1927 - 1928 LaSalle Production

Total Production: 26,804 automobiles and chassis (three serial numbers not used.)

Serial Numbers: 1927 - 200001 thru 216850.
1928 - 216851 thru 226807.
The Vehicle (engine) serial number is stamped "On the name plate on the front face of the left side of the dash and on the crankcase just below the water inlet on the right-hand side."

Chassis Numbers: Start with prefix "2 -" and increase from the first unit, which has chassis number "2-27." The numbers are not sequential. Location of chassis unit number is "on the upper surface of the right-hand side bar just in front of the oil filter."

Body Plates: Fisher job/style number (e.g., 1168) or Fleetwood job number (e.g., 3751) and body serial number are on the body plate attached "to the front face of the left side of the dash" (in the engine compartment.)

Body Type and Style Numbers:	1927	List Price	1928	List Price	W.B.	Production
Series 303 (LaSalle) Fisher Bodies		(various dates)		(Jan. 4, 1928)		
4-Pass. Phaeton	1168	$2495.00	1168	$2485.00	125"	1575
4-Pass. Sport Phaeton (dual cowl)	1168-B	$2995.00	1168-B	$2975.00	125"	270
2-Pass. Roadster	1169	$2525.00	1169	$2485.00	125"	1184
5-Pass. Sedan (metal back)			8110	$2495.00	125"	763
5-Pass. Family Sedan (metal back)			8110-A	$2350.00	125"	2720
5-Pass. Sedan (leather back)	7380	$2685.00			125"	5001
5-Pass. Sedan (leather back)	8120		8120	$2495.00	125"	1823
4-Pass. Victoria (Coupe, leather back)	7390	$2635.00			125"	1250
4-Pass. Victoria (Coupe, leather back)	8130		8130	$2550.00	125"	405
2-Pass. Convertible Coupe	7400	$2635.00	7400	$2550.00	125"	3001
2-Pass. Coupe (leather or fabric back)	7410	$2585.00			125"	1100
2-Pass. Coupe (leather back)	8140		8140	$2450.00	125"	527
2-Pass. Business Coupe (leather back)			8140-A	$2350.00	125"	446
5-Pass. Town Sedan (metal back)	7420	$2650.00	7420	$2495.00	125"	1600
5-Pass. Coupe (metal back)			8050	$2625.00	134"	1001
7-Pass. Sedan (metal back)	8060	$2795.00	8060	$2775.00	134"	1666
7-Pass. Family Sedan (metal back)			8060-A	$2575.00	134"	1064
7-Pass. Imperial Sedan (div., metal back)	8070	$2895.00	8070	$2875.00	134"	485
5-Pass. Cabriolet Sedan (leather back, blind qtrs.)			8080	$2675.00	134"	500
5-Pass. Imperial Sedan (division, leather back, blind qtrs.)	8090	$2795.00	8090	$2775.00	134"	210
Touring (non-production body)				Not listed	134"	1
Chassis				Not listed	125"	55
Chassis				Not listed	134"	34
Unidentified units						65
Series 303 (LaSalle) Fleetwood Bodies						
5-Pass. Transformable Town Cabriolet (front door crank-up windows)	3051	$4700.00	3051	$4700.00	125"	9
2-Pass. Coupe	3110	$3600.00	3110	$4275.00	125"	12
5-Pass. Sedan	3120	$3800.00			125"	13
5-Pass. Town Cabriolet (front compartment wing windows)	3130	$5000.00	3130	$4500.00	125"	22
5-Pass. Transformable Town Cabriolet (front door crank-up windows)			3751	$4800.00	134"	2
				Total		26,804

Canadian (Oshawa, Ontario) built units. (Identified units are included in the production totals above):

5-Pass. Sedan (leather back)	7380			125"	41
2-Pass. Convertible Coupe	7400	7400		125"	16
7-Pass. Sedan (metal back)	8060	8060		134"	18
5-Pass. Sedan (metal back)	8110	8110		125"	24
5-Pass. Sedan (leather back)		8120		125"	4
Unidentified					57
			Subtotal		160

Cars were assembled at Oshawa on complete chassis shipped from Detroit. Shipments of as few as three and as many as twenty-five chassis in a group are listed in the serial ledgers. Some cars were subsequently recorded in the Detroit records by body style, body number and other details. It is likely that many of the unidentified units were style 8110 5-passenger Sedans or style 8060 7-passenger Sedans, and account for most of the unidentified 65 cars in the overall production total.

Upper Panels	Paint #	Lower Panels	Paint #
Ardsley Green	2443038	Canoe Brook Green	2441638
Black		Black	
Black		Derby Red, Medium	2443336
Black		Vineyard Lake	2443089
Ching Blue	2441282	Norse Blue	2441467
La Force Gray	2441765	La Force Gray	2441765
Senator Green	2441306	Desert Sand	2441313

Fender set in black enamel is standard with all body colors, special color fenders at additional list charge of $85.00
Chassis is finished in black, but special color may be had at additional list charge of $15.00

Trim Options

LaSalle Fisher Bodies

Open/Convertible bodies - job/style: 1168, 1168-B, 1169, 7400

18 T 1327 Green Leather
19 T 1327 Blue Leather
20 T 1327 Tan Leather (finish not indicated)
21 T 1327 Gray Leather
22 T 1327 Black Leather
23 T 1327 Red Leather
26 T 1327 Tan Leather (finish not indicated)

Top:
16 T 1527 Drab-duck (khaki)
6 T 1527 Black (optional)

Rumble Seat:
35 T 1227 Black Imitation Leather

Closed bodies - job/style: 7380, 7390, 7410, 7420, 8050, 8060, 8070, 8080, 8090, 8110, 8120, 8130, 8140

68 T 127 Cloth (color and type not listed)
70 T 127 Green-Gray Mohair
71 T 127 Plush (Mohair, color not listed)
80 T 127 Blue-Gray Mohair
81 T 127 Taupe Mohair
84 T 127 Brown & Tan Mohair
85 T 127 Tan Mohair
32 T 128 Blue Mohair
36 T 128 Bedford Cord Cloth (color not listed)

1928 Family Sedan and Business Coupe closed bodies - job/style: 8060-A, 8110-A, 8140-A

112 T 128 Broadcloth (color and type not listed)

Note: The above trim numbers are from Trim Charts #1 and #2 of the Fifth Edition, *Cadillac Master Body Parts List*, March 1936, which does not contain material type and color descriptions. Descriptions are included where positive correlations from other records can be established. Factory documents describe available 1927-1928 Fisher body trims in general terms as Mohair, Wool Velour, Broadcloth or Worsted; two-tone Bedford Cords for owner driven cars; hair-line broadcloths, figured cloths, doeskin broadcloths in light drab shades for Cabriolets; Mohair Worsted Velvet and Cotton Velvet.

LaSalle Fleetwood Bodies

"Trim options include four broadcloth materials of special weave offered exclusively on Cadillac/LaSalle Fleetwood bodies:

2423-24 Mouse-gray broadcloth
2425-26 Tan broadcloth
2427-28 Fawn-gray broadcloth
2429-30 Gunmetal-gray broadcloth

In addition, two new mohair materials have been especially developed, one in fawn and the other in green." Source: *Distributors Convention*, August 30 - September 1, 1927

Standard and Optional Equipment

Standard Equipment: Five wood wheels (except Sport Phaeton), size 32 X 600/32 X 620; rear spare tire carrier.

Optional Equipment:

Wood wheels - natural (instead of painted)	$ 10.00
Five disc wheels, 32 X 600/32 X 620	No charge
Five wire wheels, 32 X 620	$ 95.00
Six disc wheels, fenderwells and 2 spare tires	$150.00
Six wire wheels, fenderwells and 2 spare tires (standard equipment on Sport Phaeton only)	$250.00
Fenderwells for wood wheels, 2 spare tires	$140.00
Folding Trunk Rack (standard equipment on Sport Phaeton only)	$ 35.00
Running Board Searchlight (standard equipment on Sport Phaeton only)	$125.00
Special Trunk	$ 75.00

"Cadillac Motor Car Co. announces it is offering high compression heads and a low gear ratio for LaSalle roadsters and phaetons. The new high compression heads will have a ratio of 5.1 to 1. The new gear ratios are 4.0 to 1. Extra cost for this equipment is $125.00. When such equipment is used, the factory recommends the purchase of wire wheels, due to the higher speeds and acceleration. These wheels are offered at $95.00 additional, bringing the total cost of this high speed equipment to $220.00." *Automobile Trade Journal*, September 1927.

Research Methodology: Microfilm copies of the ledger records of the as-built configuration of each serial number were individually viewed. All record sheets were accounted for. Three serial numbers were not used in production. All Fleetwood body styles were recorded by serial and body number to determine the quantity of each body style built. All chassis were recorded by serial number. Because of shared body number sequences and unusual body numbers, Fisher body styles 1168-B, 8060, 8060-A, 8110, 8110-A, 8120, 8130, 8140 and 8140-A were individually recorded to determine actual production totals. No attempt was made to construct cross reference lists of the other Fisher body numbers with corresponding engine numbers to account for the 65 unidentified vehicles. The Canadian assembled cars that are not identified by body style undoubtedly result in somewhat understated production totals by body style.

Notes on research findings:

1. 1927-1928 model distinctions. There is a long running discussion among enthusiasts and automotive historians as to which cars are 1927 LaSalles and which are 1928's. Automotive historians have published differing views. All known factory records have been carefully studied in an attempt to resolve the discussion. We are all accustomed to thinking of cars as specific **model years**, irrespective of when they were built or shipped to the dealers. Cadillac Motor Car Company does not appear to have distinguished between 1927 and 1928 LaSalles by model year. Therein lies the problem. A cursory review of Cadillac serial numbers from 1902 through 1927 will demonstrate that model year designation was not the norm; automobile production was recorded by **calendar year**. Introduction of the LaSalle on March 5, 1927, with subsequent introduction of the new Cadillac series 341 on September 1, 1927, resulted in the model year confusion that was not clarified until the introduction of the 1929 models of both marques.

Production was continuous from the first 1927 LaSalle built through the last 1928, with no break in the engine serial numbers and many body style changes. In all subsequent years of LaSalle production, there is a distinct break between model years, with a change in the prefix of the engine serial number group (e.g., 4----- in 1929; 6----- in 1930; 220---- in 1935; 221---- in 1936.)

Undated factory distribution summaries, labeled *10 Day Pre-War*, list 1927 production of 10,767 LaSalles and 1928 production of 16,038 LaSalles, for a total of 26,805, which is within one car of matching the actual record count. Using the 10,767 number for the end of the 1927 LaSalle, (some historians have) would put the start of 1928 production in late July 1927, less than five months after the March 5, 1927, introduction. There is no apparent basis for selecting serial #210767 as a break between 1927 and 1928 cars. Serial numbers for all of the early body styles continue well beyond the 10,767 point; none of the additional or new-for-1928 body styles were ready for shipment and dealers had not seen or been able to order the new styles.

The Distributors Convention was held in Detroit from August 30-September 1, 1927. The new Cadillac series 341 models were on display, along with thirty-two LaSalle display models. The convention handouts indicate in part: "The number assigned to each specification corresponds with the number on the tag of each car and may be used for convenience in ordering duplicates on any job shown." "Three welcome additions to the LaSalle line are announced. The 5-passenger Imperial Sedan (style 8090), 7-passenger Sedan (style 8060) and 7-passenger Imperial Sedan (style 8070) are all mounted on the 134" wheelbase." Although no delivery dates are indicated, the implication is that LaSalle Distributors could immediately order the new body styles. The convention handouts show side views of body styles with features common to 1928 but do not say that the new LaSalle styles offered are 1928 models. Initial shipment of six added or changed body styles (8120, 8130, 8140, 8060, 8070 and 8090) commenced in late August/early September 1927. Early serial number cars in those styles can be considered to be 1927 models that continue into the new calendar year as 1928 LaSalles. A 1927 model year from March through December 1927 (out of 19 months of shipments) seems reasonable.

Record analysis reveals a series of running changes to various components (not unlike current manufacturing), with an overlap in the building of new body styles that are distinctly 1928 models and the phaseout of distinctly 1927 body styles. The running changes are reflected in the multiple editions of the LaSalle Operators Manual for the Series 303, which indicate applicability by engine serial number. Sales of the LaSalle were far greater than expected and all existing stocks of bodies and components were apparently utilized in a seamless transition to the 1928 LaSalle. "Due, the company says, to unexpected sales volume which the LaSalle has enjoyed since its introduction last March - 15,000 having been sold in nine months instead of a year as anticipated - it has been possible to materially lower the prices of the other LaSalle models." Source: *Automobile Topics*, January 7, 1928. Factory list prices for 1928 were reduced from the 1927 introductory level.

Although there is no perfect fit in terms of the introduction of additional body styles, discontinuation of early body styles, mechanical component changes, etc., accepting a break point recorded by Cadillac Motor Car Company is the only reasonable differentiation between 1927 and 1928 LaSalles. The records do not show the date that vehicles were built, only the date they were shipped. Cars were shipped as late as December 31, 1927, with serial #216954 being the highest number shipped in 1927. Shipments resumed on January 3, 1928. *Cadillac-LaSalle Facts*, a vest pocket booklet produced by Cadillac Motor Car Company in early 1928, lists both the Cadillac 341 and LaSalle 303 cars shipped through the end of the year as 1927 cars and lists 1927 LaSalle engine numbers as serial #200001 to #216955 (which was shipped on 2/14/28). The *Cadillac Master Parts List* shows engine serial #216851 as the first 1928 LaSalle. Serial #216851 is the **third** serial number shipped on January 3, 1928, which makes that change point appear to be totally arbitrary. Eighty-five cars with serial numbers higher than #216851 were shipped in December 1927 and thus obviously built sometime in 1927.

Initial shipments of six new body styles (8110, 8110-A, 8140-A, 8050, 8060-A and 8080) began between December 22, 1927, and January 17, 1928. Switching from a **calendar year** to a **model year** designation, beginning with the resumption of production in calendar 1928 and the sale of six new body styles, aligns the LaSalle with Cadillac designations for all future models. It is a logical choice. Lacking further documentation, the Cadillac-LaSalle Club, Inc., has chosen to accept the January 3, 1928, change point as the beginning of the 1928 LaSalle model year. Any date accepted necessarily results in some number of cars being improperly categorized when considered only on the basis of serial number, shipping date or body style.

2. Body Styles. The array of Fisher body styles is confusing at the very least, due to mid and late calendar year body style changes and additions, the appearance that Cadillac selected an arbitrary serial number to designate 1928 cars and the addition of distinctly 1928 body styles. A simplified breakdown follows:

1927 early Fisher body styles	Style #	W.B.	
4-Pass. Phaeton	1168	125"	Retained through 1928
4-Pass. Sport Phaeton (dual cowl)	1168-B	125"	Introduced in July 1927, retained through 1928
2-Pass. Roadster	1169	125"	Retained through 1928
5-Pass. Sedan (leather back)	7380	125"	Replaced by style 8120, Sept. 1927
4-Pass. Victoria (Coupe, leather back)	7390	125"	Replaced by style 8130, Sept. 1927
2-Pass. Convertible Coupe	7400	125"	Retained through 1928
2-Pass. Coupe (leather or fabric back)	7410	125"	Replaced by style 8140, Sept. 1927
5-Pass. Town Sedan (metal back)	7420	125"	Introduced in July 1927, retained through 1928

5-Pass. Sedan (leather back)	8120	125"	Slight changes from style 7380, see note below
4-Pass. Victoria (Coupe, leather back)	8130	125"	Slight changes from style 7390, see note below
2-Pass. Coupe (leather back)	8140	125"	Slight changes from style 7410, see note below
7-Pass. Sedan (metal back)	8060	134"	Announced at Distributors Convention, Aug. 1927
7-Pass. Imperial Sedan (metal back)	8070	134"	Announced at Distributors Convention, Aug. 1927
5-Pass. Imperial Sedan (leather back, blind qtrs.)	8090	134"	Announced at Distributors Convention, Aug. 1927
1928 new Fisher body styles			
5-Pass. Sedan (metal back)	8110	125"	First car shipped December 31, 1927
5-Pass. Family Sedan (metal back)	8110-A	125"	Announced January 1928
2-Pass. Business Coupe (leather back)	8140-A	125"	Announced January 1928
5-Pass. Coupe (metal back)	8050	134"	Announced January 1928
7-Pass. Family Sedan (metal back)	8060-A	134"	Announced January 1928
5-Pass. Cabriolet Sedan (leather back, blind qtrs.)	8080	134"	Announced January 1928

Note: "Slight changes have been made in the 2-passenger Coupe, 4-passenger Victoria and 5-passenger Sedan. The radius of the curve at the rear of the roof has been slightly lessened, giving a lower appearance to the body; dark glass sun visors have been substituted; and cowl ventilators opening to the rear have been located on each side. These changes in design are made to correspond with the design of the three new models. Wide auxiliary seats are supplied in the 7-passenger Sedan and 7-passenger Imperial." Source: *Distributors Convention*, August 30 - September 1, 1927.

"Five new LaSalle models have been perfected and put on the 1928 market by Cadillac Motor Car Co." Source: *Automobile Topics*, January 7, 1928. (No mention of the style 8110 5-Pass. Sedan as a new model.)

Visually, the most recognizable distinction between early 1927 and late 1927/1928 models is the change from an engine hood with 12 louvers on each side for 1927, to a hood with 28 louvers on each side and the addition of cowl ventilators opening to the rear on closed body styles. There are surviving cars with serial numbers in the 1927 block that have the later hood, Electrolock ignition, carburetor heat control, new type chassis and brakes, etc. On the mechanical level, the 1928 units principally have the twin disc clutch instead of the eleven disc clutch, Lovejoy hydraulic shock absorbers instead of Watson stabilators and 16-inch front brake drums instead of 14-inch.

3. Vehicle Records. The 1927 and 1928 LaSalles are recorded as hand-written, single-line, two-page entries in large leather bound ledgers. The data elements listed are: Engine Number / Date Shipped / Shipped to Distributor at / Delivered to / City and State / Date Delivered / Type (style #) / Number (body #) / Upholstery / Top / Center & Lower Panels (color name) / Stripe / Moulding / Lock No. / Wheels - Type & Size, Color, Stripe, Hubs / Radiator & Lamps (nickel plated) / Gear Ratio / Frame Number / Engine Unit Number / Front Axle Number / Rear Axle Number / Transmission Number / Carburetor Number / Steering Number / Generator Number / Extra Equipment / Car Cover / Decking Charge.

In practice, the last three blocks of the ledger were used for notes including hood and cowl color, fenderwells and trunk rack, high compression cylinder heads if so equipped, etc.

Very few of the records were filled in to indicate the Delivered to / City and State / Date Delivered information. After serial #212000, those three data elements were eliminated in a new ledger. Less than one hundred vehicles are annotated with the name of the original purchaser; most of whom were factory or other General Motors employees. Harley Earl received a style 8090 5-Passenger Imperial Sedan. Nine vehicles were charged to the factory accounts of the Fisher brothers.

Some highly unusual record changes were entered in the vehicle ledgers, changing the body style notations as a result of modifications made by dealers. Two particularly odd entries are changes from a 7-Pass. Sedan (8060) and 7-Pass. Family Sedan (8060-A) to five-passenger styles 8110 and 8110-A with the notation "Auxiliary seats removed by Don Lee" (the Los Angeles based distributor). The seven-passenger body is physically longer than the five-passenger body and thus the style number change is inappropriate. Three 5-Pass. Imperial Sedans, style 8090, were annotated "Body style changed by dealer from Imp 5 Sedan to Cabrio." and the body style changed to 8080. Removal of the Imperial Partition would make that physical change and be an appropriate style number distinction. It is unlikely that any of the body tags were changed.

4. Color. No listing of standard color combinations for the complete 1927 and 1928 LaSalle model years could be located. To determine the probable standard colors and entire range of color combinations, body color listings (upper panel/lower panel) were recorded. Black is standard for all years. Six combinations are rubber stamped in the ledgers and are obviously standard. All other entries are hand written. Thirteen other combinations were found on more than 500 cars each, one on 463 cars, and one on 372 cars. All of those colors are probable standard colors and so listed below. New apparently standard colors were introduced throughout the production run. A total of 482 color combinations were found to have been applied to the 1927-1928 cars. Many of the combinations were special orders found on a single car. Other colors were found on as many as 174 cars, which is less than one percent of total production and thought to not represent a standard color.

Cadillac Motor Car Company maintained a policy of discouraging the use of what they considered to be non-durable paint colors, to the point of declining orders to paint cars in such finishes. Fifty-three cars (eleven body styles) were shipped to dealers with the body in primer "Rubbed out of rough stuff" for local finishing as arranged by the dealer or purchaser.

(probable) **Standard Color Combinations**

Upper Panels	Paint #	Lower Panels	Paint #
Algerian Blue	1254	Algerian Blue	1254
Black		Bolling Green	1331
Black		Calumet Blue	20235

Upper Panels	Paint #	Lower Panels	Paint #	
Black		Phantom Gray	2443356	
Black		Powder Blue	3116	
Black		Wissahickon Green	20366	
Bruce Green	2441723	Cape Smoke	2441482	
Czarina Beige	2443009	Cossack Brown	2441322	
Czarina Beige	2443009	Czarina Beige	2443009	
Dustproof Gray	2441274	Dustproof Gray	2441274	
English Gray	2441774	English Gray	2441774	
Gettysburg Blue	2441205	Gettysburg Blue	2441205	
Larchmont Blue	2441273	Pelham Blue	2441297	(Phaetons & Roadsters)
Lush Green	2441478	Canoe Brook Green	2441638	(Phaetons & Roadsters)
Royal Purple Lake	20528	Royal Purple Lake	20528	

5. Special Features: Customer requests for non-standard upholstery material, deviations from the standard trimming methods (e.g., Cadillac style pleated and tufted), application of non-standard colors, etc., were handled by the assignment of a Fisher Order number with detailed written instructions to the body plant. None of those individual order records are known to exist for 1927-1928 LaSalles. Only a small fraction of the F.O. numbers are indicated in the ledgers, although there were many such orders as evidenced by the large volume of non-standard paint cars, which required a sixty-day delivery time. None of the individual orders for the Fleetwood bodied cars are known to exist.

Numerous cars were annotated "Natural cane work in belt panel." Four cars were fitted with a single fenderwell; three on the left side, one on the right side. A Phaeton charged to F. J. Fisher had all of the nickel parts (body and chassis) chromium plated, a precursor of the 1929 models. A style 7380 5-Pass. Sedan charged to the factory was equipped with nickel plated disc wheels and "Special walnut panels." It was probably a show car. An unorthodox combination was an 8060-A 7-Pass. Family Sedan (austere interior trim), painted Black with "Chromium plating on fenders."

Few truly custom Fisher Orders were done. A "Partition 5-Pass. Sedan 1153 LX," using a style 7380 body shell, was charged to the factory account of A. J. Fisher. The car featured: Weise cloth, Special Maroon top and body, special steering column, walnut door panels, fenderwells and trunk cover. A "Special 5-Pass. Sedan 1157LX," also using a style 7380 body shell, was built for an unknown buyer. No indication of the body modifications was listed, but the car was trimmed in "special cloth" and the body painted Willeys Pale Auto Yellow. Two special body cars were done with modified style 1168 Phaeton bodies and listed as "Double Cowl Phaeton." These likely were prototypes for the Sport Phaeton that went into production some 4600 cars later. One was charged to the factory account of John J. Raskob (GM Executive Committee). Cadillac cars were available in a 7-Pass. Touring body style that was not offered on LaSalle. A single "134" Chassis Touring, Non-Production LX1290" car, presumably a 7-passenger, was built and charged to the factory. A "134" Chassis 5 Coupe, Sample Body 1295 LX" is shown charged to the factory. An "8120 Special 5 Sedan" is listed with "Special body built for Eng. Dept." An "8080 Special 5 Cabrio. Sedan" was charged to the factory account of L. P. Fisher, but no details are listed.

6. Factory installed accessories: Very few cars had factory installed accessories other than the wire wheels, sidemounts and folding trunk rack option. Installed items were:

Heavy duty rear springs	Lovejoy Shock Absorbers (pre 1928)
High Compression cylinder heads	Special Camshaft
High Speed Equipment	Spotlight
Houdaille Shock Absorbers	Standard Trunk
Kelch Heater	Trunk Cover to match top (Drab Duck)

7. Chassis: Complete drivable chassis, in both the 125" and 134" wheelbases, were produced and sold to both domestic and foreign coachbuilders. Typically the units included the bumpers, radiator, hood and cowl, lights, dashboard, running boards, fenders (with or without fenderwells and trunk rack), etc. The finished vehicle would thus have a distinctly recognizable LaSalle origin. Chassis distribution was:

Alexandria, Egypt	3	London, England	11 (Right hand drive)
Antwerp, Belgium	8	Newark, New Jersey	1
Berlin, Germany	15	New York City, New York	1
Boston, Massachusetts	1	Oshawa, Canada	1
Buenos Aires, Argentina	3 (Right hand drive)	Paris, France	20
Buffalo, New York	2	Stockholm, Sweden	1
Chicago, Illinois	1	Utica, New York	2
Copenhagen, Denmark	3	Washington, D.C.	4
Factory, Detroit	12		

The first eleven LaSalle serial numbers are chassis indicated as "Factory - Experimental." At least one of those was eventually fitted with an unspecified body with center and lower panels in Cadillac Blue, Lt. Two "Cut Open Chassis" for show displays were done, one sent to Newark and one charged to the factory. The records give only a brief hint of the custom coachwork done on the LaSalle chassis. Serial #216545, a 134" wheelbase chassis, was shipped to Paris on 12/9/27. It was returned to the factory for credit and shipped to New York City on 6/11/28 with the record annotated "Hibbard & Darrin 5 Sedan." Serial #216741, a 134" wheelbase chassis, was shipped to Utica, New York, on 12/21/27. It was returned to the factory for credit on 6/11/28 with the record annotated "Willoughby body on chassis - 4 Sport Sedan." It is reasonable to guess that Willoughby, based in Utica, also built a body for the other chassis shipped to Utica.

8. Export Cars: Export sales rapidly became an important element of LaSalle production - the first export being a 5-passenger Sedan, serial #202641, to Copenhagen on April 6, 1927. Car and chassis exports totalled 1975 units; 1334 in 1927 and 641 in 1928. All LaSalle body styles were available in either left or right hand drive, a feature that was essential to international sales. Sales to Canada (in addition to the cars assembled in Oshawa) were not treated as exports, whereas, sales to Mexico were through the General Motors Export Division. Vehicles destined for the U.S. Territory of Hawaii were treated as exports. Right hand drive was a common feature for export cars destined for island nations plus Argentina, India and South Africa. Export totals by body style were:

Body Style	Style #	Qty.	Body Style	Style #	Qty.
4-Pass. Phaeton	1168	460	5-Pass. Cabriolet Sedan	8080	6
4-Pass. Sport Phaeton	1168-B	13	5-Pass. Imperial Sedan	8090	34
2-Pass. Roadster	1169	121	5-Pass. Sedan	8110	19
5-Pass. Sedan	7380	206	5-Pass. Family Sedan	8110-A	10
4-Pass. Victoria	7390	39	5-Pass. Sedan	8120	242
2-Pass. Convertible	7400	253	4-Pass. Victoria	8130	11
2-Pass. Coupe	4110	7	2-Pass. Coupe	8140	8
5-Pass. Town Sedan	7420	67	2-Pass. Business Coupe	8140-A	2
5-Pass. Coupe	8050	5	Chassis, 125" wheelbase		34
7-Pass. Sedan	8060	111	Chassis, 134" wheelbase		31
7-Pass Family Sedan	8060-A	8	5-Pass. Town Cabriolet, Fleetwood	3130	1
7-Pass. Imperial Sedan	8070	287			

Where did the exports go? Destinations are listed below (destination not indicated in the records for 10 units):

City	Qty.	City	Qty.	City	Qty.
Berlin, Germany	252	Osaka, Japan	41	Kingston, Jamaica	5
Antwerp, Belgium	205	Barranquilla, Columbia	39	Nairobi, Kenya	4
Paris, France	128	Havana, Cuba	39	Guatemala	3
Buenos Aires, Argentina	122	Melbourne, Australia	38	Lima, Peru	3
Alexandria, Egypt	118	Caracas, Venezuela	25	Perth, Australia	3
Madrid, Spain	109	Adelaide, Australia	22	Delhi, India	2
Copenhagen, Denmark	96	Brisbane, Australia	15	Leon, Mexico	2
London, England	91	Santo Domingo, Dom. Rep.	12	Madras, India	2
Stockholm, Sweden	69	Wellington, New Zealand	12	Rangoon, Burma	2
Honolulu, Territory of Hawaii	67	Montevideo, Uruguay	11	Recife, Brazil	2
Port Elizabeth, South Africa	67	Bombay, India	8	San Jose, Costa Rica	2
São Paulo, Brazil	58	Panama City, Panama	7	Torreon, Mexico	2
Sydney, Australia	55	Calcutta, India	6	Valparaiso, Chile	2
San Juan, Puerto Rico	51	Cali, Columbia	6	Barcelona, Spain	1
Mexico City, Mexico	49	Oruro, Bolivia	6	Port Au Prince, Haiti	1
Batavia, Java	48	San Salvador, El Salvador	6	Santiago, Chile	1
Manila, Philippine Islands	44	Colombo, Ceylon	5	Tampico, Mexico	1

9. Indianapolis: "Before a crowd estimated at 135,000, the LaSalle Roadster driven by "Big Boy" Rader paced the Indianapolis Memorial Day race and made a very splendid showing. The Roadster which Rader drove had a beautiful black finish and with its nickel work made a most impressive sight as it tore around the curve and flashed into the straight-away with the pack of 33 racing cars roaring at its heels." Source: *Clearing House*, June 2, 1927. Selection of the new LaSalle as the pace car provided a significant stamp of approval and publicity boost. LaSalle was destined to pace the Indianapolis race three times, an impressive record for a car that was built for only fourteen years. The identity of the 1927 pace car is not clear from factory records. Roadster serial #204256, body #340, is listed in the ledger as "For Indpls Speedway, Steve Hannagan" and was shipped on 4/23/27. That car, however, had Black upper panels and Derby Red Medium lower panels. There are no other indications of cars for the Speedway. Is the race account incorrect? Was serial #204256 repainted for the race, or was there a second Roadster that was the actual pace car?

10. Serial numbers. None of the body styles were assembled in body number sequence. For body styles that shared the same body number sequence, blocks of serial numbers were apparently assigned to a particular style and, when all were used, another block was assigned.

Fisher body styles.

First car built in each body series		Last car built	Highest body number	
1168	serial 200018, body 273	serial 226806, body 1489	1999	
1168-B	serial 208955, body 28	serial 226778, body 267	371	
1169	serial 200019, body 5	serial 226695, body 1173	1184	
7380	serial 200016, body 1074	serial 216160, body 2455	5001	
7390	serial 200028, body 77	serial 223991, body 1244	1250	
7400	serial 200015, body 239	serial 226741, body 2993	3001	
7410	serial 299924, body 11	serial 216772, body 1063	1100	
7420	serial 209192, body 30	serial 226807, body 1224	1600	
8050	serial 216947, body 3	serial 226732, body 992	1839	
8060	serial 212036, body 1264LX	serial 226805, body 2542	2826	Note 1
8060-A	serial 216911, body 1115	serial 226794, body 2463	3469	Note 1
8070	serial 212046, body 1266	serial 226529, body 480	1468	
8080	serial 217095, body 2	serial 226804, body 500	500	
8090	serial 212061, body 70	serial 226637, body 119	210	
8110	serial 208251, body 310	serial 226791, body 3067	3169	Note 2
8110-A	serial 217045, body 18	serial 226802, body 3513	7429	Note 2
8120	serial 205614, body 1452	serial 224558, body 1578	2110	
8130	serial 207102, body 154	serial 226749, body 275	1215	
8140	serial 211834, body 254	serial 226625, body 934	962	Note 3
8140-A	serial 216812, body 146	serial 226793, body 967	975	Note 3
Chassis 125"	serial 200001	serial 226636		
Chassis 134"	serial 214892	serial 222897		

Note 1: Body styles 8060 and 8060-A share the same body number sequence.
Note 2: Body styles 8110 and 8110-A share the same body number sequence.
Note 3: Body styles 8140 and 8140-A share the same body number sequence.

Fleetwood body styles. All of the Fleetwood bodies had body numbers assigned by the body works in Pennsylvania. The chassis were shipped to Fleetwood and returned to Cadillac Motor Car Company in Detroit with the body installed.

	First car built	Last car built
3051	serial 204384, body 10322	serial 217223, body 10608
3110	serial 200012, body 10050	serial 217098, body 10061
3120	serial 200022, body 10189	serial 207761, body 10199
3130	serial 200013, body 10177	serial 217312, body 10611
3751	serial 219256, body 10941	serial 226002, body 10943

CONDENSED SPECIFICATIONS

POWER PLANT

Engine—Compensated eight-cylinder, V-type; 90-degree angle between cylinder blocks. Engine and transmission in unit; 3-point suspension. Piston displacement 303 cubic inches. Bore 3 1/8"; stroke 4 15/16". Horsepower S.A.E. rating 31.25; actually more than 75.

Cylinders—Cast in blocks of 4, with detachable heads.

Pistons—Nickel-iron, close grained and long wearing; 3 rings; lower ring special oil regulating type.

Connecting Rods—Drop-forged alloy steel, I-beam section; side by side, two on each pin. Bearings 2 3/8"x1 3/8". Babbitt in rods.

Valves—Inlet 1 1/2", tungsten steel; exhaust 1 1/2", silico-chrome steel. Single spring. Automatically lubricated.

Crankcase—Special copper alloy aluminum; non-resonant.

Crankshaft—Diameter 2 3/8", length to outer ends of front and rear bearings 23 15/32". Supported on 3 main bearings, bronze-backed—Chadwick interchangeable. Crank throws 90 degrees apart, provided with compensators.

Camshaft—Single hollow shaft, with 16 cams; shaft supported on 4 bearings. Driven from crankshaft by silent chain.

Clutch—New dry-plate type with two discs, 9 1/2" in diameter. Positive release.

Transmission—Selective type with 3 speeds forward and 1 reverse. Alloy steel, oil-hardened gears and shafts. Faces of gear teeth accurately ground and ends of teeth chamfered to obtain easy and quiet gear shifting.

GASOLINE SYSTEM

Supply—20-gallon fuel tank located at rear of chassis. Feed is by vacuum to smaller tank on dash.

Vacuum Pump—Special design, located at rear of crankcase and driven by eccentric on the camshaft, provides vacuum necessary to lift gasoline to vacuum tank under all conditions.

Fuel Strainer—Straining device located between tank and the carburetor, cleans engine fuel before it enters the mixing chamber of the carburetor.

Carburetor—LaSalle design and manufacture; maximum efficiency and economy. Air valve, single jet type. Automatic Thermostatic mixture control. Intake header exhaust-heated. Valve in left exhaust manifold operated from instrument board, when closed deflects back exhaust gases from left cylinders through intake header jacket thus giving maximum heat for carburetor almost immediately. Manifold high turbulence type.

COOLING SYSTEM

Radiator—Copper with cellular core; nickeled casing.

Water Cooling—Capacity 5 1/4 gallons. Centrifugal pump mounted on right side of engine and driven by silent chain from crankshaft. Cylinder blocks interconnected. One drain plug for entire system; necessary to disconnect only 3 hose couplings to remove radiator.

Temperature Control—Thermostatically controlled by vertical balanced radiator shutter blades.

Fan—6 blades; driven at engine speed by a V-belt from camshaft. Hub carries gear oil pump and oil reservoir for its own lubrication.

LUBRICATING SYSTEM

Engine lubrication—Pressure circulation system employing gear pump carried in oil pan and driven by extension of the distributor shaft. Supply in 8-quart capacity steel reservoir with screen for cleaning oil. Oil manifold runs length of crankcase, with leads connecting main bearings, the rear camshaft bearing, the pressure gauge and filter. Hollow camshaft carries oil from rear to other camshaft bearings. Passages in crankshaft conduct oil from main bearings to connecting rod bearings. Pressure is regulated by adjustable piston valve, overflow from which lubricates chain mechanism. Valves automatically lubricated by ports in cylinder walls. Oil level gauge on top of crankcase at rear of cylinder blocks.

Crankcase Ventilation—An effective and unique system which prevents contamination of crankcase oil with water and unburned fuel.

Oil Filter—An effective filtering device for removing impurities in solid form.

ELECTRICAL SYSTEM

Ignition—Delco-Remy high tension system; ignition timer with two sets of contact points, induction coil and condenser. Jump-gap type distributor.

Generator—Two-pole Delco-Remy, mounted on right side of crankcase. Driven by same silent chain as water pump. Current regulated by automatic, thermostatic switch.

Starting Motor—Four-pole Delco-Remy, mounted horizontally at the right side of transmission case. Has exceptionally high stalling torque.

Battery—LaSalle-Exide, 100 ampere hour, 6-volt, 3 cells. Carried on right-hand side of frame under front seat.

Horn—Delco-Remy high frequency type, mounted on left side of radiator.

Lighting Equipment—Two headlamps, two side lamps; new design, bullet type; tail lamp, controlled from single lever at center of steering wheel. Stop signal lamp in unit with tail lamp, controlled by foot brake. Instrument board lighting controlled by light switch at center of steering wheel. Dome light in Two-passenger Coupe, Four-passenger Victoria and Five-passenger Sedan.

OPERATING CONTROLS

Gear Shift—Center.

Service Brakes—Two independent braking systems. Mechanically operated, internal expanding on front wheels and external contracting on rear wheels. Division of pedal pull automatically proportioned between front and rear systems. Both front brakes operate when straight ahead, outer brake released on turn.

Hand Brake—Internal expanding on rear wheels and will not require adjustment during life of brake lining.

Steering Gear—LaSalle design, worm and sector, completely adjustable; reduction 17½ to 1. Steering wheel 18" in diameter, rubber composition with steel reinforcement; metal cast hub and spokes.

Engine Controls—Accelerator at right of brake pedal. Hand throttle lever built into central portion of steering wheel.

Automatic Spark Control—With manual lever located on instrument board directly in front of steering column.

Instrument Board—Special die cast panel; ignition switch with coincidental lock; ignition advance control; fuel gauge; ammeter; speedometer; oil pressure gauge; carburetor enriching button; intake header heat control; clock; motor heat meter and cigar lighter. Instrument lamps with separate switch.

MISCELLANEOUS

Axles—Rear axle, LaSalle design, three-quarter floating type with helical bevel gear and pinion. Shafts and pinion are alloy steel forgings. Front axle, reversed Elliott type; drop-forged special alloy steel with inclined king bolts. Drop-forged steering spindles with ball thrust bearing at lower end.

Drive—Solid steel propeller shaft 1⅝" in diameter, turns in torque tube which completely seals assembly. Rear end rigidly connected to rear axle by splined sleeve; front end, to transmission shaft through universal joint. Torque tube is bolted to differential carrier at rear, and front end pivoted in ball-and-socket joint at rear of the transmission. Transmits drive of rear wheels to chassis and absorbs torque reactions due to acceleration and brakes.

Fenders—One-piece metal; oval contour.

Fender Wells—Optional, at extra charge.

Frame—Side bar channel section with wide top flange, carbon steel, maximum depth of side members 6½"; 4 channel cross members and 2 tubular cross members.

Springs—Semi-elliptic suspension. Rear shackle tension type provided with ball-and-socket joint. Delco-Remy-Lovejoy shock absorbers are standard equipment. Front springs 39" x 2"; rear 58" x 2".

Tires—32" x 6.00" cord balloon.

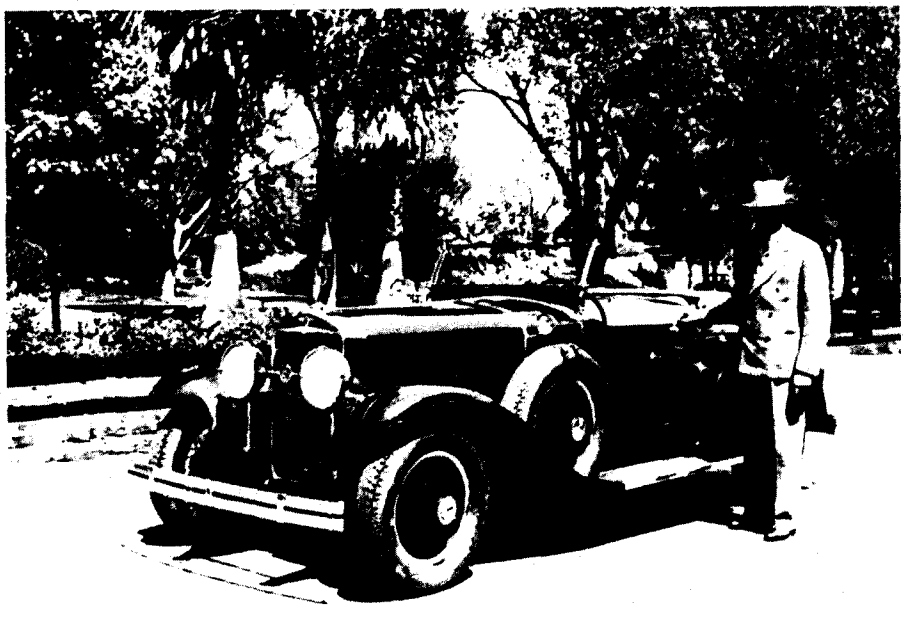
Tire Carrier—Rim type mounted at rear of chassis.

Tools—Complete set of tools in compartment under front seat.

Wheelbase—125" and 134".

Wheels—Artillery type, 20" diameter, 12 hickory spokes with steel felloe; demountable split type rim. Wire wheels, and disc wheels having rim integral, optional at extra charge.

The Cadillac Motor Car Company reserves the right to make changes in specifications at any time without incurring any obligation to install same on cars previously sold



Harley Earl and a 1928 LaSalle Roadster in California.

CADILLAC
SHOP MANUAL

LaSalle Supplement

The following section should be used as a supplement to the 314 Shop Manual rather than as a complete LaSalle Manual. The information contained in these pages includes only those features in which the LaSalle differs from the 314 Cadillac. Wherever similar construction is used in both cars, reference should be made to the Cadillac section of the Manual.

Front Axle

1201. *Spindle Arm Stop Screws*

The stop screws on the LaSalle are adjusted in the same manner as on the 314. They are in back of the axle instead of in front of it. See §201.

1202. *Alignment of Front Wheels*

The front wheels should toe-in not less than ⅛ inch nor more than ¼ inch as measured with tool 102789. To use this tool see directions in §202.

Adjustment of the front wheel alignment is made by shifting the position of one or more of the spacers (Fig. 102). To do this, first remove the cotter pin and plug (2) in the end of the parallel rod. The rod can then be taken off the end of the spindle arm.

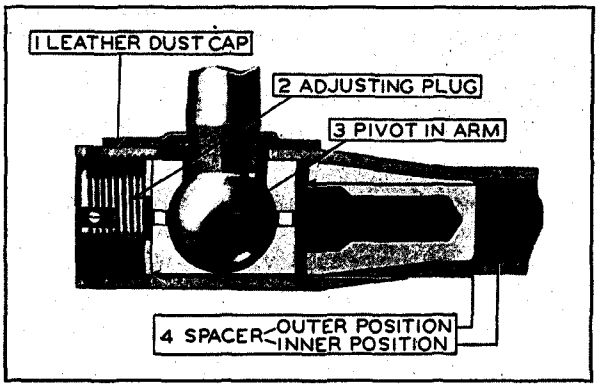


Fig. 102. Sectional View of Ball and Socket Joints at Ends of Parallel Rod

To make the wheels toe out more, remove spacers from between the inner seat and the inner plug, and place them between the outer seat and the outer or adjustable plug. To make the wheels toe in more, remove spacers from between the outer seat and the adjustable plug, and place them between the inner seat and the inner plug.

A $\frac{1}{16}$-inch spacer will change the toe-in ⅛ inch as measured by the gauge. A $\frac{1}{32}$-inch spacer will change the toe-in $\frac{1}{16}$ inch. Extra spacers, if necessary, can be secured from the Parts Division. When replacing the plug in the end, tighten it as far as it will go, then back it up one cotter pin hole.

It is recommended that the rims on the front wheels be trued up whenever the front wheels are aligned.

1203. *Adjustment of Parallel Rod Joints*

To adjust the ball and socket joints, jack up the front axle. Remove the cotter pins (Fig. 102) and screw the adjusting plugs in as far as they will go. By working the front wheels back and forth against each other, make sure that all play in the parallel rod has been taken up. Then back the screw plugs out to the next cotter pin hole.

1204. *Removal and Disassembly of Parallel Rod*

Disconnect the ends of the rod from the pivots on the steering arms by removing the screw plugs (2, Fig. 102). The spacers and inner plugs will fall out of their own accord.

1205. *Inspection*

Clean the rod and the pivots on the arms.

Examine the rod carefully. The rod should be straight and free from dents. The threads in the ends of the rod should be in good condition.

Replace the leather dust cap (1) if the old one is not in good condition. In order to do this it is necessary to remove the pivot (3), from the spindle arm.

1206. *Assembly and Installation*

To assemble and install the parallel rod, reverse the operations under "Removal and Disassembly," placing the seats and spacers as shown in Fig. 102.

Before completing the installation of the parallel rod, make sure the front wheels are in alignment in accordance with the directions in §1202.

Spindle Arms

1207. *Removal*

Disconnect the arm from the parallel rod by removing the screw plug in the end of the rod.

If the arm is the left-hand spindle arm, disconnect it also from the steering connecting rod.

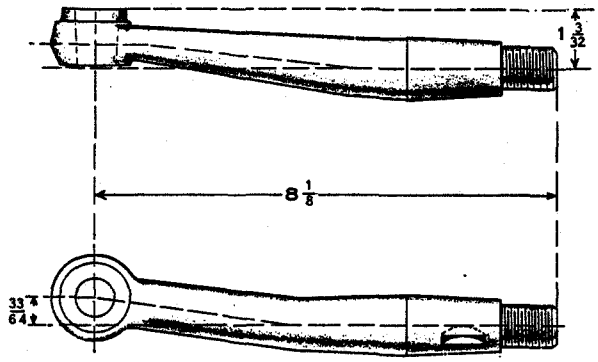


Fig. 103. Right-Hand Spindle Arm

Remove the cotter pin and large nut by which the arm is attached to the spindle and remove the arm by driving it out, being careful not to damage the threads. A good plan is to loosen the nut until it is flush with the end of the arm and then tap it until the arm is loosened in the spindle.

1208. Inspection

Examine the forging carefully.

Determine if the arm is bent or sprung (Fig. 103 or 104).

Make sure the key and threads on the arm are in good condition.

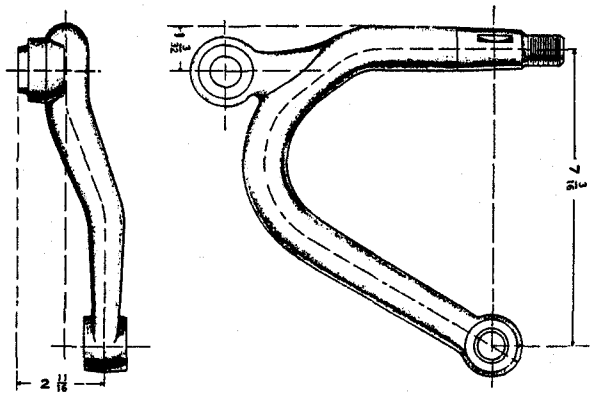


Fig. 104. Left-Hand Spindle Arm

INSPECTION OF OTHER PARTS—Examine the pivot on the arm. The ball end should be round within .010 inch and the threads should be in good condition.

1209. Installation

To install, reverse the operations under "Removal."

Adjust the steering connecting rod in the same manner as on 314 cars after chassis unit assembly 1-32060.

Front Axle Spindles

1210. Adjustment of Spindle Bearings

Adjustment of up-and-down play in the spindle bearings is made by placing shims (13, Fig.105) of the proper thickness between the upper fork of the spindle and the axle. These shims can be obtained from the Parts Division. To install the shims it is necessary to remove the spindles (§1211).

These shims are not intended as an adjustment to compensate for wear. When the bearings are worn so much as to permit excessive play, they should be replaced.

1211. Removal

Jack up the front axle and remove the wheel.

Disconnect the brake cable by removing the two nuts on the front end. Disconnect the brake operating shaft from the frame by removing the two cap screws that hold the bracket to the side bar.

Remove the six machine screws that hold the brake dust shield to the spindle and remove the dust shield with brake and brake operating shaft.

With a screw driver, force off the dust cap at the upper end of the spindle bolt.

Remove the locking key or pin (17, Fig. 105) by taking off the nut and driving out the key. Be careful not to injure the threads on the key.

The spindle bolt can then be driven down and out and the spindle removed.

1212. Inspection

Clean all parts removed.

INSPECTION OF SPINDLE—With the spindle placed on lathe centers, that part of the spindle which receives the wheel bearings should run true within .002 inch.

There should be no more than .003 inch clearance between the cones of the wheel bearings and the spindle.

The threads on the spindle should be in good condition.

Note that the right-hand spindle has right-hand threads and the left-hand spindle, left-hand threads.

INSPECTION OF OTHER PARTS—Inspect the

ball bearing. The balls and the races should be round and free from pits.

If there is more than .006 inch clearance between the spindle bolt and the bushings within the spindle, the bushings should be replaced. Ream new bushings to a free fit on the bolt.

1213. Installation

To install a spindle, reverse the operations under "Removal."

Before driving the spindle bolt into place, note the amount of up-and-down play in the spindle. If there is more than .004 play, install one or more shims at (13). Shims can be secured from the Parts Division in the following thicknesses: .003 and .005.

In replacing the spindle bolt, line up the flat surface on the bolt with the hole in the axle for the locking key (17).

New dust caps must be installed above and below the spindle bolt.

Front Axle I-Beam

1214. Removal

Jack up the front end of the car until the front wheels are clear of the ground.

Disconnect the Stabilator straps from the axle.

Remove the wheels.

Disconnect the front end of the steering connecting rod.

Disconnect the brake cables.

Disconnect the brake operating shafts from the frame.

Remove the nuts from the spring clips.

The complete axle can then be removed.

1215. Disassembly

Remove all grease gun connections.

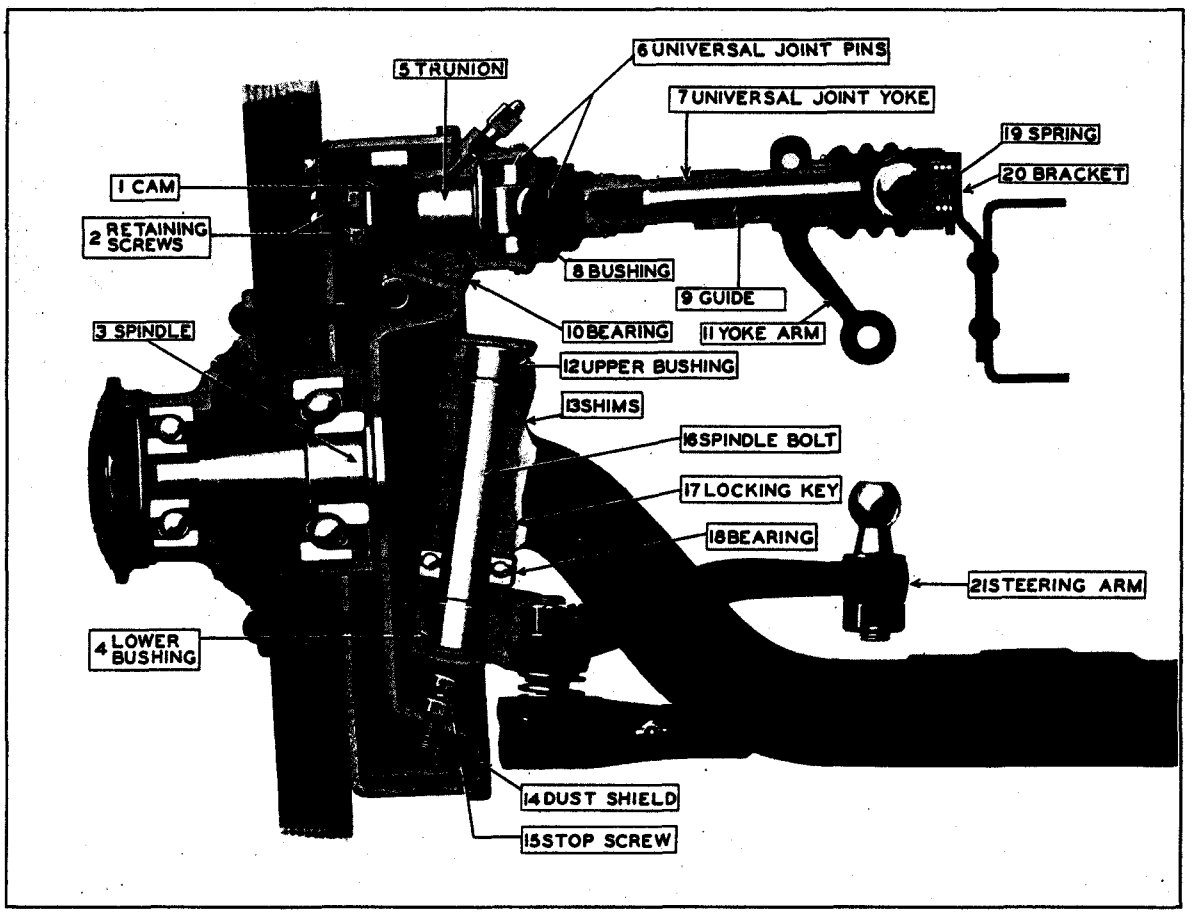


Fig. 105. Sectional View of Left-Hand Front Spindle and Wheel

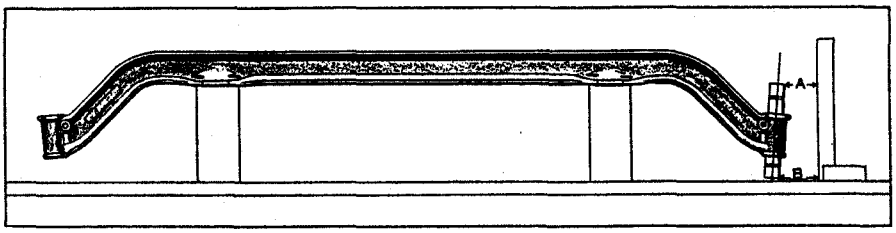


Fig. 106. Front Axle Inverted for Testing Angles

Remove the parallel rod (§1204).

Remove the spindles with steering arms from the axle (§1211).

1216. Inspection

The lines through the centers of the holes in the ends of the axle should be in the same plane and at an angle of 7½° with the vertical.

This may be tested by inserting the spindle bolts in their holes and placing the axle upside down upon parallel bars under the spring seats, (See Fig. 106). Then with a square, take dimensions (A) and (B) at the ends of the bolt. The difference between (A) and (B) should be $\frac{55}{64}$ inch.

The center lines of the holes in the ends of the axle should be exactly at right angles to the spring seats. This may be tested by taking dimensions (C and D, Fig. 107) at the ends of the bolt. The dimensions (C) and (D) should be equal.

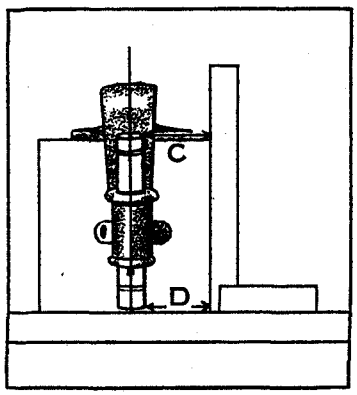


Fig. 107. End View of Axle Inverted for Testing Angles. (When Testing First Type Axle, Place Scale in Front of Axle)

Note: On some of the first LaSalle cars built the spring seats on the axle are machined at an angle of 89° with the spindle bolts. When testing these axles the dimension (C) should be $\frac{7}{64}$ inch greater than dimension (D), *the scale being placed in front of the axle.*

INSPECTION OF OTHER PARTS—Inspect the bushings in the spindles. There should be no more than .006 inch clearance between the bushings and the bolt.

The ball races and ball bearings should be free from pits and chips.

1217. Assembly and Installation

To assemble and install the front axle, reverse the operations under "Disassembly" and "Removal."

It is very important that the front axle be installed with the proper side toward the front. *The stop screws should be on the rear side of the axle.*

In installing the spindle bolt, line up the flat surface on the bolt with the hole in the axle for the draw key.

For the adjustment of the front brake cables see "Brakes."

Adjust the front wheel bearings in accordance with the directions in §2-1024.

Adjust the steering connecting rod in the same manner as on 314 cars after chassis unit assembly 1-32060.

Adjust the spindle arm stop screws in accordance with the directions in §201.

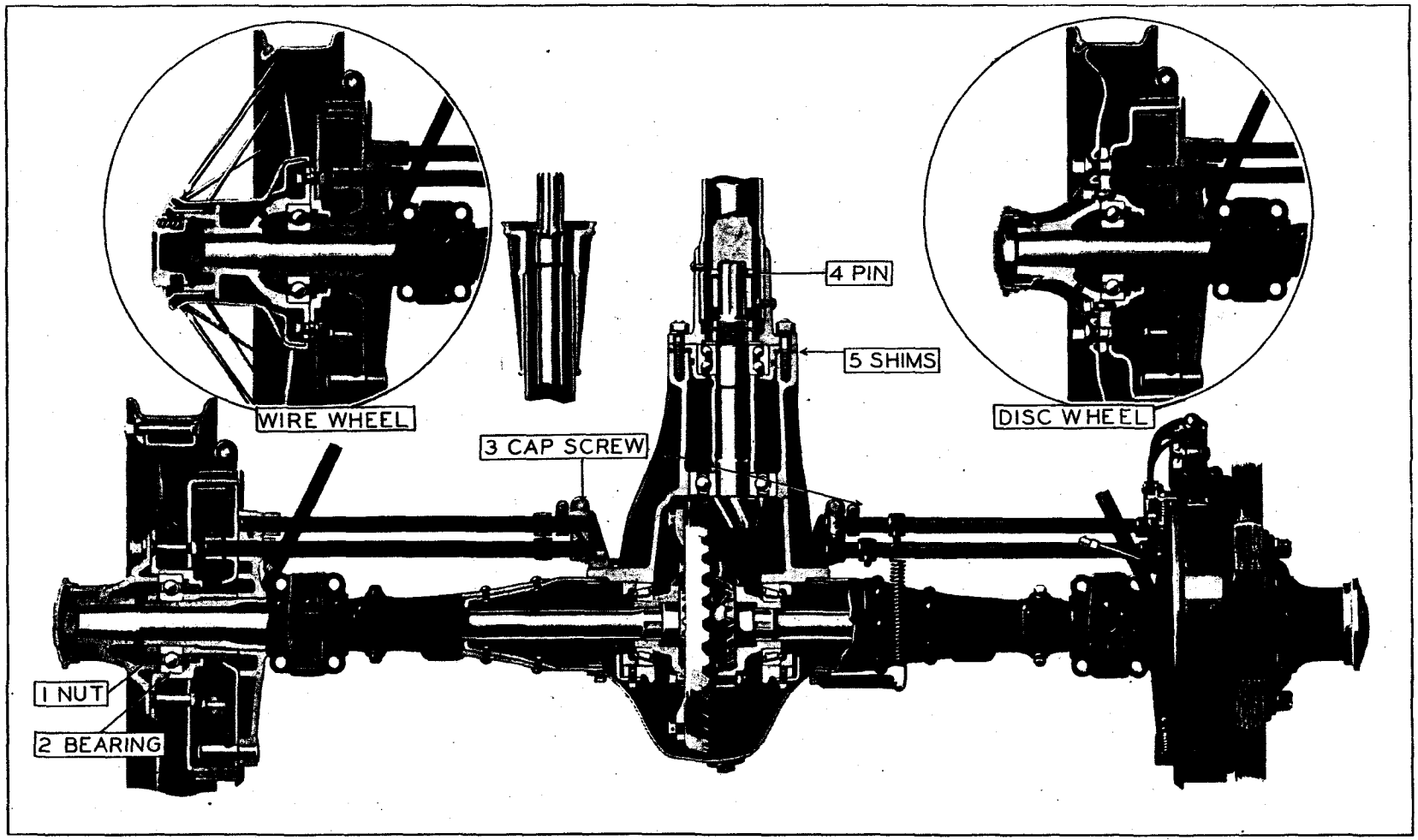


Fig. 108. Sectional View of LaSalle Rear Axle

Rear Axle and Torsion Tube

Note: For the universal joint and ball and socket members see "Transmission"

Axle Drive Shafts

1230. Removal

WOOD WHEELS — Remove the six nuts (Fig. 109) which hold the flange to the wheel.

Withdraw the flange and axle shaft together. Should the flange stick, loosen it by jarring one side of the wheel. Then, if necessary, drive wedges back of the flange taking care not to mar the finish.

If the flange is to be removed from the shaft, which is seldom necessary, remove the hub cap and unscrew the nut on the end of the shaft. The flange can then be pressed off the shaft.

WIRE WHEELS—Jack up the rear wheel which is to be removed.

Remove the wire wheel. (When removing a wire wheel, turn the nut in the same direction the wheels turn when the car goes ahead. The right wheel nuts have left-hand threads. The left wheel nuts have right-hand threads.)

This will give access to the six nuts on the bolts which hold the wire wheel hub and the brake drum together.

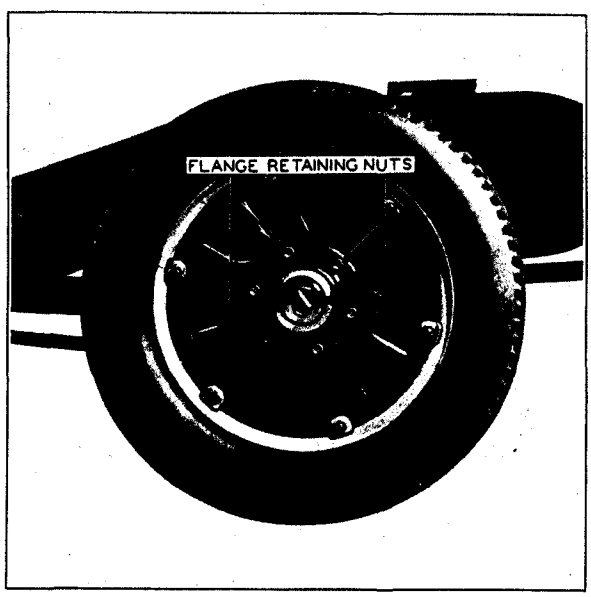


Fig. 109. View of Rear Wheel Showing Nuts Which Hold Axle Shaft to Wheel

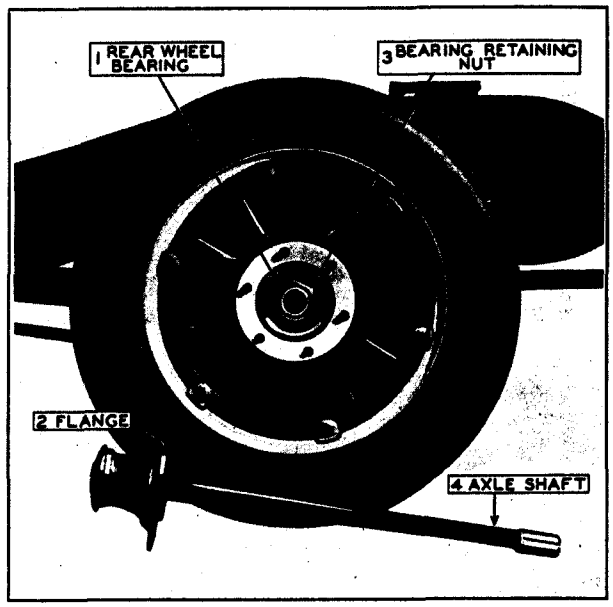


Fig. 110. Rear Wheel with Axle Shaft Removed

After the nuts are removed, insert a wedge between the flange and the drum.

To remove the wire wheel hub from the axle shaft, remove the nut from the end of the shaft and press the axle shaft out.

DISC WHEELS—It is not essential to remove the wheel in order to remove the axle shaft on a car with disc wheels but it makes the removal of the shaft much easier.

Remove the wheel. (The disc wheel retaining nuts have left-hand threads for the left side and right-hand threads for the right side.)

Remove the hub cap and shield.

Remove the eight nuts which hold the shaft and flange to the drum.

1231. Inspection

Placed on lathe centers, the axle shaft should run out of true no more than .004 inch.

The clearance between the splines on the axle shaft and the sides of the grooves in the hub of the equalizer gear should not exceed .006 inch.

1232. Installation

Install each shaft on its proper side. The axle

shafts are not interchangeable, the right-hand shaft being $34\frac{5}{16}$ inches and the left-hand, $31\frac{11}{16}$ long.

Rear Axle Assembly

1233. *Removal*

Disconnect the Stabilator straps.

Raise the rear end of the frame of the car so that the wheels are just clear of the floor. Block the front wheels, both in front of and behind the wheels.

Disconnect the wire from the stop lamp switch to the brake rod.

Disconnect the brake rods at the connections under the cross member just back of the transmission.

Remove the rear spring clips.

Remove the wire(4, Fig. 111) holding the universal joint boot (3) to the torsion tube.

Disconnect the torsion tube from the ball member by removing the four cap screws.

Raise the car high enough so the wheels will clear the fenders and the whole rear axle can then be rolled out from under the car.

1234. *Installation*

To install, reverse the operations under "Removal."

Make sure that the ball member is turned so that the side marked "TOP" is up.

Torsion Tube

1235. *Removal*

Remove the rear axle and torsion tube from the car (§2-233).

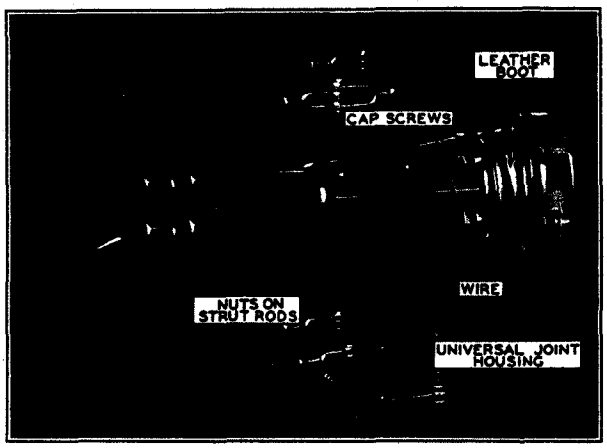


Fig. 111. Front End of Torsion Tube as Seen From Below

Remove the nuts (3, Fig. 112) on the front ends of the two strut rods.

Remove the eight nuts and two cap screws (1) that hold the torsion tube to the differential carrier.

Pull the torsion tube off over the drive shaft.

1236. *Inspection*

The tube should be straight. Make sure all rivets are tight.

1237. *Installation*

Reverse the operations under "Removal."

Propeller Shaft

1238. *Removal*

Remove the torsion tube (§1235).

Drive the pin (4, Fig. 113) out of the rear end

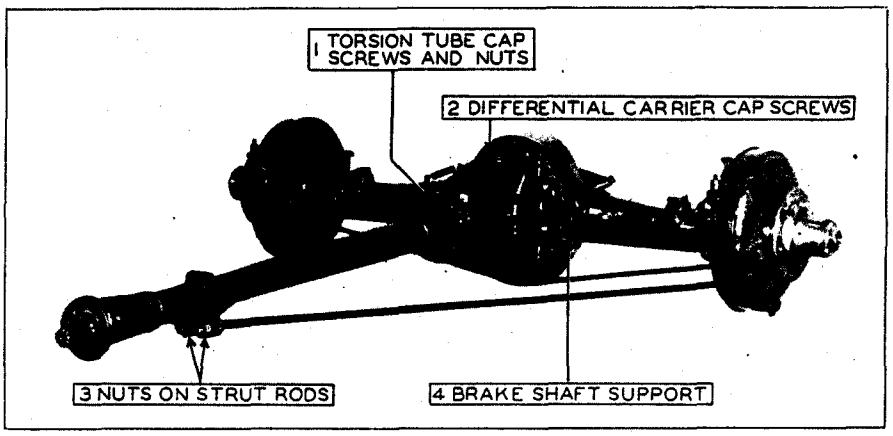


Fig. 112. Rear Axle and Torsion Tube Assembly

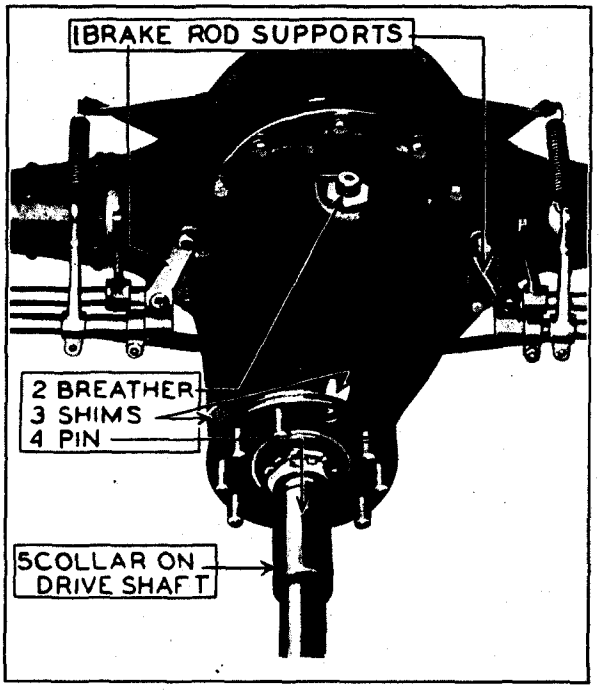


Fig. 113. Rear Axle with Torsion Tube Removed

of the propeller shaft. This pin is peened over at the factory and may have to be drilled out.

Pull the propeller shaft off the end of the pinion shaft with puller 109404.

1239. *Inspection*

The shaft should run true within .003 inch when placed in lathe centers.

There should be no more than .003 inch clearance between the sides of the splines on the front end of the propeller shaft and the sides of the splines in the universal joint.

Inspect the bronze bushing in the ball member at the rear of the transmission (See Fig. 146). This is the bearing for the front end of the propeller shaft and if it is badly worn the shaft will whip and cause noise.

For replacement see §1988.

1240. *Installation*

Reverse the operations under "Removal."

Differential Carrier Assembly

1241. *Removal*

Remove the rear axle from car (§1233).

Drain the lubricant.

Remove the torsion tube and propeller shaft (§§1235, 1238).

Remove the supports at the inner ends of the brake rocker shafts.

Remove the remaining ten cap screws (2, Fig. 112) by which the differential carrier is fastened to the rear axle housing.

It is a good plan to leave the axle shafts in place until the carrier is ready to be removed. This helps to hold the carrier in place and reduces the danger of its falling out.

Remove the differential carrier assembly.

1242. *Installation*

To install, reverse operations under "Removal."

It is a good plan to place the carrier in position in the axle and then force the axle shafts in place. This helps to hold the carrier in position until the cap screws are started.

Make sure there is the proper amount of lubricant in the rear axle. When connecting the torsion tube at the front end, make sure that the ball member is turned so that the side marked "TOP" is up.

Rear Axle Gears

1243. *Adjustment and Replacement*

The rear axle gears are correctly adjusted when the axle is assembled, and their positions must not be changed. If the gear and pinion require replacement, the entire differential carrier assembly should be replaced. Differential carrier assemblies for replacement can be obtained from the factory Parts Division on an exchange basis.

Rear Axle Housing

1244. *Removal*

Remove the differential carrier assembly (§2-241).

Remove the rear cover plate.

Place the housing on a stand and then remove the wheels.

Disconnect the brake rods.

Disconnect the rear ends of the strut rods from the axle by removing the nuts on the ends.

Remove the brakes and brake rocker shafts.

Remove the truss rod.

1245. *Inspection*

Place the axle on V-blocks (Fig. 114) over a

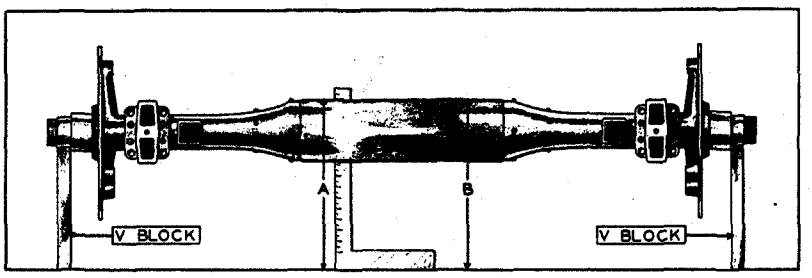


Fig. 114. Rear Axle Housing Being Tested for Alignment—1st Position

perfectly flat, true surface. Turn the housing so that the flat sides are horizontal as shown. With a square, measure the distance at (A) and again at (B). Revolve the axle 180° and take these measurements again. All four measurements should be within $\frac{1}{16}$ inch of each other.

Turn the housing so that the flat sides are vertical as shown in Fig. 115. With a square, measure to the center of the hole (C) then again at (D). Revolve the axle 180° and take the same measurements. All four measurements should be within $\frac{1}{16}$ inch of each other.

All rivets should be tight.

The threads on the ends of the housing should be in good condition.

INSPECTION OF OTHER PARTS—Inspect all parts removed in accordance with directions in this book. Inspect the bronze bushing in the ball member at the rear of the transmission (4, Fig. 146). There should be no more than .010 clearance between the universal joint yoke and the bushing in the ball member.

1246. Assembly and Installation

Reverse the operations under "Disassembly and Removal."

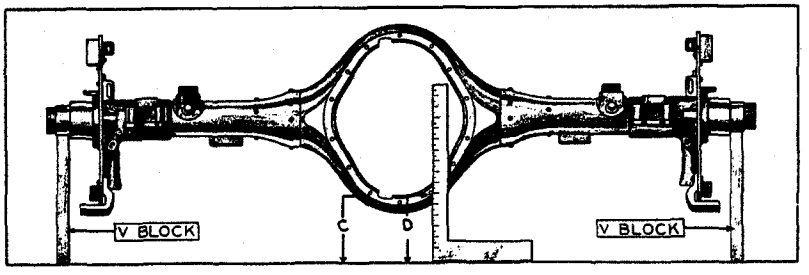


Fig. 115. Testing Rear Axle Housing—2nd Position

Brakes

1310. *General Description*

The LaSalle four-wheel brakes embody the same general features as 314 brakes but they are different in adjustments and other details of construction. The general information in §§310 and 311 applies also to the LaSalle. New features are described below.

1311. *Adjustment of Foot Brakes*

The method of adjusting LaSalle foot brakes is shown in Figs. 116, 117 and 118. The clearances used for setting the LaSalle brakes are .035 inch for the rear brakes and .010 inch for the front brakes.

Fig. 116 shows the adjustment of the brake connections, Fig. 117 the adjustment of the rear foot brakes, and Fig. 118 the adjustment of the front foot brakes.

Ordinarily it should be unnecessary to touch the adjustments shown in Fig. 116 as the brake connections are correctly adjusted at the factory. For the ordinary adjustment to take up wear, start with 8 in Fig. 117 and follow the numbers through to 20 in Fig. 118.

If there is any reason to believe the connections are not in correct adjustment or if the link shown at 5 in Fig. 116 is to be replaced with the second type link, the connections should be readjusted as directed in Fig. 116, starting with 1. This should be followed by adjustment of the front and rear brakes, 8 to 20 inclusive, Figs. 117 and 118.

1312. *Adjustment of Hand Brakes*

The hand brakes on the LaSalle are similar to the 314. There is no adjustment of these brakes. There is sufficient movement of the hand brake lever to permit the wearing down of the lining without any take-up being necessary.

1313. *Removal of Rear Foot Brake Bands*

Attached to each rear brake dust shield is a circular angle plate to prevent dust and water getting into the brake lining. It is possible to remove the brake band without removing this plate, but it is easier if the plate is removed.

1314. *Removal of Front Brake Bands*

To remove the front brake bands, first remove the wheel, then the two cap screws which hold the cam to the trunnion. Remove the anchor by taking out the four cap screws which fasten it to the shield. Disconnect the springs and remove the brake band.

When installing the band, install a new piece of anti-friction material between the anchor plate and the outside of the dust shield. This prevents any slipping of the brake anchor.

1315. *Front Brake Trunnion and Yoke*

To remove the trunnion and universal joint, proceed as follows:

Remove the wheel.

Disconnect the boot from the trunnion bearing (10, Fig. 105).

Remove the two cap screws which hold the guide socket to the bracket (20) on the frame.

Remove the two cap screws (2) which hold the cam to the trunnion.

The trunnion yoke and guide can then be removed.

The universal joint can be disassembled as soon as the trunnion is taken out of its bearing.

Should the trunnion bearing require replacement it can be removed by cutting off the rivets which hold it to the dust shield.

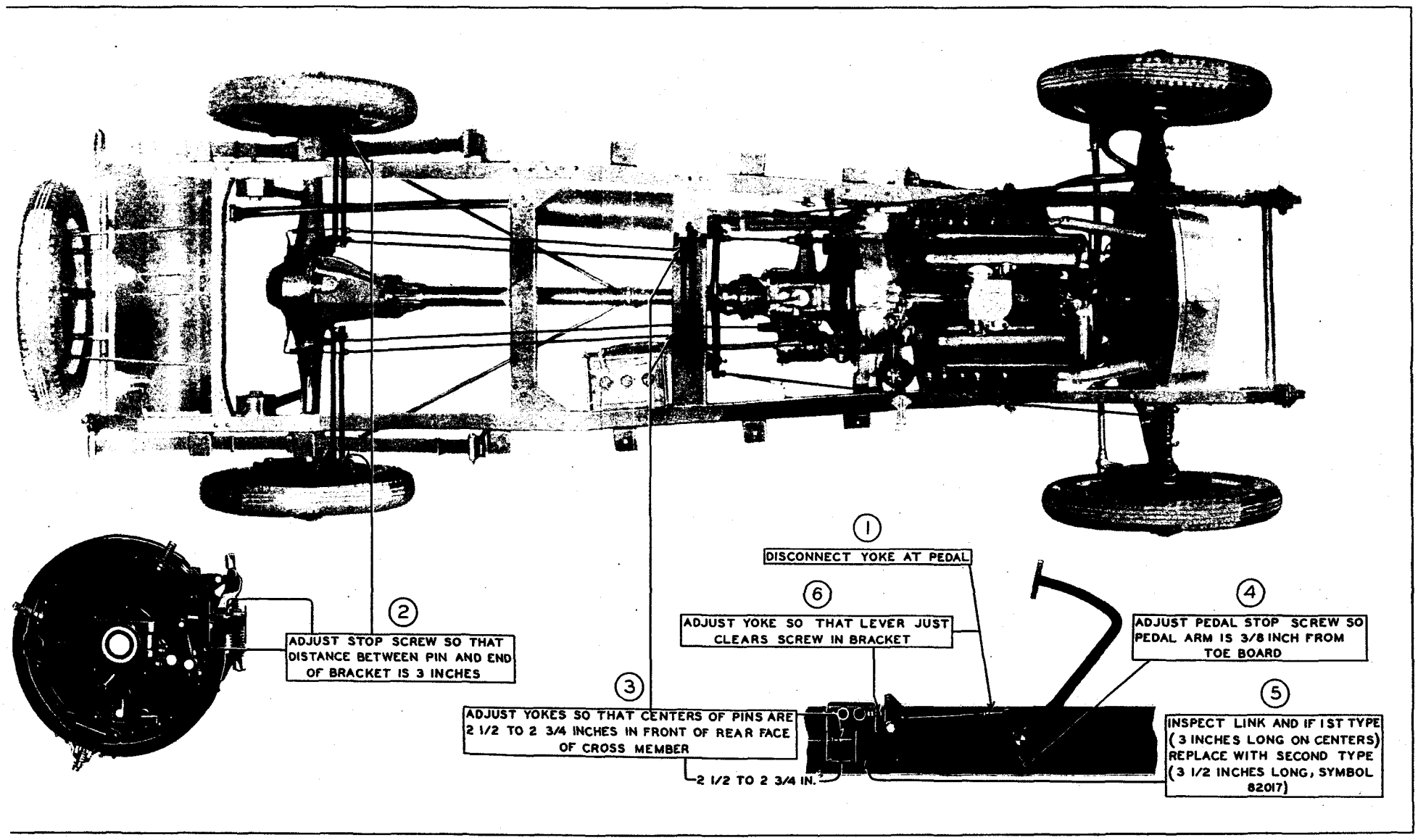


Fig. 116. Adjustment of Brake Connections. (Follow with adjustment of brake bands, Figs. 117 and 118)

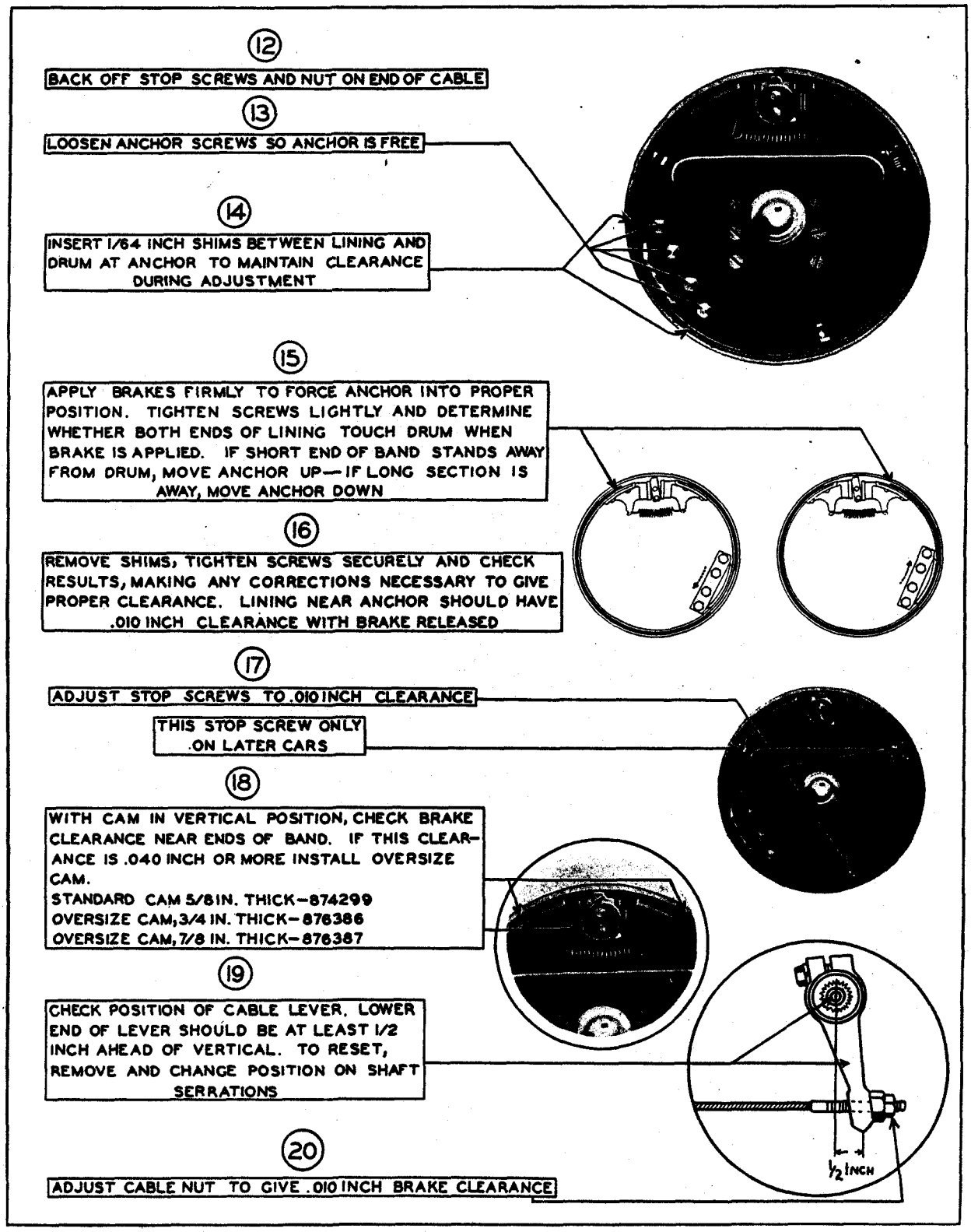


Fig. 118. Adjustment of Front Foot Brakes. Clearance between Lining and Drum, .010 inch

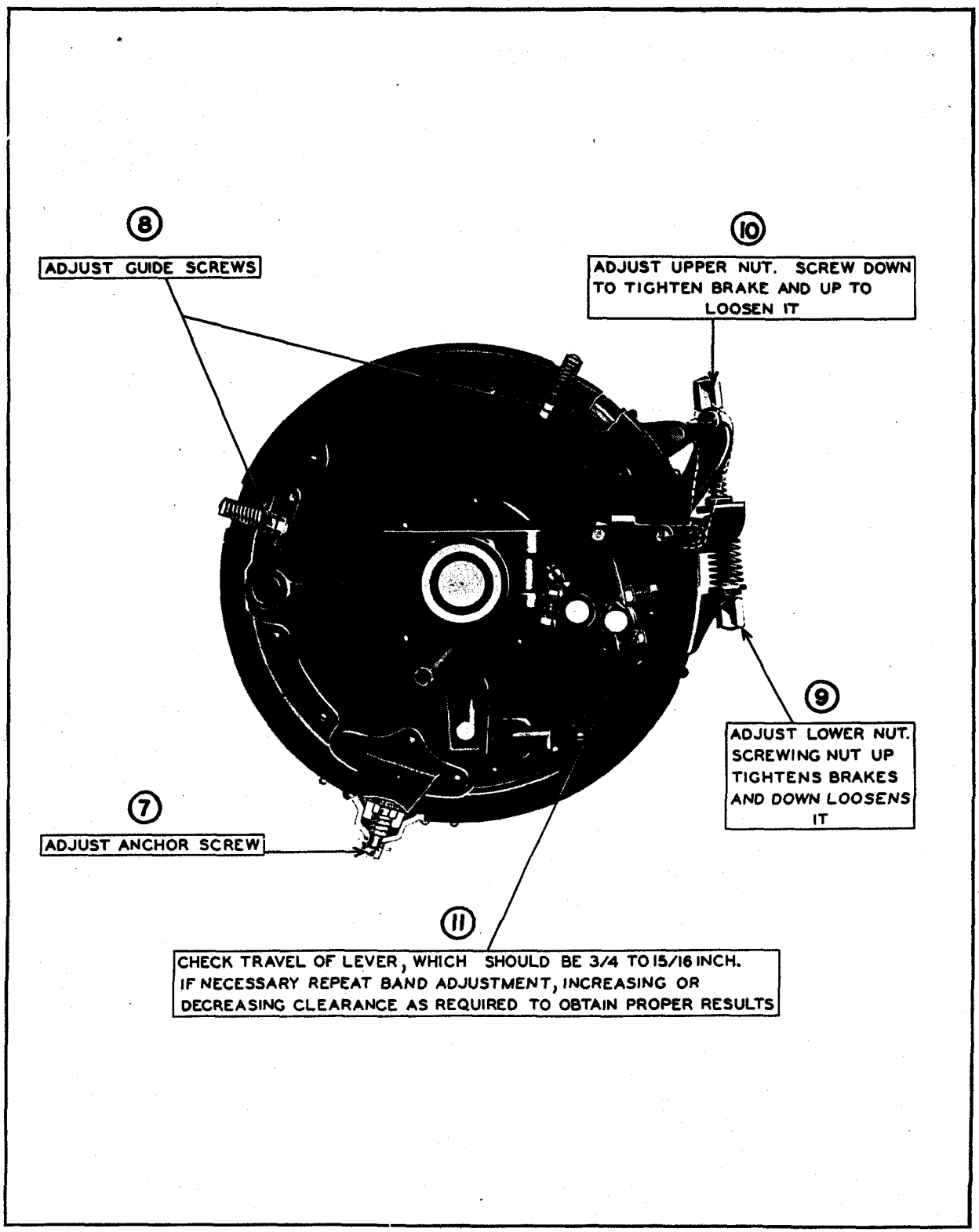


Fig. 117. Adjustment of Rear Foot Brakes. Clearance between Lining and Drum, .035 inch

Clutch

1350. *Description*

The clutch is a multiple disc clutch similar to the 314 clutch but with six driven discs and five driving discs. The driver for the driving discs is a separate part bolted to the flywheel.

The thrust or release bearing is mounted on a support bolted to the transmission rather than on the clutch itself.

The pressure of the clutch spring is 420 lbs. when compressed to a length of $2\frac{19}{32}$ inches.

1351. *Adjustment of Clutch Release Rod*

The clutch pedal should have at least one inch play or lost motion the same as described in §351. The adjustment itself is slightly different from the 314. To make the adjustment on the LaSalle, unscrew the nut (2, Fig. 119), the nut is notched so that it will lock at every half turn.

It is very essential that the play in the clutch pedal be checked at regular intervals and not allowed to fall below $\frac{3}{4}$ inch.

1352. *Adjustment of Pedal Stop Screw*

The clutch pedal stop screw (3) should be adjusted so as to let the clutch pedal come as far back as possible without touching the toe board.

1353. *Removal*

Remove the rear axle and transmission (§1960).

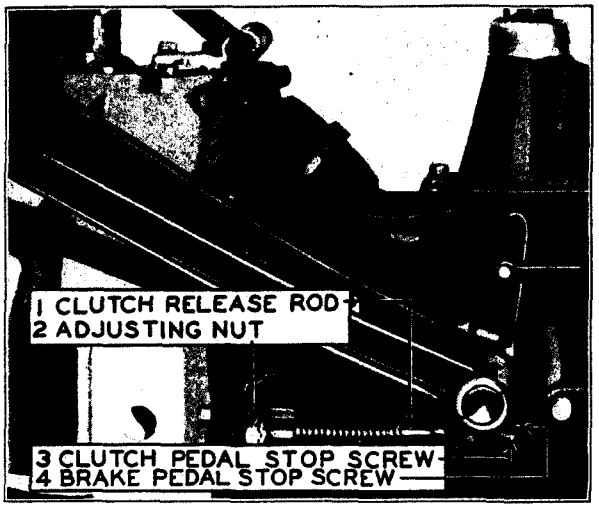


Fig. 119. Adjustment of Clutch Pedal

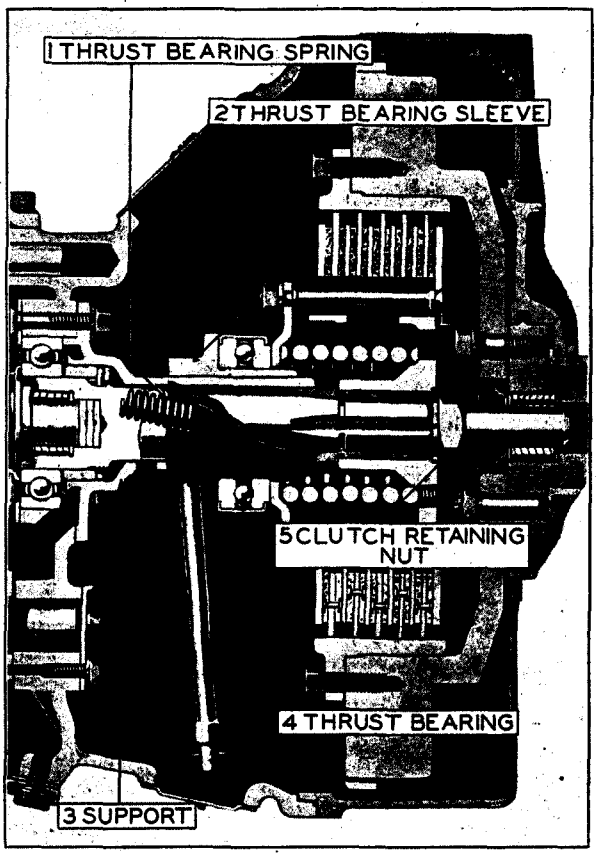


Fig. 120. Sectional View of Clutch

Remove the nut (5, Fig. 120) which holds the clutch on the shaft, using wrench 101421.

Pull the clutch off with puller 109409.

1354. *Disassembly*

The easiest way to remove the discs is to place the clutch in an arbor press, with the spider directly under the plunger of the press, and force the spider down until the six nuts can be removed from the studs. Release the arbor carefully so the spring will not fly out.

If no arbor press is available, pass a long bolt with large washers on each end and through the center of the clutch hub. Then screw the nut down on the bolt far enough to release the spring and take the nuts off the studs.

With the removal of the nuts the clutch can be taken apart.

1355. Inspection

With the exception of the specifications for the clutch spring, the directions in §356 for inspecting the 314 clutch applies to the LaSalle.

The clutch spring should support a load of not less than 420 pounds when compressed to $2\frac{19}{32}$ inches.

All of the discs except the front plate with its studs are interchangeable with 314 discs.

1356. Relining Clutch Discs

The clutch lining on the LaSalle is different from the lining which has been used on Cadillac cars. This lining is lighter in color than the lining on the Cadillacs. The previous Cadillac clutch lining should not be used in lining LaSalle discs.

1357. Assembly and Installation

Reverse operations under "Removal and Disassembly."

The rear disc in the clutch is thicker than the other discs. This plate is fitted in the clutch driver at the factory and is marked to indicate its position in relation to the driver. When re-installing the clutch, make sure the marked tooth on the driver goes between the two marked teeth on the rear disc.

Clutch Thrust Bearing

1358. Removal

Remove the clutch (§1353).

The thrust bearing can be removed from the support as soon as the spring is disconnected.

Cooling System

1370. Differences

The LaSalle cooling system is essentially the same as the 314 after engine unit 1-41001. Those features which are different are described below.

1371. Water Pump

The water pump is interchangeable with the 314 water pump.

1372. Radiator

The radiator is of the same type as the 314 but is not interchangeable with it. The radiator is removed in the same manner as the 314 radiator after engine unit 1-41001.

1373. Removal of Radiator Shutter Assembly

The shutter assembly has the same general construction as on the 314 but is removed in a different manner as follows:

Remove the hood.

Remove the radiator filler cap.

Remove the radiator casing.

Remove the clevis pin from the thermostat connection.

Loosen the two cap screws which hold the bottom of the shutter assembly to the radiator. These are behind the lower apron of the shutter assembly and are reached from underneath.

Remove the two cap screws which hold the assembly at the top.

The assembly can then be removed.

1374. Removal of Thermostat

To remove the thermostat it is first necessary to remove the radiator shutter assembly; after this has been done the thermostat is removed in the same manner as the 314.

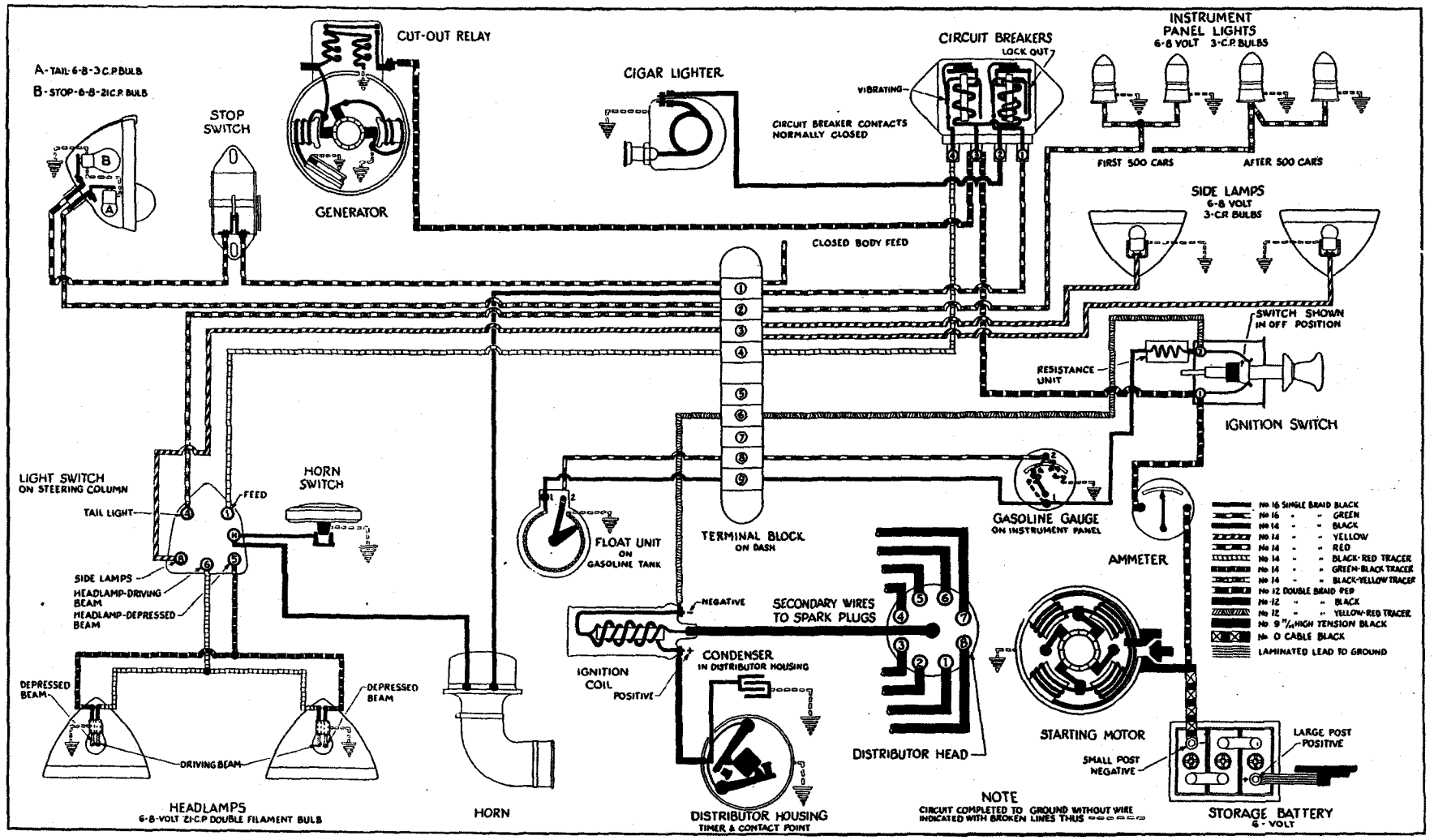


Fig. 121. LaSalle Circuit Diagram

Electrical System

1410. *Difference*

With the exception of the units described below the electrical system is identical with that of the 314 after engine unit number 1-41001.

1411. *Storage Battery*

The battery is located under the front seat in a box attached to the right-hand side bar of the frame and is accessible after removing the front cushion and the cover plate over the battery. To remove the battery, loosen the clamp screws at the corners of the steel battery box, disconnect the cables and lift the battery out.

1412. *Generator*

The generator is the same as the 314 generator after engine unit 1-41001. The procedure for adjusting the third brush is the same as described in §421-a. To remove the generator the carburetor drain pipe must be removed. Otherwise the removal is the same as on the 314.

1413. *Starting Motor*

The starting motor is mounted on the right-hand side of the transmission case, and the pinion engage teeth on the outside surface of the flywheel.

The starting motor is essentially the same as the starting motor of the 314 but is not interchangeable with it.

1414. *Removal of Starting Motor*

Disconnect the cable (1, Fig. 122) at the starting motor switch. Tape the end of the cable or else disconnect it at the battery.

Remove the starter pedal rod (3).

Remove the cap screws (2) which bolt the starting motor to the transmission case.

The starting motor can then be removed from underneath the car.

1415. *Ignition System*

The same ignition system is used on the LaSalle as on the 314 after engine unit 1-41001.

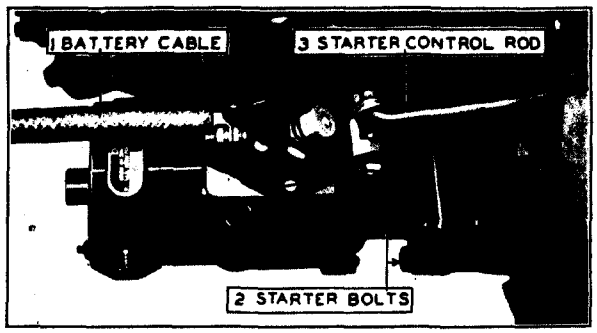


Fig. 122. Starter Attached to Transmission Case

The distributor is essentially the same but is not interchangeable.

1416. *Distributor*

The LaSalle distributor is different from the 314 in that the automatic advance is different. The points have the same setting, also the spring tension of the breaker points should be the same as on the Cadillac.

1417. *Ignition Timing*

The ignition on the LaSalle should be timed in the same manner as on the Cadillac.

The same "IG|A" marks are used on the flywheel but they are stamped 7/8 inch in advance of dead center. On a few of the first cars the marks are stamped the same as on the Cadillac, that is $1\frac{3}{16}$ inches. On these cars the timing should be set 7/8 inch from the dead center mark.

1418. *Ignition Coil*

The same type coil and method of mounting is used on the LaSalle the same as on the 314 after engine unit 1-41001.

1419. *Circuit Breakers*

The circuit breaker unit on the LaSalle is the same as used on the Cadillac V-63 cars. The description and instructions in §§470-474, apply to this unit as well as to the 314.

1420. *Horn*

The horn is similar to the horn used on later 314 cars and is adjusted in the same manner.

To indicate the front main bearing, remove the oil pump and attach adapter B of holder 65530 to one of the oil pump studs, letting the plunger rest on the edge of the throw of the crankshaft (See Fig. 123).

The holder with adapter A (as supplied for 314 engines) can be used as it is for the center main bearing.

For the rear main bearing adapter C is necessary. This adapter is attached to the bearing cap by a thumb screw which screws into the holes for the oil pipe flange (See Fig. 124).

No shims or liners are used under the main bearing caps. When the indicated clearance in a bearing exceeds .006 it is recommended that the bearing be replaced.

Taking up bearings by dressing down the bearings and caps is not recommended. It is possible to do this but the caps cannot then be used again when new bearings are installed. When a cap which has been dressed down is used with a new bearing the cap forces the bearing out of shape and the proper clearance cannot be secured.

1523. Removal

Replacement bearings are furnished to exact size and do not require reaming or scraping.

To remove the bearings, proceed as follows:

Remove the mud pans and oil pan.
Remove the cover under the flywheel.
Remove the oil suction and header pipes.

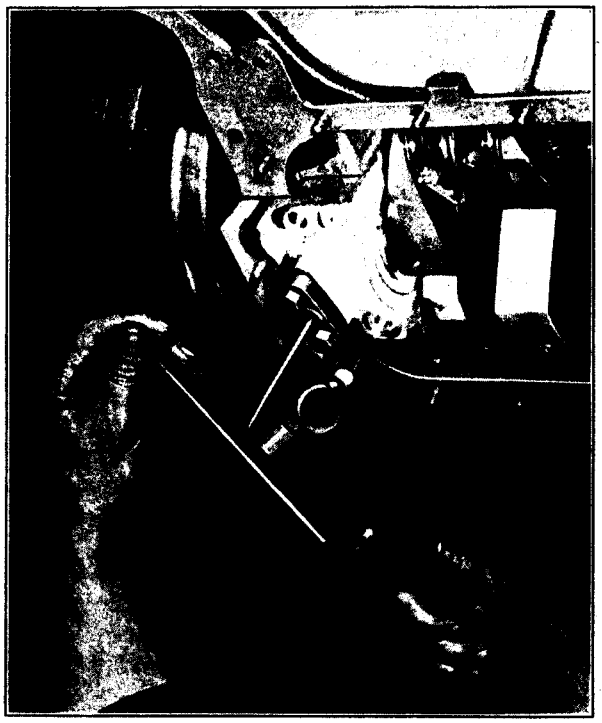


Fig. 125. Removing Rear Main Bearing Cap with Puller 109406

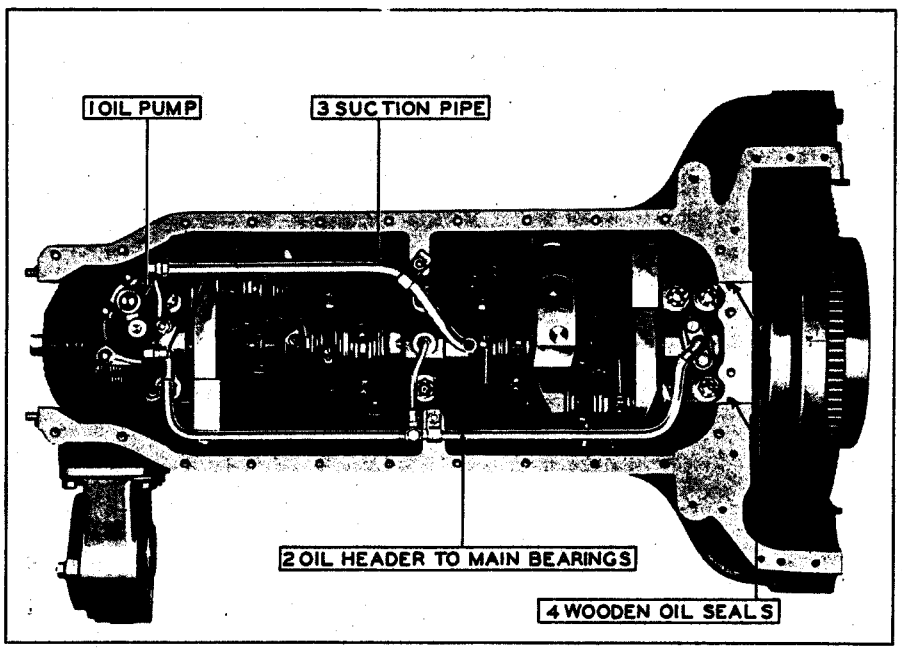


Fig. 126. Bottom View of Engine, Oil Pan and Flywheel Cover Removed

Engine

1520. Removal of Engine

In removing the LaSalle engine from the car the essential difference between it and the 314 is that the rear axle must be removed first. The procedure is as follows:

Remove the hood.

Remove the headlamps.

Remove the radiator.

Remove the two bolts and cap from the front motor support.

Remove the bottom mud pans.

Disconnect the generator wire from the generator.

Disconnect the distributor wire and conduit from the front of the engine.

Disconnect the muffler pipe from the exhaust manifolds.

Disconnect the carburetor feed pipe from the filter at the bottom of the vacuum tank.

Remove the check valve and vacuum pipe assembly from the vacuum tank.

Disconnect at the engine the oil pipe leading to the gauge. It is also well to remove the oil filter at this time to avoid injury to it.

Remove the rear axle and the transmission (§2-960).

Remove the starter pedal.

Remove the two side engine support bolts using wrench number 109200.

1521. Disassembly

To disassemble the engine, proceed in the same manner as for the 314 after engine unit 1-41001 (§522-a).

Main Bearings and Crankshaft

1522. Inspection of Bearings for Clearance

To inspect the main bearings, proceed in the same manner as for the 314. The clearances are the same.

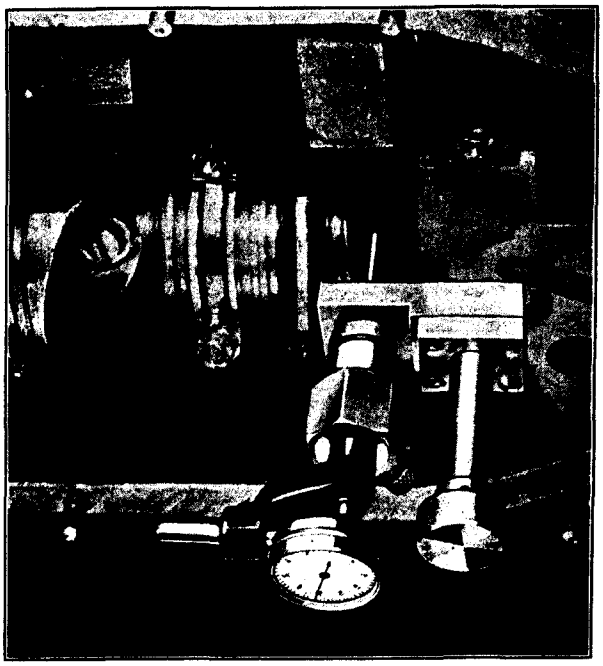


Fig. 123. Indicating Front Main Bearing. Indicator 196-B and Holder 65530 with Adapters A and B

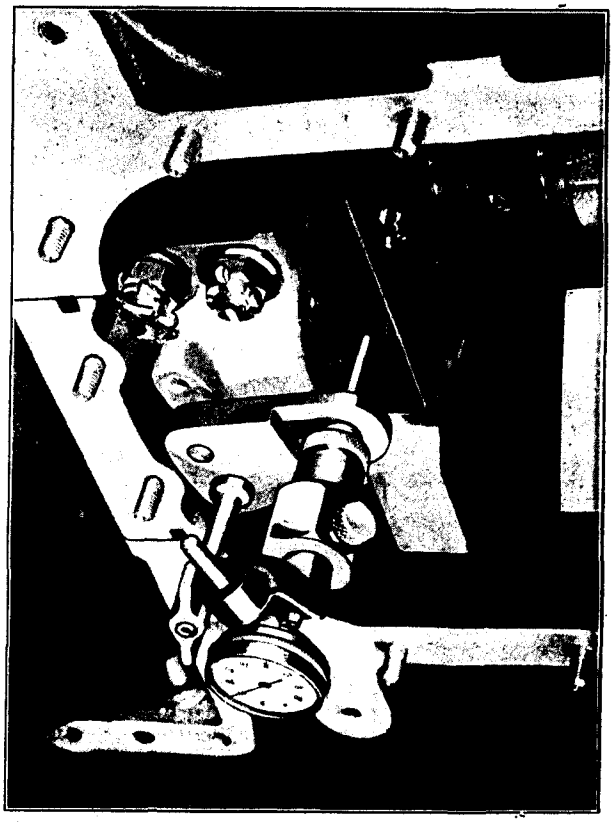


Fig. 124. Indicating Rear Main Bearing. Indicator 196-B and Holder 65530 with Adapters A and C

Remove the bearing caps. Use puller 109406 to remove the rear bearing cap. This is shown in Fig. 125. To remove the front main bearing cap, the oil pump must first be removed.

1524. Installation

When installing main bearings, make sure that the small dowel pins in the bearings are inserted in their holes before clamping down the caps.

The rear main bearing cap requires special attention to install. Between the sides of the bearing cap and the crankcase are two wood plugs (4, Fig. 126) which act as an oil seal. These plugs must be removed after the bearing cap is removed and new plugs must be driven in after the cap is reinstalled. Only plugs furnished by the Factory Parts Division should be used. Care should be used to see that these plugs are driven all the way in so as to form a proper oil seal.

The three main bearings are all the same diameter—2.375 inch.

Compensators

1525. Removal Unnecessary

The compensators of the LaSalle are similar to those described in §§531-3 for the 314. They do not, however, need to be removed for the removal of the connecting rods.

Crankshaft

1526. Description of New Features

The principal new feature of the LaSalle crankshaft is the provision for distributing oil from the main bearings to the connecting rod bearings. Because of the side-by-side rod construction, each crankpin has two oil holes—one for each rod bearing. To connect these oil holes to the passages from the main bearing journal there is an aluminum oil passage plug (Fig. 127) which fits snugly inside each crankpin and is fastened by a machine screw. The plugs do not have to be removed except for cleaning after a bearing burns out.

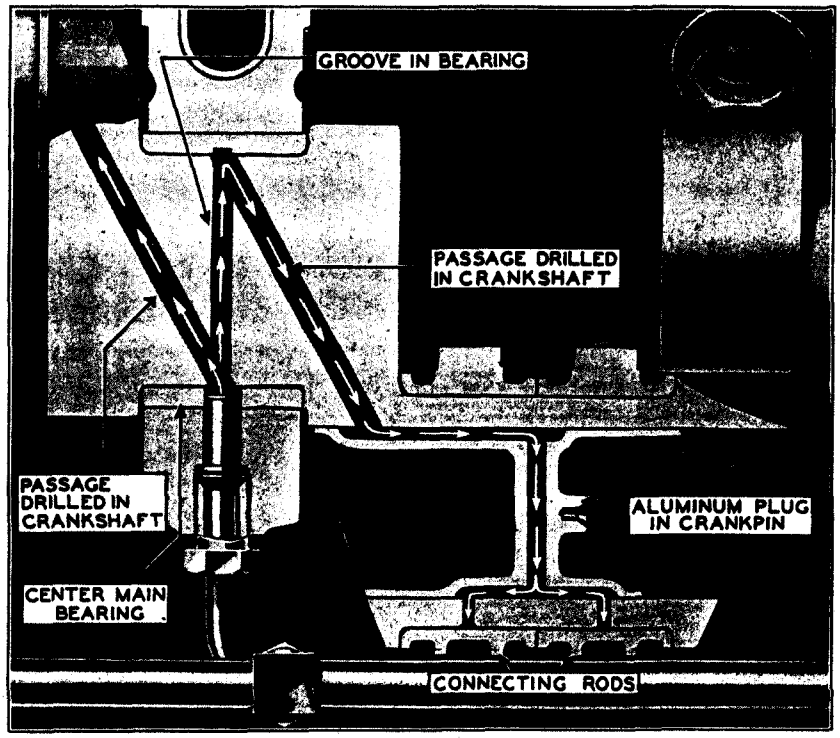


Fig. 127. Section of Crankshaft Showing Oil Passages to Connecting Rod Bearings

1527. Removal of Crankshaft

Remove the transmission (§1960).
Remove the front end chains (§§619-g, 619-m).
Remove the connecting rods (§1533).
Remove the cover under the flywheel.

Remove the flywheel. The crankshaft can be removed without removing the flywheel but the added weight makes it hard to handle.

Remove the main bearing caps, supporting the shaft so that it does not drop.

The crankshaft can then be removed.

1528. Inspection

Remove the oil passage plugs in the four throws of the crankshaft. They should be cleaned out before being reinstalled.

Wash the shaft with gasoline or kerosene and inspect all bearing surfaces. If any of the bearing surfaces are cut, or out-of-round more than .003 inch they should be dressed down.

If the clearance between the connecting rod bearing and the crank pin exceeds .0035 inch the connecting rod should be replaced.

End play in the connecting rod bearings should be not over .011 inch.

The crankshaft should have no more than .015 inch end play in the rear bearing, which is the bearing that takes the end thrust.

The shaft should run out of true no more than .004 inch at the center bearing.

1529. Installation

Before installing the shaft, wipe it off with a cloth and lubricate the bearing surfaces with engine oil of a suitable quality.

To install, reverse the operations under "Removal."

The main bearings are numbered on one end. The bearing nearest to the radiator is stamped "1," the center bearing "2" and the rear bearing "3." Always install these with the number toward the front.

Always replace the wooden plugs in the rear main bearing cap with new ones.

In assembling and installing the pistons and connecting rods, follow carefully the directions in §1536.

Flywheel

1530. Removal and Installation

The marks stamped on the LaSalle flywheel are the same as those on the 314, except that the "I G | A" marks are $\frac{7}{8}$ inch instead of $1\frac{3}{16}$ inches ahead of center. The first cars shipped had the "I G | A" mark $1\frac{3}{16}$ inches ahead of dead center. Should one of these flywheels be removed, the marks should be changed to $\frac{7}{8}$ inch ahead of dead center.

The flywheel is removed and installed the same as the 314 (§§537-541).

Connecting Rods and Pistons

Fig. 128. Determining Clearance Between Connecting Rod Bearing and Crankpin. Indicator 196-B, Holder 109414 and Prying Bar 109415

1531. Difference between 314 and LaSalle Rods

In the LaSalle the two connecting rods from opposite cylinders are placed side by side on the crankpin. All eight rods are therefore the same.

On the first few LaSalle engines the oil hole for throwing oil on the cylinder walls is drilled only in the right-hand rods. On later engines both right and left-hand rods are drilled. When replacing a rod, be sure the new rod has an oil hole, whether it is a right or left-hand rod.

There are no separate connecting rod bearings, the babbitt being cast in place in the rod by a special process. Re-babbitting of rods should not be attempted outside of the factory. Rods should be returned to the factory for re-babbitting and replacement rods should be carried in stock.

1532. Inspection of Bearing Clearance Without Removal

There should be .0005 to .0015 inch clearance

between the connecting rod bearing and the crankpin. The clearance can be measured with indicator 196-B held in holder 109414, Fig. 128. Prying bar 109415 is necessary to force the rod back and forth.

1533. *Removal*

Remove the mud pans and oil pan.

Remove the cotter pins and nuts from the connecting rods.

Remove the bearing caps.

Turn the crankshaft to such a position that the rod and piston can be pulled out of the cylinder. Then turn the crankshaft to another position in which the piston can be moved past the compensator and out of the crankcase. Care should be taken in turning the shaft not to let it jam the piston.

All pistons and rods can be removed in this manner without removing the compensators.

1534. *Adjustment of Connecting Rod Bearings*

The connecting rod bearings are not adjustable.

If the connecting rod caps should be dressed down the rod could not be re-babbitted. No attempt should therefore be made to take up connecting rod bearings by dressing down the caps.

1535. *Inspection*

INSPECTION OF BEARINGS—Clean the babbitt bearing and wipe it off with a cloth.

To insure against excessive oil consumption, smoking at the exhaust, the rapid formation of carbon in the cylinders, and noisy operation, the clearance between a connecting rod bearing and the crankpin should not exceed .0035 inch, as measured by the indicator (§1532).

The bearing should show no cracks. If the babbitt is broken or chipped out the connecting rod should be replaced. The babbitt alone is not interchangeable. It is cast in place in the connecting rod by special process. Re-babbitting of the rod should not be attempted outside of the factory.

INSPECTION OF RODS—The wrist pin bushing should be free from scores. If it is necessary to replace the bushing, proceed as follows:

With a press force out the used bushing and force in the new one, being sure that the oil holes line up. Ream the new bushing to a fit in accordance with §1537.

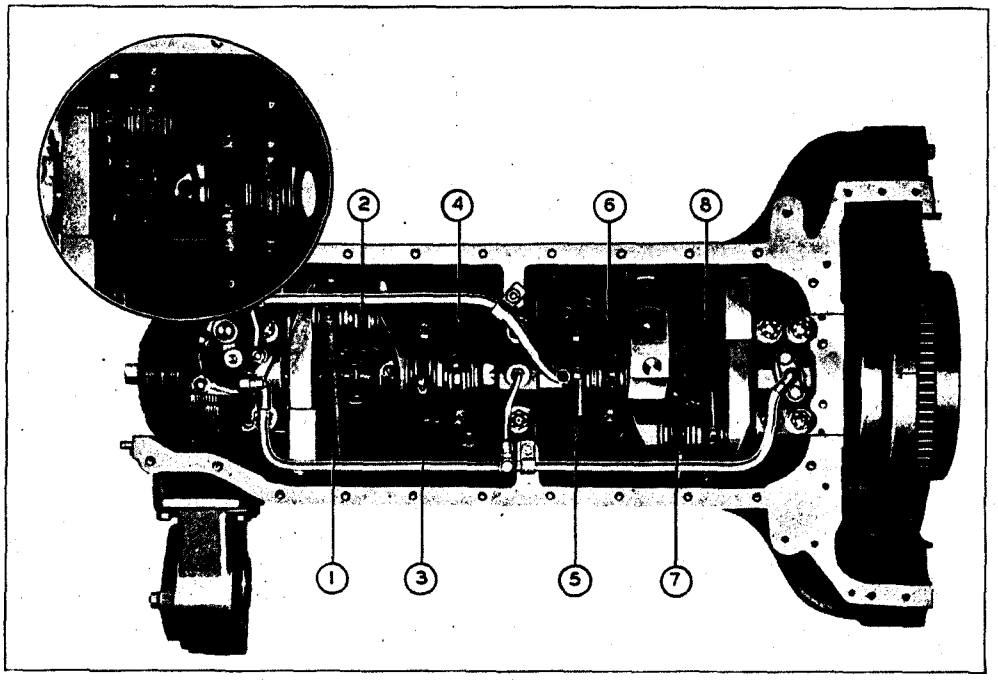


Fig. 129. Identification Numbers Stamped on Connecting Rods

Each rod should be tested for alignment before being installed in the engine.

OIL HOLE—Make sure that there is an oil hole in the large end of all rods. On some of the early engines this hole was drilled only in the right-hand rods. This hole should be drilled in both right-hand and left-hand rods.

ALIGNMENT OF RODS—The rods can be aligned in the same manner and with the same gauge as 314 rods (§561).

It is important that connecting rods always be tested for alignment before they are installed.

If a bearing has burned out, the oil passage plugs in the four throws of the crankshaft should be removed and cleaned out.

1536. Installation

To install, reverse the operations under "Removal."

LaSalle rods are numbered from 1 to 8 beginning with the rod nearest the front of the engine (Fig. 129). These numbers do not correspond to the firing order numbers. The numbers are stamped both on the rod and on the cap. Rods should always be assembled with the numbers facing toward the bottom of the engine.

Each rod is chamfered on one face of the bearing. The chamfered face should always be placed toward the end of the crankpin. The plain faces should be toward each other.

Check the following after the rods are installed:

1. Numbers on rods toward the bottom of the engine, (See Fig. 129).
2. Numbers on bearing caps corresponding to numbers on rods.
3. Oil holes in both connecting rods and facing the top.
4. All nuts tightened and cotter pinned.
5. The screws in the oil passage plugs should be tightened.

Fill the oil pan with eight quarts of engine oil.

Pistons, Pins and Rings

1537. Fitting of Pistons

LaSalle pistons should be fitted to a clearance of .0025, as measured with a feeler or thickness gauge. Feeler ribbon, not less than one-half inch wide, should be used in two thicknesses, .002 and .003.

When the .002 feeler is placed along side the piston, the piston should go into the cylinder without forcing. When the .003 feeler is used, the piston should not go in.

To assist in fitting pistons, cylinders and pistons are both marked for size indicating differences of .0005 inch. Cylinder bores are in four sizes as follows:

1—3.1250—3.1255
2—3.1255—3.1260
3—3.1260—3.1265
4—3.1265—3.1270.

The figures 1 to 4, indicating the cylinder sizes, are stamped on the surface to which the exhaust manifold is attached, the mark for each cylinder being placed just in front of the corresponding exhaust connection.

Pistons are grouped in sizes, also varying by .0005 inch. These sizes and the limits for each size are as follows:

1—3.1222—3.1227
2—3.1227—3.1232
3—3.1232—3.1237
4—3.1237—3.1242
5—3.1242—3.1247
6—3.1247—3.1252
7—3.1252—3.1257.

When the cylinders are new, ordinarily the correct piston to be used will have the same size number as the cylinder or the next higher number. Thus, a No. 1 cylinder will ordinarily have a No. 1 or No. 2 piston. In fitting pistons when the cylinder bores are slightly worn, however, a larger piston will in most cases be necessary.

It will save time in selecting the correct piston to note first the size number stamped on the cylinder and then try a piston with the same mark. If this piston is too small, or if a piston of this size is not available, try the next size larger.

Markings for Weight

LaSalle pistons are the same approximate size as 314 pistons, but the weight specifications are not the same. It is therefore important that only pistons shipped by the Parts Division for LaSalle engines be used in LaSalle engines. If 314 pistons are used, the balance of the engine is likely to be destroyed.

In production, LaSalle pistons are stamped to indicate the weight classification, Roman numerals from I to X being used. Replacement pistons are selected to a "mean" or average weight, so

that in fitting replacement pistons, no attention need to be paid to weight markings.

Piston Pins

The proper fitting of piston pins in the LaSalle engine is important.

The piston pin should be a tight hand press fit in the piston. In other words, it should be just possible to push the pin into the piston by pressing with both thumbs on the end of the pin.

The piston pin should be a slightly easier fit in the bushing in the connecting rod than in the piston. To test this fit, assemble the rod and piston and hold the piston horizontal. The large end of the rod should then just drop slowly on its own weight.

To make it possible to fit piston pins to these specifications in service, the Parts Division furnishes four oversizes in addition to standard size pins. These oversizes are .001, .002, .003 and .005.

When fitting an oversize pin, the piston and the bushing in the connecting rod should be carefully reamed with an expansion reamer.

Piston Rings

The same piston rings are used in the LaSalle pistons as in 314 pistons, and directions for fitting and inspecting 314 piston rings, apply also to the LaSalle.

Cylinders

1538. Removal, Inspection and Installation

The cylinder heads and blocks on the LaSalle can be removed in the same manner as described in §§ 570-575 for the 314. The exhaust manifolds can be left on the blocks by disconnecting them at the front end. Before removing the left-hand head the temperature indicator should be disconnected.

The right and left-hand cylinder blocks are interchangeable. The heads are not.

Valve System

1539. Valves and Springs

The valve system is essentially the same as the 314.

The valve springs should support a load of 136 pounds when compressed to $2\frac{9}{64}$ inches.

The valves are $1\frac{1}{2}$ inch nominal diameter. The angle of the inlet valve seat is 30° and that of the exhaust valve seat 45°.

The method of adjusting the valve stem clearance and the amount of the clearance is the same as for the 314 (§582).

Valve spring lifter 109206 is necessary for removing valves and springs.

When installing the valve cover plates on the LaSalle, care should be taken to install them with the mark "Top" up and on the outside.

If these cover plates are not properly installed oil will leak from them.

1540. Refacing and Reseating Valves

The angle of the inlet valve seat is 30°, of exhaust valves 45°. In refacing and reseating valves, the seats must have the correct angles.

Reseating tool 109403 is for the inlet valves and tool 109207 is for the exhaust valves.

1541. Camslides and Guides

The camslide guides are in groups of four. To remove a guide, first remove the four valves and springs above it. Remove the four nuts that hold the guide block to the crankcase and lift up the guide block.

1542. Camshaft

The camshaft is removed in the same manner as on the 314 after engine unit 1-41001. The directions and specifications in §§590-592 should be followed.

Fan, Front Cover and Chains

1543. Description

FAN—The fan is similar in construction to the fan on the 314 engines after engine unit 1-41001 but is not interchangeable with it. The difference is in the fan blades. The remainder of the fan assembly—hub, gear pump, and shaft—is the same on both cars. The fan belt is also the same for both cars.

CHAINS—The camshaft driving chain is shorter than on 314 engines, and is not interchangeable with the 314 chain.

The water pump and generator chain is the same length and width as the 314 chain but has bushed joints (marked B-45) instead of rocker type joints. Should replacement of this chain be necessary be sure to use the bushed joint type of chain.

Engine Lubrication System

1544. Description

The oil circulating system is essentially the same as for the 314. The oil pumps are interchangeable but the pressure regulators are not.

To remove the oil pan, the mud pans must first be removed.

The construction of the oil pan and screen is different. The screen rests on the inside of the oil pan and there is only one cork gasket between the oil pan and crankcase. To clean the oil pan and screen, the screen should be removed from the oil pan after taking out the six screws that hold it.

Exhaust System

Mufflers

1700. Differences

The exhaust manifolds of the LaSalle engine are joined at their front ends and a single exhaust pipe carries the gases down in front of the engine and back between the crankcase and the left-hand side of the frame. A single muffler of special construction is used and is fastened to the two center cross members.

1701. Removal

Remove the bolts which bolt the muffler supports to the frame, cross members at the front and rear of the muffler.

Disconnect the tail pipe from the two rear cross members.

The muffler with tail pipe attached can now be pulled off the end of the exhaust pipe.

To separate the muffler from the tail pipe, place the pipe in a vise, loosen the clamp screw and pull the muffler off the pipe.

1702. Disassembly

The muffler is crimped and welded together and cannot be disassembled.

Fenders, Running Boards and Shields

Fenders and Running Boards

2-710. *Removal and Installation*

The fenders and running boards on the LaSalle are removed and installed in a manner similar to those on the 314.

The front stabilators are fastened to the front fender bracket and these must be removed before removing the fender.

Dust Shields

2-719. *Removal and Installation*

The dust shields are similar to the 314 shields except that there are no tool and battery boxes. With this exception the method for the removal of the dust shield is the same as the 314.

Radiator Splash Shields

2-723. *Removal*

There is very little occasion to remove the splash shields. They can be removed without first removing the fenders but in order to insure against injury it is best to remove the fenders first.

Frame

1740. Removal

Remove the body.
Remove the running boards.
Remove the front fenders and dust shields as a unit.
Remove the radiator.
Remove the engine (§1520).
Remove the steering gear as a unit.
Remove the front axle.
Remove the muffler and exhaust pipes.
Remove the front springs.
Remove the rear springs
Remove the gasoline tank, pipes and wiring.
Remove the stop light switch.
Remove the brake cross shafts, cables and rods.

1741. Inspection

To determine whether the frame has become bent or sprung, follow general procedure as given in §741 for the 314. The differences in dimensions are as follows:

The dimension C to D in Fig. 71 should be $20\frac{23}{32}$ to $20\frac{25}{32}$ inches on the LaSalle.

The distance A in Fig. 70 should be $6\frac{5}{8}$ inches on the LaSalle.

Gasoline System

1750. General Description

The general arrangement of the LaSalle gasoline system is illustrated in Fig. 130. The supply of fuel is carried in a 20-gallon tank at the rear, from which it is fed by vacuum to a tank on the dash. The fuel flows from this tank to the carburetor by gravity.

The vacuum for feeding the fuel from the supply tank to the tank on the dash is supplied from two sources: (1) The intake header and (2) a special vacuum pump driven by an eccentric on the rear end of the camshaft. The vacuum of the intake header alone is insufficient at wide open throttle to insure adequate flow of fuel and the pump is provided to supplement the intake header and furnish an adequate vacuum at all times.

The vacuum pump and the intake header are both connected to the vacuum tank and, except at wide open throttle, they together supply the vacuum to operate the vacuum tank. At wide open throttle, when the vacuum of the intake header is less than that of the vacuum pump, the pump alone supplies the vacuum for operating the tank. At such times, backflow from the intake header is prevented by a check valve (Fig. 131) in the fitting to which the pipe from the intake header is connected at the vacuum tank. This check valve automatically closes when the vacuum of the intake header drops below that of the pump.

The windshield cleaner is connected on the same side of the check valve as the intake header and is operated entirely by the vacuum of the intake header. The cleaner is not affected by the closing of the check valve.

1751. Operation of Vacuum Tank

The action of the system in operation is as follows:

Starting with the inner chamber empty and the float at the bottom, as in Fig. 131, the vacuum valve is open and the vent valve is closed. The suction of the intake header and the vacuum pump immediately causes gasoline to be drawn through the feed pipe from the supply tank to the inner chamber. The flapper valve is held closed by the vacuum within the inner chamber and the level of gasoline in the inner chamber rises until the float reaches the top of its travel, closing the vacuum valve and opening the vent valve. This breaks the vacuum in the inner chamber and the flapper valve at the bottom opens under the weight of gasoline, emptying the contents of the inner chamber into the outer chamber. The float drops simultaneously and, as it reaches the bottom, again operates the valves, this time opening the vacuum valve and closing the vent valve. The cycle thereupon starts again.

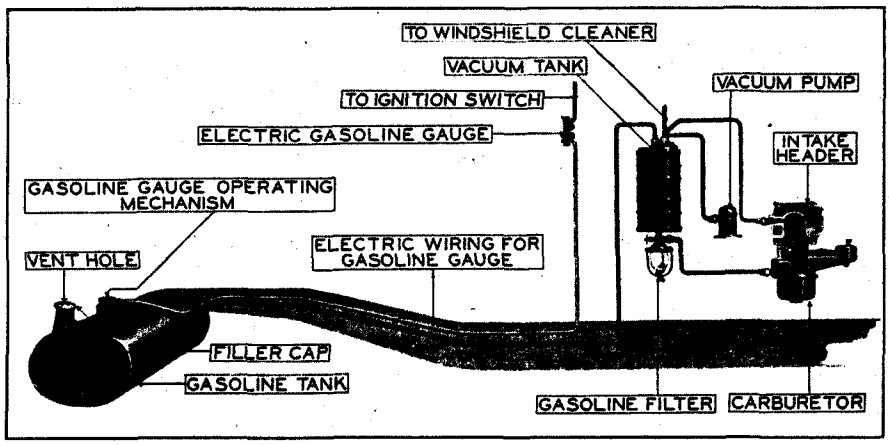


Fig. 130. Gasoline System

This alternate filling and emptying of the inner tank is repeated rapidly until the level of gasoline is the same in the inner and outer chambers, and thereafter, only as the carburetor demands fuel.

Ordinarily, there is enough fuel in the carburetor and in the vacuum tank to start the engine. If not, the automatic feeding action can usually be started by closing the throttle and operating the starter for about ten seconds. Wait a few seconds to allow the fuel to flow to the carburetor, and then start the engine as usual.

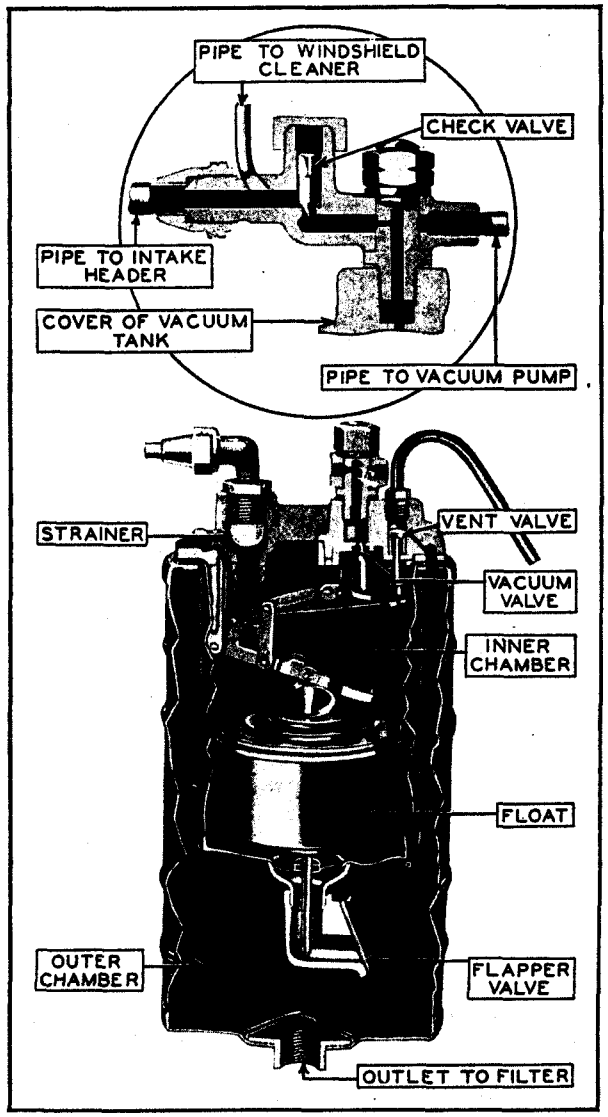


Fig. 131. Sectional View of Vacuum Tank and Check Valve

The flow of fuel from the supply tank depends upon the difference in pressure between the vacuum tank and the supply tank. It is, therefore, essential that the supply tank be open to atmospheric pressure. For this reason, the vent hole in the gasoline filler cap must be kept open.

1752. Gasoline Filter

A gasoline filter (Fig. 132) is provided in the gasoline line between the vacuum tank and the carburetor. This filter has a glass bowl through which the accumulation of water and sediment

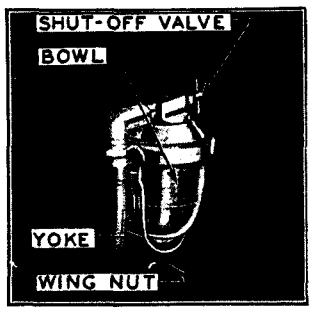


Fig. 132. Gasoline Filter

can be easily seen. The bowl should be removed and the gauze screen should be cleaned, as soon as any accumulation appears in the bowl. This can be done as follows:

First shut off the gasoline by turning clockwise the small T-handle valve at the side of the filter. Then unscrew the thumb screw under the bowl, after which the yoke supporting the bowl can be swung to one side and the bowl can be removed. If the screen does not come off with the bowl, it can be removed by pulling it straight down.

In putting back the bowl, make sure that it seats properly against the cork gasket in the top of the filter before tightening the thumb screw. Do not forget to turn the gasoline on by turning the valve counter-clockwise as far as it will go.

There is also a strainer in the vacuum tank at the point where the gasoline enters the inner chamber. This strainer is accessible after disconnecting the feed pipe and unscrewing the inlet elbow. The strainer should be removed and cleaned occasionally.

Vacuum Tank

1753. Disassembly

If the hood is on the car it will be necessary to loosen the vacuum tank from the dash in order to disassemble it. If the hood is off, this is not

necessary. To disassemble the tank, proceed as follows:

Disconnect the feed pipe from the top of the tank.

Disconnect the intake header pipe from the fitting on the vacuum tank. Disconnect the vacuum pump pipe from the pump. Disconnect the windshield cleaner tube from the pipe under the cowl. Remove the screw which fastens the vacuum fitting to the tank and remove the fitting with the two pipes.

Remove the eight screws which hold the cover on the top of the vacuum tank.

Loosen the cork gasket by running a knife under it. Lift off the cover with the mechanism and float attached.

The inner tank with flapper valve can also be lifted out if necessary.

1754. Inspection

The float must be perfectly air-tight. A leaking float will not properly operate the vacuum and vent valves and will cause gasoline to be drawn through the vacuum valve, into the intake header.

The vent passage and tube must be free from dirt or any obstruction.

The vent valve should seat tightly. To examine this valve, remove the sleeve around the vent tube.

1755. Assembly

To assemble the vacuum tank, reverse the operations under "Disassembly."

Be sure to install a new gasket between the cover and the tank. The large hole in the edge of the gasket should be placed over the short vent tube in the outer tank.

When installing the cover, place it so that the short vent tube in the outer tank is directly under the vent opening in the cover. Also be sure that, as the float is lowered into the tank, the float stem enters the guide at the bottom of the tank. The tank will not operate unless the float stem is properly entered in this guide.

1756. Vacuum System Tests

There are only two ways in which failure of the vacuum system may affect operation of the engine: (1) by not supplying gasoline to the carburetor in sufficient quantity and (2) by gasoline being drawn into the intake header, causing an over-rich mixture or "flooding."

The possible causes for an insufficient flow of fuel are as follows:

(1) Clogged strainer at top of vacuum tank. Remove and clean.

(2) Clogged vent hole in gasoline tank filler cap. Clean out with wire.

A clogged vent in the gasoline tank filler cap may also cause gasoline to overflow through the vent tube on the vacuum tank.

(3) Air leaks in vacuum connections. Points to be especially examined are the union nuts on the pipes to the intake header and vacuum pump, the windshield cleaner pipe and hose and the joint between the check valve fitting and the top of the vacuum tank.

(4) Air leaks in the supply line from the gasoline tank to the vacuum tank. The principal point to check is the union where the feed pipe enters the vacuum tank. The threads on this union are not pipe threads and the union must be screwed down to a seat on the cover in order to make a tight connection.

Ordinarily air leaks in the vacuum or supply line connections will not cause total failure of the fuel supply unless the leak is unusually large.

(5) Clogged vent tube or passage. If the inner tank is not properly vented to the atmosphere, the gasoline in the inner chamber will not empty through the flapper valve. To remedy this, remove the cover (§1753) and clean the vent passage and tube.

(6) Vent valve not seating properly. This prevents the vacuum from building up in the inner chamber. It is usually due to dirt or corrosion. If cleaning the valve and seat does not correct this condition, a new valve or seat may be necessary.

(7) Sticking flapper valve. Corrosion of the flapper valve seat may cause the flapper to stick and prevent fuel from flowing to the outer chamber.

(8) Leaking flapper valve. On a car that has been idle for some time with gasoline left in the vacuum tank, the flapper valve may leak air enough to prevent the vacuum from building up in the inner chamber. This is usually due to dirt under the valve or corrosion on the valve seat. Dirt can be washed out by disconnecting the feed pipe and pouring a small amount of gasoline

into the inner chamber. If this does not correct the condition, remove the inner tank and clean or replace the valve.

The cause of gasoline being drawn into the intake header is in nearly every case a leaking float. A leak in the float will cause it to fill partly and it will then fail to open the vent valve. To investigate this, remove the float (§1753) and test it.

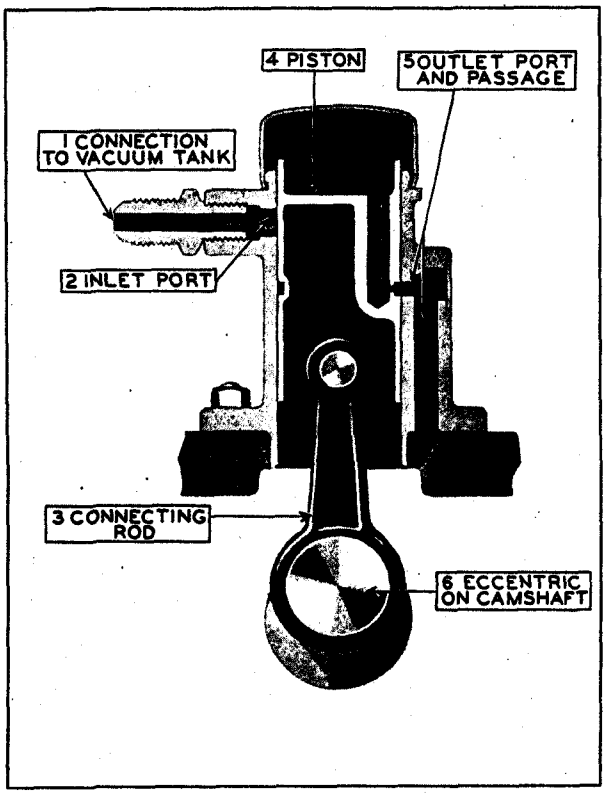


Fig. 133. Section of Vacuum Pump

Vacuum Pump

1757. Description

The vacuum pump on the LaSalle is located in the same position and is driven in the same manner as the automatic pressure pump on the 314 after engine 1-41001, (See Fig. 133).

The pump is similar to the pressure pump but the parts are so arranged that instead of pumping air into the system it draws the air out of the system. The outlet discharges into the crankcase so as to return any oil that may pass the piston. No check valve is necessary at the pump.

The pump is removed and installed in the same manner as the 314 pressure pump.

1758. Inspection

The vacuum pump should be tested for efficiency in the same manner as described in §755 for the 314 pressure pump. In other words, with the cylinder and piston inverted in a vertical position, the piston and cylinder being free of oil, the piston should drop of its own weight from the inlet position to the discharge position in not less than 20 seconds and not more than 40 seconds.

Carburetor

1759. Description

The carburetor is essentially the same as the 314 carburetor but is turned around so that the inlet connection is toward the rear. The purpose of this is to make the pipe between the carburetor and the vacuum tank as short as possible. The float valve is also larger in diameter to take care of gravity feed. The choke and throttle controls are, of course, somewhat different.

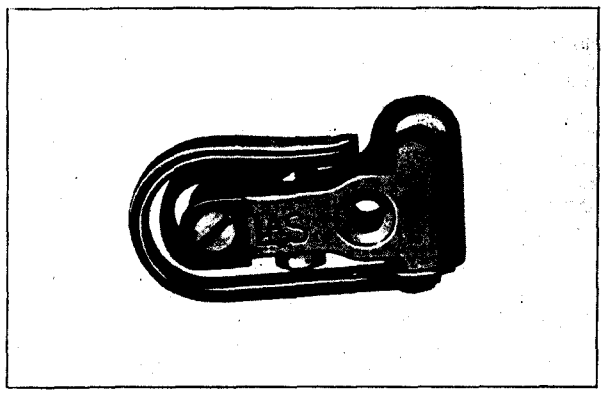


Fig. 134. Thermostat Block

The LaSalle carburetor adjustments are identical with the 314 carburetor adjustments.

Two of the vent holes in the thermostat block are different from those on the 314. The LaSalle block is marked "LaS" to distinguish it from the 314 block, (See Fig. 134). (A few of the first LaSalle thermostat blocks are marked "2" instead of "LaS.")

The temperatures at which the thermostats open and close are the same as on the 314 carburetor.

Lighting System

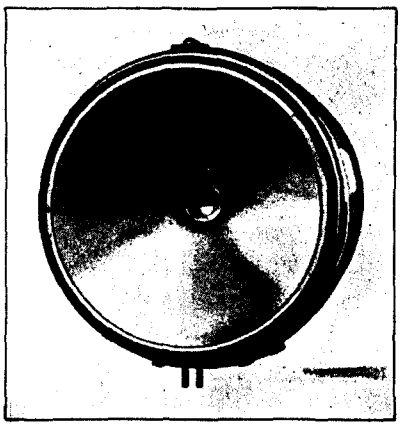


Fig. 135. Headlamp Fog Cap

1820. Bulbs

The bulbs listed in §820 for 314 cars, with the exception of the back-up light and running board step lights, are used on the LaSalle.

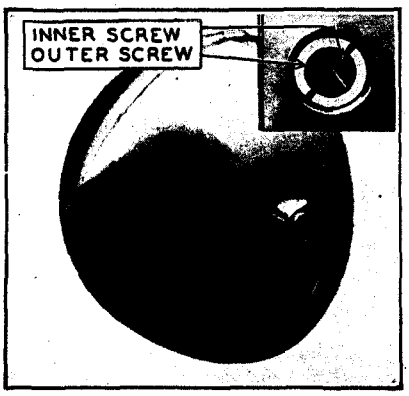


Fig. 136. Headlamp Adjusting Screws

1821. Headlamp Adjustment

The headlamps have the same two-beam feature as 314 headlamps, but the adjusting screws are different. The tilt adjusting screw is inside the focus adjusting screw, both screws being at the extreme rear of the lamp (Fig. 136). The method of adjustment is the same as for 314.

1822. Headlamp Conduits

The nickel-plated tubes below the headlamps are conduits for the headlamp wires. The connectors are at the lower ends of these conduits. To disconnect the wires, first remove the screws in the flanges support at the bottom of the conduit, then pull down on the conduit to disengage the upper end and tilt it to one side (Fig. 137). The flanged support can then be raised high enough to separate the two halves of the connector.

Fig. 137. Disconnecting Wires on Headlamps

LA SALLE LUBRICATION SCHEDULE

OWNER'S NAME _____

ADDRESS _____

ENGINE NO. _____ DATE DELIVERED _____

DO NOT WAIT FOR SCHEDULE LUBRICATIONS BEFORE ADDING ENGINE OIL. THE OIL LEVEL SHOULD BE CHECKED EVERY 100 TO 150 MILES AND OIL ADDED IF THE INDICATOR BALL IS BELOW "FULL". THIS IS ESPECIALLY IMPORTANT ON CARS DRIVEN AT HIGH SPEEDS.

			LUBRICANT	LUBRICATION NO. AND MILEAGE AT WHICH DUE											
				1	2	3	4	1	2	3	4	1	2	3	4
				1000	2000	3000	4000	1000	2000	3000	4000	1000	2000	3000	4000
LUBRICATION NO. 4	LUBRICATION NO. 2	LUBRICATION NOS. 1 & 3	ADD ENGINE OIL AS NECESSARY	ENGINE OIL	O		O		O		O		O		O	
			GENERATOR AND DISTRIBUTOR OIL CUPS	ENGINE OIL	O	O	O	O	O	O	O	O	O	O	O	O
			FAN—ADD ENGINE OIL	ENGINE OIL	O	O	O	O	O	O	O	O	O	O	O	O
			ENGINE REAR SUPPORTS	ENGINE OIL	O	O	O	O	O	O	O	O	O	O	O	O
			BRAKE PINS AND CONNECTIONS	ENGINE OIL	O	O	O	O	O	O	O	O	O	O	O	O
			SPRING LEAVES	ENGINE OIL	O	O	O	O	O	O	O	O	O	O	O	O
			DOOR HARDWARE	ENGINE OIL	O	O	O	O	O	O	O	O	O	O	O	O
			GREASE GUN CONNECTIONS (EXCEPT WATER PUMP)	CHASSIS LUBRICANT	O	O	O	O	O	O	O	O	O	O	O	O
			WATER PUMP	WHEEL BEARING GREASE	O	O	O	O	O	O	O	O	O	O	O	O
			*ADD WATER TO STORAGE BATTERY	DISTILLED WATER	O	O	O	O	O	O	O	O	O	O	O	O
			CHECK TIRE INFLATION		O	O	O	O	O	O	O	O	O	O	O	O
		DRAIN AND REPLACE ENGINE OIL		ENGINE OIL		O		O		O		O		O		O
		CLUTCH THRUST BEARING		FIBRE GREASE		O		O		O		O		O		O
		TRANSMISSION—ADD LUBRICANT		CHASSIS LUBRICANT		O		O		O		O		O		O
		REAR AXLE—ADD LUBRICANT		CHASSIS LUBRICANT		O		O		O		O		O		O
		STEERING GEAR—ADD LUBRICANT		CHASSIS LUBRICANT		O		O		O		O		O		O
	REAR WHEEL BEARINGS			CHASSIS LUBRICANT				O				O				O
	FRONT WHEEL BEARINGS			WHEEL BEARING GREASE				O				O				O
	SPEEDOMETER DRIVE SHAFT.			WHEEL BEARING GREASE				O				O				O

THE FOLLOWING OPERATIONS CANNOT BE PLACED ON A MILEAGE BASIS AND ARE NOT INCLUDED IN THE ABOVE SCHEDULE:

REMOVE OIL PAN AND CLEAN PAN AND SCREEN—ONCE A YEAR OR WHENEVER OIL FILTER IS CHANGED.

THIN REAR AXLE AND TRANSMISSION LUBRICANT AS REQUIRED FOR LOW TEMPERATURES.

DRAIN AND REPLACE REAR AXLE AND TRANSMISSION LUBRICANT—AT BEGINNING OF MILD WEATHER IN SPRING.

*IN SUMMER INSPECT BATTERY EVERY 500 MILES OR AT LEAST EVERY TWO WEEKS.

RECORD ON OTHER SIDE

FORM NO. 102-A
15M 4-27 SPC.

Fig. 138. Facsimile of Lubrication Record Card

Lubrication

Engine Lubrication

1846. Oil Circulation

The oil circulation in the LaSalle engine is the same as that in 314 engines after engine unit 1-41001 except in one particular. Instead of a separate lead from the rear end of the header pipe to a fitting on the crankcase, there is a tube cast in the crankcase between the rear main bearing and the camshaft rear bearing. The oil filter and the pressure gauge are connected to a nipple which communicates directly with the rear camshaft bearing.

1847. Oil Level

The LaSalle oil pan contains eight quarts of oil when filled to the level of the screen. On the first few cars the oil level indicator is stamped "Full" and "Fill". On later cars, the oil level indicator is stamped "Full," "Fill" and "MT" (Empty).

1848. Oil Filter

The LaSalle oil filter is attached to the right-hand crankcase support arm. It is similar in principle to the 314 filter but is not interchangeable with it. Both filters are tested in the same manner.

General Lubrication

1849. Grease Gun Connections: G (Fig. 140)

Spring bolts, steering connections, brake rocker shafts and other points are provided with connections to fit the grease gun supplied with the tool equipment. These points are indicated by "G" in Fig. 140. Chassis lubricant as described in §841 should be applied to these points with the grease gun every 1000 miles.

1850. Clutch Thrust Bearing: 3

On the first cars, the lubricating point on the clutch thrust bearing is fitted with a grease gun connection on an extension that points straight down. This is accessible after removing the small plate on the bottom of the transmission case.

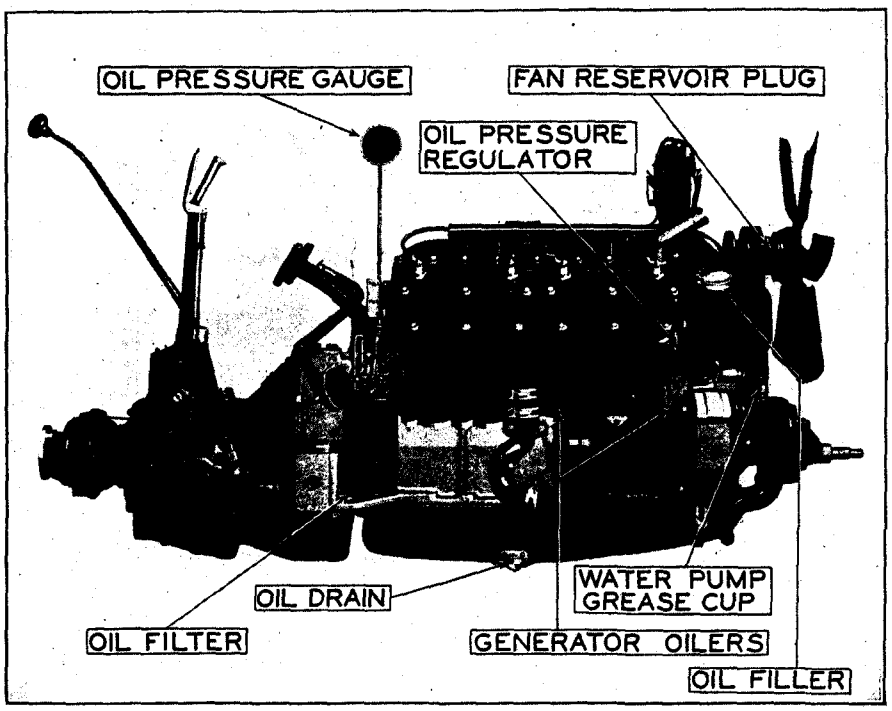


Fig. 139. Showing the Location of the Oil Filler, Oil Level Indicator, Oil Pan Drain Plug and other Lubrication Features

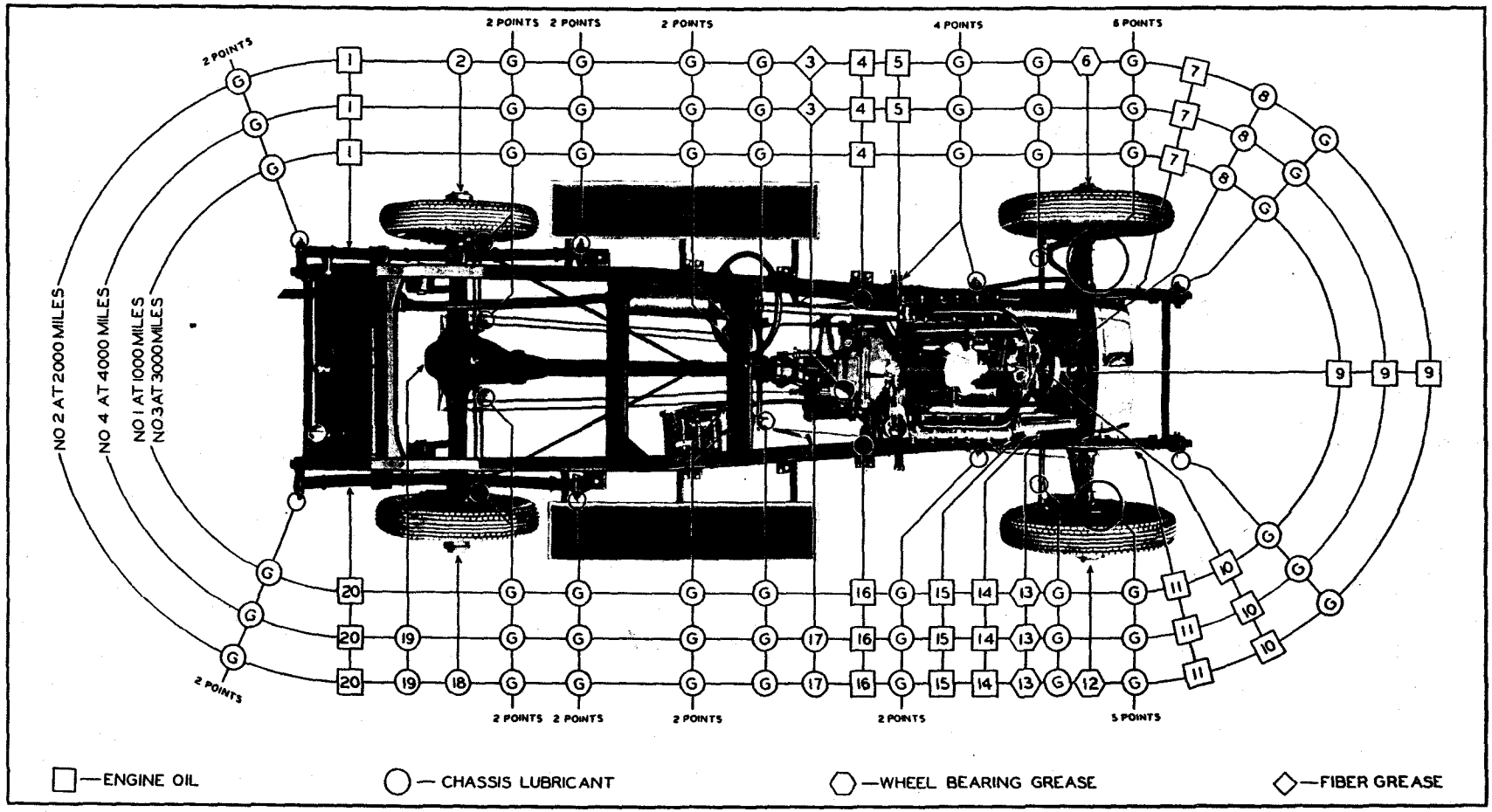


Fig. 140. Chassis Lubrication Diagram
(Each "G" indicates a grease gun connection. Each number indicates a lubricating point for which instructions are given under "Engine Lubrication" or "General Lubrication." Lubricating points that are visible in the diagram are surrounded by circles. Others are indicated by arrows)

On later cars the extension pipe extends through the right-hand side of the transmission case and a grease cup is used instead of a grease gun connection. This grease cup can be reached from under the hood.

The clutch thrust bearing should be lubricated every 2000 miles with fiber grease.

Caution: Do not inject too much grease into the clutch thrust bearing. One or two turns of the grease gun handle or grease cup cap are sufficient.

1851. Transmission: 17

The transmission case should contain sufficient lubricant to bring the level up to the filling hole at the right-hand side. The level should be inspected every 2000 miles and chassis lubricant added if necessary.

If, in cold weather, the transmission gears are difficult to shift, the lubricant should be thinned by the addition of kerosene. On the return of warm weather in the spring, the drain plug should be removed from the bottom of the transmission case and the lubricant should be drained and replaced with fresh lubricant. One and one-half quarts of lubricant are required to fill the transmission case to the proper level.

1852. Rear Axle: 19

The rear axle housing should contain enough lubricant to bring the level up to the filling hole in the rear cover plate. The level should be inspected every 2000 miles and chassis lubricant added if necessary.

In weather cold enough to warrant thinning the transmission lubricant the lubricant in the rear axle should also be thinned. On the return of warm weather in the spring the drain plug should be removed from the bottom of the axle housing and the lubricant should be drained and replaced with fresh lubricant. Three quarts of lubricant are necessary to fill the rear axle housing to the proper level.

1853. Front Wheels: 6, 12

The wheel bearings are packed in grease when the car is assembled. Every 4000 miles the front wheels should be removed and the bearings should be thoroughly cleaned in gasoline or kerosene, and then repacked with wheel bearing and cup grease.

1854. Rear Wheels: 2, 18

Every 4000 miles the screw plugs in the rear wheel hubs, should be removed and chassis lubricant should be injected with the grease gun. On cars with wire wheels, the wheels must be removed to reach the plugs in the hubs. On cars with disc wheels the hub caps and hub shields must be removed.

1855. Steering Gear: 5

The grease gun connection for adding lubricant to the steering gear is on top of the housing just at the base of the steering column. Chassis lubricant should be added every 2000 miles. If, in cold weather, the car steers hard, the lubricant should be thinned by the addition of kerosene (§842-a).

1856. Speedometer Flexible Drive Shaft

The flexible shaft by which the speedometer is driven is housed in a flexible casing. To lubricate the speedometer drive shaft, the shaft should be removed from its casing and lubricant applied to it for its entire length. Cup grease is recommended for this lubrication, which should be performed every 4000 miles.

Do not under any circumstances attempt to lubricate the speedometer itself. Any parts in the speedometer requiring lubrication are amply supplied when it is assembled.

1857. Springs: 1, 7, 11, 20

To lubricate the spring leaves, it is recommended that the edges and ends of the leaves be painted with engine oil every 1000 miles. A small stiff brush should be used. After applying the oil, the car should not be washed until it has been driven far enough to allow the lubricant to work in between the leaves. Do not separate the leaves and insert lubricant. A certain amount of friction between the spring leaves is necessary in order to give the springs the desired characteristics.

If spring covers are used, it is not necessary to lubricate the spring leaves as directed in the preceding paragraph. It is sufficient to repack the springs once a season with petroleum jelly.

1858. Stabilators

The stabilators, with which the car is equipped and which are for the purpose of controlling the recoil of the springs, not only need no lubrication

—they *must not* be lubricated. To lubricate the stabilators would defeat their purpose just as oil or grease on the brakes would prevent them from holding.

1859. Door Hardware

Whenever the chassis is being lubricated, the door locks and other door hardware should also be lubricated as follows:

Place a few drops of oil on each door lock plunger or striker, turning the handle back and forth so that the oil will work into the lock. Also place a drop of oil on each of the striker plates against which the strikers engage when the doors are closed. The hinge pins should also be oiled sparingly so as not to get oil on the finish.

Each door has a wedge-shaped tongue that dovetails into a receptacle on the body when the door is closed. These tongues should receive a small amount of grease or oil.

Each closed car door is also fitted with a check at the top which limits the outward movement of the door. A small amount of grease should be applied to the pin that slides in the slot at the top of the door.

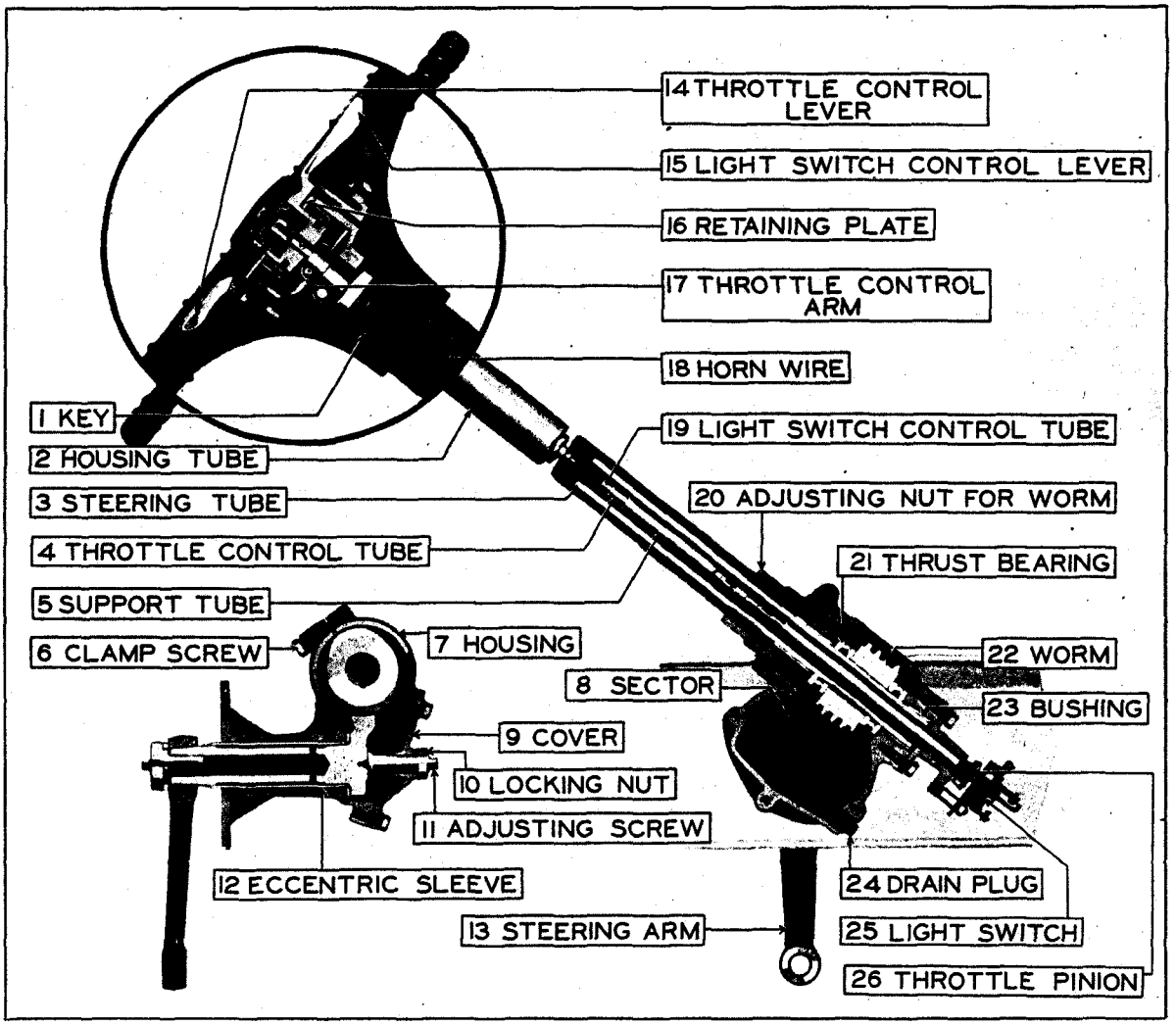


Fig. 143. Sectional View of LaSalle Steering Gear

Spring Suspension

1880. Rear Spring Shackles

The shackles at the rear ends of the rear springs are the same type as is used on the 314 at this point. The adjustment is covered in §880.

On the LaSalle, shackles are also used at the front ends of the rear springs because the drive

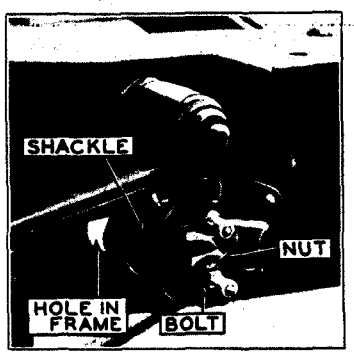


Fig. 141. Rear Spring Front Shackle

is through the torsion arm rather than through the rear springs. This shackle is shown in Fig. 141.

To facilitate removal of the shackle a hole is drilled in the side bar of the frame opposite the lower bolt. The bolt can be driven through this hole by using a drift inserted through the hole in the dust shield. Wrench 109200 is designed for the nut on this bolt.

When removing the rear spring, drive out the lower bolt, removing the shackle with the spring. The upper bolt and shackle can then be removed.

1881. Front Spring

The shackles at the rear ends of the front springs are the same as on the 314. The construction at the front ends of the front springs is shown in Fig. 142. The inner ends of the spring bolts are carried in floating sleeves which are free to move in the outrigger. End play in the spring can therefore be taken up simply by tightening the nut on the bolt. Care should be taken not to get the nut tight enough to bind the spring.

1882. Stabilators

The rear stabilators on the LaSalle should be adjusted to 28 lbs. tension, the front stabilators to 32 lbs.

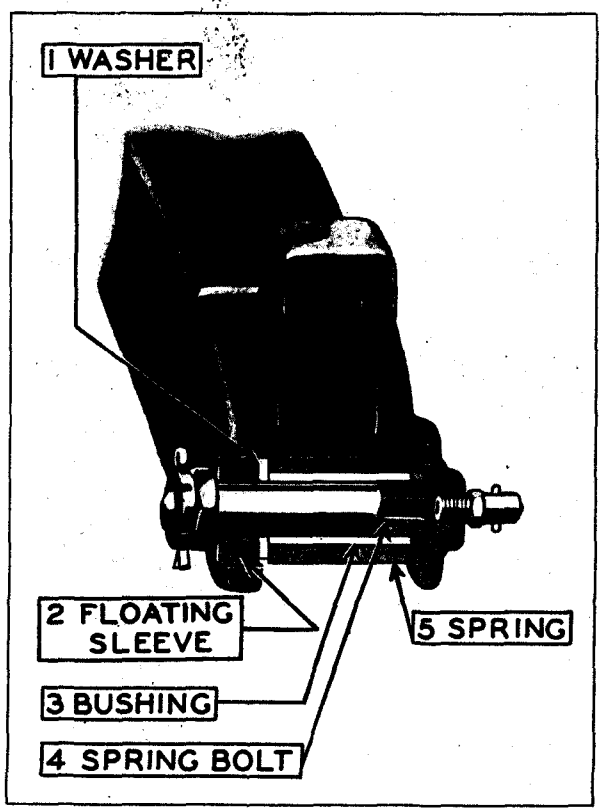


Fig. 142. Sectional View of Front Spring Shackle

Steering Gear

1900. Description

The LaSalle steering gear is the same as used on 314 cars after steering gear unit 1-44025, except that the column has no spark control tube. The adjustments are made in identically the same manner.

1901. Removal of Steering Gear

Before the LaSalle steering gear can be removed the brake rod and idler lever on the left-hand side must be removed. This idler lever is attached to the left-hand side bar just ahead of the steering gear. The steering gear can then be removed in the same manner as on the 314 cars after steering gear unit 1-44025.

1902 Steering Connecting Rod

Fig. 144 shows a sectional view of the LaSalle steering connecting rod. The spacers (2 and 6) perform the same function as the spacer (4, Fig. 91-a) in the 314 rod. In adjusting the screw plugs, tighten the plug as far as it will go, then back it off one cotter pin hole. This will allow the pivot seats the proper amount of movement.

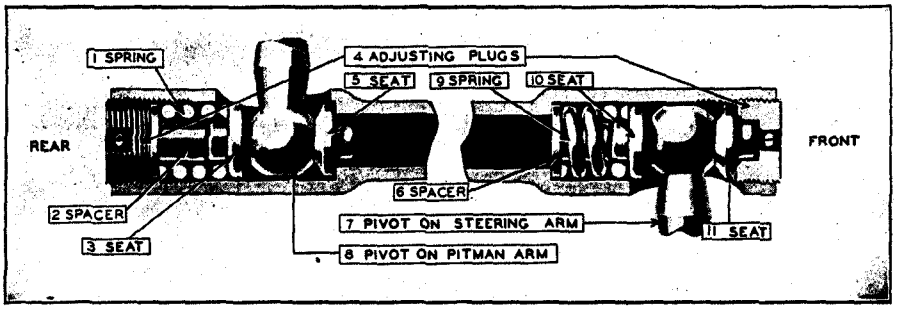


Fig. 144. Section of Steering Connecting Rod

Transmission

1960. Removal of Transmission Assembly

To remove the transmission, the rear axle and torsion tube must first be removed. The procedure thereafter is as follows:

Remove the floor boards.

Remove the control lever and brake lever assembly by removing the four nuts which hold the top cover to the transmission case.

Disconnect the speedometer cable.

Remove the clutch pedal. (The brake pedal cannot be removed until the transmission has been removed.)

Remove the starting motor.

Remove the hand hole cover over the clutch.

Remove the bolts that fasten the transmission case to the crankcase.

Pull the transmission back and out, taking care to support it so it does not drop.

1961. Removal of Clutch Connection

After removing the transmission from the car, the clutch connection can be removed as follows:

Remove the clutch. Puller 109409 is necessary for this.

Disconnect the pull-back spring from the clutch thrust bearing and remove the bearing from the support on which it slides.

Remove the four nuts that hold the thrust bearing support to the transmission and remove

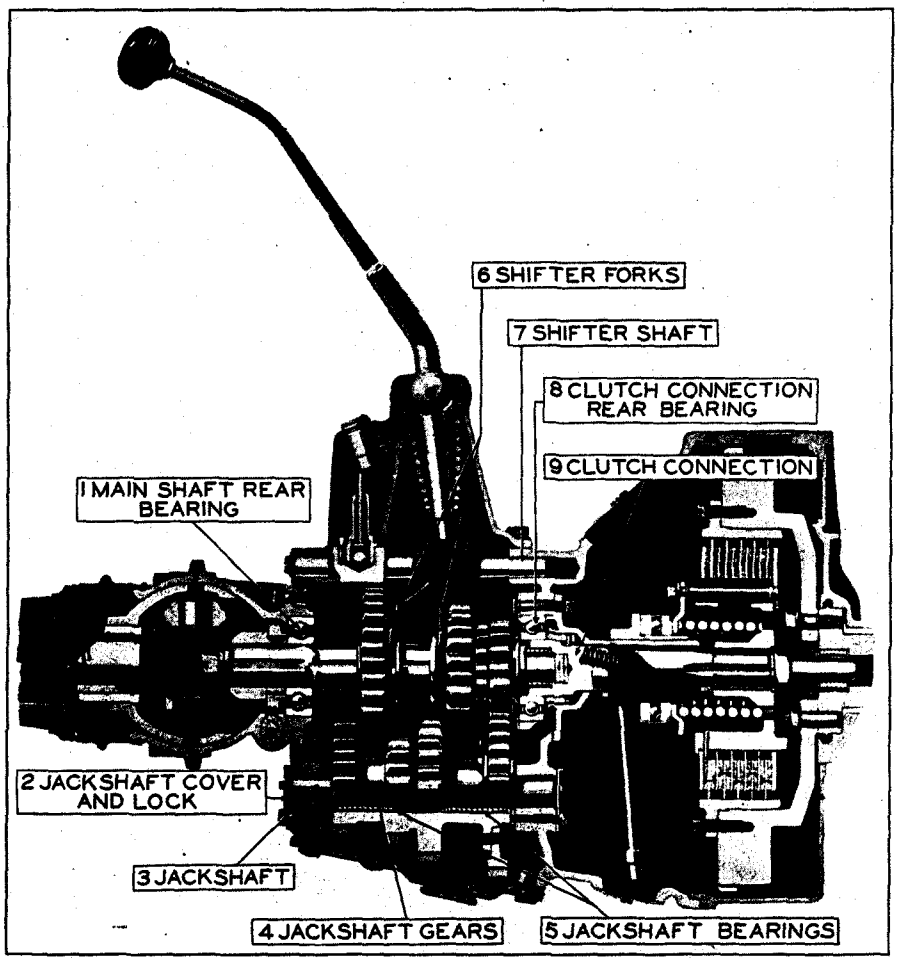


Fig 145. Sectional View of Transmission

the support. The clutch connection with the ball bearing on it can then be removed.

The retaining nut which holds the bearing on the clutch connection can be removed with wrench 83224 provided it has the adapter for 314 cars.

1962. *Removal of Main Shaft*

After removing the rear axle and torsion tube, proceed as follows to remove the transmission main shaft:

Remove the four screws which hold the rear half of the socket member of the transmission case. The main shaft with the universal joint and its housing, the speedometer drive and the main shaft bearing can then be removed as a unit. Care should be taken not to let the shipper gears drop when pulling the shaft out.

To disassemble the shaft and universal joint, proceed as directed in §1967.

1963. *Removal of Shipper Gears*

The shipper gears can be removed after removing the main shaft and the jackshaft gears.

1964. *Jackshaft and Jackshaft Gears*

The jackshaft gears are removed in the same manner as on 314 cars except that there is no locking screw for the jackshaft. The cover plate for the jackshaft acts as a lock to keep the jackshaft from turning.

Puller 100228 can be used for removing the jackshaft but in order to use this puller the main shaft and universal joint assembly must first be removed to avoid interference between the puller and the socket members.

Universal Joint

1965. *Description*

Only one universal joint is used on the LaSalle. This is housed in a ball and socket joint at the rear of the transmission and is lubricated by the lubricant in the transmission.

The front yoke of the universal joint is a tight fit on the splined end of the transmission main shaft. The rear yoke is splined to receive the splined end of the drive shaft.

The socket member is bolted to the transmission case, and acts also as a retainer for the rear transmission bearing. The ball member is fastened to the front end of the torsion tube.

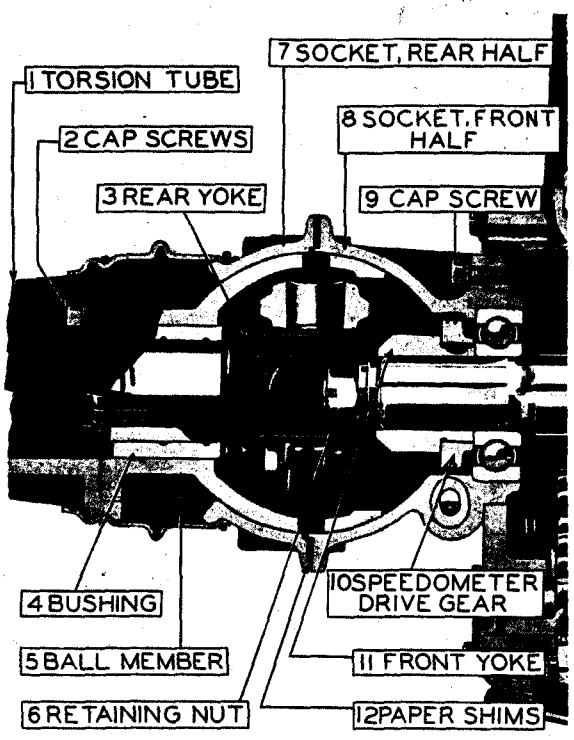


Fig. 146. Sectional View of Universal Joint

1966. *Adjustment of Ball and Socket Joint*

The ball member should have no end play in its socket but it should not be so tight as to bind. To take up excessive end play, remove the screws which hold the two halves of the socket member together and take out one or more of the paper gaskets (12, Fig. 146). Cars are assembled at the factory with 3 gaskets at this point.

1967. *Removal and Disassembly of Universal Joint*

Remove the rear axle and torsion tube and remove the transmission main shaft and universal joint assembly as directed in §1962.

Remove the four screws which hold the two halves of the socket member together and remove the rear half and the ball member.

Remove the screws which hold together the two flanges of the universal joint. Remove the nut (6) with wrench 109417. The universal joint can then be removed from the main shaft by pulling with puller 109209.

1968. *Inspection*

There should be no more than .003 inch clearance between the splines on the drive shaft and the splines in the universal joint yoke.

The front yoke should be a snug fit on the end of the transmission main shaft.

There should be no more than .002 inch clearance between the yoke pins and the joint rings.

There should be no more than .010 inch clearance between the rear yoke in the universal and the bronze bushing in the ball member.

Examine both the oil and drain hole.

1969. Installation

When assembling and installing the universal joint, place the proper number of gaskets between the two halves of the socket member so that there will be no play in the ball joint and yet so it will not bind.

If a new bushing is installed in the ball member, be sure to place it in the proper position with relation to the ball member. The front end of the bushing is marked "Top-Front." The rear end of the ball member is marked "Top." Install the bushing with "Top-Front" in line with "Top" on the ball member but at the opposite end so that "Top-Front" will appear from the inside of the ball member after installation.

Before connecting the torsion tube to the ball member, be sure the word "Top" on the ball member is uppermost.

Wheels, Rims and Tires

2020 Tire Inflation Pressure

The recommended inflation pressure for LaSalle cars is 40 lbs, front and rear.

Front Wheels

2021 Removal and Bearing Adjustment

The LaSalle front wheel bearings are ball bearings and must not be adjusted as tightly as tapered roller bearings. The nut should be drawn up just tight enough to take up all play in the bearings and then backed off one cotter pin hole.

To remove a front wheel, proceed as follows:

Remove the hub cap and adjusting nuts. (The left-hand spindle has a left hand-thread.) The right-hand spindle has a right-hand thread.

Remove the wheel with ball races and outer cone.

To reach the spindle nut on a car with wire wheels, the dust cap in the wire wheel hub must be removed. Wrench 109405 fits this nut.

When installing, be sure the bearings are clean and that they are packed in grease free from dirt and grit. Do not adjust bearings too tightly.

Rear Wheels

2022 Removal

The rear wheel bearings are single-row ball bearings and require no adjustment. Should it be necessary for any reason to remove a rear wheel, first remove the axle shaft (§1230). Then unscrew the nut on the end of the axle housing and pull the wheel off. The right-hand nut has right-hand threads and the left-hand nut left-hand threads. If the bearing is to be removed, it should be driven out.

2023 Installation

When installing the rear wheels, tighten the large nut on the axle housing as tight as possible and lock it with the washer. This nut does not adjust the play in the bearing and it does not require backing off as in the case of the front wheels.

Inspection and Adjustment Limits

Axle, Front

Front wheel toe-in	1/8–3/8 inch

Axle, Rear

Clutch

Clutch pedal free movement	1 inch
Clutch spring compression at 2 19/32 inches	Not under 420 lbs.

Electrical

Generator

Charging rate	18–20 amps., thermostat closed

Starting Motor

Tension of brush arm springs	2¼–2½ lbs.

Ignition

Gap between timer contact points	.027 inch
Tension of contact arm springs	16–20 ozs.

Circuit Breakers

Vibrating circuit breaker starts	25–30 amps.
Lockout circuit breaker opens	25–30 amps.

Engine

Main and Connecting Rod Bearings

Cylinders and Pistons

Limits for standard cylinder bore (see §1537)	3.1250–3.1270 inch
Cylinder bore, out-of-round	Not over .002 inch
Piston out-of-round	Not over .001 inch
Clearance between piston and cylinder (measure with feelers)	.002–.003 inch
Clearance between ends of piston rings	.005–.015 inch
Clearance between wrist pin and piston	See § 1537
Clearance between wrist pin and bushing in connecting rod	See § 1537
Clearance between crankshaft and main bearings	.0015–.002 inch
End play in crankshaft	.005–.010 inch
Clearance between crankpin and connecting rod bearing	.0005–.0015 inch
End play in connecting rods	.005–.011 inch

Valve System

Camslide or valve stem clearance, inlet valve	.004 inch when cold
Camslide or valve stem clearance, exhaust valve	.006 inch when cold
Compression of valve spring at 2 9/64 inch	Not under 133 lbs.
Clearance between camslide and guide	Not over .004 inch
Clearance between camslide roller and pin	Not over .003 inch
Clearance between water pump and gen. drive sprocket and support	.003–.005 inch
Clearance between camshaft and bearings	.0024–.0032 inch
End play in camshaft	.004 inch
Clearance between splines of drive shaft and splineways in the yoke of universal joint	Not over .005 inch
Clearance between universal joint yokes and rings	.001–.0025 inch

Oil Pump

Clearance between outside diameter of oil pump gears and oil pump body	.003–.005 inch
End play in oil pump gears	.005–.0125 inch
Thickness of oil pump gasket	.009–.011 inch

Water Pump

Clearance between water pump shaft and bushings	.001–.003 inch

Oil Pressure Regulator

Oil pressure at idling speed	7–10 lbs.

Gasoline System

Carburetor

Adjustment of enriching device:	
Opening of air valve at 65°–85° F.	$\frac{1}{64}$–$\frac{1}{32}$ inch
Throttle pump control thermostat closes	74° F.
Throttle pump control thermostat opens	78° F.
Vent control thermostat closes	125° F.
Vent control thermostat opens	130° F.
Float setting	$\frac{7}{16}$–$\frac{15}{32}$ inch
Throttle pump adjusting screw fully open	7 turns
Clearance between throttle disc and mixing chamber	Not over .005 inch
End play in throttle shaft	Not over .004 inch
Clearance between throttle shaft and bushings	Not over .005 inch

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