

200 and 900 Series Cutting Platforms
40 and 90 Series Corn Heads
50 and 50A Series Row Crop Heads

John Deere Harvester Works
TM1581 (03OCT94)

LITHO IN U.S.A.
ENGLISH

FOREWORD

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

HANDLE FLUIDS SAFELY—AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



DX,FLAME -19-04JUN90

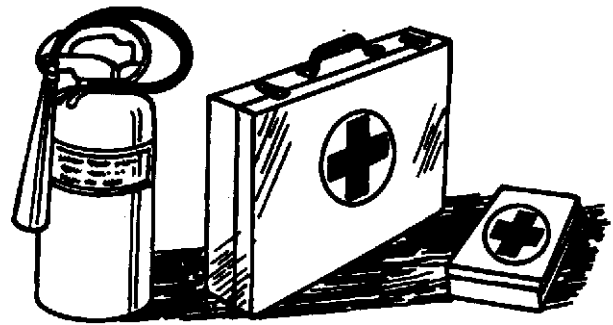
10-05-1
-JUN-23AUG88
TS227

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



DX,FIRE2 -19-03MAR93

-JUN-23AUG88
TS291

10
05
2

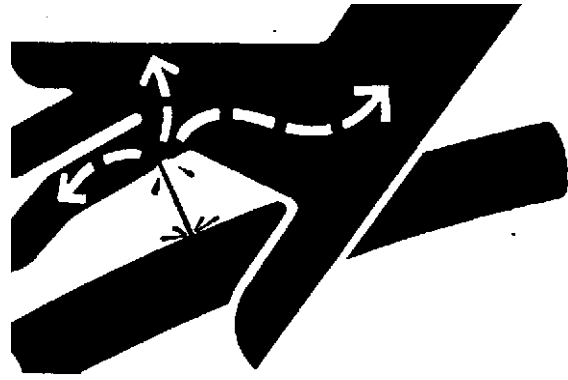
AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.



-JUN-23AUG88

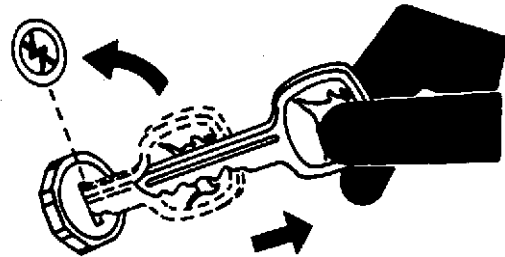
X9811

DX,FLUID -19-03MAR93

PARK MACHINE SAFELY

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



-JUN-24MAY89

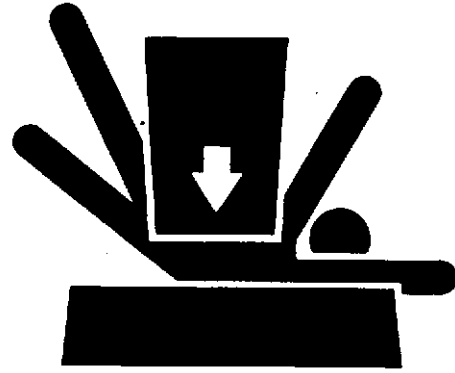
TS230

DX,PARK -19-04JUN90

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



DX,LOWER -19-04JUN90

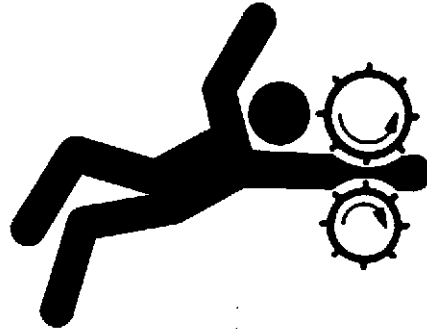
TS229 -JUN-23AUG88

10
3
5

SERVICE MACHINES SAFELY

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



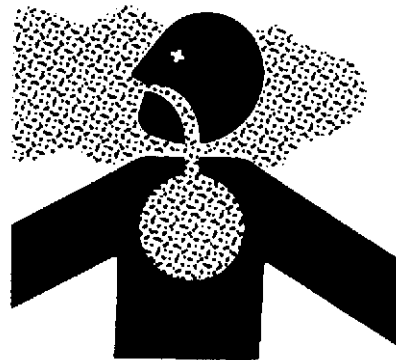
DX,LOOSE -19-04JUN90

TS228 -JUN-23AUG88

WORK IN VENTILATED AREA

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



DX,AIR -19-04JUN90

TS220 -JUN-23AUG88

10
05
4

ILLUMINATE WORK AREA SAFELY

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



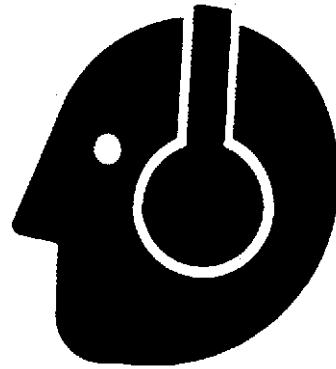
DX,LIGHT -19-04JUN90

TS223 -JUN-23AUG88

PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



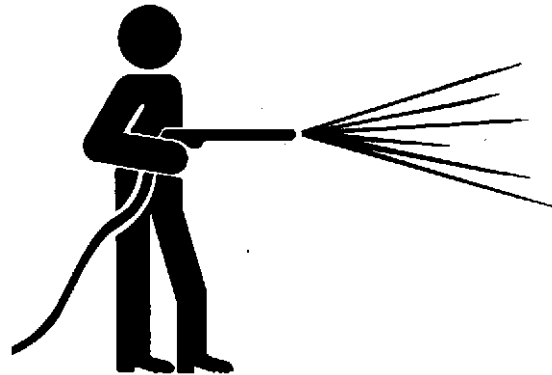
DX,NOISE -19-03MAR93

TS207 -JUN-23AUG88

WORK IN CLEAN AREA

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.



DX,CLEAN -19-04JUN90

T6642EJ -JUN-18OCT88

USE PROPER TOOLS

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.



DX,REPAIR -19-04JUN90

10510
-JUN-08NOV89
TS779

DISPOSE OF WASTE PROPERLY

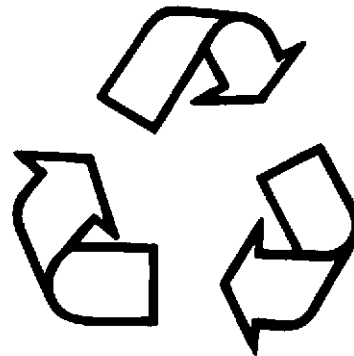
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



DX,DRAIN -19-03MAR93

-JUN-26NOV90
TS1133

LIVE WITH SAFETY

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



DX,LIVE -19-25SEP92

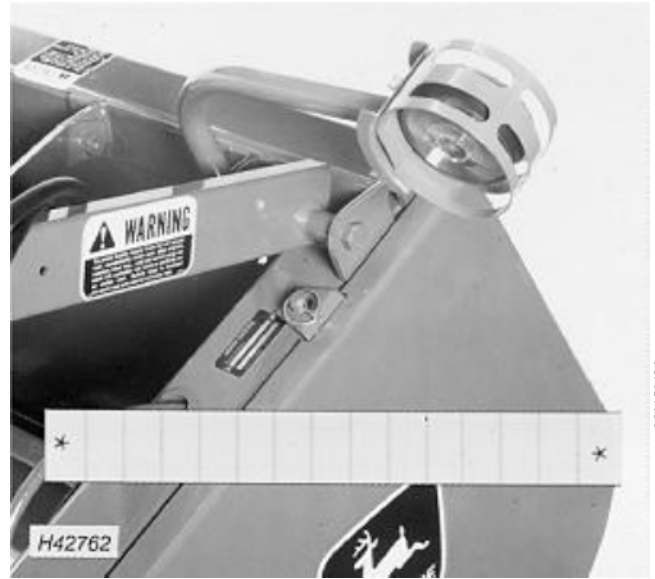
TS231 -19-07OCT88

10
05
6

SERIAL NUMBER

The serial number is on a plate located on the top left-hand end of the cutting platform.

When ordering parts, always bring the serial number from the serial number plate. This will help your John Deere dealer in giving you fast service.



JUN-09NOV90
H42762

TM1581,10A -19-03OCT94

The serial number is on a plate located on the right-hand end of the row-crop head.

Record your row-crop head serial number in the space provided on the illustration. Provide this serial number to your dealer when ordering parts.



JUN-12JAN91
H42466

TM1581,10B -19-03OCT94

The serial number is on a plate located on the right-hand end of the corn head.

Record your corn head serial number in the space above. Give this serial number to your dealer when ordering parts.



JUN-29NOV90
H42848

TM1581,10C -19-03OCT94

200 SERIES PLATFORMS

Specifications given in this manual are intended for service ONLY and do not include normal factory manufacturing tolerances.

(Specifications and design subject to change without notice)

Rigid Cutterbar Platform Model	Cutting Width	Combine Model
213	3 812 mm (12 ft. 6 in.)	4420, 4425, 6600, 6620, 7700, 7720
215	4 422 mm (14 ft. 6 in.)	4420, 4425, 6600, 6620, 7700, 7720, 8820
216	4 727 mm (15 ft. 6 in.)	4420, 4425, 6600, 6620, SideHill, 6620, 7700, 7720, 8820
218	5 336 mm (17 ft. 6 in.)	4420, 4425, 6600, 6620, 7700, 7720, 8820
220	5 846 mm (19 ft. 6 in.)	4420, 6600, 6620, 7700, 7720, 8820
222	6 556 mm (21 ft. 6 in.)	6600, 6620, 7700, 7720, 8820
224	7 165 mm (23 ft. 6 in.)	6600, 6620, 7700, 7720, 8820
230	8 994 mm (29 ft. 6 in.)	7700, 7720, 8820
Flex Cutterbar Platform Model		
213	3 812 mm (12 ft. 6 in.)	4420, 4425, 6600, 6620, 7700, 7720
215	4 422 mm (14 ft. 6 in.)	4420, 4425, 6620, SideHill, 6620, 7720, 8820
216	4 727 mm (15 ft. 6 in.)	4420, 4425, 6620, SideHill, 6620, 7720, 8820
218	5 336 mm (17 ft. 6 in.)	4420, 4425, 6620, 7720, 8820
220	5 846 mm (19 ft. 6 in.)	4420, 6620, 7720, 8820
222	6 556 mm (21 ft. 6 in.)	6620, 7720, 8820
224	7 165 mm (23 ft. 6 in.)	6620, 7720, 8820

NOTE: *Conversion parts are available to convert 213, 215, 216, 220 and 222 Model platforms for use with the SideHill 6600 and 6620 Combines. The 215 flex and 216 flex and rigid platforms are also available with factory installed parts as noted above.*

900 SERIES PLATFORMS

Specifications given in this manual are intended for service only and do not include normal factory manufacturing tolerances.

Rigid Cutterbar Platform Model	Cutting Width	Gathering Width	Combine Model
918	5334 mm (17 ft. 6 in.)	5.5 m (18 ft.)	4435, 6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
920 and 920 Rice	5944 mm (19 ft. 6 in.)	6.1 m (20 ft.)	6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
922 and 922 Rice	6556 mm (21 ft. 6 in.)	6.7 m (22 ft.)	6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
925 and 925 Rice	7620 mm (25 ft.)	7.8 m (25 ft. 6 in.)	6620, 7720, 7722, 8820, 9400, 9500, 9600, SideHill 9500, CTS
930 and 930 Rice	8992 mm (29 ft. 6 in.)	9.1 m (30 ft.)	7720, 8820, 9500, 9600, SideHill 9500, CTS
Flex Cutterbar Platform Model	Cutting Width	Gathering Width	Combine Model
913	3810 mm (12 ft. 6 in.)	3.8 m (12 ft. 5 in.)	4435, 6620, 7720, 9400, 9500, 9600, SideHill 9500, CTS
915	4572 mm (15 ft.)	4.5 m (14 ft. 11 in.)	4435, 6620 SideHill, 6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
918	5334 mm (17 ft. 6 in.)	5.3 m (17 ft. 5 in.)	4435, 6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
920	5944 mm (19 ft. 6 in.)	5.9 m (19 ft. 5 in.)	6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
922	6554 mm (21 ft. 6 in.)	6.6 m (21 ft. 5 in.)	6620, 7720, 8820, 9400, 9500, 9600 SideHill 9500, CTS
925	7620 mm (25 ft.)	7.6 m (24 ft. 11 in.)	6620, 7720, 8820, 9400, 9500, 9600, SideHill 9500, CTS
930	8992 mm (29 ft. 6 in.)	9.0 m (29 ft. 5 in.)	7720, 8820, 9500, 9600 SideHill 9500, CTS

(Specifications and design subject to change without notice.)

HX1581,1015,AC -19-03OCT94

Specifications

10
15
4

Cutterbar:

Type Enclosed wobble drive
 Extension (rigid) 102 mm (4 in.) forward and 102 mm (4 in.) rearward 203 mm (8 in.) max.
 Tilt range 9 degrees
 Flexible cutterbar float range 90 mm (3-1/2 in.)
 Cutterbar length 152 mm (6 in.) less than platform width, except for 915 and 925 models
 Knife sections Heavy-duty, overserrated
 Guards Forged steel, heat-treated

Knife Speed: (measured at sheave rpm)

539 cpm on Flexible Platforms
 562 cpm on Rigid Platforms

Reel: (pickup)

Number of slats 6 (with DURA-FLO fingers)
 Diameter 1067 mm (42 in.)

Reel: (slat)

Number of slats 5
 Diameter 1016 mm (40 in.)

Reel Controls:

Height control Hydraulic
 Speed control Hydraulic
 Operating speeds (Pickup 5—44 rpm) (Slat 8—66 rpm)

Platform Auger:

Diameter 610 mm (24 in.)
 Operating speed 169 rpm std. 135 rpm opt.

HX1581,1015,AD -19-03OCT94

918 DRAPER PLATFORM

“Specifications given in this manual are intended for service only and do not include normal factory manufacturing tolerances.”

Combine Models 9500, 9600, 7720 and 8820

Platform Drive Shaft 521 rpm

Cutter Bar

Type Enclosed wobble drive

Cutterbar length 5.33 m (17.5 ft.)

Knife sections Chrome plated, heavy-duty, overserrated

Guards Forged steel heat-treated

Knife Speed (measured
with 521 rpm
backshaft speed) 491 cpm

Pickup Reel

Number of slats 6 (with spring steel fingers)

Diameter 1320 mm (52 in.)

Reel Controls

Height control Hydraulic

Speed control Hydraulic

Operating speeds 3-30 rpm

Auger

Diameter 610 mm (24 in.)

Operating speed 169 rpm

Retractable auger fingers

Number of fingers 12

Diameter 16 mm (5/8 in.)

With break-a-way notch

Reach 152 mm (6 in.)

Torque required to seat

new finger 70 N·m (50 lb-ft) (maximum)

Platform weight 1696 kg (3740 lb)

TM1581,HX15,C -19-03OCT94

40 SERIES CORN HEAD

Specifications given in the manual are intended for service only and do not include normal factory manufacturing tolerances.

CORN HEAD MODEL	MACHINE MODEL	NUMBER OF ROWS	CORN HEAD MODEL	MACHINE MODEL	NUMBER OF ROWS
443	Forage Harvester 4420 Combine 4425 Combine 4435 Combine 6620 Combine	4	644	6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine 9600 Combine CTS Combine	6
444	Forage Harvester 4420 Combine 4425 Combine 6620 Combine SideHill 6620 Combine 7720 Combine 9400 Combine 9500 Combine SideHill 9500 Combine	4	645	6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine 9600 Combine CTS Combine	6
546	6620 Combine SideHill 6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine SideHill 9500 Combine 9600 Combine CTS Combine	5	843	7720 Combine 8820 Combine 9500 Combine 9600 Combine CTS Combine	8
643	6620 Combine SideHill 6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine SideHill 9500 Combine 9600 Combine CTS Combine	6	844	8820 Combine 9600 Combine CTS Combine	8
			1243	8820 Combine 9600 Combine	12

10
15
6

Specifications

10
15
7

Gatherer Points	Low profile floating type hinged above gatherer chains
Center and Outer Gatherer Sheets	hinged, quick-removable
Type of Gatherer Chains	Heavy-duty 555 endless steel roller chain (no master connecting link)
Minimum Clearance Between Gatherer Chains and Ground	32 mm (1-1/4 in.)
Row Unit Drive	Enclosed gear box with gears submerged in lubricant; driven by single input hex. shaft
Gatherer Chain Adjustment	Spring loaded- self-adjusting
Stalk Rolls	Spiral-pointed, flute-type (2 per row unit)
Deck Plate Adjustment	Bolt adjusted
Slip Clutch	One per row unit plus auger drive
Trash Knives	Full length one piece heat-treated steel

HX1581,1015,AE -19-03OCT94

Specifications

10
81510

Approximate Overall Width for Storage—

443	3454 mm (11 ft. 4 in.)
444	3708 mm (13 ft. 6 in.)
546	4928 mm (16 ft. 2 in.)
643	4928 mm (16 ft. 2 in.)
644	5791 mm (19 ft.)
645	6096 mm (20 ft.)
843	6299 mm (20 ft. 8 in.)
844	7820 mm (25 ft. 8 in.)
1243	9347 mm (30 ft. 8 in.)

Approximate Overall Length for
Storage—All Corn

Heads	3048 mm (10 ft.)
-------	------------------

Approximate Shipping Weight of
Corn Head—(Includes Shipping Skid)

443	1129 kg (2488 lb.)
444	1184 kg (2610 lb.)
546	1472 kg (3245 lb.)
643	1590 kg (3505 lb.)
644	1855 kg (4090 lb.)
645	1901 kg (4190 lb.)
843	2243 kg (4944 lb.)
844	2470 kg (5466 lb.)
1243	3332 kg (7340 lb.)

(Specifications and design subject to change without notice.)

HX1581,1015,AF -19-03OCT94

90 SERIES CORN HEAD

Specifications given in the manual are intended for service only and do not include normal factory manufacturing tolerances.

CORN HEAD MODEL	MACHINE MODEL	NUMBER OF ROWS	CORN HEAD MODEL	MACHINE MODEL	NUMBER OF ROWS
493	Forage Harvester 4420 Combine 4425 Combine 4435 Combine 6620 Combine	4	694	6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine 9600 Combine CTS Combine	6
494	Forage Harvester 4420 Combine 4425 Combine 6620 Combine SideHill 6620 Combine 7720 Combine 9400 Combine 9500 Combine SideHill 9500 Combine	4	893	7720 Combine 8820 Combine 9500 Combine 9600 Combine CTS Combine	8
			894	8820 Combine 9600 Combine CTS Combine	8
594	6620 Combine SideHill 6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine SideHill 9500 Combine 9600 Combine CTS Combine	5	1293	8820 Combine 9600 Combine	12
693	6620 Combine 7720 Combine 8820 Combine 9400 Combine 9500 Combine 9600 Combine CTS Combine	6			
693 SH	SideHill 6620 Combine SideHill 9500 Combine	6			

Specifications

10
15
10

Gatherer Points	Low profile floating type hinged above gatherer chains
Center and Outer Gatherers	hinged, quick-removable
Type of Gatherer Chains	Heavy-duty 555 endless steel roller chain with chromed pins (no master connecting link)
Minimum Clearance Between Gatherer Chains and Ground	32 mm (1-1/4-in.)
Row Unit Drive	Enclosed gear box with gears submerged in lubricant; driven by single input hex. shaft
Gatherer Chain Adjustment	Spring-loaded self-adjusting
Stalk Rolls	Spiral-pointed, flute-type (2 per row unit)
Deck Plate Adjustment	Bolt adjusted (Optional) Hydraulic adjusted
Slip Clutch	One per row unit plus auger drive
Trash Knives	Full length one piece heat-treated steel

HX1581,1015,AG -19-03OCT94

Specifications

10
15
11

Approximate Overall Width for Storage—

493	3454 mm (11 ft. 4 in.)
494	3708 mm (13 ft. 6 in.)
594	4928 mm (16 ft. 2 in.)
693	4928 mm (16 ft. 2 in.)
693 SH	4928 mm (16 ft. 2 in.)
694	5791 mm (19 ft.)
695	6096 mm (20 ft.)
893	6299 mm (20 ft. 2 in.)
894	7820 mm (25 ft. 8 in.)
1293	9347 mm (30 ft. 8 in.)

Approximate Overall Length
for Storage—All Corn

Heads	3000 mm (9 ft. 10-in.)
Points folded up (service position)	2400 mm (7 ft. 11-in.)

Approximate Shipping Weight
of Corn Head—(Includes Shipping Skid)

493	1129 kg (2488 lb.)
494	1184 kg (2610 lb.)
594	1472 kg (3245 lb.)
693	1590 kg (3505 lb.)
693 SH	1590 kg (3505 lb.)
694	1855 kg (4090 lb.)
695	1901 kg (1855 lb.)
893	2243 kg (4944 lb.)
894	2470 kg (5466 lb.)
1293	3332 kg (7340 lb.)

(Specifications and design subject to change without notice.)

CRNHD,90SP,C -19-14SEP93

**Thank you very much for
your reading. Please Click
Here. Then Get COMPLETE
MANUAL. NO WAITING**



NOTE:

**If there is no response to
click on the link above,
please download the PDF
document first and then
click on it.**

50 AND 50A SERIES ROW CROP

(Specifications and design subject to change without notice.)

Specifications given in this manual are intended for service only and do not include normal factory manufacturing tolerances.

ROW-CROP HEAD MODEL	COMBINE MODEL	NUMBER OF ROWS
454 and 454A	4420, 4425, 4435, 6620, SideHill 6620, 7720, 7721 9400, 9500	4
653 and 653A	4420, 6220, SideHill 6620, 7720, 8820, 9400, 9500, 9600	6
654 and 654A	6620, 7720, 8820 9400, 9500, 9600	6
655 and 655A	7720, 8820, 9500, 9600	6
853 and 853A	7720, 8820, 9500, 9600	8

Auger

(Retractable Finger Feeding)

Diameter	24 in. (610 mm)
Speed	100 to 165 rpm
Torque to seat fingers	20 lb-ft (27 N·m)

Crop Gatherer

Type	Belted chains
Gatherer belt speed	215 to 352 rpm
Drive	Chain
Gatherer points	Adjustable and floating
Row unit sheets	Swing-out

Rotary Knives

Type	Rotary 6 blade with adjustable shear
Speed	202 to 331 rpm
Cuts per minute	1212 to 1986
Blade material	High-carbon steel, heat treated cutting edge

Stationary Knives

Type	Fixed
Knife material	Heat-treated cutting edge

Skid Shoes

Type	Self-aligning, adjustable to three positions
Float range	6 in. (152 mm)

Specifications

Approximate Overall Width

454 and 454A	4 m	(13 ft.)
653 and 653A	4.7 m	(15 ft. 6 in.)
654 and 654A	6.3 m	(20 ft. 8 in.)
655 and 655A	6.4 m	(21 ft.)
853 and 853A	6.5 m	(21 ft. 2 in.)

Approximate Overall Length

(All row-crop heads) 3.3 m (11 ft.)

Approximate Shipping Weight

454 and 454A	1 220 kg (2880 lbs.)
653 and 653A	1 530 kg (3570 lbs.)
654 and 654A	1 905 kg (4420 lbs.)
655 and 655A	2 063 kg (4550 lbs.)
853 and 853A	2 155 kg (5000 lbs.)

(Specifications and design subject to change without notice.)

HX1581,1015,AI -19-03OCT94

10
15
13

UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES

10
15
14

SAE Grade and Head Markings	1 or 2 ^b	5	5.1	5.2	8	8.2
SAE Grade and Nut Markings	2	5		8		

TS1162 -19-04/MAR91

Size	Grade 1				Grade 2 ^b				Grade 5, 5.1, or 5.2				Grade 8 or 8.2			
	Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a	
	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft
1/4	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	400	300	510	375	400	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2150	1550	2700	2000	3400	2550
1-1/2	1000	725	1250	925	990	725	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

^a "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

^b Grade 2 applies for hex cap screws (not hex bolts) up to 152 mm (6-in.) long. Grade 1 applies for hex cap screws over 152 mm (6-in.) long, and for all other types of bolts and screws of any length.