

**SERVICE MANUAL**  
Grader  
845  
865  
885  
6-46503

1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

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# 845 - 865 - 885 GRADER

## Service Manual

### Brz 6-46503

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**NOTE:** CNH Latino Americana 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.

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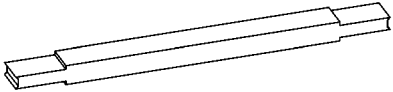
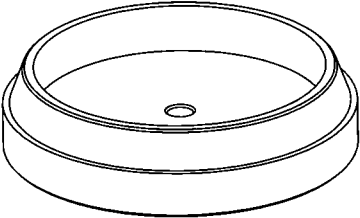
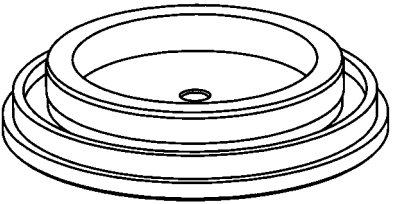
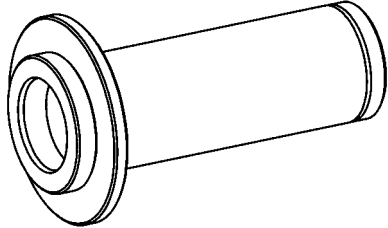
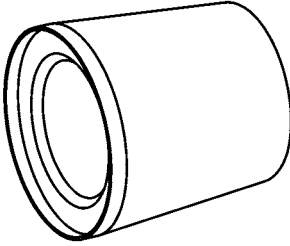
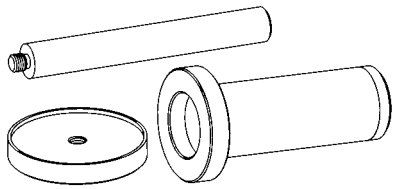


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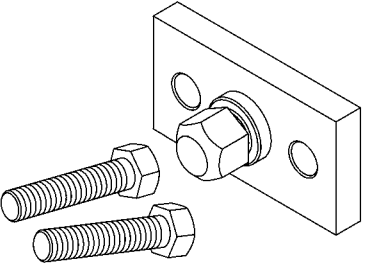
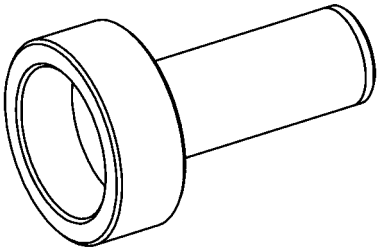
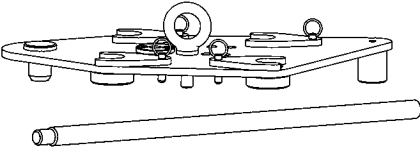
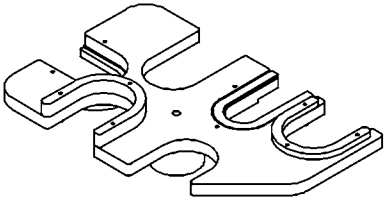
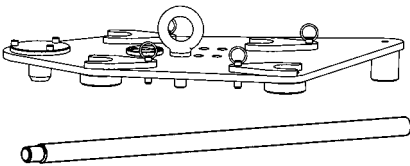
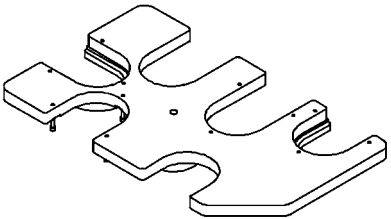
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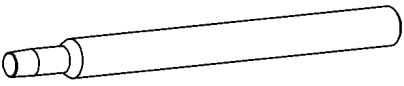
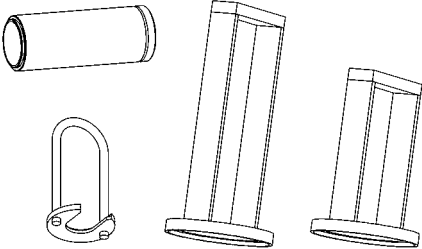
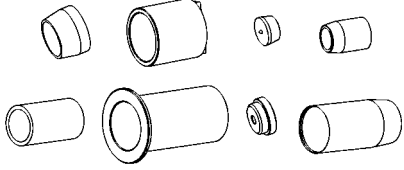
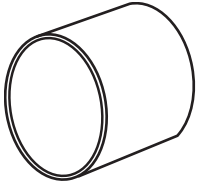
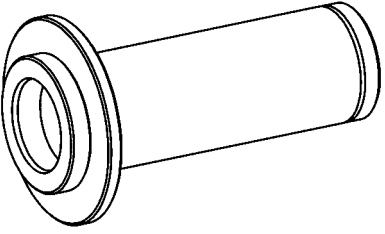
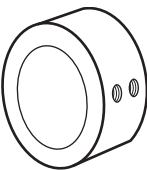
## SPECIAL TOOLS

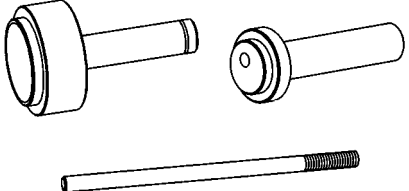

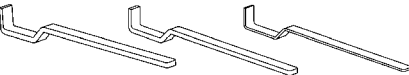
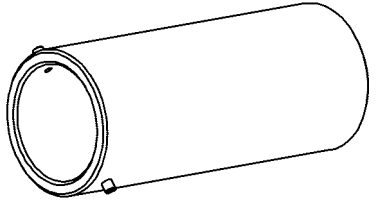
## Cross Reference Guide

	Description	Old Number	New Number
	Axle Brake Disc Go/No Go Gauge	75301703	380000378
	Axle Seal Installer	75301704	380000379
	Axle Seal Installer	75301705	380000380
	Transmission Input Seal Installer	75310180	380000387
	Transmission Oil Seal Guide	75310181	380000388
	Transmission Seal Driver	75310185	380000391



	Description	Old Number	New Number
	Hub Remover	75312684	380000394
	Seal Driver	75310190	380000397
	Lifting Device	75289947	380000374
	Stack Nest	75289948	380000375
	Lifting Device	75289949	380000376
	Stack Nest	75289950	380000377

	Description	Old Number	New Number
	Plug Installer	75301709	380000381
	Assembly Tools	75310177	380000382
	Retaining Ring Tool	75310178	380000385
	Sizing Sleeve	75310179	380000386
	Sleeve Installer Adapter	75310180	380000389
	Bearing Installer	75310183	380000390

	Description	Old Number	New Number
	Assembly Tools	75310186	380000392
	Bearing Driver	75310187	380000393
	Clutch Clearance Gauge	75310188	380000395
	Aligning Sleeve	75310189	380000396



# Section 1001

## STANDARD TORQUE SPECIFICATIONS


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**NOTE:** Case Corporation 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 HARDWARE

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	Pound-Inches	Newton metres
1/4 inch	108 to 132	12 to 15
5/16 inch	204 to 252	23 to 28
3/8 inch	420 to 504	48 to 57
Size	Pound-Feet	Newton metres
7/16 inch	54 to 64	73 to 87
1/2 inch	80 to 96	109 to 130
9/16 inch	110 to 132	149 to 179
5/8 inch	150 to 180	203 to 244
3/4 inch	270 to 324	366 to 439
7/8 inch	400 to 480	542 to 651
1.0 inch	580 to 696	787 to 944
1-1/8 inch	800 to 880	1085 to 1193
1-1/4 inch	1120 to 1240	1519 to 1681
1-3/8 inch	1460 to 1680	1980 to 2278
1-1/2 inch	1940 to 2200	2631 to 2983


Grade 8 Bolts, Nuts, and Studs		
		
Size	Pound-Inches	Newton metres
1/4 inch	144 to 180	16 to 20
5/16 inch	288 to 348	33 to 39
3/8 inch	540 to 648	61 to 73
Size	Pound-Feet	Newton metres
7/16 inch	70 to 84	95 to 114
1/2 inch	110 to 132	149 to 179
9/16 inch	160 to 192	217 to 260
5/8 inch	220 to 264	298 to 358
3/4 inch	380 to 456	515 to 618
7/8 inch	600 to 720	814 to 976
1.0 inch	900 to 1080	1220 to 1465
1-1/8 inch	1280 to 1440	1736 to 1953
1-1/4 inch	1820 to 2000	2468 to 2712
1-3/8 inch	2380 to 2720	3227 to 3688
1-1/2 inch	3160 to 3560	4285 to 4827
<b>NOTE:</b> Use thick nuts with Grade 8 bolts.		

## TORQUE SPECIFICATIONS - METRIC HARDWARE

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.

<b>Grade 8.8 Bolts, Nuts, and Studs</b>		
		
Size	Pound-Inches	Newton metres
M4	24 to 36	3 to 4
M5	60 to 72	7 to 8
M6	96 to 108	11 to 12
M8	228 to 276	26 to 31
M10	456 to 540	52 to 61
Size	Pound-Feet	Newton metres
M12	66 to 79	90 to 107
M14	106 to 127	144 to 172
M16	160 to 200	217 to 271
M20	320 to 380	434 to 515
M24	500 to 600	675 to 815
M30	920 to 1100	1250 to 1500
M36	1600 to 1950	2175 to 2600

<b>Grade 10.9 Bolts, Nuts, and Studs</b>		
		
Size	Pound-Inches	Newton metres
M4	36 to 48	4 to 5
M5	84 to 96	9 to 11
M6	132 to 156	15 to 18
M8	324 to 384	37 to 43
Size	Pound-Feet	Newton metres
M10	54 to 64	73 to 87
M12	93 to 112	125 to 150
M14	149 to 179	200 to 245
M16	230 to 280	310 to 380
M20	450 to 540	610 to 730
M24	780 to 940	1050 to 1275
M30	1470 to 1770	2000 to 2400
M36	2580 to 3090	3500 to 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.



## TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
<b>37 Degree Flare Fitting</b>			
1/4 inch 6.4 mm	7/16-20	72 to 144	8 to 16
5/16 inch 7.9 mm	1/2-20	96 to 192	11 to 22
3/8 inch 9.5 mm	9/16-18	120 to 300	14 to 34
1/2 inch 12.7 mm	3/4-16	180 to 504	20 to 57
5/8 inch 15.9 mm	7/8-14	300 to 696	34 to 79
Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
3/4 inch 19.0 mm	1-1/16-12	40 to 80	54 to 108
7/8 inch 22.2 mm	1-3/16-12	60 to 100	81 to 135
1.0 inch 25.4 mm	1-5/16-12	75 to 117	102 to 158
1-1/4 inch 31.8 mm	1-5/8-12	125 to 165	169 to 223
1-1/2 inch 38.1 mm	1-7/8-12	210 to 250	285 to 338

Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
<b>Straight Threads with O-ring</b>			
1/4 inch 6.4 mm	7/16-20	144 to 228	16 to 26
5/16 inch 7.9 mm	1/2-20	192 to 300	22 to 34
3/8 inch 9.5 mm	9/16-18	300 to 480	34 to 54
1/2 inch 12.7 mm	3/4-16	540 to 804	57 to 91
Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
5/8 inch 15.9 mm	7/8-14	58 to 92	79 to 124
3/4 inch 19.0 mm	1-1/16-12	80 to 128	108 to 174
7/8 inch 22.2 mm	1-3/16-12	100 to 160	136 to 216
1.0 inch 25.4 mm	1-5/16-12	117 to 187	159 to 253
1-1/4 inch 31.8 mm	1-5/8-12	165 to 264	224 to 357
1-1/2 inch 38.1 mm	1-7/8-12	250 to 400	339 to 542

<b>Split Flange Mounting Bolts</b>		
Size	Pound- Inches	Newton metres
5/16-18	180 to 240	20 to 27
3/8-16	240 to 300	27 to 34
7/16-14	420 to 540	47 to 61
Size	Pound- Feet	Newton metres
1/2-13	55 to 65	74 to 88
5/8-11	140 to 150	190 to 203

## TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Inches	Newton metres	Thread Size	Pound-Inches	Newton metres
<b>O-ring Face Seal End</b>					<b>O-ring Boss End Fitting or Lock Nut</b>		
-4	1/4 inch 6.4 mm	9/16-18	120 to 144	14 to 16	7/16-20	204 to 240	23 to 27
-6	3/8 inch 9.5 mm	11/16-16	216 to 240	24 to 27	9/16-18	300 to 360	34 to 41
-8	1/2 inch 12.7 mm	13/16-16	384 to 480	43 to 54	3/4-16	540 to 600	61 to 68
					Thread Size	Pound-Inches	Newton metres
-10	5/8 inch 15.9 mm	1-14	552 to 672	62 to 76	7/8-14	60 to 65	81 to 88
Nom. SAE Dash Size	Tube OD	Thread Size	Pound-Inches	Newton metres	1-1/16-12	85 to 90	115 to 122
					1-3/16-12	95 to 100	129 to 136
-12	3/4 inch 19.0 mm	1-3/16-12	65 to 80	90 to 110	1-5/16-12	115 to 125	156 to 169
-14	7/8 inch 22.2 mm	1-3/16-12	65 to 80	90 to 110	1-5/8-12	150 to 160	203 to 217
-16	1.0 inch 25.4 mm	1-7/16-12	92 to 105	125 to 140	1-7/8-12	190 to 200	258 to 271
-20	1-1/4 inch 31.8 mm	1-11/16-12	125 to 140	170 to 190			
-24	1-1/2 inch 38.1 mm	2-12	150 to 180	200 to 254			

# Section 1002

1002

**FLUIDS AND LUBRICANTS**

**845 - 865 - 885 Grader**

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## 845 GRADER FLUIDS AND LUBRICANTS

COMPONENTS	CAPACITY LITERS	CAPACITY US Gal.	SPECIFICATIONS
<b>Fuel Tank</b> (Total Capacity)	341.0	90.0	DIESEL N°. 2
<b>Engine Oil</b> (With Filter Change) (Without Filter Change)	16.4 14.2	4.3 3.7	N°. 1 ENGINE OIL SAE15W-40 API CH4 MAT 3507 (MS 1121)
<b>Engine Cooling System</b> (Total Capacity)	40.0	10.5	50% WATER + 50% ETHYLENE GLICOL MS 1710
<b>Hydraulic System</b> Total Capacity Hydraulic Tank With Filter	180.0 94.6	47.5 25.0	HY-TRAN ULTRA MAT 3505 (MS 1209)
<b>Transmission</b> Refill capacity (with filter change) Refill capacity (without filter change)	25.0 19.0	6.4 5.0	HY-TRAN ULTRA MAT 3505 (MS 1209)
<b>Rear Axle Graziano Model (Standard)</b> Center Compartment End / Brake compartment (each)	29.0 5.0	7.7 1.33	HY-TRAN ULTRA MAT 3505 (MS 1209)
<b>Rear Axle Clark Model (Optional)</b> Center Compartment Planetary Hubs (Each)	12.0 6.0	3.2 1.6	HY-TRAN ULTRA MAT 3505 (MS 1209)
<b>Tandem Drive Case (For Graziano Axle)</b> Refill capacity (each)	29.0	7.7	SAE 80W-90 135H EP API GL5
<b>Tandem Drive Case (For Clark Axle)</b> Refill capacity (each)	22.5	5.9	SAE 80W-90 135H EP API GL5
<b>Circle Turn Gear</b> Refill Capacity	2.8	0.75	SAE 80W-90 135H EP API GL5
<b>Grease Fitting Rear Ripper / Front Scarifier and Dozer Blade</b>	UQN	UQN	CASE MOLYDISULFIDE GREASE

## 865 GRADER FLUIDS AND LUBRICANTS

COMPONENTS	CAPACITY LITERS	CAPACITY US Gal.	SPECIFICATIONS
<b>Fuel Tank</b> (Total Capacity)	341.0	90.0	DIESEL Nº. 2
<b>Engine Oil</b> (With Filter Change) (Without Filter Change)	21.1 18.9	5.5 4.8	Nº. 1 ENGINE OIL SAE15W-40 API CH4 MAT 3507 (MS 1121)
<b>Engine Cooling System</b> (Total Capacity)	40.0	10.5	50% WATER + 50% ETHYLENE GLICOL MS 1710
<b>Hydraulic System</b> Total Capacity Hydraulic Tank With Filter	180.0 94.6	47.5 25.0	HY-TRAN ULTRA MAT 3505 (MS 1209)
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<b>Tandem Drive Case (For Clark Axle)</b> Refill capacity (each)	22.5	5.9	SAE 80W-90 135H EP API GL5
<b>Circle Turn Gear</b> Refill Capacity	2.8	0.75	SAE 80W-90 135H EP API GL5
<b>Grease Fitting</b> <b>Rear Ripper / Front Scarifier and Dozer Blade</b>	UQN	UQN	CASE MOLYDISULFIDE GREASE