SUMMARY

NOTAS:

TC5070 COMBINES

SERVICE MANUAL

SECTIONS

TECHNICAL PUBLICATIONS

SECTION 00 – GENERAL INFORMATION

Chapter 1 – Introduction

CONTENTS

INTRODUCTION

This **SERVICE MANUAL** was drawn up and produced by **CNH Latin America Ltda.** to meet the **New Holland Dealer Network** field personnel and mechanic training needs by updating – them with the latest technical information pertaining the New Holland TC5070 model Combine line and versions thereof in Brazil.

All the information in this Manual are updated up to the date of publication. Any changes incorporated later on to the product will be disclosed either through Service Bulletins, which complement the information printed herein, or through periodic reviews of this same Manual.

New Holland Latin America Ltda.

COMBINE CARE

Recommendations to be conveyed to the customer aiming at a longer combine working life.

END-OF-SEASON SERVICE

1. FEEDING SYSTEM

- check reel speed variator adjustments.
- check cutterbar adjustment and operation.
- check cutterbar drive box oil level.
- check the auger and retracting finger distance relative to the bottom of the platform.
- check the rasp bar distance relative to the auger.
- check the feeder auger clutch slip.
- check CAAP and side floating operation.
- check the feed belt tension.
- check the straw elevator front shaft compensation spring tension.
- check the straw elevator rear shaft slip clutch adjustment.

2. THRESHING SYSTEM

- check parallelism between concave and cylinder, adjust if needed.
- check cylinder variation adjustments.
- check and adjust the maximum and minimum cylinder speed.

3. SEPARATION SYSTEM

- check parallelism between concave and “rotary separator” (if installed).
- check the straw walker static balancing.
- check the beater plate adjustment relative to the cylinder bars.

4. CLEANING SYSTEM

- check the 1 mm clearance between the variator and fan disks.
- check the fan variator belt tension.
- check the fan deflecting plates, vertical and horizontal, positioning.

5. STORAGE SYSTEM

- check the elevator slip clutch spring length
- check elevator conveyor belt tensioning.
- check the unloading flow rate adjustment. plate adjustment inside the grain tank.

6. STRAW CHOPPER

- check operation and balancing.

7. CHAINS

- check chain tensioning and alignment.
- lubricate chains with AMBRA HYPOIDE 90 oil.

8. BELTS

- check belt tensioning and alignment.

9. TRANSMISSION SYSTEM

- check the drive variator belt tension. [mechanical transmission]
- check hydrostatic pump belt tension. [hydrostatic transmission]
- check drive variator vertical and horizontal alignment. [mechanical transmission]
- check the 1.0 mm clearance between the drive variator disks. [mechanical transmission]
- check the transmission box oil level.
- check the free movement of the clutch pedal. [mechanical transmission]
- check pedal brake free travel.
- check the parking brake adjustment.
- check brake and clutch fluid reservoir level.
- check the final reducer oil level.
- check rear-wheel drive operation [4WD].

10. PNEUMATIC SYSTEM

- check the compressor oil level.
- check lubricator oil level and operation.
- check the circuit for possible air leaks.

11. HYDRAULIC SYSTEM

- check the reservoir oil level.
- check the circuit for possible leaks.
- check the hydrostatic steering operation.

12. ELECTRICAL SYSTEM

- check instrument panel operation.
- check headlight/side light operation.
- check the positioning of the electric wires. (rubbing against live corners)
- check the battery electrolytic solution level.
- check terminals for sulphation.

13. ENGINE

A. General Checks:

- lubricant oil level.
- radiator coolant level.
- alternator belt tension.
- check electrical system.
- examine the fuel piping connections.
- check and adjust minimum and maximum speeds.
- retighten bolts, nuts, connections and clamps.

B. Special Checks after 600 hours:

- change external air filter (after 6 cleanings or 1 year).
- change sump vent filter.
- adjust valve intake clearances (with cold engine): 0.20 to 0.30 m / exhaust: 0.45 to 0.55 mm.
- check opening pressure of injection nozzles.

MAINTENANCE BETWEEN SEASONS

Follow the instructions listed below at the end of every season or when the machine has to remain stopped for a long period of time. This ensures the harvester is maintained in good general state and ready for the next season.

1. Wash thoroughly the machine inside and outside removing all protection and inspection covers. After that, start it up and place it on a slope for a few minutes in order to remove all the water that may have remained inside it. After washing, uncouple the straw elevator with the header to check all locations that may have material built up. Ensure the machine is completely dry.
2. Remove the grain, straw and tailings elevator chains smearing them with a mixture of lubricant oil and fuel; use the same mixture to smear the elevator boxes and reinstall the chains adjusting them to normal tension.
3. Every parts that is more widely used, such as sieves and grain pan, loose the layer of paint that protects them, which may produce rust, smear them with the same mixture mentioned above.
4. Couple the straw elevator and header to the machine.
5. Retouch with a layer of paint the cutting platform parts that due to usage have the paintwork damaged. This protects them against rust. Disassemble the cutterbar and lubricate it.
6. Disassemble and lubricated the protection ratchets. When reassembling them ensure they all work in proper conditions.
7. Activate the pneumatic valves several times with the lubricators open.
8. Lubricated the hydraulic cylinder rods and retract them fully.
9. Perform a general lubrication on the machine as described in the chapter “Lubrication” in this Manual.
10. Place the machine in a dry place protected against the weather on top of supports to take the load off the tires; prop the platform on a support.
11. Loosen all belts. Remove all chains and store the in a container with a mixture of oil and fuel. Retouch with paint or an anti-corrosion product the pulley surfaces that are exposed to oxidation. Lastly, reassemble all the inspection and protection covers.

12. Clean out the engine compartment. Change the air and diesel fuel filters.
13. Use compressed air or water to clean out the radiator. Use a low pressure spray of air or water to clean out the air conditioner condensator 0fins (if fitted).
14. Drain, rinse and refill the cooling system adding 1.5 liters of NP87 additive. Check the hoses.

    NOTE: *Storing the harvester without coolant in the system is not recommended.*
15. Run the engine up to normal operating temperature. Drain the oil and refill with a mixture of lubricant and anti-corrosion oil at 10%.
16. Fill the fuel tank with a mixture of diesel fuel and anti-corrosion oil at 10%.
17. Remove the battery, clean it, charge it, and store it in a dry, ventilated place protected from the weather.

    IMPORTANT: *The battery must be recharged every 8 to 10 weeks for a period of 24 hours.*
18. Every three weeks, start the engine and run it at 3/4 of maximum throttle for 1 hour.

    Activate the machine and all variators from minimum to maximum and vice-versa to ensure proper lubrication and prevent oxidation.

ATTENTION: *Turn the air conditioner on for at least 15 minutes (if equipped with cab) with the engine running in order to lubricate the compressor components and prevent its oxidation.*

Periodic Inspections reduce to the maximum maintenance and repairs on your harvester, besides avoiding expensive stoppages during the harvest. Therefore, it is advisable to have the machine serviced at the end of the season. Trust this service to your New Holland Dealer.

ACQUISITION OF REPLACEMENT PARTS

While preparing the harvester for storage, thoroughly check all parts that have worn out and need replacement.

Replacement parts must be ordered at this occasion and installed before the start of the next harvest.

When ordering replacement parts, remember to always provide you NEW HOLLAND Dealer with the serial number and model of your harvester. See – PRODUCT IDENTIFICATION.

ALWAYS INSIST IN ACQUIRING ORIGINAL, NEW HOLLAND PARTS AS THEY PROVIDE THE BEST PERFORMANCE AND ARE COVERED BY OUR WARRANTY.

SERVICING BEFORE THE SEASON

Follow the instructions below to ensure that the machine is in good conditions and ready to work:

1. Lower the harvester from the supports. Check tire pressure and wheel nut tightening.
2. Lubricate the combine according to instructions contained in this Manual.
3. Check the tension of all belts and chains (including the straw elevator, grain elevator and tailings).
4. Reinstall the blade.
5. Remove the protection oil from the sieves and install them on the harvester.
6. Check the oil level in the following components:
   - Blade drive box
   - Drive box/Final reducers
   - Brake fluid reservoir
   - Hydraulic oil reservoir
   - Hydrostatic oil reservoir [hydrostatic transmission]
   - Engine sump
   - Air compressor
   - Pneumatic lubricator
7. Check harvester adjustments according to instructions in this Manual.
8. Install the battery.
9. Start the engine and allow it to run until reaching normal operation temperature, then drain out the oil + anti-corrosive installed previously. Change the engine oil and oil filter.
10. Run the engine at half throttle, engage the tailings and platform and check their operation.
11. Run the engine at full throttle and check the beater shaft speed (875 rpm).
12. In neutral, engine at half throttle, activate the 4WD switch and allow to run for approx. three minutes to eliminate air from the system. [4WD]

13. After that, still in neutral, engine at full throttle, multifunction lever moved 12 mm in the direction of forward movement, activate the 4WD switch and allow to operate for two minutes to lubricate the main system forward. [4WD]
14. In the same condition of neutral and engine at full throttle, move the multifunction lever 12 mm in the direction of reverse movement for two minutes to lubricate the main reverse system. [4WD]
15. Move the harvester and check operation of the hydraulics and brakes.
16. Stop the machine and ensure everything is in order – install all the caps and covers that were eventually removed.
17. Lubricate the harvester again taking care not to apply excessive grease.

    NOTE: *It is of good measure to have your New Holland Dealer or an expert in air conditioner systems test your harvester air conditioner system for leaks before each season.*

SAFETY NORMS

BEFORE OPERATING THE MACHINE

1. Check if all guards are mounted correctly.
2. Check if the machine is clean enough in order to prevent fire hazard during operation. (Check the fire extinguisher status)
3. Check for abandoned tools (during previous adjustments).
4. Make sure nobody is near the machine. Take care in case of children.
5. Check if the general switch is on.

STARTING

1. Check to make sure that all controls are in the neutral position. Special attention to the multi-function lever.
2. Turn the switch and check the regular behavior of the dashboard.
3. Blow the horn twice to warn people near the machine.
4. Start the engine and allow it to run on idle paying attention to any strange noise.
5. In case an auxiliary (booster) battery is used, avoid sparks since the battery gases are explosive.
6. When operating and stopping the engine, allow it to run on idle for one minute.

OPERATING THE MACHINE

1. The machine operator must be trained for such purpose.
2. Do not allow other people to remain on the operator platform.
3. Turn on the threshing and feeding parts with the engine running on idle.
4. Take extreme care when standing close to moving parts (especially adjusting the fan variator) wearing adequate clothing and short sleeves.
5. Stop the machine completely whenever any adjustment needs to be made.
6. Never brake suddenly: it prevents the machine from tilting forward dangerously.
7. Never remove guards with the machine operating.
8. Check if the drive variator is at minimum speed when moving the machine forward.

⚠ WARNING ⚠

To prevent losing control of the harvester, especially when operating on slopes, reducing the gear according to the slope grade as indicated is recommended.

TOWING THE HARVESTER

Towing the harvester is not recommended, however if necessary, the steps below must be followed:

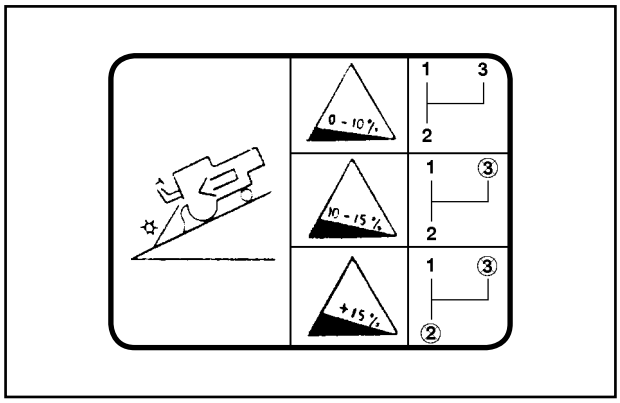
1. Position the gear shift lever in neutral and tow at a maximum speed of 16 km/h.
2. Provide adequate signaling to alert other road users that the harvester is being towed.

TRANSPORTING THE MACHINE

1. Check if both brake pedals are connected.
2. Never disengage the gears on slopes (free running).
3. Comply with local road traffic norms by always seeking to be preceded and followed by an escort with a red flag.
4. Make sure that the grain tank is empty.
5. Turn on the warning light.
6. Overspeed

⚠ WARNING ⚠

Never use the hydrostatic system to brake the machine.



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STOPPING THE MACHINE

1. Place all controls in the neutral position. Lock with the parking brake.
2. Remove the key from the contact to prevent accidents.
3. Lower the header.

ADJUSTING THE MACHINE

1. Only use tools that are in good conditions.
2. Never lean your body against turning machine parts.
3. When disassembling any part, take all required measures to prevent accidents.
4. Do not operate the machine during the adjustment operation.
5. Never rely on the hydraulic system, use the safety devices of wooden blocks.

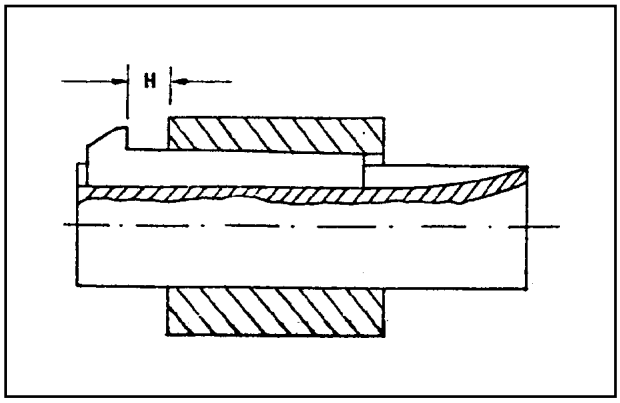
SPECIAL CARE

KEYS

Adjust the keys with head on the top surface with a file to maintain the profile and angle in perfect condition.

Distance “H” is correct when it is equal to or 5 mm more than the key width.

Use grease when assembling them (makes future extraction easier).



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BELTS

Belt working life depends on the following conditions:

1. Adequate storage.
2. Correct installation. (Never assemble with a lever, it may damage the belt and the pulley).
3. Correct tension.
4. Pulley alignment.
5. Pulley state (smashed plate pulley or broken edges on cast pulleys).
6. Belt cleanliness (free of grease or oil).
7. Pulley cleanliness (earth stuck in channels causes vibrations and rust).
8. Loosen them between seasons.

CHAINS

Chain working life depends on the following conditions:

1. The state of the sprockets (if worn the chain will not fit in perfectly).
2. Sprocket alignment.
3. Correct tension (excess tension – premature wear; lack of tension – tends to remount).
4. Adequate lubrication (periodically wash with diesel oil and lubricate with oil).
5. Between seasons, disassemble, wash and store with grease of submerged in oil.

BEARINGS

Bearing working life depends on the following conditions:

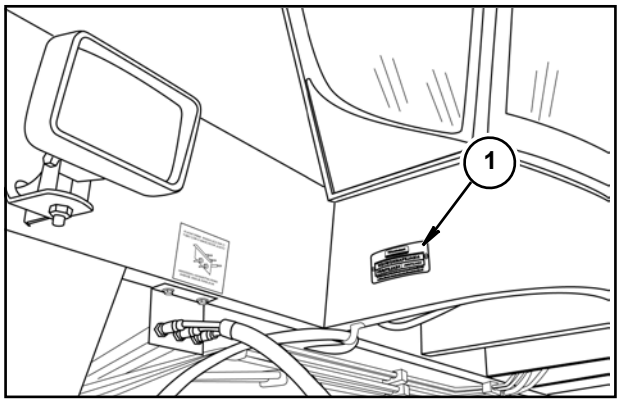
1. Correct assembly with adequate, clean tools.
2. Bearing, shaft and flange cleanliness.
3. Use of recommended lubricant.
4. Shaft alignment.
5. Correct retainer assembly.
6. When replacing use original bearings.
7. When lubricating, avoid contamination by foreign agents.

PRODUCT IDENTIFICATION

The combine, engine and attachment serial numbers can be found in the following locations:

- Combines:

On the plate positioned on the RH side (1) of the operator platform and RH side (2) of the combine, above the front axle.



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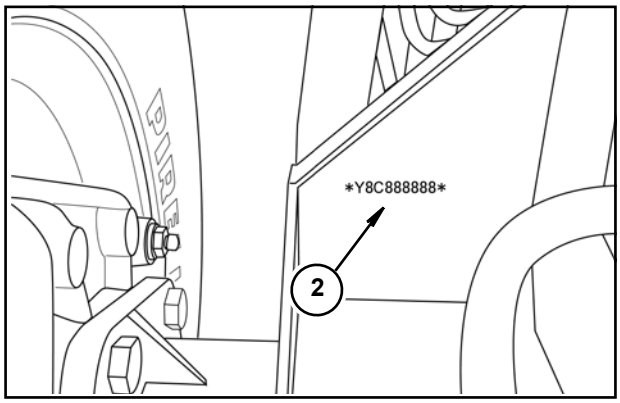

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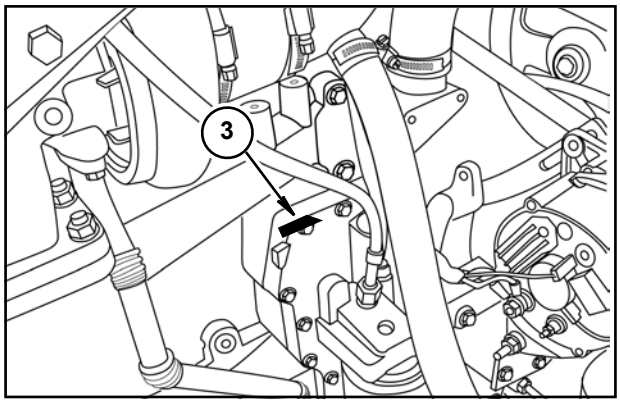
- Engine:

The main marking is engraved on the engine block (3) above the lubricating oil filter support.

To make identification easier, engine numbering is also engraved on a plate (4) fastened on the LH side of the engine near the fuel injection pump.



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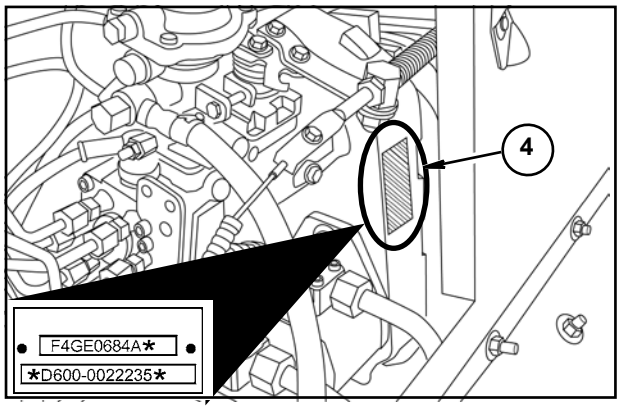

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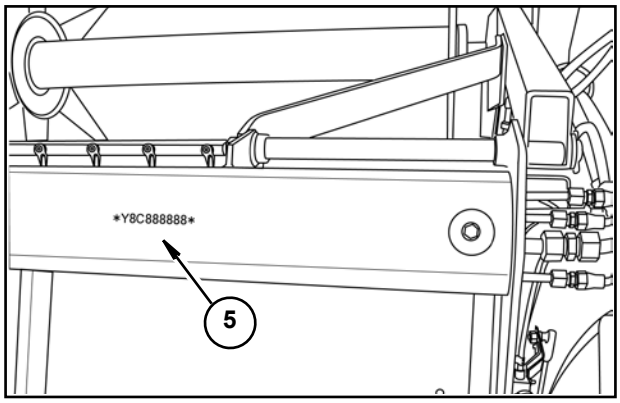
- Grain platform:

The serial number is recorded on the top right corner of the platform (5).

Plate containing the model and serial number fixed to the rear panel, LH side.



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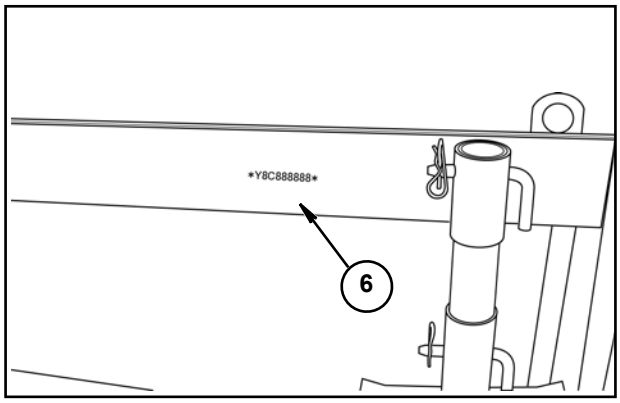
- Corn platform:

The serial number is recorded on the top right corner of the platform (6).

Plate containing the model and serial number fixed to the rear panel, LH side.



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- Track:

On the outside of the RH and LH chassis.

CONVERSION TABLE

	Foot (ft)	Inch (in)	Meter (m)
1 Foot	1	12	0,3048
1 Inch	0,0833	1	0.0254
1 Meter	3.281	39.37	1

SYMBOLS:

1 Foot = 1 ft

1 Inch = 1 in

1 Meter = 1 m

1 Pound = 1 lb

1 Square Inch = 1 in^2

CONVERSIONS:

1 hp = 0.746 kW

1 kW = 1.341 hp

1 lb/in^2 = 0.0689 bar

= 6.894 kPa

1 bar = 14.5 lbs/in^2

1 kPa = 0.145 lbs/in^2

1 pa = 10^{-5} bar

= 1.450 x 10-4 lbs/in^2

1 bar = 100 kPa

1 lb/in^2 = 6.896 Pa

1kgf.m = 9.806 Nm

1 Nm = 0.1019 kgf.m

TORQUE CHART

METRIC

Rated Size	Class 5.8 Torque Nm		Class 8.8 Torque Nm			Class 10.9 Torque Nm	
	Min.	Max.	Cotter Nut	Min.	Max.	Min.	Max.
M4	1,7	2,2	2,3	2,6	3,4	3,7	4,8
M6	5,8	7,1	7,9	8,9	12	3	17
M8	14	18	19	22	28	31	40
M10	28	36	38	43	56	61	79
M12	49	63	66	75	97	107	138
M16	121	158	164	186	240	266	344
M20	237	307	331	375	485	519	671
M24	411	531	573	648	839	897	1160

NOTES:

SECTION 00 – GENERAL INFORMATION

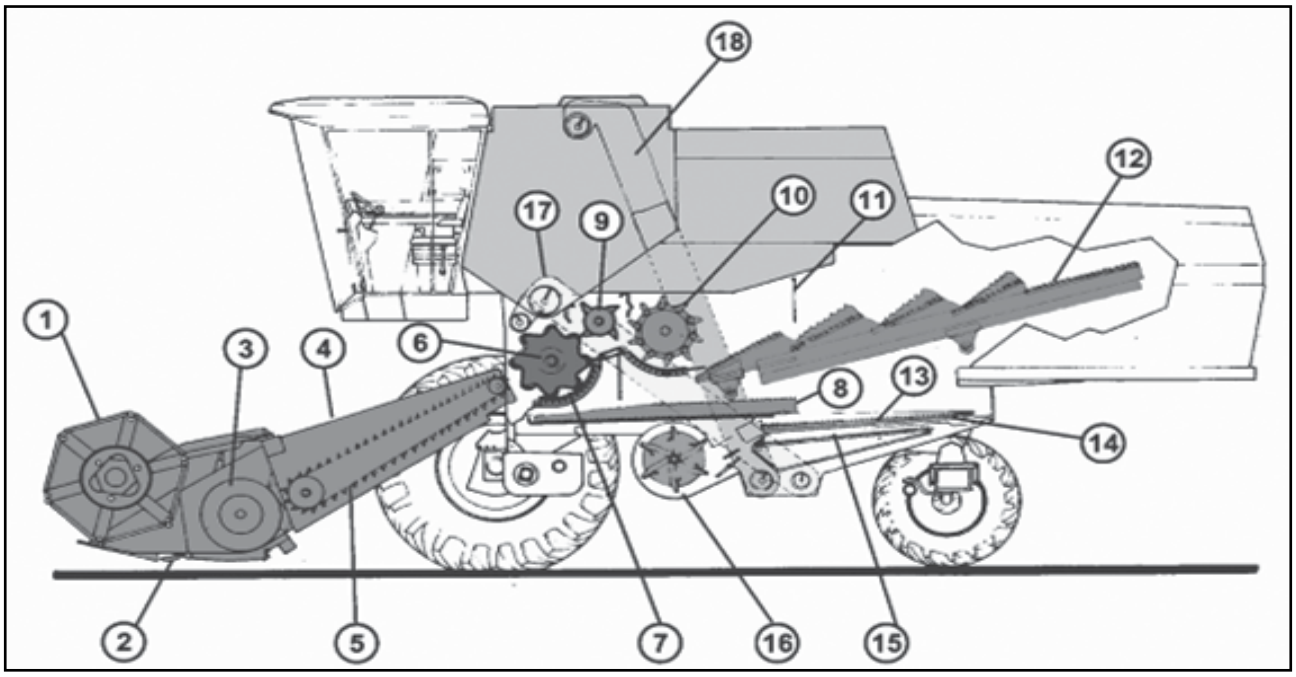
Chapter 2 – Drives and Controls

CONTENTS

BASIC OPERATION

The New Holland combines execute 5 different operations: feeding, threshing, separation, cleaning and storing.

Before we see each operation, let us learn about the general operation of the machine.



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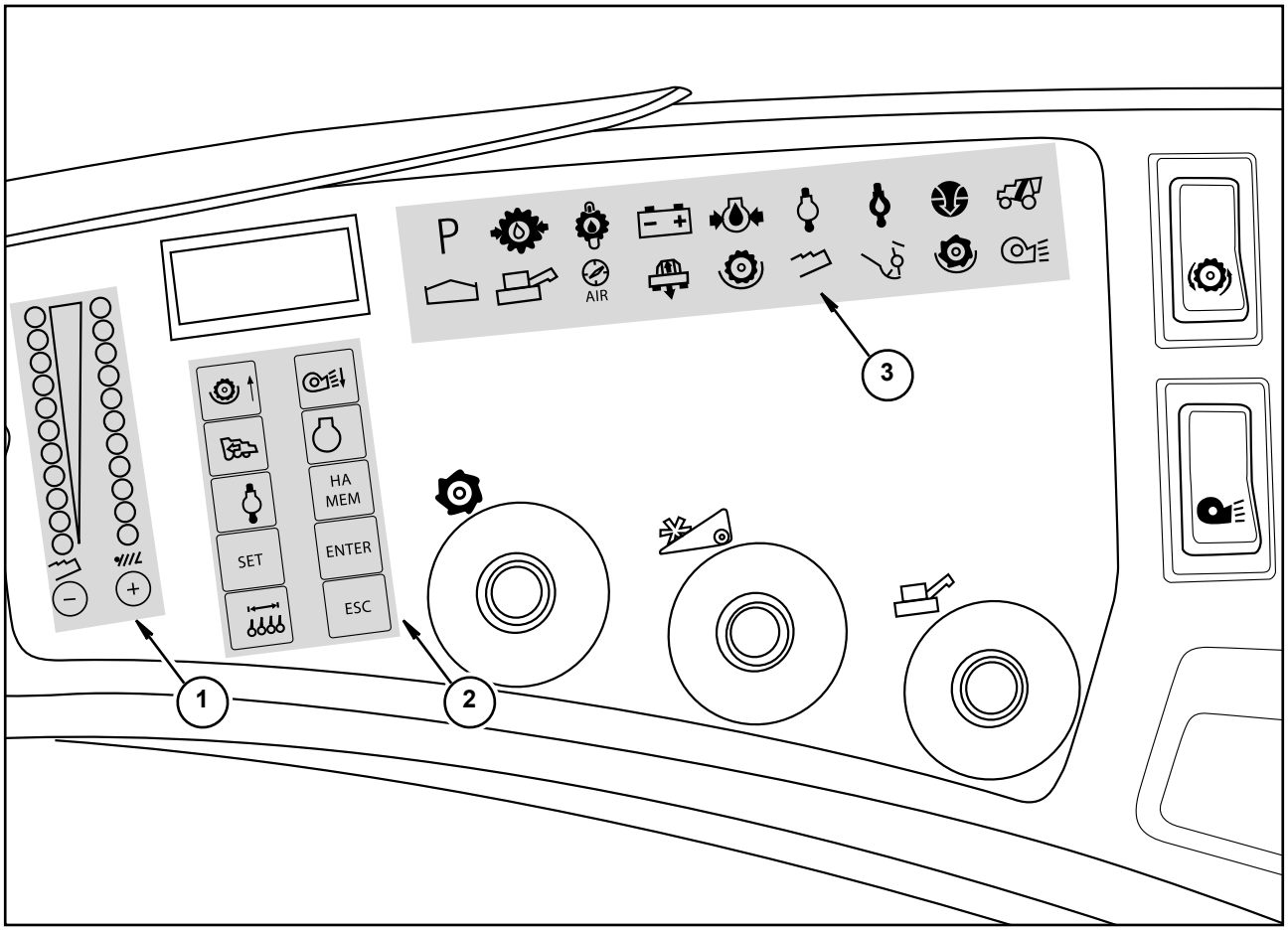
- While turning, the reel (1) aligns, collects and lays the plants over the header.
- The cutterbar (2) cuts the plant stems with a to and fro movement.
- The header auger (3) leads the cut material to the straw elevator spout (4).
- The retractable fingers forward the material to the conveyor belt (5).
- The conveyor belt (5) drives the material to the cylinder (6) and concave (7) to be threshed.
- The beater (9) helps separation and transfers the material (straw + grains) to the rotary separator (1), which is responsible for separating part of the grains still on the straw. The straw is launched to the straw walker (12), with the curtain (11) being responsible for preventing it from falling close to the straw walker end.
- The straw walkers (12) separate the remaining grains and expel the straw out of the machine.
- The threshed grain and chaff (chopped straw) drop onto the grain pan (8) where they are stratified (separated into layers).
- The fan (16) blows the straw allowing only the grains to drop onto the sieves (13, 14 and 15).
- The lower sieve (15) only allows fully clean grains to pass through.
- The clean grains are carried by the grain elevator (18) to the grain tank.
- The partly threshed grains that did not pass through the sieves are taken back to the cylinder (6) by the tailings elevator (17).
- The grains stored in the tank (19) are unloaded by the unloading tube.

DASHBOARD



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1 – Loss Monitor Module

2 – General Module

3 – Control Module