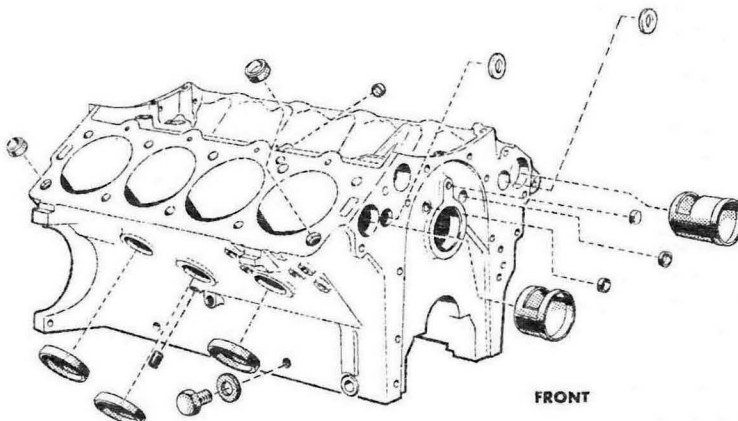
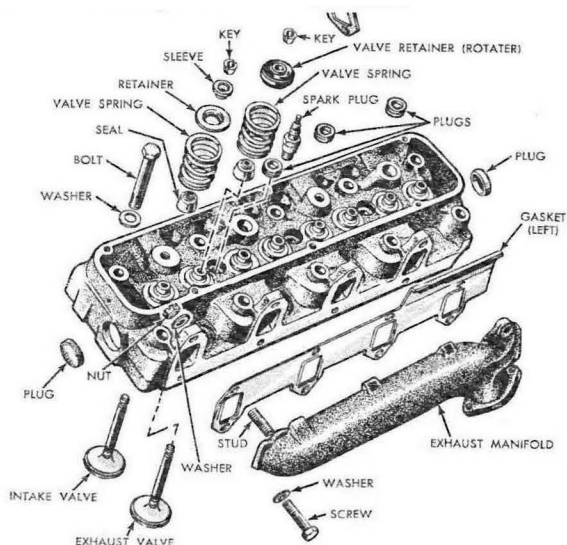
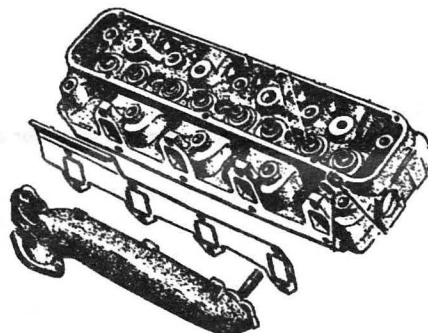


KEEP THAT MOTOR RUNNING

I am sorry to say that I heard of two more Lincoln engines dying prematurely this past year due to tired timing chain and gear sets. I am also happy to know many more of you who have saved your engines prior to the big bang. For those of you who have not been paying attention: Over the past several years I have been warning Lincoln owners of potential problems with the nylon tooth cam gear. In short, the problem is not that the chain and gears wear out (though you will often find this to be true). The problem is what happens with the shards of nylon that break off of the original cam gear. These pieces find their way into the oil pan, get sucked into the oil pump pickup screen and starve the engine for oil, or jamb the pump and shear the oil pump driveshaft. Either way, you're in trouble quickly. Do not be lulled into a false sense of security with a low mileage car, the original cam gear becomes **brittle with age, not mileage**.

TECH TIP: Lincolns are notorious for exhaust manifold leaks, especially on the passenger's side. Most often this will manifest itself as a slight ticking sound, especially when the engine is cold (don't confuse this with a simple loose spark plug). Look for telltale signs of soot or burning. If you have a small leak, do not ignore it for too long. A prudent repair will avoid the extra labor and expense of removing the head to resurface an area that is eroded by the leaking exhaust gas. We have new replacement passenger's side, made even stronger than factory, for \$345 each including gasket.



Tech Tip: Many owners are allowing their Lincolns to experience long periods of storage. If not properly stabilized, gasoline will break down in a relatively short period of time. Attempting to start and run the car on any old fuel is a bad idea, often leading to carburetion problems, sticking valves, and bent pushrods. Individually these problems would rarely require a major engine overhaul, but can be easily avoided by simply not attempting to run on any old fuel. If you have any doubt about the quality or age of the fuel in your Lincoln, drain the carburetor, fuel lines and the tank and start with only fresh fuel (do not simply try to add fresh fuel to a half full tank, the old fuel does not readily mix). Save the old gas for your lawnmower!

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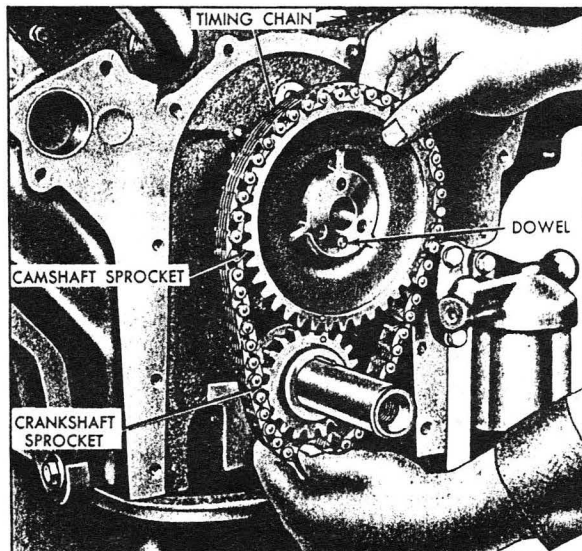
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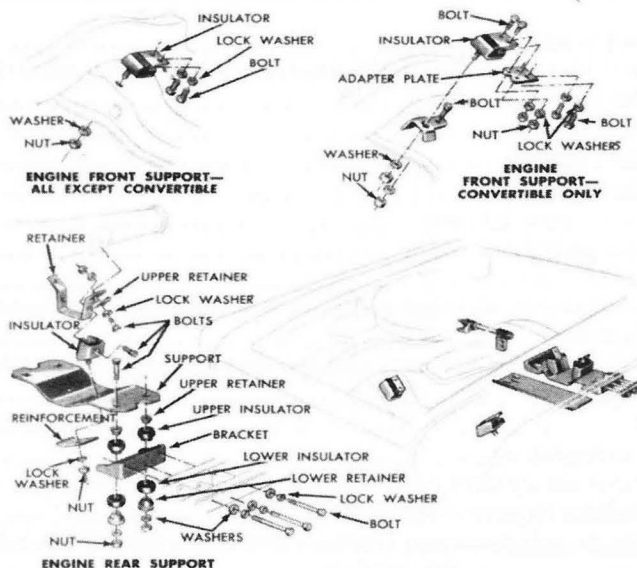
ENGINE

From the factory the 430,462 cam timing gear is combination steel gear with nylon teeth. Over time the nylon teeth become brittle, break apart, and fall into the oil pan. Some of these nylon pieces find their way into the oil pump pickup causing the pump to seize and the pump driveshaft to twist and break. Your car now has no oil pressure *but the engine will continue to run*. Unless your gauges are working properly and you are constantly monitoring them, you may not notice until it's too late. Our timing chain and solid steel gear set is \$129.95. A bargain compared to an engine rebuild.

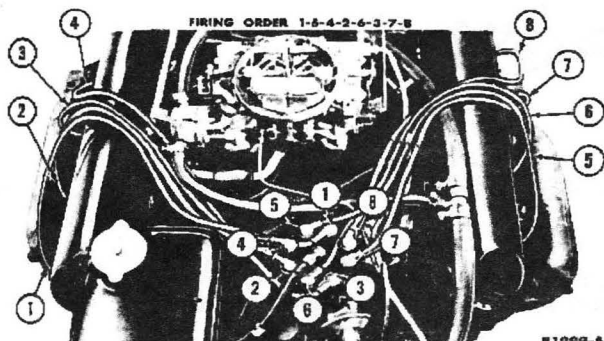
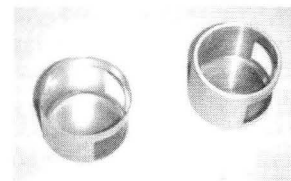
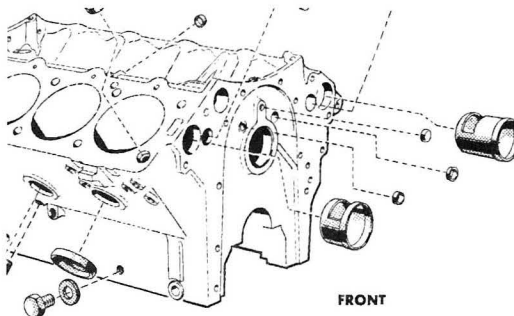
NOTE: The nylon teeth become brittle with age, not mileage. Consider changing the set even if your car has low miles.



Tech Tip: Here is a picture of the proper installation of the various engine and transmission mounts. Pay particular attention to the 61-67 convertible motor mount adapter plates. If assembled incorrectly you will be left wondering why the fan is hitting the shroud, the air cleaner is hitting the hood and the hoses won't line up. (This is one of hundreds of pictures and diagrams in the original manuals which we offer starting on page 9, they are worth the investment!)



Tech Tip: Engine Block Water Diverters are necessary to send cooling water up into the heads. The original diverters (see picture) were thin mild steel and quickly disintegrate. We machine our diverters from a solid piece of brass, with thicker walls for that over-built, last-forever fix. Nobody wants to rebuild an engine twice for the sake of neglecting this \$95 component.



Here is a small bit a trivia that you can enjoy for practicality and authenticity. As you can see from the picture, the spark plug wires do not clip onto the left-hand valve cover in proper order. Because cylinders number 7 and 8 follow each other in the firing order, the engineers did not want the wires mounted close enough to allow the voltage to jump across. So #7 wire is mounted at the front of the clip and #8 is mounted at the rear.

Tech Tip: Here is a tip mentioned in years past but if recent calls are any indication, it bears repeating:

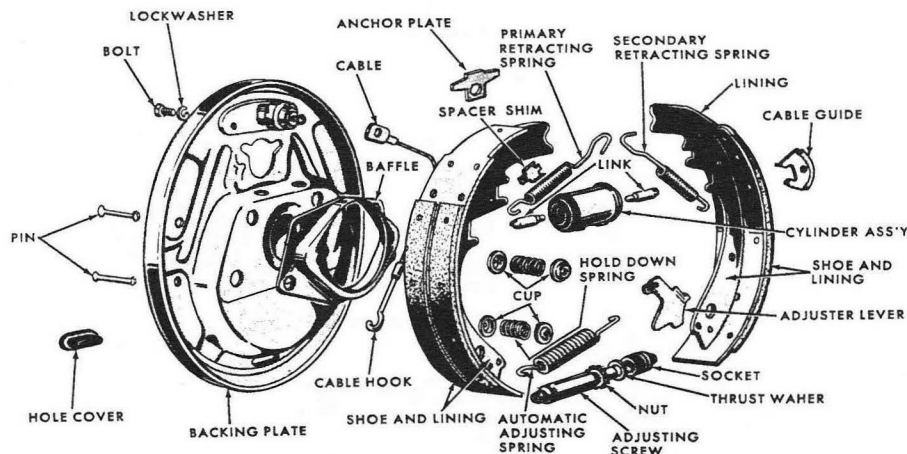
1961-69 Lincoln brake drums are not standard 11 inch brake drums!

In fact, they are unique and have a maximum turning diameter different than standard drums. Don't allow your mechanic to throw away perfectly good drums *and* no one can tell they are bad just by looking (have them measured with the proper tool). Here are the dimensions you should commit to memory (or save this catalog forever!):

1961-1962 brake drums can be turned to a maximum diameter of 11.122 inches.

1963-1969 brake drums can be turned to a maximum diameter of 11.150 inches.

And, in case you were wondering: **1965-1969 front brake rotors can be turned to a minimum thickness of 1.150 inches.**

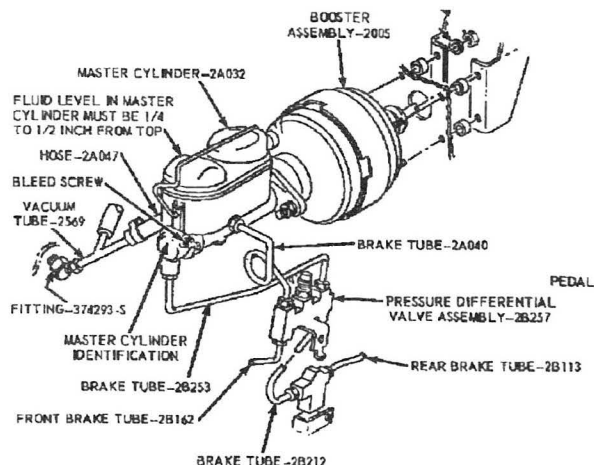


Tech Tip: For some odd reason, we are seeing a fair number of 60's Lincolns with missing automatic brake adjusting hardware. For the most part, these components rarely fail and I can only guess that a brake shop is trying to save time by not re-installing these parts. Without this hardware, you will need to constantly adjust your brakes manually (a pain), or run the risk of wearing some shoes and drums prematurely. Worse yet, you may not be stopping with all 4 wheels. Insist that your mechanic re-use these original components when performing brake work, or install them if they are missing.

While you are in this neighborhood, make sure that your mechanic thoroughly cleans the brake backing plate and fills any divots left by the shoe wearing in the same place for 40 years. Yes, I know this takes a bit more time but I think you would agree that this is not an area of the car that you should be taking shortcuts.

TECH TIP: If you find yourself with brakes that refuse to release and appear to drag, here are a couple of suggestions. Check your drum brake backing plates and disc brake calipers. After 30 years of rubbing in the same area, the brake shoes and pads have worn small divots into the steel and are getting stuck. The solution is to fill the divots with weld and grind them smooth. If this does not allow the brakes to release, you may find a brake hose that collapsed internally, acting as a check valve. Strange but true, I have seen it twice.

ANOTHER BRAKE TECH TIP (BECAUSE BRAKES ARE SO DARN IMPORTANT): Beware of rust and sediment in your master cylinder and lines. 65 and newer cars utilize sensitive metering and proportioning valves that will become plugged if there is any contaminant in the fluid. (Yet another good reason why this system should be flushed on a regular basis) **NOTE:** When bleeding the system, use care when pumping the brake pedal. Sometimes slow and deliberate actuation of the pedal will clear air from the system more effectively than quick, jerky pumps.



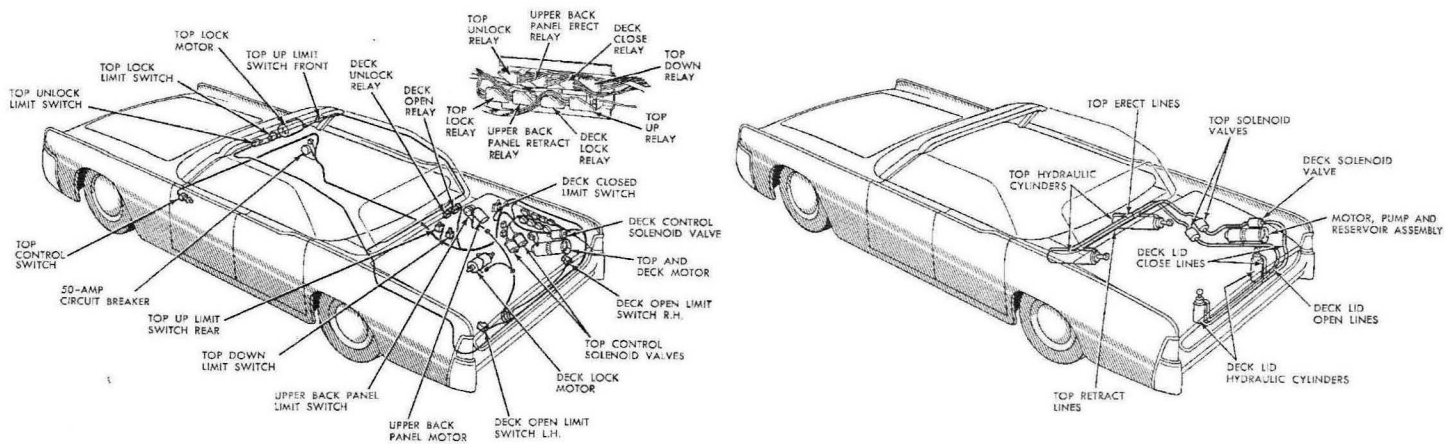
TECH TIP: If your master cylinder reservoir is constantly low on fluid, yet no leaks are evident outside the car, you may be seeping fluid out of the back of the master into the brake booster. To check this, simply remove the two bolts that attach the master cylinder to the booster (you do not need to disconnect the brake lines from the master cylinder), pull the master forward and wipe your finger around the back. If it comes away wet, you have found the problem. **NOTE:** Overzealous bench bleeding can cause this. When bench bleeding the master cylinder, make sure that you actuate the piston only a short distance. If you attempt to bottom the piston within the master cylinder bore, you will dislodge the internal seal.

Diagram illustrating the components of a wheel cylinder assembly, showing the exploded view of the main body and the shoe and lining assembly.

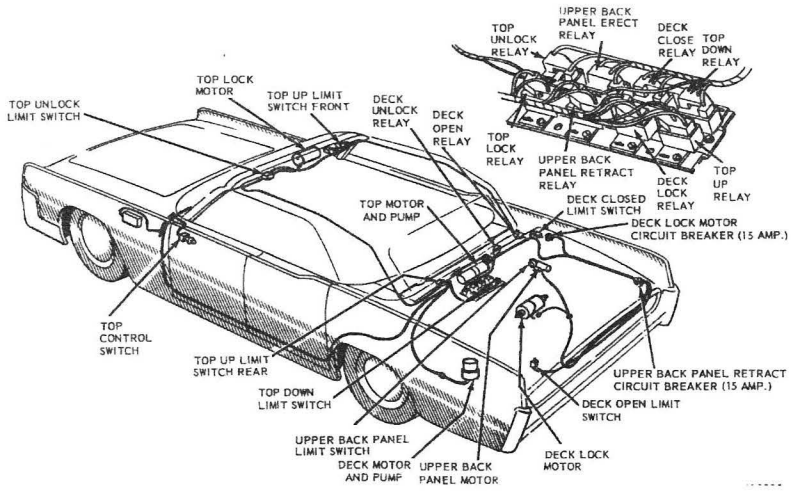
Labels:

- BOLT
- LOCKWASHER
- ANCHOR PLATE
- CABLE
- SPACER SHIM
- PRIMARY RETRACTING SPRING
- SECONDARY RETRACTING SPRING
- LINK
- CYLINDER ASS'Y
- SHOE AND LINING
- ADJUSTER LEVER
- SOCKET
- THRUST WASHER
- NUT
- ADJUSTING SCREW
- AUTOMATIC ADJUSTING SPRING
- CUP
- HOLD DOWN SPRING
- SHOE AND LINING
- CABLE HOOK
- BACKING PLATE
- HOLE COVER
- PIN
- BAFFLE
- CABLE GUIDE
- SHOE AND LINING

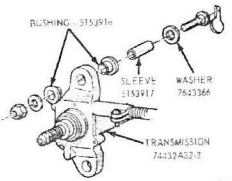
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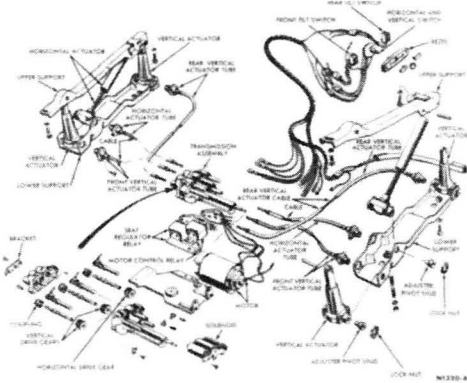
Tech Tip: A convertible is not much fun if the top doesn't go down (and not much fun when it won't go up in the rain either). The top and deck hydraulic system of 61-63 Lincoln originally used brake fluid; 64-67 used transmission fluid. Because of this inconsistency it is not uncommon to find that someone has added the wrong fluid somewhere in the past 40 years. I have also seen the addition of silicone brake fluid and hydraulic oil. Couple this with the fact that brake fluid absorbs moisture and you could have a fluid system with the consistency of Jell-o. If such is the case, I suggest removing all cylinders, hoses, and pump to completely purge the system of contaminated fluid. Once completely emptied, I suggest filling the system with transmission fluid. I have found it to be the best fluid for the system, the most convenient, and inexpensive. Besides, you now have the same fluid in three different systems: convertible top, transmission and steering (you do remember that your Lincoln requires transmission fluid in the steering system don't you?).



Here is a tech tip for all 61-67 Convertible owners: Located in each corner of the trunk lid are two turn screws that lock the trunk lid to the body of the car. Over time they can eventually wear to the point that the turning portion will separate from its housing. This will leave you in a difficult position of being unable to open the deck lid (if this happens, contact me for the steps you need to emergency open the deck). In the meantime, you should check to see if this failure is imminent simply by inspecting the turn screws for play. More specifically, you are trying to determine if the threaded portion can be pulled away from the trunk. Simply grab it with your hand and see if it is tight. If you can feel play of 1/8 of an inch or more, you should consider replacing the unit before it fails.



Tech Tip: In your Lincoln, every electrical component has a plug. **You do not need to cut a wire or plug to remove anything electrical from your car!** I have seen an alarming number of motors and limit switches that have been removed by cutting the wires. You (or your mechanic) are creating more work when it comes to reattaching these parts, not to mention contributing to potential future failures from loose or corroded connections. **The plug may be located 10 inches away or hidden behind something else but I promise it exists.**



Tech Tip: There aren't too many items that the average mechanical person can do to repair a failing transmission. However, one of the simple possibilities is bad transmission fluid (if it smells burnt and looks brown instead of bright red, try changing the fluid and cleaning/replacing the filter for better results). Another external item worth checking is the vacuum operated modulator valve. If you do not have a good vacuum signal, the transmission will shift very late, if at all (a likely problem if other vacuum accessories are not working, indicating a vacuum leak). Also check that the vacuum line going to the valve is not filled with trans fluid indicating that the modulator valve is leaking internally. Most other problems are best left to a transmission specialist.

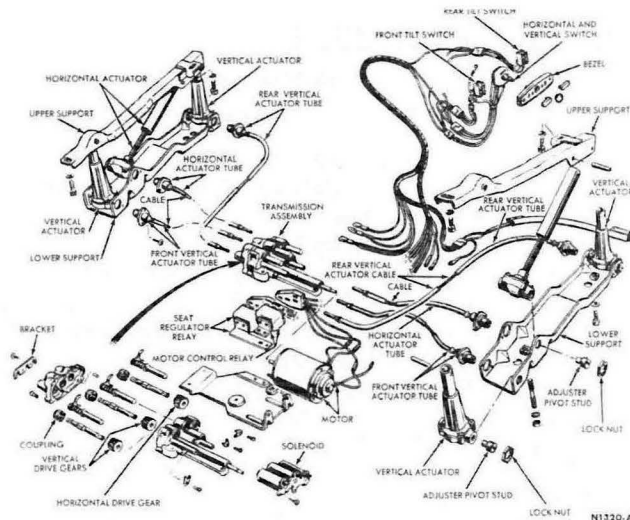
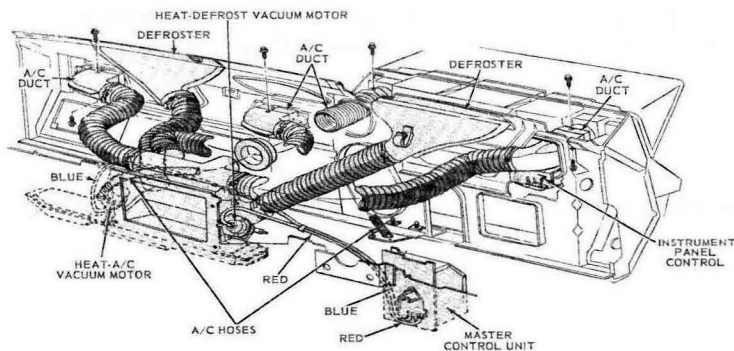
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POOR AIM

61-68 washer fluid nozzles sit in the center cowl and consist of a small chrome half-ball with a threaded screw to adjust the water's aim onto the windshield. When reviving a washer system that has been inactive, it is likely that the nozzle has become clogged with crud. Feel free to disassemble the unit and poke the small orifice with a pin. When installing the nozzle, the adjusting screw should be facing the driver's side of the car. The water flow should hit the windshield about 1/3 rd of the way from the top (airflow underway drives the water into the center of the windshield). It important that the screw is snug in the nozzle or this adjustment will not keep. If necessary you may rotate the nozzle 180 degrees (screw facing passenger) to obtain a snug fit.



Tech Tip: Brake light failures in 1966-67 Lincolns can often be attributed to a loose or melted connection within the turn signal switch. There are a total of six brake light bulbs which draw a fair amount of power. Since the sockets that hold these bulbs often become loose and corroded, the problem is compounded. At least testing the turn signal switch is a simple job. Towards the bottom of the steering column, just under the dash, you will find the electrical plug for the turn signal switch harness (it has about a dozen wires). Press the brake pedal and with a 12 Volt test light or voltmeter check for power going into the switch on a solid green wire. Then check for power coming out of the switch on a green wire with an orange stripe and an orange wire with a blue stripe (with the switch still plugged in). If you find power coming in and no power out, you have a bad switch. We have these switches available as well as many other parts for most all of your Lincoln accessories.

Tech Tip: Watch for a hard starting Lincoln, especially when the engine is hot. More specifically I am referring to an engine that does not turn over as quickly as when the engine is cold. This can be caused by bad timing, bad alternator or regulator, loose or dirty battery cable connections, poor battery cables or a weak starter. Keep in mind that electricity needs to make a circuit (or circle) and you are only as strong as your weakest link. You need to check all of the cable connections, not just the clamps at the battery posts. Also, when replacing your battery cables do not forget that the negative cable routes from the battery post to the frame of the car, then from the frame to the engine block. Too many replacement negative cables are installed only on the engine block, not allowing a sufficient path to the battery for all of the body grounded electrical items.

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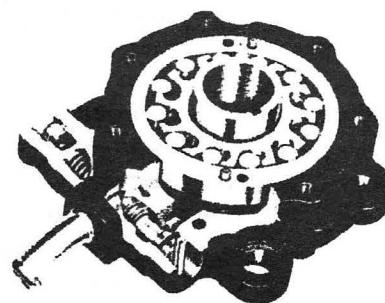
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-As with most power steering systems, don't hold the steering wheel hard against its stops (like when trying to parallel park or maneuver in a parking garage). This steering pump creates over 1,000 PSI of pressure that will easily blow out a weak seal or hose if dead headed.

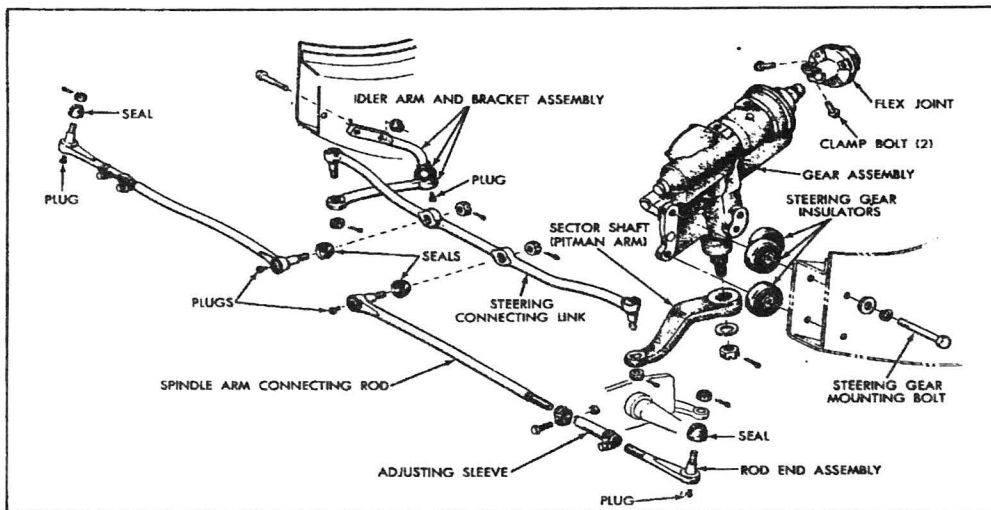
This diagram illustrates the assembly of a vehicle's front suspension system, showing the following components and their arrangement:

- Top Components:** BOLT, LOCKWASHER, SHAFT, WASHER, BUSHING, WASHER, PLUG, BRACKET ASSY., BOLT.
- Upper Assembly:** BUSHING, WASHER, BOLT, LOCKWASHER, SEAL, BOLT, LOCKWASHER.
- Shock Absorber:** SHOCK ABSORBER, NUT, SPINDLE, NUT.
- Spring Assembly:** INSULATOR, SPRING, INSULATOR, BOLT, WASHER, INSULATOR, SPACER, WASHER, INSULATOR.
- Lower Arm Assembly:** SPACER, WASHER, INSULATOR, BUSHING, BUMPER, BOLT, NUT, LOCKWASHER, PLUG, INSULATOR, WASHER, NUT, SEAL, LOWER ARM ASSY.

Though I currently have no hard proof, I must suggest that you avoid the clear, readily available, power steering fluids in 61-69 crankshaft driven power steering pumps. You can find this steering fluid on the shelf of every department store and it guarantees to be safe for all steering systems. I beg to differ. The engineers who designed this fluid have never seen something as unusual as the systems used in our Lincolns. Because the pump mounts directly to the crankshaft, there is no belt. In order to create pressure, there are a series of rollers turning within an elliptical sleeve. The fluid is designed to lubricate and cool as it passes through the pump. My experience is that the generic fluid does not have the lubricating properties necessary. Stick with what the engineers intended. Use only type F or FA transmission fluid. Also, replace the steering fluid filter and flush the system when changing a hose, pump or box. I cannot guarantee a steering component that fails when using the generic fluid.



Exclusive for Lincoln Continental is this quiet-running, high-capacity hydraulic pump mounted on the crankshaft. This makes the hydraulic pump for power steering system an integral part of the engine.



TECH TIP: You will find a rather unusual innovation on Lincolns built after 1963. In order to isolate the driver from road vibrations and noise, the factory incorporated three steering gearbox insulators between the box and the frame of the car. (They do for the gearbox what motor mounts do for the motor.) If you feel that your steering is loose, and you have already checked the usual suspects, give these a look-see. You can determine if they are bad simply by having someone turn the steering wheel as you peer into the engine room. If the box pulls away from the frame excessively, you have found your problem (remember that these are made of rubber so some movement is expected). **NOTE:** When the insulators become extremely loose, the steering shaft can rub against the shift tube, physically moving the shift lever as the wheel is turning. Don't allow yourself to get in this dangerous situation. Rebuilt steering box insulators are \$35 each exchange.

Tech Tip: Your Lincoln's steering and suspension is about as straightforward as any vehicle. It is also well designed and very heavy duty so it is not necessary to replace every component just "because it is old". However, there are a few unique items worth mentioning. As depicted above, the 62-69 Lincoln utilizes 3 steering gearbox insulators (that act like motor mounts) between the steering gearbox and the frame of the car. These rubberized mounts do eventually weaken, allowing the steering gearbox to move away from the frame, causing loose steering and a possible interference with the shift linkage (we have new mounts, \$45 each). Also, don't overlook looseness in the steering that can be caused by a gearbox that has worn internally even though it is not leaking externally. We rebuild our steering gearboxes with many custom made new components and we test them thoroughly before shipping! **NOTE: All 61-69 Lincoln requires the use of type F or FA transmission fluid in the steering system. Use of any other "all purpose" clear steering fluid, even those that boldly claim "good for all steering systems" will void your warrantee and likely damage your expensive steering pump.**

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Tech Tip: Your Lincoln was engineered for a luxurious, plush ride. Never meant to be sporty, this car was intended as a reliable, comfortable cruiser. Flash forward to present day and custom high-performance modifications to that ride are becoming popular. While fashionable and functional don't always share space together, there are some very important considerations for safety with **custom wheels and tires**. We have seen dozens of 60's Lincolns in our shop with large wheels and tires. Unfortunately, two of these Lincolns suffered catastrophic adapter plate failures. Seems the adapters were not up to the task of carrying a car that weighs in at close to 6,000 pounds. If you are in the market for expensive large wheels and tires, make sure they are rated for a heavy car. Also, large wheels and tires put extra wear and tear on the steering and suspension systems so inspect your shocks, steering pump, steering box, balljoints, bushings, etc. often. It is really hard to look cool when your Lincoln is broken down on the side of the road... or worse.

SCRAPED WHEEL

Twice this year I encountered a problem that I would like to share with you. To date I have only seen this on 61-63 cars but I expect it may be prevalent in other years. The problem is an irritating scraping noise heard when turning the steering wheel. The cause and cure are simple. Surrounding the steering wheel steel core is the color coated plastic grip that you grab with your hands. Over time the plastic shrinks while the steel core does not. When the plastic starts pulling away from the base of the wheel (close to the column) it contacts the steel column housing causing the scraping noise. Remove the steering wheel and lightly grind the plastic so there is no contact. This is done in an area not visible once installed so you need not worry about appearance.

NOTE: It is important to check that your steering wheel is properly centered in the column and cannot be moved up/down or left/right. If you have a worn upper steering column bearing and/or sleeve you may get a similar scraping noise but the cause is obviously something different.

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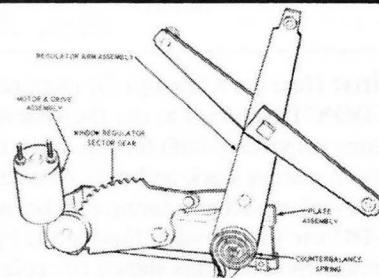
Tech Tip: We are excited to offer new window motors. However, you might not be as excited to replace a window motor that isn't bad. Here is a quick cheat sheet for testing window motors with an alternative power source (a battery or battery charger):

Year	Attach ground (NEGATIVE) wire to:	Attach power (POSITIVE) wire to:	Result:
1961-62 4 wire Window Motor	BLACK wire of the motor	GREEN wire and YELLOW wire simultaneously	Motor spins in one direction
	BLACK wire of the motor	GREEN wire and RED wire simultaneously	Motor spins in opposite direction
1963-65 3 wire Window Motor	BLACK wire of the motor	YELLOW wire of the motor	Motor spins in one direction
	BLACK wire of the motor	RED wire of the motor	Motor spins in opposite direction
1966-89 2 wire Window Motor	RED wire of the motor	YELLOW wire of the motor	Motor spins in one direction
	YELLOW wire of the motor	RED wire of the motor	Motor spins in opposite direction

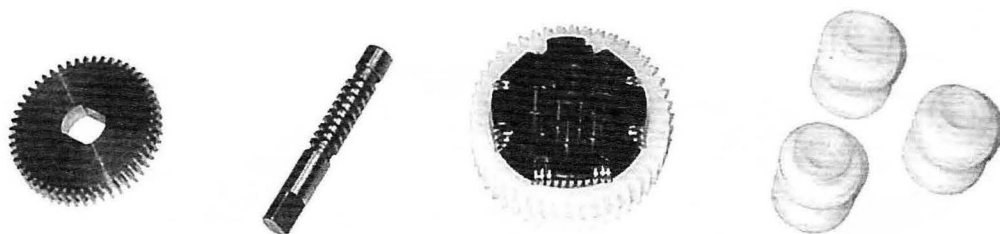
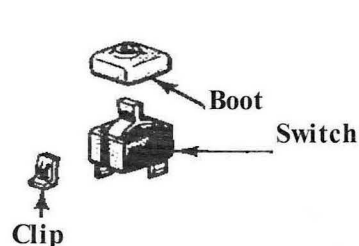
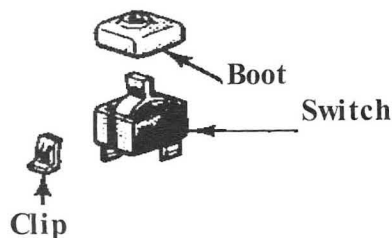
Note: Ignore the extra blue wire when testing 61-65 convertible rear window motors; it is simply an additional ground wire that can be ignored when testing.

Also Note: None of these motors are grounded through their case; **do not** attach a ground wire to the body of the motor.

Warning: If you disconnect the motor, geardrive, or glass from the regulator arms be extremely careful of the potential energy stored by the coil spring in the center of the assembly. Secure the unit with clamps or in a vise. If set free, the regulator arms can potentially break your hand or some other treasured body part.



Tech Tip: All 61-67 window switches are independent (though some are connected by a detachable electrical bus bar) and can be replaced individually (no need to buy six if just one is bad). Take your time when removing the original switches and you should be able to reuse the good ones. At the very least you should try to save the original switch clips (which get expensive if you break them all). Here are a couple of hints. First, remove the switch plate from the armrest assembly so that you can work more easily on your bench (with better light). Next, you will need a tool like an ice pick, scribe, or very heavy paperclip to release the prong of the switch clip. You will find a small hole in each end of the steel switch housing into which you can insert your tool while simultaneously applying slight pressure away from housing. Alternatively you can use a very small, very thin flat screwdriver (like you would use to tighten eyeglasses) inserted **between the switch housing and the clip**. Be careful, this second method requires a delicate touch as it can be too easy to break the brittle housing of the switch. Also, if your bad switch is in the center of the switch plate, you may need to remove one or two end switches to gain better access.



Tech Tip: Window failures can have several causes besides bad window motors and gears. Slow windows are generally the result of the original factory grease (in the window tracks and on the rollers) which has dried and become sticky, doing the opposite of what grease is supposed to do. The old grease is tenacious and needs to be manually scraped off with a screwdriver (and a liberal amount of degreaser) before applying new grease. Check that the window rollers spin freely. If not, you need to free and/or replace them. Check for loose roller mounting pins, which allow the rollers to cock at an angle and bind. Repairing this requires removing the regulator or window frame from the car and carefully peening the mounts. An incorrectly installed regulator spring will also allow the glass to lower quickly and rise slowly (or vice versa). This coil spring, mounted in the center of the steel regulator arms, is designed to counteract the weight of the glass to allow it to raise and lower at the same speed. Therefore it needs to be installed with tension already "pushing up". This can be tricky (and dangerous) as the spring is quite strong. Don't forget to protect your expensive window switches with our new rubber boots, they are cheap insurance!