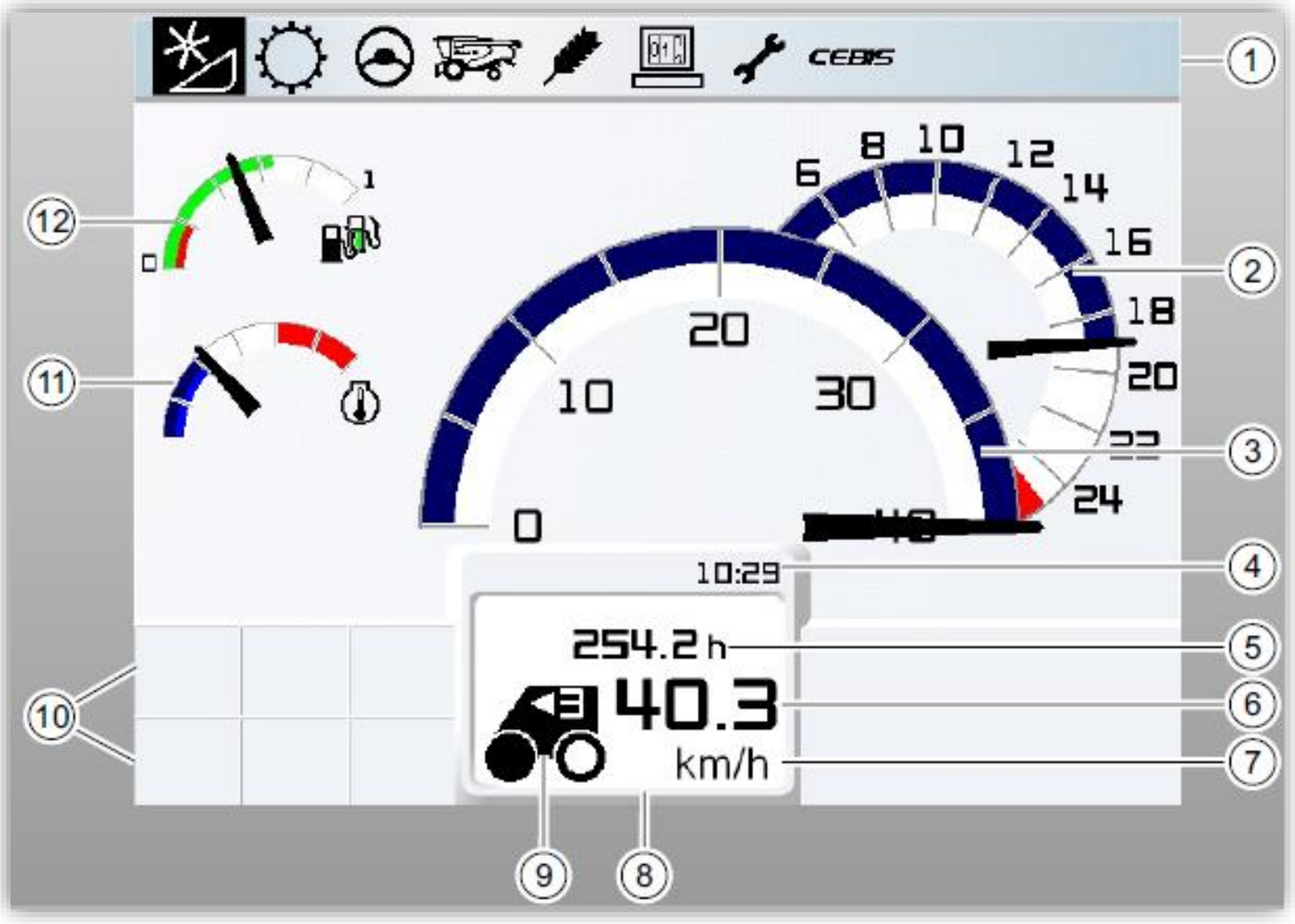
1. Urea minimum level
2. Diesel particulate filter loading condition
3 Power reduction
4 No function
5 No function
6. No function
7. No function
8. Indicator
9. 24 V power supply
10. No function
11. Main beam
12. Hazard warning flasher
13. 12 V power supply
14. Serious engine fault (stop the engine)
15. Engine fault (not used)

C-MOTION Multifunction lever



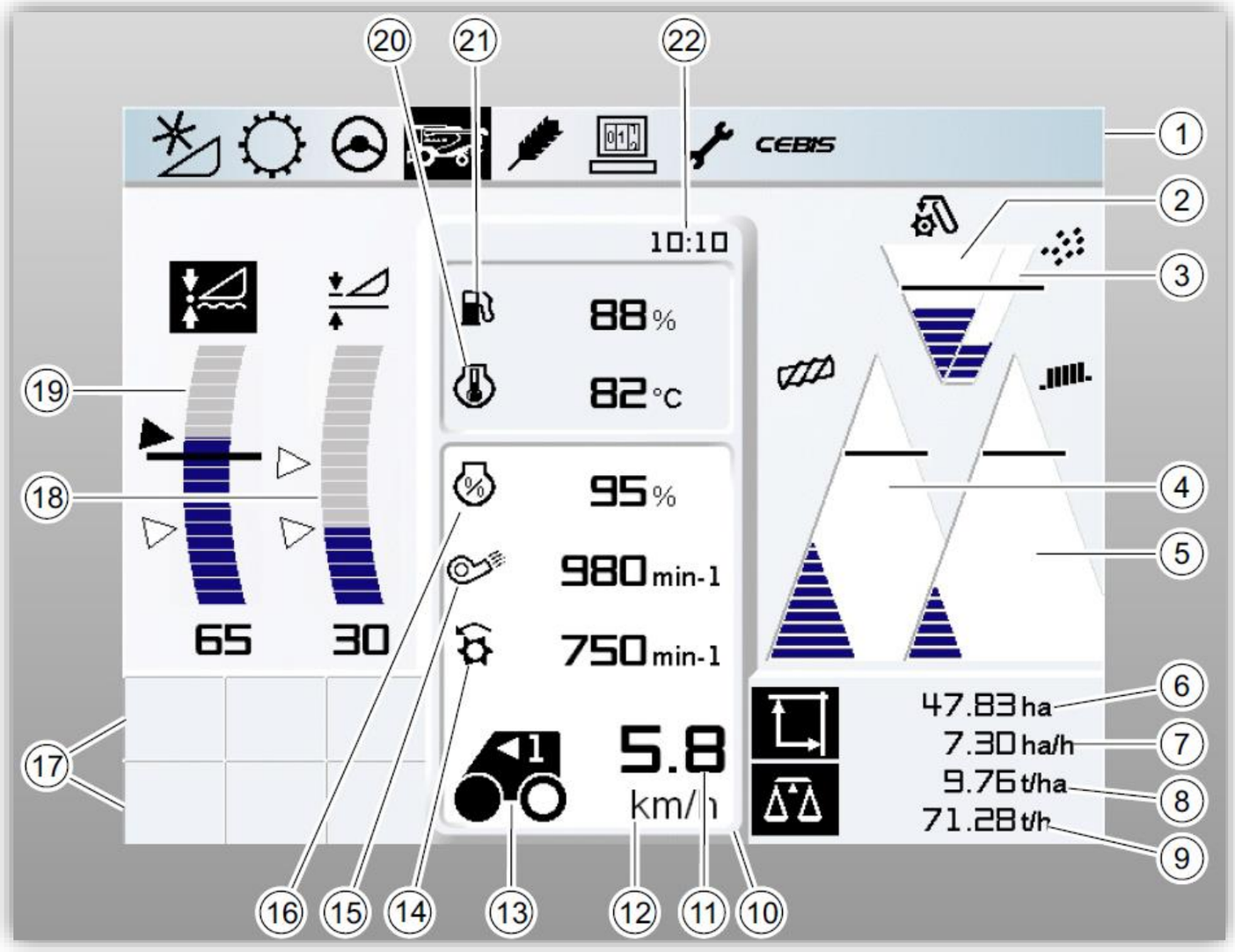
1. Lower reel
2. Reel forward
3. Raise reel
4. Reel Back
5. Auto pilot on
6. Raise front attachment, slow and fast.
7. Cutting height control
8. Lower front attachment, slow and fast
9. Pre-set height
10. Front attachment stop.
11. Manual cross levelling, hot key adjustment, table in and out.
12. Grain tank unloading.
13. Swing out the unloading tube.
14. Swing in the unloading tube.

CEBIS- Road Travel Display



1. Main menu
2. Engine RPM
3. Speedometer
4. Time
5. Operating hours
6. Ground speed
7. Ground speed units
8. Vehicle control display
9. Drive status
10. Message fields
11. Coolant temperature
12. Fuel/ urea level

CEBIS – Harvest display



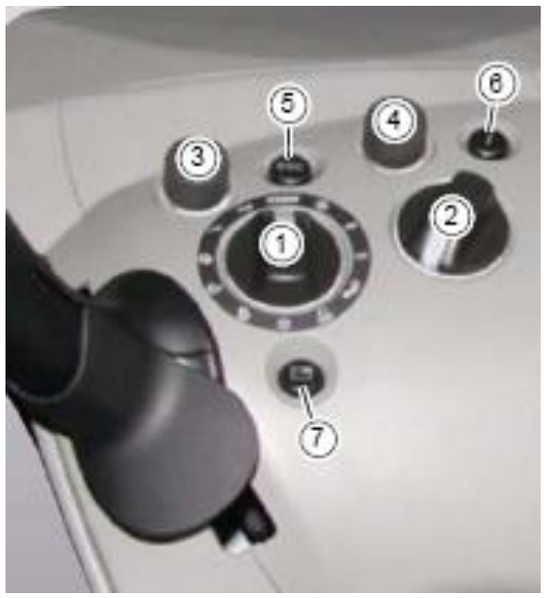
1. Main Menus
2. Returns meter
3. GRAINMETER
4. Separation performance monitor
5. Cleaning performance monitor
6. Area counter
7. Area work rate display
8. Yield display
9. Yield output display

11. Ground speed
13. Drive status
14-16 Variable display
17. Message fields
18. Cutting height control
19. Pre-set cutting height
20/21 Variable display
22. Time

CEBIS Keys

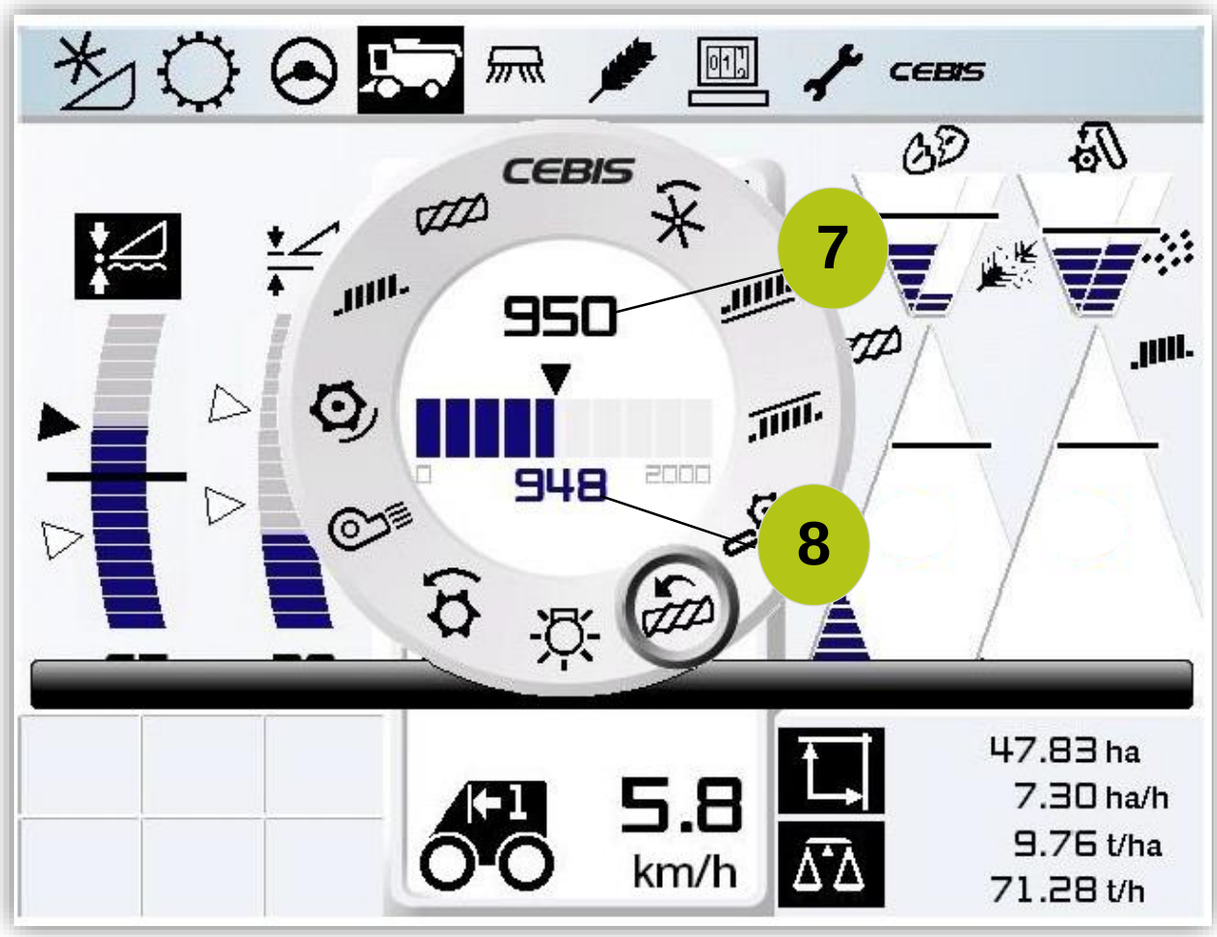
CEBIS

Using the CEBIS rotary switch (1) the combine settings can be adjusted. The picture below shows the operating settings that can be adjusted. To navigate through the settings turn the CEBIS rotary switch (1).



Inside the CEBIS display there are 2 large numbers, the top number (7) shows the desired value and the lower number (8) shows the actual value.

To adjust the value turn switch (3) left or right to increase or decrease, after the required setting is completed turn the CEBIS rotary switch (1) back to the CEBIS icon on the display screen (12 o'clock).

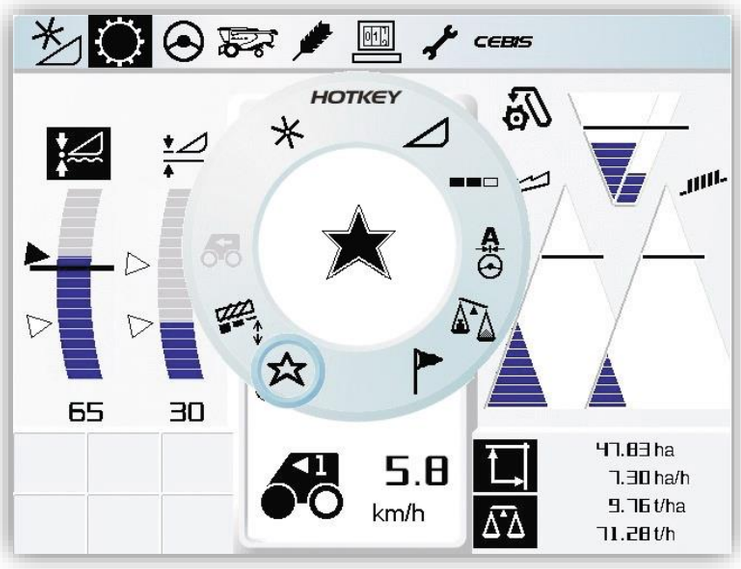


HOTKEY

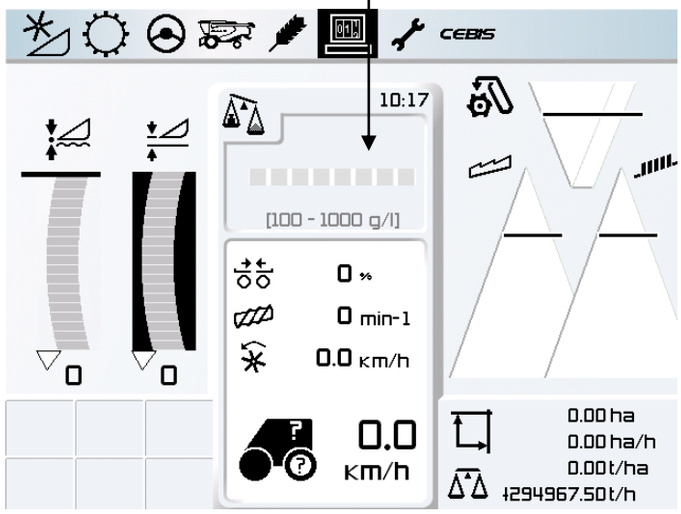
HOTKEY

The HOTKEY (2) is used to adjust the more frequently changing settings on the Combine for example straw chopper or LASER PILOT bias.

To adjust any of the HOTKEY values turn the rotary switch (2) and the HOTKEY dial will appear on CEBIS which is shown in the picture below. Turn the dial to select the required icon to make any adjustments.



After 5 seconds the HOTKEY dial will disappear from CEBIS and the settings will be displayed in the window shown below. To change the HOTKEY setting value turn switch (4) either left or right to either increase or decrease the value.



To remove the adjusted settings from the window turn the HOTKEY switch (2) back to the CEBIS (12 o'clock) position and the previous settings will be displayed.

CEBIS Symbols

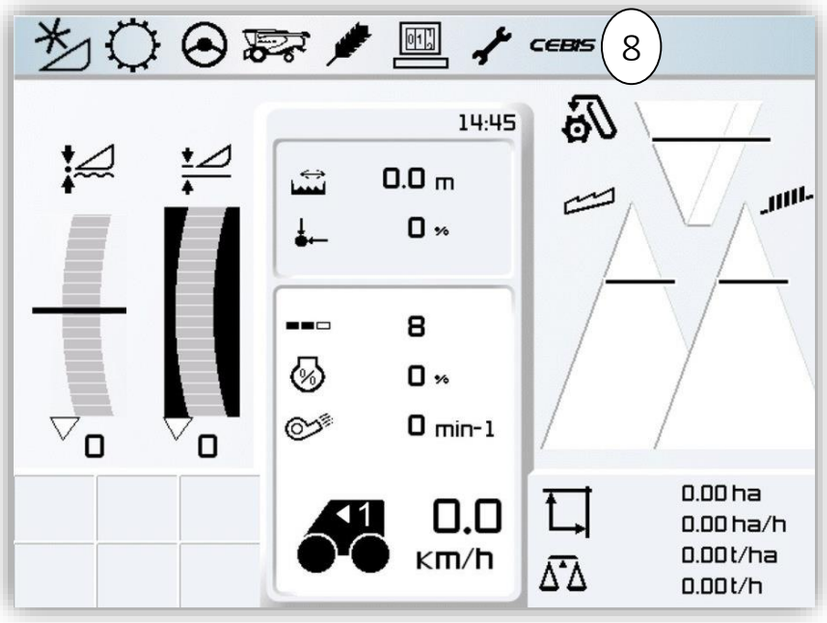
CEBIS	Exits the menu and returns to CEBIS
	Manual reel speed adjustment
	Top sieve adjustment
	Bottom sieve adjustment
	Front attachment speed adjustment (if fitted)
	Rotor speed adjustment
	CEBIS screen brightness adjustment
	Drum speed adjustment
	Fan speed adjustment
	Concave clearance adjustment
	Cleaning performance monitor adjustment (Sieve loss)
	Separation performance monitor adjustments (Walker/rotor loss)

HOTKEY Symbols

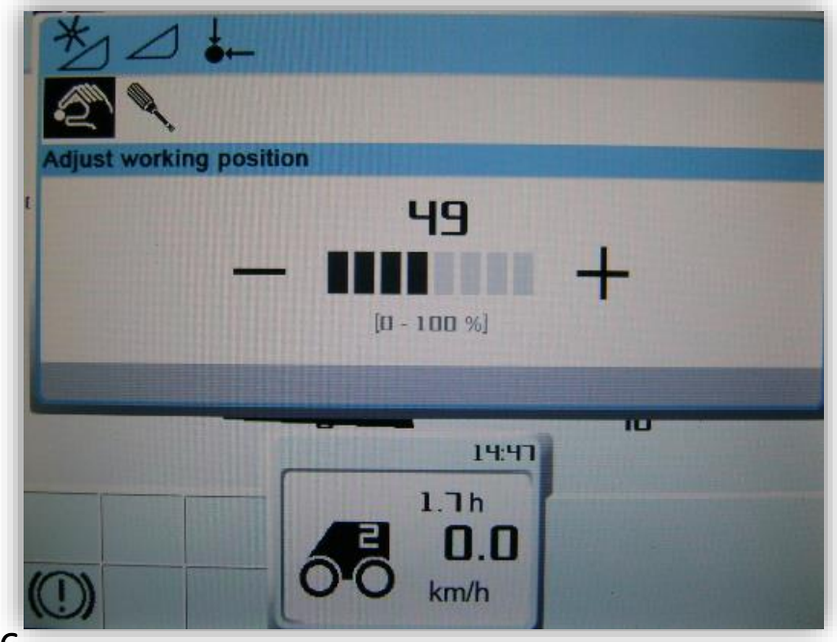
	Cutting height, VARIO length, End snapping plate adjustment
	Partial working width adjustment
	LASER PILOT adjustment
	Hectolitre weight adjustment
	Flagging function for yield mapping
	Favourite crop settings
	Automatic Reel speed, Reel height, Reel fore & aft position

CEBIS Menu Navigation

To navigate through the CEBIS menu turn the switch (3) shown below and the different icons at the top of the CEBIS screen will be highlighted in black (8).



When the desired menu is highlighted push switch (3) to enter it, with any menu turn switch (3) to select the required section and push it to enter it. If a value needs to be changed within a menu push the switch (3) to display the + - signs and turn the switch the correct value and push it again to enter and save the value as shown in the picture below.



To exit any of the menu within CEBIS use the ESC button (5), this will return the screen back to the previous menu.

CEBIS Calibration

To allow the machine to display accurate information certain parameters need to be ‘learnt’ either on a daily or seasonal basis.

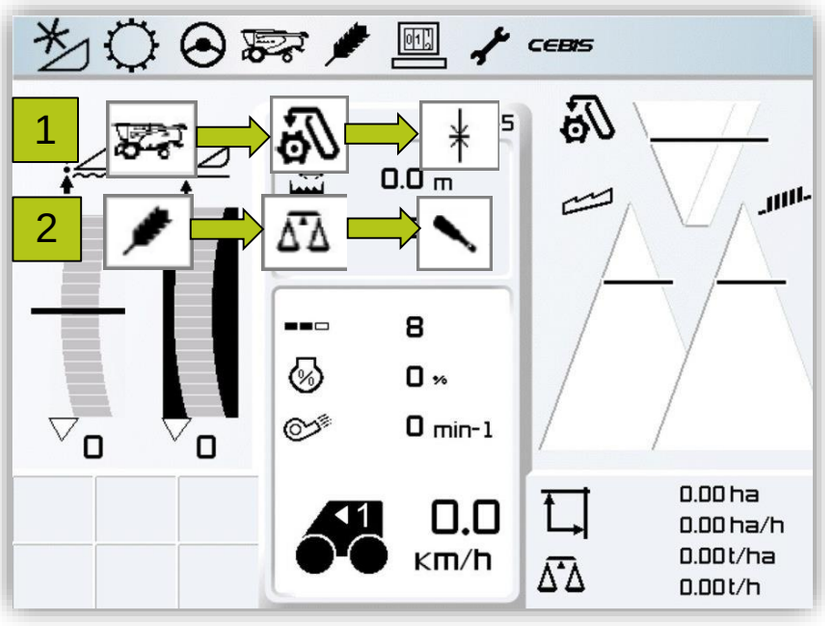
Daily zeroing

This should be carried out with the machine running with threshing engaged at maximum no load speed. The following items should be zeroed on a daily basis.

1.Set ‘Zero returns’

2.Set ‘Zero yield’

The concave end stops are calibrated automatically, once every 24hour’s. When threshing is engaged, the concave will move from 7 – 50mm and back to learn its end stops

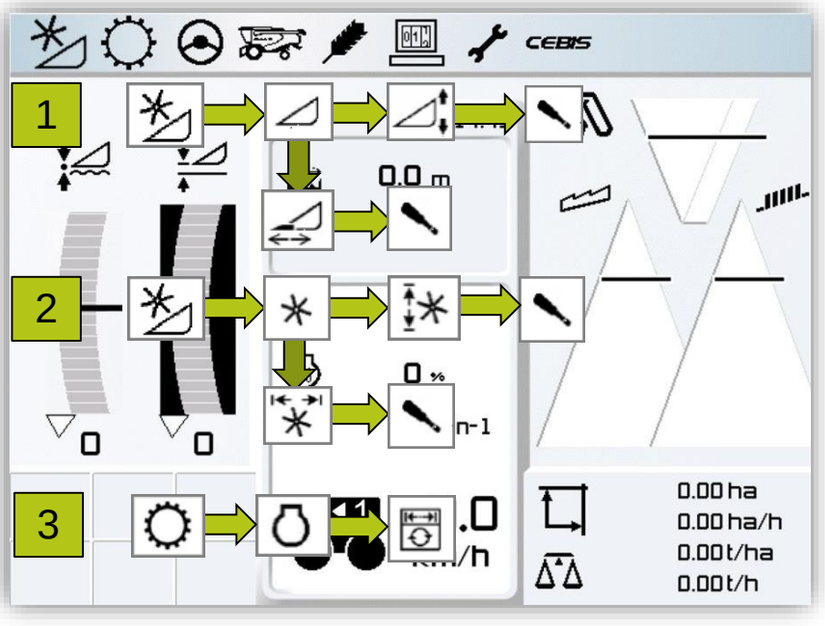


Seasonal calibration

At the beginning of season before the combine is used it is advised that the following items are learnt:

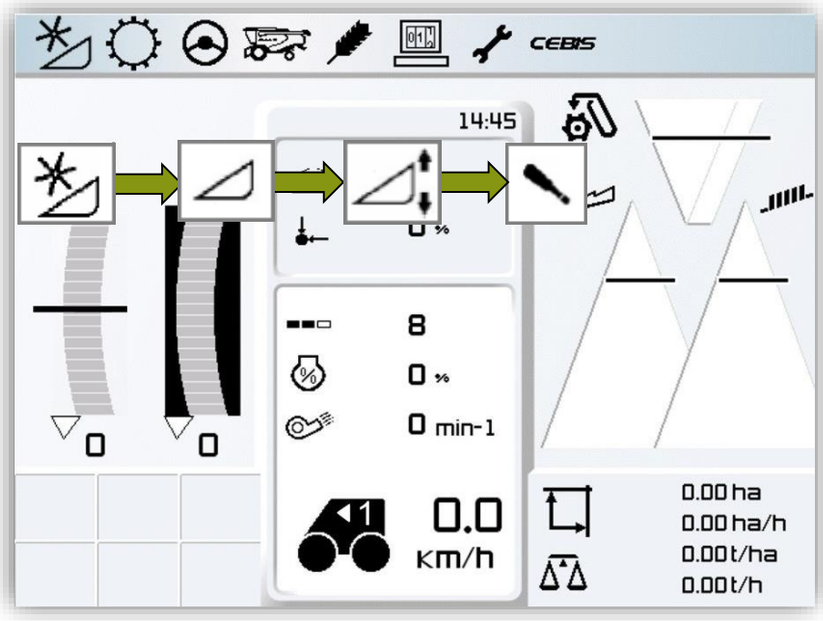
1. Learn cutting height limits, knife (1) and reel (2) ‘end stops’ in the Cutterbar section of CEBIS.

2. With threshing and cutterbar engaged and the machine running at full throttle, learn the ‘Max no-load speed’(3).



CEBIS Calibration

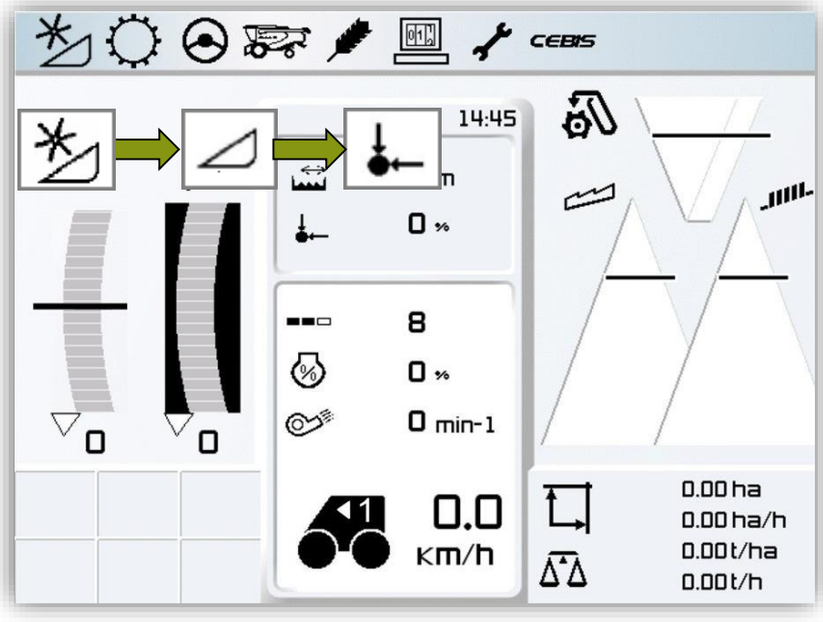
If a problem occurs involving the AUTO CONTOUR response, always try learning the cutting height limits before contacting the service department of your preferred CLAAS dealer.



Working Position

Don’t forget to learn the working position of the cutterbar within CEBIS to avoid inaccurate yield measurements.

This may also need to be changed when combining different crops.



Cutterbar

The cutterbar is one of the most important parts of the combine harvester. It is designed to cut and gather the crop from the field. It then needs to feed the material evenly and preferably head first to the drum.

Dividers

The first part of the cutterbar to make contact with the crop are the dividers. There are two types either the long divider or special short divider.

Make sure that the height of the long divider is set so it does not run on the ground, it is recommended that the shoe should be set to the same height as the stubble.

Lifters

It is recommended that lifters should be fitted to CLAAS cutterbars. The lifters should be fitted by placing the first one on the fifth finger from the RHS of the cutterbar and then on every fourth one thereafter.

Lifters should be checked for wear/fatigue on a daily basis and replaced if necessary.

There are two types of lifter available, these are the standard lifter and the low cut lifter for when lower cutting heights are required i.e peas.

Cutterbar Adjustments

Knife

Check that the knife is in good condition in order for it to work effectively. This involves replacing damaged or broken sections, removing vertical movement by adjusting the keeps, and making sure that the fingers are not rounded or bent. Regular checks/adjustments will aid cleaner cutting and reduced stress on the knife drive system.

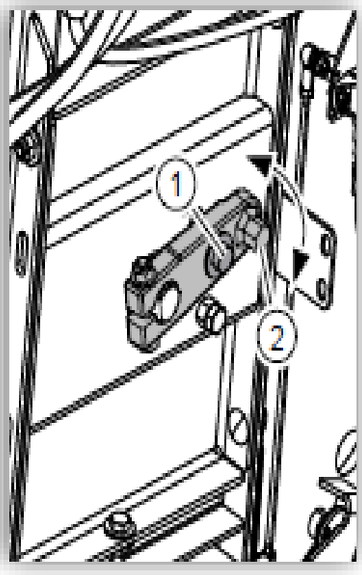


Table Auger

The table auger is important for the transportation of material to the front elevator.

The timing of the retractable fingers can be adjusted for different crops by opening up the guard on the RHS of the V770 & V930 and adjusting the lever with a spanner. Use the top holes for short crops and the lower holes for tall crops. The 3rd hole from bottom is the standard setting.

Crop Wrapping

If an issue occurs with crop wrapping around the table auger in difficult conditions there are a number of procedures that can be carried out; try one thing at a time.

1. Adjust the stripper plates behind the auger; this is made easier on this machine by being able to adjust it from the back of the header rather than behind the auger.
2. There is a second scraper under the auger that can be accessed over the top of the auger.

Cutterbar Adjustments

2. Check the height of the auger within the trough of the cutterbar. There should be a minimum gap of 20mm between the trough and the auger flights.

3. Remove the intermediate retractable fingers along the length of the auger leaving just the middle ones.

4. The speed of the auger can be slowed by the fitting of optional sprockets on the chain drive shaft.

With this header we now have an increased sized auger (660mm) which aids in bringing in a even crop feed.

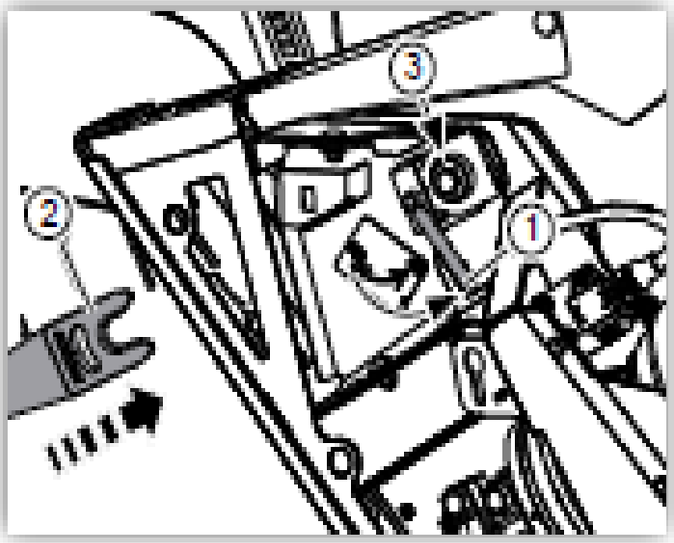
Skids

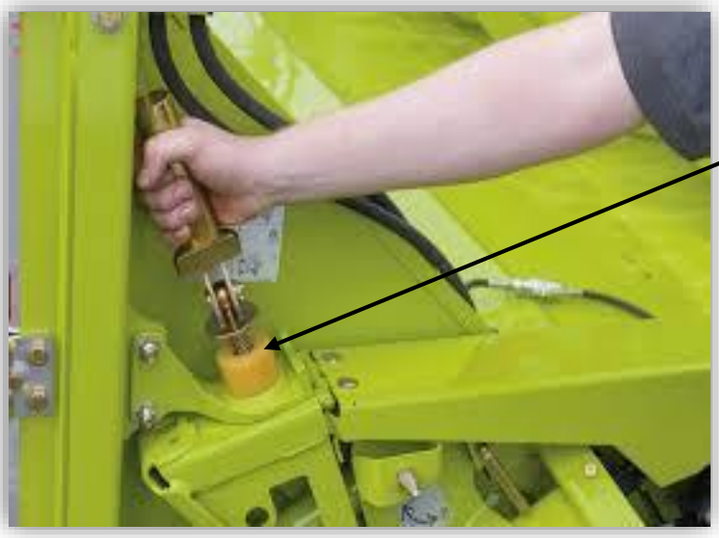
The skids underneath the cutterbar should be set to suit the local conditions e.g. stones, loose soil. It is recommended that they are lifted right up in abrasive conditions.

Side Knife/Divider Installations

Both the side knife and the divider use the new fork locating and locking device **(2)**.

Simply slide into the lock and ¼ turn the handle to lock in place **(1)**.





The side knife is easily attached with a simple twist lock turnbuckle.

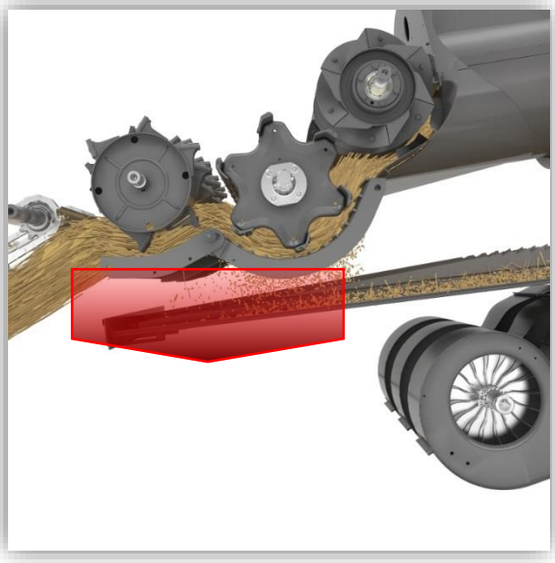
Once the side knife is fitted and locked, all that is required is for two hydraulic pipes to be connected to the quick release couplings on the side of the cutterbar. Once these are fitted and the side knife is correctly/securely locked, the sensor engage will now allow the cutterbar table to be varied from 600mm to 450mm. With this type of cutterbar there is no need for a link pipe to be connected when the side knife is removed.

Threshing Hybrid

To obtain initial settings it is recommended that the suggested settings in the Operators Manual are used, these are to only be used as a starting point, then adjustments should be made from there. Often changing one thing can change another.

Only make one adjustment at a time.

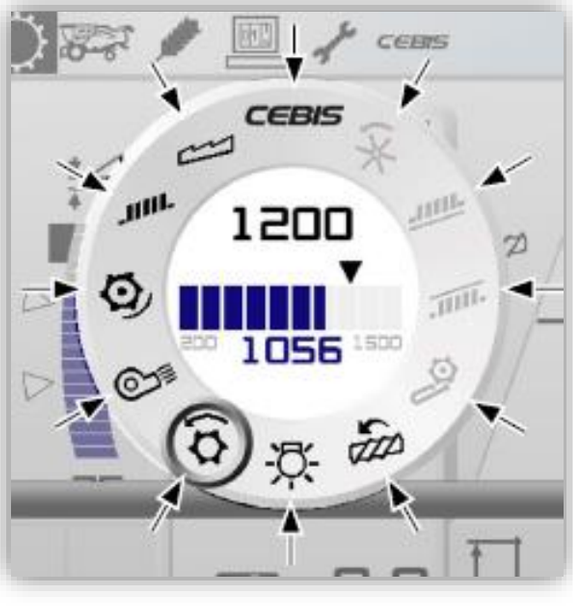
Only do 'Just Enough' to avoid overloading the machine and using power unnecessarily.



Prime consideration here is to remove the maximum amount of seed with the minimum of damage to seed and straw. Over-threshing cracks grains, produces more chaff and takes more power.

The concave can be adjusted by using the rotary dial(1) situated on the arm rest. Adjust the concave no more than 2mm at a time.
Every 24 hours the concave is automatically opened and closed.

Drum speed can be adjusted by using the rotary dial on the arm rest(1) and then switch(3), it is recommended that the drum speed is adjusted by 50rpm at a time.



Threshing Walker

To obtain initial settings it is recommended that the suggested settings in the Operators Manual are used, these are to only be used as a starting point, then adjustments should be made from there. Often changing one thing can change another.

Only make one adjustment at a time.

Only do ‘Just Enough’ to avoid overloading the machine and using power unnecessarily.

Prime consideration here is to remove the maximum amount of seed with the minimum of damage to seed and straw. Over-threshing cracks grains, produces more chaff and takes more power.

The concave can be adjusted in CEBIS,

It is recommended that the concave is only adjusted by small amounts at a time.

Drum speed can be adjusted by using the rotary dial(1), it is recommended that the drum speed is adjusted by 100rpm at a time.

Pre-Separation

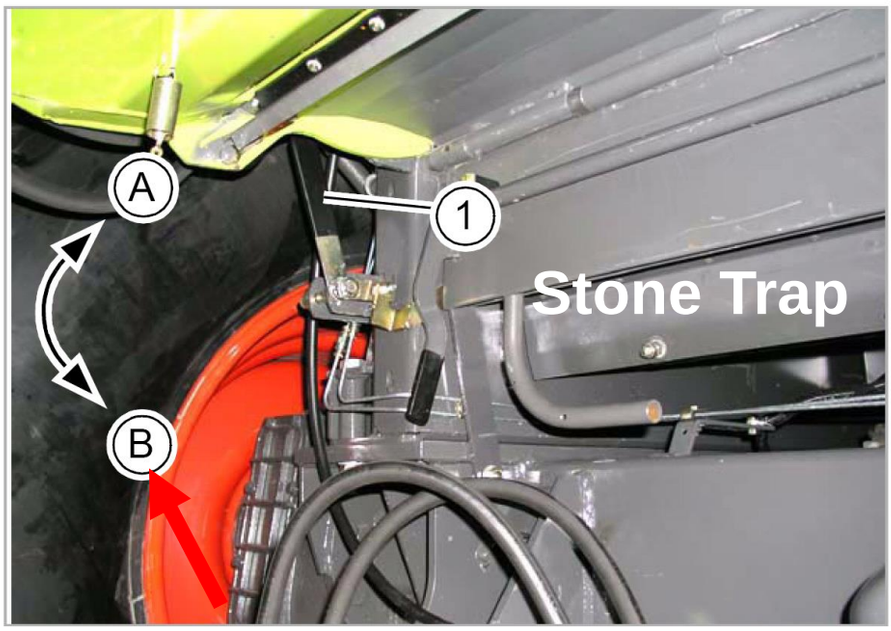
De-awning

On the TUCANO 400 Series de-awning can be carried by out operating the lever (1), by the right hand front wheel of the machine into position A, which in turn installs a set of plates under the APS concave. This gives the crop an extra ‘rub’ which in turn threshes it harder. They must only be installed when threshing is stopped.

It is recommended that these plates are only engaged when there is a difficulty in threshing. These plates can reduce output by up to 30%.

If plates have been used make sure that the concave is clean.

Further information regarding the use of the de-awners is in the relevant section of the operators manual.



Stone trap

The stone trap is situated between the front elevator and the APS concave. It is important that stone trap is emptied on a daily basis to allow for foreign objects to be expelled before they enter the drum.

Separation (Hybrid)

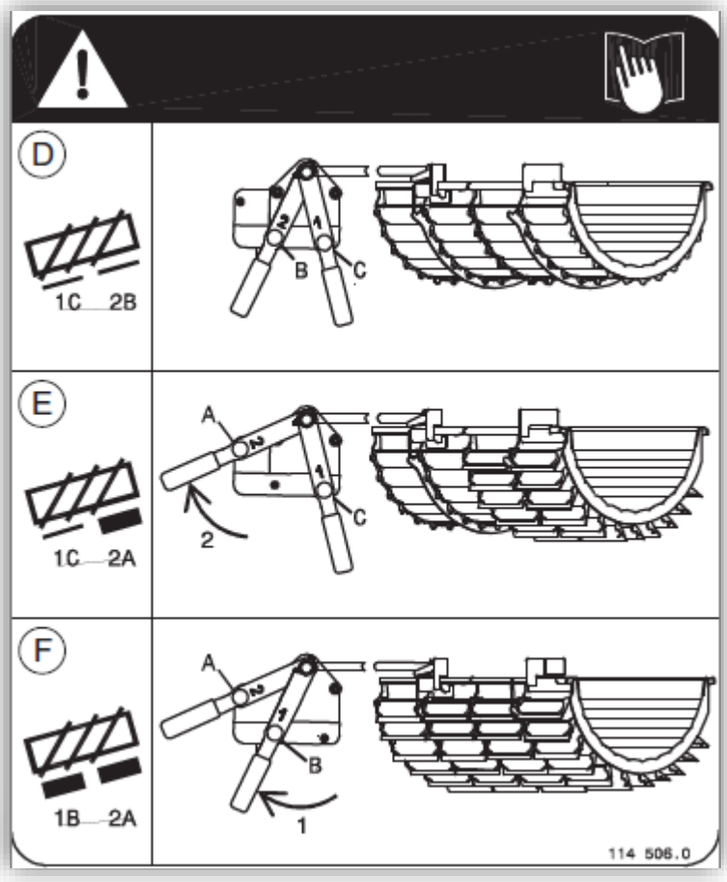
It is important that the rotor speed is set correctly. The rotor separates the remaining grains from the straw and the rotor speed will have an effect on straw quality. If the rotor speed is too fast, broken straw and chaff is produced which could lead to overloading of the sieves. Speed adjustment is carried out in CEBIS.

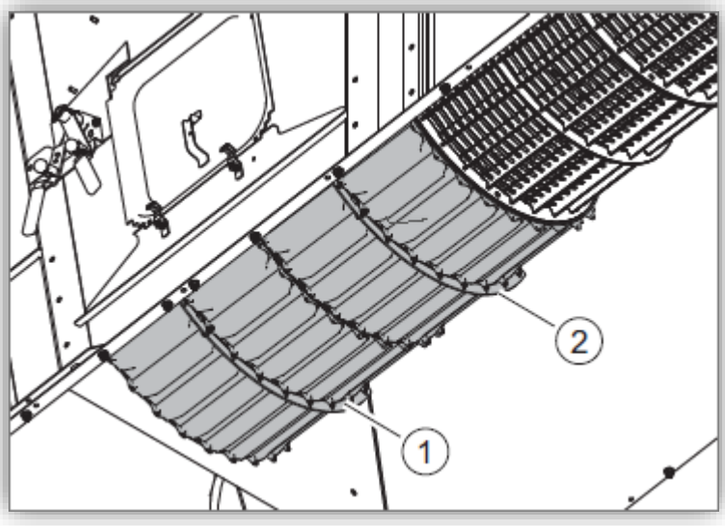
To open or close the Rotor Cover plates use the levers on left side of combine.

D = both cover plates closed

E = front cover plate closed, rear cover plate open.

F = Both cover plates open.

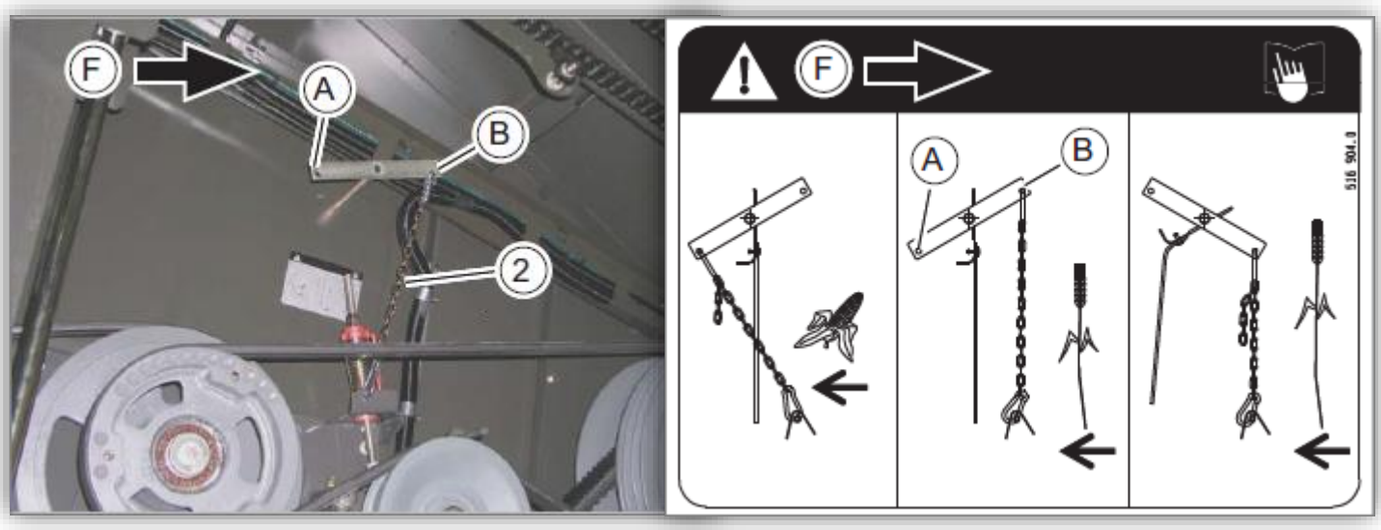




Separation (Walker)

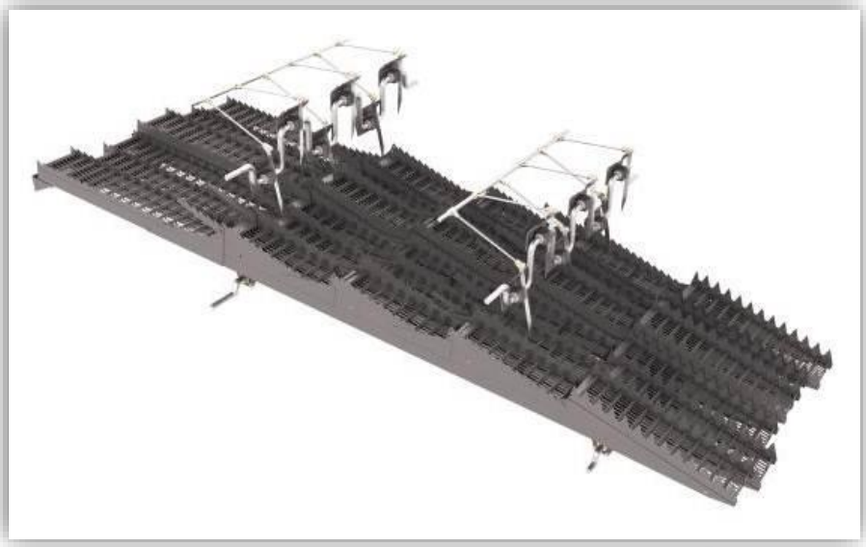
Straw curtain

As the crop leaves the beater a straw retarding curtain is fitted to control the throw of the material on the walkers. A handle on the LHS of the machine body allows the angle of this to be altered. In normal conditions it should be left to hang freely but in damp conditions it may be a benefit to raise the curtain slightly to allow the material to remain loose and ensure an easier passage through the machine.



Intensive Separation System (ISS)

Above every straw walker there are two agitator tines, that are positioned at the front and rear of the walker. These are designed to agitate the material and allow the clean grains to fall onto the preparation pan.



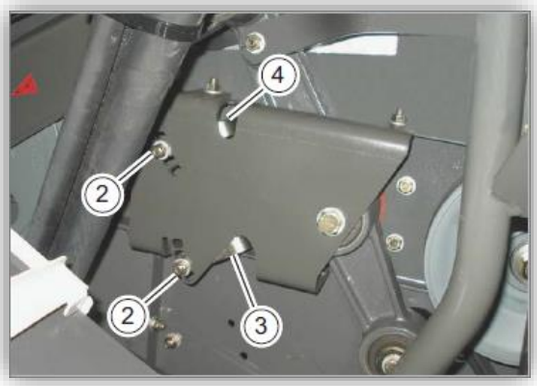
Cleaning

Preparation pan

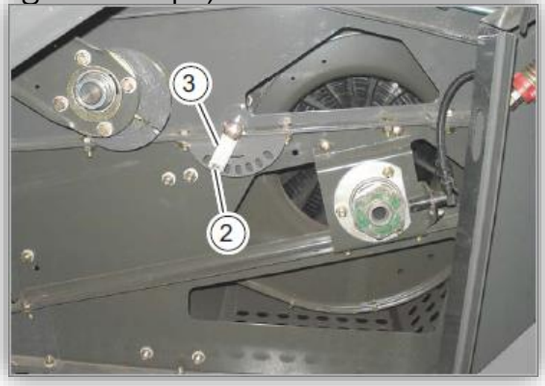
The preparation pan is the first part of the cleaning system that the grain will come into contact with. It's function is to separate the grain and the chaff. The grain is heavier and therefore goes to the bottom, the lighter chaff goes to the top. It is important that this is kept clean, to allow this to happen effectively. A dirty preparation pan will cause a poor sample and reduce output.

Fan

Speed adjustment is carried out via the rotary dial. The speed is shown on the CEBIS screen. The speed range of the fan is 700rpm – 1400rpm. (Tucano 320, 480-920 rpm) Adjustments are recommended at no more than 50rpm at a time.



There are two other adjustments that can be made. Firstly position of the wind boards can be adjusted by undoing the bolt (2) and moving the position of the levers (3,4). Lower for heavier crops and higher for lighter crops, on both sides of the machine.



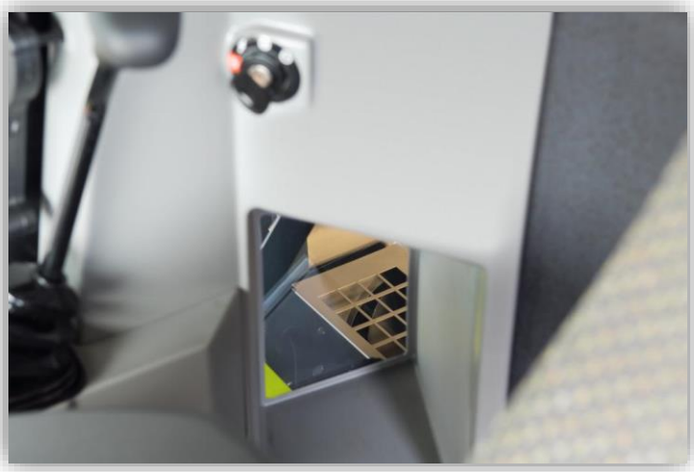
Secondly the wind throttle valve on the RHS of the machine can be adjusted. For lighter crops it may be beneficial to move the lever to the front of the machine and for heavier crop towards the rear.

Cleaning

Sieves

On machines with manual sieve adjustment the sieve adjustment can be made at the back of the sieves by operating levers. To close the sieves the levers needs moving to the right, to open the sieves the levers need moving to the left.

On machines with electronic sieve adjustment, both the top and bottom sieves are adjustable from 0 – 20mm in the cab through CEBIS. The sieves need to be open enough to cope with high volumes of grain, over 16mm is not uncommon. With wide sieve settings there is a need for high wind speed. It is recommended that the sieves are only adjusted by 1mm at a time.



Returns

- The returns should be monitored regularly both in terms of volume and composition. By looking through the window on the lower RHS of the drivers seat, the returns can be seen. The centre tube of the auger should always be visible.
- If too much clean grain is present, open the bottom sieve by 1mm at a time.
- If too much chaff is present reduce threshing.
- If un-threshed heads are present increase threshing.
- In crops such as oilseed rape where excessive trash is a problem, it may be beneficial to close the back section of the top sieve to reduce re-circulation through the returns.

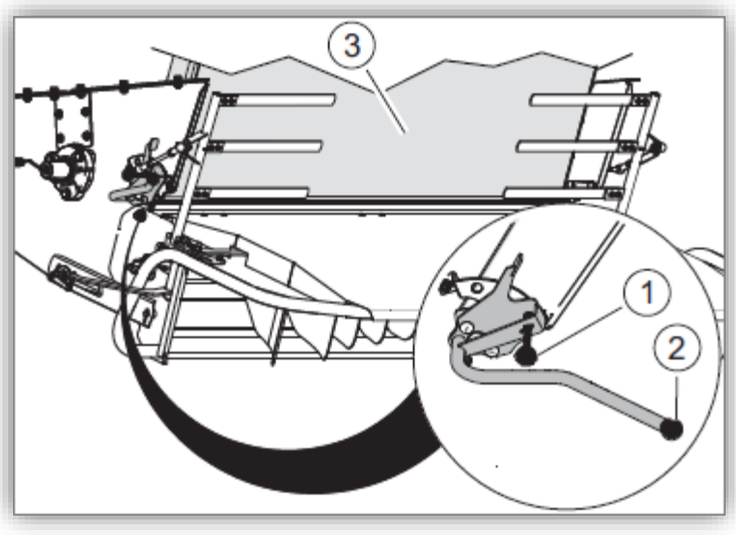
Straw and Chaff Management

Chaff spreader

The chaff spreader is situated at the back of the top sieve. The angle of the spreader can be adjusted to alter the spread width of the chaff spreader.

Straw chopper

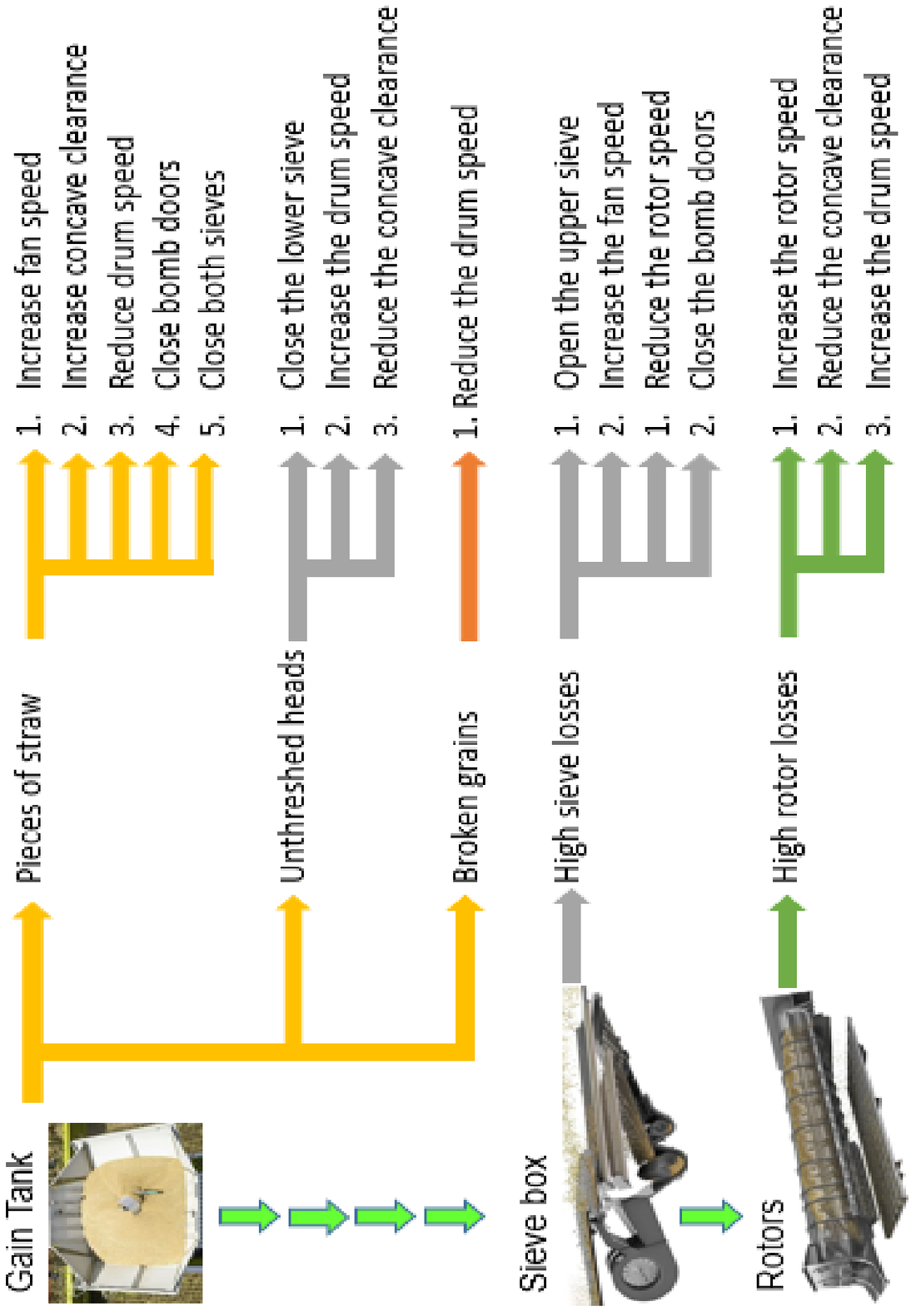
1. To move from chopping to rowing up, make sure that the engine is switched off and the chopper has stopped turning.
2. Pull out pin 1.
3. Swing straw guide plate(3) forwards using the lever(2) till the pin locks in.
4. To put the straw chopper from rowing up to chopping carry out the reverse of above.



- When using the chopper do ‘Just Enough’, excessive chopping uses engine power.
- Make sure the chopper blades are kept in good condition and worn or damaged ones are either turned or replaced.
- Back off the stationary knives until the desired chop length is met.
- The position of the straw chopper hood can be moved to suit the spread width or for transport and straw rowing up purposes. It is operated by the turnbuckles on each side and adjusting it up the notched brackets.

Settings Aid (Hybrid)

The following pages are designed as quick reference flow chart to aid with settings.
For further and more detailed instruction refer to the operators manual



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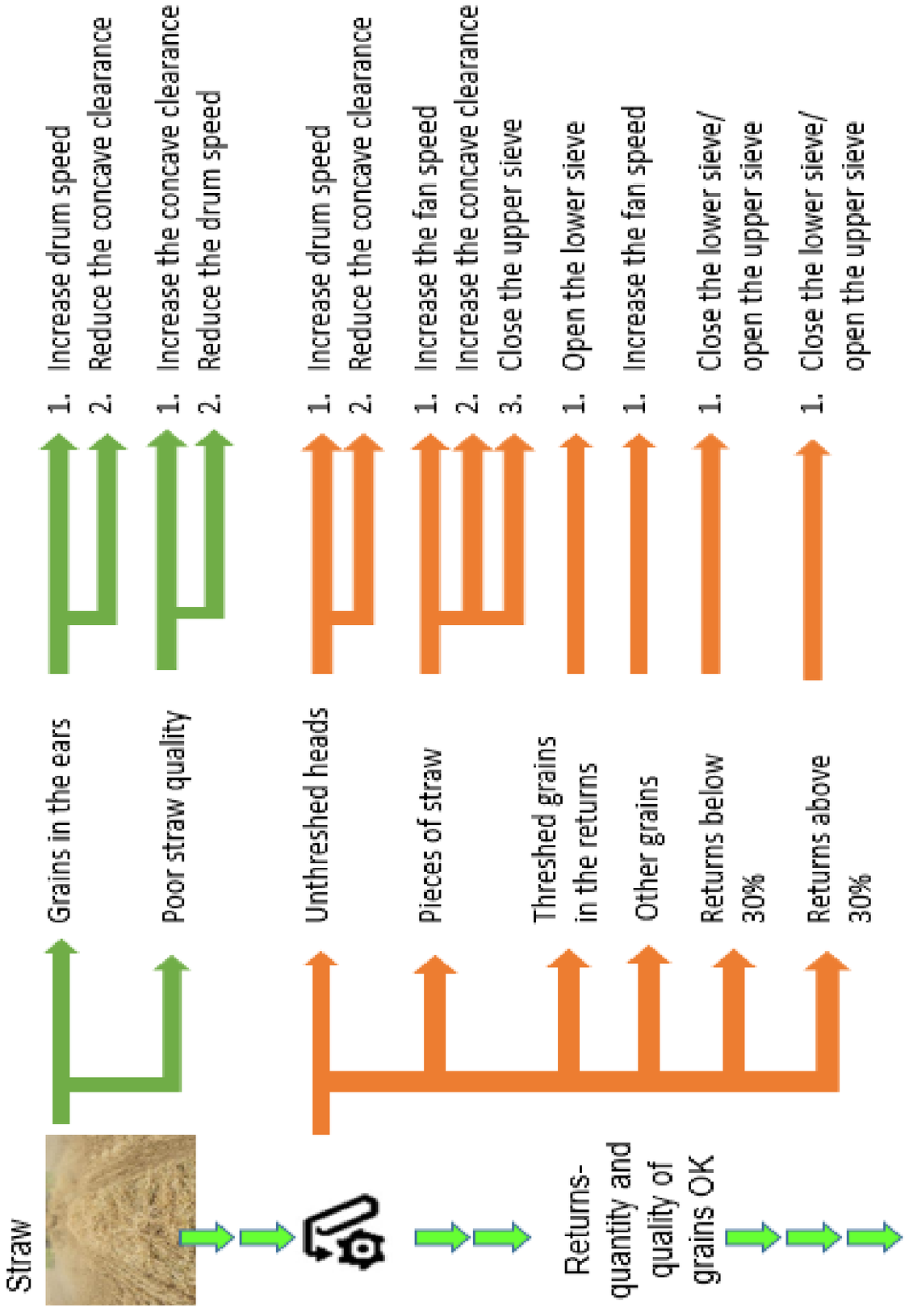
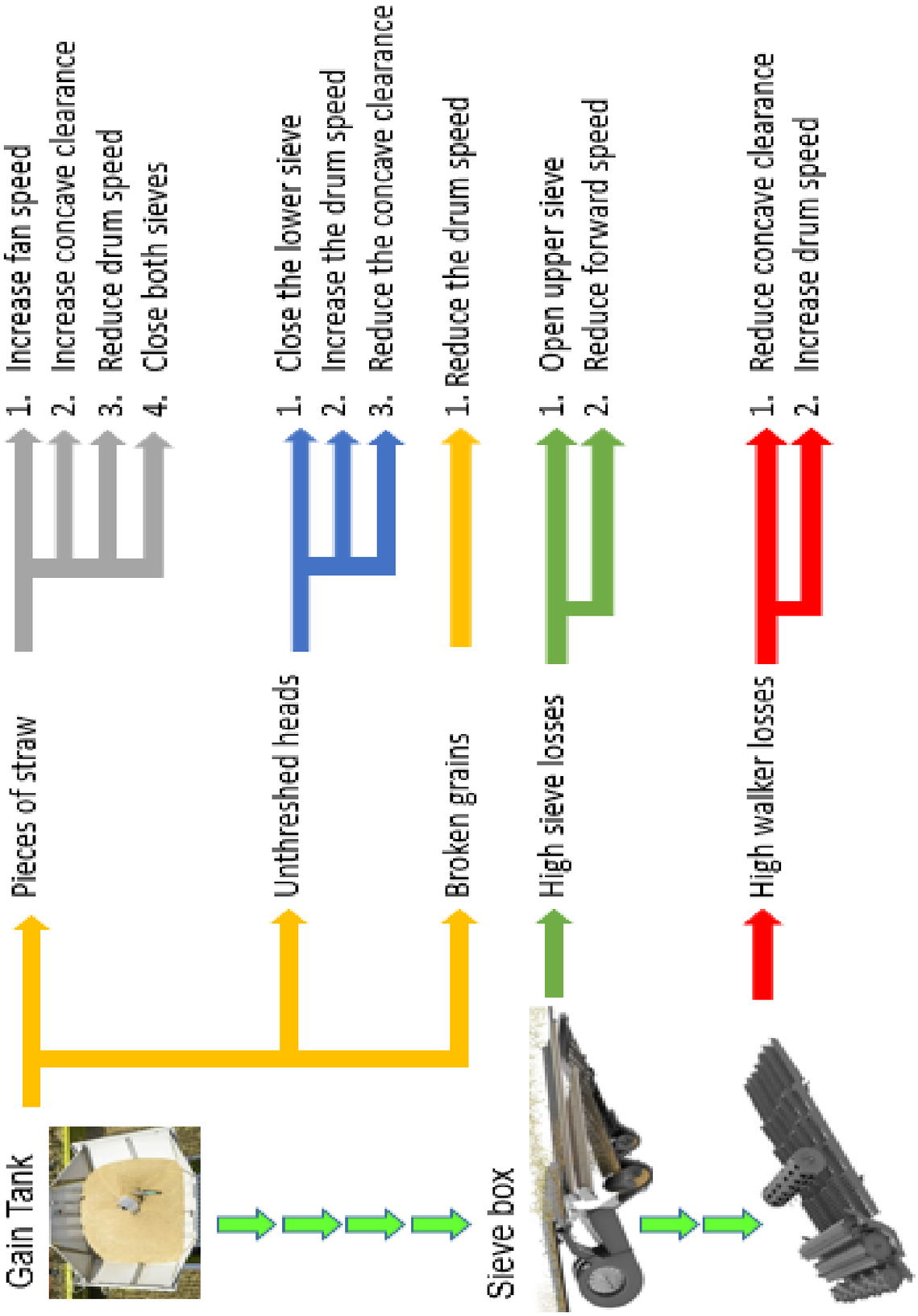


Settings Aid (Walker)

The following pages are designed as quick reference flow chart to aid with settings.
For further and more detailed instruction refer to the operators manual



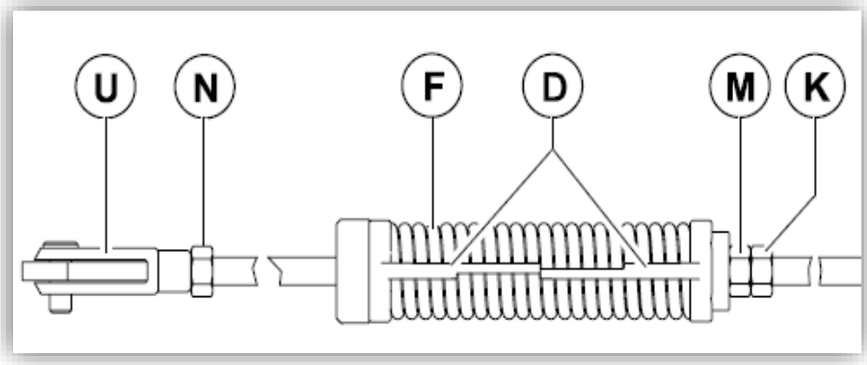
Notes

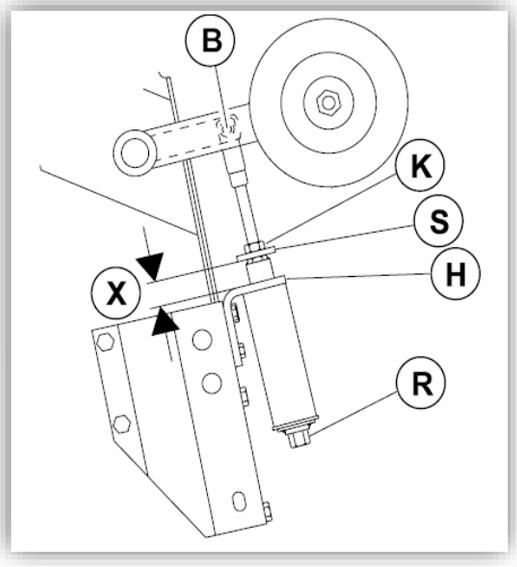
Maintenance

A full maintenance schedule is provided in the relevant section of the operators book and this should be followed to ensure reliable operation of the combine.

When checking belt tensions there are three main types of tensioner that are fitted to TUCANO Combines:

1. End to end guides – Correct tension is achieved when the ends of "D" are end to end. To tension the belt, slacken nut K from M and wind M in a clockwise direction until the ends of D are met then re lock nuts M and K. If the belt needs removing please consult the relevant section of the operators manual.





2. Centre to centre guides – work in exactly the same way as the end to end tensioners except the belt is at the correct tension when the tabs overlap the full length of the recessed part of the tabs.

3. Gold tube type – Under the correct tension the gold tube should be just able to turn, if loose it will need tightening. To tension slacken Nut K slightly, tighten "R" until it meets the gold tube. It should still be possible to rotate the tube by hand with a firm grip. Then lock the assembly with the nut K.

During the daily combine maintenance make sure the top of the gearbox, around the brake area and the machine is blown down.

Wet Harvest Recommendations

1. With wet and laid crops, it is even more important to get a good cut and feed into the combine. Check the knife and fingers regularly, paying particular attention to the knife to finger gap (keep adjustment).
2. To allow the cutterbar close to the ground when picking up laid crops, the skids under the bar must be raised into their highest position. This will also reduce the amount of soil sticking to the underside of the cutterbar.
3. Do not try to go too low with the cutterbar in laid crops. You only need to place the point of the lifter on the ground. If you go too low, the point of the lifter will lift and hold the crop down.
4. As soil and other foreign objects are more likely to enter the combine in a wet harvest, it is vital that the stone trap be emptied at least daily. The worse the conditions, the more frequently this should be done.
6. When emptying the stone trap also check that the APS concaves are clean. To do this, simply open the concave before emptying the stone trap. Under the concave is the preparation pan. This will become dirty as wet grain and soil passes over it. The dirtier it becomes, the less effective it will be, and hence, the dirtier the sample will become. With wet grain it is important to try to keep to a cleaner sample than normal, as you then waste less fuel drying chaff etc.
7. If the preparation pan is dirty and gummed up, this is your first indication that further cleaning inside the combine may well be required. When cleaning the rest of the combine, follow the path of grain through the machine, and open covers as you come to them.

Wet Harvest Recommendations

8. Some dirt can usually be removed from both the cross auger covers, and the bottom covers on both the clean grain and returns elevators.
9. When unloading wet grain, reduce the flow into the unloading auger by shutting down the slides on the cross auger in the grain tank. This will reduce the load on the unloading system, bringing it down to a 'normal' level.
10. If the shear bolt on the unloading drive fails this is often the first sign that either the slides in the tank are too high, or there is too much dirt in the system, or both.
11. Chopper blade wear can be accelerated when chopping wet straw due to the increased levels of soil in it. Check the condition of the blades regularly. Do not forget to check the stationary blades.
12. In wet conditions, it is possible for material to stick to the grain pan under the rotor. This then impedes the flow of grain back to the preparation pan and affects the sample. Check the pan regularly and clean as required.

Try to keep the combine as clean as possible. Wet chaff etc. forms lumps and can fall onto belts causing them to slip. In a 'stop / start' harvest, it is easy to miss daily checks as you may only combine for a few hours at a time. In order to keep the combine clean you have to go over it and will often spot a 'job'.

Notes

CLAAS Telematics

CLAAS CEMOS Advisor

Available on the Android App Store

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