



Graders

845B / 845B DHP

865B / 865B VHP / 865B AWD

885B / 885B DHP / 885B AWD

TIER 0 / TIER 1 / TIER 2 / TIER 3

Service Manual

71114392



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GRADERS
845B / 865B / 885B
845B DHP / 865B VHP / 885B DHP
865B AWD / 885B AWD
Service Manual
71114392
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Section 1001

1001

STANDARD TORQUE ESPECIFICACIONES

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NOTE: CASE reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

TORQUE SPECIFICATIONS

Decimal

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphities, Molydisulfide greases, or other extreme pressure lubricants are used.


GRADE 5 BOLTS, NUTS AND STUDS		
		
Size (inch)	Pound-Inches	N.m
1/4	9 - 11	12 - 15
5/16	17 - 21	23 - 28
3/8	35 - 42	48 - 57
7/16	54 - 64	73 - 87
1/2	80 - 96	109 - 130
9/16	110 - 132	149 - 179
5/8	150 - 180	203 - 244
3/4	270 - 324	366 - 439
7/8	400 - 480	542 - 651
1.0	580 - 696	787 - 944
1-1/8	800 - 880	1085 - 1193
1-1/4	1120 - 1240	1519 - 1681
1-3/8	1460 - 1680	1980 - 2278
1-1/2	1940 - 2200	2631 - 2983


GRADE 8 BOLTS, NUTS AND STUDS		
		
Size (inch)	Pound-Inches	N.m
1/4	12 - 15	16 - 20
5/16	24 - 29	33 - 39
3/8	45 - 54	61 - 73
7/16	70 - 84	95 - 114
1/2	110 - 132	149 - 179
9/16	160 - 192	217 - 260
5/8	220 - 264	298 - 358
3/4	380 - 456	515 - 618
7/8	600 - 720	814 - 976
1.0	900 - 1080	1220 - 1465
1-1/8	1280 - 1440	1736 - 1953
1-1/4	1820 - 2000	2468 - 2712
1-3/8	2380 - 2720	3227 - 3688
1-1/2	3160 - 3560	4285 - 4827


NOTE: Use thick nuts with Grade 8 bolts.

Métric

Use the following torques when specifications are not given. These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply if graphite or Molydisulfide grease or oil is used.

GRADE 8.8 BOLTS, NUTS AND STUDS		
		
Size (inch)	Pound-Inches	N.m
M4	2 - 3	3 - 4
M5	5 - 6	6.5 - 8
M6	8 - 9	10.5 - 12
M8	19 - 23	26 - 31
M10	38 - 45	52 - 61
M12	66 - 79	90 - 107
M14	106 - 127	144 - 172
M16	160 - 200	217 - 271
M20	320 - 380	434 - 515
M24	500 - 600	675 - 815
M30	920 - 1100	1250 - 1500
M36	1600 - 1950	2175 - 2600

GRADE 10.9 BOLTS, NUTS AND STUDS		
		
Size (inch)	Pound-Inches	N.m
M4	3 - 4	4 - 5
M5	7 - 8	9.5 - 11
M6	11 - 13	15 - 17.5
M8	27 - 32	37 - 43
M10	54 - 64	73 - 87
M12	93 - 112	125 - 152
M14	149 - 179	300 - 245
M16	230 - 280	310 - 380
M20	450 - 540	610 - 730
M24	780 - 940	1050 - 1275
M30	1470 - 1770	2000 - 2400
M36	2580 - 3090	3500 - 4200

GRADE 12.9 BOLTS, NUTS AND STUDS		
		
Usually the torque values specified for grade 10.9 fasteners. can be used satisfactorily on grade 12.9 fasteners.		

Steel Hydraulic Fittings

Tube OD Hose ID	Thread Size	Pound- Inches	N.m
37 DEGREE FLARE FITTING			
1/4" (6.4 mm)	7/16 - 20	6 - 12	8 - 16
5/16" (7.9 mm)	1/2 - 20	8 - 16	11 - 22
3/8" (9.5 mm)	9/16 - 18	10 - 20	14 - 34
1/2" (12.7 mm)	3/4 - 16	15 - 42	20 - 56
5/8" (15.9 mm)	7/8 - 14	25 - 58	34 - 78
3/4" (19.0 mm)	1-1/16 - 12	40 - 80	54 - 108
7/8" (22.2 mm)	1-3/16 - 12	60 - 100	81 - 135
1.0" (25.4 mm)	1-5/16 - 12	75 - 117	102 - 158
1-1/4" (31.8 mm)	1-5/8 - 12	125 - 165	169 - 223
1-1/2" (38.1 mm)	1-7/8 - 12	210 - 250	285 - 338

Tube OD Hose ID	Thread Size	Pound- Inches	N.m
STRAIGHT THREADS WITH O-RING			
1/4" (6.4 mm)	7/16 - 20	12 - 19	16 - 25
5/16" (7.9 mm)	1/2 - 20	16 - 25	22 - 34
3/8" (9.5 mm)	9/16 - 18	25 - 40	34 - 54
1/2" (12.7 mm)	3/4 - 16	42 - 67	57 - 90
5/8" (15.9 mm)	7/8 - 14	58 - 92	79 - 124
3/4" (19.0 mm)	1-1/16 - 12	80 - 128	108 - 174
7/8" (22.2 mm)	1-3/16 - 12	100 - 160	136 - 216
1.0" (25.4 mm)	1-5/16 - 12	117 - 187	159 - 253
1-1/4" (31.8 mm)	1-5/8 - 12	165 - 264	224 - 357
1-1/2" (38.1 mm)	1-7/8 - 12	250 - 400	339 - 542

SPLIT FLANGE MOUNTING BOLTS		
Size (inch)	Pound-Inches	N.m
5/16 - 18	15 - 20	20 - 27
3/8 - 16	20 - 25	27 - 34
7/16 - 14	35 - 45	47 - 61
1/2 - 13	55 - 65	74 - 88
5/8 - 11	140 - 150	190 - 203

Steel Hydraulic Fittings

Nom. SAE Dash Size	Tube OD INCH (mm)	Thread Size	Pound-Inches	N.m	Thread Size	Pound-Inches	N.m
O-RING FACE SEAL END					O-RING BOSS END FITTING OR LOCK NUT		
- 4	1/4 (6.4)	9/16-18	10 - 12	14 - 16	7/16-20	17 - 20	23 - 27
-6	3/8 (9.5)	11/16-16	18 - 20	24 - 27	9/16-18	25 - 30	34 - 41
-8	1/2 (12.7)	13/16-16	32 - 40	43 - 54	3/4-16	45 - 50	61 - 68
-10	5/8 (15.9)	1 - 14	46 - 56	62 - 75	7/8-14	60 - 65	81 - 88
-12	3/4 (19.0)	1-3/16-12	65 - 80	90 - 110	1-1/16-12	85 - 90	115 - 122
-14	7/8 (22.2)	1-3/16-12	65 - 80	90 - 110	1-3/16-12	95 - 100	129 - 136
-16	1.0 (25.4)	1-7/16-12	92 - 105	125 - 140	1-5/16-12	115 - 125	156 - 169
-20	1-1/4 (31.8)	1-11/16-12	125 - 140	170 - 190	1-5/8-12	150 - 160	203 - 217
-24	1-1/2 (38.1)	2-12	150 - 180	200 - 254	1-7/8-12	190 - 200	258 - 271

Section 1002

FLUIDS AND LUBRICANTS

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FLUIDS AND LUBRICANTS

845B / 865B / 885B Models Equipped with Tier 0, 1 and 2 Engines

COMPONENTS	CAPACITY		SPECIFICATIONS
	Liters	US Gal.	
Fuel tank			
Total capacity	341,0	90,0	N° 2 DIESEL
Engine oil			
Engine Tier 1 (845B Models)			
With filter change	16,4	4,3	N°1 ENGINE OIL (1030190)
Without filter change	14,2	3,7	
Engine Tier 0 and Tier 2 (865B / 885B Models)			
With filter change	21,1	5,5	N°1 ENGINE OIL (1030190)
Without filter change	18,9	4,8	
Engine Cooling System			
Total capacity	40,0	10,5	50% Water + 50% AKCELA PREMIUM ANTI FREEZE (1060077)
Hydraulic System			
Total capacity	180,0	47,5	AKCELA HY-TRAN ULTRA
Hydraulic tank with filter	90,0	23,8	
Transmission			
845B / 865B Models with ZF transmission			
Refill capacity (with filter change)	26,0	6,9	N°1 ENGINE OIL (1030190)
Refill capacity (without filter change)	25,0	6,6	
885B Models with FUNK transmission			
Refill capacity (with filter change)	28,5	7,5	AKCELA HY-TRAN ULTRA (1040184) MAT 3505 (MS 1209)
Refill capacity (without filter change)	26,0	6,9	
Rear Axle			
845B Models			
Center compartment	40,0	10,5	AKCELA AXLEPOWER SAE 80W-90 API GL5 Limited Slip
865B / 885B Models			
Center compartment	44,0	11,6	AKCELA AXLEPOWER SAE 80W-90 API GL5 Limited Slip
Tandem and Brakes			
Refill capacity (each)	60,0	15,8	AKCELA TRANSAXLE FLUID SAE 20W-40
Circle Turn Gear Reducer			
Refill capacity	2,80	0,75	AKCELA GEAR 135HEP SAE 80W90 (1050135)
Grease Fittings			
Rear Ripper, Scarifier or Dozer Blade	-	-	AKCELA MOLYGREASE (1070173) CASE molydisulfide grease
Front Axle Wheel Hub and Bearings	-	-	AKCELA MOLYGREASE (1070173) CASE molydisulfide grease

845B DHP / 865B VHP / 885B DHP Models Equipped with Tier 3 Engines

COMPONENTS	CAPACITY		SPECIFICATIONS
	Liters	US Gal.	
Fuel tank			
Total capacity	341,0	90,0	N° 2 DIESEL
Engine oil			
Engine Tier 3 (845B DHP/ 865B VHP/ 885B DHP Models)			
With filter change	18,5	4,7	N°1 ENGINE OIL (1030190)
Without filter change	17,5	4,4	
Engine Cooling System			
Total capacity	40,0	10,5	50% Water + 50% AKCELA PREMIUM ANTI FREEZE (1060077)
Hydraulic System			
Total capacity	180,0	47,5	AKCELA HY-TRAN ULTRA
Hydraulic tank with filter	90,0	23,8	
Transmission			
845B DHP / 865B VHP Models with ZF transmission			
Refill capacity (with filter change)	26,0	6,9	N°1 ENGINE OIL (1030190)
Refill capacity (without filter change)	25,0	6,6	
845B DHP / 865B VHP Models with FUNK transmission			
Refill capacity (with filter change)	25,0	6,6	AKCELA HY-TRAN ULTRA (1040184) MAT 3505 (MS 1209)
Refill capacity (without filter change)	23,0	6,0	
885B DHP Models with FUNK transmission			
Refill capacity (with filter change)	28,5	7,5	AKCELA HY-TRAN ULTRA (1040184) MAT 3505 (MS 1209)
Refill capacity (without filter change)	26,0	6,9	
Rear Axle			
845B DHP Models			
Center compartment	40,0	10,5	AKCELA AXLEPOWER SAE 80W-90 API GL5 Limited Slip
865B VHP / 885B DHP Models			
Center compartment	44,0	11,6	AKCELA AXLEPOWER SAE 80W-90 API GL5 Limited Slip
Tandem and Brakes			
Refill capacity (each)	60,0	15,8	AKCELA TRANSAXLE FLUID SAE 20W-40
Circle Turn Gear Reducer			
Refill capacity	2,80	0,75	AKCELA GEAR 135HEP SAE 80W90 (1050135)
Grease Fittings			
Rear Ripper, Scarifier or Dozer Blade	–	–	AKCELA MOLYGREASE (1070173) CASE molydisulfide grease
Front Axle Wheel Hub and Bearings	–	–	AKCELA MOLYGREASE (1070173) CASE molydisulfide grease

865B AWD / 885B AWD Models Equipped with Tier 3 Engines

COMPONENTS	CAPACITY		SPECIFICATIONS
	Liters	US Gal.	
Fuel tank			
Total capacity	341,0	90,0	N° 2 DIESEL
Engine oil			
With filter change	18,5	4,7	N°1 ENGINE OIL (1030190)
Without filter change	17,5	4,4	
Engine Cooling System			
Total capacity	40,0	10,5	50% Water + 50% AKCELA PREMIUM ANTI FREEZE (1060077)
Hydraulic System			
Total capacity	200,0	47,5	AKCELA AW HYDRAULIC FLUID 68 HV (MS 1216)
Hydraulic tank with filter	90,0	23,8	
Transmission			
865B AWD Models			
Refill capacity (with filter change)	25,0	6,6	AKCELA HY-TRAN ULTRA (1040184) MAT 3505 (MS 1209)
Refill capacity (without filter change)	23,0	6,0	
885B AWD Models			
Refill capacity (with filter change)	28,5	7,5	AKCELA HY-TRAN ULTRA (1040184) MAT 3505 (MS 1209)
Refill capacity (without filter change)	26,0	6,9	
Rear Axle			
Center compartment	44,0	11,6	AKCELA AXLEPOWER SAE 80W-90 API GL5 Limited Slip
Tandem and Brakes			
Refill capacity (each)	60,0	15,8	AKCELA TRANSAXLE FLUID SAE 20W-40
Circle Turn Gear Reducer			
Refill capacity	2,80	0,75	AKCELA GEAR 135HEP SAE 80W90 (1050135)
Front Wheel Reducer			
Refill capacity	4,10	1,00	AKCELA AXLEPOWER SAE 80W-90 API GL5 Limited Slip
Grease Fittings			
Rear Ripper, Scarifier or Dozer Blade	–	–	AKCELA MOLYGREASE (1070173) CASE molydisulfide grease
Front Axle Wheel Hub and Bearings	–	–	AKCELA MOLYGREASE (1070173) CASE molydisulfide grease

RECOMENDAÇÕES DE VISCOSIDADE DO ÓLEO E FLUIDOS

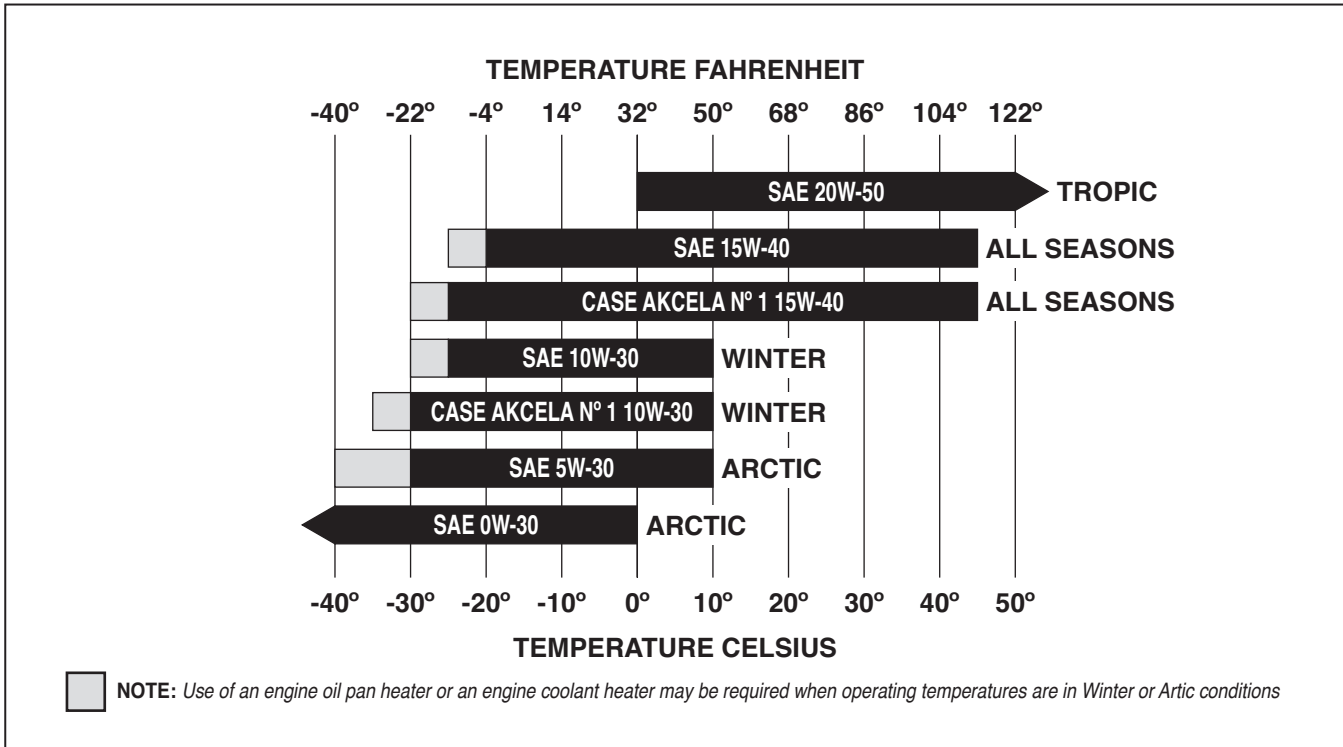
Oil Viscosity and Temperature Ranges

Case No. 1 Engine Oil is recommended for use in your Case Engine. Case Engine Oil will lubricate your engine correctly under all operating conditions.

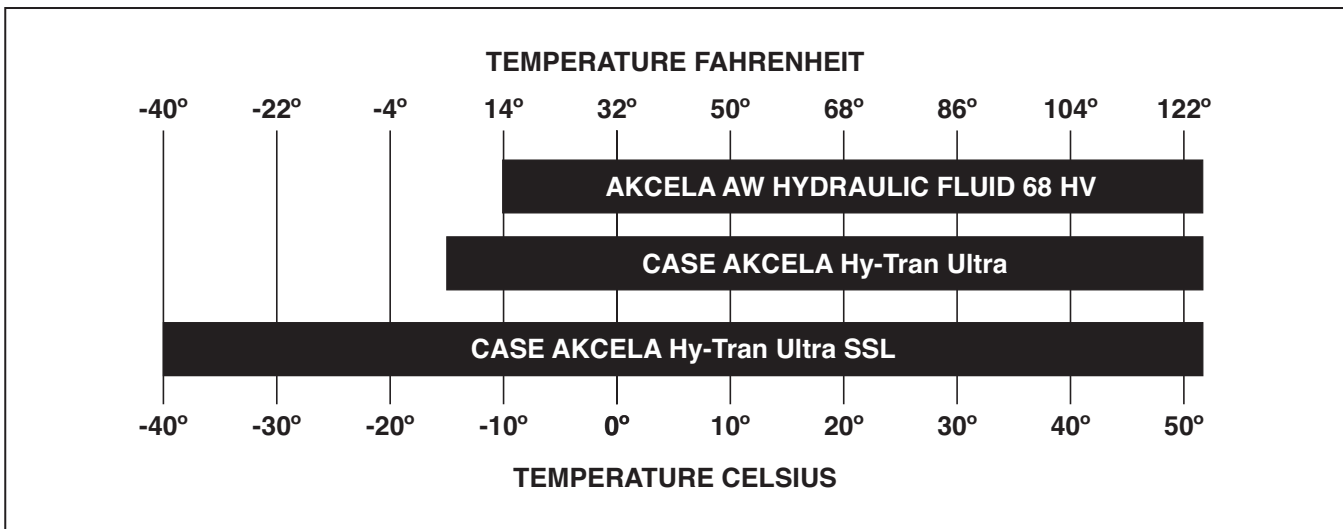
If Case Multi-Viscosity Engine Oil is not available, use only oil meeting API engine oil service category CH-4 (preferred) or CG-4.

See the chart on following page for recommended viscosity at ambient air temperature ranges.

NOTE: Do not put Performance Additives or other oil additive products in the engine crankcase. The oil change intervals given in this manual are according to tests with CASE lubricants.



Hydraulic / Brake / Transmission System – Temperature Ranges



FUEL

Diesel Fuel

Use No. 2 Diesel fuel in the engine of this machine. The use of other fuels can cause the loss of engine power and high fuel consumption.

In very cold temperatures, a mixture of No. 1 and No. 2 Diesel fuels is temporarily permitted. See the following note.

NOTE: See your fuel dealer for winter fuel requirements in your area. If the temperature of the fuel lowers below the cloud point (wax appearance point), wax crystals in the fuel will cause the engine to lose power or not to start.

The Diesel fuel used in this machine must meet the specifications in the chart below or Specification D975-81 of the American Society for Testing and Materials.

Fuel Storage

If you keep fuel in storage for a period of time, you can get foreign material or water in the fuel storage tank. Many engine problems are caused by water in the fuel.

Keep the fuel storage tank outside and keep the fuel as cool as possible. Remove water from the storage container at regular periods of time.

Fill the fuel tank at the end of the daily operating period to prevent condensation in the fuel tank.

Specifications for Acceptable No. 2 Diesel Fuel

API gravity, minimum	34
Flash point, minimum	60°C (140°F)
Cloud point (wax appearance point), maximum	-20°C (-5°F) (*)
Pour point, maximum	-26°C (-15°F) (*)
Distillation temperature, 90% point	282 to 338°C (540 to 640°F)
Viscosity, at 38° C (100° F)	
Centistokes	2,0 to 4,3
Saybolt Seconds Universal	32 to 40
Cetane number, minimum	43 (45 to 55 for winter or high altitudes)
Water and sediment, by volume, maximum	0,05 %

* see note "Diesel Fuel" on this page.

LUBRICATION & MAINTENANCE CHART**845B / 865B / 885B Models Equipped with Tier 0, 1 and 2 Engines**

	SERVICE POINTS	POINTS	VERIFY	REPLACE	LUBRICATE	ADJUST	CLEAN - DRAIN
As needed	Air cleaner (Note 1)	1	*				
	Hydraulic filter (Note 2)	1	*				
	Cab Air Filter (if equipped)	1	*				
	Batteries (See Electrical System)	2					*
10 hours or daily	Engine oil level (including filters)	1	10				
	Radiator (coolant level) (Note 3)	1	10				
	Transmission oil level (warm, engine running) (ZF and FUNK Transmission)	1	10				
	Differential Lock Oil Filter (if equipped)	1	10				
50 hours or weekly	Fuel Reservoir Filter (wash screen)	1					50
	Fuel Water Separator (drain water)	2					50
	Hydraulic tank (complete system)	1	50				
100 hours or each 15 days	Moldboard Lift Cylinder Pivots	4			100		
	Moldboard Lift Cylinders Balls	2			100		
	Moldboard Side Shift Cylinders Balls	2			100		
	Articulation of Tilt Cylinders	2			100		
	Moldboard Tilt Pivots	2			100		
	Articulation Cylinders Pivots	4			100		
	Articulation Bearings	2			100		
	Drawbar Ball and Socket	1			100		
250 hours or monthly	Alternator and Air Conditioner Belt	2	250				
	Universal Joints and Drive Shaft	2			250		
	Circle Turn Gearbox Oil Level	1	250				
	Differential Lock Oil Filter (if equipped)	1		250			
	Front Axle Pivot	2			250		
	Front Wheel Lean Bar Pivots	2			250		
	Front Wheel Lean Cylinder Pivots	2			250		
	Front Wheel Knuckle Lean Pivots	4			250		
	Knucle King Pin Bearings	4			250		
	Moldboard Lift Cylinder Articulation Bearings	2			250		
	Tandem Swing Bearing	2			250		
	Tires Condition and Pressure	6	250				
	Cab Air Filter (if equipped)	1					250
	Steering Bar Ball Joints	4			250		
	Moldboard Articulation Pivots	4			250		
	Moldboard Side Shift Pivots	2			250		
Engine Oil and Oil Filter	2		250				