

# JOHN DEERE 55, 95 AND 105 COMBINES

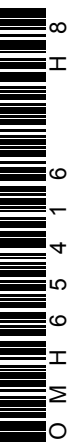


## OPERATORS MANUAL JOHN DEERE 55, 95 AND 105 COMBINES

OMH65416 H8 English

JOHN DEERE HARVESTER WORKS  
OMH65416 H8

LITHO IN THE U.S.A.  
ENGLISH



## TO THE PURCHASER

The combine you have purchased has been carefully designed and manufactured to provide years of dependable, economical service.

To further insure trouble-free service, we recommend that you follow closely all instructions concerning operation, lubrication, adjustments and service. Preventive maintenance has proven to be much more economical than corrective maintenance. Should you require information not covered in this manual, consult your John Deere dealer.

Information concerning warranty on this equipment appears on your copy of the Delivery Receipt which you should have received from your dealer when the equipment was delivered to you.

### KEEP YOUR COMBINE A JOHN DEERE COMBINE

Genuine John Deere Parts fit properly and insure satisfactory service because they are made from the original patterns and from the same materials as used in new machines. If your combine requires replacement parts, go to your John Deere dealer where you can obtain Genuine John Deere Parts—accept no substitutes.

### ATTACHMENTS

In addition to the equipment furnished with your combine, attachments are available to help you do a better job of combining in a special crop or condition. These attachments, illustrated and described in the Attachment section, are available from your John Deere dealer.

### LOCATION REFERENCE

"Right-hand" and "left-hand" sides are determined by facing in the direction the combine will travel when in use.

Radiator end of the engine is referred to as the "front," flywheel end as the "rear."

### SERIAL NUMBERS

Your combine, feeder house, cutting platform, axle, and engine have serial numbers.

When ordering parts, always bring with you the model and serial numbers as given on the serial number plates. By doing so, you will assist your John Deere dealer in giving you prompt, efficient service. For your convenience a space is provided below for recording these numbers.

The combine serial number is on a plate located on the support bracket at the rear end of the fuel tank.

The engine serial number is on a plate located above the starter on 55 and 95 Combines and under the alternator on 105 Combines.

The axle serial number is on the top, left-hand end of the axle tube.

The feeder house serial number is located on the right-hand side sheet.

The cutting platform serial number is located on the right-hand side sheet.

Combine Serial No. \_\_\_\_\_

Engine Serial No. \_\_\_\_\_

Axle Serial No. \_\_\_\_\_

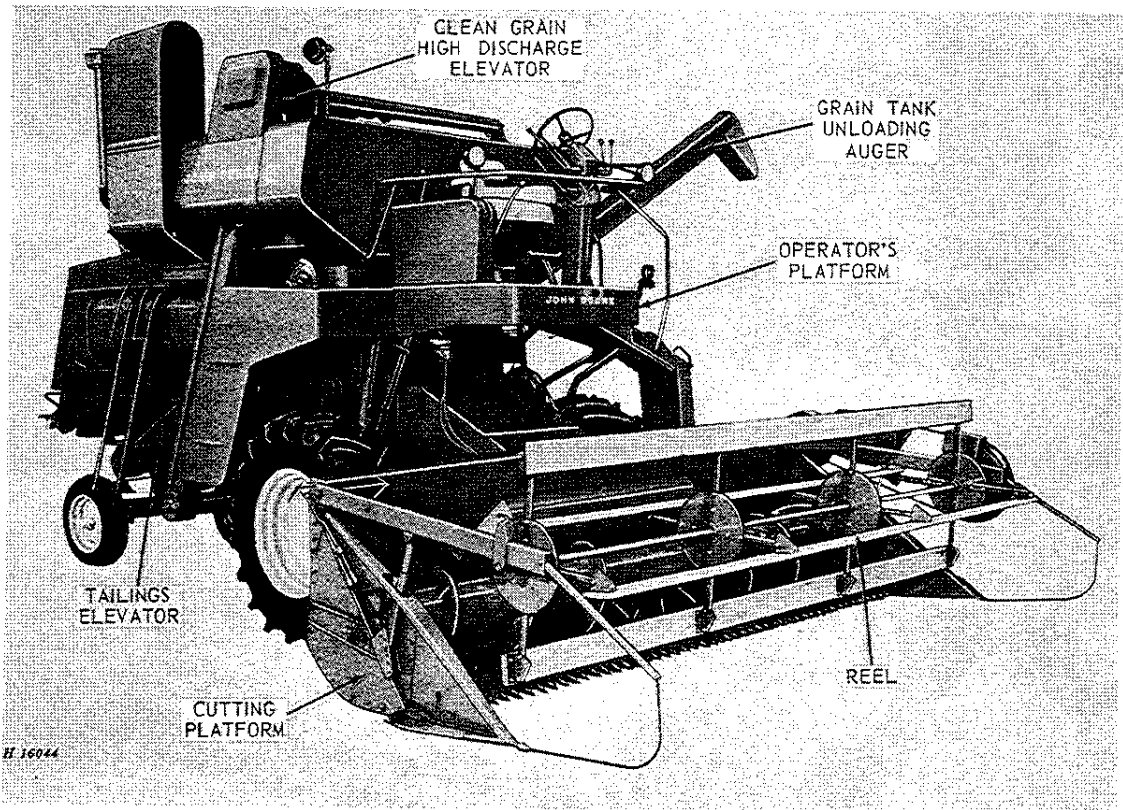
Cutting Platform Serial No. \_\_\_\_\_

Feeder House Serial No. \_\_\_\_\_

Date Purchased \_\_\_\_\_

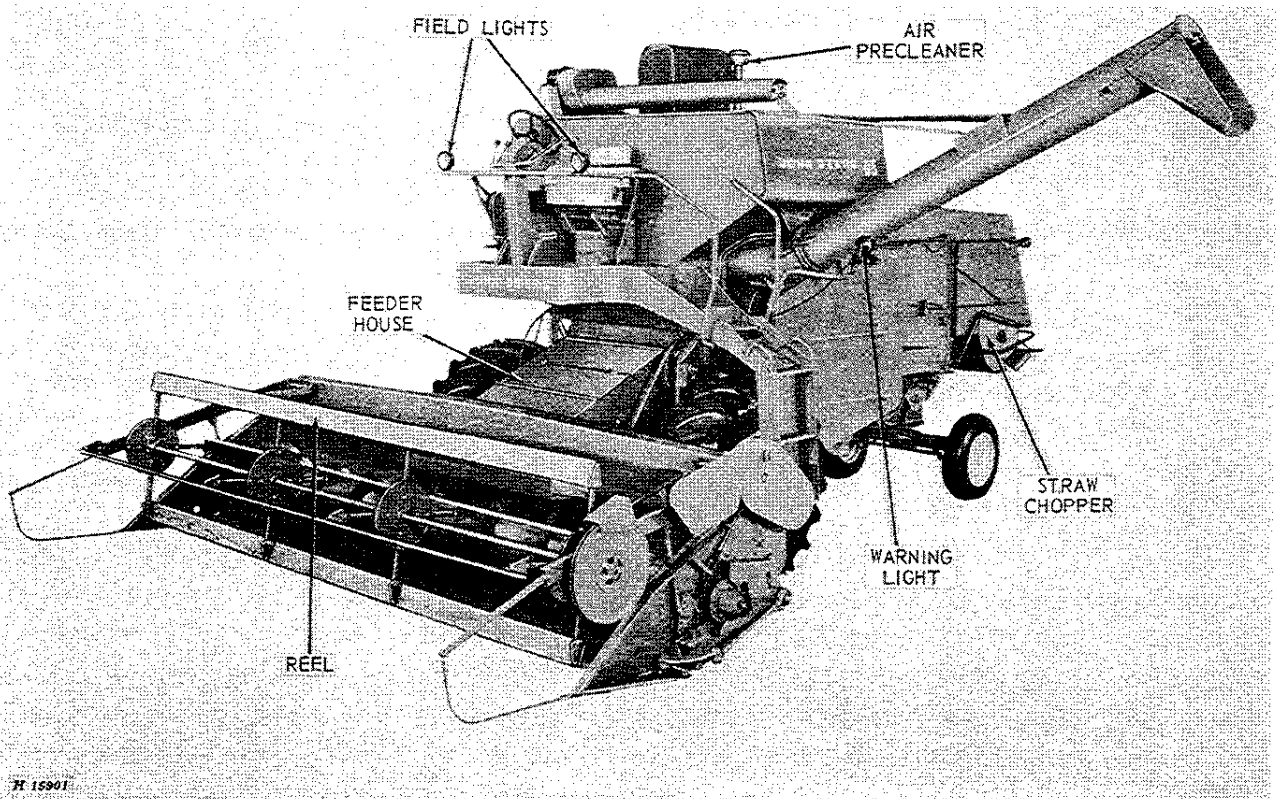
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H 16044

John Deere 55 Combine



H 15901

John Deere 95 Combine

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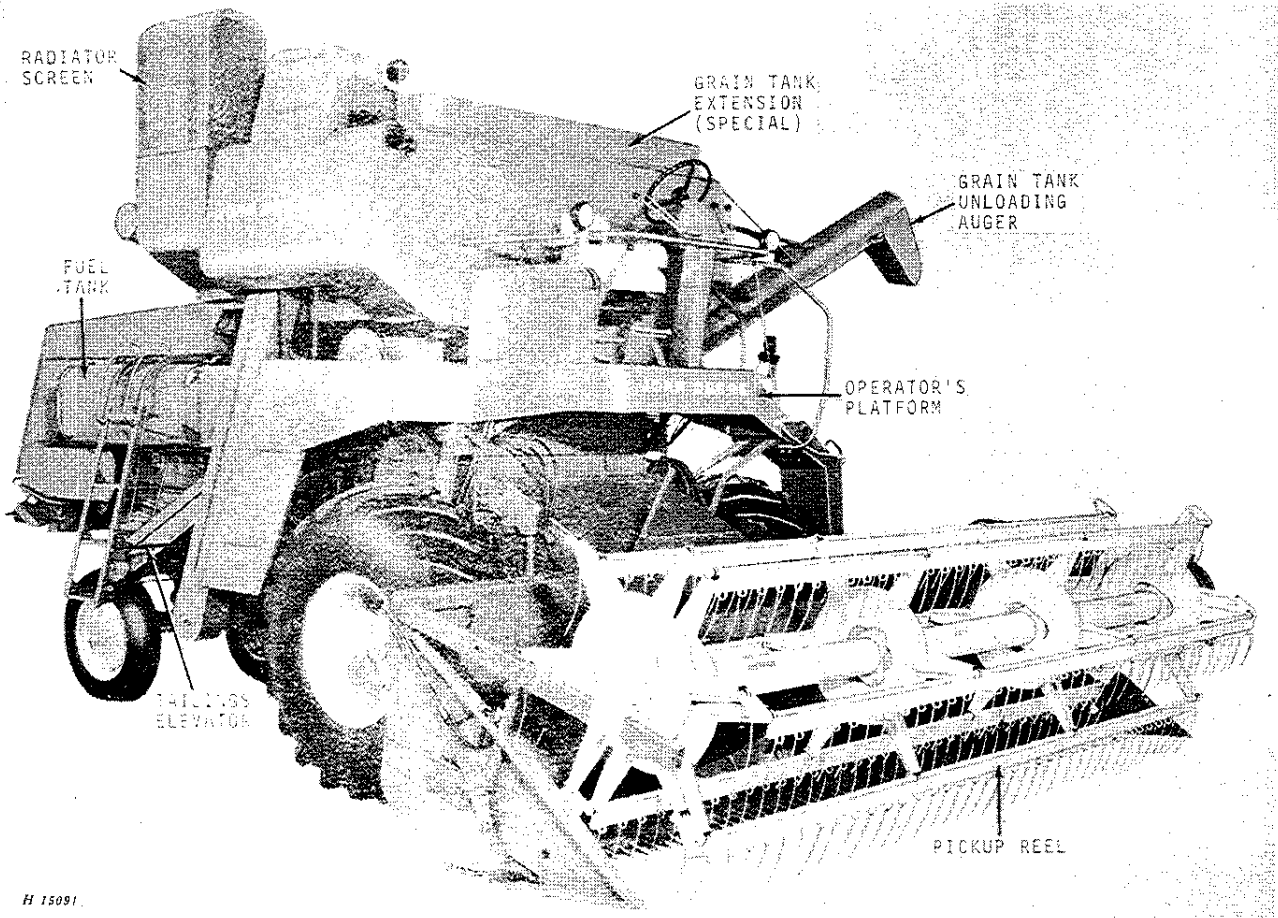
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H 15091

John Deere 105 Combine



# SPECIFICATIONS

Description	55 Combine	95 Combine	105 Combine
<b>CUTTER BAR</b>			
Width of cut	12 ft., 13 ft., 14 ft. or 15 ft.	12 ft., 13 ft., 14 ft., 15 ft., 16 ft., 19 ft., or 20 ft.	12 ft., 13 ft., 14 ft., 15 ft., 16 ft., 19 ft., 20 ft., or 22 ft.
Length of cutter bar	6 inches less than width of cut	6 inches less than width of cut	6 inches less than width of cut
Type of knife sections	Heavy-duty over-ser-rated	Heavy-duty over-ser-rated	Heavy-duty over-ser-rated
<b>REEL</b>			
Drive	V-belt	V-belt	V-belt
Number of slats	4 regular; 3, 6 or 8 special	4 regular; 3, 6 or 8 special	4 regular; 3, 6 or 8 special
Diameter of reel	32 in. or 40 in.	32 in. or 40 in.	32 in. or 40 in.
Speed range	15.3 rpm to 56.9 rpm	15.8 rpm to 58.5 rpm	15.8 rpm to 58.5 rpm
Height control	Manual	Manual	Manual
<b>CUTTING PLATFORM</b>			
Type of feed	Auger	Auger	Auger
Cutting height range with 18.4-26 main drive tires	2-7/8 inches below ground level to 34-5/16 inches above	2-7/8 inches below ground level to 34-5/16 inches above	2-7/8 inches below ground level to 34-5/16 inches above
Height control	Hydraulic (2 cylinders)	Hydraulic (2 cylinders)	Hydraulic (2 cylinders)
<b>CUTTING PLATFORM AUGER</b>			
Diameter	20 in.	20 in.	20 in.
Type of auger fingers	Round retracting	Round retracting	Round retracting
<b>BELT PICKUP PLATFORM</b>			
Width	12 ft.	12 ft.	12 ft.
<b>CYLINDER</b>			
Type	Rasp bar or spike tooth	Rasp bar or spike tooth	Rasp bar or spike tooth
Width	30 in.	40 in.	49-1/2 in.
Diameter	22 in.	22 in.	22 in.
Number of bars	8-rasp bar or 10 spike tooth	8-rasp bar or 10 spike tooth	8-rasp bar or 10 spike tooth
Drive	Roller chain	Roller chain	Roller chain
Speed range (Direct)	277 rpm to 1190 rpm	277 rpm to 1190 rpm	277 rpm to 1190 rpm
Speed range (Variable)	211 rpm to 1224 rpm	211 rpm to 1224 rpm	211 rpm to 1224 rpm
<b>CONCAVE</b>			
Type	12 bar open type or spike tooth type	12 bar open type or spike tooth type	12 bar open type or spike tooth type
Width	30 in.	40 in.	49-1/2 in.
<b>BEATER</b>			
Type	Wing (regular) Drum (optional)	Drum	Drum
Width	30 in.	40 in.	49-1/2 in.
Diameter	12 in.	12 in.	12 in.
Speed	680 rpm	680 rpm	680 rpm

#### 4 Specifications

Description	55 Combine	95 Combine	105 Combine
<b>SEPARATOR</b>			
Type	Grain conveyor, straw walker	Grain conveyor, straw walker	Grain conveyor, straw walker
Width	30 in.	40 in.	50 in.
Length of separating surface	140 in. (straw walker pans extended)	140 in. (straw walker pans extended)	140 in. (straw walker pans extended)
Total separating area	4,200 sq. in.	5,600 sq. in.	6,930 sq. in.
<b>GRAIN CONVEYOR</b>			
Type	Slat	Slat	Channel Slat
Drive	Chain (CA 550 roller)	Chain (CA 550 roller)	Chain (CA 550 roller)
<b>CLEANING FAN</b>			
Type	5-bladed undershot	5-bladed undershot	5-bladed undershot
Drive	V-belt	V-belt	V-belt
Speed Range	400 rpm to 1000 rpm	400 rpm to 1000 rpm	400 rpm to 1000 rpm
<b>CHAFFER</b>			
Type	Adjustable No. 2 no choke or Petersen adjustable	Adjustable No. 2 no choke or Petersen adjustable	Adjustable
Width	28-1/2 in.	38-1/2 in.	48 in.
Length with extension	60-3/4 in.	60-3/4 in.	60-3/4 in.
Area	1,733 sq. in.	2,337 sq. in.	2,915 sq. in.
<b>SIEVE</b>			
Type	Adjustable	Adjustable	Adjustable
Width	28-1/2 in.	38-1/2 in.	48 in.
Length	45 in.	45 in.	45 in.
Area	1,291 sq. in.	1,734 sq. in.	2,163 sq. in.
<b>CHAFFER EXTENSION</b>			
Type	Adjustable	Adjustable	Adjustable
Width	28-1/2 in.	38-1/2 in.	48 in.
Length	12 in.	12 in.	12-5/16 in.
Area	342 sq. in.	462 sq. in.	591 sq. in.
<b>TOTAL CLEANING AREA OF CHAFFER, SIEVE, AND CHAFFER EXTENSION</b>			
	3,024 sq. in.	4,071 sq. in.	5,078 sq. in.
<b>STRAW WALKERS</b>			
Number	Three	Four	Five
Width	9-1/2 in.	9-1/2 in.	9-1/2 in.
Length with pans extended	117 in.	117 in.	117 in.
Area	3,690 sq. in.	4,920 sq. in.	6,089 sq. in.
Number of steps	Five	Five	Five
Drive	V-belt	V-belt	V-belt
Bearings	Oil-soaked maple	Oil-soaked maple	Oil-soaked maple
Extension pans	One on each walker	One on each walker	One on each walker
<b>GRAIN TANK</b>			
Capacity	65 bushel, approx.	80 bushel, approx.	100 bushel, approx.
Type of unloading	Hinged auger	Hinged auger	Hinged auger

Description	55 Combine	95 Combine	105 Combine
<b>BRAKES</b> Type	Individual, mechanical disk type	Individual, mechanical disk type	Individual, mechanical disk type
<b>TRANSMISSION</b> (Not Hydraulic Drive)	Automotive - 4 speeds forward, 1 reverse	Automotive - 4 speeds forward, 1 reverse	Automotive - 4 speeds forward, 1 reverse
(Hydraulic Drive)	Automotive - 4 speeds	Automotive - 4 speeds	Automotive - 4 speeds
<b>GROUND SPEED</b>	See page 23	See page 24	See page 25
<b>SHIPPING LENGTH</b>	19 ft. 2 in.	19 ft. 2 in.	19 ft. 2 in.
<b>SHIPPING WIDTH</b>	9 ft. 2 in. (16.9-26 tires)	9 ft. 3 in. (18.4-26 tires)	9 ft. 11 in. (18.4-26 tires)
<b>WEIGHT</b>	9,800 lbs. with 14-ft. cutting platform	11,443 lbs. with 14-ft. cutting platform	13,468 lbs. with 16-ft. cutting platform
<b>DIMENSIONS</b>	See page 9	See page 9	See page 9

**HYDRAULIC DRIVE SYSTEM FOR 55, 95 AND 105 COMBINES**

<b>MAKE OF HYDRAULIC DRIVE UNITS:</b>  Variable displacement pump . . . . Sundstrand Fixed displacement motor . . . . Sundstrand	<b>TYPE OF OIL COOLER...</b> Air cooled—located in radiator air duct.
<b>SPEED RANGE . . . . .</b> (See Chart, Pages 23-25)	<b>SYSTEM CAPACITY . . . . .</b> 27 U.S. quarts
<b>TYPE OF OIL FILTER . . . . .</b> Full flow	<b>RESERVOIR CAPACITY . . . . .</b> 16 U.S. quarts
	<b>TYPE OF OIL . . . . .</b> John Deere Type 303 Special Purpose Oil or Type "A" Automatic Transmission fluid

**VARIABLE SPEED CYLINDER**

<b>CYLINDER SPEED RANGES</b> Regular sprocket. . . . . 445 rpm - 1049 rpm Special sprockets . . . . . 211 rpm - 1224 rpm	<b>SHEAVE DIAMETER</b> Cylinder . . . . . 19-5/8 inches Countershaft . . . . . 14-1/4 inches Tachometer (2) . . . . . 4 inches
<b>DRIVES</b> Countershaft . . . . . Double width roller chain Cylinder . . . . . V-Belt Tachometer. . . . . V-Belt	<b>CONTROLS . . . . .</b> Speed wheel on operator's platform. Cylinder sheave control cable. Countershaft sheave control cable.
<b>TYPE OF OPERATION. . . . .</b> Mechanical	<b>TACHOMETER . . . . .</b> Driven off left-hand end of cylinder shaft.

**TIRE SIZES AND WHEEL TREAD DIMENSIONS**

**Drive Wheels (Front)**

**55 COMBINE**

Combine	Tire Sizes	Center-to-Center Wheel Tread	
		Dished In	Dished Out
GRAIN	14.9-26 .....	78 in.	88 in.
	16.9-26 .....	80 in.	86 in.
	18.4-26 .....	81 in.	.....
	23.1-26 (use with wide tread 7.50-18 tire) .....	90 in.	.....
RICE	23.1-26 (20" rims) .....	94 in.	.....

**95 COMBINE**

GRAIN	16.9-26 (with H10135 Hub—optional) .....	84 in.	.....
	16.9-26 (with H10024 Hub—optional) .....	88 in.	95 in.
	18.4-26 (use with 334 and 434 Corn Attachments) (with H10135 Hub) .....	85 in.	.....
	18.4-26 (with H10024 Hub—optional) .....	90 in.	.....
RICE	23.1-26 .....	.....	89 in.
	23.1-26 .....	.....	98 in.
	28.1-26 .....	.....	103 in.

**105 COMBINE**

GRAIN	18.4-26 .....	97 in.	97 in.
	23.1-26 .....	101 in.	101 in.
RICE	23.1-26 .....	108 in.	108 in.
	28.1-26 .....	113 in.	113 in.

**Steering Wheels (Rear)**

**55, 95 AND 105 COMBINES**

Combine	Tire Sizes	Center-to-Center Wheel Tread	
		Narrow	Wide
GRAIN	6.00-16 (4 ply) Rib implement (55 and 95 only) .....	49 in.	66 in.
	6.50-16 (4 ply) Rib implement (55 and 95 only) .....	51 in.	68-1/2 in.
	7.50-16 (4 ply) Rib implement .....	51 in.	68-1/2 in.
	7.50-20 (4 ply) Rib implement (105 only) .....	48-1/2 in.	66 in.
RICE	9.00-16 (4 ply) Low profile .....	53 in.	70 in.
	7.50-18 (6 ply) Skid ring (55 and 95 only) .....	50 in.	67-1/2 in.
	7.50-20 (4 ply) Rib implement .....	48-1/2 in.	66 in.
	7.50-20 (6 ply) Skid ring (95 and 105 only) .....	48-1/2 in.	66 in.

See attachment section for information on drive wheel axle spacers.

## CAPACITIES

Description	55 Combine	95 Combine	105 Combine
Fuel Tank	40 U.S. Gallons	40 U.S. Gallons	60 U.S. Gallons
Cooling System	28 U.S. Quarts	28 U.S. Quarts	32 U.S. Quarts
Engine Crankcase	10 U.S. Quarts	9 U.S. Quarts	12 U.S. Quarts
Transmission	14 U.S. Pints	14 U.S. Pints	14 U.S. Pints
Final Drives (2)	4-1/2 U.S. Pints each	4-1/2 U.S. Pints each	4-1/2 U.S. Pints each
Hydraulic Unit (Including Lines and Components)	12 U.S. Quarts	12 U.S. Quarts	12-1/2 U.S. Quarts
Hydraulic Drive System (Including Lines and Com- ponents)	27 U.S. Quarts	27 U.S. Quarts	27 U.S. Quarts

## GASOLINE ENGINES

Description	55 Combine	95 Combine	105 Combine
Make and Model of Eng.	John Deere HB303G	John Deere HA303G	John Deere 362G1H
Bore	3.86 In.	3.86 In.	4.25 In.
Stroke	4.33 In.	4.33 In.	4.25 In.
Brake Horsepower	72* (Not Hydraulic Driven) 80* (Hydraulic Drive)	90*	105*
Number of Cylinders	6	6	6
Piston Displacement	303 Cu. In.	303 Cu. In.	362 Cu. In.
Maximum Load Speed	1900 rpm (Not Hydraulic Drive) 2200 rpm (Hydraulic Drive)	2500 rpm	2200 rpm
Firing Order	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4
Crankcase	Cast Integral with Block	Cast Integral with Block	Cast Integral with Block
Type of Lubrication	Force Feed by Gear Pump	Force Feed by Gear Pump	Force Feed by Gear Pump
Valve Arrangement	Valve in Head	Valve in Head	Valve in Head
Valve Clearance:			
Intake	0.014 In.	0.014 In.	0.015 In.
Exhaust	0.022 In.	0.022 In.	0.028 In.
Make of Governor	John Deere	John Deere	John Deere
Make of Carburetor	Marvel-Schebler	Marvel-Schebler	Zenith or Marvel- Schebler
Air Cleaner	Dry Type	Dry Type	Dry Type
Spark Plug	Size: 14 mm-gap 0.025 in.	Size: 14 mm-gap 0.025 in.	Size: 18 mm-gap 0.025 in.
Electrical System	12 Volt	12 Volt	12 Volt
Cooling System	Water Pressure	Water Pressure	Water Pressure
Type of Fuel	Gasoline - Regular	Gasoline - Regular	Gasoline - Regular
Oil Filter	Full Flow	Full Flow	Full Flow
Type of Thermostat	180° F.	180° F.	160° F.

\*Factory observed at 85° F. and 29.3 inches Hg. at 500 ft. above sea level.

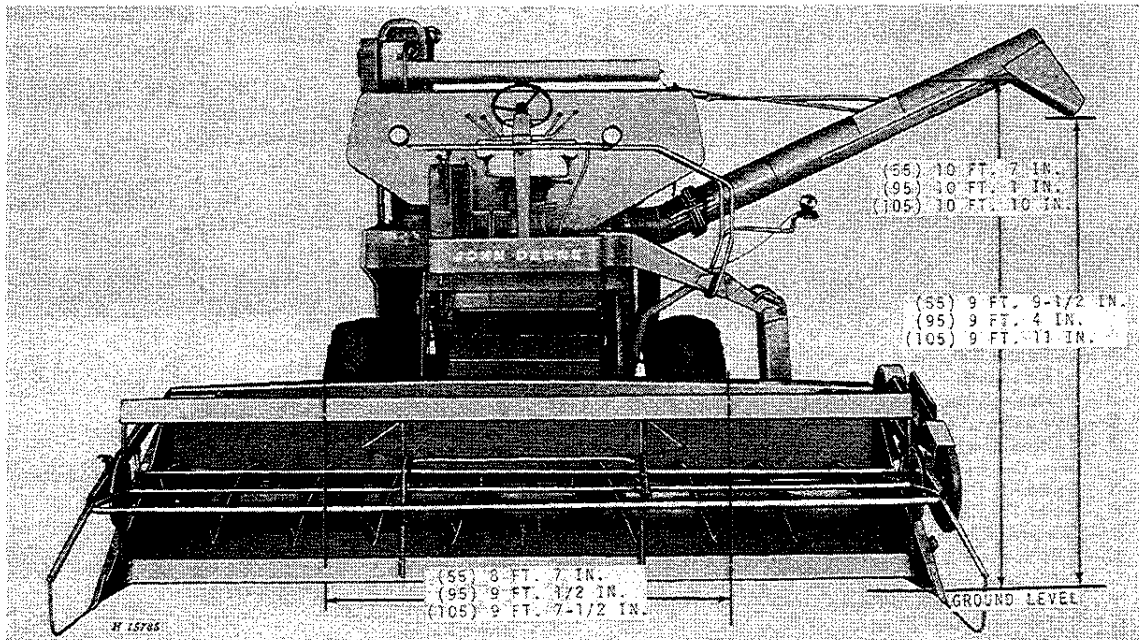
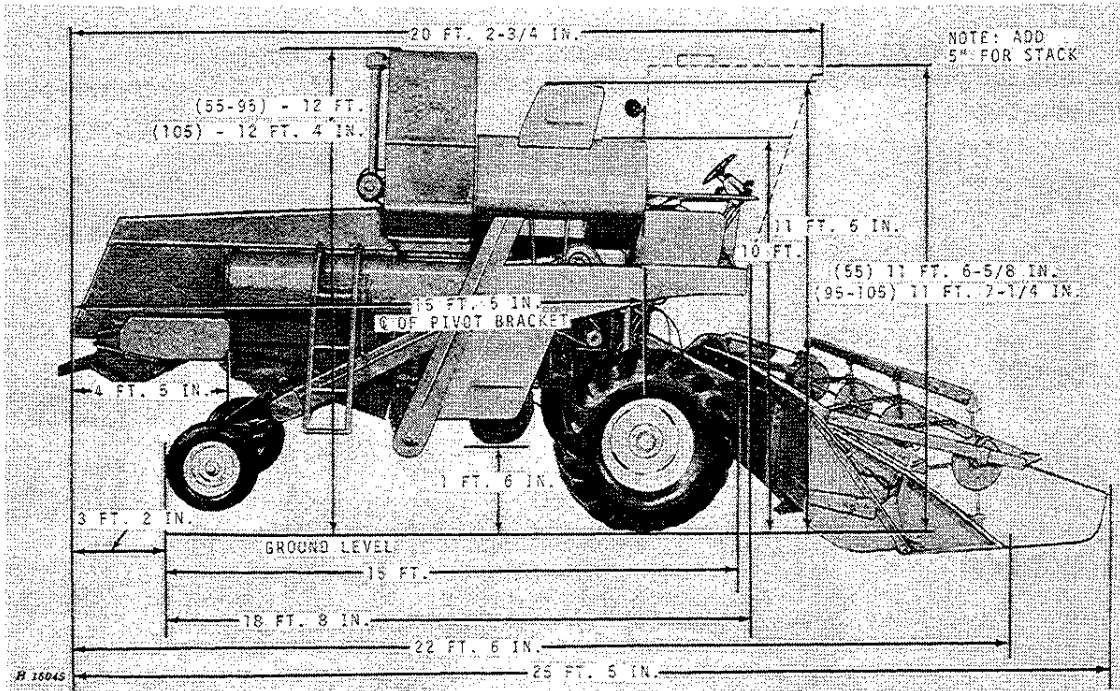
**DIESEL ENGINES**

<i>Description</i>	<i>55 Combine</i>	<i>95 Combine</i>	<i>105 Combines</i>
Make and Model of Engine	John Deere HB303D	John Deere HA303D	John Deere 404D-3H
Bore	3.86 In.	3.86 In.	4.25 In.
Stroke	4.33 In.	4.33 In.	4.75 In.
Brake Horsepower	72* (Not Hydraulic Drive) 80* (Hydraulic Drive)	90*	105*
Number of Cylinders	6	6	6
Piston Displacement	303 Cu. In.	303 Cu. In.	404 Cu. In.
Maximum Load Speed	1900 rpm (Not Hydraulic Drive) 2200 rpm (Hydraulic Drive)	2500 rpm	2200 rpm
Firing Order	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4
Crankcase	Cast Integral with Block	Cast Integral with Block	Cast Integral with Block
Type of Lubrication	Force Feed by Gear Pump	Force Feed by Gear Pump	Force Feed by Gear Pump
Valve Arrangement	Valve in Head	Valve in Head	Valve in Head
Valve Clearance:			
Intake	0.014 In.	0.014 In.	0.018 In.
Exhaust	0.018 In.	0.018 In.	0.018 In.
Make of Injection Pump	Roosa-Master	Roosa-Master	Roosa-Master
Make of Fuel Injection Nozzles	Roosa-Master	Roosa-Master	Roosa-Master
Air Cleaner	Dry Type	Dry Type	Dry Type
Electrical System	12 Volt	12 Volt	12 Volt
Cooling System	Water Pressure	Water Pressure	Water Pressure
Type of Fuel	No. 1-D or No. 2-D Diesel Fuel	No. 1-D or No. 2-D Diesel Fuel	No. 1-D or No. 2-D Diesel Fuel
Oil Filter	Full Flow	Full Flow	Full Flow
Type of Thermostat	190° F.	190° F.	180° F.

*\*Factory observed at 85° F. and 29.3 inches HG. at 500 ft. above sea level.*

*Specifications and Design Subject to Change without Notice.*

**NOTE:** Dimensions obtained with the following tires (at field operating pressure): Model 55 Combine equipped with 16.9-26 main wheel and 7.50-16 guide wheel tires; Models 95 and 105 Combines equipped with 18.4-26 main wheel and 9.00-16 guide wheel tires.

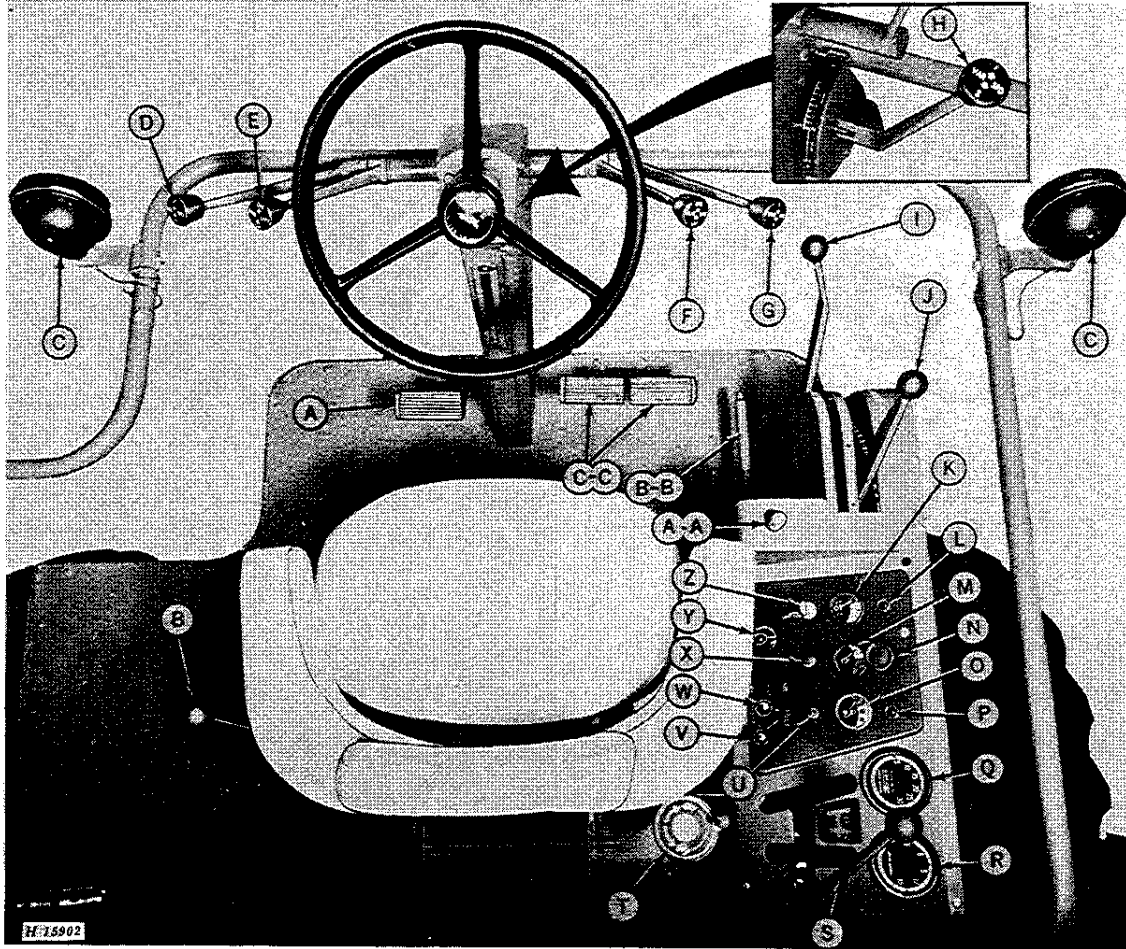


**NOTE:** For overall width with platform, add 12" to platform width.



# CONTROLS AND INSTRUMENTS

Before attempting to operate your new combine, become familiar with the location and purpose of its controls and instruments. Study these pages carefully, regardless of your previous combine experience.



- |   |   |
|---|---|
| A - Clutch Pedal                        | P - Parking Brake Warning Light           |
| B - Separator Throw-out Lever           | Q - Engine Tach-Hour Meter                |
| C - Field Lights                        | R - Variable Speed Cylinder Tachometer    |
| D - Variable Speed Reel Control         | S - Gearshift Lever                       |
| E - Hydraulic Lift Reel Control         | T - Variable Speed Cylinder Control Wheel |
| F - Cutting Platform Height Control     | U - Horn Button                           |
| G - Selective Ground Speed Control      | V - Choke---Gasoline only                 |
| H - Hydraulic Drive Speed Range Control | W - Throttle                              |
| I - Grain Tank Unloading Lever          | X - Starter Button                        |
| J - Concave Front Adjustment Lever      | Y - Light Switch                          |
| K - Oil Pressure Gauge                  | Z - Key Switch                            |
| L - Alternator Warning Light            | AA - Cutting Platform Throw-out Switch    |
| M - Coolant Temperature Gauge           | BB - Parking Brake Lever                  |
| N - Instrument Panel Light              | CC - Brake Pedals                         |
| O - Fuel Gauge                          |   |

The combine controls are located on the operator's platform within easy reach of the operator. Those controls, whose purpose and functions are obvious, will not be explained.

#### SEPARATOR THROW-OUT LEVER

Separator is engaged when lever is in forward position. To disengage, pull lever rearward.

#### CUTTING PLATFORM HEIGHT CONTROL

This lever controls the height of the platform. Move lever forward to lower platform; move lever rearward to raise platform. When released, the lever automatically returns to neutral position. As a safety measure, cutting platform height cannot be changed unless the engine is running.

*The platform control valve has an adjustment to control speed of platform lowering. By turning in cap screw, located on the rear of the valve, the rate of lowering is decreased; by turning cap screw out, the rate of lowering is increased. For adjustment see page 100.*

#### SELECTIVE GROUND SPEED CONTROL

*(Not Hydraulic Drive Combines)*

To increase ground travel speed within a selected transmission range, move lever forward. The lever will automatically return to neutral position when released and speed will remain as selected.

#### HYDRAULIC DRIVE SPEED RANGE LEVER

The speed range lever controls both the rate and direction of travel within one of the four transmission gears. The transmission gearshift lever is used to select the gear desired. Shifting is accomplished by moving the speed range lever to neutral and shifting to one of the four gear ranges.

With the gearshift lever positioned in the desired gear range, move speed range lever forward from its neutral position to move the combine forward.

Stop the combine by returning the speed range lever to neutral against a stop that is provided to assist in locating this position. Also, place the gearshift lever in its neutral position.

To operate in reverse, position gearshift lever in desired gear range and push the speed range lever to the right and pull lever rearward.

The speed of the combine, within a selected gear, is determined by the position of the speed range lever.

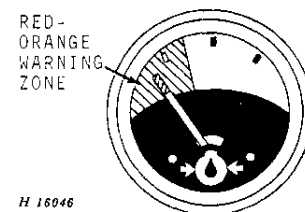
#### GRAIN TANK UNLOADING LEVER

This lever engages the auger when pulled up. To disengage, move lever down. Grain tank unloading auger drive and separator drive are independent. If engine is running, separator can be stopped without affecting unloading of grain tank.

#### CONCAVE FRONT ADJUSTMENT LEVER

This lever controls the opening and closing of the front of the concave from the operator's platform. Move lever forward to open concave; move lever rearward to close concave.

#### OIL PRESSURE GAUGE

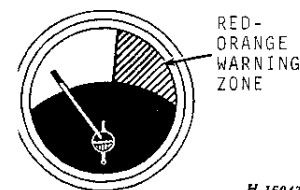


This gauge indicates the pressure of the engine lubricating oil. Oil pressure will vary slightly with wear, but with recommended oil, it should read **NORMAL** at full governed speed (indicated by white zone on dial). If pointer moves to red-orange warning zone, stop engine and determine cause.

#### ALTERNATOR WARNING LIGHT

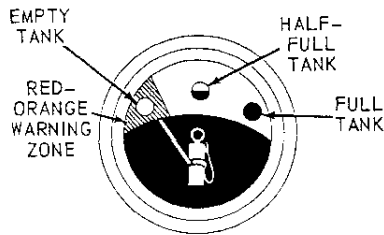
This light indicates whether or not the alternator is charging. Should the light go on while the engine is running, alternator is not charging; stop engine and determine cause.

#### COOLANT TEMPERATURE GAUGE



This gauge indicates the engine coolant temperature. Normal operating temperature is 180° F. to 219° F. (pointer in upper half of white zone on dial). If pointer moves to red-orange warning zone, stop engine and determine cause.

### FUEL GAUGE



T 11760

The fuel gauge is identified by the "pumping station" on the face of the gauge. If the pointer is in the small black circle, the tank is full; if it points to the small black and white circle, the tank is half full. When the pointer enters the red-orange warning zone, it is time to fill the fuel tank because when it reaches the small white circle, the tank will be empty.

**IMPORTANT:** Never let the fuel tank for a diesel engine run dry.

### ENGINE TACH-HOUR METER

The tach-hour meter registers both the engine rpm in hundreds and hours of engine operation.

The tachometer tells the operator whether or not he is operating at full governed speed.

The hour meter allows the operator to make periodic services and adjustments at the proper time.

### VARIABLE SPEED CYLINDER TACHOMETER

The tachometer, driven off the left-hand end of the cylinder shaft, registers cylinder rpm's by hundreds. The tachometer aids in maintaining the cylinder speed which is right for a particular crop. When conditions require a different cylinder speed, the tachometer will show at a glance the corrected speed.

### GEARSHIFT LEVER

The transmission has four speed ranges forward and one reverse on combines not equipped with hydraulic drive. On hydraulic drive combines each forward gear can be used as a reverse gear.

On combines not equipped with hydraulic drive, the clutch pedal must be fully depressed before gearshift lever can be shifted from one forward position to another.

On hydraulic drive combines, the speed range lever must be in its neutral position before gearshift lever can be shifted from one position to another.

Do not shift transmission into forward gear while machine is moving backward or possible damage will result in the shifting mechanism.

**CAUTION:** Make certain the gearshift lever is in neutral position and clutch pedal is fully depressed or the speed range lever is in neutral before starting engine.

### VARIABLE SPEED CYLINDER CONTROL WHEEL



H 15096

Cylinder Speed Symbol



FAST



SLOW

H 15097

Speed Range Symbol

The speed control wheel regulates the cylinder speed by changing the pitch diameters of the cylinder and countershaft sheaves. Turn the wheel counterclockwise (toward the "Hare") to increase the cylinder speed; turn the wheel clockwise (toward the "Tortoise") to decrease the cylinder speed.

### CHOKE—GASOLINE ONLY

Move choke control all the way forward when starting engine. After engine is started, and for normal operation, move choke control all the way rearward.

### THROTTLE

Move throttle one quarter forward when starting engine. Move throttle all the way forward for normal operation; move throttle all the way rearward for slow idle.

### LIGHT SWITCH

This switch operates both the field and safety lights.

Turn switch to first detent right for field lights only. Turn switch to second detent right for both field and safety lights.

### CUTTING PLATFORM THROW-OUT SWITCH

This switch operates the electromagnetic throw-out clutch which permits instant stopping of the cutting platform and feeder while the separator continues to run.

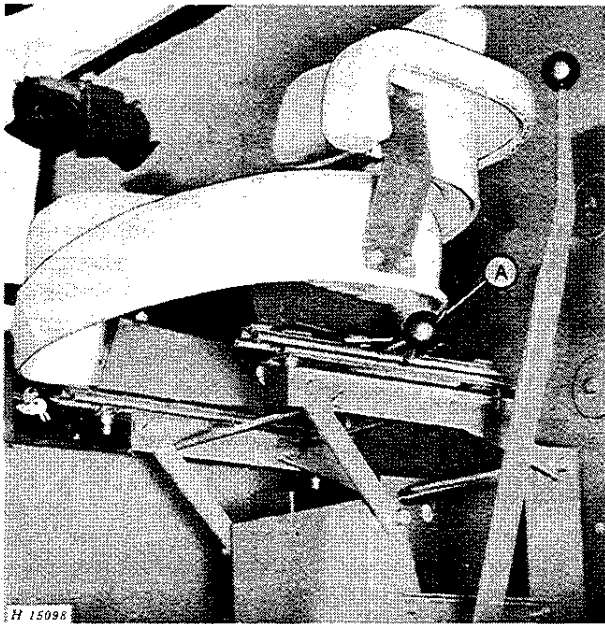
Push switch down to disengage drive, then when trouble has been taken care of, push switch down again to engage drive.

### PARKING BRAKE LEVER

The parking brake lever is used to lock the wheel brakes so the combine cannot move if left unattended. To engage, pull lever rearward. To disengage, push button in and move lever forward.

Never attempt to move combine with parking brake lever engaged.

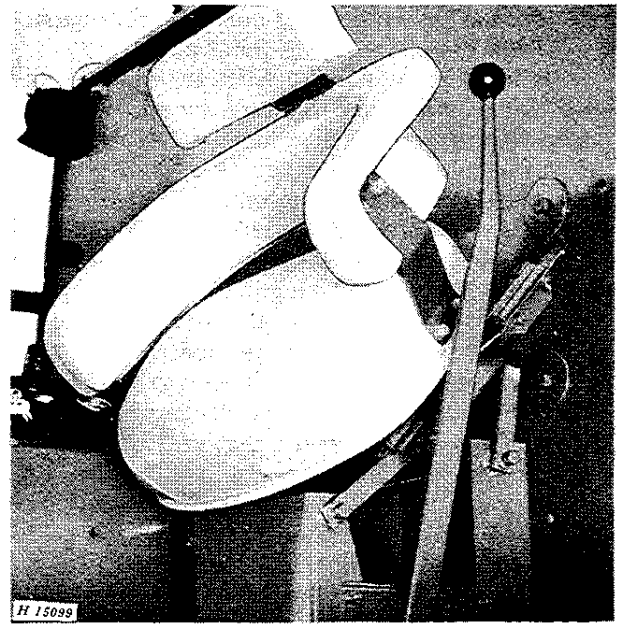
### OPERATOR'S SEAT



Seat in Sitting Position

The lever on the seat permits the operator to move the seat forward or rearward to accommodate his individual height and allow greater accessibility to all controls. If the operator wishes to stand, the seat can be positioned out of the way to allow ample leg space.

Use only warm water and mild soap to clean the seat cushions. NEVER USE SOLVENTS.



Seat in Standing Position

#### POSITIONING THE SEAT FORWARD OR REARWARD

While sitting in the seat, push lever "A" forward as far as possible and by using your weight, adjust seat to desired position and then release lever "A."

#### POSITIONING THE SEAT FOR STANDING

To move the seat up and back, stand up and apply pressure to the front of the seat with the back of your legs. The seat will move to the up and back position to allow standing room.

To return the seat to the sitting position, move the seat forward by pulling on the front of the seat with your hand.



# OPERATION

## FUNDAMENTALS OF COMBINE HARVESTING

The most important factor in harvesting, is for the operator to have a thorough understanding of the fundamentals of combine operation.

These fundamentals in brief are:

Be sure crop is in condition to thresh—moisture content not too high—straw not too green.

In making the first round of the field, keep the combine forward speed as slow as possible to reduce the volume of material entering the combine. Always run the engine at full throttle to keep the combine mechanism up to full speed, thus guarding against slugging and clogging. Use the selective ground speed control or the hydraulic drive speed range control to obtain slower speed or shift to a lower gear if necessary—but do not throttle down the engine.

Select a ground speed that will not overload the combine.

Engine should be in good condition—governor should be properly set and responsive enough to accelerate quickly if an overload occurs.

Keep the cylinder speed as low as possible and concave clearance as high as possible to remove the maximum amount of grain from head without breaking up the straw excessively. Maintain correct beater speed to guard against wrapping of straw on beater.

Cut the crop as high as possible without excessive loss of low grain heads. If the straw is down and tangled, it may be desirable to use lifting guards. Slow travel speed is imperative.

Adjust the reel position and speed for even feeding.

Regulate adjustable chaffer openings to pass the grain or seed to the lower sieve before it has passed over two-thirds the length of chaffer without admitting too much coarse material.

Close adjustable sieve as far as possible without carrying clean grain into the tailings auger.

If material loads up on front of chaffer, adjust upper windboard to throw air blast to front of shoe.

Use as much air as possible without blowing over clean seed. If the grain or seed is unusually light, it may be necessary to reduce the volume

of air. In heavy seeds, increase air volume.

Keep amount of tailings as low as possible.

## OPERATING SUGGESTIONS

Don't start combining until the crop is ripe.

Unless crop drying equipment is available, a crop should not be combined until it is dead ripe. If the threshed grain feels damp or is easily dented with the fingernail, the moisture content is usually too high for safe storage.

Grain crops containing 14 per cent moisture or less are usually considered dry enough for safe storage. A John Deere Moisture Meter for checking moisture content of grain and a portable Grain Dryer can be purchased from your John Deere dealer, or arrangements can usually be made at the local grain elevator for necessary moisture tests and drying if necessary.

## USING THE BRAKES

The two independent brakes can be used as a steering aid when making sharp turns.

**CAUTION:** Reduce engine speed before applying brakes. Apply brakes evenly at transport speeds to avoid drawing combine to one side. Quick stops can result in combine nosing forward. Drive with the care necessary to allow controlled application of brakes at all times.

## OPERATION IN WEEDY CONDITIONS

Combining in fields where weeds are numerous is particularly troublesome as they tend to gum up the sieves. Also, the moisture in the seeds is imparted to the grain.

The following suggestions will help while operating in weedy conditions.

Cut the crop as high as possible to avoid weeds and undergrowth.

Check to see that the cylinder is operating at proper speed.

Use as much air blast on the shoe as possible without blowing over grain.

Lower rear end of chaffer.

## HEIGHT AND WIDTH OF CUT

The cutting platform has a cutting height range from 2.9 inches below wheel level to 34.3 inches above wheel level on grain combines, and from 9.5 inches below wheel level to 33.5 inches above wheel level on rice combines. Cut just low enough to get all grain heads. Watch the height and condition of crop and continually raise and lower the cutting platform to meet conditions. If the crop is extremely heavy and badly down, it may be necessary to cut less than a full swath or reduce travel speed.

## SELECTING PROPER GROUND SPEED

The ground speed of the combine can be very closely controlled by using the selective ground speed control or hydraulic drive speed range control in conjunction with different transmission speeds. The chart on pages 23 to 25 shows the speeds that can be obtained in each transmission range. Select the best transmission range; then, with the selective ground speed control or the hydraulic drive speed range control, adjust the ground speed to exactly meet field conditions.

Excessive travel speed is one of the greatest causes of trouble in combining. Traveling at too high a ground speed causes overloading, resulting in a loss of grain.

Also, traveling at an excessively high speed over rough ground causes extra wear and damage to parts, not incurred when the combine is operated at a more reasonable speed.

By rounding the corners in the field, you can maintain more uniform speed when turning.

When stopping, wait until material in the combine is cleaned out before disengaging separator throw-out lever.

## KEEP STEADY, SMOOTH ENGINE SPEED

Any fluctuation in engine speed is reflected in the speed of the separator. Uneven speed results in loss of grain, inferior threshing and, in extreme cases, complete plugging of the combine. Take every precaution to maintain the correct uniform speed.

## COMBINE AND ENGINE BREAK-IN

Follow the lubrication instructions and charts closely. See pages 31 to 53.

Check coolant level in radiator. Add proper coolant as necessary. Do not use water containing alkali. *If combine is being operated at temperatures below 32°F., refer to "Cold weather operations," page 17.*

To promote good ring seating and to prevent cylinder wall glazing, put the engine to work as soon as possible. Do not overload. Second gear will give the best break-in load during early operation. If prolonged transport periods are required, use third gear. This will keep torque level up and induce ring seating.

### AFTER 5 HOURS

Lubricate the straw walker bearing blocks with SAE multipurpose grease every 5 hours of operation for the first three days; every 150 hours of operation thereafter.

### AFTER 20 HOURS

After the first 20 hours of operation, drain oil from hydraulic unit reservoir. Remove the oil filter and clean in diesel fuel. Replace the oil filter and fill the reservoir with service MS engine oil as shown in the chart on page 30. Thereafter, drain and replace oil and oil filter element every 500 hours of operation.

### AFTER 100 HOURS

#### Gasoline Engines

During break-in, if oil consumption warrants, add service MS SAE 10W or Mil-2104B engine oil.

After the first 100 hours of operation, drain oil from crankcase, replace oil filter, and fill crankcase to proper level with service MS oil of the proper viscosity as specified in lubricants chart on page 30.

#### Diesel Engines

During break-in, if oil consumption warrants, add service DM SAE 10W-30 engine oil.

When sulphur content of the diesel fuel exceeds 0.5% during the first 100 hours of operation, drain oil from crankcase, replace oil filter and fill crankcase to proper level with service DS oil of the proper viscosity as specified in lubricants chart on page 30.

After breaking-in both gasoline and diesel engines, drain and replace crankcase and oil filter every 100 hours of operation or every season whichever occurs first, using the correct oil as specified in lubricants chart on page 30.



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## BEFORE-OPERATION CHECKS AND ADJUSTMENTS

Careful inspection and service of the combine before starting work each day will prevent needless delays and breakdown in the field. Make the following checks and adjustments:

Check all V-belt drives carefully for proper alignment and tension. Keep belts tight enough to prevent slippage. Belts can be ruined very quickly if allowed to slip in the grooves of a sheave for any length of time. Excessive heating of a sheave is a sign of belt slippage. New belts will stretch slightly after the first run-off. Check tension frequently.

Open the clean-out doors in the bottom of the clean grain and tailings elevators and check tension of elevator chains. Check the chain tension every day of operation.

Be certain all shafts turn freely.

See that no bolts are loose or no cotter pins are missing.

Fill fuel tank with proper grade of fuel. See fuels and lubricants section.

Check the radiator and if necessary add coolant slowly until the level is approximately 1-inch below the bottom of the filler neck.

Lubricate the combine completely. Service air cleaner, and check oil level of hydraulic units, transmission, and final drives. See Lubrication section.

## STARTING THE ENGINE

Before starting engine, the following items should be checked:

1. Cutting platform throw-out switch disengaged.
2. Separator throw-out lever disengaged.
3. Grain tank unloading lever disengaged.
4. Gearshift lever in neutral.
5. Clutch pedal fully depressed.
6. Hydraulic drive speed range control in neutral.

If starting in cold weather, see "Cold weather operation," page 17.

### GASOLINE ENGINE

If engine has not been operated for a period of time, or the fuel tank has run dry, prime fuel pump lever up or down to force gasoline into carburetor. This will not be necessary on the 105 Combine because of the electric fuel pump.

*NOTE: After priming fuel pump, be sure the priming lever is in the down position. If the priming lever is left in the up position, the fuel pump is inoperative.*

Move throttle lever one-quarter open. Move choke lever all the way forward, depress clutch pedal, turn key to "on" and press starter button. After engine starts, release starter button and push choke control rearward. Check oil pressure gauge to make certain it is registering pressure; if not, stop engine and determine cause.

Release clutch, warm engine and transmission for five minutes at fast idle—no load. Do not operate combine during warm up.

### DIESEL ENGINE

If the engine has not been operated for a long period of time, or if the fuel tank has run dry, it is necessary to bleed the entire fuel system to remove air bubbles. See pages 111 and 113 for bleeding procedure.

**CAUTION: Never let the fuel tank run dry.**

Move throttle to one-quarter open, depress clutch pedal, turn key to "ON" and press starter button.

After engine starts, release starter button and check oil pressure gauge to make certain it is registering pressure; if not, stop and determine cause.

Release clutch, and let engine and transmission warm up for five minutes at fast idle—no load. Do not operate combine during warm up.

## STOPPING THE ENGINE

### GASOLINE ENGINE

Set throttle at medium idle speed and allow engine to run at this speed for a few minutes before stopping.

### DIESEL ENGINE

Set engine at medium idle speed and allow engine to run at this speed until temperature gauge drops well into white range on dial. Move throttle to rear and turn off key.

**CAUTION: Do not attempt to stop engine by turning off fuel supply at tank. Doing so will cause injection pump to run dry and damage internal parts.**

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