

**MAGNUM CHASSIS OWNER TIPS**  
**FOR**  
**1998 MODEL YEAR**  
**BLUE MAX AND BLUE STREAK CHASSIS**

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**The information in this publication is as complete as possible at the time of publication and is for use with Magnum Blue Streak and Blue Max chassis with manufacture dates falling in the 1998 model year, unless otherwise specified. Variations in this material and actual components may exist depending on specific models and dates of manufacture. Product changes may be made at any time after the inception of this publication. Magnum Manufacturing and SMC Corporation reserves the right to make these changes without notice and without obligation.**

**WARNING-Read and follow appropriate safety precautions when servicing the vehicle as outlined in the chassis owner's manual, Caterpillar operation and maintenance manual, and Allison transmission manual.**

## **CHASSIS MAINTENANCE (1998 model year)**

### **MAINTENANCE INTERVALS**

Refer to the Allison transmission manual for transmission service intervals.

Refer to the Caterpillar maintenance manual for additional service checks and intervals.

Change the rear axle lubricant initially at 1,000 miles; lubricant change interval is yearly or every 100,000 miles thereafter.

Engine oil and filter change intervals:

250 Hp engine-every 10,000 miles

300 Hp engine-every 6,000 miles

330 Hp engine-every 5,000 miles

1. Daily Maintenance Checks
  - a. Water fuel Separator
  - b. Coolant level
  - c. Engine Oil Level
  - d. Transmission Fluid level
  - e. Brake fluid level
  - f. Tire Checks
  - g. Inspect chassis for leaks
  
2. Weekly Maintenance Checks
  - a. Hydraulic fluid level
  - b. Check Air cleaner filter minder; replace filter as required
  - c. Inspect drive belts for wear and tension
  - d. Inspect fuel, hydraulic, air conditioning, and coolant hoses
  - e. Check air intake system for damage
  - f. Check front axle hub lubrication level
  - g. Batteries
  - h. Lubricate radius rod (Blue Max only)
  
3. Every 6000 miles or 6 months
  - a. Torque wheel lug nuts

- b. Lubricate front axle king pins
  - c. Lubricate tie rods
  - d. Lubricate drag link
  - e. Lubricate drive shaft u-joints and slip shaft
  - f. Lubricate brake pedal arm
  - g. Lubricate steering shaft u-joints
  - h. Lubricate fan drive bearing
  - i. Clean engine and radiator ass'y of excess oil and dirt
  - j. Replace secondary fuel filter
  - k. Check engine coolant quality
  - l. Lubricate leaf spring suspension (Blue Streak only)
  - m. Check rear axle lubricant level
4. Every 12,000 miles or 12 months
- a. Replace primary fuel filter
  - b. Rotate tires
  - c. Inspect brake system
  - d. Lubricate caliper slides
  - e. Change rear axle lubricant if not done by mileage
5. Every 18,000 miles or 18 months
- a. Inspect fan and shroud for damage
  - b. Inspect exhaust system for damage
  - c. Inspect park brake system for damage/function
  - d. Inspect engine mounts and torque engine bolts
  - e. Change power steering fluid
6. Every 48,000 miles or 2 years
- a. Service cooling system
  - b. Inspect crankshaft vibration damper
7. Every 96,000 miles or 4 years
- a. Change rear axle lubricant (If not done yearly)

# MAINTENANCE INSTRUCTIONS

## DAILY MAINTENANCE CHECKS

### Water/Fuel Separator

Inspect the water/fuel separator for any evidence of water or contamination. If the water fuel separator appears to have water or other contaminants in it, drain the separator until only clear fuel is seen using the following instructions:

-Raycor system-run engine until it reaches operating temperature; stop engine. Place a cup below filter assembly drain valve and open drain valve. Operate priming pump on top of filter assembly and pump liquid into the cup until there is only clear fuel visible in the separator. Close drain valve and run engine for two to three minutes at half throttle to remove any air in the fuel system.

-Winn system-visually inspect the pre-filter for excessive amounts of fuel contaminants. If excess amounts of water has accumulated in the water separator, the "H2O" light on the control panel will illuminate. If the light is illuminated, press the "H2O purge" button on the control panel, and the water will be expelled from the system (ensure that the re-usable Winn reservoir or other suitable container is in place at the water discharge tube).

Coolant level-Check surge tank coolant level with the engine cool. Do not attempt to remove surge tank cap with engine hot! The surge tank should be 1/2 to 3/4 full. When adding coolant, refer to the to the specification chart for proper mixture and additives.

Engine oil level-Park the vehicle on a level surface with the engine off. The oil level should be between the ADD and FULL marks of the dipstick. Do not overfill the engine. Refer to the Caterpillar operation and maintenance manual for the proper oil to add to the engine.

Transmission fluid level-Park the vehicle on a level surface with the transmission temperature above 140 degrees. With the engine running and the transmission in neutral, simultaneously depress both the up and down arrows on the transmission shifter. The shifter display may count down to let the fluid level settle, and then the number of quarts of fluid that the transmission is off will be displayed ( HI 2 denotes that the level is 2 quarts high; LO 2 denotes the level is low 2 quarts; OK denotes that the level is correct). Refer to the specification chart for the proper fluid to use.

Brake reservoir fluid level-Visually check the brake reservoir to ensure that it is full. The level should be 1/8" from the top of the reservoir. If necessary to add fluid, first clean the reservoir cap before removing to avoid contaminating the fluid in the reservoir. Refer to the specification chart for recommended brake fluid. It is normal for the level to slowly

lower as the brake pads wear. Any sudden fluid loss may indicate a brake leak or other malfunction with the braking system; have system serviced immediately if this occurs.

Tire checks-Check tire pressure with a tire pressure gauge with the tires “cold”. Refer to the tire charts for the proper inflation of the tires according to the weight of the vehicle. Inspect the tires for any foreign objects imbedded in the tread or sidewall, unusual tire wear, or other damage to the tire and wheel. If any unusual conditions exist, have it examined by a professional.

Inspect chassis for leaks-Examine the ground underneath the front and rear of the vehicle for evidence of any fluid, oil or coolant leaks. Leaks resulting in a steady drip or puddling of fluids should be serviced as soon as possible to prevent damage to the chassis or other components. No corrective action is necessary for leaks which are “seeping” and do not form drops, but they should be watched closely to ensure that they do not intensify.

## **WEEKLY MAINTENANCE CHECKS**

Hydraulic fluid level-Check fluid level with the engine off and park brake on. Maintain fluid level between the ADD and FULL marks on the reservoir. Refer to the specification chart for recommended fluids.

Air cleaner filter minder-Visually check the air restriction gauge on the service center. If the yellow indicator enters the red area of the indicator, replace the air cleaner element.

Inspect drive belts-Examine the drive belts for unusual wear or damage. Replace any belts which show wear or damage. Refer to the Caterpillar operation and Maintenance manual for instructions and specifications regarding proper drive belt tension.

Inspect chassis hoses-Inspect all hoses, fittings and clamps for unusual wear or damage, leaks, and abrasions. Repair, replace, or protect components as needed.

Air intake system-Visually inspect the air intake system for any loose clamps and connections, or worn components. Check to ensure that ducting is not rubbing or wearing on other components. Gaps, voids, and holes in the air intake system will result in premature engine wear due to contaminants being introduced into the engine.

Front axle lubrication level-If wheels are equipped with stainless steel wheel liners, remove the center hub cover from the front wheels, and visually check the fluid level of the hub. Maintain fluid level at the OIL LEVEL line. Refer to the specification chart for recommended fluids.

Batteries-Clean any dirt or other contaminants from the batteries. Inspect the battery terminals for any signs of corrosion, and check all connections and cable ends for looseness or damage. Clean, replace or repair any components which show signs of

corrosion or other damage. Tighten any loose connections. After servicing, protect terminals and connections with petroleum jelly to help prevent corrosion.

## **6000 MILES OR 6 MONTHS**

Change engine oil and filter-Refer to the Caterpillar operation and maintenance manual for instructions and oil recommendations concerning engine oil and filter change.

Torque wheel lug nuts-Check wheel lug nut torque; lug nuts should be torqued to 475 lb-ft. It is recommended to have this procedure performed by professionals with the proper tools. Check wheel lug nut torque at 50 miles and 500 miles after a wheel is removed or lug nuts loosened for other reasons.

Lubricate front axle king pins until new grease can be seen flowing from shim pack area. See lubrication chart for lubrication points and specification chart for recommended lubricants.

Lubricate tie rod ends until fresh grease is seen flowing from grease boots. See lubrication chart for lubrication points and specification chart for recommended lubricants.

Lubricate drag link until fresh grease is seen flowing from grease boots. See lubrication chart for lubrication points and specification chart for recommended lubricants.

Lubricate driveshaft u-joints and slip shaft. Lubricate u-joints until fresh grease can be seen flowing from all four bearing seals. Lubricate slip shaft until fresh grease can be seen flowing from the relief hole at the end of the plug by the u-joint. Cover the hole with a finger and continue to lubricate until fresh grease flows from the sleeve yoke seal. See the lubrication chart for lubrication points and specification chart for recommended lubricants.

Lubricate brake pedal arm until fresh grease flows from pivot. See lubrication chart for lubrication points and specification chart for recommended lubricants.

Lubricate steering shaft u-joints until fresh grease is seen flowing from all four bearing seals. Lubricate slip shaft until grease flows from slip shaft.

Lubricate the engine fan drive bearing. Refer to the Caterpillar operation and maintenance manual for instruction and location.

Clean the engine and radiator assembly of accumulated oil, grease, and debris. Steam clean any build-up to aid in the detection of leaks, decrease fire hazard, and promote efficient engine cooling.

Replace final fuel filter located on the chassis service center. Refer to the Caterpillar operation and maintenance manual and the section on priming the fuel system in this book.

Check engine coolant quality to ensure the proper mixture of coolant and inhibitors. Refer to the Caterpillar operation and maintenance manual for information on how to check the quality of your coolant.

Lubricate leaf spring suspension pins if equipped. See applicable lubrication chart for lubrication points. Lubricate until new grease can be seen flowing from each side of the spring or spring shackle. It may be necessary to lubricate with the axle suspended in order to obtain even grease distribution across the spring pin. Refer to the specification chart for recommended lubricants.

Check the rear axle lubricant level. Lubricant level should be maintained at the bottom of the fill hole plug. See specification chart for recommended lubricants.

### **12,000 miles or 12 months**

Replace primary fuel filter located on the chassis service center.

-Racor system-Loosen the vent valve and drain plug to drain the element and bowl. Remove the element and bowl from the filter head and separate the element and bowl. Clean the bowl and lubricate the new seals with clean fuel. Install the bowl and new element onto the filter head firmly by hand. With vent valve open, operate pump until fuel purges from vent. Close vent valve. Start engine and operate for two to three minutes at half throttle to remove any air from the fuel system while checking for leaks. Correct any leaks with engine off.

-Winn system-Disconnect power to filter assembly by removing the fuse. Unplug the waterproof connector for the water sensor wire on the filter and remove the Schrader valve cap. Disconnect the fuel discharge line at the bottom of the filter. Hold a suitable container under the filter and depress the Schrader valve to drain the fuel from the filter. Turn the filter counter-clockwise to remove it. Clean the filter head with clean fuel and replace the spud gasket after lubricating it with clean fuel. Install the new filter element by turning it clockwise until it is hand-tight. Re-connect the water sensor wire, discharge line, and re-install the fuse. Depress the Schrader valve and activate the pump by pressing and releasing the "Air Purge" button on the filter control panel. Release the Schrader valve when fuel begins to purge from the valve. While checking for leaks, start the engine and run it at half throttle for two to three minutes to remove any air from the fuel system. Correct any leaks as required with engine off. Re-install the valve cap on the Schrader valve.

Rotate the tires to help extend the life of the tire tread. Rotate the tires by installing the front tires in the inner dual position; the inner dual tires to the outer dual position; and the outer dual tires to the front.

Have the brake system inspected by a professional for brake pad wear, leaks, rotor condition, and any unusual or extreme conditions. Service, repair or replace as required.

Lubricate the brake caliper slides during inspection or service. Improper or lack of lubrication may cause the brake pads to drag on the rotors after the brake is released resulting in premature wear of brake components.

Change the rear axle lubricant if not done at 100,000 miles. Clean magnetic fill and drain plugs of metallic particles; clean or replace the axle breather. Drain axle housing completely and refill with approved lubricant until level with the bottom of the fill hole. See the specification chart for approved lubricants.

### **18,000 miles or 18 months**

Inspect the engine cooling fan and shroud for damage and looseness. Ensure all fasteners and mounting hardware is tight, check for broken fan blades, voids in the engine shroud, and damage to the radiator core. Check the fan drive bearing for excessive play. Refer to the Caterpillar operation and maintenance manual for specifications on acceptable fan drive bearing play.

Visually inspect the entire exhaust system for damage and leaks. Look for large dents, holes, excessive corrosion, and looseness. The presence of black soot may indicate an exhaust leak. Have the system evaluated by a professional if any of these conditions exist.

Visually inspect the park brake system for loose fasteners and worn components. To perform a function check of the park brake, park the vehicle on a level surface with no obstructions within 50 feet of the front of the vehicle. Check to ensure that nobody is in front or underneath the vehicle in case of sudden movement of the vehicle. Abort the procedure and stop the vehicle if at any time the vehicle begins to move. Do not exceed 1,200 RPM during this test as damage to the park brake system and sudden vehicle movement could result. With the park brake set, and foot on the service brake, place the transmission into drive. Slowly release the service brake; While watching the tachometer, gradually depress the accelerator until the tachometer reaches 1,200 RPM. Release the accelerator at this point, and place the transmission in neutral. If the vehicle moved during the test, have the park brake system serviced or repaired as soon as possible.

Inspect the engine mounts for damage and looseness. Check the torque of the engine mounting bolts.

Change the power steering fluid. Drain the reservoir completely, and refill with approved fluid. See the specification chart for recommended fluids.



**48,000 miles or 2 years**

Service the cooling system. See the Caterpillar operation and maintenance manual for servicing guidelines and information.

Inspect the crankshaft vibration damper. Refer to the Caterpillar operation and maintenance manual for proper procedures.

## CAPACITIES

<b>ENGINE CRANKCASE</b>	WITH FILTER	33 QUARTS
	WITHOUT FILTER	32 QUARTS
<b>ENGINE COOLANT CAPACITY</b>		7.5 GALLONS
<b>REAR AXLE</b>	Eaton 19060S, Blue Streak	28 PINTS
	Rockwell RS19145, Blue Max	33 PINTS
<b>TRANSMISSION @ OIL CHANGE</b>		19 QUARTS

## LUBRICATION AND FLUID SPECIFICATIONS

* FUEL	No. 2-D diesel fuel and No.2 fuel oil. No. 1 fuel oil is acceptable for cold weather operation.
* ENGINE COOLANT	Mixture of 50% antifreeze meeting ASTM D4985-89 requirements and 50% distilled or de-ionized water. Supplemental coolant additive to maintain 3 to 6% concentration.
* ENGINE OIL	SAE 15W40 oil meeting API specifications CG-4, CG-4/SH, CF-4, CF-4/SF, or CF-4/SG. Operation below +5 degrees F may require different viscosity.
* TRANSMISSION FLUID	Dexron II or Dexron IIE fluids.
BRAKE FLUID	DOT 3 Brake fluid only.
HYDRAULIC FLUID	Dexron II fluid.
FRONT AXLE HUB LUBRICANT	EP-SAE 90 gear oil or equivalent.
CHASSIS GREASE	Multi-purpose grease containing 3 to 5% molybdenum.
REAR AXLE LUBRICANT	SAE 85W-140 gear oil which meets or exceeds MIL-L-2105D.
BRAKE CALIPER RAILS	Silicone lube grease.

\* Refer to the Caterpillar Operation and Maintenance Manual for more information.

\*° Refer to the Allison Transmission Operator's Manual for more information.

**CHASSIS FILTERS AND BELTS FOR CATERPILLAR 3126 (98 Model year)**

ENGINE OIL FILTER	CATERPILLAR 1R0739		
TRANSMISSION FILTER	ALLISON 29506377		
ENGINE AIR CLEANER	FARR 998-42-009	NAPA 6857	WICKS 46857
MAIN DRIVE BELT		NAPA 25-080700	
WATER PUMP BELT	CATERPILLAR 720244	NAPA 25-08755	
PRIMARY FUEL FILTER:			
RACOR	RACOR R90T		
WINN	WINN 200200		
SECONDARY FUEL FILTER	CATERPILLAR 1R0751		

**CHASSIS FILTERS AND BELTS (Magnum chassis with Cummins engine; prior to 1996 Model year)**

	<b>6BTA5.9L 230HP</b>	<b>6CTA8.3L 250HP</b>	<b>6CTA8.3L 300HP</b>
<b>ENGINE OIL FILTER</b>	FLEETGUARD LF 3349	FLEETGUARD LF 3000	FLEETGUARD LF 3000
	NAPA 1607	NAPA 1748	NAPA 1748
<b>ENGINE MOUNTED FUEL FILTER</b>	FLEETGUARD FS 1251	FLEETGUARD FS 1251	FLEETGUARD FS 1251
	NAPA 3472	NAPA 3472	NAPA 3472
<b>ENGINE COOLANT FILTER</b>	N/A	FLEETGUARD WF 2071	FLEETGUARD WF 2071
		NAPA 4071	NAPA 4071
<b>MAIN DRIVE BELT</b>	DAYCO 20-8688	DAYCO 20-2693	DAYCO 20-2693
	NAPA 25080605	NAPA 2571575	NAPA 2571575
<b>AIR CLEANER</b>	FARR 99842-009B	FARR 99842-009B	FARR 99842-009B
	NAPA 6857	NAPA 6857	NAPA 6857
	WIX 46857	WIX 46857	WIX 46857
<b>A/C COMPRESSOR BELT</b>	GATES 9430	GATES 9476	GATES 9476
	DAYCO 17430 GL	DAYCO 17475GLCU	DAYCO 17475GLCU
<b>RACOR FUEL FILTER</b>	RACOR S3201	RACOR S3201	RACOR S3201
	FLEETGUARD FS1242-B	FLEETGUARD FS1242-B	FLEETGUARD FS1242-B
<b>WINN FUEL FILTER</b>	WINN 200200	WINN 200200	WINN 200200

# TIRE CHARTS

## GOODYEAR TIRES

TIRE SIZE- 9R22.5

TIRE MODEL- G159

PSI	60	65	70	75	80	85	90	95	100	105
DUAL	2960	3120	3270	3410	3550	3690	3820	3950		
SINGLE	3010	3190	3370	3560	3730	3890	4050	4210	4350	4500

TIRE SIZE-265/75R 22.5

TIRE MODEL-G159

PSI	75	80	85	90	95	100	105	110
DUAL	4040	4205	4370	4525	4685	4805		
SINGLE	4070	4255	4440	4620	4800	4975	5150	5205

TIRE SIZE-275/70R 22.5

TIRE MODEL-G159

PSI	85	90	95	100	105	110	115	120	125
DUAL	4535	4750	4960	5165	5370	5575	5775	5975	6175
SINGLE	4885	5080	5305	5530	5750	5965	6185	6400	6610

## TOYO TIRES

TIRE SIZE- 255/70R22.5

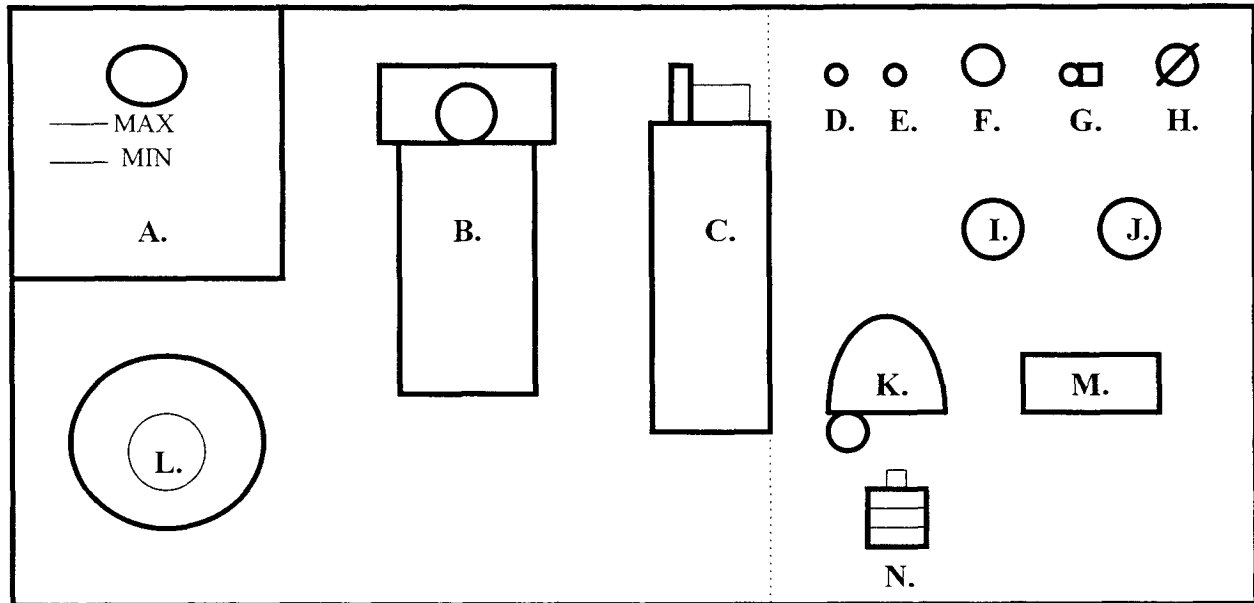
TIRE MODEL- M120Z

PSI	70	75	80	85	90	95	100	105	110	115
DUAL	3195	3415	3640	3860	4080	4190	4410	4540	4805	5070
SINGLE	3525	3750	3970	4190	4410	4540	4805	4940	5205	5510

**PSI - POUNDS PER SQUARE INCH (COLD PRESSURE)**

Dual and single weights are the actual weight carried by each tire. Weigh the axle and divide the weight by the number of tires on that axle to determine the weight carried by the tire.

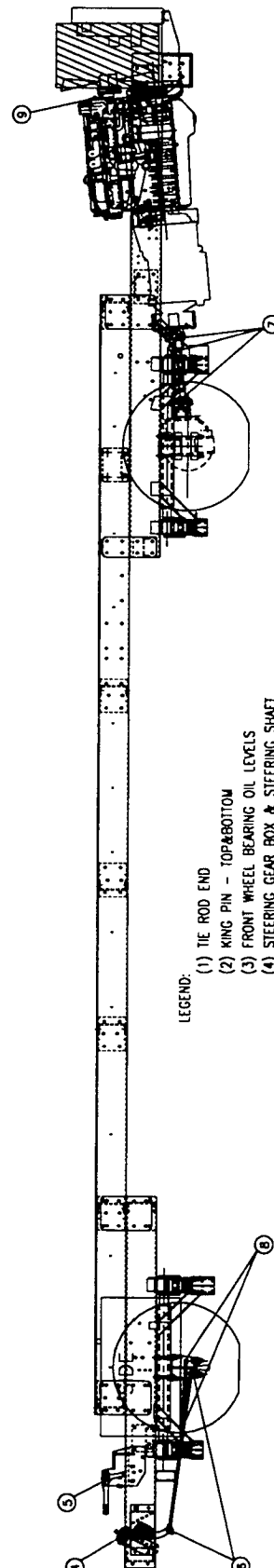
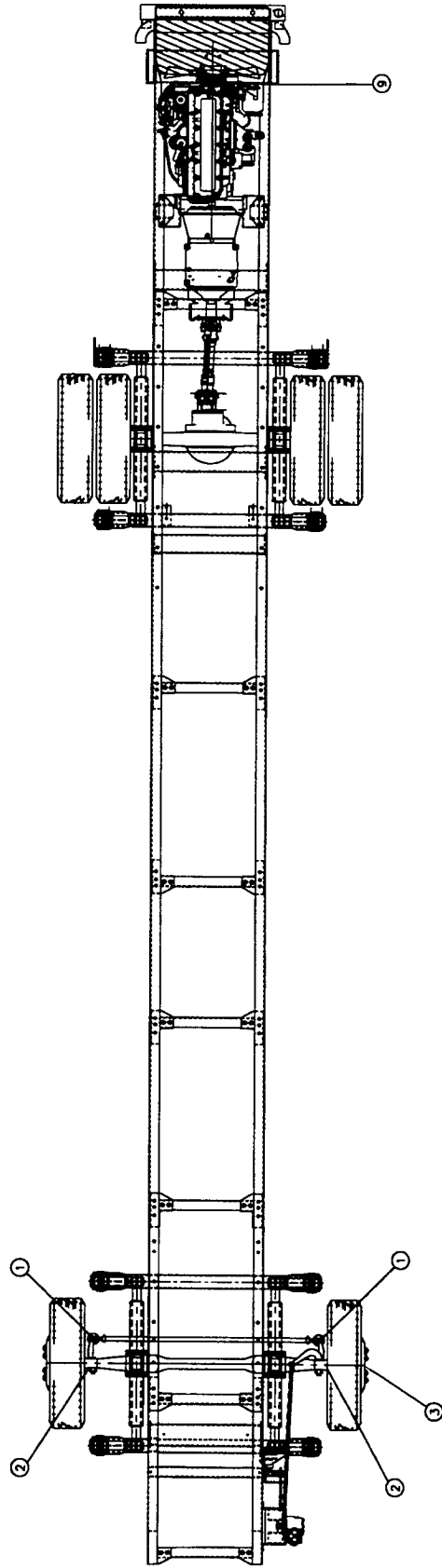
**EXAMPLE:** A vehicle with 255/70R22.5 tires has a front axle weight of 9,080 pounds and a rear axle weight of 16,320 pounds. The weight carried by each of the front tires would be half of the axle weight, or 4,540 pounds. Looking at the chart, the proper inflation pressure would be 95 psi. The rear axle weight is distributed on two sets of duals, or four tires. Dividing the rear axle weight by 4 results in a tire weight of 4,080 pounds, so the inflation pressure should be 90 psi.



**TYPICAL CHASSIS SERVICE CENTER.** Components may vary depending on options and chassis model.

- A. Hydraulic fluid reservoir (Power steering)
- B. Primary fuel filter (Water/fuel separator) with fuel primer
- C. Secondary fuel filter
- D. Engine start button
- E. Engine stop button
- F. Engine diagnostic plug
- G. Engine oil dipstick
- H. Transmission fluid dipstick and transmission fill
- I. Engine oil pressure gauge
- J. Engine coolant temperature gauge
- K. Retractable trouble light
- L. Paper towels
- M. Leveling system control pad and warning lights
- N. Air filter restriction indicator

# CHASSIS LUBRICATION POINTS ( BLUE MAX )



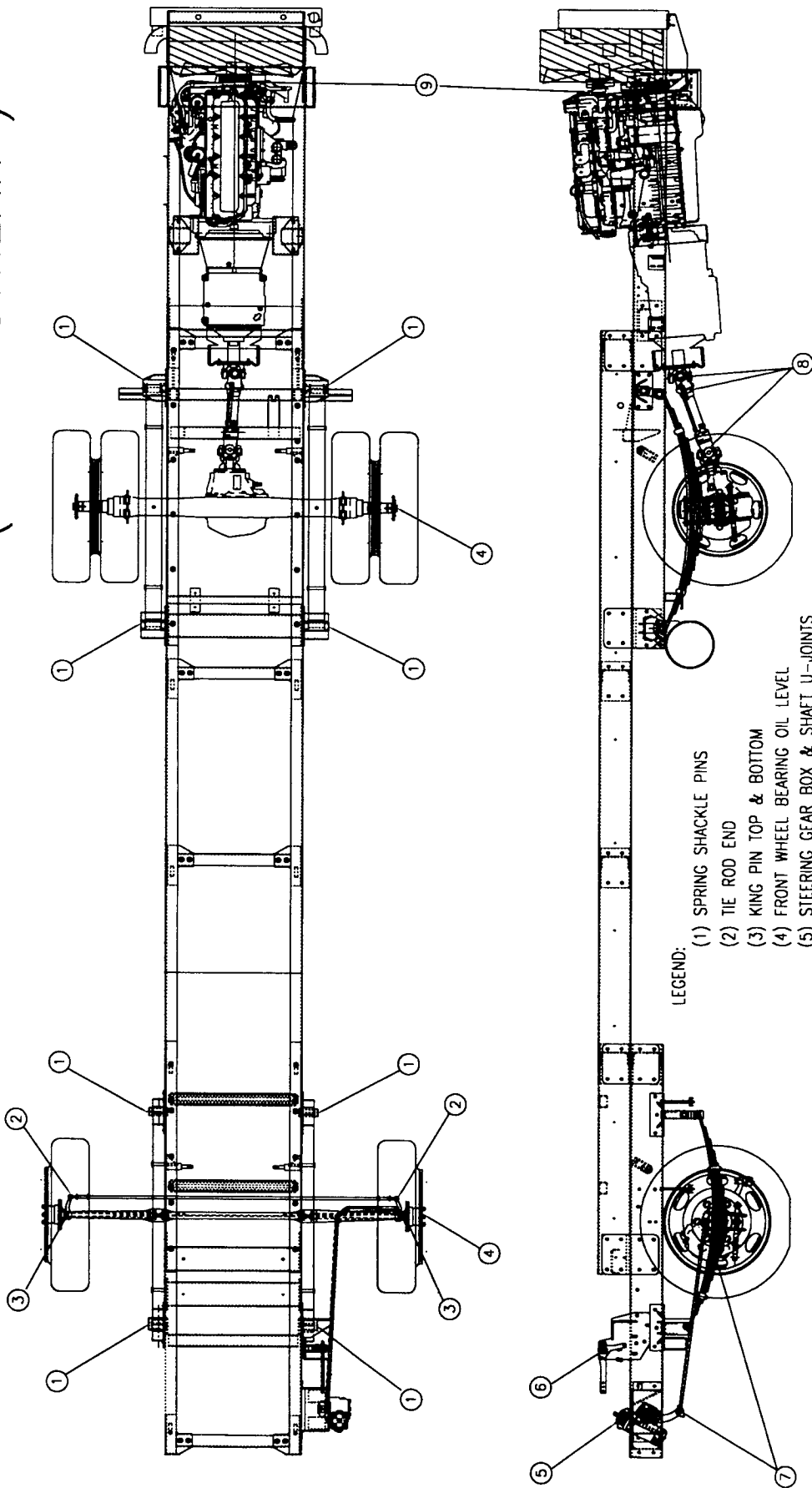
- LEGEND:
- (1) TIE ROD END
  - (2) KING PIN - TOP/BOTTOM
  - (3) FRONT WHEEL BEARING OIL LEVELS
  - (4) STEERING GEAR BOX & STEERING SHAFT
  - (5) BRAKE ARM
  - (6) STEERING DRAG LINK
  - (7) DRIVE LINE U-JOINTS & SLIP JOINT
  - (8) FRONT RADIUS ROD
  - (9) FAN DRIVE BEARING

ALIGN SPEC. CASTER 4 deg. POS.  
CAMBER 1/8 deg. POS.  
TOE IN 1/8" IN

NOTE:  
1. ALL DIMENSIONS ARE IN INCHES  
UNLESS OTHERWISE NOTED.  
2. BREAK ALL SHARP EDGES.

MAGNUM MANUFACTURING, DRY CREEK, CALIF. WWW.MAGNUMMFG.COM	
CHASSIS LUBRICATION POINTS ( BLUE MAX )	
DATE: 7/18/11	REV: 1
DESIGNED BY: [REDACTED]	APPROVED BY: [REDACTED]
DRAWN BY: [REDACTED]	DATE: 8/12/11
DO NOT SCALE DIMENSIONS	ALL DIMENSIONS ARE IN INCHES
LUBE - VRS DIA.	

# CHASSIS LUBRICATION POINTS ( BLUE STREAK )



- LEGEND:
- (1) SPRING SHACKLE PINS
  - (2) TIE ROD END
  - (3) KING PIN TOP & BOTTOM
  - (4) FRONT WHEEL BEARING OIL LEVEL
  - (5) STEERING GEAR BOX & SHAFT U-JOINTS
  - (6) BRAKE ARM
  - (7) STEERING DRAG LINK
  - (8) DRIVE LINE SLIP JOINT & U-JOINTS
  - (9) FAN DRIVE BEARING

ALIGN SPEC    CASTER 3 deg POS  
 CAMBER 1/8 deg POS  
 TOE IN 1/8" IN

NOTES:  
 1. ALL DIMENSIONS ARE IN INCHES  
 UNLESS OTHERWISE NOTED.  
 2. BREAK ALL SHARP EDGES.

MAGNUM MANUFACTURING DIV. OF INDEPENDENT MOTOR CORP.	
CHASSIS LUBRICATION POINTS ( BLUE STREAK )	
REV. 1-17	DATE 8/15/54
DESIGNED BY	HECKLER
DRAWN BY	3/77
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.	
SCALE	1" = 1'-0"
APP. BY	
CHECKED BY	
DATE	
BY	D

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