



No. 55 Combine



JOHN DEERE

SERVICE MANUAL No. 55 Combine

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SERVICE MANUAL FOR
JOHN DEERE DEALERS

No. 55 COMBINE

TABLE OF CONTENTS

	Page
INDEX.....	1-4
	Section
Description and Specifications.....	10
Trouble Shooting.....	20
Lubrication.....	30
Tune-Up and Adjustment.....	40
Platform.....	50
Threshing Unit.....	60
Separating Unit.....	70
Cleaning Unit.....	80
Augers and Elevators.....	90
Steering and Rear Axle.....	100
Selective Ground Speed Control.....	105
Axle.....	110
Hydraulic Systems.....	120



INTRODUCTION

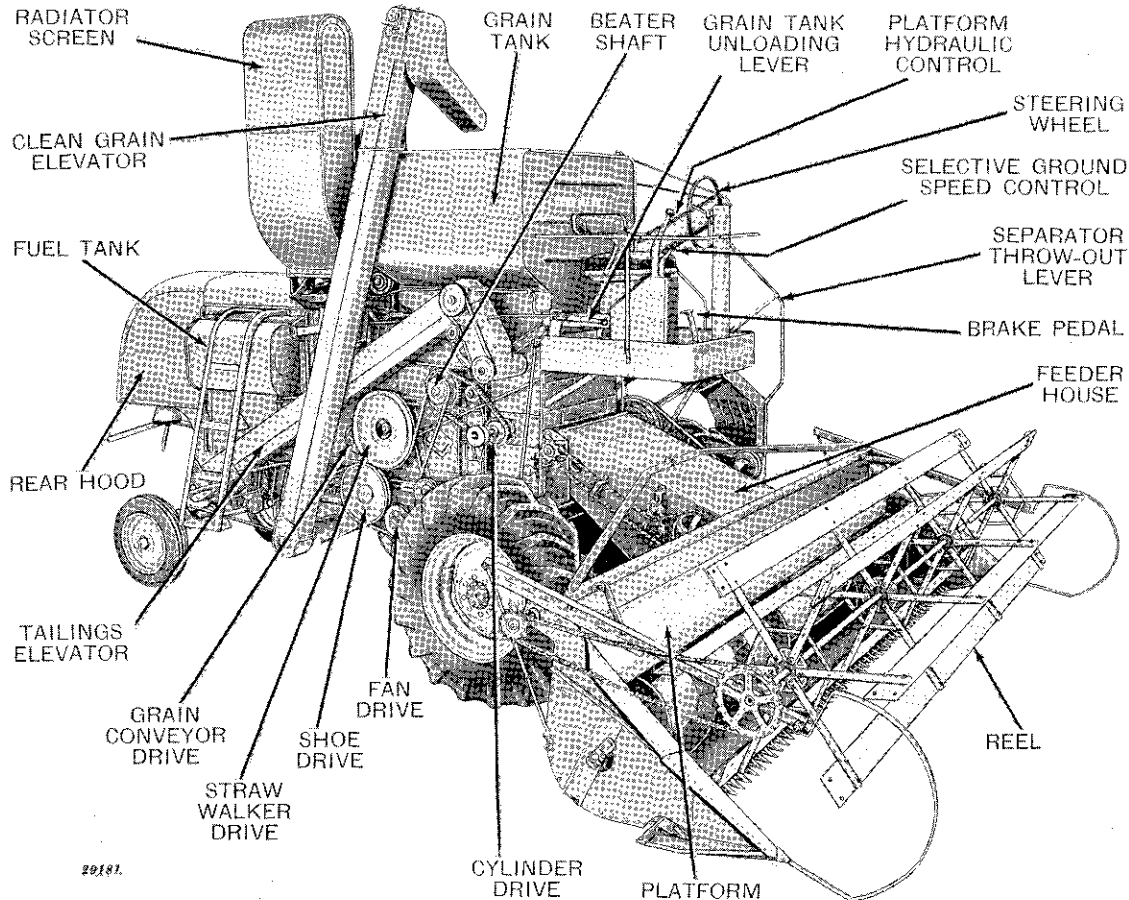
This Service Manual contains maintenance instructions on the John Deere No. 55 Combine. Included are complete instructions for adjustment, removal, inspection, repair, assembly, and installation of all assemblies.

The manual contains brief descriptions of the more complicated units of the combine. A comprehensive trouble shooting section has been included that will enable a serviceman to trace the cause of trouble easily and quickly. Adjustments required to keep the combine operating at full efficiency are explained in detail.

Service of the engine used on the No. 55 Combine is covered in SM-2014 which is on the Hercules QXD-3 engine used on both the No. 55 Combine and the No. 8 Cotton Picker.

This Service Manual was planned and written for the Service Department; its place is in the shop. Use the manual whenever in doubt about correct maintenance procedures. Use it as a text book for training new Service Department personnel who may be unfamiliar with John Deere combines.

Daily use of the Service Manual as a guide for any and all service problems will reduce error and costly delay to the minimum and assure you the best in finished service work. In many instances your customer's confidence in your work will be improved when he sees you using the Service Manual. He knows you are following approved maintenance procedures and making proper adjustments. There is no guesswork when you use the Manual.



John Deere No. 55 Self-Propelled Combine

INDEX

A	<i>Page</i>		<i>Page</i>
Air Cleaner	30-5-2	Cleaning Fan	80-15-1
Auger Adjustments	50-20-2, 90-10-1	Cleaning Fan Repair	80-15-2
Augers and Elevators	40-5-1	Cleaning, Inspection and Repair, Steering Gear	100-10-5
Auger and Sickle Speeds	50-5-3	Cleaning Unit Adjustments	80-10-2
Auger Drive	90-5-3	Cleaning Unit, Description	80-5-1
Auger Drive Belts	40-5-10	Clean-Out Doors	90-5-1
Auger Drive Belt Adjustments	90-10-1	Clutch	110-5-2
Auger, Platform	50-20-1	Clutch Adjustment	40-5-21, 110-20-4
Auger, Repair	50-20-5	Clutch Assembly	110-20-3
Auger Replacement	50-20-5	Clutch Disassembly	110-20-2
Auger Shaft Shield	40-5-9	Clutch Inspection and Repair	110-20-3
Auger Slip Clutches	40-5-10	Clutch Installation	110-20-4
Auger Stripper	40-5-4	Clutch Plate, Centering	40-5-11
Axle Description	110-5-1	Clutch Removal	110-20-1
Axle Inspection and Diagnosis	110-10-1	Clutch, Unloading Auger	90-10-2
Axle Installation	110-15-2	Concave Grate, Description	60-15-1
Axle with Planetary Gears	110-35-3	Concave Grate, Inspection and Repair	60-15-3
Axle, Regular	110-35-1	Concave Grate Removal	60-15-1
Axle Removal	110-15-1	Controls	10-5-8
Axles and Wheel Hubs	110-5-5	Conveyor Chain Tension	40-5-9, 90-5-2
		Conveyor Feeder	40-5-5, 50-30-1
B		Conveyor, Grain	70-5-2
Backlash of Studs in Cam Groove	40-5-15	Crankshaft Replacement	70-20-3
Ball Sockets, Knife Drive	40-5-2	Cutter Bar	40-5-1
Ball Thrust Bearings Adjustment	40-5-5	Cutter Bar Knife	50-15-1
Bearing Preload	110-30-8	Cutter Bar Knife Register	40-5-1
Beater	70-10-1	Cutter Bar Repair	50-15-2
Beater Behind the Cylinder	40-5-7	Cylinder	40-5-6
Beater, Feeder, Replacement	50-25-2	Cylinder Adjustments	60-10-1
Beater Replacement	70-10-1	Cylinder Drive	60-10-10
Beater Speed	40-5-7	Cylinder Installation	60-10-5
Blackhawk Cylinder Service	120-25-3	Cylinder, Platform Lift	120-25-1
Brakes, Hydraulic	40-5-20	Cylinder Removal	60-10-5
Brakes, Mechanical	40-5-19	Cylinder Repair	60-10-10
Brake, Transmission	110-25-1	Cylinder Replacement	60-10-4
Bushings, Rubber, Shoe Hanger, and Pitman	80-10-5	Cylinder Shaft Replacement	60-10-9
		Cylinder Speeds	60-10-11 - 60-10-13
C		Cylinder Stripper Adjustment	40-5-6
Capacities, Lubricant	30-5-1		
Centering the Clutch Plate	40-5-11	D	
Cessna Cylinder Service	120-25-4	Description and Specifications	10-5-1
Chaffer and Sieve Equipment, Special	80-10-3	Differential	110-5-5
Chaffer and Sieve Replacement	80-10-4	Differential Assembly	110-30-4
Chaffers	80-5-2	Differential Bearing Preload, Adjusting	110-30-8
Chain, Feeder Conveyor	80-30-6	Differential Carrier Disassembly	110-30-2
		Differential Inspection and Repair	110-30-3

	<i>Page</i>		<i>Page</i>
Differential and Pinion.....	110-30-1	Hanger Rod Adjustment.....	40-5-11
Differential and Pinion Removal.....	110-30-1	Helper Spring.....	100-5-5
Doors, Clean-Out.....	90-5-1	How the Combine Works.....	10-5-11
Double Sheave Repair.....	105-5-7	Hydraulic Brakes.....	40-5-20
Drag Link Adjustment.....	40-5-15	Hydraulic Systems.....	
Drag Link, Steering.....	110-10-7	120-5-1, 120-10-1, 120-15-1, 120-20-1	
Draining and Refilling Hydraulic Sys- tems.....	120-10-2	Hydraulic System Controls..	120-10-26, 120-15-25
Dual Platform Lifting Cylinders.....	120-25-7	Hydraulic System Operating Pressure..	120-10-3
		Hydraulic System Pump.....	120-10-9
E		Hydraulic Unit Lubrication.....	30-5-3
Elevators and Augers.....	40-5-9	Hydraulic Valve Unit.....	120-20-24
Engine Lubrication.....	30-5-2	Hydreco Pump.....	120-20-15
		K	
F		Knife Alignment.....	40-5-2
Fafnir Bearing Replacement.....	60-10-6	Knife, Cutter Bar.....	50-15-1
Fan, Cleaning.....	80-15-1	Knife Drive Ball Sockets.....	40-5-2
Fan, Cleaning, Repair.....	80-15-2	Knife Guard Alignment.....	40-5-2
Feeder Beater, Description.....	50-25-1	Knife Holders.....	40-5-3
Feeder Beater Replacement.....	50-25-2	Knife Register.....	40-5-1
Feeder Conveyor.....	40-5-5	L	
Feeder Conveyor Adjustments.....	50-30-2	Leveling Adjustment, Platform.....	40-5-6
Feeder Conveyor Chain Replacement..	50-30-6	Lubrication Charts.....	30-5-5, 30-5-16
Feeder Conveyor, Description.....	50-30-1	Lubrication, General.....	30-5-1
Fingers, Retractable.....	40-5-4		
Front Wheel Hubs Lubrication.....	30-5-4	M	
		Mechanical Brakes.....	40-5-19
G		Mechanical Brake Adjustment.....	40-5-19
Grain Conveyor.....	70-5-2	P	
Grain Conveyor, Care.....	70-25-1	Parker Valve.....	120-10-20
Grain Conveyor Chain Adjustment... ..	70-25-1	Pesco Pump.....	120-10-10
Grain Tank Unloading Auger and Drive.....	90-10-1, 90-10-4	Pesco Valve.....	120-10-14
Grate, Concave.....	60-5-2	Pinion Assembly Installation.....	110-30-9
Grate Inspection and Repair.....	60-15-3	Pinion and Cage Assembly.....	110-30-7
Grate Removal.....	60-15-1	Pinion and Cage Disassembly.....	110-30-6
Ground Speed Belt Tension.....	105-5-4	Pinion Gear Backlash Adjustment....	110-30-9
Ground Speed Control Belt Tension... ..	105-5-4	Pitman Bushings.....	80-10-5
Ground Speed Control, Description... ..	100-5-1	Pitman, Shoe.....	80-10-5
Ground Speed Control Helper Spring..	105-5-5	Platform.....	40-5-6
Ground Speed Control Travel Limit Stops.....	105-5-5	Power Pack and Drive.....	120-15-12
Ground Speed Control Sheave Replace- ment.....	105-5-6	Platform Auger.....	50-20-1
Ground Speed Control V-Belt Re- placement.....	105-5-6	Platform and Feeder House, Descrip- tion.....	50-5-1
Ground Speed Range.....	105-5-2	Platform and Feeder Speeds.....	50-5-2
Ground Speed Sheave Alignment.....	105-5-6	Platform Installation.....	50-35-1
Guard Alignment.....	40-5-2	Platform Leveling Adjustment... ..	40-5-6, 50-35-2
Guard Plates.....	40-5-3	Platform Lift Cylinders.....	120-25-1
		Platform Removal.....	50-35-1

R	<i>Page</i>	<i>Page</i>	
Rear Wheel Assembly.....	100-15-3	Steering Chain Adjustment..... 40-5-13, 100-5-3	
Rear Wheel Inspection and Repair....	100-15-3	Steering Chain Tension..... 40-5-12	
Rear Wheel Installation.....	100-15-3	Steering Gear, Inspection and Repair. 100-10-5	
Rear Wheel Removal.....	100-15-1	Steering Mechanism..... 40-5-12, 40-5-14	
Rear Wheel Steering Chain Ad- justment.....	40-5-13, 100-5-3	Steering Chains and Sprockets.. 100-5-2, 100-10-2	
Rear Wheel Tires.....	100-15-1	Steering Drag Links..... 100-10-7	
Rear Wheels and Rear Axle.....	100-15-1	Steering Gear Adjustment..... 40-5-15	
Reduction Gears.....	110-25-1	Steering Gear Assembly..... 100-10-5	
Reel Adjustments.....	50-10-1	Steering Gear Disassembly..... 100-10-5	
Reel Attachments.....	50-10-3	Steering Gear Installation..... 100-10-6	
Reel, Platform and Feeder House.....	50-10-1	Steering Gear Lubrication..... 100-10-4	
Reel Speeds.....	50-5-4	Steering Gear Removal..... 100-10-4	
Register, Knife.....	40-5-1	Steering Gear, Ross..... 100-10-3	
Reservoir.....	120-10-8, 120-20-9	Steering Mechanism... 40-5-12, 100-5-1, 100-10-1	
Retractable Fingers.....	40-5-4, 50-20-4	Steering Post Chain Adjustment..... 40-5-16	
Ross Steering Gear Adjustment.....	100-10-3	Straw Walkers..... 70-5-2, 70-20-1	
Ross Steering Gear, Description.....	100-10-3	Straw Walker Replacement..... 70-20-2	
S			
Selective Ground Speed Control, See Ground Speed Control.....	40-5-17	Stub Axles..... 100-15-3	
Selective Ground Speed Control Cyl- inder.....	120-25-8	Stub Axle Inspection and Repair..... 100-15-4	
Separating Unit Description.....	70-5-1	Stub Axle Installation..... 100-15-4	
Separator Drive Belt Tightener Lu- brication.....	30-5-4	Stub Axle Removal..... 100-15-4	
Separator Throw-Out Adjustment....	70-15-2	Support Bearing..... 40-5-13, 100-5-2	
Separator Throw-Out Mechanism.....	40-5-7	T	
Separator Throw-Out Mechanism, Des- cription.....	70-15-1	Tailings Discharge Auger Shaft Shield 40-5-9	
Service, Augers and Elevators.....	90-5-4	Tailings Inspection Door..... 90-5-1	
Sheave Alignment.....	40-5-18, 105-5-6	Throw-Out Mechanism..... 40-5-7	
Shifter Linkage.....	110-25-5	Tightener Pulley..... 70-15-3	
Shifter Mechanism.....	110-25-3	Tightener Pulley Alignment..... 40-5-9	
Shoe, Description.....	80-10-1	Threshing Unit Description..... 60-5-1	
Shoe Hanger Bushings.....	80-10-5	Toe-In Adjustment... 40-5-14, 100-5-3, 100-10-7	
Shoe, Pitman.....	80-10-5	Transmission and Differential Lubri- cation..... 30-5-3	
Sickle, Auger, Feeder Beater, and Feeder Conveyor Speeds.....	50-5-4	Transmission and Reduction Gears... 110-25-1	
Sickle Speeds.....	50-5-3	Transmission Assembly..... 110-25-9	
Sieves.....	80-5-3	Transmission Brake..... 100-25-1	
Sieve Equipment, Special.....	80-10-3	Transmission Disassembly..... 110-25-6	
Sieve Replacement.....	80-10-4	Transmission Inspection and Repair.. 110-25-8	
Special Equipment.....	10-5-5	Transmission Installation..... 110-25-12	
Special Equipment, Threshing Unit... 60-5-3		Transmission Operation..... 110-5-4	
Special Lubrication Instructions.....	30-5-2	Transmission Removal..... 110-25-6	
Specifications.....	10-10-1	Travel Limit Stops..... 105-5-5	
Speed, Cylinder.....	60-10-13	Trouble Shooting, Hydraulic System 120-10-4, 120-15-9, 120-20-5	
Spider Assembly.....	110-35-4	Tune-Up and Adjustment..... 40-5-1	
Steel Flighting.....	90-5-2	U	
Steering and Rear Axle.....	100-5-1	Unloading Auger Clutch..... 90-10-2	
		Unloading Auger Drive..... 40-5-11, 40-5-12, 90-10-1, 90-10-4	

V		W	
	<i>Page</i>		<i>Page</i>
V-Belt Replacement.....	105-5-6	Walkers, Straw.....	70-20-1
Viscosities.....	30-5-1	Wearing Plates.....	40-5-3
		Wheel Hubs and Axle.....	110-5-5
		Wheel Hubs.....	110-35-1, 110-35-4
		Wheel, Rear.....	100-15-1

Section 10

Description and Specifications

Group 5

DESCRIPTION

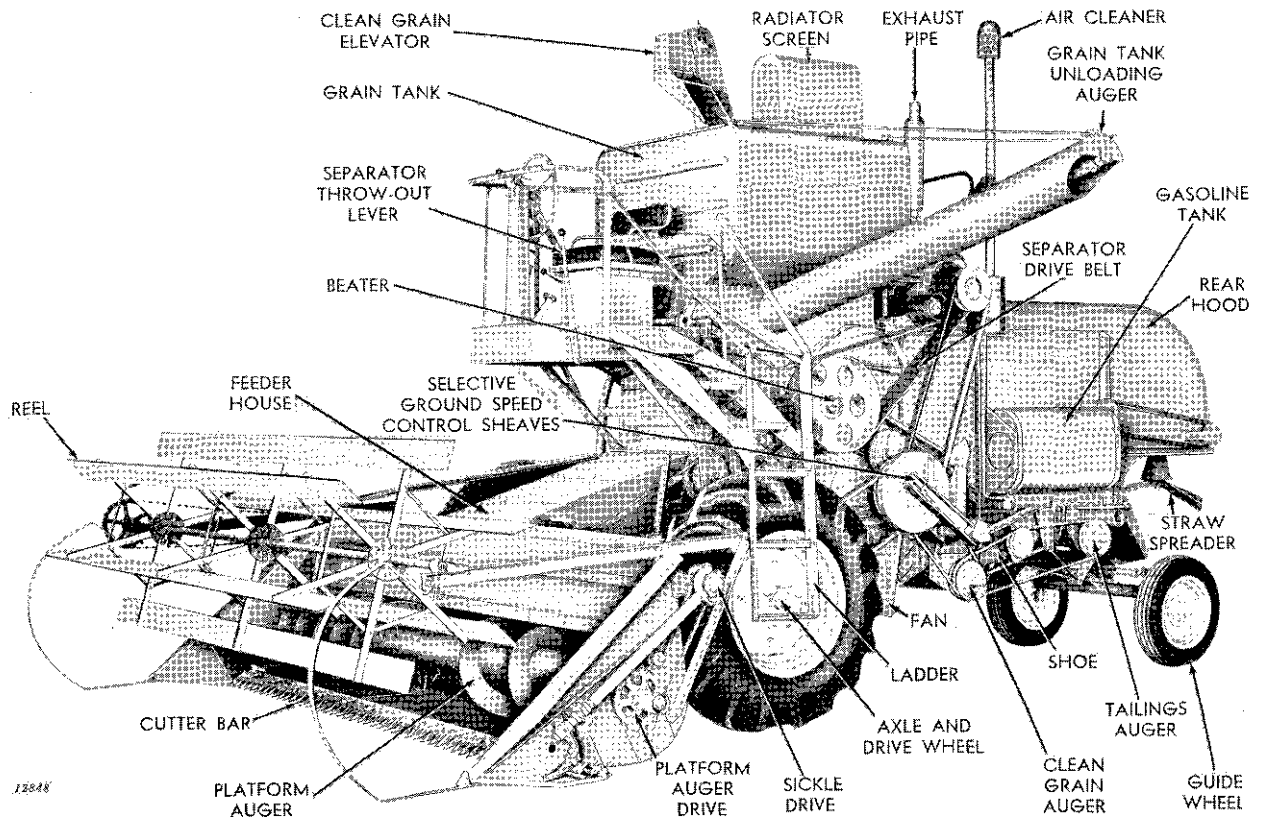


Figure 10-5-1—John Deere No. 55 Self-Propelled Combine, Below Serial No. 55-12051

The John Deere No. 55 (Figures 10-5-1 through 10-5-6) is a self-propelled combine designed for one-man operation. It will handle a 12-foot cut in all crops and a 14-foot cut in most crops. The two large front wheels are the driving wheels. The rear wheels are used to steer the combine.

The No. 55 Combine uses a rasp-bar cylinder for threshing and straw walkers for separating. A chaffer and sieve is used to clean the chaff from the grain. The platform has an auger that conveys the cut grain to the center of the platform where the feeder carries the material direct to the cylinder.

The 45-bushel grain tank and the engine are located on top of the combine so the weight is on the center line of the combine and evenly dis-

tributed on the wheels on both sides of the combine.

The operator's platform is also centered on the combine for good visibility. All controls are located within easy reach of the operator.

Power is furnished by a Hercules QXD-3 6-cylinder engine. The engine drives the separator by means of a flat belt connecting the engine to a large pulley on the beater behind the cylinder. The drives for the combine, from the cutter bar to the straw spreader, are taken from the beater. Power to propel the combine is delivered to the transmission by two V-belts and a double sheave arrangement used to select the exact ground speed desired.

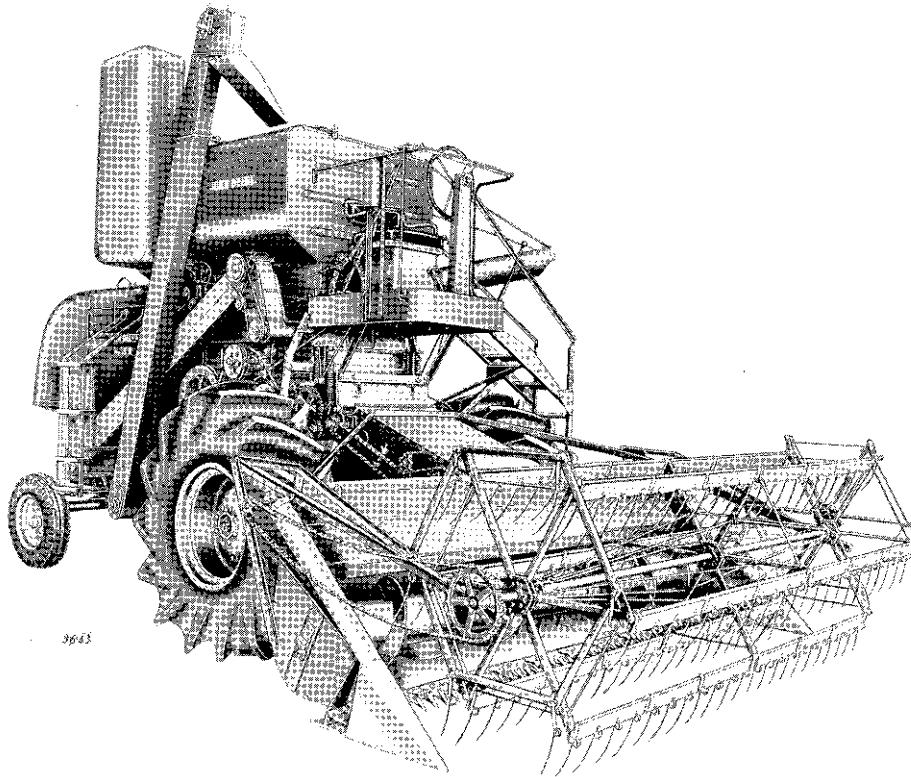


Figure 10-5-2—John Deere No. 55-R Self-Propelled Rice Combine, Below Serial No. 55-12051

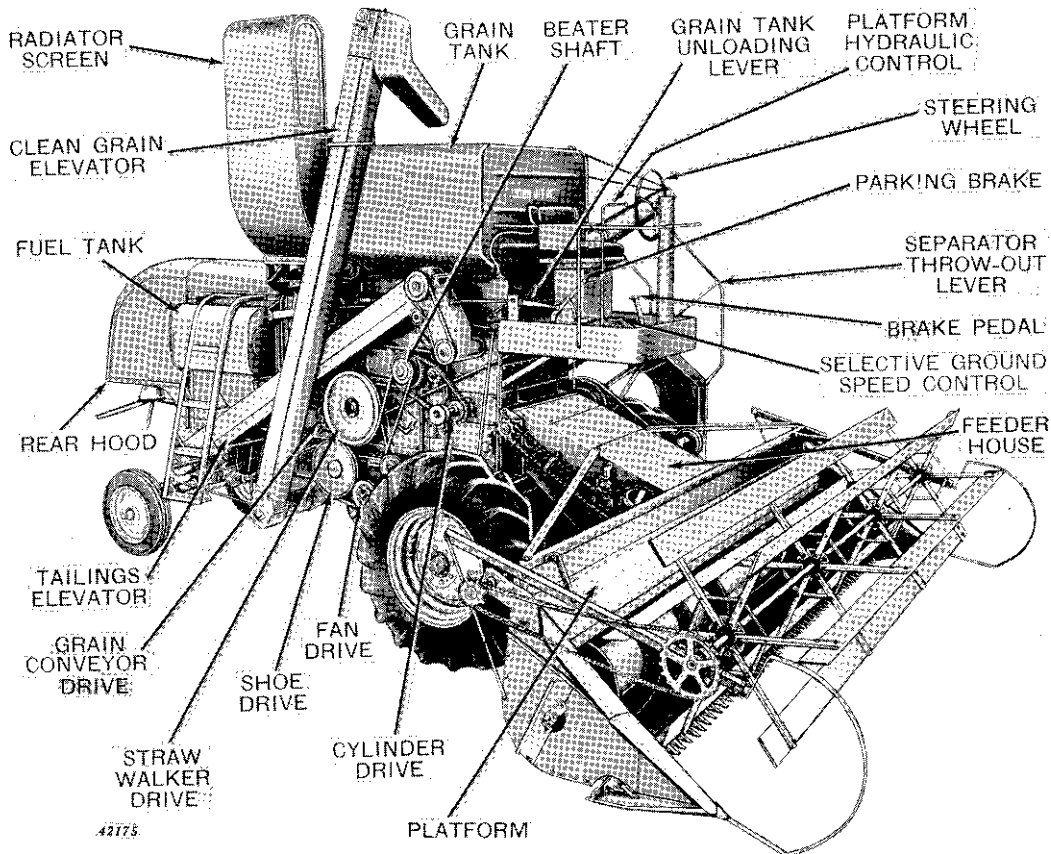


Figure 10-5-3—John Deere No. 55 Self-Propelled Grain Combine, Serial No. 55-12051 to 55-17838

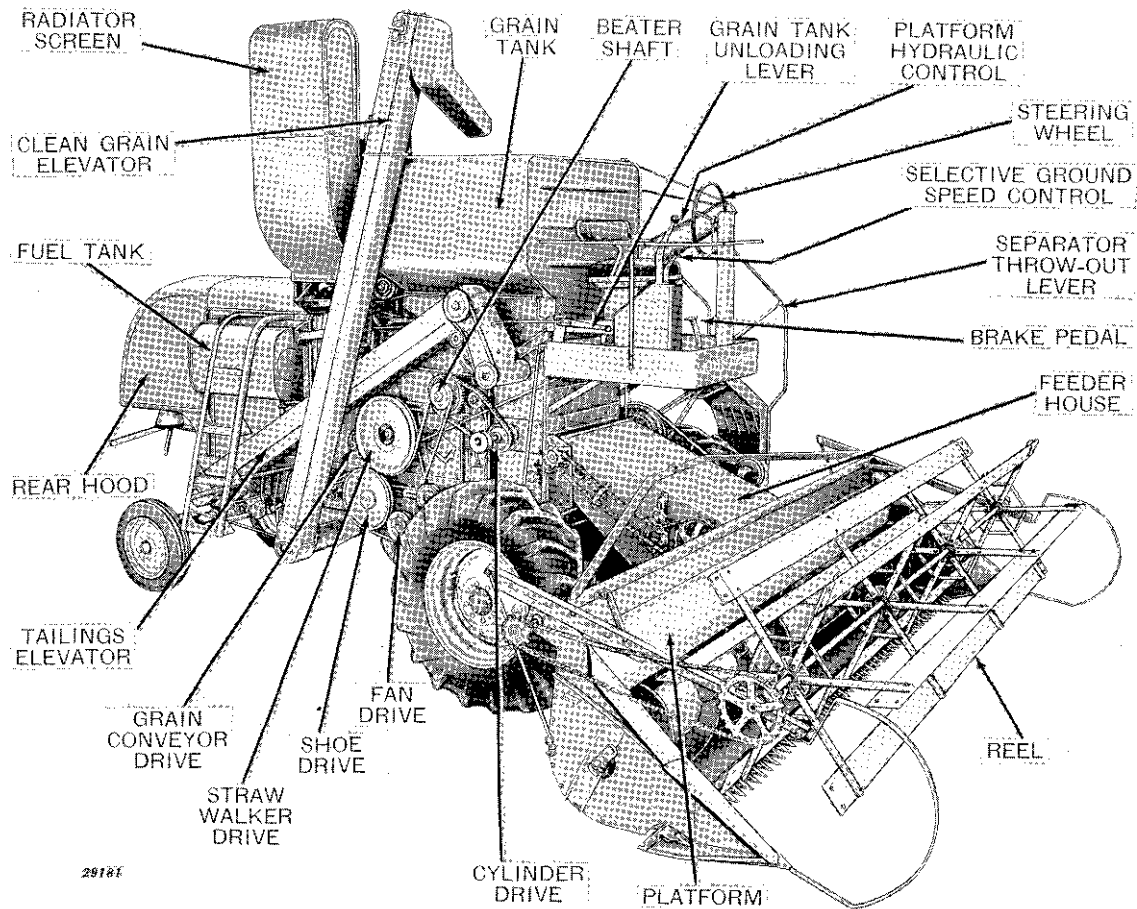


Figure 10-5-4—John Deere No. 55 Self-Propelled Grain Combine (Serial No. 55-17838 and Up)

Differences Among Models.

Several variations of the No. 55 Combine are available. The basic types are the grain combine (No. 55) (Figure 10-5-4), rice combines (55-R) (Figure 10-5-2), and rice crawler (55-RC) (Figure 10-5-5). The principal visible differences between these combines are larger tires on the rice combine or tracks on the rice crawler. The rice combines have hydraulic wheel brakes as well as the mechanical transmission brake. The rice combines (55-R) also have planetary gears at the ends of the axle which serve to further reduce the ground speed.

Hardened cylinder rasp-bars are used in rice combines because of the abrasive action of the rice hulls. Also, the basic cylinder speed on rice combines is slower than on grain combines (960 rpm instead of 1060 rpm).

In addition to the variations listed above, the No. 55 Combine is available as a sacking instead of grain tank machine. On a sacker machine, a sacking platform replaces the grain tank (Figure 10-5-6).

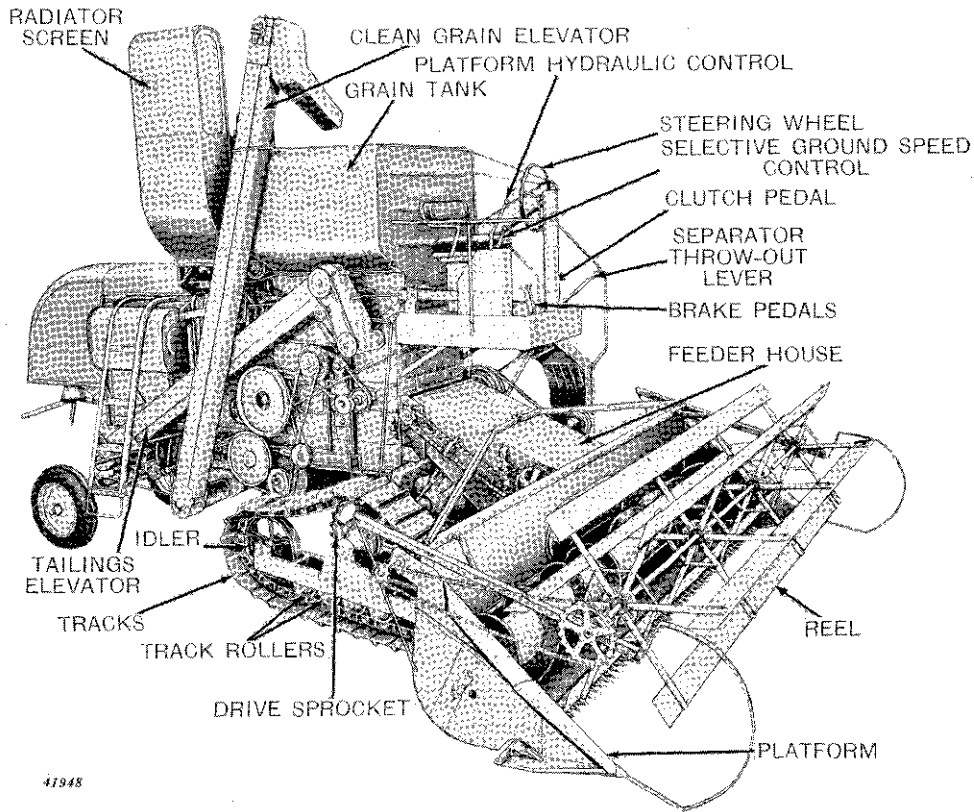


Figure 10-5-5—John Deere No. 55-RC Self-Propelled Rice Crawler Combine (Serial No. 55-17838 and Up)

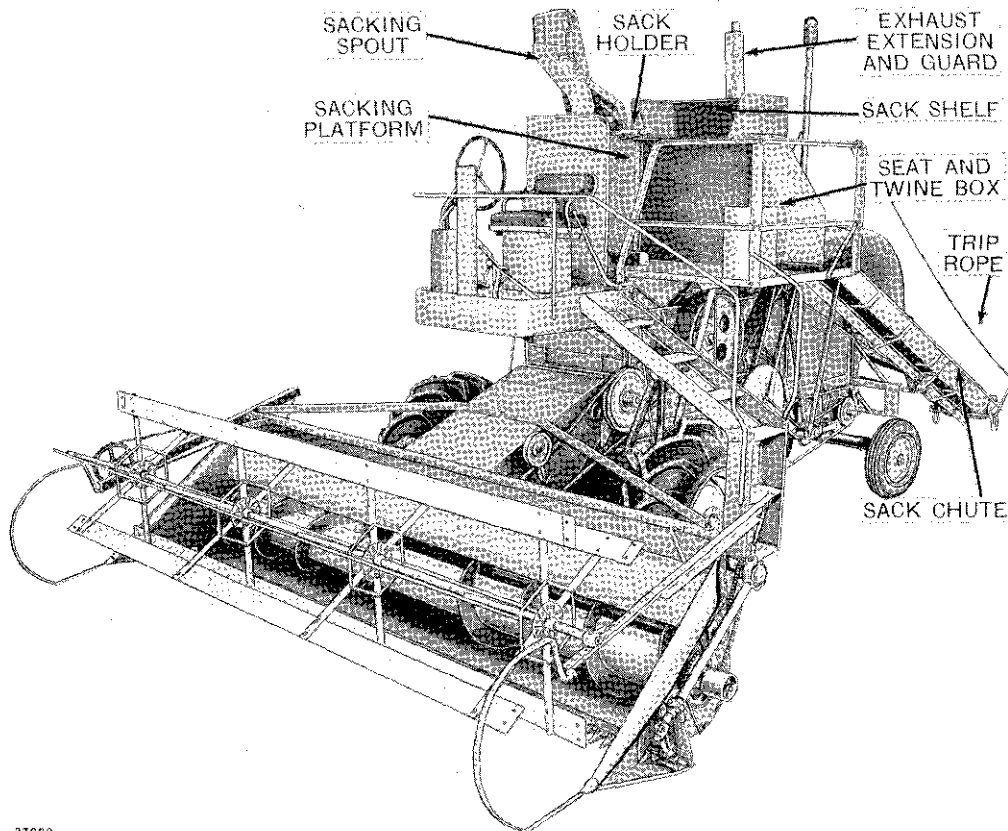


Figure 10-5-6—John Deere No. 55 Self-Propelled Combine with Sacking Attachment (Serial No. 55-17838 and Up)

SPECIAL EQUIPMENT

A wide variety of special equipment is available for use on the No. 55 Combine to meet the special needs of every crop and condition.

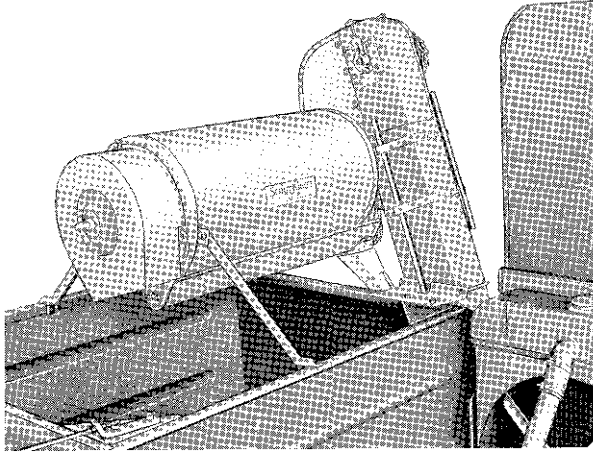


Figure 10-5-7—Hart Scourkleen

Hart Scourkleen Weed Seed Cleaner. The Scourkleen is available for grain tank or sacker machines (Figure 10-5-7). It is used to remove weed seeds from the grain. A large variety of screens adapt the Scourkleen to handle any condition.

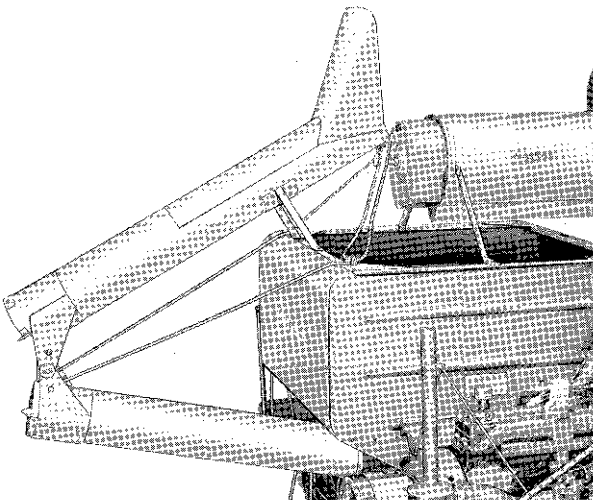


Figure 10-5-8—Folding Grain Tank Unloading Auger

Folding Grain Tank Unloading Auger. The folding auger reduces the over-all width of the combine for transporting (Figure 10-5-8). When unfolded, it is the same length as the straight auger.

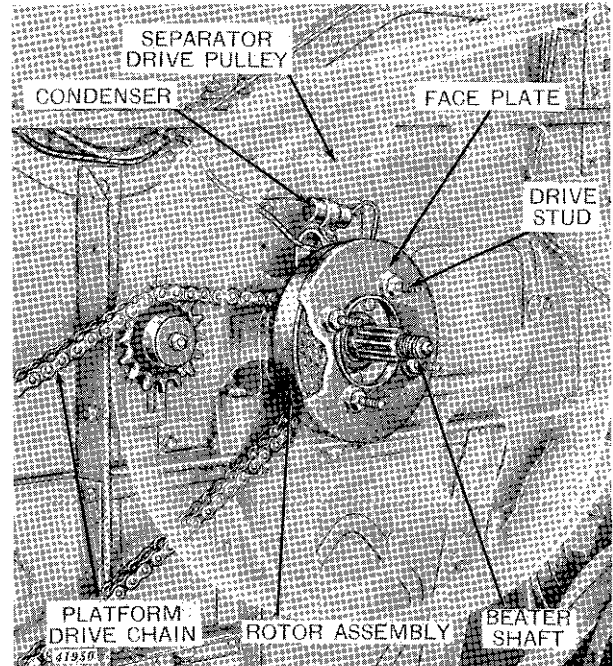


Figure 10-5-9—Electro-Magnetic Platform Throw-Out Clutch

Platform Throw-Out Clutch. The electro-magnetic platform throw-out clutch permits instant disengagement of the entire platform drive should a rock or similar object enter the platform or feeder house (Figure 10-5-9). It also aids in the feeding of heavy slugs to the cylinder.

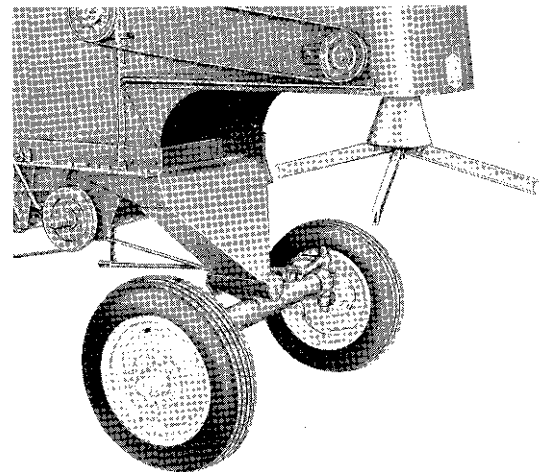


Figure 10-5-10—Straw Spreader

Straw Spreader. The straw spreader distributes the straw over a wide area behind the combine (Figure 10-5-10).

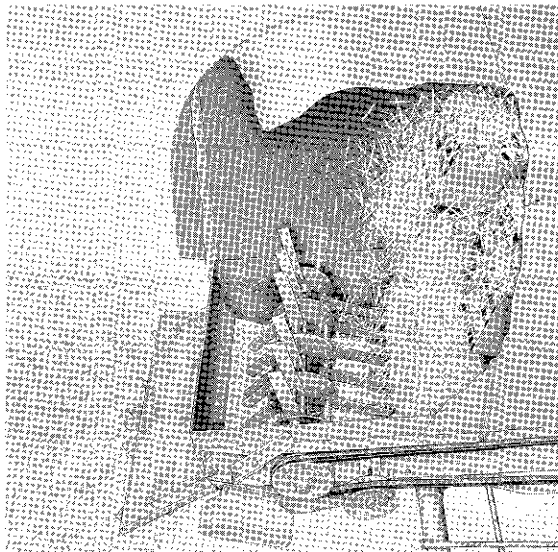


Figure 10-5-11—Straw Chopper

Straw Chopper. The straw chopper cuts up the straw into small particles making it easier to plow under (Figure 10-5-11). The finely cut straw also decomposes rapidly. The straw chopper drive can be reversed so instead of being chopped, the straw is laid in a windrow so it can be picked up and baled.

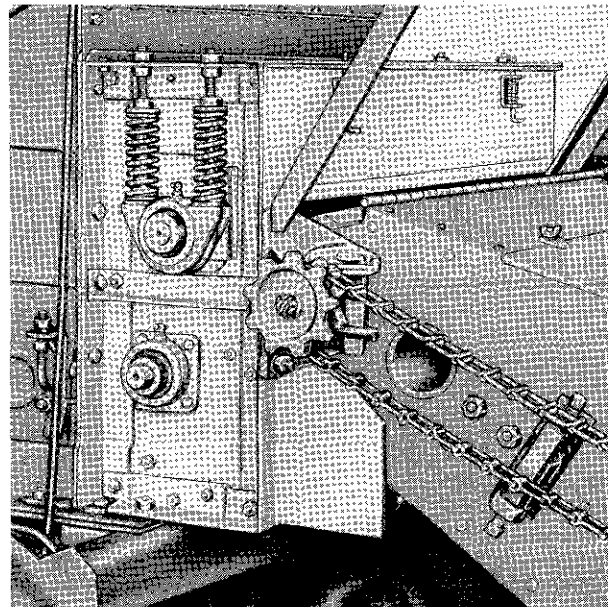


Figure 10-5-12—Feed Rolls

Feed Rolls. The special feed rolls are used primarily for combining flax (Figure 10-5-12). One rubber roll and one steel roll feed the flax evenly to the threshing cylinder. They also crush the bolls for easier threshing.

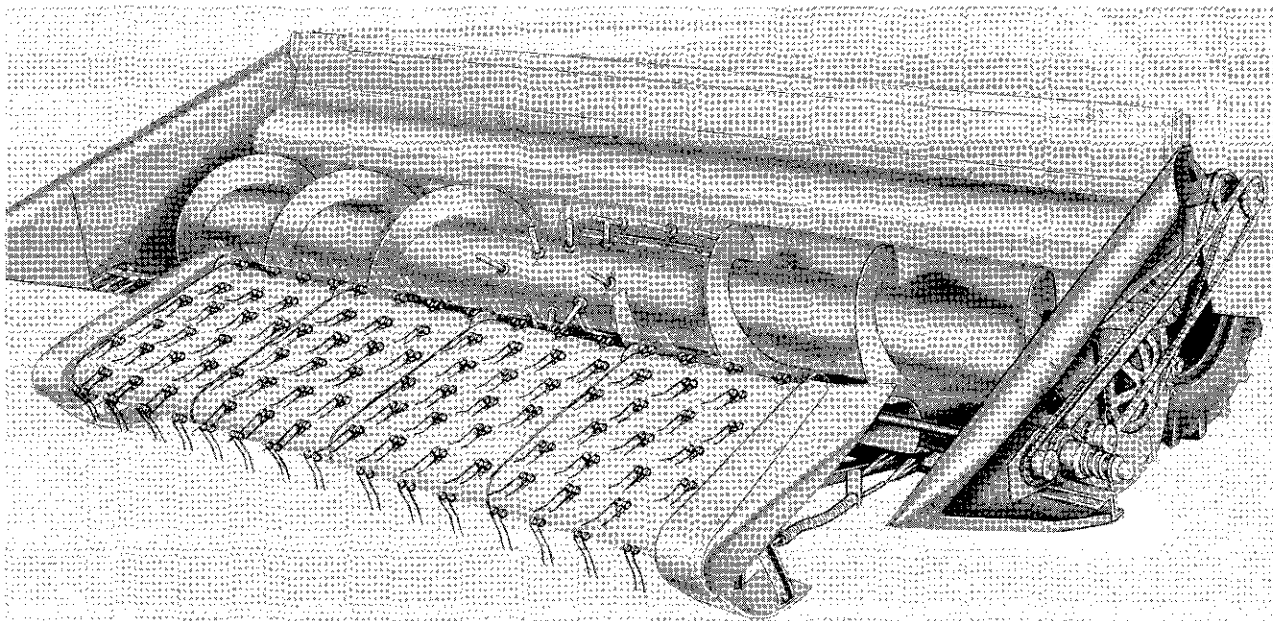


Figure 10-5-13—Belt Pickup

Belt Pickup. The belt pickup for the No. 55 Combine is 88 inches wide and will pick up all kinds of windrows (Figure 10-5-13). The pickup consists of four wide conveyor belts equipped with steel fingers that gently pick up the windrowed crop and drop it on the platform.

Reel End Shields.

Reel end shields are available for use on 6-slat reels (Figure 10-5-14). The shields reduce the possibility of straw winding and being carried around the reel.

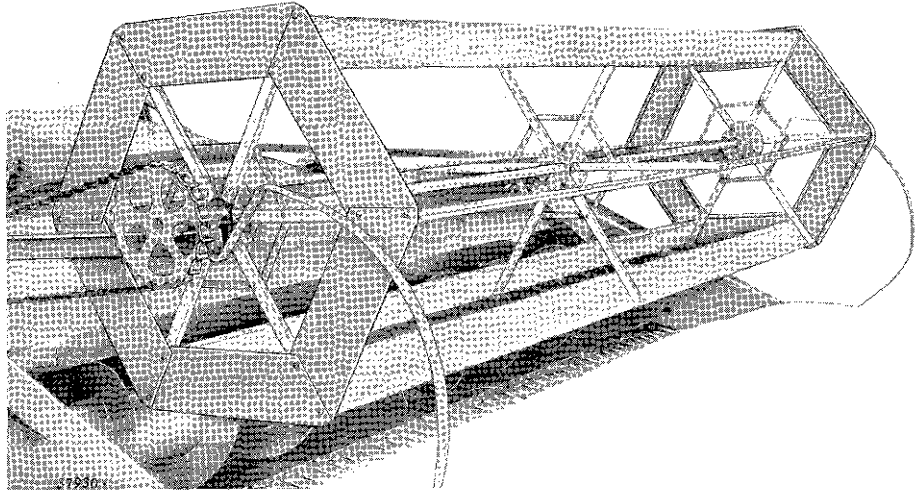


Figure 10-5-14—Reel End Shields

Special Lifting Guards. The special lifting guards (Figure 10-5-15) are available to assist in raising down and tangled crops so they can be readily cut and delivered to the auger.

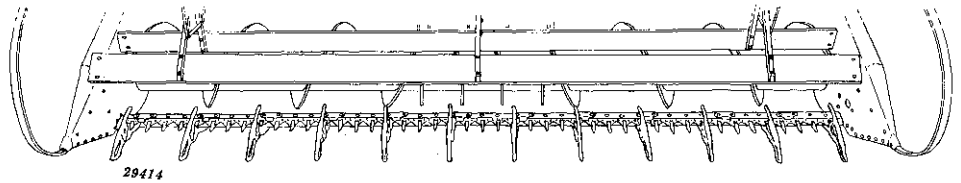


Figure 10-5-15—Special Lifting Guards

Inside Loop Divider. The inside loop divider is used to separate down and tangled crops so a cleaner swath is cut with less loss of grain.

Special Chaffers and Sieves. A large selection of special chaffers and sieves is available if for some reason the adjustable chaffer and sieve is not satisfactory. A comprehensive discussion of chaffers and sieves can be found on page 80-5-2.

Concave Pan. A concave pan is available that covers the first five concave bars when handling easy-to-thresh crops or seeds that crack easily. See page 60-5-4.

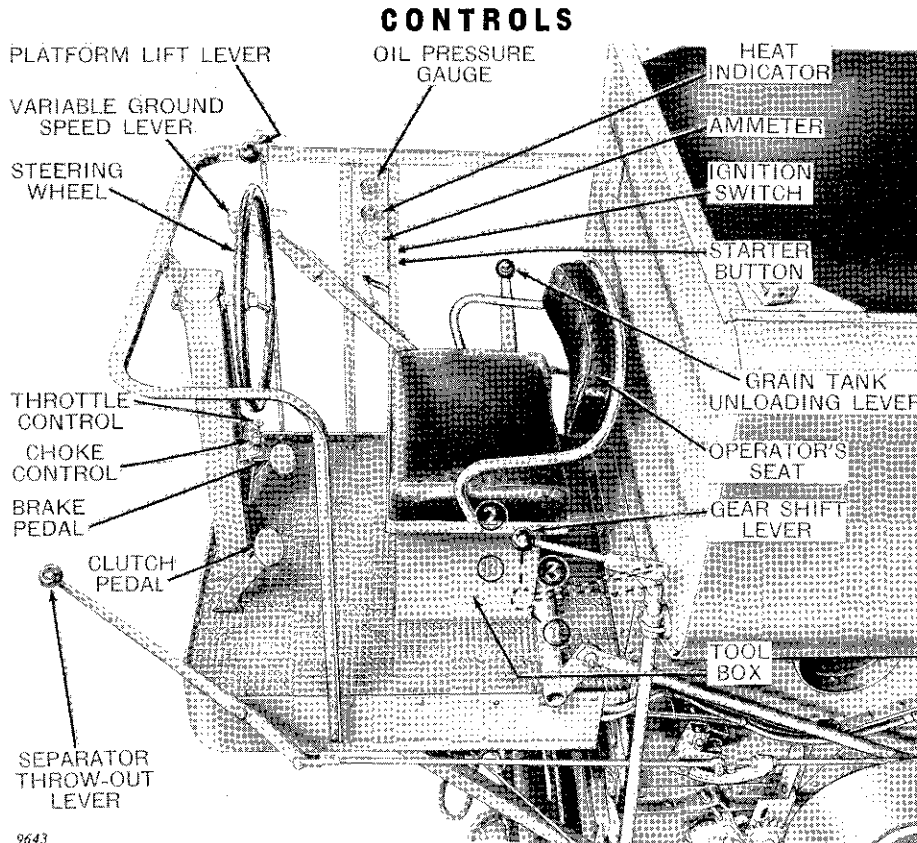


Figure 10-5-16—Combine Controls (Below Serial No. 55-12051)

All the controls necessary for the operation of the No. 55 Combine are on the operator's platform. The arrangement of controls has changed three times since the No. 55 Combine went into production. The controls used up to Serial No. 55-12051 as shown in Figure 10-5-16, Figures 10-5-17 and 10-5-18 show the arrangement of controls from Serial No. 55-12051 to 55-17838. The arrangement of the controls, Serial No. 55-17838 and up is shown in Figures 10-5-19 and 10-5-20.

Instrument Panel. The instrument panel contains the ammeter, oil pressure gauge, water temperature gauge, ignition switch, and starter button. The location of the instrument panel has been shifted several times as can be seen in the illustrations.

Gear Shift Lever. The transmission has three speeds forward and one in reverse. The positions of the gear shift lever for the various transmission speeds are shown in Figures 10-5-16, 10-5-17, and 10-5-19.

Platform Control Lever. This lever controls the height of the cutting platform through the hydraulic cylinders. Moving the lever to the rear raises the platform, to the front lowers it.

Selective Ground Speed Control. Below Serial No. 55-12051 the ground speed was changed mechanically by a lever on the right-hand side of the operator's platform (Figure 10-5-16). Moving the lever forward increases the travel speed, backward decreases travel speed.

At Serial No. 55-12051 the operation of selective ground speed control was changed from mechanical to hydraulic. Up to Serial No. 55-17838, the hydraulic valve was operated by a foot pedal (Figure 10-5-18). Pushing down the toe end of the pedal increases travel speed. Pushing down the heel end decreases travel speed.

At Serial No. 55-17838 the control was changed to a hand lever (Figure 10-5-20). To increase travel speed the lever is moved forward. To decrease speed the lever is moved backward.

Separator Throw-Out Lever. This lever engages and disengages the separating mechanism of the combine. The lever is pulled backward to engage the drive and pushed forward to disengage the drive.

Grain Tank Unloading Lever. The grain tank can be unloaded by means of this lever any time the engine is running. The combine can be on the go or standing still. Pull the lever back to engage the drive. Push it forward to disengage the drive.

Throttle Control Button. The throttle control is on the steering column on combines below Serial No. 55-12051 (Figure 10-5-16). Above Serial No. 55-12051 the throttle control is on the right-hand side of the grain tank (Figure 10-5-18).

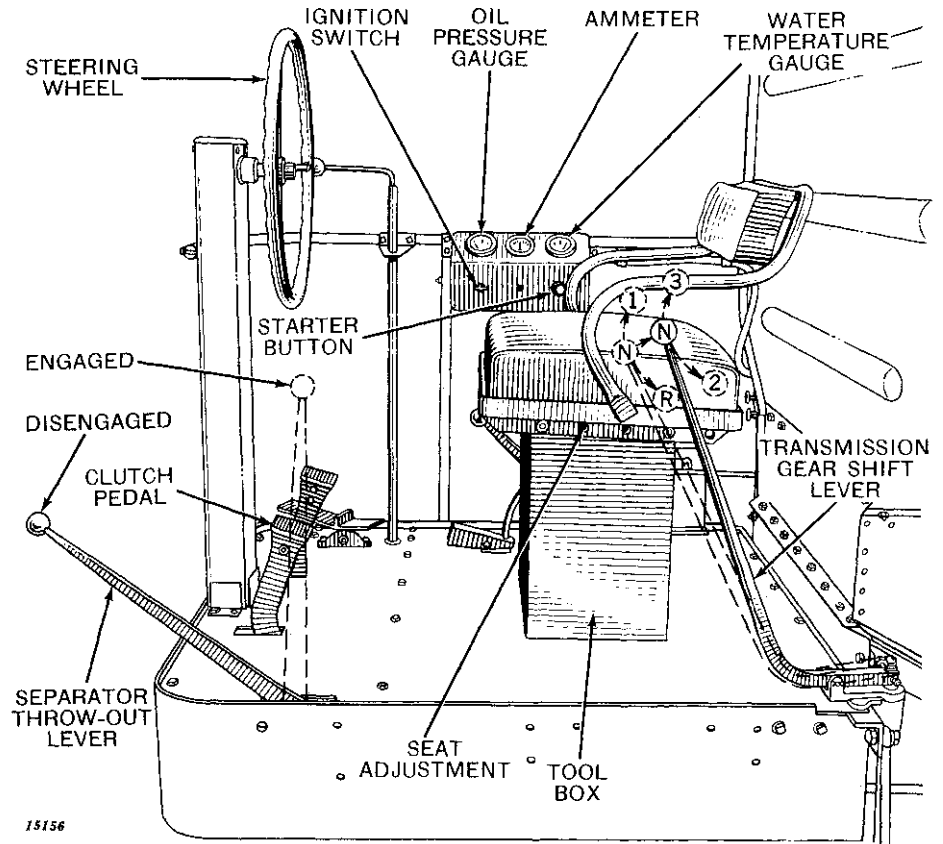


Figure 10-5-17—Combine Controls—Left Side of Operator's Platform (Serial No. 55-12051 to 55-17838)

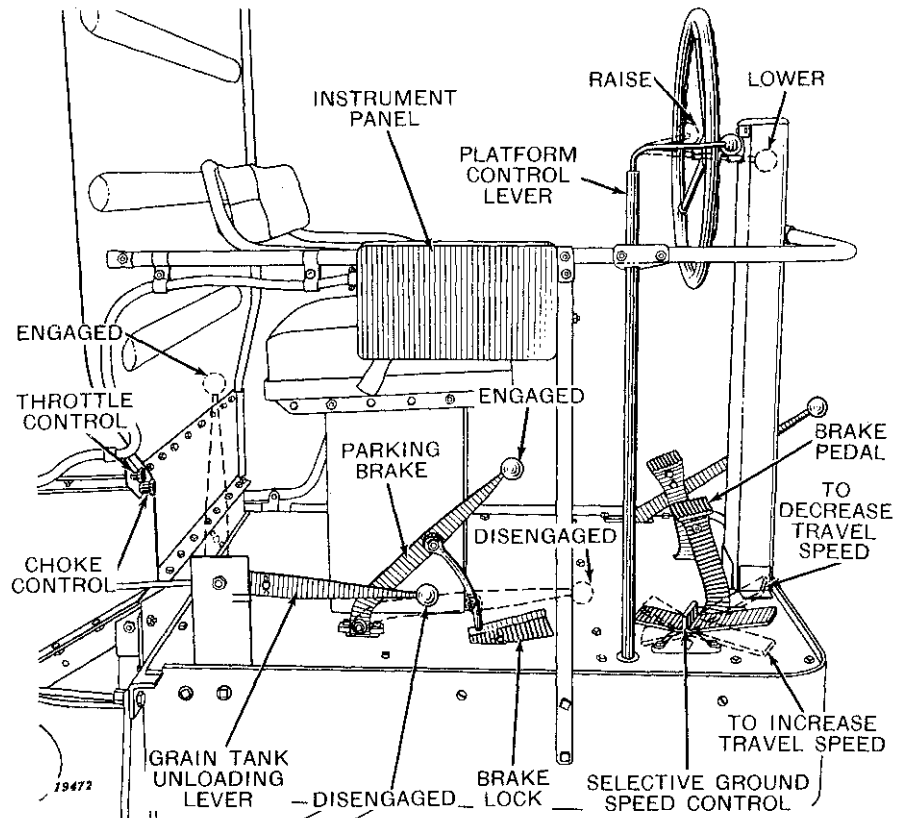
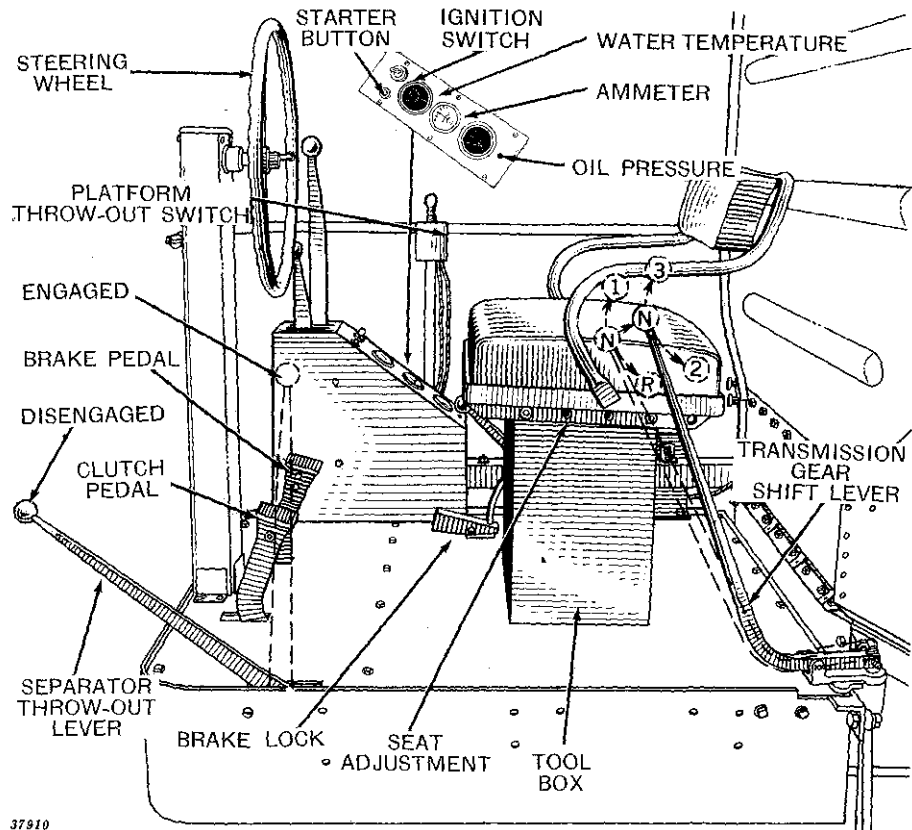


Figure 10-5-18—Combine Controls—Right Side of Operator's Platform (Serial No. 55-12051 to 55-17838)

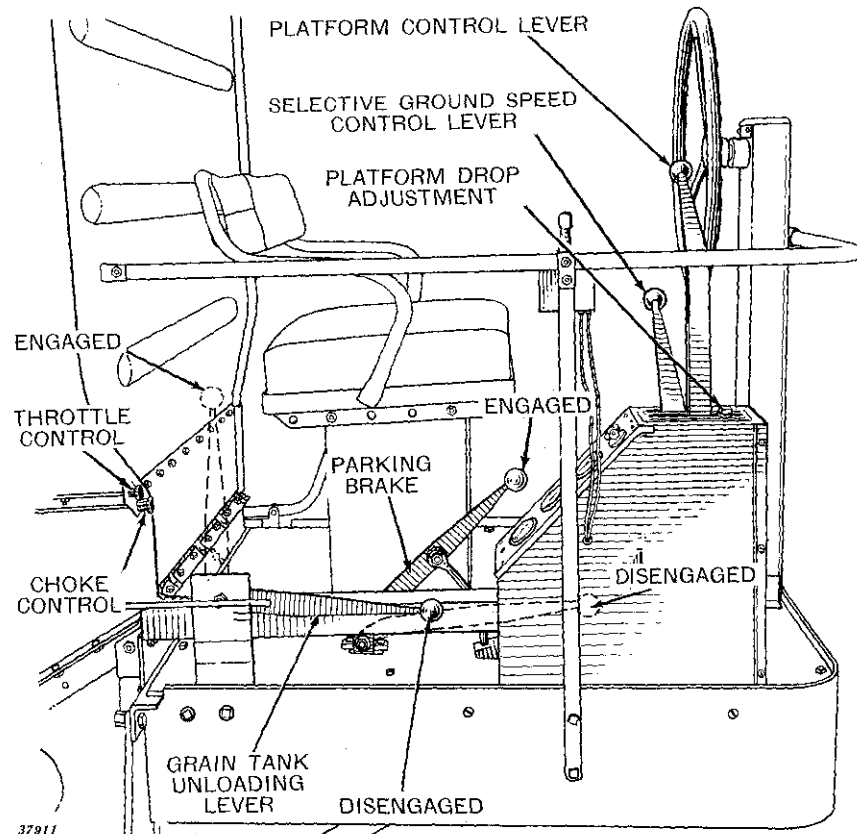
Parking Brake Lever. The parking brake lever is used on combines, Serial No. 55-12051 and up (Figure 10-5-18). When pulled up, this lever will engage the brake and automatically lock it. To disengage the brakes, step on the lock and the lever will drop down. Never move the combine with the brakes engaged.

Brake Pedal. There is one brake pedal on all machines except rice combines above Serial No. 55-12050. Rice combines above 55-12050 have hydraulic brakes and two brake pedals, one for each brake. On these rice combines, the parking brake lever operates the mechanical transmission brake.

Platform Throw-Out Switch. This switch (Figure 10-5-19) operates the electromagnetic platform throw-out clutch on those late model combines equipped with the electromagnetic platform throw-out clutch.



37910
Figure 10-5-19—Combine Control—Left Side of Operator's Platform
(Serial No. 55-17838 and Up)



37911
Figure 10-5-20—Combine Controls—Right Side of Operator's Platform
(Serial No. 55-17838 and Up)

HOW THE COMBINE WORKS

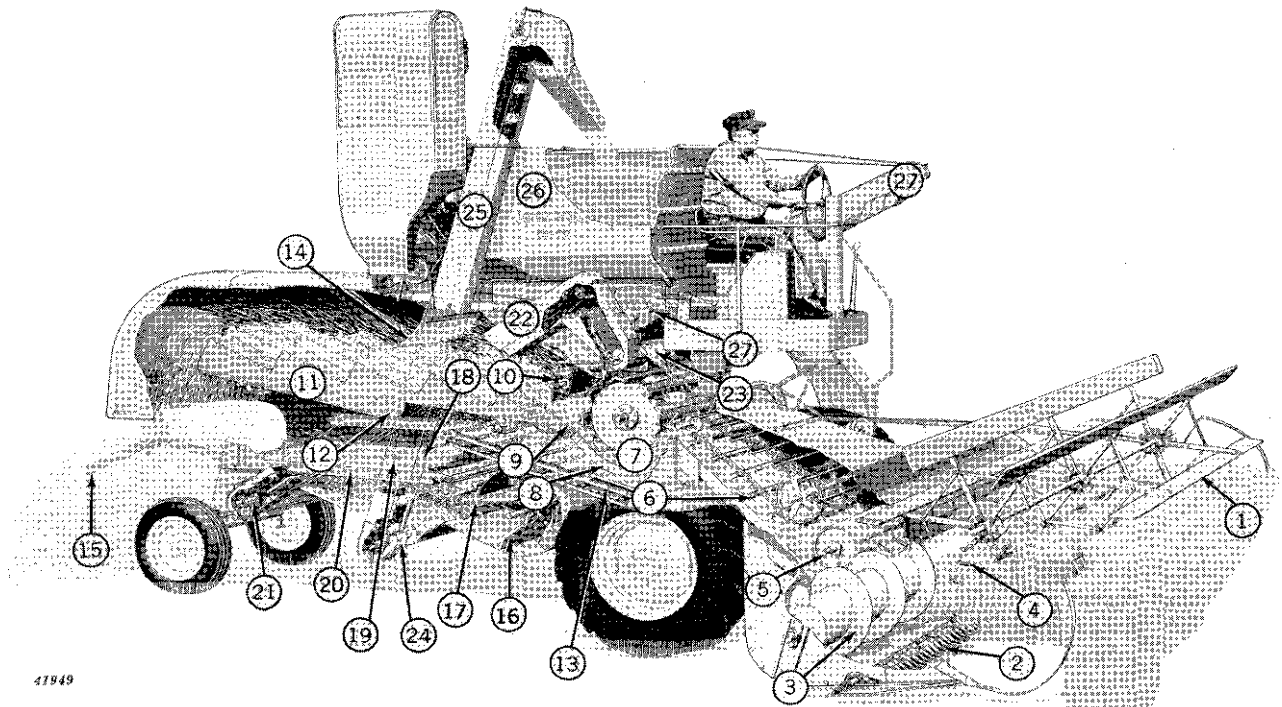


Figure 10-5-21—Cutaway of John Deere No. 55 Self-Propelled Combine

The cutaway view of the No. 55 Combine shows what happens to the grain and straw as it goes through the machine.

The power-driven reel (1) divides the grain and holds it against cutter bar (2) until cut.

The platform auger (3) carries grain from both ends of platform to the center.

Retracting fingers in the auger beater (4) pass the material positively to the feeder beater (5).

Feeder beater (5) moves the material into the floating undershot feeder conveyor (6).

The feeder conveyor (6) delivers the grain in a steady, positive stream to the rasp-bar cylinder (7).

As grain travels between cylinder (7) and concave grate (8) the rubbing action of cylinder rasp-bars against concave bars separates most of the grain from the straw.

Separating beater (10) strips straw from cylinder (7), deflects grain through finger grates (9), and passes straw onto straw walkers (11).

Most of the grain falls through concave grate (8) and fingers (9) onto conveyor (13).

Straw and remaining loose grain are passed along to five-step straw walkers (11). Curtain (14) keeps grain from being thrown over.

On its outward travel, straw is agitated by the five-step straw walkers (11).

The remaining grain falls through openings in straw walkers and flows back through grain return pans (12) onto auxiliary chaffer (18).

Straw leaving machine is distributed over a wide area by straw spreader (15).

After grain and chaff leave conveyor (13), a blast of air from undershot fan (16) is directed by adjusted windboards (17) against auxiliary chaffer (18), adjustable chaffer (19), and adjustable sieve (20).

The air blast with the aid of sieve agitation, blows chaff away and moves tailings to tailings auger (21).

The tailings auger (21) carries tailings to tailings elevator (22) which conveys them through cross-auger (23), to center of cylinder (7) for rethreshing.

Clean grain after dropping through auxiliary chaffer (18), chaffer (19), and sieve (20), is carried by clean grain auger (24) to elevator (25).

Elevator (25) delivers clean grain to grain tank (26). Grain tank unloading auger is (27).

Group 10 SPECIFICATIONS

	Below Serial No. 55-12051		Serial No. 55-12051 and Up	
	55	55-R	55	55-R
General				
Length, Over-All	24 ft. 6 in.	25 ft. 4 in.	24 ft.	24 ft. 10-1/2 in.
Height, Over-All	13 ft. 1 in.	13 ft. 7 in.	13 ft.	13 ft. 6 in.
Width, Over-All, with Rigid Unloading Auger	15 ft. 9 in.	15 ft. 9 in.	15 ft. 9 in.	15 ft. 9 in.
Width, Over-All, with Hinged Unloading Auger . . . . .	.....	.....	16 ft. 7 in.	16 ft. 7 in.
Width, Over-All, without Rigid Unloading Auger or with Hinged Auger Folded (12-Ft. Cut)	12 ft. 9 in.	12 ft. 9 in.	12 ft. 9 in.	12 ft. 9 in.
Width, Over-All, without Rigid Unloading Auger or with Hinged Auger Folded (14-Ft. Cut)	14 ft. 9 in.	14 ft. 9 in.	14 ft. 9 in.	14 ft. 9 in.
Shipping Weight, Standard Equipment 12-Ft. Cut	8,000	9,090	7,700	8,950
Grain Tank—Capacity, Bushels	45	45	45	45
Grain Tank—Type of Dump	Auger	Auger	Auger	Auger
Turning Radius	13 ft. 3 in.	13 ft. 3 in.	13 ft. 3 in.	13 ft. 3 in.
Wheel Tread, Standard Tires	89-1/2 in.	91 in.	89-1/2 in.	91 in.
Wheel Base (Inches)	139	139	139	139
Drive Wheels, Tire Size	13x26	18x26	13x26	18x26
Steering Wheels, Tire Size	5.50x16	7.50x16	6.00x16	7.50x18
Cutting and Threshing Units				
Width of Cut (Feet)	12 or 14	12 or 14	12 or 14	12 or 14
Cutter Bar Length (Feet)	11.5 or 13.5	11.5 or 13.5	11.5 or 13.5	11.5 or 13.5
Cutting Height Range (Inches)	2-1/2 to 38	2-1/2 to 38	2-1/2 to 35	2-1/2 to 38
Platform Control Equipment	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Reel-Type of Drive	Chain	Chain	Chain	Chain
Reel Bats, No. of	3, 4, 6, or 8	3, 4, 6, or 8	3, 4, 6, or 8	3, 4, 6, or 8
Conveyor Type	Auger	Auger	Auger	Auger
Cylinder Type	Rasp	Rasp	Rasp	Rasp
Cylinder-Type of Drive	Double Chain	Double Chain	Double Chain	Double Chain
Cylinder Diameter (Inches)	22	22	22	22
Cylinder Length (Inches)	30	30	30	30
Cylinder Speed Range (rpm)	247-1050	247-1050	196-1190	196-1190
Separation Surface Width (Inches)	30	30	30	30
Separation Surface Length (Inches)	130	130	130	130
Separation Area (Sq. Inches)	3,900	3,900	3,900	3,900
Straw Rack Type	Walker	Walker	Walker	Walker
Chaffer Area (Sq. Inches)	1,368	1,368	1,368	1,368
Chaffer Extension Area (Sq. Inches)	132-1/2	132-1/2	132-1/2	132-1/2
Cleaning Sieve Area (Sq. Inches)	1,278-1/2	1,278-1/2	1,291-1/2	1,291-1/2
Total Cleaning Area (Sq. Inches)	2,792	2,792	2,792	2,792
Bearings				
Beater	Double Row Ball	Double Row Ball	Sealed Ball	Sealed Ball
Cylinder	Double Row Ball	Double Row Ball	Sealed Ball	Sealed Ball
Fan	Roller	Roller	L.H. Ball R.H. Roller	L.H. Ball R.H. Roller
Drive and Steering Wheels	Tapered Roller	Tapered Roller	Tapered Roller	Tapered Roller
Transmission	Ball and Roller	Ball and Roller	Ball and Roller	Ball and Roller



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Capacities	Below Serial No. 55-12051		Serial No. 55-12051 and Up	
	55	55-R	55	55-R
Grain Tank (Bushels).....	45	45	45	45
Crankcase (Quarts).....	6	6	6	6
Oil Filter (Quarts).....	1	1	1	1
Differential (Pints).....	5-3/4	5-3/4	9-1/2	9-1/2
Transmission (Pints).....	3-1/4	3-1/4	3-1/4	3-1/4
Final Drive Housing (Quarts).....	5	5	.....	.....
Bevel Gear Housing (Pints).....	3-1/2	3-1/2	5	5
Steering Gear Housing.....	.....	.....	1	1
Planetary Gear Housing (Pints).....	.....	.....	.....	3-1/2
Hydraulic System:				
Below 55-12051.....	7 Quarts	7 Quarts	.....	.....
55-12051 to 55-24949.....	.....	.....	7 Pints	7 Pints
55-24949 and Up.....	.....	.....	7 Quarts	7 Quarts
Cooling System (Gallons).....	6	6	6	6
Fuel Tank (Gallons).....	25	25	25	25

SELECTIVE GROUND SPEED CONTROL

Type.....	Transmission and Variable Speed Range
Type of Drive.....	V-Belt
Control, below Serial No. 55-12051.....	Mechanical
Control, Serial No. 55-12051 and Up.....	Hydraulic

Speed Range—Below 55-12051

	55		55-R	
	Min.	Max.	Min.	Max.
1st Gear (mph).....	.95	2.13	.87	1.97
2nd Gear (mph).....	2.13	4.80	1.97	4.41
3rd Gear (mph).....	4.26	9.65	3.95	8.89
Reverse (mph).....	.71	1.60	.65	1.47

Speed Range—55-12051 and Up

	55		55-R		55-RC	
	Min.	Max.	Min.	Max.	Min.	Max.
1st Gear (mph).....	1.05	2.37	.71	1.61	.55	1.2
2nd Gear (mph).....	2.08	4.68	1.4	3.18	1.1	2.4
3rd Gear (mph).....	4.76	10.71	3.22	7.27	2.5	5.5
Reverse (mph).....	.79	1.78	.53	1.2	.4	.9

ENGINE

Make.....	Hercules
Model.....	QXD-3
Type.....	L-Head
No. of Cylinders.....	6
Bore and Stroke.....	3-7/16 in. x 4-1/8 in.
Displacement.....	230 cu. in.
Compression Ratio.....	6.46 to 1
N.A.C.C. Rating.....	28.36 hp
Brake Horsepower.....	56 hp
Fast Idle Speed (Below Serial No. 55-6001).....	1.850 rpm
(Serial No. 55-6001 and Up).....	2.075 rpm
Idle Speed.....	450 rpm
Firing Order.....	1-5-3-6-2-4



Section 20

TROUBLE SHOOTING

Group 5

The No. 55 Self-Propelled Combine is designed and constructed for hard use in any combineable crop, but as every serviceman knows, troubles will develop due to normal wear, improper operation, or neglect. It is quite often difficult to determine the cause of trouble unless the serviceman knows how to make certain tests and how to interpret signs that indicate the underlying cause of trouble.

The aim of this Trouble Shooting Section is to help the serviceman determine the causes of complaints or failures, and to point out the quickest and easiest ways of correcting them. By taking full advantage of this information, it will often be possible to determine the cause of trouble and

correct it without costly and time-consuming disassembly.

Mechanical failure or faulty operation is an indication that something is wrong. Diagnosing trouble is best done by an orderly process of eliminating the most probable causes first and then, if the trouble persists, to test for all other possible causes until the cause responsible for the trouble is found.

This section contains trouble shooting of the combine proper. Service of the engine is covered in SM-2012, service manual on the Hercules QXD-3 engine, and trouble shooting the engine is in that service manual. Trouble shooting the hydraulic system is discussed in *Section 120 of this Service Manual*.

GRAIN BEING SHATTERED OR CARRIED OVER THE REEL

<i>Possible Cause</i>	<i>Possible Remedy</i>
Reel speed too high.	Reduce reel speed. See page 50-10-1.
Reel set too low.	Raise reel. See page 50-10-2.
Reel set too close to auger.	Move reel forward. See page 50-10-2.
Ground speed too fast.	Reduce ground speed.
Reel slats too narrow.	In crook-necked or nodding varieties of grain, add reel slats, wire, or canvas to reel. See page 50-10-3.
Too many slats on reel.	Reduce number of slats on reel.
Reel slats not at right angle.	Use adjustable reel slat brackets to adjust angle of reel slats. See page 50-10-3.
Reel slat ends exposed.	Move reel arms to outer ends of slats or order reel end shields.

