

General Operation and Startup Instructions Twin Master Combine



The following information is provided to assist in the set-up of your Twin Master Combine. Also described are the proper functions and maintenance guidelines

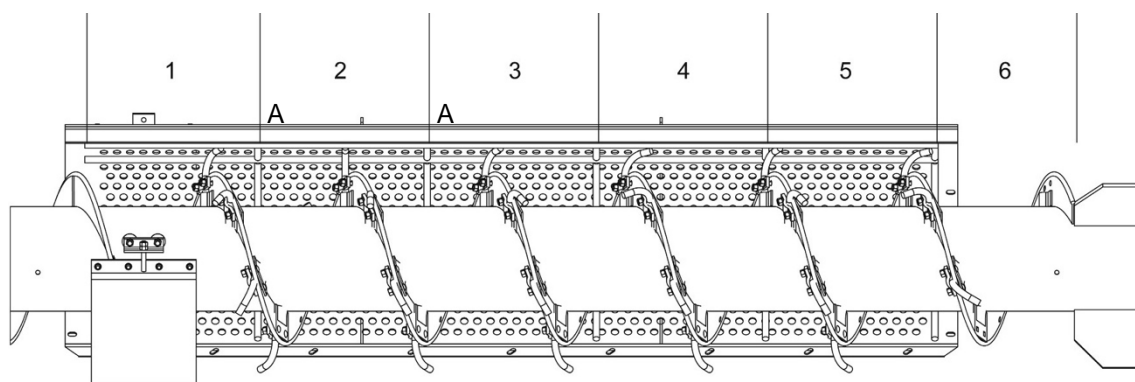
1. Inspect all electrical lines and components. Make sure they are fastened securely and are free from any damage. Plug the Touch Screen Monitor and the Ag Cam Monitor into tractor's 12-Volt power source. (Note: 12-Volt power is converted to 24-Volt to operate the touch screen monitor and PLC (programmable logic controller). While out put to tongue tilt valve and pickup head speed control valve remains 12-Volt.)
2. Check all hydraulic connections and fittings. Check for leaks and make sure all hoses are positioned correctly and free from damage.
3. Check all belts, chains, pulleys, and sprockets for alignment and for tightness. Operate belts on entire combine tight enough so they do not chatter.
4. Grease all bearings (do not over grease). Most bearings only require minimum grease. Lubrication locations and amounts are located in the Lubrication and Maintenance section of the manual.
5. Inspect primary, secondary and tertiary drivelines for lubrication and make sure they are securely fastened especially the clamping cone on the Secondary Driveline. Torque cut-out clutch side clamping cone bolt to 75-ft. lbs. Make sure all setscrews and bolts are securely fastened. Driveline plastic guards need to be well greased and have shield chains securely attached.
6. Inspect pickup head for any loose bolts or broken parts. Inspect gauge wheel height to ensure pickup head is operating level and the teeth are working approximately 3/4" to 1 1/2" above the soil surface.
7. Inspect feeder house star tines and scraper plates for alignment and tightness.
8. Inspect the combine from front to back while hooked to the tractor to **make sure it will operate level.** Use adjustable tongue height on combine tongue and the tractors draw bar adjustments to achieve this task. An assist chain from the lower 3 point arms to the drawbar will help accomplish this. (Refer to setting up tractor page in the operator's manual.)
9. The swivel gear box allows the tractor to be operated to the side of the windrow. Care must be used when setting up the gear box stabilizer assembly. It must keep the lower part of the swivel gear box aligned with the tractor without binding.
10. The Twin Master requires 4 hydraulic outlets on the tractor. The # 2 remote should operate the pickup head, feeder house, shaker table, bucket elevator and leveling auger in the bin. To adjust hydraulic flow to this series of hydraulics, turn the shaker table flow control knob counter clockwise (Located on the shaker table hydraulic motor on the left side of the combine) to Full (counter clockwise). Then adjust the hydraulic flow of your tractor down to a low flow rate, and turn on. Using the combines monitor system RPM read out adjust the tractors flow control until the shaker pan shaft speed is 350 RPM. Then using the flow control located on the shaker motor to adjust the speed to 340 RPM. Then using the flow control on the bucket elevator motor set this speed to 110 RPM. This should provide plenty of oil for the other operations without having more oil flow through the system than required (excessive flow causes excessive heat). Set the pickup head speed control were the pickup head speed does not exceed 1/2 operational ground speed. The # 4 remote controls the raising and lowering of the bin. Make sure the tractor hydraulic control levers are working properly and in a direction the operator is familiar with. Changing positions of the hydraulic hoses in the tractor remote will change direction. A pressure relief valve is located on the bin down stroke to regulate the pressure and not damage the bin or combine frame. This relief valve should be set to 500 PSI or less. **Do not transport or operate combine, unless bin is in retract or down position.** To determine the distance between the truck to the combine for unloading, position outer edge of dump bin straight up from side of truck box. Having an indicator rope will help. Regulate the flow of oil, so bin raises and lowers safely and slowly. The # 1 remote controls the raising and lowering of the pickup head. Regulate the flow of oil from the tractor so pickup head lifts smoothly and slowly. For added transport height the front of the combine can be tilted up (this feature is blocked by the electric on/off switch during field operation). With the electrical switch in the on or unlocked position the pickup head will rise first then the machine will tilt. **(Do not operate the tilt function unless the dump bin is empty).** The # 3 remote controls the pull tongue swing movement, keep tractor flow turned low to have slow steady movement. **Always have combine directly behind tractor before backing or transporting.**
11. The vacuum fans are located in the upper rear position of the combine and are powered by a belt system, driven by the main PTO drive. Two sizes of pulleys are used on the upper shaft. The small pulley is used when operating the threshing cylinder from 300 to 400 RPM. The larger pulley is used when operating at a higher range from 400 to 540 RPM. This pulley change is necessary for best results in vacuum suction. After changing pulleys move belt tension idler to the correct mounting holes to achieve proper belt tension. Vacuum air ports are provided for easy inspection of the fan and are directly below the pulley driving each vacuum fan. Inspect the fans daily, especially in high moisture situations. Build up on the fan at high speeds can cause imbalance and fan failure. When material is noticed on the fan blades it must be cleaned off for safe operation. Remove the top fan housing cover to clean fans.
12. Inspect bucket elevator chains for tightness and adjustment. 110-115 RPM is the optimum bucket elevator speed to help prevent damage to crop.
13. The transition auger, feeds the material to the central flow cylinders. A sprocket change 30 to 36 or 36 to 30 is located on the left hand side of the transition auger. Use the 30 to 36 setting (smaller sprocket on the top) for cylinder speeds 400 to 540 RPM. Use the 36 to 30 setting (larger sprocket on top) when cylinder speed is 300 to 400 RPM. By making this change you will allow smooth even feeding while not damaging the seed by excessive speed.
14. Cylinder speed and threshing pin placement can vary, depending on field conditions from wet to dry. The concept of the cylinder using centrifugal force and higher speeds give the cylinder its low impact capabilities. As the product moves through the cylinder the threshing pins can be turned and positioned to change the amount of threshing time necessary for threshing and separating the crop. (Refer to Combine Cylinder Adjustment below or on page # 30 in the operator's manual.). It is important to keep the cylinders balanced, when adjusting the threshing pins. (See Trouble Shooting page # 47 in the operator's manual). Start up setting: (Refer to Combine Cylinder Startup Settings page # 31 in the operator's manual). Extending a few pins closer to the concave will help keep the concave clean from buildup of crop residue material. Cylinder speed and threshing pin placement need to work together for efficient separation. Increased cylinder speeds can cause more crop seed damage,

while a slower cylinder speed will likely reduce damage. The Twin Master is equipped with two heavy duty 2 speed transmissions that reduce the tractors 1000 RPM PTO to 540 and 390 RPM or 500 and 350 RPM. (Depending on transmission option installed.) By changing the tractors RPM you will be able to obtain threshing cylinder speeds between 300 and 540 RPM. The two transmissions shift with one shift lever located on the right side of the machine.

IMPORTANT: As RPM on cylinder reduces so does the suction on the vacuum. It becomes a necessity to adjust the vacuum cover plate with a change in cylinder RPM.

15. The crop and chaff pass through the concave onto the shaker pan. The crop moves over the shaker pan toward the rear of the combine where the vacuum system removes impurities through the vacuum fan. Adjust vacuum by moving the cover plate above final screen. Using a 15 mm wrench loosen nuts on each side of the vacuum plate. There is one plate on each side. Keep the plate level. Moving the plate higher above the final screen reduces the suction. Start by setting the plate midway. To fine tune visual inspections are necessary. With combine in operation, watch the area under the vacuum duct (by use of the AgCam) where the beans pass over the shaker table to the final screen. If beans are floating or bouncing up, the vacuum is too high. Raise each side of the plate equally in 1/2" increments until the beans start to settle and you can just see the crop barely raise off the table. Lower the plate if chaff and other foreign material aren't being separated from the crop.
16. Two final screens are standard with each combine, 9/16" round and 1/2" x 1" oblong. Check with your dealer to see what special order sizes may be available. Product size will determine final screen size selection to use. There are 2 fasteners on each side and 2 in the middle of the final screen to maintain proper screen tilt. (Refer to Combine Shaker-Separator page # 32 in the operator's manual). Operate screen level or 1/4" to 1/2" higher in rear. If crop is going over the back of the screen, use a larger screen size. Lift the rear inspection flap to make sure the final screen is level (side to side). A bumper bar system provides a jolting action to shaker table and is located on rear of final screen to keep dirt clods and other materials from clogging up the screen. Adjust the height of the bumper bar so the end of the final screen hits in the center of the rubber on the bumper bar.

Threshing Pin setup diagram:



1. This is the knife and cover belt section. Knives normally replace pins 1 & 4. The remaining pins are set at neutral. The cover belt will not allow whole pods to fall onto the shaker table. It will also hold the material in the cylinder longer and help distribute the beans across the shaker table more evenly. (Note: use concave bars as section divider references.)
 2. This section is where the threshing begins. Set 3 to 5 pins at 0° to 30° forward, with the remaining pins set at neutral.
 3. This is where the majority of the separation takes place. Set all pins at neutral, at this time most of the seeds are on the shaker table being polished by the leaves.
 4. This is the stirring section. Set 3 to 4 pins alternately at 60° forward and 60° rearward with the remaining pins set at neutral. This creates an irregular motion in the material allowing the seeds to separate from the straw.
 5. This is the final separation and stirring section. Set the last 3 to 4 pins alternately 60° forward and 60° rearward with the remaining pins set at neutral.
 6. This final section is the discharge. All pins should be removed from this section. The last pin in the cylinder should be where the last concave bar is located.
- A. Add sweep pins in these 2 locations. Sweep pins are located in the first full pin location after the front rasp bars in sections 2 & 3. A sweep pin is set higher than a normal pin and is pointed to the back of the combine. This helps prevent material from building up in the bottom of the concaves.