

Spicer® Drive Axles, Steer Axles,
Driveshafts, and Wheel Ends

SPICER®



Lubrication Manual

LM072012

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General Information

Dana Lubrication Philosophy

In promoting component reliability and longevity, proper lubrication is the key to a sound and effective maintenance program. Without effective lubricants at proper levels, remaining maintenance procedures will not keep components functional.

We believe synthetic lubricants have proven to be superior to petroleum products and represent opportunities to promote superior maintenance and bottom line operating performance while significantly extending component service life and reliability. Certain products and applications, as noted in this manual, require the use of approved synthetic lubricants.

A list of approved lubricants and suppliers can be found at www.spicerparts.com in the Approved Lubricant Supplier Manual, DALSM072012.

It is important to perform a daily pre-trip inspection of drivetrain components for lubricant leaks. Leaks should be brought to the attention of maintenance and immediate corrective action should be taken.

Standard Drain Lubricants

Drive Axle lubricants must meet specific lubricant industry requirements. Refer to the enclosed charts to select the proper lubricant for your application.

Extended Drain Lubricants (Synthetic Lubricants)

Extended Drain synthetic lubricants offer superior thermal and oxidative stability for extended product performance and reliability. The superior performance characteristics of these lubricants enable Dana to offer extended drain and extended warranties. Added benefits include a more efficient drivetrain that translates into proven fuel economy savings over mineral based lubricants.

Synthetic lubricants are recommended for severe duty applications and in cold climates.

It is important to use the lubricants that meet the current specifications set forth by Dana. Look for the appropriate approval code on the container.

Drive Axle - Dana Specification: SHAES-256 Rev C

Drive Axle - Dana Specification: SHAES-429

Use of lubricants meeting these specifications will ensure the highest performing lubricants for maximum performance.

Note: Dana discontinued the use of the E500 logo in 2006.

Introduction to Manual

This Lubrication Manual, organized by product, provides easy access to the following lube information:

- Type of lubricant
- Change intervals
- Capacities
- General lubrication procedures
- Warnings and Cautions

Note: Refer to the Approved Lubricant Supplier Manual, DALSM072012, to verify approved lubrication trade name and product.

Linehaul - 500,000 Mile Extended Lube Drain Interval

The extended drain interval program applies to the Dana axles listed below that meet the following conditions:

- Heavy-Duty and Medium-Duty axles
- Line haul service (On-highway)
- Lubricant approval levels
 - Drive Axle – SHAES-256 Rev C
- Factory filled with lubricants approved for 500,000 mile drain cycles (US/Canada); 250,000/400,000Km (Outside US/Canada)
- Refer to charts listed in this manual for axle drain intervals when using “Extended Drain Lubricants”
- A Dana-approved lubricant must be used to keep the extended warranty in place. The extended drain program and any extended warranty program are separate programs.

Note: For specific detail on Dana extended warranty programs refer to the Dana Warranty Guide or call 1-877-777-5360.

Note: For a complete list of Dana “approved lubricants” for extended drain, refer to Approved Lubricant Suppliers Manual, DALSM072012

Vocational - 180,000 Mile Lube Drain Interval

This will outline the performance requirements of lubricants intended for use in vocational Spicer® drive axles that are allowed the 180,000 mile or three year extended drain interval. The approved lubricants may be factory installed at the truck manufacturer, or service filled up to 500 miles, and may remain in the drive axles for the 180,000 mile or three year drain interval, whichever comes first.

Lubricant approval levels

- Axle – SHAES-429

Warnings and Cautions

⚠ WARNING

Before working on a vehicle, place transmission in neutral, set brakes, and block wheels.

When switching between types of lubricants, all areas of each affected component must be thoroughly drained.

Do not introduce additives and friction modifiers.

Do not mix lubricants of different grades.

Do not mix mineral and synthetic lubricants.

Do not mix heavy-duty, multi-purpose lithium based (#2 grade) grease with sodium- based grease.

Vehicle Application Definitions

City

- Pickup and delivery service within cities and/or suburban areas.
- 100% of operation on road surfaces of concrete, asphalt, and maintained gravel.
- Three (3) miles between starts/stops (typical).
- 100% load going / up to 40% load return (typical).

Line Haul (On-highway)

- High mileage operation (over 60,000 miles [96,500 Km] per year).
- On-highway or good to excellent concrete or asphalt.
- More than 30 miles [48 Km] between starting and stopping.
- 4x2, 6x2, 6x4 tractor/trailer combinations and straight trucks.
- Check fluid levels and inspect for leaks at regular PM maintenance intervals, not to exceed 12,000 miles.

Severe Duty

- Consistent operation at or near maximum GCW or GVW ratings.
- Dirty or wet environments.
- Consistent operation on grades greater than 8%.

Vocational

- Low mileage operation (under 60,000 miles [96,500 Km] per year).
- Off-highway or areas of unstable or loose unimproved road surfaces.
- Less than 30 miles [48 Km] between starting and stopping.
- Heavy-duty, off-road, or specialized application type vehicles.
- Check fluid levels and inspect for leaks every 50 hours.

Drive Axle Lubricants

Dana Recommends the Use of Dana-Approved Lubricants for Extended Drain

Use the chart to locate the correct lubricant and change interval.

Heavy-Duty

Synthetic or Mineral	Lubricant Specification	SAE Viscosity Grade	Change Interval for Line Haul*	Change Interval for Vocational*
Synthetic	SHAES-256 Rev C	SAE 75W-90	500,000 miles [800,000 Km] or 5 years	N/A
Synthetic	SHAES-429	SAE 75W-90 SAE 80W-140	N/A	180,000 miles [288,000 Km] or 3 years
Mineral	SAE J2360	75W, 75W-90, 75W-140, 80W-90, 85W-140	120,000 miles [193,000 Km] or 1 years	60,000 miles [96,500 Km] or 1 year

Medium-Duty

Synthetic or Mineral	Lubricant Specification	SAE Viscosity Grade	Change Interval for Line Haul*	Change Interval for Vocational*
Synthetic	SHAES-256 Rev C	SAE 75W-90	250,000 miles [400,000 Km] or 5 years	N/A
Synthetic	SHAES-429	SAE 75W-90 SAE 80W-140	N/A	180,000 miles [288,000 Km] or 3 years
Mineral	SAE J2360	75W, 75W-90, 75W-140, 80W-90, 85W-140	100,000 miles [160,000 Km] or 1 years	60,000 miles [96,500 Km] or 1 year

Note: Extended warranties require the use of synthetic lubricant approved to SHAES-256 Rev C.

* For line haul and vocational definitions, see page 5.

Drive Axle Lubricant Capacities

Single Drive Axle Lubricant Capacities

Capacities are sorted by model number. The suffixes are included when necessary.

Single Axle Model Number	Pints	Liters
S110	14	6.6
S130	13.6	6.4
S135	24	11.4
S140	19	8.9
S150	24	11.4
S21-170	37	17.5
S21-170D	37	17.5
S23-170	37	17.5
S23-170D	37	17.5
S25-170	37	17.5
S25-170D	37	17.5
S23-190	37	17.5
S23-190D	37	17.5
S26-190	37	17.5
S26-190D	37	17.5
S30-190	40	18.9
S30-190D	40	18.9
S260 (SB)	54	25
15040 (P, T)	24	11.4
15040 (S)	21	9.9
17060 (A, D, S)	28	13
19050 (P, T)	33	15.6
19050 (S)	25	11.8
19055 (D, S)	34	16.1
19055 (P, T)	35	16.6
19060 (A, D, S)	28	13.2
19060 (P, T)	35	16.6
21060 (A, D, S)	28	13.2
21060 (P, T)	35	16.6
21065 (D, S)	34	16.1

Single Axle Model Number	Pints	Liters
21065 (P, T)	35	16.6
21070 (D, S)	40	18.9
21080 (A, D, S)	40	18.9
22060 (A, D, S)	28	13.2
22060 (P, T)	35	16.6
22065 (D, S)	34	16.1
22065 (P, T)	35	16.6
22080 (A, D, S)	40	18.9
23070 (D, S)	40	18.9
23070 (P, T)	39	18.5
23080 (A, D, S)	40	18.9
23080 (P, T)	41	19.4
23085 (C, D, S)	40	18.9
23085 (P, T)	41	19.4
23105 (A, D, S)	48	22.7
26080 (A, D, S)	40	18.9
26080 (P, T)	41	19.4
26085 (P, T)	41	19.4
26105 (A, D, S)	48	22.7
30055 (P)	36	17
30105 (A, D, S)	46	21.5
35055 (P)	36	17

Tandem Drive Axle Lubricant Capacities

Capacities are sorted by model number. The prefixes are included when necessary.

Tandem Axle Model Number	Pints	Liters
D40-155	27	12.8
R40-155	23	11.0
D40-156	27	12.8
R40-156	20	9.5
D40-170	39	18.5
R40-170	37	17.5
D46-170	39	18.5
R46-170	37	17.5
D50-170	39	18.5
R50-170	37	17.5
D52-190	42	19.9
R52-190	40	18.9
D60-190	42	19.9
R60-190	40	18.9
D52-590	42	19.9
R52-590	40	18.9
40 DDS(P), DSS(P)	40	18.9
40 DDH(P), DSH(P)	31	14.7
40RDS, RSS	37	17.5
40RDH, RSH	28	13.2
44 DSH(P)	31	14.7
44 RDH, RSH	28	13.2
341 DC, DP, DT(P), DS(P)	39	18.5
341 RC, RP, RS, RT	36	17
344 DA(P), DD(P), DS(P)	31	14.7
344 RS	28	13.2
402 DP, DT(P), RP, RT	34	16.1
402 DS(P)	39	18.5
402 RS	36	17
404 DA(P), DD(P), DS(P)	31	14.7
404 RA, RD, RS	28	13.2
405 DA(P), DD(P), DS(P)	31	14.7

Tandem Axle Model Number	Pints	Liters
405 RA, RD, RS	28	13.2
451 DP(P), DT(P), RP, RT	34	16.1
451 DC(P), DS(P)	39	18.5
451 RC, RS	36	17
454 DA(P), DD(P), DS(P)	31	14.7
454 RA, RD, RS	28	13.2
461 DD(P), DS(P)	43	20.3
461 DP(P), DT(P)	46	22
461 RC, RP, RT	39	18
461 RD, RS	40	18.9
462 DD(P), DS(P)	40	18.9
462 RD, RS	37	17.5
463 DD(P), DP(P), DS(P), DT(P)	40	18.9
463 RD, RP, RS	37	17.5
521 DD(P), DP(P), DS(P), DT(P)	42	19.9
521 RC, RD, RP, RS, RT	39	18.5
581 DD(P), DP(P), DS(P)	42	19.9
581 RD, RP, RS	39	18.5
601 DC(P), DD(P), DP(P)	42	20
601 RP	39	18.5
651 DP(P)	41	19.4
651 RP	37	18
652 DP(P)	41	19
652 RP	37	18

Drive Axle Lubrication Procedure

Inspection

Drive axles should be checked for weeps and/or leaks during the operator's daily walk around inspection of the vehicle. Drive axle lubrication levels should be checked every 25,000 miles (40,000 km) or during routine engine oil changes.

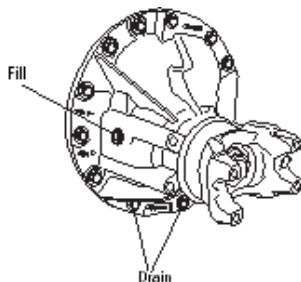
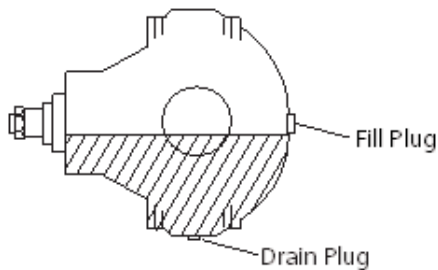
Drain

1. Drain when the lube is at normal operating temperature (150-200°F). It will run freely and minimize the time necessary to fully drain the axle, this ensures the axle is flushed.

2. Depending on the axle model, remove the drain plug from the bottom of the drive axle housing or remove one of the bottom carrier-to-housing fasteners and allow the lube to drain into a suitable container.

NOTE: Dispose of all used lubricants properly by following disposal methods approved for mineral and synthetic-based oils.

3. After the initial oil change, inspect the drain plug for large amounts of metal particles. These may be signs of damage or extreme wear in the axle. Clean and install the drain plug after the axle has completely drained.



Fill

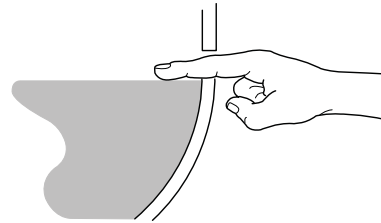
1. With the vehicle on level ground, remove the fill plug from the drive axle rear cover or the side of the carrier assembly, depending on the axle model.

2. Fill the housing with lube until the level is even with the bottom of the fill hole as shown below.

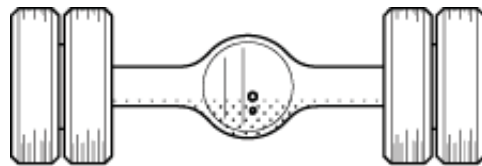
3. If the wheel ends are removed, refer to the "Wheel End Lubrication Procedure" in this manual.

NOTE: Lube fill capacities (see chart on previous pages) are basic guidelines and will vary based on the angle the axle is installed.

TIP: The axle can be filled through the axle housing breather hole. Fill until the lube level is even with the bottom of the fill hole.



Correct lube level at bottom of filler hole.



Steer Axle Lubricants

The standard lubricants specified by the Steer Axle Product Engineering group are as follows

Note: For line haul and vocational definitions, see page 5.

Type of Lubricant System	Lubricant	SAE	Change Interval for Line Haul	Change Interval for Vocational
Wheel End	Mineral Oil	SAE 75W-90	100,000 miles [161,000 km] or 1 year	30,000 miles [48,000 km] or 6 months
Wheel End	Mineral Grease-NLGI #2	#2 grade	100,000 miles [161,000 km] or 1 year	30,000 miles [48,000 km] or 6 months
LMS-Low Lube ¹	Synthetic Oil	SAE 50 PS-164 Rev 7	250,000 miles [400,000 km] or 1 year	250,000 miles [400,000 km] or 1 year
LMS-Low Free ¹	Synthetic Oil	SAE 50 PS-164 Rev 7	None (only needed if tear down)	None (only needed if tear down)
LMS-Low Lube ¹	Semi-Fluid Synthetic Grease	Chevron Delo SF	50,000 miles [800,000 km] or 3 years	50,000 miles [800,000 km] or 3 years
LMS-Low Lube ¹	Semi-Fluid Synthetic Grease	Mobilith SHC 007	50,000 miles [800,000 km] or 3 years	50,000 miles [800,000 km] or 3 years
King Pin Joint Grease / Tie Rod Ends	Heavy-Duty, multipurpose lithium based	#1 grade or #2 grade	25,000 miles [40,000 Km] or 6 months	Every 50 hours

¹ For easy identification, note that the Dana LMS-Low Lube brake uses a special "button head" grease fitting and the Dana LMS-Lube Free brake does not have a grease fitting.

Steer Axle Lubrication Procedure

Lubrication

Proper lubrication practices are important in maximizing the service life of your steer axle assembly.

Kingpins, Thrust Bearings, and Tie Rod Ends

On-Highway Applications - Standard

Pressure lubricate every 6 months or 25,000 miles (40,000 km).

A more frequent lubrication cycle is required for axles used in on/off highway, refuse, or other severe service applications.

Use heavy-duty, multipurpose lithium base (#2 grade) grease. **Do not mix with sodium base grease.**

Note: If it is difficult to grease either the upper or lower bushing, try greasing the bushings with the vehicle jacked up and supported on axle stands to improve grease flow and help flush out contamination.

Wheel Bearings

Lubricate wheel bearings with an approved drive axle lubricant (oil bath) or heavy duty grease (grease packed) depending on the type of axle lube system. Identify the type of lubrication system on your vehicle before servicing wheel bearings. Improper lubrication can result in reduced seal life and potential damage to bearings and spindles.

Oil Bath

Lubricate wheel end assembly with a drive axle lubricant that meets MIL-L-2105D specifications. Either 80W-90 mineral based or 75W-90 synthetic lube is acceptable. Check lubricant level at each greasing interval. Maintain lube level to center-line of axle or fill line on hub cap. Always check lube level on flat ground.



Do not mix lubricants of different grades. Do not mix mineral and synthetic lubes. Different brands of same grade may be mixed. Do not pack bearings with grease when using an oil bath system. This practice can restrict the flow of lubricant to the wheel seal.

Grease Packed

Thoroughly clean bearings, spindle, hub cap, and hub cavity. Parts may be washed in a suitable commercial solvent. Be certain parts are free of moisture or other contaminants. Refer to vehicle and/or wheel seal manufacturer's recommendations when using grease. Fill wheel hub with grease to inside diameter of bearing cups. Fill hub cap. Grease bearing cones by forcing grease between rollers, cones, and cage.



Never mix oil bath and grease packed wheel ends.

LMS Bearing System

Refer to Dana Spicer information Bulletin ABIB-9606.

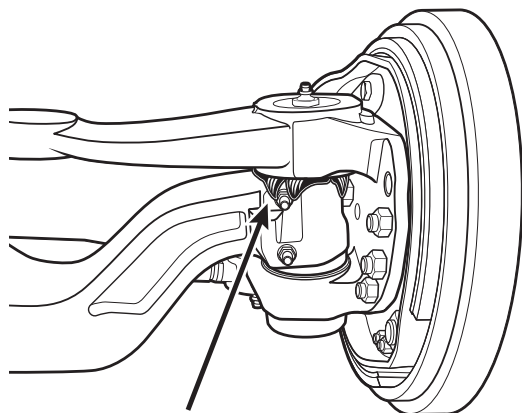
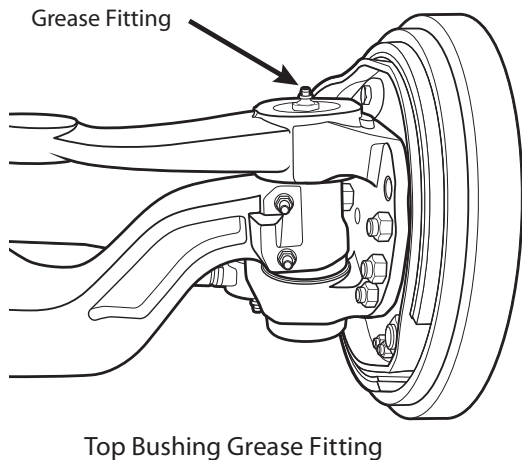
Steer Axle Grease Procedure

Kingpin Joint Greasing Procedure

1. With the vehicle on a level surface, block the front and the back of at least one of the drive axle wheels to keep the vehicle from moving. Set the parking brake.

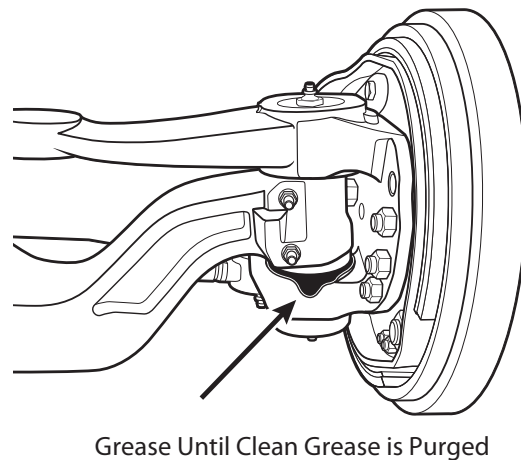
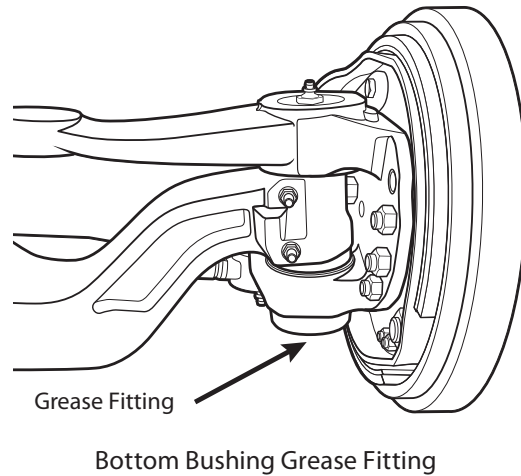
NOTE: Do NOT raise the vehicle off the ground during greasing. If the wheels are off the ground, grease will not pass through the thrust bearing properly. This may cause premature bearing wear and/or failure.

2. Clean all grease fittings before applying new grease.
3. Start by greasing the top bushing grease fitting. Grease must be applied until new (clean) grease comes from between the shim pack and the steer knuckle and/or beam.



NOTE: The greasing of steer axle components is not just to lubricate the internal components. More importantly, it is to flush contamination that may have worked its way past the seals. Greasing **MUST** continue until clean grease is purged.

4. Now apply grease to the bottom bushing fitting. Keep greasing until you see clean grease being purged and the thrust bearing is full of grease.



NOTE: Rotating the knuckle assembly during the greasing process may help to complete the purge. Do NOT raise the vehicle during this process.

Steer Axle Grease Procedure

Tie Rod End Greasing Procedure

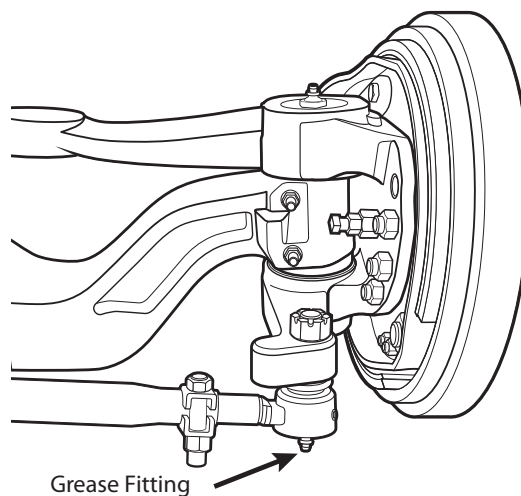
1. With the vehicle on a level surface, block the front and the back of at least one of the drive axle wheels to keep the vehicle from moving. Set the parking brake.

NOTE: Always measure the tie rod end radial and/or end-play before greasing. Greasing prior to taking measurements will give a false reading.

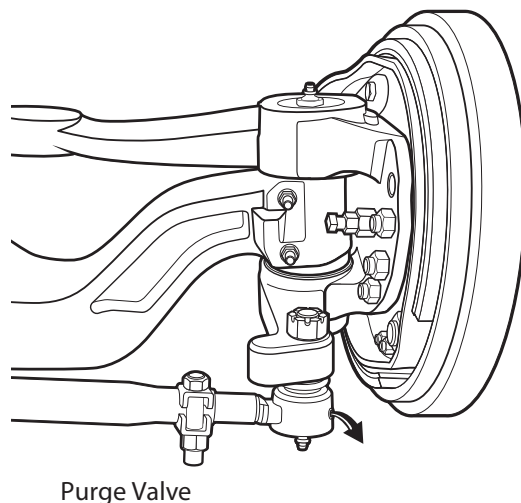
NOTE: The greasing of steer axle components is not just to lubricate internal components. More importantly it is to flush contamination that may have worked its way past the seals. Greasing **MUST** continue until clean grease is purged from the purge valve.

2. Clean all grease fittings before applying new grease.

3. Apply grease to fitting. Grease must be applied until new (clean) grease comes from the purge valve on the end of the tie rod.



Always measure end-play before re-greasing



Driveline Lubrication Intervals

For assistance identifying the driveshaft model, see DSMT0100.

Spicer® Driveshaft Lubrication Intervals

Product	City	On Highway	Line Haul	On/Off Highway
10-Series (1480 thru 1810 & SPL90) Note: Slip member also requires lubrication.	5,000/8,000 miles [8,000/12,000 Km] or 3 months (which ever comes first)	10,000/15,000 miles [16,000/24,800 Km] or 3 months (which ever comes first)	10,000/15,000 miles [16,000/24,800 Km] or 3 months (which ever comes first)	5,000/8,000 miles [8,000/12,000 Km] or 3 months (which ever comes first)
Spicer Life Series® Medium Duty (SPL55, 70, & 100) Booted and permanently lubricated slip member.	25,000 miles [40,000 Km] or 6 months (which ever comes first)	25,000 miles [40,000 Km] or 6 months (which ever comes first)	25,000 miles [40,000 Km] or 6 months (which ever comes first)	25,000 miles [40,000 Km] or 6 months (which ever comes first)
Spicer Life Series Heavy Duty (SPL140) Standard Spicer Life Series U-Joint. Booted and permanently lubricated slip member.	25,000 miles [40,000 Km] or 6 months (which ever comes first)	100,000 miles [160,000 Km] or 6 months (which ever comes first)	100,000 miles [160,000 Km] or 6 months (which ever comes first)	25,000 miles [40,000 Km] or 6 months (which ever comes first)

Spicer Life XL™ First Lubrication Cycle*

Product	City	On Highway	Line Haul	On/Off Highway
Spicer Life XL (SPL170XL, 250XL, & 350XL) Extended lubrication U-Joint. Booted and permanently lubricated slip member.	100,000 miles [160,000 Km] or 1 year (which ever comes first)	350,000 miles [560,000 Km] or 3 years (which ever comes first)	350,000 miles [560,000 Km] or 3 years (which ever comes first)	100,000 miles [160,000 Km] or 1 year (which ever comes first)

Spicer Life XL™ Re-Lubrication Cycle*

Product	City	On Highway	Line Haul	On/Off Highway
Spicer Life XL (SPL170XL, 250XL, & 350XL) Extended lubrication U-Joint. Booted and permanently lubricated slip member.	25,000 miles [40,000 Km] or 6 months (which ever comes first)	100,000 miles [160,000 Km] or 6 months (which ever comes first)	100,000 miles [160,000 Km] or 6 months (which ever comes first)	25,000 miles [40,000 Km] or 6 months (which ever comes first)

Spicer Life SF™ Lubrication Cycle

Product	City	On Highway	Line Haul	On/Off Highway
Spicer Life SF (SPL170SF & 250SF) Service Free	Permanently lubricated for life of product			

* Spicer Driveshaft Division recommends re-lubrication with grease meeting NLGI Grade 2 specifications with an operating range of +325°F/+163°C to -10°F/-23°C.

Driveline Lubrication Procedure



Inadequate lubrication can cause driveline failure which can result in separation of the driveline from the vehicle. A separated driveline can result in serious injury or death. In order to avoid driveline failure, including driveline separation, you must follow the instructions below.

We require lubrication with Chevron Ultra-Duty EP-2 or a compatible lithium-based grease meeting N.L.G.I. Grade 2 specifications as well as ASTM D4950 “LB” specifications.

Among the most common causes of universal joint and slip spline failure is lack of proper lubrication. Properly sized Spicer universal joints that are adequately re-lubricated at recommended intervals will normally meet or exceed fleet operational requirements. Inadequate re-lube cycles and failure to lubricate the joints and slip spline properly not only cause joint failures, but lead to other problems such as slip spline seizures. Proper re-lubrication flushes the universal joints, thus removing abrasive contaminants from the universal joint bearings.

1. Carefully review the lubrication specifications in the manual.
2. Re-lubricate at recommended intervals.
3. Only use approved lubricants.

Spicer replacement universal joint kits contain only enough grease to provide needle bearing protection during storage. It is, therefore, necessary to completely lubricate each replacement kit prior to assembly into the driveshaft yokes. Each journal cross lube reservoir should be fully packed with a grease listed on the previous page. Each bearing assembly should also be wiped with the same grease, filling all the cavities between the rollers and applying a liberal grease coating to the bottom of each race. After the kits are installed into the driveshaft yokes and, prior to placing into service, they should be re-lubed, through the zerks, using the same grease.

NOTE: We recommend all driveshafts be inspected for wear and damage every time the vehicle is serviced. This includes any scheduled and/or unscheduled maintenance that occurs within the driveshaft lube intervals.

Universal Joint Lubrication Procedure

1. Use the proper lubricant to purge all four bearing seals of each universal joint. This flushes abrasive contaminants from each bearing and assures all four bearings are filled properly. Pop the seals. Spicer seals are made to be popped.
2. If any of the seals fail to purge, move the driveshaft from side-to-side while applying gun pressure. This allows greater clearance on the thrust end of the bearing that is not purging. (On two-headed zerk fittings, try greasing from the opposite lube fitting.)
3. Because of the superior sealing capability of the Spicer Seal design on the 1610, 1710, 1760, 1810, and 1880 Series, there will occasionally be one or more bearing seals of a universal joint that may not purge. Seal tension then has to be released. Bearing seals must purge to ensure adequate lubrication at all four universal joint bearings.

To Release Seal Tension:

4. On Quick Disconnect™ half round end yokes, remove the universal joint kit from the yoke and apply grease. Re-install the universal joint kit, with new bolts, in the yoke and torque to specifications as listed in DSSM-3264.
5. On full round closed hole yokes, loosen the bolts holding the bearing assembly that does not purge to release seal tension. It may be necessary to loosen the bearing assembly approximately 1/16” minimum. If loosening does not cause purging, remove the bearing assembly to determine cause of blockage.
6. Remove bolts and replace.

NOTE: The self-locking bolt design for full round yokes uses serrated bolts with lock patch and does not require a lock strap. DO NOT reuse any retaining bolt. If loosening or removal of a bolt is necessary, replace it with a new one.

Slip Spline Lubrication Procedure

Always use a good E.P. grease meeting NLGI Grade 2 specifications on Glidecote™ and steel splines. The same lubricant used for universal joints is satisfactory for slip splines.

Re-lube splines as the interval prescribed in the “Driveline Lubricants” section. Apply grease gun pressure to lubrication zerk **until lubricant appears at pressure relief hole in welch plug** at slip yoke end of spline (Photo 1). At this point, cover pressure relief hole with finger and continue to apply pressure until grease appears at slip yoke seal (Photo 2). This will insure complete lubrication of spline.

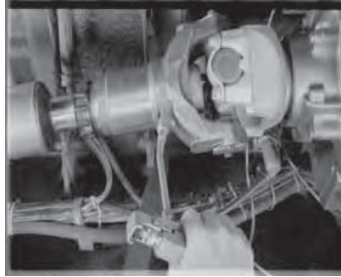


Figure 1

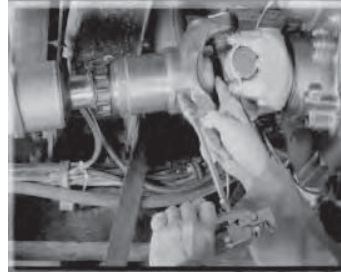


Figure 2



In cold winter months, activate the slip spline assembly by driving the vehicle sufficiently to cause displacement of the grease prior to its stiffening. Otherwise, the slip yoke plug may be forced out due to hydraulic pressure causing loss of grease and allowing abrasive contaminants to enter the slip spline.

Wheel End Lubricants

Use the chart to locate the correct lubricant and change interval.

Note: For line haul and vocational definitions, see page 5.

Product	Lubricant Type	SAE	Change Interval for Line Haul	Change Interval for Vocational
Drive Axle LMS	Synthetic ¹ SHAES 256 Rev C SHAES 429	SAE 75W-90, 80W-140	500,000 miles [800,000 km] or 5 years	180,000 miles [288,000 km] or 3 years
Drive Axle (Adjustable) ²	Synthetic SHAES 256 Rev C SHAES 429	SAE 75W-90, 80W-140	250,000 miles [400,000 km] or 3 years	180,000 miles [288,000 km] or 3 years
Drive Axle (Adjustable) ²	Mineral Base SAE J2360	SAE 75W-90, 75W-140, 80W-90, 85W-140	120,000 miles [193,000 km] or 1 year	60,000 miles [96,500 km] or 1 year
Steer Axle Oil Bath LMS	Synthetic ¹ SHAES 256 Rev C	SAE 75W-90	500,000 miles [800,000 km] or 5 years	120,000 miles [193,000 km] or 2 years
Steer Axle Oil Bath (Adjusted)	Synthetic SHAES 256 Rev C SHAES 429	SAE 75W-140, 75W-90	120,000 miles [193,000 km] or 1 year	60,000 miles [96,500 km] or 6 months
Steer Axle Oil Bath (Adjusted)	Mineral Base SAE J2360	75W, 75W-90, 80W-90, 85W-140	120,000 miles [193,000 km] or 1 year	60,000 miles [96,500 km] or 6 months
Steer Axle Semi-fluid (Adjusted)	Semi-fluid Synthetic Grease	Delo SF, Mobil SHC 0073	120,000 miles [193,000 km] or 1 year	60,000 miles [96,500 km] or 6 months
Steer Axle Grease Pack (Adjusted)	Heavy-Duty Multipurpose Lithium Based ³	#2 Grade	120,000 miles [193,000 km] or 1 year	60,000 miles [96,500 km] or 6 months

¹ Only approved lubricant for LMS wheel ends

² Refer to maintenance manual for inspection and adjustment intervals

³ Do not mix with sodium base grease

Wheel End Lubrication Procedure

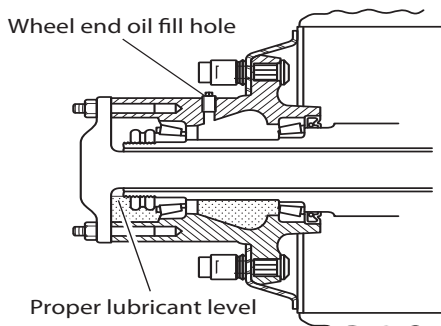


Before operating the axle, the wheel hub cavities and bearings must be lubricated to prevent failure.

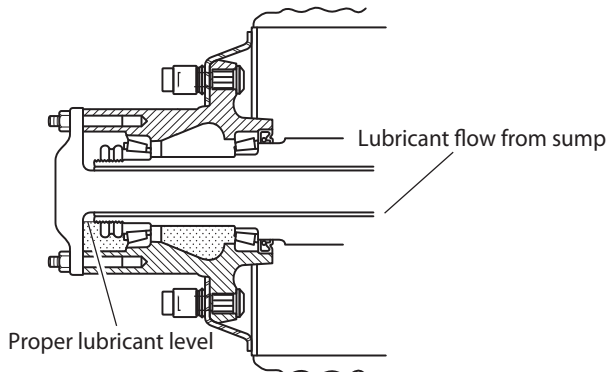
When wheel ends are serviced, follow Dana's wheel end lubrication procedure before operating the axle.

Spicer axles may be equipped with either of two wheel end designs:

- Wheel ends with an oil fill hole



- Wheel ends without an oil fill hole

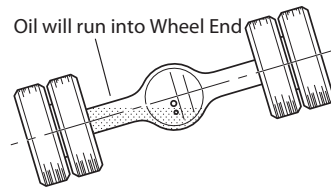


Wheel End Lubrication Procedure (with oil fill hole)

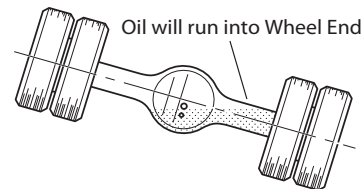
1. Rotate the wheel end hub until the oil fill hole is up.
2. Remove the oil fill plug.
3. Pour 0.5 pint [0.2 liter] of axle sump lubricant into each hub through the wheel end fill hole.
4. Install oil fill plug and tighten to specified torque.

Wheel End Lubrication Procedure (without oil fill hole)

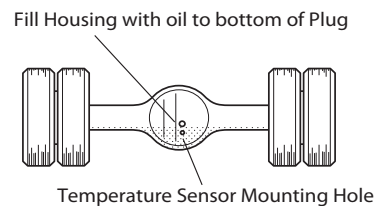
1. With axle level and wheel ends assembled, add lubricant through filler hole in axle housing cover until fluid is level with the bottom of filler hole.
2. Raise the left side of the axle 6 in. [152 mm] or more. Hold axle in this position for one minute.



3. Raise the right side of the axle 6 in. [152 mm] or more. Hold axle in this position for one minute.



4. With axle on a level surface, add lubricant through housing cover oil filler hole until fluid is level with the bottom of the hole.



NOTE: Axles without wheel end fill holes require additional lubricant to bring the lubricant level even with the bottom of the fill hole.

For specifying or service assistance, call 1-877-777-5360 or visit our website at www.dana.com

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