

PROPELLER SHAFT AND AXLE

SECTION 00 SERVICE INFORMATION

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TROUBLESHOOTING

Propeller Shaft

PROBLEM	POSSIBLE CAUSE	CORRECTION
Noises from Propeller Shaft	1. Worn spline yoke. 2. Worn or stuck spider bearing. 3. Worn center bearing.	1. Replace the spline yoke. 2. Replace the center bearing. 3. Replace the center bearing.
Vibration from Propeller Shaft	1. Incorrect shaft run-out. 2. Out of shaft balance. 3. Stuck spline yoke.	1. Replace the propeller shaft. 2. Adjust the shaft balance. 3. Replace the spline yoke.

Rear Axle and Front Driving Axle

PROBLEM	POSSIBLE CAUSE	CORRECTION
Oil Leak at Front Axle or Rear Axle	1. Worn or defective oil seal. 2. Axle housing cracked.	1. Replace the oil seal. 2. Repair or replace.
Oil Leak at Pinion Shaft	1. Too much gear oil. 2. Oil seal worn or defective. 3. Pinion flange loose or damaged.	1. Correct the oil level. 2. Replace the oil seal. 3. Tighten or replace.
Noises in Front Axle or Rear Axle	1. Insufficient gear oil. 2. Wrong or poor grade gear oil. 3. Drive pinion to ring gear backlash incorrect. 4. Worn or chipped ring gear, pinion gear or side gear. 5. Pinion shaft bearing worn. 6. Wheel bearing worn. 7. Differential bearing loose or worn.	1. Replenish the gear oil. 2. Replace the gear oil. 3. Adjust the backlash. 4. Replace the ring gear, pinion gear or side gear 5. Replace the pinion shaft bearing. 6. Replace the wheel bearing. 7. Tighten or replace.

MAIN DATA AND SPECIFICATIONS

Propeller Shaft

		NHR55, 69	NKR55	NKR66, 71, 77 NPR66, 70, 71, 77 NQR66, 71, NPS71	NQR70, 75 NPR75 NPS75
Bearing retention method		Inside snap ring		Outside snap ring	
Spider length	mm (in)	69 (2.72)		85 (3.35) 95 (3.74) <for Taiwan, Australia and GCC>	96 (3.780)
Spider outside dia.	mm (in)	18.46 (0.73)		21.94 (0.86)	23.02 (0.9065)
Tube-outside dia. diameter × thickness	mm (in)	68.9 × 2.0 (2.71 × 0.08)		82.6 × 2.3 (3.25 × 0.09)	90 × 3.2 (3.54 × 0.13)
Flange bolt size		M10		M12	M12
Flange bolt P.C.D.	mm (in)	85 (3.35)		100 (3.94)	110 (4.33)

Rear Axle

	Vehicle series			
	NHR55, 69		NKR55, 69 (For general export; Turkey, Chile)	
	Single	Dual Small	Single	Dual Small (For Turkey)
Rear axle type	Banjo semi-float- ing	Banjo full floating		
Gear type		Hypoid		
Number of differential pinion		4		
Ring gear pitch diameter mm (in)		244 (9.6)		
Amount of hub grease g (oz) (each wheel)	80 (2.8)	285 (10.1)	280 (9.9)	285 (10.1)
Oil capacity lit (US/ Imp qt)		2.7 (2.9/2.4)		

00-4 SERVICE INFORMATION

	Vehicle series							
	NPR66, 71 (Singapore, Turkey) 70 (Taiwan, Chile), 77	NPS71	NKR55, 69, 71	NKR66		NKR77		
	Dual			Single	Dual	Single	Dual	Dual Small
Rear axle type	Banjo full floating							
Gear type	Hypoid							
Number of differential pinion	4							
Ring gear pitch diameter	mm (in)		292 (11.5)					
Amount of hub grease (each wheel)	g (oz)		285 (10.1)					
Oil capacity	lit (US/Imp qt)		3.0 (3.2/2.6)					

	Vehicle series			
	NPS75	NPR70 (Hong Kong) 71 (Colombia), 75	NQR66, 70, 71, 75	NKR71
	Dual			
Rear axle type	Banjo full floating			
Gear type	Hypoid			
Number of differential pinion	4			
Ring gear pitch diameter	mm (in)		320 (12.5)	
Amount of hub grease (each wheel)	g (oz)		285 (10.1)	
Oil capacity	lit (US/Imp qt)		3.4 (3.6/3.0) (A) 3.4 (3.6/3.0) (B) 4.3 (4.5/3.8) (C) 5.2 (5.5/4.6)	

(A): for 2003 year model except straight frame

(B): for 2003 year model and straight frame, except Colombia

(C): for 2003 year model, straight frame and Colombia

Front Axle

Specifications	NPS
Front axle type	Banjo full floating
Tread	1,665 (65.55)
Gear type	Hypoid
Number of differential pinion	4
Ring gear pitch diameter mm (in)	244 (9.6)
Amount of hub grease (each wheel) g (oz)	200 (7.1)
Oil capacity lit (US/Imp qt)	2.7 (2.9/2.4)

SERVICE STANDARD

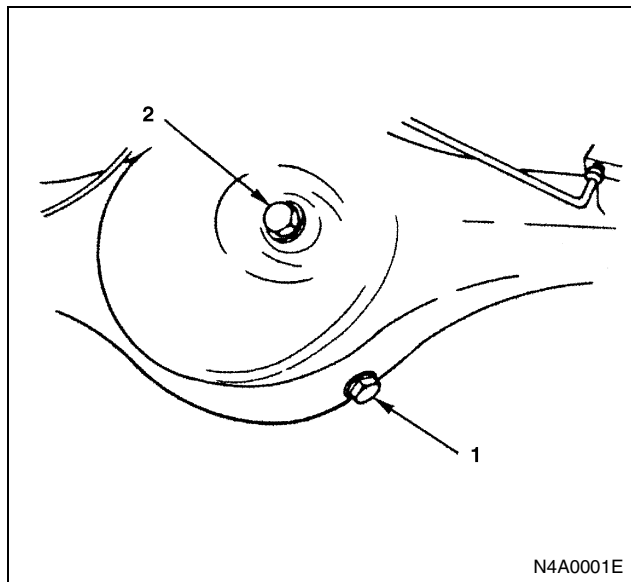
Items		Service Standard			Limit		
PROPELLER SHAFT		NHR55, 69 NKR55	NKR66, 71, 77, NPR70, 71 77, NQR66, 71, NPS71	NQR70, 75 NPR75 NPS75	NHR55, 69 NKR55	NKR66, 71, 77, NPR 70, 71 77, NQR66, 71, NPS71	NQR70, 75 NPR75 NPS75
Outside Diameter of Spider Pin	mm (in)	18.46 (0.73)	21.94 (0.86)	24.00 (1.001)	18.36 (0.72)	21.84 (0.8598)	23.90 (0.941)
Propeller Shaft Run-Out	mm (in)	0.5 (0.02) or less		0.3 (0.12) or less	1.0 (0.039)		0.5(0.02)
Play between the Sleeve Yoke and the Propeller Shaft Spline	mm (in)	0.1 (0.0039)			0.3 (0.012)		
Play in the Universal Joint	mm (in)	0.1 (0.0039)			—		
REAR AXLE SHAFT							
Axle Shaft Run-Out	mm (in)	—			1.0 (0.039)		
Axle Shaft Flange Run-Out	mm (in)	—			0.05 (0.0097) <except 2003 year model> 0.15 (0.006)		
REAR DIFFERENTIAL		244 mm	292 mm	320 mm	244 mm	292 mm	320 mm
Pinion Bearing Preload							
New Bearing	N (kg/lb)	16-29 (1.6-3.0/ 3.5-6.6)	13-25 (1.3-2.6/ 2.9-5.7)	26-38 (2.7-3.9/ 6.0-8.6)	—		
Used Bearing	N (kg/lb)	8-14.5 (0.8-1.5/ 1.8-3.3)	6.5-12.5 (0.65-1.3/ 1.5-2.9)	13-19 (1.35- 1.95/3.0- 4.3)	—		
Pinion Bearing Starting Torque							
New Bearing	N·m (kg·cm/ lb·in)	0.69-1.27 (7-13/6.1- 11.3)	0.98-1.96 (10-20/ 8.7-17.4)	2.3-3.2 (23-33/ 20-28.6)	—		
Used Bearing	N·m (kg·cm/ lb·in)	0.35-0.64 (3.5-6.5/ 3.1-5.7)	0.49-0.98 (5-10/4.3- 8.7)	1.2-1.6 (12-16/ 10.4- 13.9)	—		
Ring Gear Backlash	mm (in)	0.15-0.20 (0.006- 0.008)	0.18-0.23 (0.007- 0.009)	0.19-0.29 (0.007- 0.011)	—		
Ring Gear Run-Out	mm (in)	0.07 (0.003)	0.07 (0.003)	0.08 (0.003)	0.2 (0.008)	0.2 (0.008)	0.25 (0.01)
Clearance between the Differential Pinion and the Spider	mm (in)	0.07-0.13 (0.003- 0.005)	0.07-0.13 (0.003- 0.005)	0.05-0.13 (0.002- 0.005)	0.2 (0.008)	0.2 (0.008)	0.2 (0.008)

Items		Service Standard			Limit		
Clearance between the Side Gear and the Differential Cage	mm (in)	0.05-0.11 (0.002-0.004)	0.05-0.11 (0.002-0.004)	0.13-0.2 (0.005-0.008)	0.25 (0.01)	0.25 (0.01)	0.25 (0.01)
Play in Splines between the Side Gear and the Axle Shaft	mm (in)	0.02-0.12 (0.0008-0.005)	0.08-0.15 (0.003-0.006)	0.2 (0.008)	0.25 (0.01)	0.3 (0.012)	0.5 (0.02)
Clearance between the back face of the Side Gear and the Differential Cage	mm (in)	0.13-0.18 (0.005-0.007)	0.21-0.28 (0.008-0.011)	0.10-0.38 (0.004-0.015)	—		
REAR HUB							
Rear Hub Bearing Pre-load (At Wheel Pin)	N (kg/lb)	42-52 (4.3-5.3/9.5-11.7)			38-48.0 (3.9-4.9/8.6-10.8)		
FRONT DIFFERENTIAL							
Pinion Bearing Preload							
New Bearing	N (kg/lb)	16-29 (1.6-3.0/3.5-6.6)			—		
Used Bearing	N (kg/lb)	8-14.5 (0.8-1.5/1.8-3.3)			—		
Pinion Bearing Starting Torque							
New Bearing	N·m (kg·cm/lb·in)	0.69-1.27 (7.0-13.0/6.1-11.3)			—		
Used Bearing	N·m (kg·cm/lb·in)	0.35-0.64 (3.5-6.5/3.1-5.7)			—		
Ring Gear Backlash	mm (in)	0.15-0.20 (0.006-0.008)			—		
Ring Gear Run-Out	mm (in)	0.07 (0.003)			0.2 (0.008)		
Clearance between the Differential Pinion and the Spider	mm (in)	0.07-0.13 (0.003-0.005)			0.2 (0.008)		
Clearance between the Side Gear and the Differential Cage	mm (in)	0.04-0.1 (0.002-0.004)			0.25 (0.01)		
Play in Splines between the Side Gear and the Axle Shaft	mm (in)	0.02-0.12 (0.0008-0.005)			0.25 (0.01)		
Clearance between the Back Face of the Side Gear and the Differential Cage	mm (in)	0.13-0.18 (0.005-0.007)			—		
FRONT HUB							
Front Hub Bearing Preload (At wheel pin)							
New Bearing and New Oil Seal	N (kg/lb)	NHR, NPR, NQR: 9.8-34.3 (1.0-3.5/2.2-7.7) NKR: 11.8-36.3 (1.2-3.7/2.6-8.0)			—		
Reused Bearing and New Oil Seal	N (kg/lb)	14-28 (1.4-2.9/3.1-6.4)			—		
FREE WHEEL HUB							
Clearance between the Free Wheeling Hub Body and the Snap Ring	mm (in)	0-0.5 (0-0.02)			—		

SERVICING

Change The Rear Differential Gear Oil

1. Remove the drain plug (1) and filler plug (2) and, drain the gear oil.



2. Tighten the drain plug to specified torque.

Tighten:

Drain plug to 78 N·m (8.0 kg·m / 57 lb·ft)

3. Fill the rear axle case with hypoid gear lubricant, to just below the filler hole.

Rear Axle Case Oil Capacity	L (US/Imp qt)
244 mm Diff.	2.7 (2.9/2.4)
292 mm Diff.	3.0 (3.2/2.6)
320 mm Diff.	(A) 3.4 (3.6/3.0) / (B) 4.3 (4.5/3.8) / (C) 5.2 (5.5/4.6)

A: Except Straight Frame model

B: For Straight Frame model

C: For Straight Frame model, Colombia

Notice:

Limited Slip Differential (LSD)-Friction Type Model:

Use GL-5 LSD gear lubricant together with LSD Lubricant Additive (ISUZU part No. 8-01052-358-0, GM part No. #1052358) or equivalent.

Quantity

LSD Lubricant additive, 4 oz (112 g)

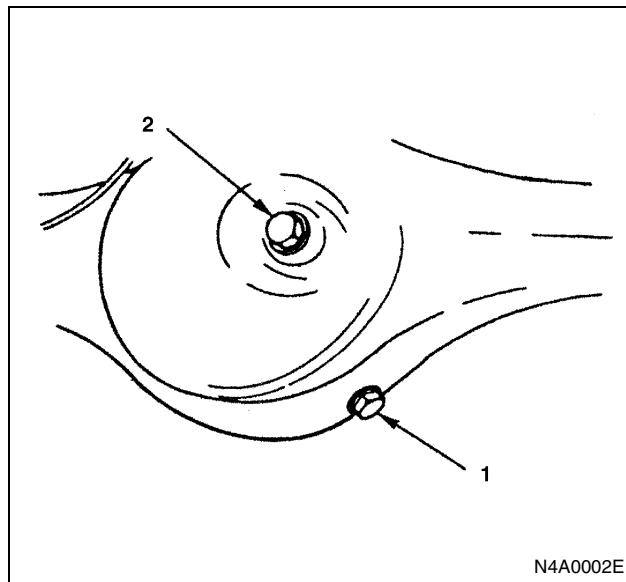
4. Tighten the filler plug to specified torque.

Tighten:

Filler plug to 78 N·m (8.0 kg·m / 57 lb·ft)

Change The Front Differential Gear Oil

1. Remove the drain plug (1) and filler plug (2), and drain the gear oil.



2. Tighten the drain plug to specified torque.

Tighten:

Drain plug to 83 N·m (8.5 kg·m / 61 lb·ft)

3. Fill the front axle case with hypoid gear lubricant, to just below the filler hole.

Front axle case oil capacity, 2.7 Liters (2.9 US / 2.4 Imp·qt)

4. Tighten the filler plug to specified torque.

Tighten:

Filler plug to 83 N·m (8.5 kg·m / 61 lb·ft)

FIXING TORQUE

Propeller Shaft
Rear propeller shaft

N·m (kg·m / lb·ft)

Transmission Side

M10	63 (6.4/46)
M12	103 (10.5/76)

M10	63 (6.4/46)
M12	103 (10.5/76)

NKR 55	118 (12/87)
NKR 55, 66, 71, 77, NPR 66, 70, 71, 75, 77, NQR 70, 71, 75, NPS 71, 75	539 (55/398)

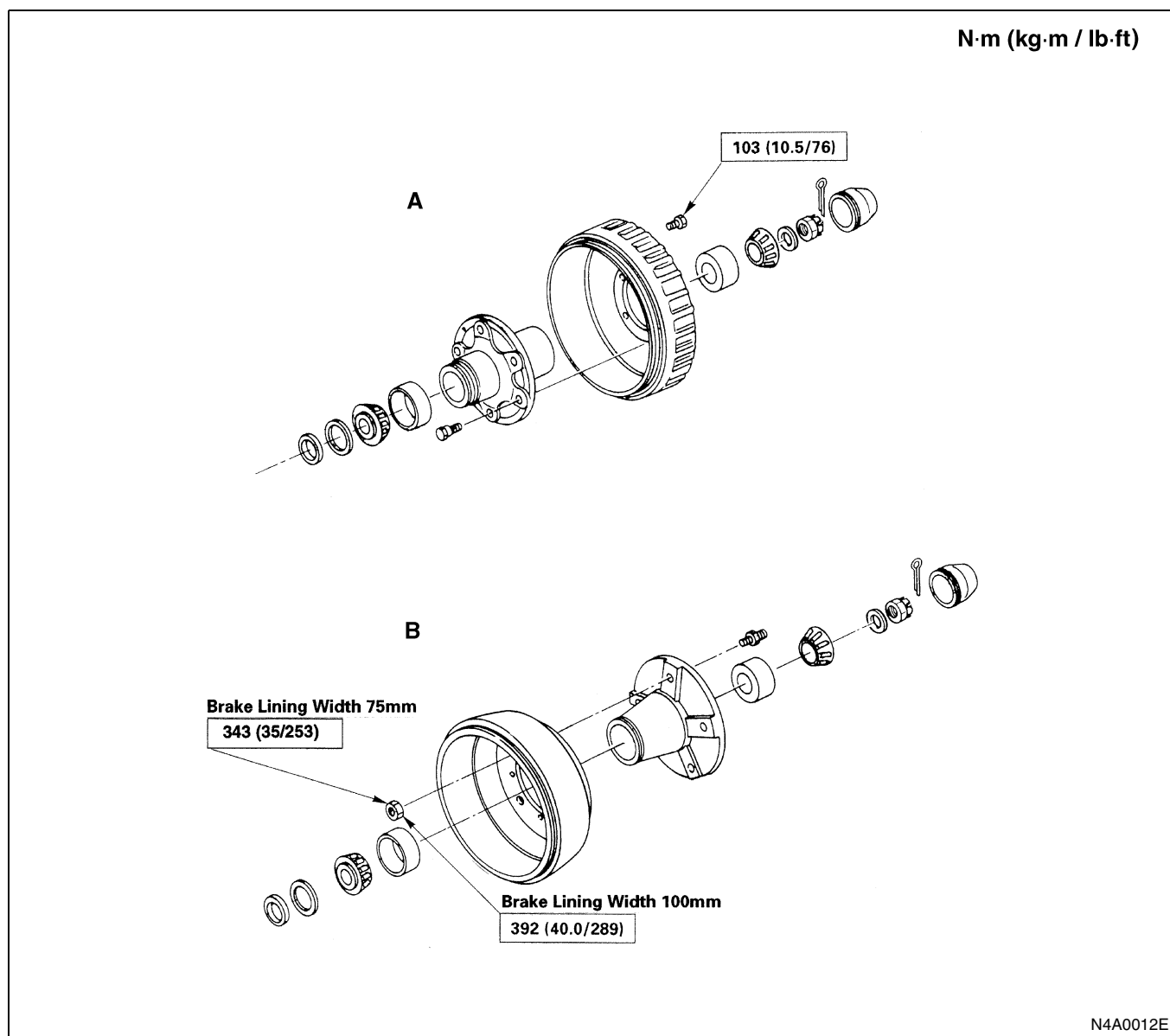
40 (4.1/30)

Differential Side

M10	63 (6.4/46)
M12	103 (10.5/76)

N4A0420E

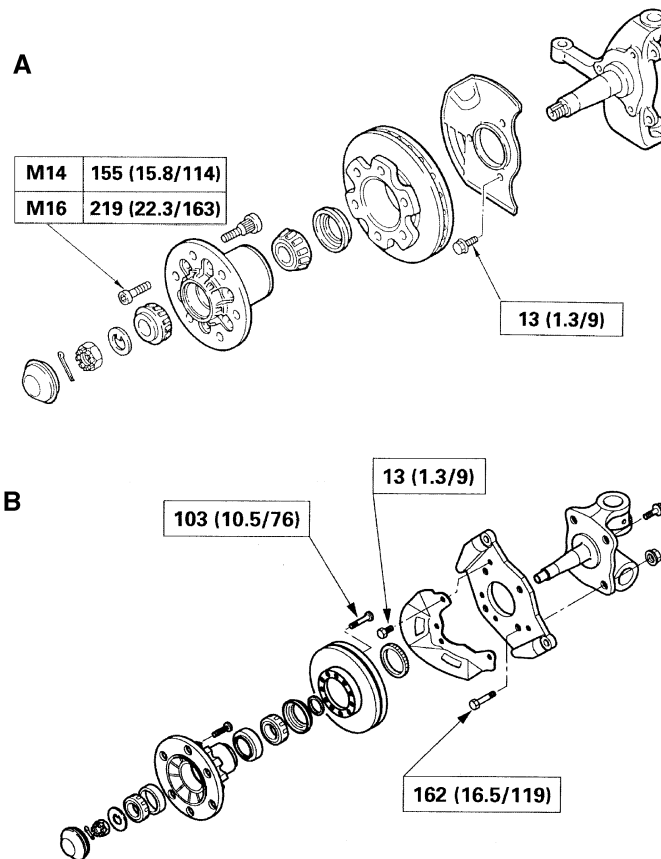
Front Hub and Brake Drum (4 × 2 Model)



Legend

A. NHR, NKR models (rear single and dual small tire)

B. NPR, NQR models (rear dual tire)

Front Hub and Disc (4 × 2 Model)**N·m (kg·m / lb·ft)**

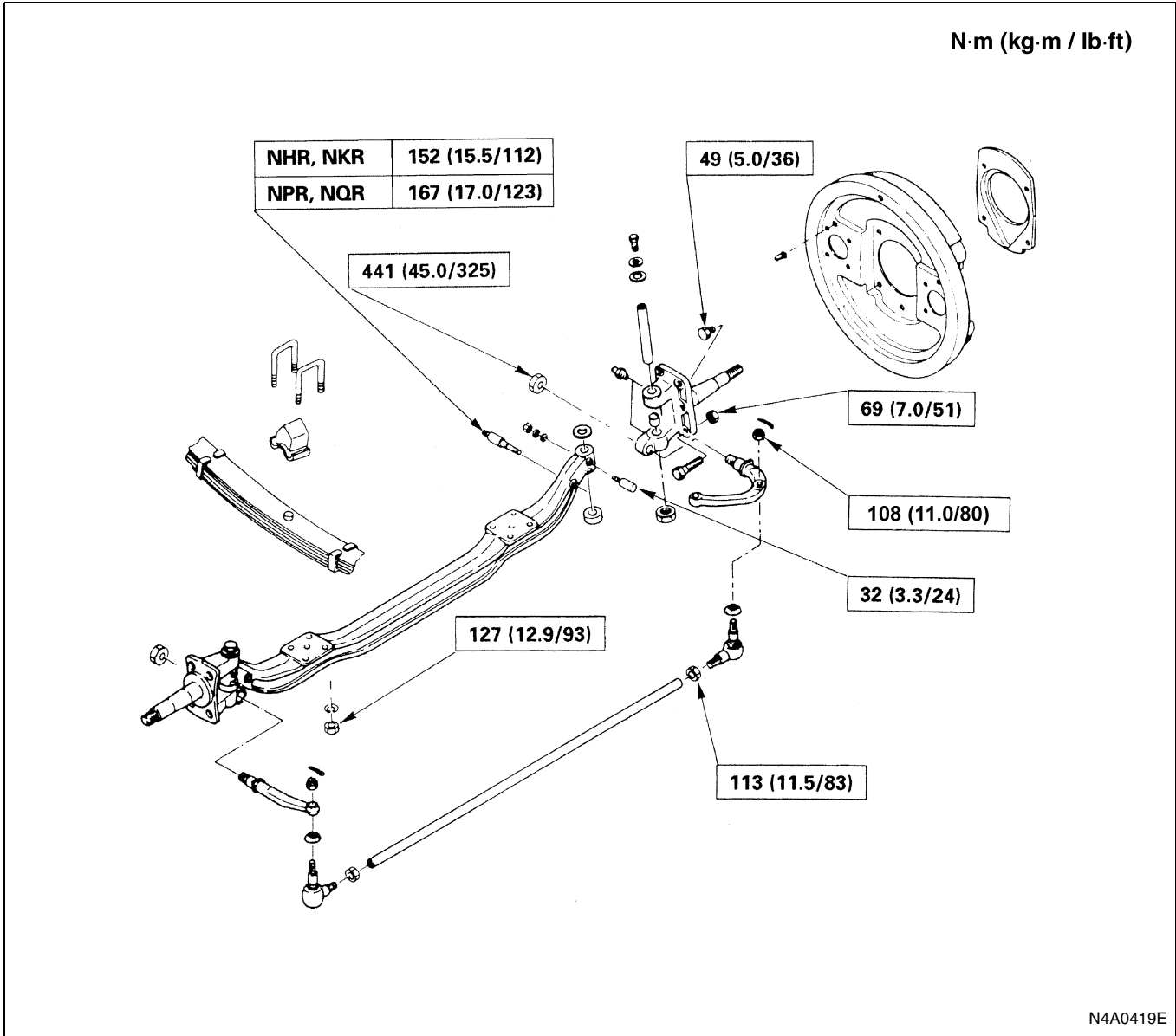
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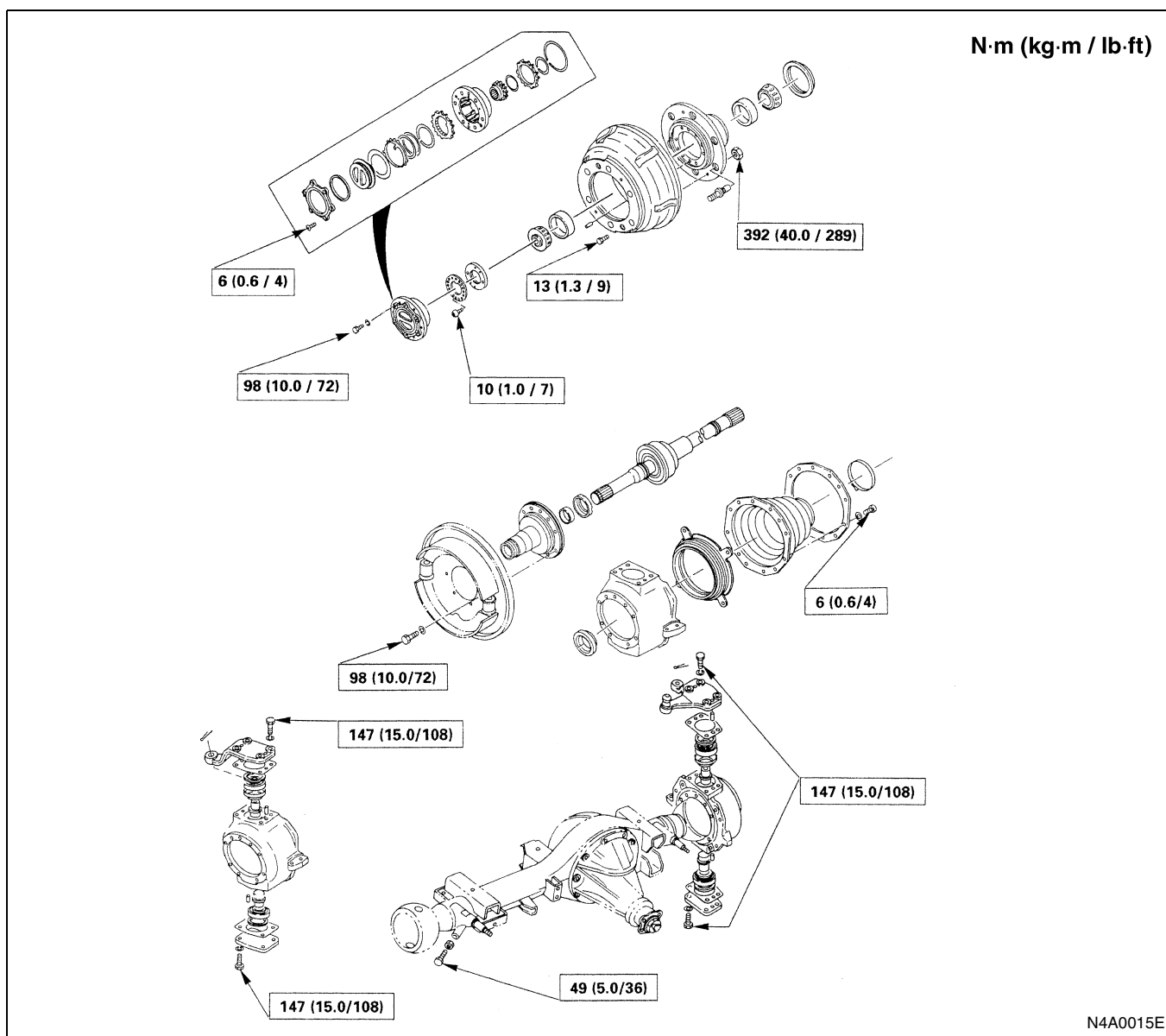
Legend

A. Independent suspension model

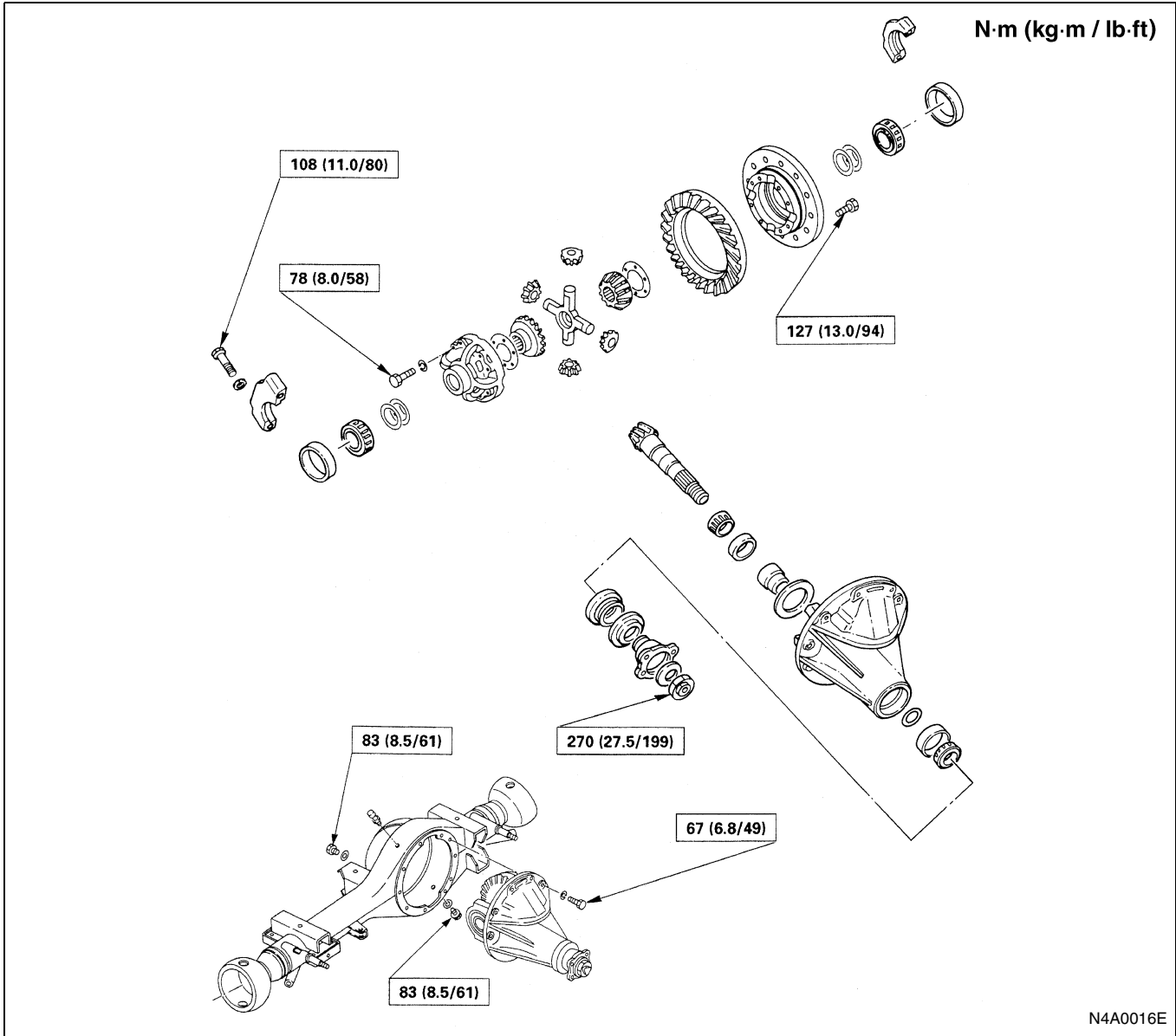
B. Rigid axle model (293 & 310 mm disc)

Front Axle, Knuckle and King Pin (4 × 2 Model)



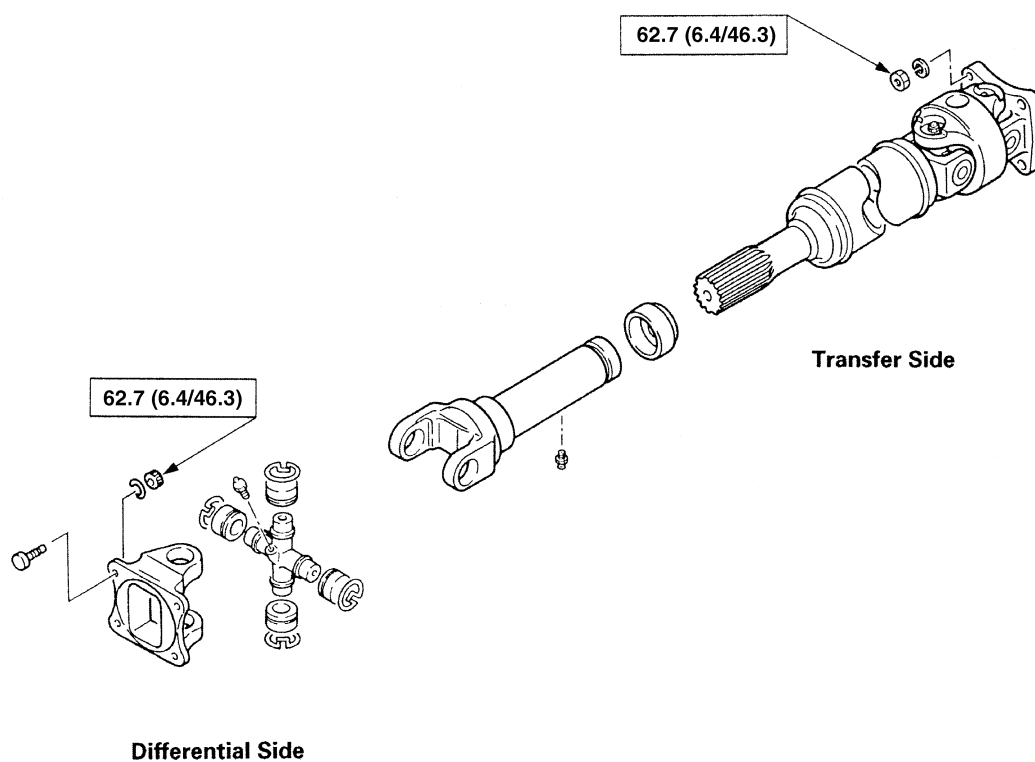
Front Hub, Brake Drum Spindle, Drive Shaft, Knuckle and King Pin (4 × 4 Model)

Front Differential Assembly



Front propeller shaft

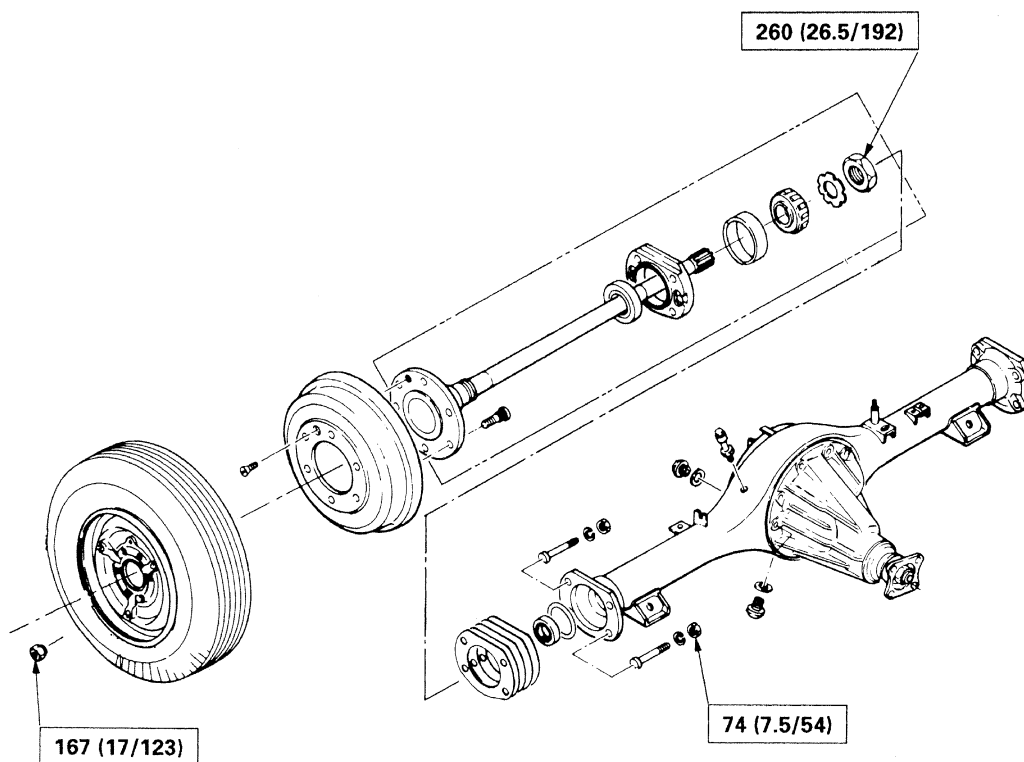
N·m (kg·m / lb·ft)



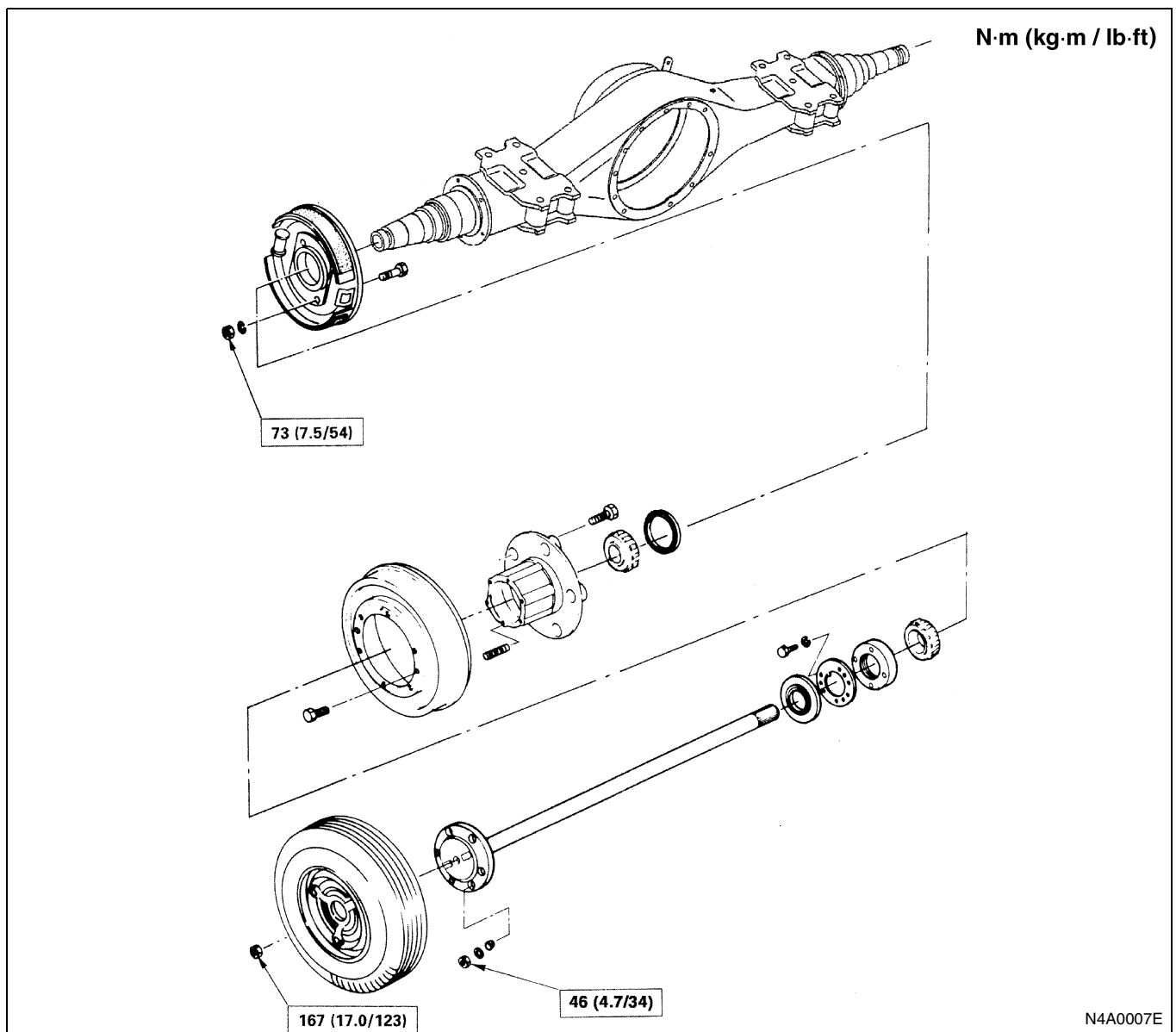
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Rear Hub, Brake Drum and Axle Shaft (NHR Single Tire Model)

N·m (kg·m / lb·ft)

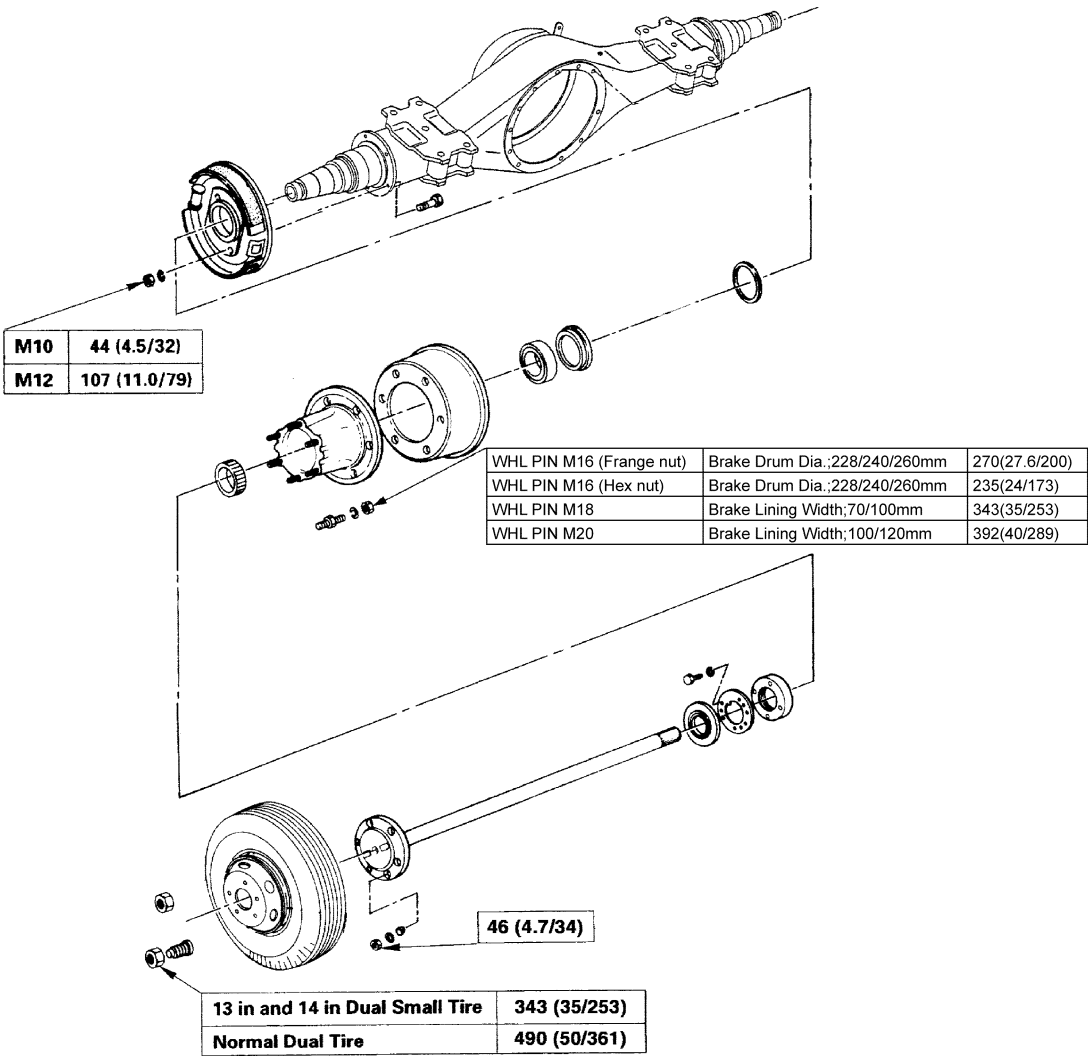


N4A0005E

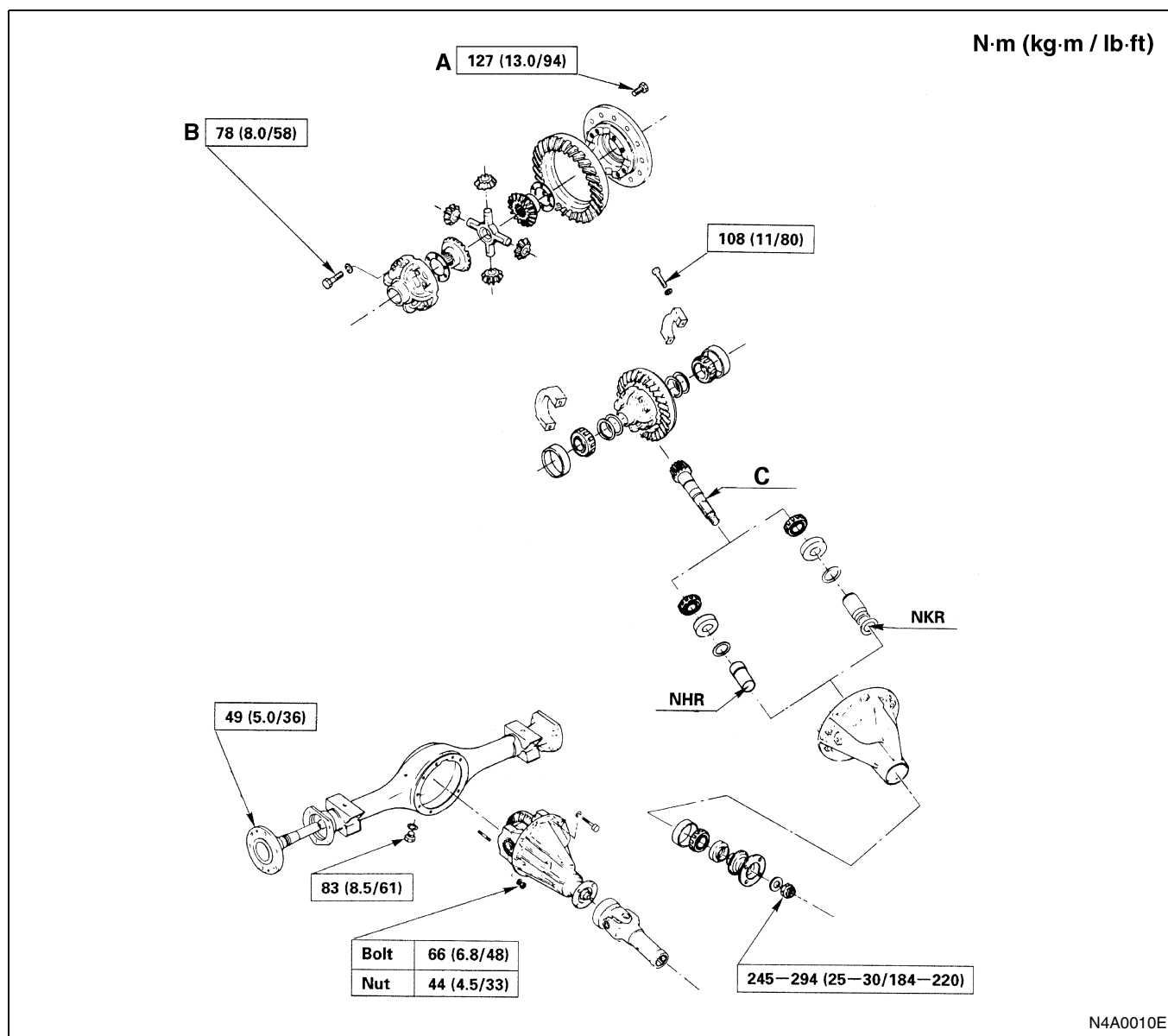
Rear Hub, Brake Drum and Axle Shaft (NKR Single Tire Model; Full Floating)

Rear Hub, Brake Drum and Axle Shaft (NHR Dual Small Tire, NKR Dual Tire, NPR, NQR, NPS Models; Full Floating)

N·m (kg·m / lb·ft)

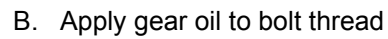


Rear Differential Assembly (244 mm)

**Legend**

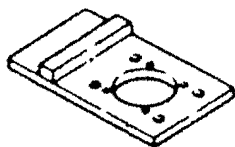
- A. Apply stud lock
 B. Apply gear oil to bolt thread

C. Apply oil



SPECIAL TOOLS

Propeller Shaft

Illustration	Tool Number / Description / Remarks
 9852921010	9-8529-2101-0 / Drive pinion flange bracket

Rear Axle

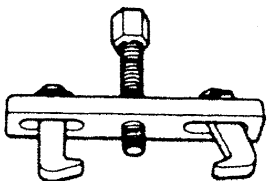
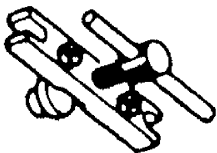
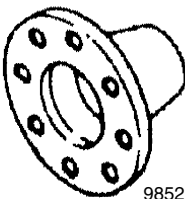
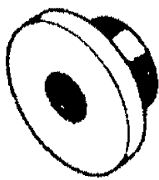
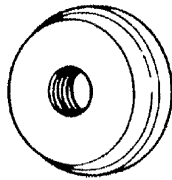
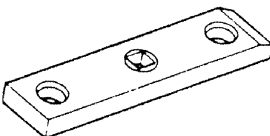
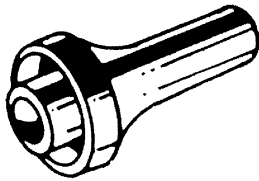
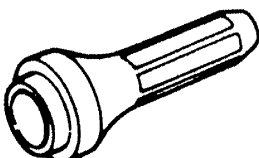
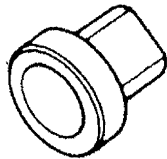
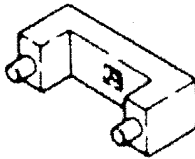
Illustration	Tool Number / Description / Remarks
 5884020270	5-8840-2027-0 / Univer- sal puller
 9852101160	9-8521-0116-0 / Rear hub remover
 9852125010	9-8521-2501-0 / Rear hub remover
 9852117720	9-8521-1772-0 / Axle shaft bearing outer race remover

Illustration	Tool Number / Description / Remarks
 9852212680	9-8522-1268-0 (J-24259) / Axle shaft bearing outer race installer
 5884020030	5-8840-2003-0 (J-24246) / Bearing holder nut wrench
 9852212690	9-8522-1269-0 (J-24255) / Bearing holder oil seal installer
 9852212720	9-8522-1272-0 (J-24254) / Axle case oil seal installer
 9852212710	9-8522-1271-0 (J-8609- 01) / Axle shaft bearing installer
 9852211880	9-8522-1188-0 / Rear hub bearing nut wrench {For 70mm (2.8 in.)}

00-22 SERVICE INFORMATION

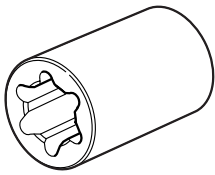
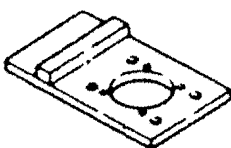
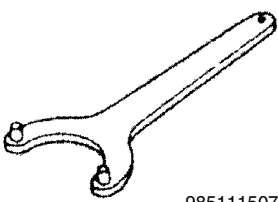
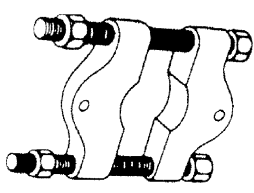
Illustration	Tool Number / Description / Remarks
 5884028300	5-8840-2830-0 / Ring gear bolt wrench
 9852921010	9-8529-2101-0 / Drive pinion flange yoke bracket
 9851115070	9-8511-1507-0 (J-29042) / Drive pinion flange holding wrench
 5884000150	5-8840-0015-0 (J-22912- 01) / Drive pinion inner bearing remover
 9852211960	9-8522-1196-0 / Drive pinion inner bearing outer race installer
 5884020460	5-8840-2046-0 / Drive pinion inner bearing outer race installer (For 292mm)
 9852211970	9-8522-1197-0 / Drive pinion outer bearing outer race installer

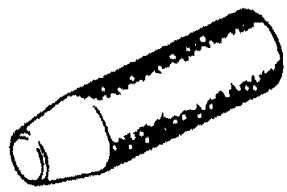
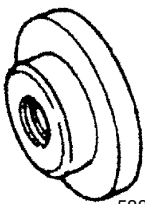
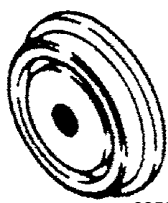
Illustration	Tool Number / Description / Remarks
 9852216130	9-8522-1613-0 / Drive pinion outer bearing outer race installer (For 292mm)
 9852200180	9-8522-0018-0 / Drive pinion inner bearing inner race installer
 9852216150	9-8522-1615-0 / Drive pinion inner bearing inner race installer
 5884020470	5-8840-2047-0 / Drive pinion oil seal installer
 9852216070	9-8522-1607-0 / Drive pinion oil seal installer
 9852100610	9-8521-0061-0 / Differen- tial side bearing remover
 5884020310	5-8840-2031-0 / Differen- tial side bearing remover adaptor

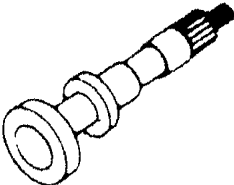
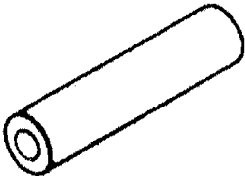
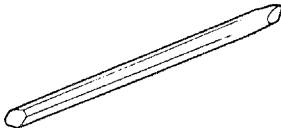
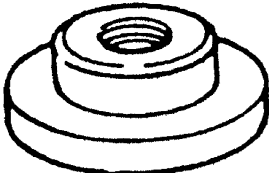
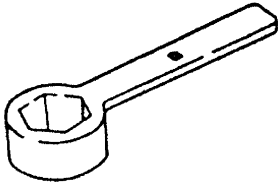
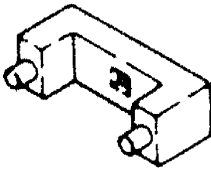
Illustration	Tool Number / Description / Remarks
 9852127010	9-8521-2701-0 / Differen- tial side bearing remover adaptor
 5884020500	5-8840-2050-0 / Differen- tial side bearing installer
 9852216140	9-8522-1614-0 / Differen- tial side bearing installer
 9852216030	9-8522-1603-0 / Dummy pinion shaft
 9852216240	9-8522-1624-0 / Dummy nut
 9852211380	9-8522-1138-0 / Dummy shaft
 9852211370	9-8522-1137-0 / Dummy bearing (2 pcs required)

Illustration	Tool Number / Description / Remarks
 5884022930	5-8840-2293-0 (J-39209) / Punch: End nut lock
 5884023730	5-8840-2373-0 / Differen- tial side bearing remover (For 320mm)
 5884023770	5-8840-2377-0 / Drive pinion oil seal installer (For 320mm)
 5884023790	5-8840-2379-0 / Drive pinion inner bearing outer race installer (For 320mm)
 5884023760	5-8840-2376-0 / Drive pinion outer bearing outer race installer (For 320mm)
 5884023290	5-8840-2329-0 / Hub nut wrench
 9852216060	9-8522-1606-0 / Rear hub bearing nut wrench {For 74mm (2.9 in.)}

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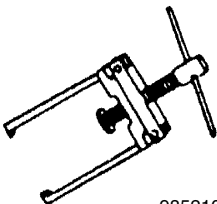
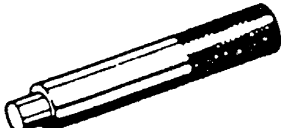
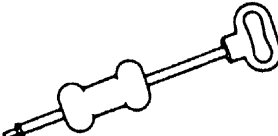
Illustration	Tool Number / Description / Remarks
 9852100920	9-8521-0092-0 / Rear hub inner bearing remover
 9852216070	9-8522-1607-0 / Rear hub oil seal installer (For 292mm)
 5884024270	5-8840-2427-0 / Rear hub oil seal installer
 9852211940	9-8522-1194-0 / Rear hub inner bearing outer race installer
 9852216090	9-8522-1609-0 / Rear hub inner bearing outer race installer
 5884024260	5-8840-2426-0 / Rear hub inner bearing outer race installer
 9852211950	9-8522-1195-0 / Rear hub outer bearing outer race installer

Illustration	Tool Number / Description / Remarks
 9852216100	9-8522-1610-0 / Rear hub outer bearing outer race installer
 9852216080	9-8522-1608-0 / Grip
 9852211480	9-8522-1148-0 / Grip
 5884000840	5-8840-0084-0 (J-2619- 01) / Sliding hammer

Front Axle

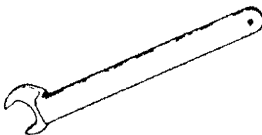
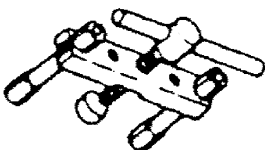
Illustration	Tool Number / Description / Remarks
 5884020150	5-8840-2015-0 / Front hub nut wrench
 9852101150	9-8521-0115-0 / Front hub remover (6 studs)

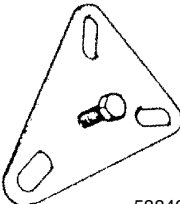
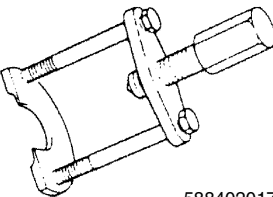
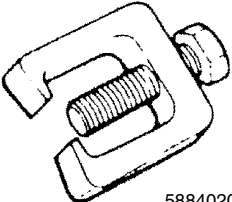
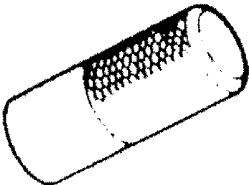
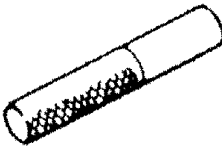
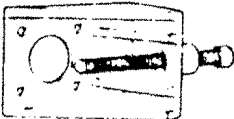
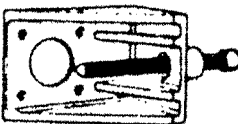
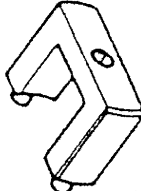
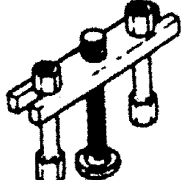
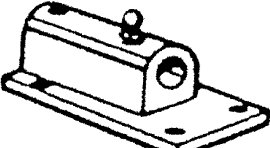
Illustration	Tool Number / Description / Remarks
 5884020160	5-8840-2016-0 / Front hub remover (5 studs)
 5884020170	5-8840-2017-0 / Tie rod end remover (driver side)
 5884020180	5-8840-2018-0 / Tie rod end remover (assist side)
 5884020190	5-8840-2019-0 / Tie rod arm & knuckle arm remover
 5884020200	5-8840-2020-0 / King pin key bolt remover
 5884020210	5-8840-2021-0 / King pin remover
 5884020220	5-8840-2022-0 / King pin remover

Illustration	Tool Number / Description / Remarks
 5884020230	5-8840-2023-0 / Front hub inner bearing outer race installer
 5884020240	5-8840-2024-0 / Front hub inner bearing outer race installer
 5884020250	5-8840-2025-0 / Front hub outer bearing outer race installer
 5884020260	5-8840-2026-0 / Front hub outer bearing outer race installer
 5884022350	5-8840-2235-0 / Front hub Oil Seal installer
 5884021820	5-8840-2182-0 / Front hub bearing nut wrench
 5884021870	5-8840-2187-0 / Front hub oil seal installer

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Illustration	Tool Number / Description / Remarks
 5884021840	5-8840-2184-0 / Front hub inner bearing outer race installer
 5884021830	5-8840-2183-0 / Front hub outer bearing outer race installer
 9852101870	9-8521-0187-0 / Front hub remover (6 studs)
 5884023680	5-8840-2368-0 / Torx bit (T70) (Disc Brake Only)
 5884000030	5-8840-0003-0 (J-3289- 20) / Holding fixture base
 5884020290	5-8840-2029-0 / Differen- tial holding fixture