

Axial-Flow® Combines

Table of Contents

	SECTION NO.	FORM NO.
1 GENERAL		
Specifications	1002	7-3350b
Engine Specifications - D466	1020	8-62491
Engine Specifications - D358	1220	8-28600
2 ENGINES - D358 and D466 Navistar (International)		
Engine Troubleshooting	2010	8-62231
Engine Tune-Up - D466	2015	8-27421
Engine Tune-Up - D358	2016	8-27650
Engine Removal and Installation	2020	8-27690
Cylinder Head and Valve Train	2030	8-27181
Cylinder Block	2040	8-27211
Lubrication System	2060	8-27191
Cooling System	2070	8-27231
Air induction and Exhaust System	2090	8-27660
Turbocharger - T04B	2265	8-20190
Turbocharger Failure Analysis - All Engines	2565	9-78235
6-590 Case		
Engine Specifications - 6-590	2401	8-26063
Cylinder Head and Valve Train	2415	8-26073
Cylinder Block	2425	8-26084
Lubrication System	2445	8-26093
After Cooler	2545	8-26120
Cooling System	2455	8-26103
Turbocharger	2465	8-26110
6-830 Case		
Specification Details - 6-830	2403	8-28423
Cylinder Head and Valve Train	2415	8-28432
Cylinder Block	2425	8-28442
Lubrication System	2445	8-28452
Cooling System	2455	8-28462
Turbocharger	2465	8-28470
3 FUEL SYSTEM – D358 and D466 Navistar Engines		
Fuel System and Filters	3010	8-27241
Fuel Injection Pump - Robert Bosch Type MW	3020	8-27251
Fuel Injection Pump - United Technologies	3021	8-27730
Fuel Injection Pump - Robert Bosch Type VE	3022	8-27760
Fuel Injectors	3030	8-27261
6-590 Case Engine		
Fuel System and Filters	3410	8-26131
Fuel Injection Pump - CAV	3411	8-97711
Fuel Injection Pump - Bosch	3412	8-26142
Fuel Injectors	3413	8-26152
6-830 Case Engine		
Fuel System and Filters	3410	8-28480
Fuel Injection Pump	3412	8-28492
Fuel Injectors	3413	8-28501

	SECTION NO.	FORM NO.
4 ELECTRICAL		
Wiring Schematics and Troubleshooting P.I.N. and After	4002E	8-99030
Wiring Schematics and Troubleshooting - Combines with CDC (Case) Engines	4002	8-95950
Wiring Schematics and Troubleshooting - 1670 Combine with CDC (Case) Engines	4003	8-96420
Wiring Schematics and Troubleshooting - Combines with Navistar Engines	4004	8-27851
Wiring Schematics and Troubleshooting - 1670 Combine with Navistar Engine	4005	8-96440
Starting Motor	4040	8-62530
Alternator System	4060	8-62170
Neutral Start Switch and Correct Starting Procedure Using Auxiliary Batteries	4070	8-27670
Feeder Reverser Motor	4080	8-29250
Battery Servicing and Testing	4235	8-20291
5 STEERING		
Testing Steering System	5010	8-29070
Steering Column and Hand Pump	5020	8-62430
Steering Hand Pump, Attenuator and Reservoir - P.I.N. and after	5020	7-38401
Steering Cylinders	5030	8-27580
Steering Axles (Except Power Guide Axle)	5040	8-27560
Testing the Power Guide Axle	5050	8-29270
Power Guide Axle Motor and Planetaries	5051	8-29280
Power Guide Selector Valve	5052	8-29290
6 POWER TRAIN		
Troubleshooting Hydrostatic Drive System	6005	8-29300
Testing Hydrostatic Drive System	6012	8-29310
Foot-N-Inch Valve	6015	8-27681
Hydrostatic Drive Pump Removal and Installation - 1660 and 1680 Combines	6017	8-29321
Hydrostatic Drive Pump	6020	8-62461
Hydrostatic Drive Motor - Single Speed - Prior to P.I.N.	6030	8-29340
Hydrostatic Drive Motor - Single Speed - P.I.N. and After	6030	7-34840
Hydrostatic Drive Motor - Two Speed	6031	8-27910
Transmission and Hydrostatic Motor Removal and Installation	6035	8-27791
Transmission Service - 1660 and 1680 Combines	6040	8-27800
Transmission Service - 1620 and 1640 Combines	6041	8-29350
Final Drives - 1660 and 1680 Combines	6060	8-28411
Final Drives - 1620 and 1640 Combines	6061	8-29361
PTO Removal and Installation (with Navistar Engine)	6065	8-29670
PTO Removal and Installation (with NCE Engine)	6065	7-37670
PTO Service - 1620, 1640 and 1660 Combines	6070	8-29370
PTO Service - 1680 Combines	6071	8-29381
7 BRAKES		
Brake Pedals and Parking Brake	7010	8-27920
Brake Master Cylinders	7020	8-62241
Brake Assemblies - 1660 and 1680 Combines	7030	8-27840
Brake Assemblies - 1620 and 1640 Combines	7031	8-28680

SECTION NO.

FORM NO.

8 HYDRAULICS

Troubleshooting Hydraulic System - Prior to P.I.N.	8005	8-29400
Hydraulic System Schematic and Testing - Prior to P.I.N.	8010	8-27600
Hydraulic Schematics and Troubleshooting - P.I.N. and After	8011	8-98580
Hydraulic Tubes, Hoses and Fittings - P.I.N. and After	8020	7-38390
Hydraulic Pump	8025	8-29411
Auxiliary Hydraulic Pump - P.I.N. and After	8025	7-38370
Hydraulic Control Valves	8030	8-29421
Hydraulic Control Valves - P.I.N. and After	8030	7-38380
Feeder Clutch Valves	8040	8-29430
Separator Clutch Valves	8050	8-27890
Separator Drive Test and Troubleshooting Procedure (1680 Only)	8051	7-38490
Hydraulic Cylinders	8060	8-27620
Reel Drive Control valve	8070	8-29441
Reel Drive Pump	8073	8-29451
Reel Drive Motor	8075	8-29460
Accumulator	8080	7-34410

9 CHASSIS

Air Conditioner Compressor - Sanden SD508HD	9000	7-35200
Air Conditioner Troubleshooting	9001	7-35210
Air Conditioner System Gauge Testing	9002	7-37680
Air Conditioner System Service	9003	7-34860
Air Conditioner Components Service - Sanden Compressor System	9004	7-34890
Air Conditioner Compressor R & I - Navistar Engine	9030	8-62331
Air Conditioner Components Service	9040	8-62320
Servicing the Cab Blower	9050	8-62300
Separator Drive Jackshaft	9101	8-27750
Rotor Drive	9102	8-28000
Rotor Gearbox	9103	8-28010
Rotor	9104	8-29480
Feeder and Cleaning Fan	9105	8-29490
Rock Trap	9106	8-29500
Cleaning Fan Drive	9107	8-27720
Cleaning Fan	9108	8-28360
Elevator Drive Jackshaft	9109	8-27810
Inclined Delivery Auger	9110	8-29510
Discharge Beater	9111	8-29520
Unloader Drive	9112	8-28590
Straw Spreader Drive	9113	8-29020
Header Auger Drive	9114	8-29530
Header Cutter Bar Drive	9115	8-29540
1000 Series Corn Head	9116	8-29550
Unloader Auger System	9117	8-91480
Field Tracker.....	9120	7-38450
Cross Flow Fan.....	9121	7-38790

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>

Section 1002

SPECIFICATIONS

1002

TABLE OF CONTENTS

GENERAL SPECIFICATIONS

Capacities	3
Electrical Specifications	4
Steering Specifications	4
Transmission Specifications	5
Brake Specifications	6
Hydraulic Specifications	7
Air Conditioner Specifications	8
Chassis Specifications	9

SPECIAL TORQUES	12
-----------------------	----

GENERAL SPECIFICATIONS

Capacities 1640

Engine Oil (With Filter Change)	15 Litres	3.96 U.S. Gal
Engine Oil (Without Filter Change)	14.3 Litres	3.78 U.S. Gal
Cooling System	34.1 Litres	9.0 U.S. Gal
Transmission	8.5 Litres	2.2 U.S. Gal
Final Drive (Each Side)	5.2 Litres	1.37 U.S. Gal
Hydraulic Reservoir	30.3 Litres	8.0 U.S. Gal
Lower Unloader Gear Case	0.83 Litres	0.9 U.S. Quarts
PTO Housing	13.2 Litres	3.48 U.S. Gal
Feeder and Cleaning Fan Gear Case	2.6 Litres	2.7 U.S. Quarts
Rotor Gear Case	3.8 Litres	4.0 U.S. Quarts
Straw Chopper	3.1 Litres	3.28 U.S. Quarts
Fuel Tank Capacity	350 Litres	92.4 U.S. Gal

Capacities 1660

Engine Oil (With Filter Change)	21 Litres	5.5 U.S. Gal
Engine Oil (Without Filter Change)	19 Litres	5.0 U.S. Gal
Cooling System	37.8 Litres	9.98 U.S. Gal
Transmission	18.9 Litres	4.99 U.S. Gal
Final Drive (Each Side)	12.3 Litres	3.25 U.S. Gal
Hydraulic Reservoir (Corn and Grain)	30.3 Litres	8.0 U.S. Gal
Hydraulic Reservoir (Rice Combines)	38 Litres	10 U.S. Gal
Lower Unloader Gear Case	0.83 Litres	0.9 U.S. Quarts
PTO Housing	13.2 Litres	3.48 U.S. Gal
Feeder and Cleaning Fan Gear Case	2.6 Litres	2.7 U.S. Quarts
Rotor Gear Case	3.8 Litres	4.0 U.S. Quarts
Straw Chopper	3.1 Litres	3.28 U.S. Quarts
Fuel Tank Capacity	350 Litres	92.4 U.S. Gal

Capacities 1680

Engine Oil (With Filter Change)	21 Litres	5.5 U.S. Gal
Engine Oil (Without Filter Change)	19 Litres	5.0 U.S. Gal
Cooling System	37.8 Litres	9.98 U.S. Gal
Transmission	18.9 Litres	4.99 U.S. Gal
Final Drive (Each Side)	12.3 Litres	3.25 U.S. Gal
Hydraulic Reservoir (Corn and Grain)	30.3 Litres	8.0 U.S. Gal
Hydraulic Reservoir (Rice Combines)	38 Litres	10 U.S. Gal
Lower Unloader Gear Case	0.83 Litres	0.9 U.S. Quarts
PTO Housing	13.2 Litres	3.48 U.S. Gal
Feeder and Cleaning Fan Gear Case	2.6 Litres	2.7 U.S. Quarts
Rotor Gear Case	3.8 Litres	4.0 U.S. Quarts
Straw Chopper	3.1 Litres	3.28 U.S. Quarts
Fuel Tank Capacity	466 Litres	123 U.S. Gal

Electrical Specifications

Type of System 12 Volt, Negative Ground

Batteries

Number of Batteries Required 2
Voltage of Battery 12 Volt

Starter Motor (fitted to the Navistar Engine)

System Voltage 12 Volt, Internal Ground
Rated Volts 10
Minimum AMPS 140
Maximum AMPS 175
Minimum RPM 6,600
Maximum RPM 8,200
Rotation To Be Counterclockwise as Viewed from the Drive End
Hold-In Winding Resistance 16 to 20 Amps at 10 Volts
Pull-In Winding Resistance 24 to 29 Amps at 5 Volts
Pinion Clearance 0.254 to 1.778 mm 0.010 to 0.070 inch

Starter Motor (fitted to the N.C.E. Engine)

Rated Voltage 12 Volts
Output 5.3 hp 4.0 kwh
Time Rating 30 seconds
Direction of Rotation Clockwise from pinion end

Alternator (fitted to the Navistar Engine)

Manufacturer Motorola
Output 89 Amps at 5000 RPM
Resistance of Rotor Winding 2.3 to 2.4 Ohms

Alternator (fitted to the N.C.E. Engine)

Manufacturer Robert Bosch
Output 14 Volts at 110 Amps
Resistance of Rotor Winding 2.60 ± 0.26 Ohms
Resistance of Stator Winding 0.053 to 0.058 Ohms
Minimum Brush Length 5 mm 0.2 inch

Steering Specifications

Rear Axle

Toe-In for 406 mm (16 inch) Wheels 7.6 to 10 mm 19/64 to 13/32 inch
Toe-In for 610 mm (24 inch) Wheels 11 to 15 mm 13/33 to 19/32 inch

Steering Hand Pump

Type Danfoss
Rated Flow (1640, 1660) 12.5 Litres/min 3.3 U.S. gpm
Rated Flow (1680) 16 Litres/min 4.2 U.S. gpm
Rated Flow (1640, 1660 and 1680 German Models) 12.5 Litres/min 3.3 U.S. gpm
Rotor - Stator Wear Limit 0.178 mm 0.007 inch

Transmission Specifications

Foot-N-Inch Valve		
Relief Pressure of the Foot-N-Inch Valve		
with the Foot-N-Inch Pedal Down	4.14 bar Max	60 psi Max
1640, 1660 and 1680 Corn and Grain		
Relief Pressure (Foot-N-Inch valve setting)		
with the Foot-N-Inch pedal up	372 to 386 bar	5400 to 5600 psi
1660 and 1680 Rice Combines		
Relief Pressure (Foot-N-Inch valve setting)		
with Foot-N-Inch pedal up	407 to 421 bar	5900 to 6100 psi
Foot-N-Inch valve setting	441 to 455 bar	6400 to 6600 psi
Foot-N-Inch Valve Spring Specifications (Corn and Grain)		
Free Length	35.74 mm	1.407 inch
Wire Diameter	1.83 mm	0.072 inch
Outside Diameter	11.84 mm	0.468 inch
Inside Diameter	8.23 mm	0.324 inch
Total Number of Coils	10	
Compression Strength	22.86 mm at 174 N	0.89 inch at 39 lbf
Foot-N-Inch Valve Spring Specifications (Rice Combines)		
Free Length	31.40 mm	1.236 inch
Wire Diameter	2.03 mm	0.080 inch
Outside Diameter	11.13 mm	0.468 inch
Inside Diameter	7.82 mm	0.308 inch
Total Number of Coils	10.5	
Compression Strength	22.86 mm at 174 N	0.9 inch at 39 lbf
Hydrostatic Drive Pump		
Hydrostatic Pump Shaft to PTO Pulley Spline Backlash	0.094 mm	0.004 inch
Hydrostatic Pump Displacement at 2500 rpm (1640)	173 to 177 Litres/min	38 to 39 U.S. gpm
Hydrostatic Pump displacement at 2500 rpm		
(1660 and 1680 Corn and Grain)	200 to 218 Litres/min	52 to 57 U.S. gpm
Hydrostatic Pump displacement at 2500 rpm		
(1680 Rice)	235 to 257 Litres/min	62 to 68 U.S. gpm
Hydrostatic Drive Motor (Single Speed)		
Clearance Between Slipper Retainer and Hold Down Plate	0.20 mm	0.008 inch
Pump Shaft End Play	0.05 to 0.18 mm	0.002 to 0.007 inch
Hydrostatic Drive Motor (2 Speed)		
Low Pressure Relief Valve Setting	11 bar	160 psi
Motor Displacement (Per Revolution)	88.5 cm ³	5.4 in ³
Pump Shaft End Play	0.05 to 0.18 mm	0.002 to 0.007 inch
Swashplate Breakaway Force	8.9 to 22.4 Nm	2 to 5 lbf
Transmission (1640)		
Pinion Shaft End Play	0.05 to 0.2 mm	0.002 to 0.008 inch
Differential Bearing Pre-Load	31 N	7 lbf
Transmission (1660 and 1680)		
Pinion Shaft End Play	0.05 to 0.2 mm	0.002 to 0.008 inch
Spool Gear End Play	1.5 mm max	0.591 inch max
Change Gear End Play	0.05 to 0.2 mm	0.002 to 0.008 inch
Shifter Rail Detent Springs		
Free Length	44 mm	1.7 inch
Number of coils	12	
Outside Diameter	12.5 mm	0.05 inch
Wire Diameter	1.6 mm	0.06 inch

Final Drive (1640)

Final Drive Rolling Torque (New Bearings)	19 to 23 Nm	14 to 17 lb ft
Final Drive Rolling Torque (With One New Bearing and One Old Bearing)	14 to 18 Nm	10 to 13 lb ft
Pinion Shaft End Play	0.05 to 0.15 mm	0.002 to 0.006 inch

Final Drive (1660 to 1680)

Final Drive Rolling Torque (New Bearings)	7 to 12 Nm	5 to 9 lb ft above rolling torque
Final Drive Rolling Torque (With One New and One Old Bearing)	4 to 7 Nm	3 to 5 lb ft above rolling torque
Pinion Shaft Rolling Torque	0.6 to 2.3 Nm	5 to 20 lb in

PTO Housing

PTO Driven Gear Backlash	0.102 to 0.203 mm	0.004 to 0.008 inch
Separator Drive Shaft Bearing Pre-Load	0.57 to 1.69 Nm	5 to 15 lb in

Brake Specifications**Brakes**

Master Cylinder Push Rod Clearance Measured at Pedal Seal Support.....	2 to 5 mm	0.08 to 0.2 inch
Brake Pedal Height Measured from Center of Stationary Pedal	102 to 127 mm	4 to 5 inch

Brake Assemblies (1640)**Actuating Disc Springs**

Number of Coils	3.5
Free Length - Inside of Coils	24 mm 0.94 inch
OD	21 mm 0.81 inch
Wire Diameter	2.67 mm 0.105 inch
Extend to 27 mm (1.06 inch)	88.9 N 20 lbf

Brake Lever Return Spring

Number of Coils	11
Free Length - Inside of Coils	69.8 mm 2.75 inch
OD	19 mm 0.75 inch
Wire Diameter	3 mm 0.12 inch
Extend to 74.6 mm (2.93 inch)	156 to 200 N 35 to 45 lbf

Brake Cylinder Spring

Number of Coils	12
Free Length	62 mm 2.45 inch
OD	20.6 mm 0.81 inch
Wire Diameter	1.21 mm 0.047 inch
Extend to 44.5 mm (1.75 inch)	0.45 N 1 lbf

Brake Assemblies (1660 and 1680)**Actuator Disc Springs**

Number of Coils	3.5
Free Length - Inside of Coils	27 to 28 mm 1.06 to 1.12 inch
OD	21 mm 0.84 inch
Wire Diameter	3 mm 0.105 inch
Extend to 32 mm (1.25 inch)	111 to 147 N 25 to 33 lbf

Brake Lever Return Spring

Number of Coils	19.25
Free Length - Inside of Coils	68 mm 2.67 inch
OD	17 mm 0.67 inch
Wire Diameter	2.4 mm 0.095 inch
Extend to 81 mm (3.19 inch)	76 N 17 lbf

Brake Cylinder Spring

Number of Coils	14
Free Length - Inside	68 mm 2.67 inch
OD	23 mm 0.88 inch
Wire Diameter	1.21 mm 0.047 inch
Extend to 44.5 mm (1.75 inch)	44 N 10 lbf

Hydraulic Specifications

For Combines Prior to P.I.N.

1640 JJC0097190	1640E JJC0096095
1660 JJC0103800	1660E JJC0100280
1680 JJC0117060	1680E JJC0114165

Main Pump Flow (Steering and Valve Stack)	68 to 83 Litres/min	18 to 22 U.S. gpm
Primary Relief Valve Pressure	138 to 145 bar	2000 to 2100 psi
Secondary Relief Valve Pressure	152 to 159 bar	2200 to 2300 psi
Header Lift Flow	39.7 Litres/min	10.5 U.S. gpm
Power Steering Flow	14.4 to 20.8 Litres/min	3.8 to 5.5 U.S. gpm
Reel Lift Flow (minimum)	5.7 to 7.6 Litres/min	1.5 to 2.0 U.S. gpm
Reel Lift Pressure	124 to 131 bar	1800 to 1900 psi
Reel Drive Pump Flow	37.9 to 45.4 Litres/min	10.0 to 12.0 U.S. gpm
Unloader Auger Pressure	124 to 145 bar	1800 to 2100 psi
Accumulator Pressure	76 bar	1100 psi
PTO Drive Accumulator Pressure	6.2 to 7.6 bar	90 to 110 psi

PTO Drive Clutch Pressure:

Engine RPM	Separator	Pressure	Flow
High Idle (2700)	Off	14.4 to 16.2 bar 210 to 235 psi	0
High Idle (2700)	On	13.8 bar minimum 200 psi minimum	3.0 to 4.5 L/min 0.8 to 1.2 U.S. gpm
Low Idle (1000)	Off	13.1 bar minimum 190 psi minimum	0
Low Idle (1000)	On	12.4 bar minimum 180 psi minimum	3.0 to 4.5 L/min 0.8 to 1.2 U.S. gpm

Reel Drive Control Valve

Solenoid Limit Check at 1.1 Litres/min (0.2 U.S. gpm) out of the Work Port	250 to 280 Amperes
With Pressure at Work Port of 41.4 bar (600 psi) and 42.8 bar (1200 psi) and Work Port flow of 22.1 Litres/min (4.9 U.S. gpm), Solenoid Draw should be	0.4 to 0.6 Amperes
Differential Pressure Between Work Port and Tank Port	15.5 to 19 bar 225 to 275 psi
With Pressure at Work Port between 6.9 and 117.2 bar (100 to 1700 psi) and a maximum of 1.2 Amperes supplied, Work Port Flow should be	36.8 to 40.5 Litres/min 9.7 to 10.6 U.S. gpm

Hydraulic Specifications

For Combines After P.I.N.

1640 JJC0097190	1640E JJC0096095
1660 JJC0103800	1660E JJC0100280
1680 JJC0117060	1680E JJC0114165

Specifications at 2700 Engine RPM and Oil temperature at 100°F (38 °C) or Higher.

Auxiliary Pump Output

Front Section to Valve Stack (Minimum)	53 Litres/min at 69 bar	14.0 U.S. gpm at 1000 psi
Front Section to Steering	14.4 to 20.8 Litres/min at 34 bar	3.8 to 5.5 U.S. gpm at 500 psi
Rear Section (Reel drive)	40.9 Litres/min at 34 bar	10.8 U.S. gpm at 500 psi
		Minimum at the Couplers

Hydraulic Oil Flows at the Header Couplers

Header Lift (minimum)	44.7 Litres/min at 69 bar	11.8 U.S. gpm at 1000 psi
Reel Drive (minimum)	37.8 Litres/min at 34 bar	10 U.S. gpm at 500 psi
Secondary Circuit	5.6 to 7.6 Litres/min at 34 bar	1.5 to 2.0 U.S. gpm at 500 psi

System Relief Pressure

Steering	137 to 166 bar	2000 to 2400 psi
Auxiliary	137 to 145 bar	2000 to 2100 psi
Header Lift	169 to 176 bar	2450 to 2550 psi
Reel Drive	133 to 145 bar	1925 to 2100 psi

Air Conditioner Specifications

Air Conditioner Compressor

Type	5 horizontal pistons operating on a cam plate
Manufacturer	SANDEN
Model	SD 508 HD
Bore	35 mm
Stroke	28.6 mm
Displacement Per Revolution	133 cc
Clutch Voltage	12V

Compressor Lubrication

Type	Positive Pressure
Lubricant	Suniso 5GS, Texaco Capella WF100, Shell Clavus 129
Capacity	170 ml

Refrigerant

Type	R-12 to Case Specification B6
Boiling Point at Atmospheric Pressure	-30°C -22°F

Drive Belt Tension (New)	422 to 516 N	95 to 116 lbf
Drive Belt Tension (Used)	400 to 489 N	90 to 110 lbf

High Pressure Switch

Location	Discharge Hose From Compressor
Operation	Closed by Excessive Pressure
Cut-Out Pressure	25.2 to 26.5 bar

Low Pressure Switch

Location	Evaporator Outlet in the Cab Roof
Operation	Closed by Low Pressure
Cut-Out Pressure	0.28 to 0.41 bar 4 to 6 psi

Temperature Control Switch

Location	Cab Roof, Sensor in the Evaporator
Cut-Out Temperature	2°C 32°F
Cut-In Temperature	6 to 7°C and 16 to 21°C 43 to 45°F and 61 to 70°F

Chassis Specifications

Separator Drive Jackshaft

Jackshaft Rolling Torque Without Seals	0.6 to 1.1 Nm 5 to 10 lb in
Distance from Rotor Torque Sensing Pulley to Rotor Drive Pulley	95 mm 3.75 inch
Alignment of Rotor Torque Sensing Pulley to Rotor Drive Pulley - Within	1.52 mm 0.060 inch
Drive Pulley Trap Clearance	3 mm 0.125 inch

Rotor Drive

Adjustable Pulley Half - Bushing Service Limit	Coated Material not Worn Through
Distance Between Inner Surface of Rotor Driven Pulley Halves for Correct Belt Tension	10.4 mm 0.41 inch
Torque Sensing Spring Free Length	198 mm 7.8 inch
Torque Sensing Spring Free Length After P.I.N. 1640 JJC 0097190 1640E JJC 0096095	
1660 JJC 0100327 1660E JJC 0100280	
1680 JJC 0116411 1680E JJC 0114165	229 mm 9 inch

Rotor Gearbox

Input Shaft End Play (Maximum)	0.28 mm 0.011 inch
Output Shaft End Play (Maximum)	0.28 mm 0.011 inch
Input Shaft Rolling Torque (Maximum all Gears)	1.7 Nm 15 lb in
Roller Bearing to Output Shaft Hub Face Clearance	1.5 mm 0.060 inch

Shifter Rail Detent Spring Specifications:

Free Length	47.02 mm 1.85 inch
Number of Coils	15
OD	10.72 mm 0.42 inch
Wire Diameter	1.588 mm 0.0625 inch
Compress to 31.75 mm (1.25 inch)	97 N 21.8 lbf

Rotor

Clearance Between the Rotor Front Bearing Housing and the Rotor Impeller Blades	0.76 to 3.81 mm 0.03 to 0.15 inch
Clearance Between the Rotor Speed Sensor and the Rotor Speed Sprocket	0.356 to 2.286 mm 0.014 to 0.09 inch

Feeder and Cleaning Fan

Gear Backlash	0.13 to 0.28 mm 0.005 to 0.011 inch
Bearing Pre-Load	
Input Shaft	0.34 to 1.34 Nm 3 to 12 lb in
Output Shaft	0.22 to 1.12 Nm 2 to 10 lb in
Input Shaft Pinion	
Mounting Distance	52.5 to 52.6 mm 2.067 to 2.071 inch

Cleaning Fan Drive

Cleaning Fan Speed	450 to 1150 rpm
Slow Fan Drive Speed (If Equipped)	156 to 453 rpm
Fan Jackshaft Drive Belt Tension Adjustment	240 mm 9.5 inch

Cleaning Fan

Drive Pulley Distance from Frame Rail to Center of Pulley	187 mm 7.34 inch
Blade Distance from End of Fan Blade to Side of Fan Housing .	6.5 to 12.5 mm 0.25 to 0.5 inch
Blade Distance from Tip of Fan Blade to Back of Fan Housing	3 to 6 mm 0.125 to 0.25 inch
Air Gap Between Cleaning Fan Speed Sensor and Cleaning Fan Sprocket	0.35 to 2.28 mm 0.015 to 0.09 inch
Maximum Distance Between Centerline of Cleaning Fan Sensor and Centerline of Sensor Sprocket	4 mm 0.156 inch

Elevator Drive Jackshaft

1680 Combine Slip Clutch Spring

Free Length	76.2 mm 3.0 inch
OD	35.1 mm 1.375 inch
Number of Coils	8.25
Wire Diameter	6.67 mm 0.263 inch
Compress to 58.7 mm (2-5/16 inch)	2424 N 545 lbf

1620, 1640, 1660 Combine Slip Clutch Spring

Free Length	79.5 mm 3.125 inch
OD	24.8 mm 0.9686 inch
Number of Coils	11
Wire Diameter	5.26 mm 0.219 inch
Compress to 63.5 mm (2-1/2 inch)	1659 N 374 lbf

Tailings elevator Drive Sprocket Distance

from Clutch Retainer Plate to Sprocket	196.85 mm 7.75 inch
--	---------------------

Clean Grain elevator Drive Sprocket Distance from

Grain elevator Reinforcement Plate to Center of Sprocket Teeth	41.275 mm 1.625 inch
---	----------------------

Slip Clutch Warning Horn Distance from

Clutch Retaining Plate to Horn Sensor	1.6 to 3.2 mm 0.0625 to 0.125 inch
---	------------------------------------

Discharge Beater

Gap Between Shaft Speed Sensor and Sensor Magnet	3 mm 0.125 inch
--	-----------------

Unloader Drive

Drive Chain Free Movement	25.4 mm 1 inch
Unloader Jackshaft Driven Pulley to Pulley Belt Guide Gap - Within Lower Left 45 Degree Quadrant	3 to 4.5 mm 0.125 to 0.1719 inch
Unloader Jackshaft Driven Pulley to Pulley Belt Guide Gap - Outside 45 Degree Quadrant	3 to 7 mm 0.125 to 0.2656 inch
Unloader Jackshaft Drive Pulley to Pulley Guide Belt	2.8 to 3.3 mm 0.1093 to 0.125 inch
Unloader Belt Tension Pulley Return Spring Length	177.8 mm 7 inch

Straw Spreader Drive

Spreader Drive Belt Tension Spacer Length	165 mm 6.5 inch
Bevel Gear End Play	0.8 to 1.5 mm 0.0315 to 0.60 inch

Header Cutter Bar Drive		
Knife Drive Assembly Clearances		
Trunnion Bearings End Play	0.05 to 0.10 mm	0.002 to 0.004 inch
Inclined Delivery Auger		
Sprocket Shaft Bearing Pre-Load	0.9 to 1.4 Nm	8 to 12 lb in
1000 Corn Head		
Single Clutch		
Spring Height Adjustment		
Top of Spring Washer to Bottom of Spring Retainer	43.5 mm	1.7 inch
Torque Required to Slip Clutch	312 to 407 Nm	230 to 300 lb ft
Double Clutch		
Spring Height Adjustment		
16 mm		0.63 inch
Torque Required to Slip Clutch		
340 to 440 Nm		250 to 325 lb ft
Stalk Roll Knife to Weed Knife Clearance	1.524 mm	0.060 inch
Auger Clearance to Stripper	8 mm	0.3125 inch
Auger Clearance to Trough	25 mm	1 inch
Stalk Roll Weed Knife Clearance	1.5 mm	0.0625 inch
Stalk Roll Knife Cutting Edge Clearance	0.8 to 2 mm	0.0312 to 0.0781 inch
Stalk Roll Stripper Shield Clearance		
Front		
32 mm		1.250 inch
Rear		
35 mm		1.375 inch
Gather Chain Adjustment Between Washer and Sleeve	3 to 6.5 mm	0.125 to 0.25 inch
Stalk Roll Alignment Between Knives	46 mm	1.8125 inch
Auger Slip Clutch Spring Height Adjustment	13 mm	0.50 inch
Stalk Roll Drive Lubricant Capacity	2.13 Litre	4.5 pt
Stalk Roll Drive Lubricant - Case 135 HEP 85W-140 Gear Lubricant		
Seal Installation Depth - Case to Face of Seal		
Main Shaft End Cap		
10 mm		0.393 inch
Stalk Roll Housing		
18.5 mm		0.73 inch
Gather Shaft		
5 mm		0.196 inch
Anti Squeeze Compound on Chain Tension Sliding Rods		
Permatex No. 2 on Oil Level Gauge Threads		
Loctite 515 on all Stalk Roll Drive Gasket and OD of Seals		
Stalk Roll Knife to Knife Adjustment	46 mm	1.1875 inch
Stripper Shield Clearance		
Front		
32 mm		1.25 inch
Rear		
35 mm		1.375 inch
Unloader Auger System		
Unloader Drive and Driven Chain Deflection		
25.4 mm		1.00 inch
Unloader Jackshaft Driven Pulley to Pulley Belt Guide Gap		
- Within Lower Left 45 Degree Quadrant		
3.0 to 4.3 mm		0.125 to 0.172 inch
Unloader Jackshaft Driven Pulley to Pulley Belt Guide Gap		
- Outside 45 Degree Quadrant		
3.0 to 7.0 mm		0.125 to 0.226 inch
Unloader Jackshaft Drive Pulley to Pulley Belt Guide Gap	2.8 to 3.3 mm	0.109 to 0.125 inch
Unloader Belt Tension Pulley Return Spring Length	178 mm	7.00 inch
Bottom of Pin Hole in Upper Gear Shaft to		
Upper Gear Box Housing		
41.11 to 42.71 mm		1.625 to 1.688 inch
Upper Gearbox Backlash		
1.102 to 0.152 mm		0.004 to 0.006 inch
Lower Gearbox Backlash		
0.152 to 0.914 mm		0.006 to 0.036 inch
Straw Chopper Drive Adjustment Spring Length	165 mm	6.5 inch
Swing Cylinder Wiper Installation Depth	0.76 mm	0.030 inch
Grain Tank Auger Cover Clearance		
Rear Auger		
90 mm		3.5 inch
Front Auger		
63.5 mm		2.5 inch
1620 Chopper Drive Belt Deflection With 54 to 67 N (12 to 15 lbf)	19 mm	0.75 inch



Suggest:

If the above button click is invalid.

**Please download this document
first, and then click the above link
to download the complete manual.**

Thank you so much for reading

SPECIAL TORQUES

Unloader Auger

Unloader Auger Lower Gearbox Mounting Bolts	95 to 109 Nm	70 to 80 lb ft
Unloader Auger Swing Cylinder Piston Lock Nut	145 to 160 Nm	105 to 120 lb ft
Unloader Auger Swing Cylinder Mounting Bolts	119 to 120 Nm	80 to 90 lb ft
Unloader Auger Swing Cylinder Rod Mount to Tube	101 to 115 Nm	75 to 85 lb ft
Unloader Tube Elbow Keeper Bolts	101 to 115 Nm	75 to 85 lb ft

Corn Head

Header Input Shaft Bearing	45 to 50 Nm	30 to 35 lb ft
Header Drive Shaft Bearing	110 to 120 Nm	80 to 90 lb ft
Header Input Shaft Sprocket	135 to 150 Nm	100 to 110 lb ft
Gatherer Shaft End Cap	45 to 55 Nm	35 to 40 lb ft
Stalk Roll Drive Bevel Gear Housing	45 to 55 Nm	35 to 40 lb ft
Gear Drive Mounting bolts - First	45 to 55 Nm	35 to 40 lb ft
Gear Drive Mounting Eyebolts - Second	110 to 120 Nm	80 to 90 lb ft
Gear Drive to Frame Allen head Screws	45 to 55 Nm	35 to 40 lb ft
Gear Drive to Frame Bolts	110 to 120 Nm	80 to 90 lb ft
Stalk Roll Point to Frame Bolts	110 to 120 Nm	80 to 90 lb ft
Stalk Roll Chain Sprocket	95 to 120 Nm	70 to 95 lb ft
Stalk Knife Bolts	115 Nm	85 lb ft

1010/1020 Header Cutter Bar Drive

Yoke Assembly Bearing Retainer Bolts	14 to 16 Nm	10 to 12 lb ft
Wobble Shaft Spanner Nut	190 to 217 Nm	140 to 160 lb ft
Wobble Shaft and Pivot Bearing Nuts	43 to 48 Nm	32 to 35 lb ft
Wobble Shaft End Nut	203 to 230 Nm	150 to 170 lb ft
Driven Pulley	203 to 230 Nm	150 to 170 lb ft
Knife Head Bolts	325 to 339 Nm	240 to 250 lb ft
Cutter Bar Drive to Header bolts	298 to 325 Nm	220 to 240 lb ft

Header Auger Drive

Auger Slip Clutch (New)	183 to 197 Nm	135 to 145 lb ft
Auger Slip Clutch (Used)	246 to 308 Nm	180 to 225 lb ft
Knife Drive Pulley Nut	108 to 122 Nm	80 to 90 lb ft

Elevator Drive Jackshaft

Slip Clutch Bolts	45 to 50 Nm	33 to 37 lb ft
Sprocket Set Screws	45 to 50 Nm	33 to 37 lb ft
Jackshaft Bearing Nut	122 to 127 Nm	90 to 94 lb ft

Cleaning Fan Drive

Fan Jackshaft Mounting Bolt	90 Nm	65 lb ft
Fan Drive Pulley Clamp Bolts	110 to 120 Nm	80 to 90 lb ft

Rock Trap

Rotor Speed Sensor Sprocket Retaining Bolt	190 to 217 Nm	140 to 160 lb ft
--	---------------	------------------

Feeder and Cleaning Fan

Gearbox Case Cover Bolts	45 to 50 Nm	33 to 37 lb ft
All Hub Assembly Bolts	45 to 50 Nm	33 to 37 lb ft
Output Shaft Lock Nut	253 to 342 Nm	185 to 250 lb ft

Rotor

Speed Sensor Sprocket Retaining Bolts	190 to 217 Nm	140 to 160 lb ft
Speed Sensor Lock Nut	48 to 57 Nm	35 to 42 lb ft

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>