

T. F. MARTIN, INC.,

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San Jose, Cal.

CADILLAC-LASALLE SHOP MANUAL

Adjustments, Repairs and Lubrication



Cadillac 341-A, 341-B

LaSalle 303, 328

Book Number

6766

Please refer to the above number when writing us in regard to this Manual

Service Department

CADILLAC MOTOR CAR COMPANY

DETROIT

Foreword

THIS Shop Manual is a book of reference on the adjustment and repair of Cadillac and La Salle motor cars. It is intended for the use of service men who are already familiar with automobile construction and repairing in general. It is not a text book for those who have had no previous shop experience and does not aim to present instructions in elementary form.

The style in which the information is presented is a distinct departure from the usual book of this sort. Straight reading matter has been eliminated as far as possible and the facts and figures needed by service men are presented briefly in two ways—by illustrations and by tabulated specifications.

At the beginning of each group is a specification table giving clearances, dimensions and other facts important to service men. Explanations, where necessary, follow the specifications in the form of notes. The rest of the information is in picture form on the pages following the specification table.

Our service department invites correspondence with service managers and shop foremen on all matters discussed in the Shop Manual.

CADILLAC MOTOR CAR COMPANY

Detroit, Michigan

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Introduction

Arrangements of Tables

THE subjects covered in the specification tables are listed in alphabetical order in the first column, and the corresponding facts or figures in the column under "Specifications." Under "Remarks" will be found important comments, cautions and references to illustrations and notes.

In cases where a change in construction has been made and the same information does not apply to all cars of the same model, small figures "1" and "2" are used following the model number or letter to designate first and second type construction. Thus, La Salle cars with the first type or cam-operated brakes, are designated as "303¹" and cars used with second type or toggle brakes as "303²". The unit number at which the change was made is given under "Remarks."

One class of information in the specifications consists of limits for the clearance between parts subject to wear. The limits given are of two kinds. "New limits" are those to be observed in replacing worn parts with new parts. "Worn limits" are those beyond which it is inadvisable to continue to use the worn parts if quietness of operation and maximum performance are expected. Some service, although not the most satisfactory, can of course be obtained from parts worn beyond these limits.

Arrangement of Illustrations

The illustrated pages are laid out to show as far as possible in picture form the repair operations, together with the differences and similarities of the various car units.

Unless otherwise specified all illustrations apply to both the Cadillac and the La Salle.

Identification Numbers

EACH Cadillac and La Salle car when shipped carries an engine number which is also a car serial number. This is the number to be used in filling out license and insurance applications and in general reference to the car. The engine number is stamped on the car in two places: 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.

The various units such as the engine, transmission, steering gear, etc., also carry unit assembly numbers. These are located as described in the specification tables. It is important in ordering parts to give, not only the engine number of the car, but also the unit assembly number of the unit to which the part belongs.

Front Axle

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
Camber of front wheel (angle with vertical).....	A	B	303	328	$2\frac{1}{2}^{\circ}$	<i>Plate 3, Fig. 7</i>
Angle between steering knuckle bolt and vertical.	A	B	.....	.....	5°	
	.....	.....	303	328	$7\frac{1}{2}^{\circ}$	
Angle between steering knuckle bolt and wheel spindle.....	A	B	.....	.....	$97\frac{1}{2}^{\circ}$	
			303	328	100°	
Caster angle.....	A	B ¹	303	328 ¹	$2\frac{1}{2}^{\circ}$ — 3°	Before front axle unit 3-27619 on 341-B cars and 4-8137 on 328 cars. Beginning with front axle unit 3-27619 on 341-B cars and 4-8137 on 328 cars. See Note 1. <i>Plate 3, Fig. 6.</i>
	.....	B ²	.....	328 ²	1° — 2°	
Angle between spring seat and vertical plane of I-beam.....	A ¹	.....	.....	.....	$2\frac{1}{2}^{\circ}$ — 3°	
	.....	.....	303 ¹	.....	0°	
	A ²	B ¹			1° — $1\frac{1}{2}^{\circ}$	Before front axle unit 3-2858. Before front axle unit 2-16018. Beginning with front axle unit 3-2858 on 341-A cars and before front axle unit 3-27619 on 341-B cars. <i>Plate 4, Fig. 5.</i> Beginning with front axle unit 2-27619. Beginning with front axle unit 2-16018 on 303 cars and before front axle unit 4-8137 on 328 cars. <i>Plate 4, Fig. 6.</i> Beginning with front axle unit 4-8137.
	.....	B ²	.....	.....	$2\frac{1}{2}^{\circ}$ — 3°	
	.....	.....	303 ²	328 ¹	$1\frac{1}{4}^{\circ}$ — $1\frac{3}{4}^{\circ}$	
	.....	.....	.....	328 ²	0°	
Correct installation of I-beam (identification mark).....			303	328 ¹	"F" on right spring pad	
	A	B	.....	328 ²	"F" on front face of I-beam	
I-beam twist (misalignment between steering knuckle bolts).....	A	B	303	328	$\frac{1}{2}^{\circ}$ allowable variation between ends	See note 2.
Clearance between steering knuckle bolt and bushing...	A	B			New limits, .0015-.0025 in. Worn limit, not over .005 in.	
	.....	.....	303	328	New limits, .0005-.0025 in. Worn limit, not over .005 in.	
Pivot balls, out of round.....	A	B	303	328	Worn limit, not over .010 in.	
Road clearance under front axle	A	B			$8\frac{7}{16}$ inch	Before front axle unit 2-16001. <i>Plate 3, Fig. 4</i> Beginning with front axle unit 2-16001 on 303 cars. <i>Plate 3, Figs. 3-5.</i>
	.....	.....	303	328	$9\frac{3}{16}$ inch	
Steering cross rod adjustment.	.....	.....	303 ¹	.....	Tighten and back off one cot-ter pin hole	
	A	B	303 ²	328	Automatic adjustment	
Steering cross rod springs— Free length.....	A	B ¹			$1\frac{5}{16}$ in. approximately	Install second-type pivot seat springs in steering cross rod ends before front axle unit 3-21101.
	.....	B ²	.....	.....	$1\frac{1}{8}$ in. approximately	

FRONT AXLE

Subject	Cadillac 341	LaSalle 303-328	Specifications	Remarks
	...	303 328 ¹	$\frac{3}{8}$ in. approximately	Install second-type pivot seat springs in steering cross rod ends before front axle unit 4-3801.
Compression.....	A B ¹	328 ²	$\frac{3}{8}$ in. approximately 180-220 lbs. compressed to $\frac{5}{8}$ in.	Install second-type pivot seat springs in steering cross rod ends before front axle unit 3-21101.
	B ²		90-110 lbs. compressed to $\frac{5}{8}$ in.	
	...	303 328 ¹	180-220 lbs. compressed to $\frac{9}{16}$ in.	Install second-type pivot seat springs in steering cross rod ends before front axle unit 4-3801.
	...	328 ²	90-110 lbs. compressed to $\frac{9}{16}$ in.	
Steering knuckle thrust bearing adjustment.....	A B		Tighten and back off just enough to free adjustment	Tapered roller bearing. Tighten dust-cap securely against roller bearing. <i>Plate 1.</i>
	...	303 328	Not over .004 in. end play	Ball bearing. Adjust with shims .003 and .005 in. thick. <i>Plate 2.</i>
Stop screw adjustment.....	A B	303 328	$\frac{1}{2}$ - $\frac{3}{4}$ in. clearance between tire and nearest point of possible interference.	Interference with steering connecting rod on left side and spring on right side. Also shock absorber brackets.
Toe-in of front wheels.....	...	303 ¹	$\frac{1}{8}$ in. preferable, $\frac{1}{4}$ in. maximum.	Adjust by spacers $\frac{1}{8}$ in. and $\frac{3}{8}$ in. thick. Before front axle unit 2-16001. <i>Plate 3, Figs. 1-2-4.</i>
	A B	303 ² 328	$\frac{1}{8}$ in. preferable, $\frac{1}{4}$ in. maximum.	Adjust by turning steering cross rod. Beginning with front axle unit 2-16001 on 303 cars. <i>Plate 3, Figs. 1-2-3-5.</i>
Tread.....	A B	303 328	56 in.	
Unit number, location of.	A B	303 328	Top right on I-beam	

1. Caster Angle

To measure the caster angle, use a Bear or Duby Gauge as shown in *Plate 3, Figs. 8, 11*. Be sure to have all four wheels the same distance off the floor. Floor must be level.

On early 341-A and 303 cars, the spring seats are not machined at the same angle as on later cars. To give these cars the standard caster angle specified in the table, use tapered shims (*Fig. 9*) between the springs and the axle. Place the thick edges of the shims toward the rear.

2. Straightening Bent Parts

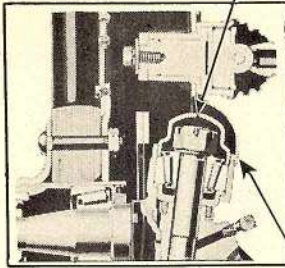
Because of their location the parts of the front axle are more subject to damage by accident than any other part of the chassis. Front axle service, therefore, involves the inspection of parts for alignment and possible straightening.

Heat-treated parts should not be straightened if they are sprung out of alignment more than 5°. To straighten such parts while cold is likely to result in strains and sometimes in cracks not visible to the naked eye. Straightening with heat destroys the effect of previous heat treatment and may result either in overheating, making the steel soft and weak, or in underheating, which will make it brittle and easily broken.

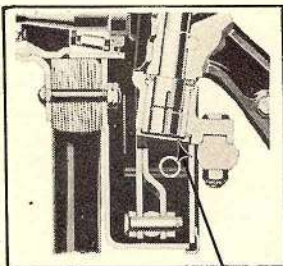
Parts which are not heat-treated may be straightened cold if not sprung out of alignment more than 10°.

Welding of parts subjected to severe strain should never be permitted. A welded part is never as strong as the original, unbroken metal and the heat required for the welding process changes the structure of the metal around the weld, making it coarse and weak.

Punch 1/8-inch hole in dust cap for grease overflow



Position of cover plate on first cars. Remove and place inside as on later cars



First type dust cap attached by cap screws. Avoid forcing grease in under heavy pressure

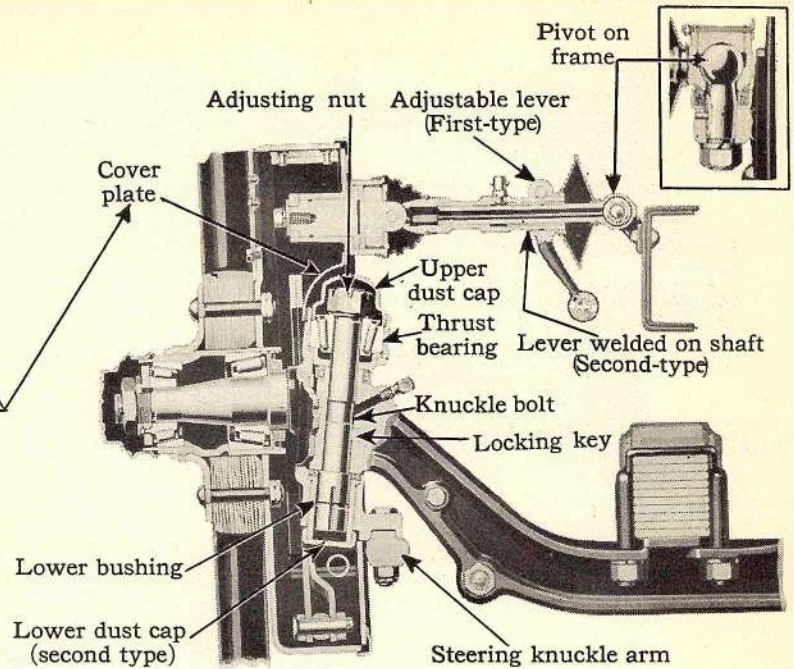


Fig. 1
Cadillac 341-A

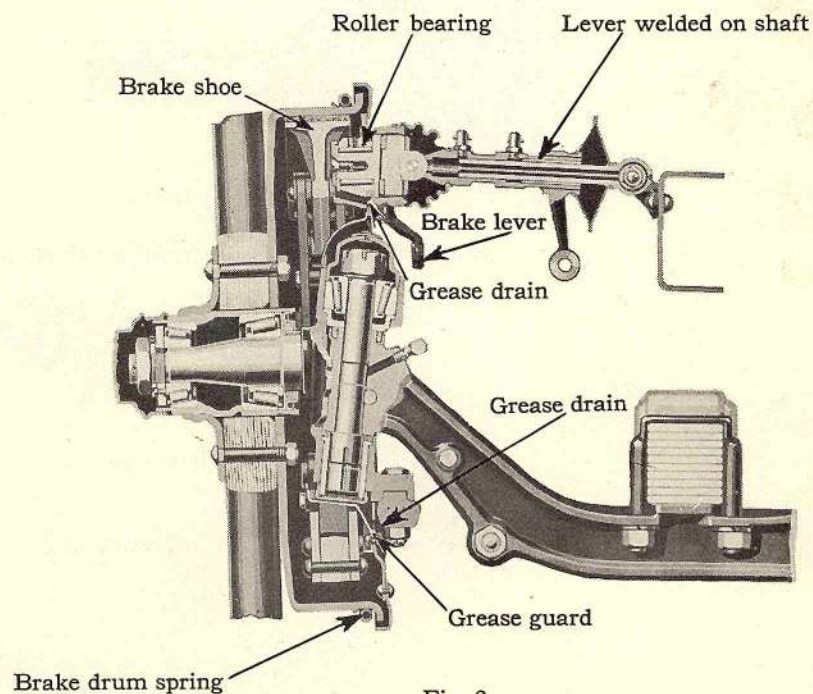


Fig. 2
Cadillac 341-B

Plate 1. Sectional view of Cadillac front wheel hub and steering knuckle.

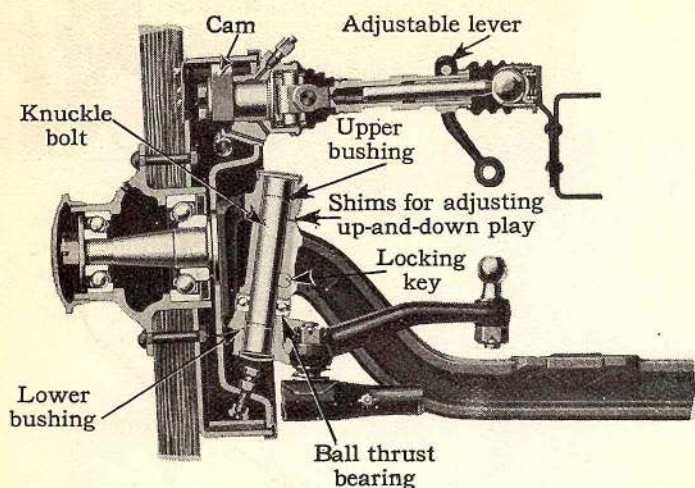


Fig. 1
LaSalle 303
(first type with cam-operated brakes)

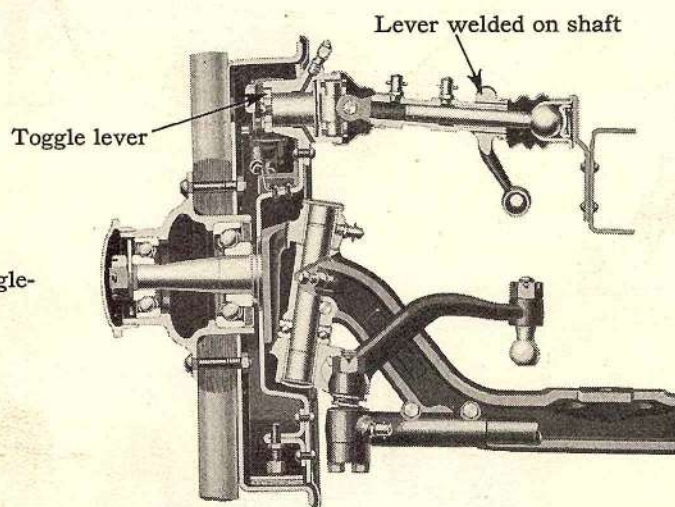


Fig. 2
LaSalle 303
(second type with toggle-operated brakes)

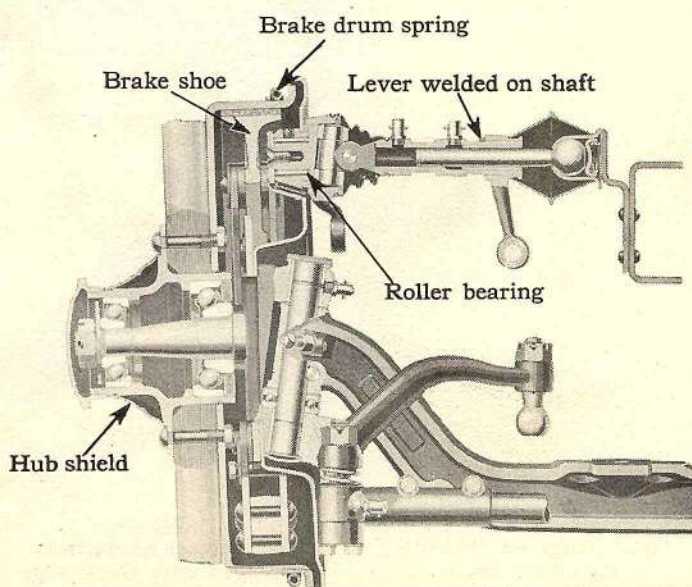


Fig. 3
LaSalle 328

Plate 2. Sectional view of La Salle front wheel hub and steering knuckle.

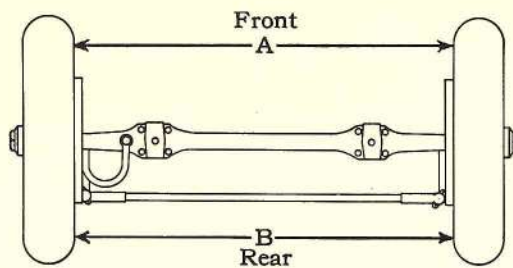


Fig. 1
Front wheel alignment.
A should be $\frac{1}{8}$ to $\frac{1}{4}$ inch less than B

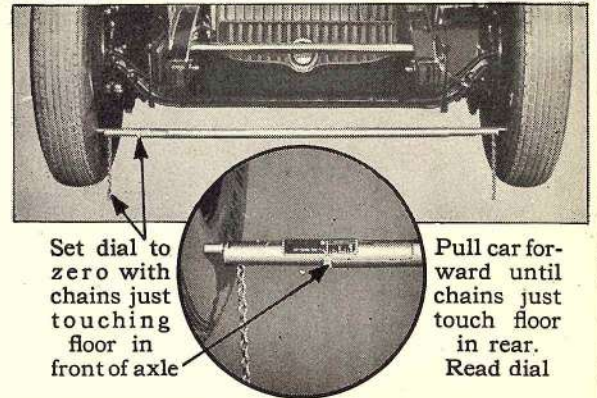


Fig. 2
Front wheel alignment gauge

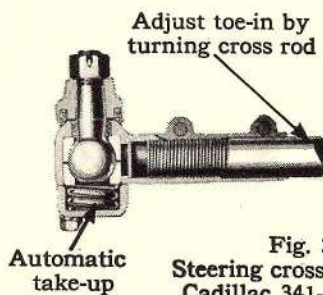


Fig. 3
Steering cross rod joint
Cadillac 341-A and B

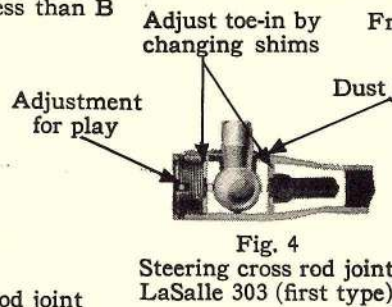


Fig. 4
Steering cross rod joint
LaSalle 303 (first type)

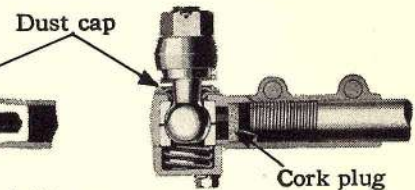


Fig. 5
Steering cross rod joint
LaSalle 303 (second type) and 328

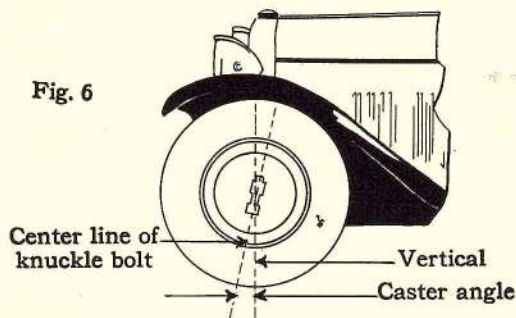


Fig. 6

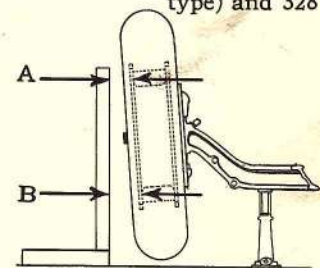


Fig. 7
Front wheel camber.
A should be $\frac{3}{4}$ inch less than B

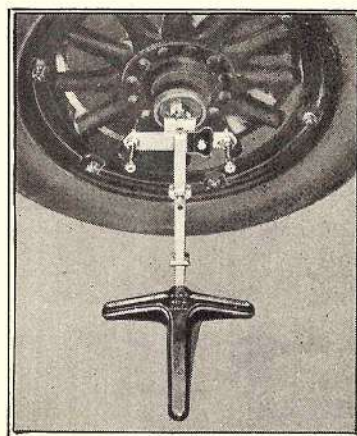


Fig. 8
Bear gauge for measuring
caster angle

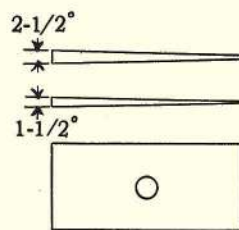


Fig. 9
Wedges for changing
caster angle

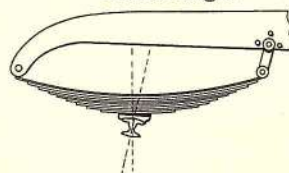


Fig. 10
To increase caster, insert
wedges with thick edge
toward rear

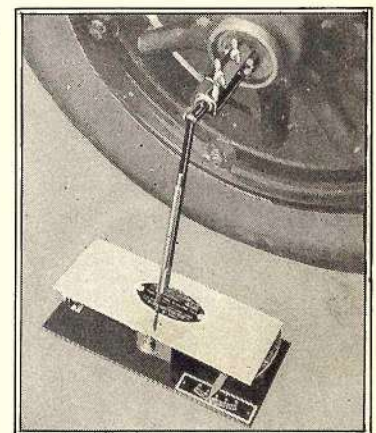


Fig. 11
Duby gauge for measuring
caster and camber

FRONT AXLE

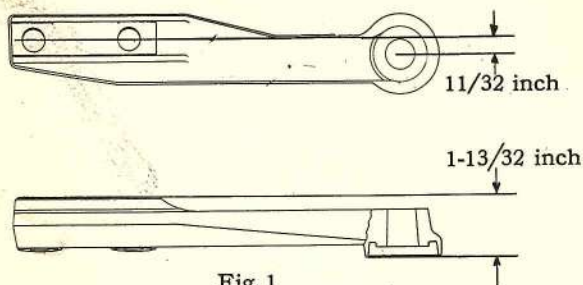


Fig. 1
R. H. Arm, Cadillac 341-A and B

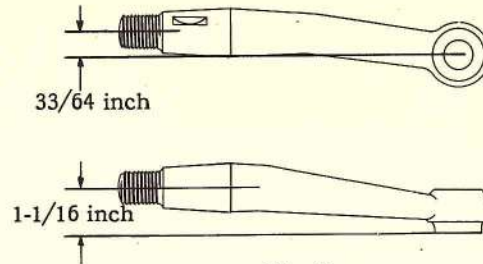


Fig. 2
R. H. Arm, LaSalle 303 and 328

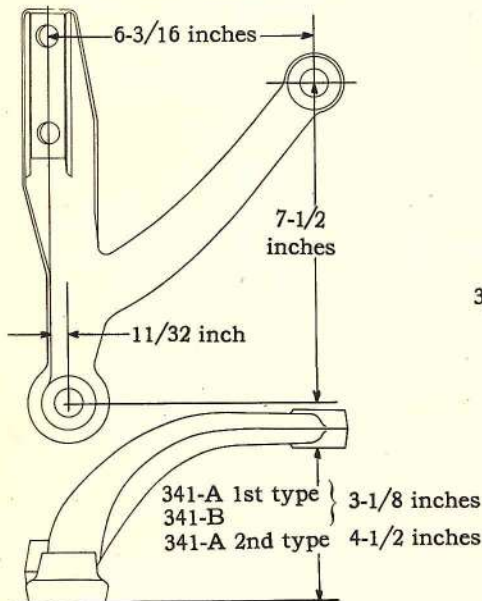


Fig. 3
L. H. Arm, Cadillac 341-A and B

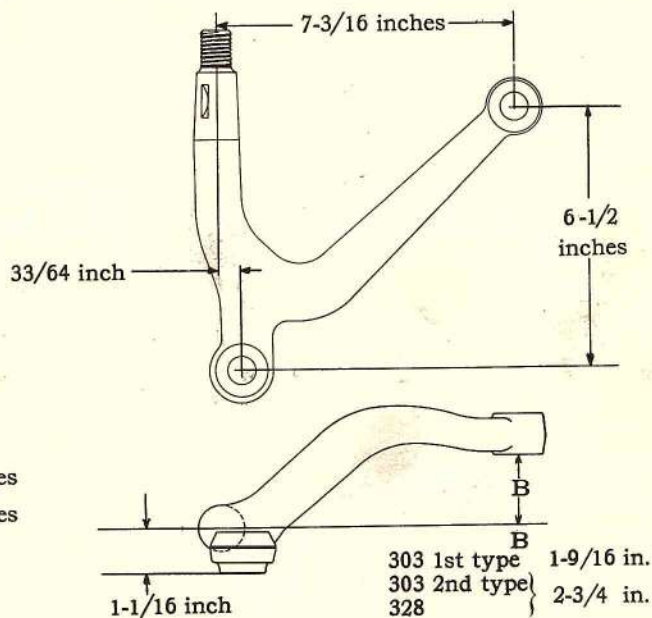


Fig. 4
L. H. Arm, LaSalle 303 and 328

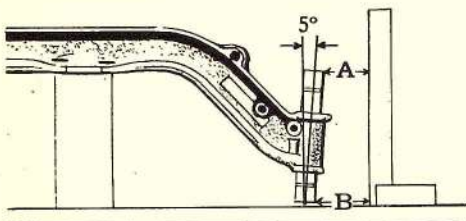


Fig. 5
Axle I-beam, Cadillac
A should be 1 inch
less than B
C should be 1/2 inch
less than D

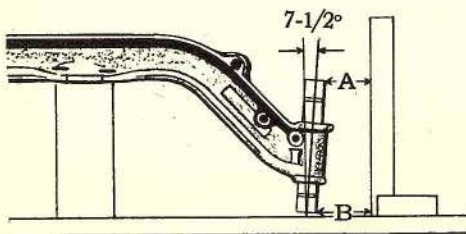
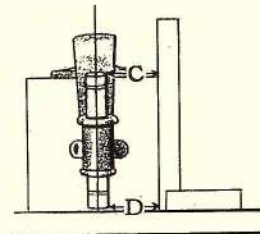
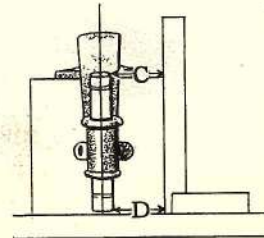


Fig. 6
Axle I-beam, LaSalle
A should be 55/64 inch
less than B
The dimensions C and
D should be equal



Rear Axle and Torsion Tube

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
Axle shaft, clearance between driver and recesses in wheel hub.....	A	B	.....	.....	New limits, .0005-.0025 in. Worn limit, not over .005 in.	
Axle shaft length, left side.....	A	B	.....	.....	30 $\frac{11}{16}$ in. overall	
			303	.....	31 $\frac{11}{16}$ in. overall	
			.....	328	32 $\frac{5}{8}$ in. overall	
Axle shaft length, right side....	A	B	.....	.....	33 $\frac{7}{16}$ in. overall	
			303	.....	34 $\frac{5}{16}$ in. overall	
			.....	328	35 $\frac{1}{4}$ in. overall	
Axle shaft, out of true.....	A	B	303	328	Not over $\frac{1}{32}$ inch	
Axle housing, out of true.....	A	B	303	328	Not over $\frac{3}{32}$ inch	Ideal gauge, Tool 102789, can be used to check alignment of rear wheels as well as front wheels. <i>Plate 7, Fig. 4.</i>
Differential carrier, installation of.....	A	B	303	328	.....	See Note 1
Drive shaft, clearance between sleeve and splines on pinion shaft.....	A	B	303	328	New limits, .000-.003 in. Worn limit, not over .006 in.	
Driveshaft, clearance between splines and hub of universal joint.....	A	B	303	328	New limits, .001-.005 in. Worn limit, not over .006 in.	
Driveshaft, length.....	A	.....	.....	.....	140 in. wheelbase—61 $\frac{1}{4}$ in. 152 in. wheelbase—73 $\frac{3}{4}$ in. 125 in. wheelbase—50 $\frac{7}{8}$ in. 134 in. wheelbase—59 $\frac{7}{8}$ in. 140 in. wheelbase—62 $\frac{11}{16}$ in. 152 in. wheelbase—74 $\frac{11}{16}$ in. 125 in. wheelbase—49 $\frac{7}{8}$ in. 134 in. wheelbase—58 $\frac{1}{8}$ in.	
			303	.....		
		B	.....	.....		
			.....	328		
Driveshaft, out of true.....	A	B	303	328	Not over .010 in.	
Gear ratio, high.....	A	B	.....	.....	4.39:1	
			303	328	4.07:1	
Gear ratio, medium.....	A	B	.....	.....	4.75:1	
			303	328	4.54:1	
Gear ratio, low.....	A	B	.....	.....	5.08:1	
			303	328	4.91:1	
Gear adjustment or replacement	A	B	303	328	.....	See Note 2.
Lubrication.....	A	B	303	328	.....	See Lubrication Table, page 83.
Removal of rear axle and torsion tube assembly.....	A	B	303	328	.....	See Note 3.
Road clearance under rear axle.	A	B	.....	.....	8 $\frac{7}{16}$ inch	
			303	328	7 $\frac{1}{8}$ inch	
Tread.....			303	.....	56 inches	
	A	B	.....	328	58 inches	
Type of axle.....	A	B	.....	.....	Full floating	
			303	328	Three-quarter floating	
Unit number, location of.....	A	B	303	328	Rear surface of housing, right side	

1. Lubrication of Pinion Bearings

Differential carrier assemblies shipped by the Parts Division have no lubricant in the bearings, as all the lubricant is washed out before the assemblies are shipped.

Before an assembly is installed in a car, it is important that care be taken to see that the lubricant reaches the front pinion bearing. It is not enough simply to install the assembly and add lubricant to the proper level. Before the lubricant has a chance to work up into the pinion bearing the bearing may be damaged.

The best plan is to stand the assembly up on the front end and pour in enough lubricant to make sure that the ball bearings are thoroughly lubricated. The assembly can then be installed and the necessary additional lubricant added to bring up the level. In this way lubrication of the ball bearings is provided for until the oil in the housing works up through the bearings.

2. Gear Adjustment

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 Department on an exchange basis.

It is very important that every assembly returned to the factory be accompanied by the original shims.

3. Removal of Rear Axle and Torsion Tube

It is customary for work on the rear axle to remove the axle and torsion tube as an assembly by disconnecting the torsion tube from the ball-and-socket joint and removing the spring clips. On 341 Cadillac cars the rear ends of the rear springs must also be disconnected because the springs are underslung.

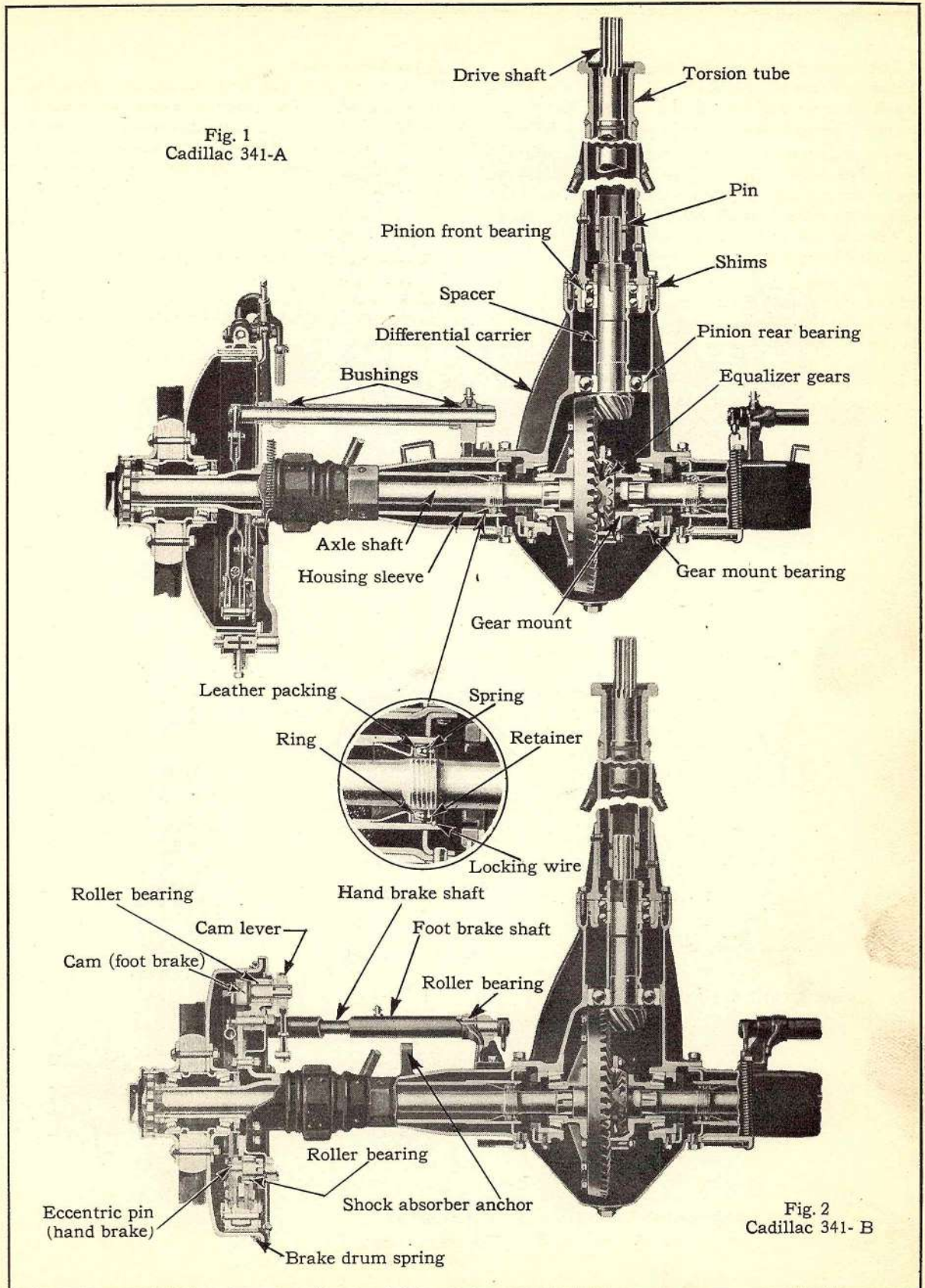


Plate 5. Sectional View of Cadillac Rear Axle.

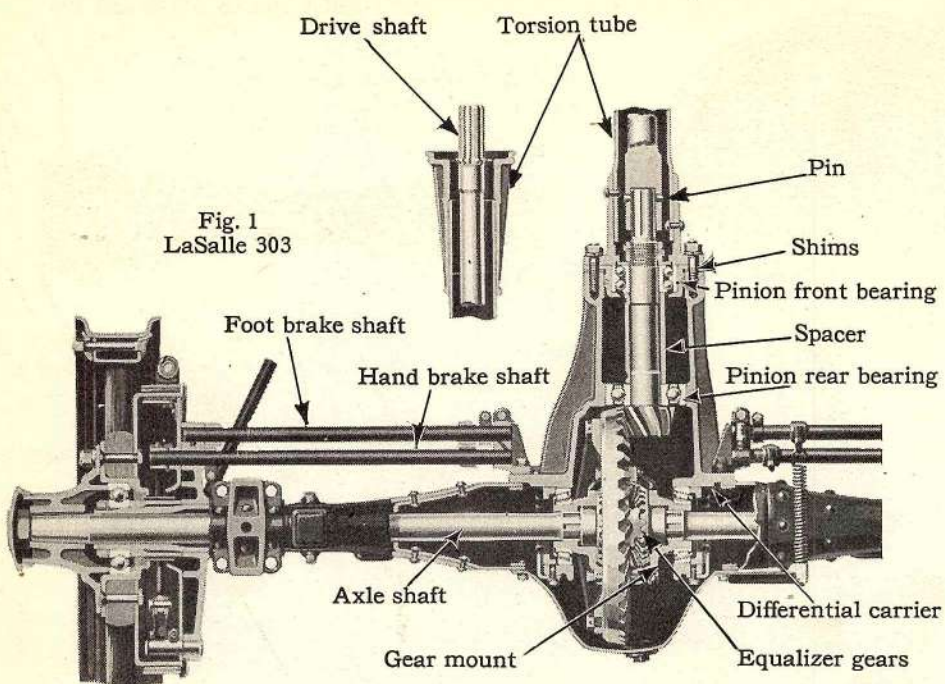


Fig. 2
LaSalle 328

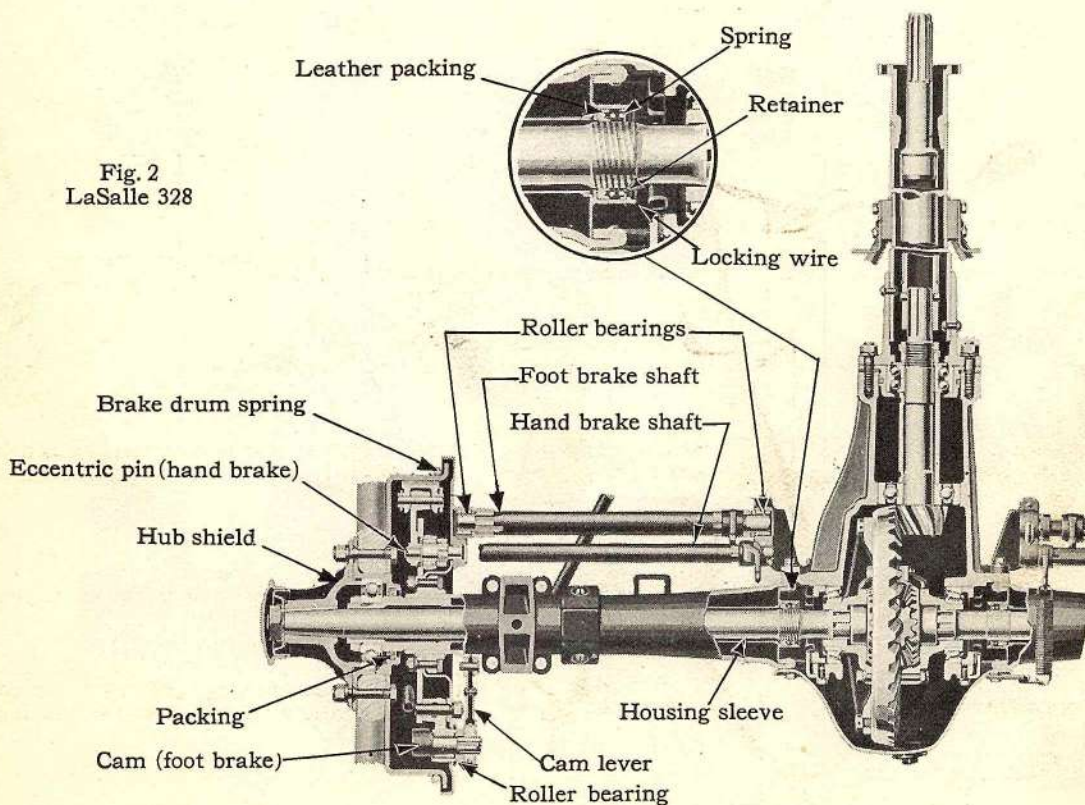


Plate 6. Sectional View of La Salle Rear Axle.

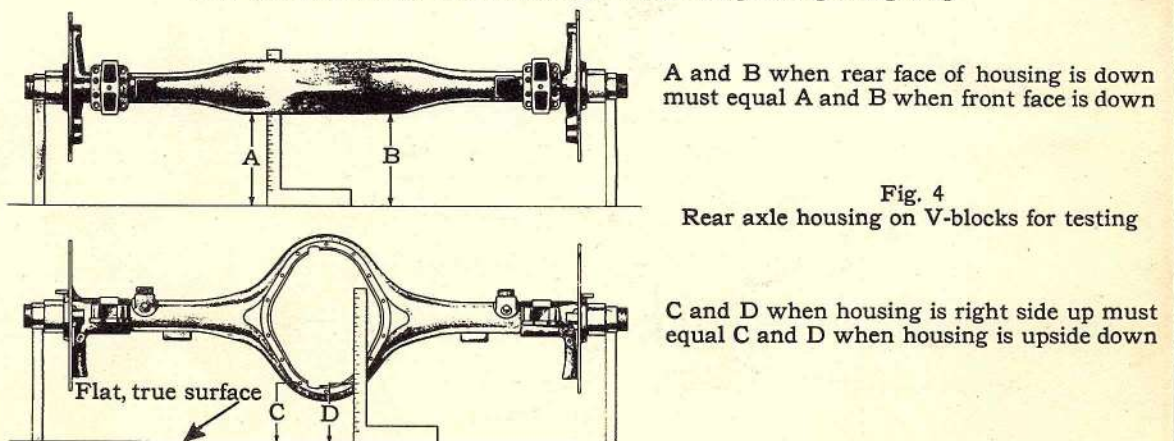
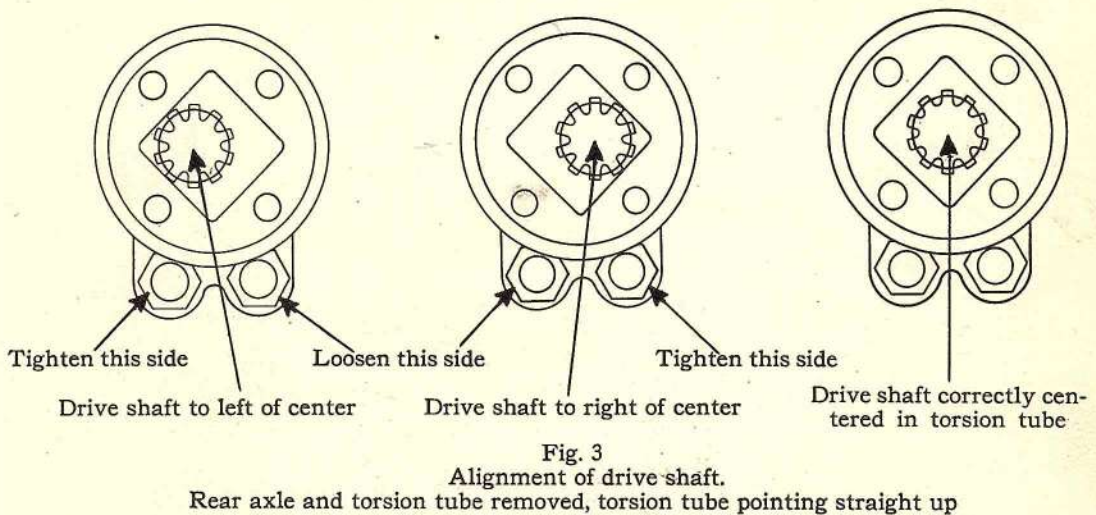
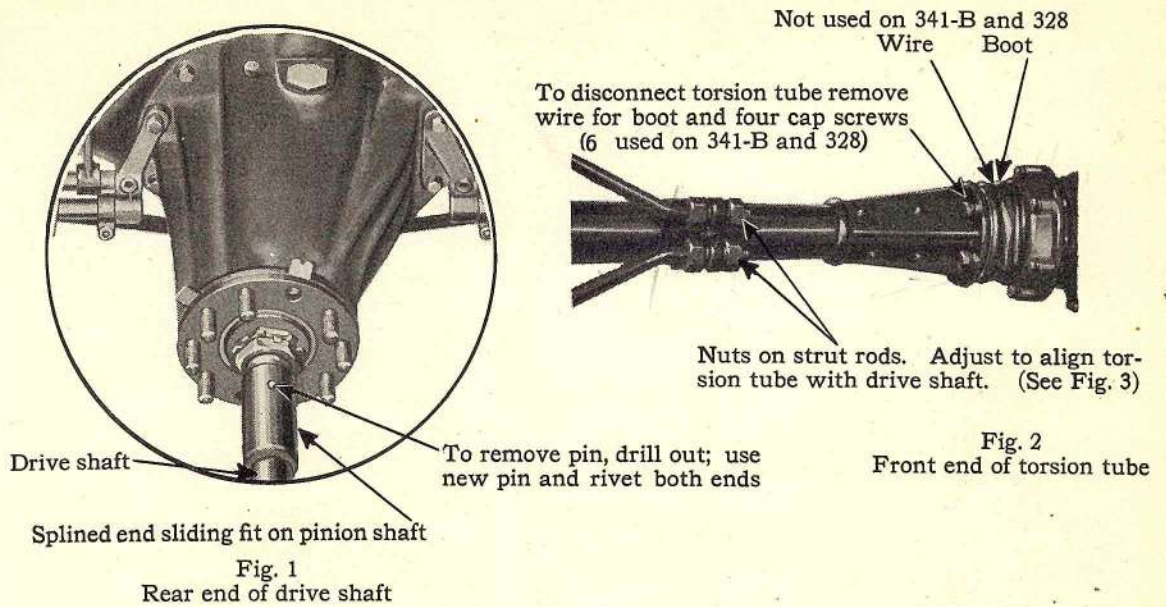
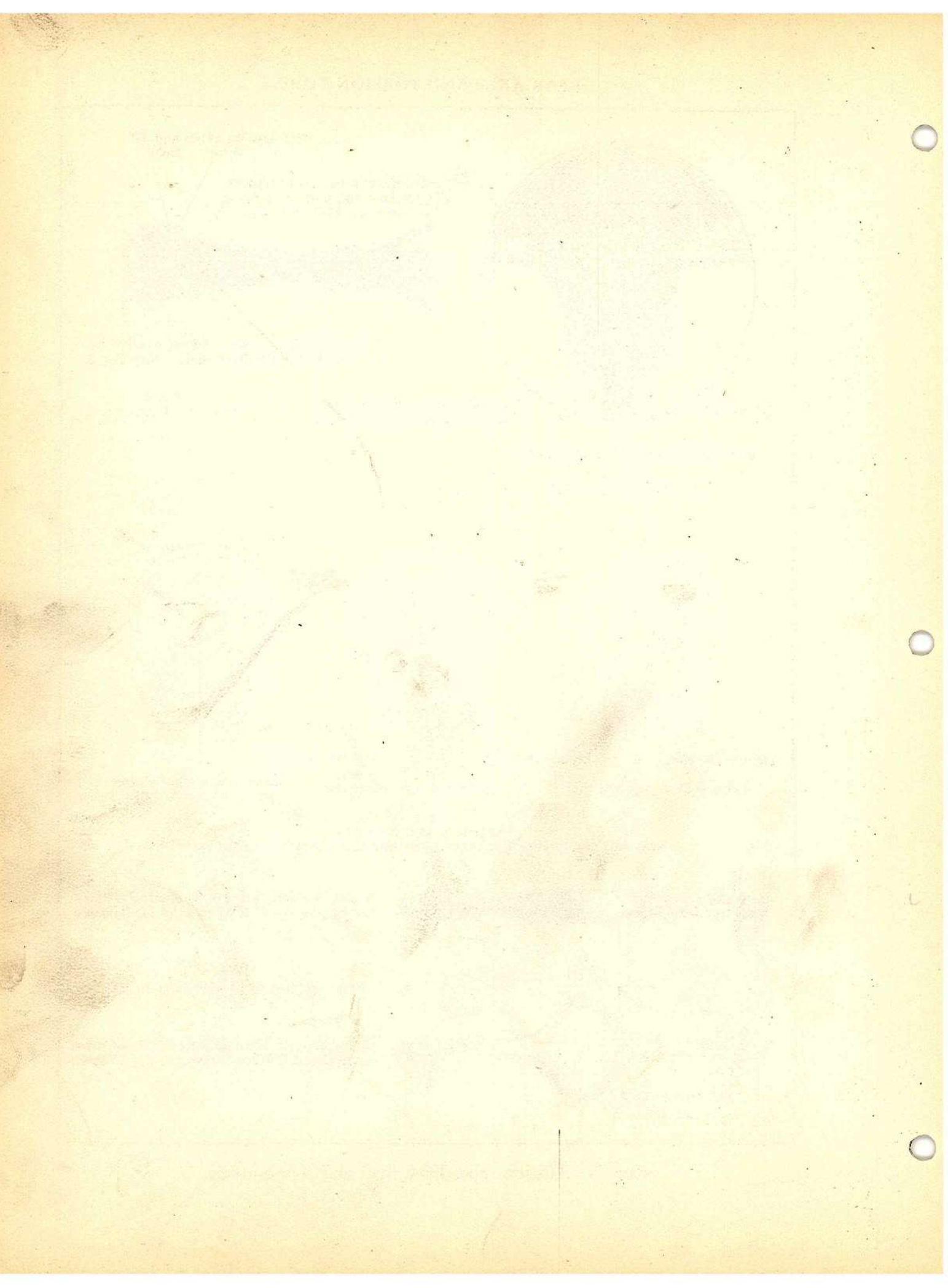


Plate 7. Torsion tube, drive shaft and axle housing.



Brakes

Subject	Cadillac 341	LaSalle 303-328	Specifications		Remarks
FOOT BRAKES					
Front and Rear (Shoe type)					
Clearance between lining and drum.....	B	328			Clearance determined by number of turns of adjusting nut. <i>Plates 10, 11, Figs. 2, 4.</i>
Drum, nominal inside diameter.....	B	328	16½ in., front and rear		
Drum, out of round.....	B	328	15 in., front and rear		
Drum, thickness.....	B	328	Not over .007 in.		Drums not to be ground in service over .040 in. less than minimum original thickness.
			¼ in.		
Lining (Front and Rear)			Short Shoe	Long Shoe	Beginning with front axle unit 3-31441 and rear axle unit 3-31525 on 341-B cars and front axle unit 4-13424 and rear axle unit 4-13409 on 328 cars lead tips are installed at the trailing end of the long shoes. Replace lead tips when installing new linings, using lining rivets.
Length without lead tip.....	B	328	7⅞ in.	16¾ in.	
			6⅜ in.	15⅝ in.	
Length with lead tip.....	B	328		15⅜ in.	
				13⅜ in.	
Lining, thickness.....	B	328	⅜ in.		Measured between loops Measured between loops
Lining, width.....	B	328	2¼ in.		
			2 in.		
Pull back spring for rear brake, free length.....	B	328	4¾ in., approximately		
			4¼ in., approximately		
Pull back spring for rear brake, tension.....	B	328	32-37 lbs stretched to 7¾ in.		Measured between loops Measured between loops
			19-24 lbs stretched to 6½ in.		
FRONT (Band type)					
Clearance between lining and drum.....	A	303	.015 in.		Before front axle unit 3-6001. Beginning with front axle unit 3-6001. Before front axle unit 2-16608. Beginning with front axle unit 2-16608.
Drum, nominal outside diameter.....	A ¹		16 in.		
	A ²		17 in.		
		303 ¹	14 in.		
		303 ²	16 in.		
Drum, out of round.....	A	303	Not over .015 in.		Drums not to be ground in service over .040 in. less than minimum original thickness. Before front axle unit 3-6001. See note 1. Beginning with front axle unit 3-6001. See note 1. Before front axle unit 2-16608. See note 1. Beginning with front axle unit 2-16608. See note 1
Drum, thickness.....	A	303	⅜ in. }		
			⅜ in. }		
Lining, length.....	A ¹		41¾ in., approximately		
	A ²		45¾ in., approximately		
		303 ¹	36⅞ in., approximately		Before front axle unit 2-16608. See note 1. Beginning with front axle unit 2-16608. See note 1
		303 ²	41½ in., approximately		
Lining, thickness.....	A	303	⅜ in.		
Lining, width.....	A	303	2¼ in.		
			2 in.		
REAR (Band type)					
Clearance between lining and drum.....	A	303	.030 in.		

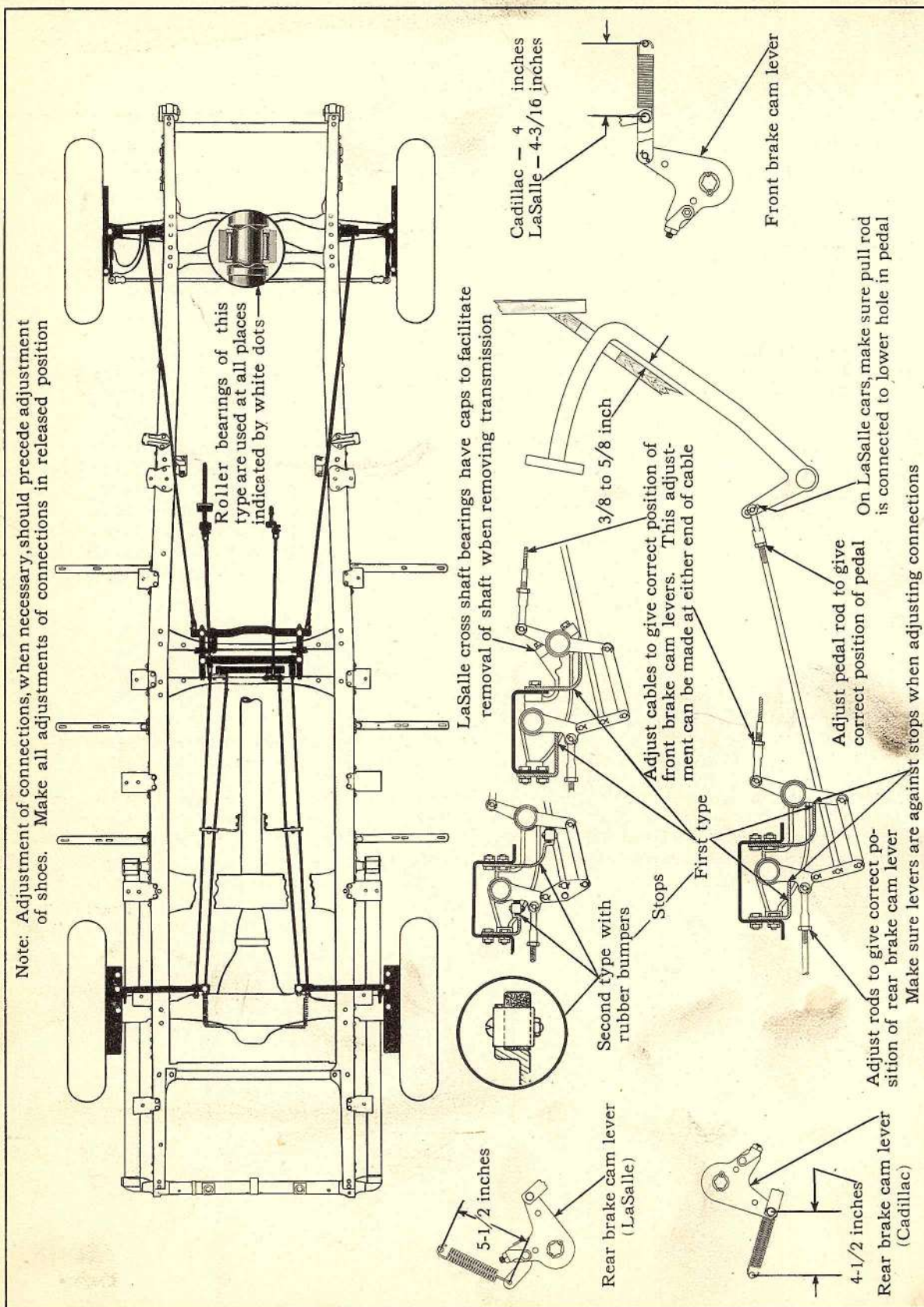


Plate 8. Adjustment of Cadillac 341-B and La Salle 328 brake connections—first type

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
Drum, nominal outside dia- meter.....	A				16 in.	See note 1.
	.....	.....	303	.....	14 in.	
Drum, out of round.....	A	.....	303	.....	Not over .015 in.	
Drum, thickness.....	A	.....	.....	.....	$\frac{3}{8}$ in.	
	.....	.....	303	.....	$\frac{1}{8}$ in.	
Lining, length.....	A	.....	.....	.....	49½ in., approximately	
	.....	.....	303	.....	39 in., approximately	
Lining, thickness.....	A	.....	303	.....	$\frac{3}{8}$ in.	
Lining, width.....	A ¹	.....	.....	.....	2½ in.	
	A ²	.....	.....	.....	2¼ in.	
	.....	.....	303	.....	2 in.	
Pull back spring for rear brake rod, free length....	A		303		4¼ in., approximately	Before rear axle unit 3-12529. Beginning with rear axle unit 3-12529.
Pull back spring for rear brake rod, tension.....	A	.....	303	.....	19-24 lbs. stretched to 6½ in. between loops	
HAND BRAKES						
Clearance between rocker shaft and bushings.....	A	B	303	328	New limits .004 to .008 in. Worn limit, not over .012 in.	
Lining, length.....	A	.....	.....	.....	40¾ in., approximately	
	.....	.....	303	.....	40¼ in., approximately	
	.....	B	.....	.....	10 $\frac{5}{16}$ in.	
	.....	.....	.....	328	9 $\frac{1}{8}$ in.	
Lining, thickness.....	A	B	.....	328	$\frac{3}{8}$ in.	
	.....	.....	303	.....	$\frac{5}{32}$ in.	
Lining, width.....	A	.....	.....	328	2 in.	
	.....	.....	303	.....	1 $\frac{5}{8}$ in.	
	.....	B	.....	.....	2¼ in.	

1. Length of Lining

The lengths given for the lining on 341-A and 303 cars allow for cutting to length to suit each individual band. The most economical method is to purchase lining in rolls

and cut to length when installing. Lining for external bands should be cut $\frac{3}{8}$ in. longer than the band. Lining for internal bands should be cut $\frac{3}{8}$ in. shorter than the band.

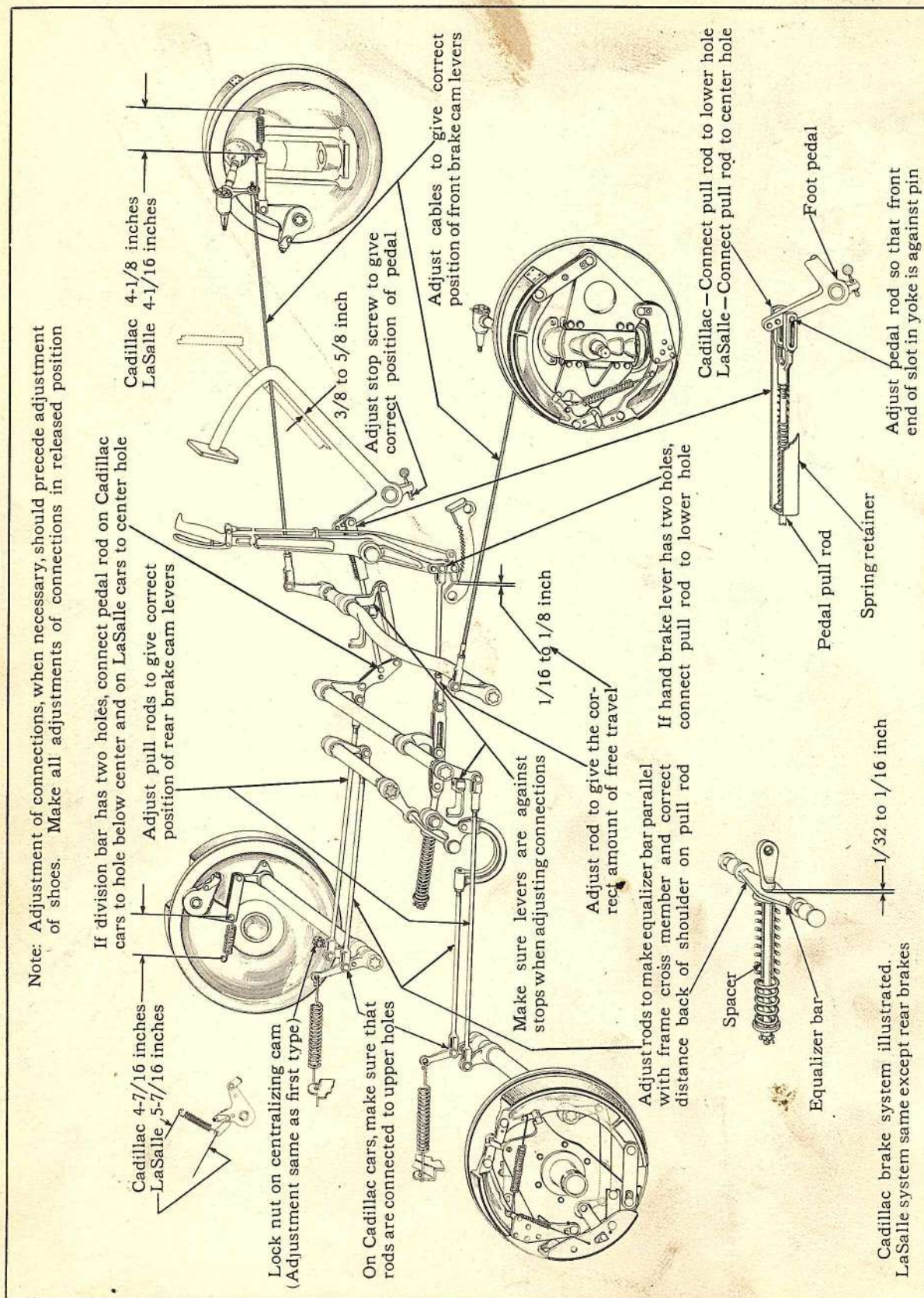
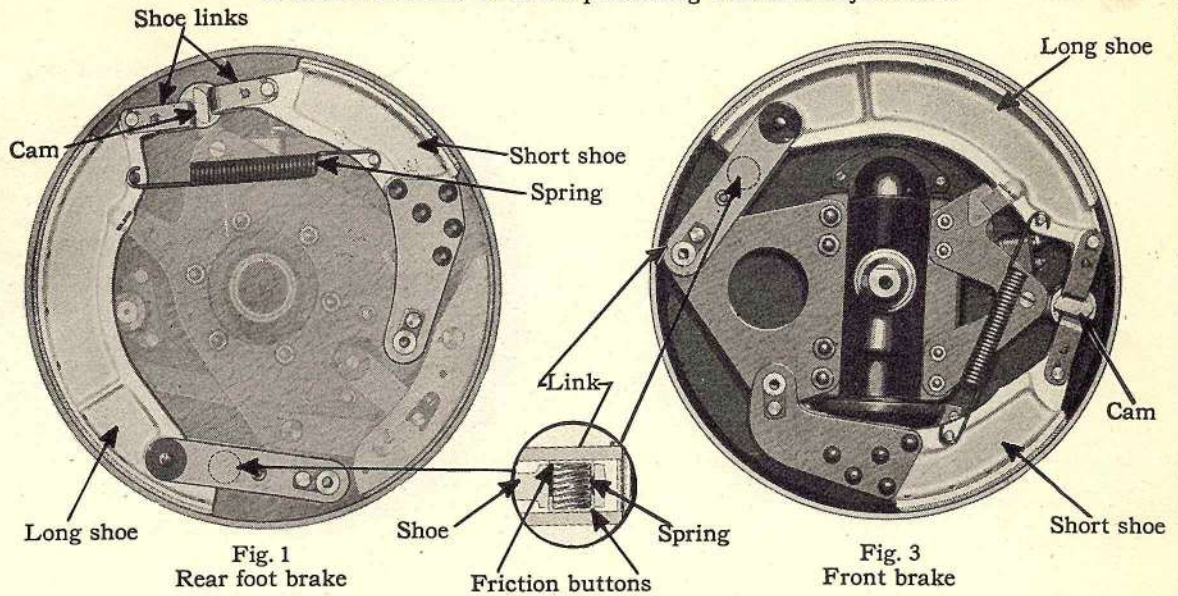


Plate 9. Adjustment of Cadillac 341-B and La Salle 328 brake connections—second type.

Note: Unless brake connections are known to be O. K., check them as shown in Plate 8 before proceeding with shoe adjustments



Loosen nut and apply brakes firmly to centralize cam bracket. Tighten nut before releasing brakes. (See Fig. 7 for cam bracket)

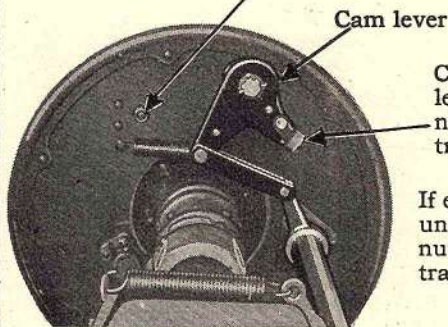


Fig. 2
Rear brake adjustment

Check for equalization between right and left. If O. K., turn down all four adjusting nuts same number of turns until pedal travel is approximately 2-1/4 inches. (1-1/6 turns equals 1 inch pedal travel)

If equalization is not O. K., first turn down nuts until all four wheels just drag; then back off nuts same number of turns to give proper pedal travel. Recheck for equalization and make further adjustment if necessary

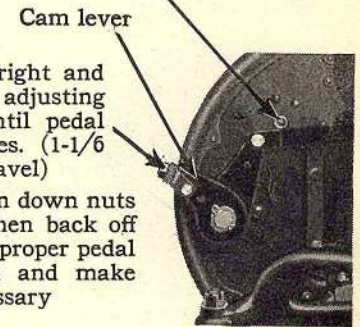


Fig. 4
Front brake adjustment

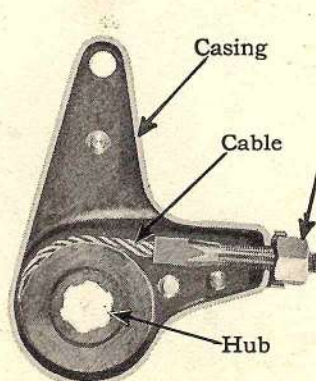


Fig. 5
Cam lever with half of casing removed

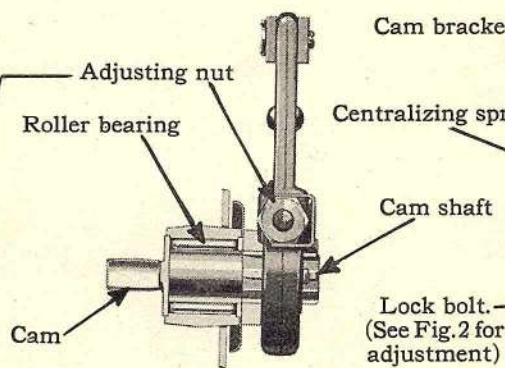


Fig. 6
Sectional view of cam shaft bearing

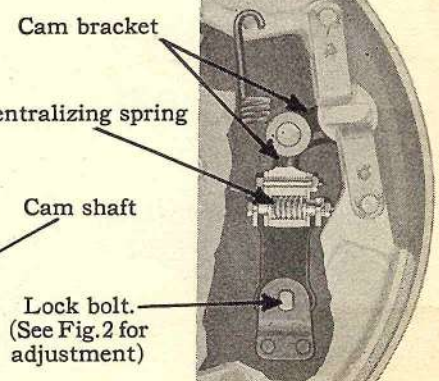


Fig. 7
Sectional view of cam centralizing bracket

BRAKES

Note: Unless brake connections are known to be O. K., check them as shown in Plate 9 before proceeding with shoe adjustments

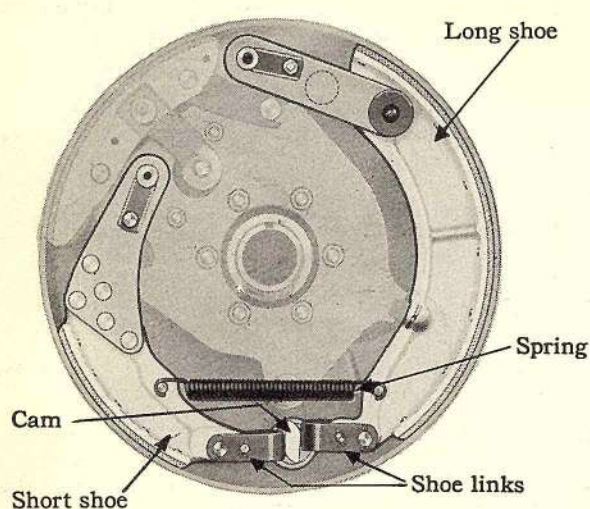


Fig. 1
Rear foot brake

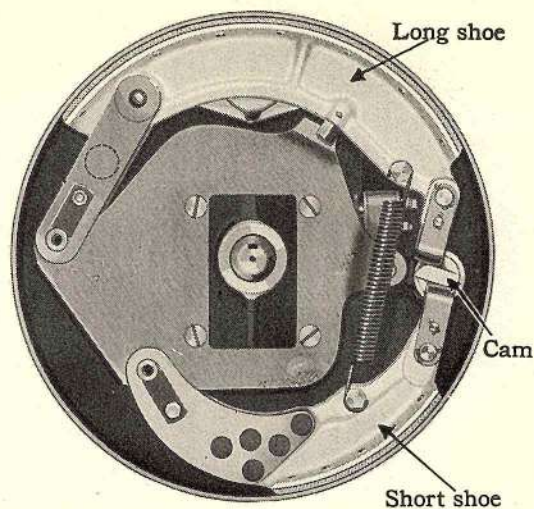


Fig. 3
Front brake

Loosen nut and apply brakes firmly to centralize cam bracket. Tighten nut before releasing brakes. (See Fig. 7 for cam bracket)

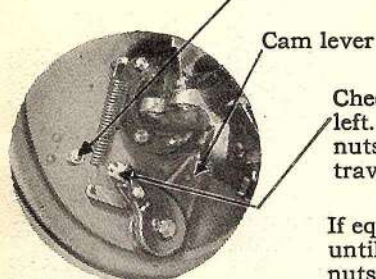


Fig. 2
Rear brake adjustment

Check for equalization between right and left. If O. K., turn down all four adjusting nuts same number of turns until pedal travel is approximately 2-1/4 inches. (1-1/6 turns equals 1 inch pedal travel)

If equalization is not O. K., first turn down nuts until all four wheels just drag; then back off nuts same number of turns to give proper pedal travel. Recheck for equalization and make further adjustment if necessary

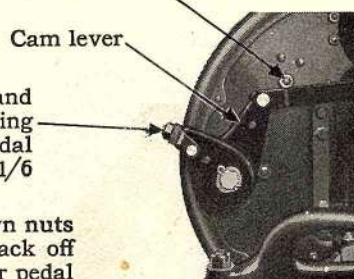


Fig. 4
Front brake adjustment

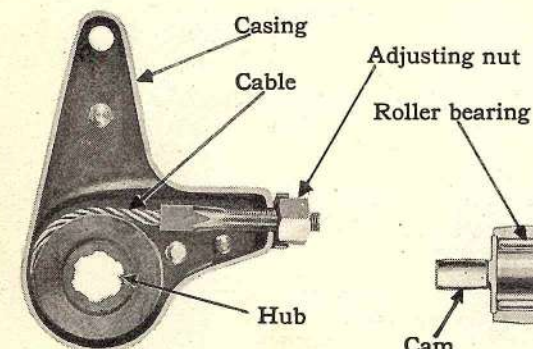


Fig. 5
Cam lever with half of casing removed

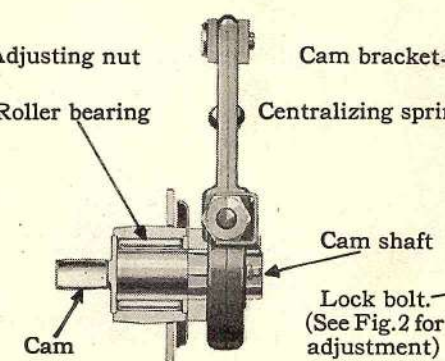


Fig. 6
Sectional view of cam shaft bearing

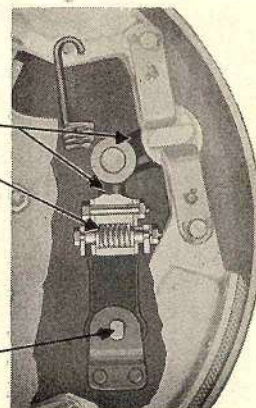


Fig. 7
Sectional view of cam centralizing bracket

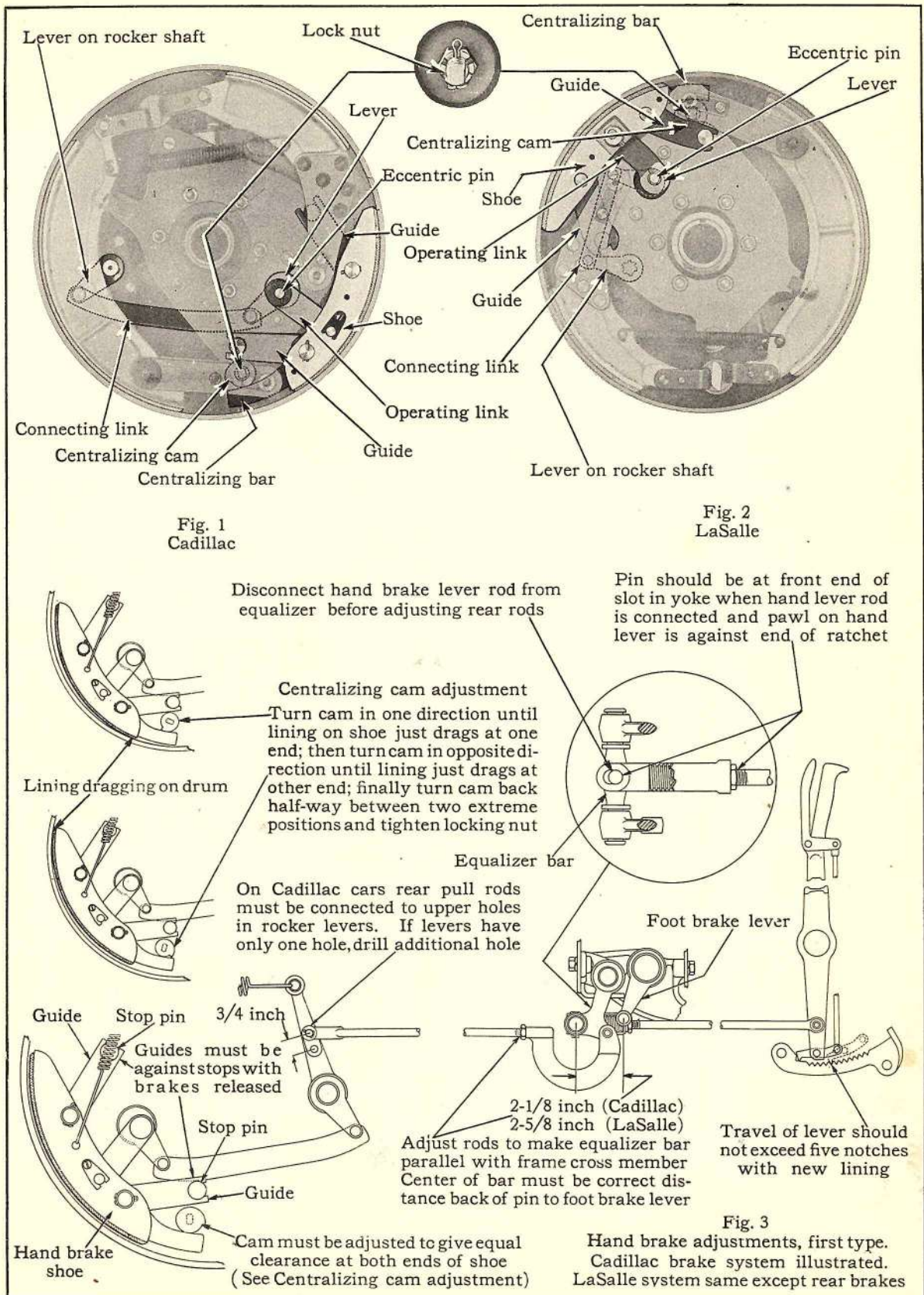
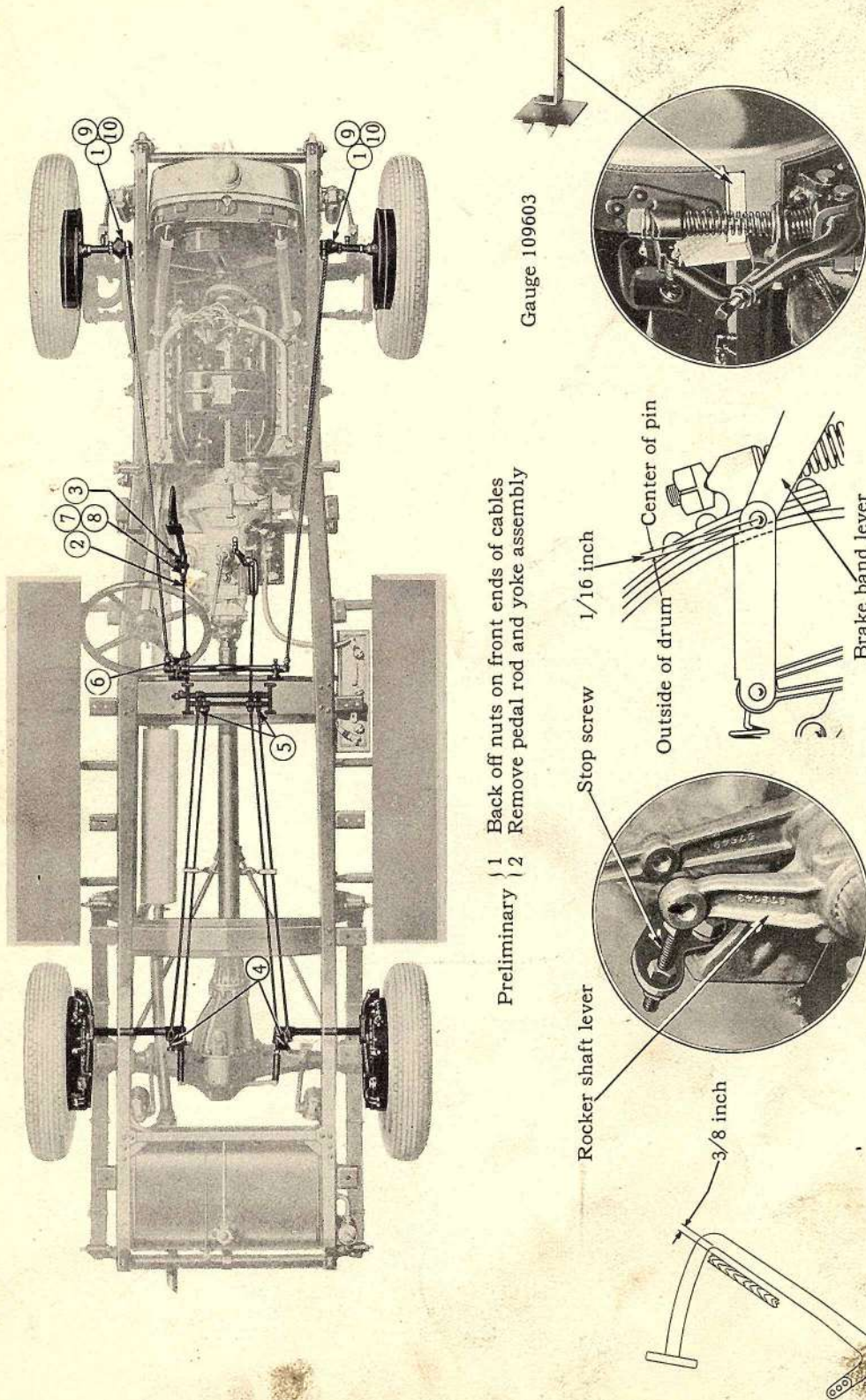
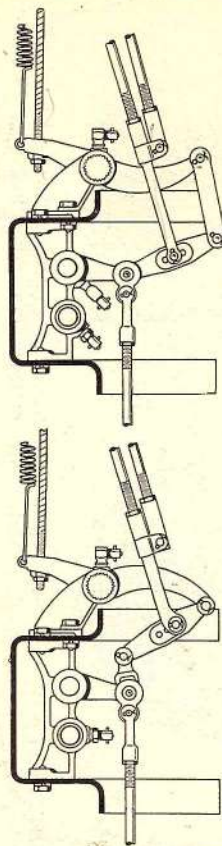


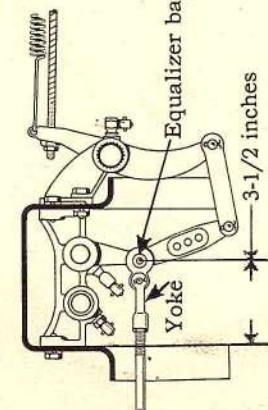
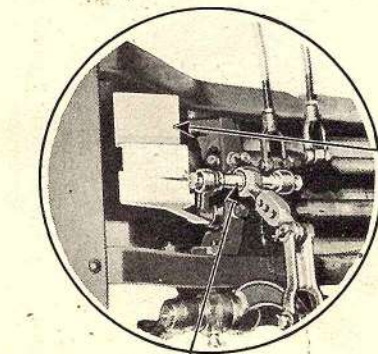
Plate 12. Cadillac 341-B and La Salle 328 hand brakes—first type.

Note: Adjustment of connections must precede adjustment of bands. Connections must also be freed up before adjustment. Make all adjustments of connections in released position



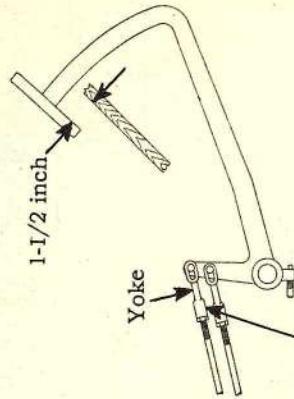


First type hook-up.
Use bottom hole in division bar
6 Connect rear end of pedal rod assembly to division bar



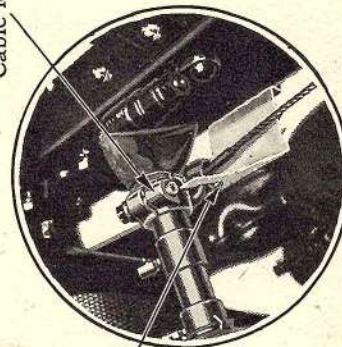
5 Adjust yokes on rods to give correct position of equalizer bar.
Preferably use gauge

Second type hook-up.
Use middle hole in division bar

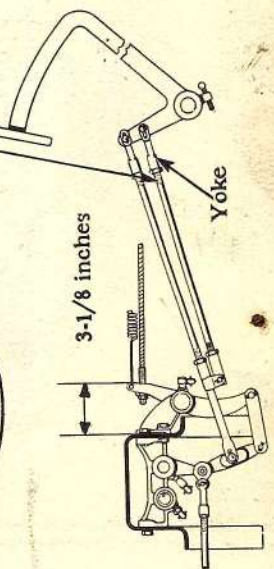
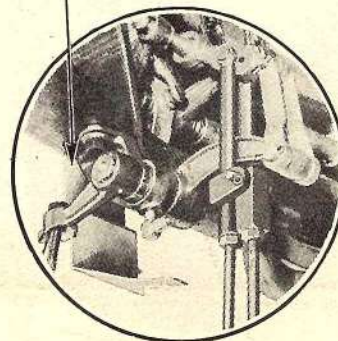


8 Adjust yoke on upper rod so second stage takes effect when pedal is 1-1/2 inches from toe board

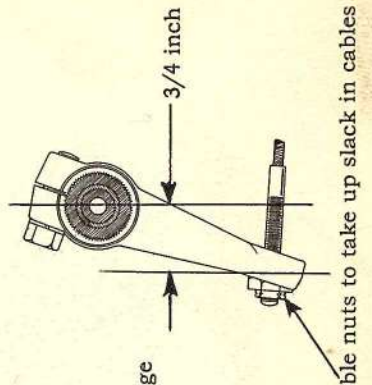
Cable lever



7 Adjust yoke on lower pedal rod to give correct position of levers on front brake cross shaft.
Preferably use gauge



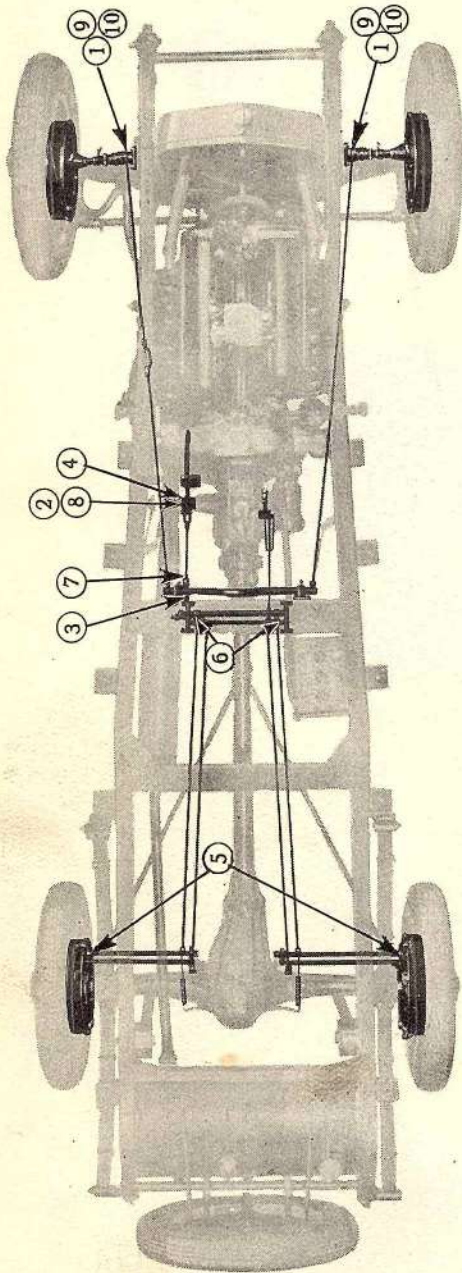
9 Check position of cable levers. Preferably use gauge



10 Adjust cable nuts to take up slack in cables

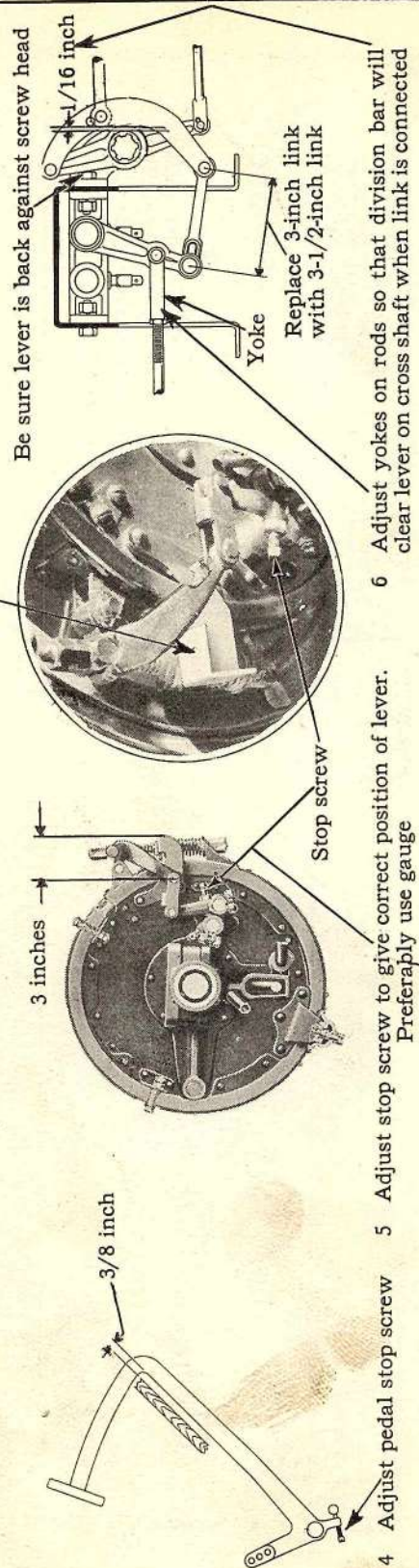
Adjustment of Cadillac 341-A Brake Connections.

Note: Adjustment of connections must precede adjustment of bands. Connections must also be freed up before adjustment. Make all adjustments of connections in released position



- Preliminary {
- 1 Back off nuts on front ends of cables
 - 2 Disconnect pedal rod from pedal
 - 3 Disconnect division bar link

Gauge 109419

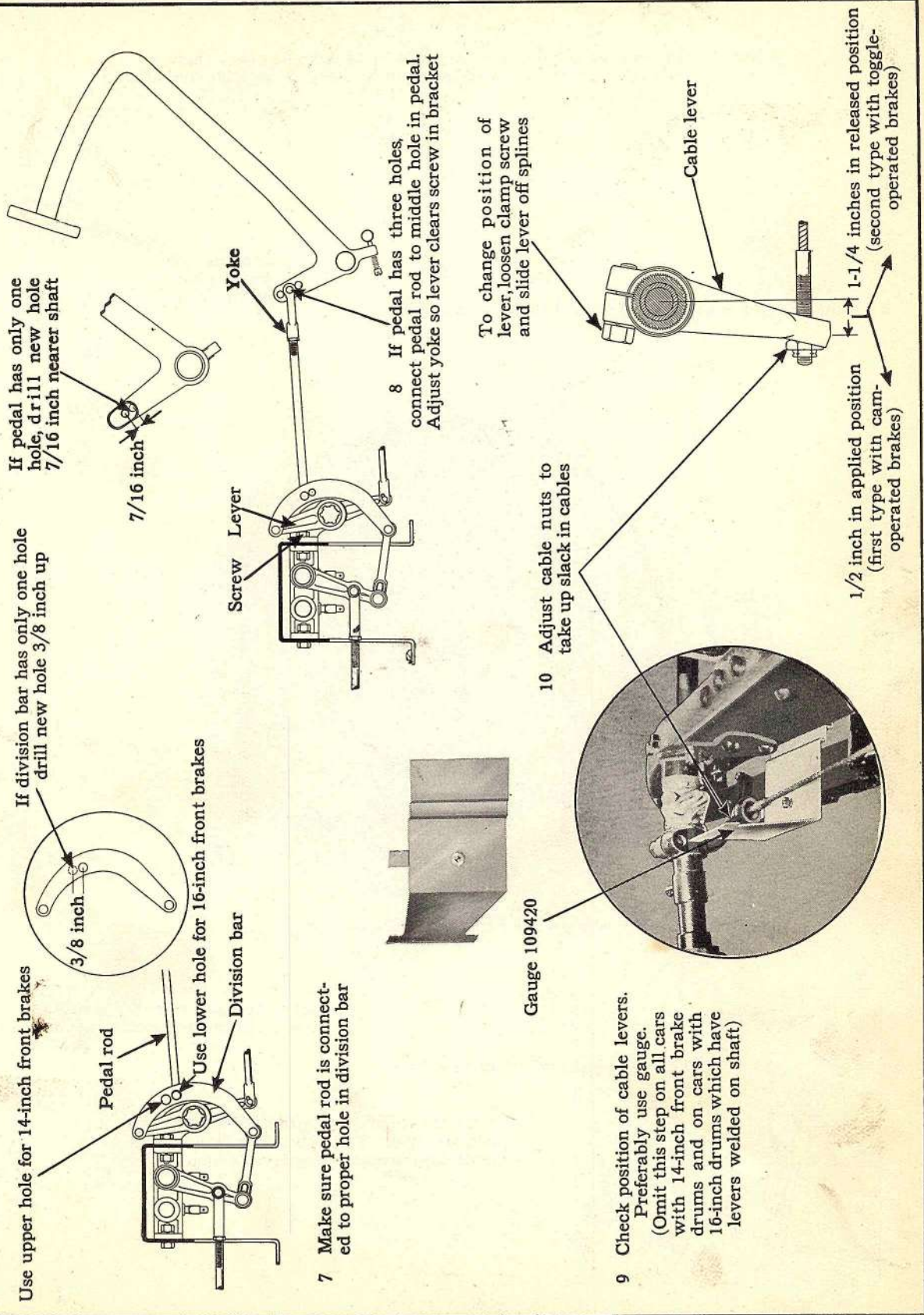


6 Adjust yokes on rods so that division bar will clear lever on cross shaft when link is connected

5 Adjust stop screw to give correct position of lever. Preferably use gauge

4 Adjust pedal stop screw

Plate 14.



Adjustment of La Salle 303 Brake Connections.

Note: Unless brake connections are known to be O. K., check them as shown in Plate 13 before proceeding with band adjustments

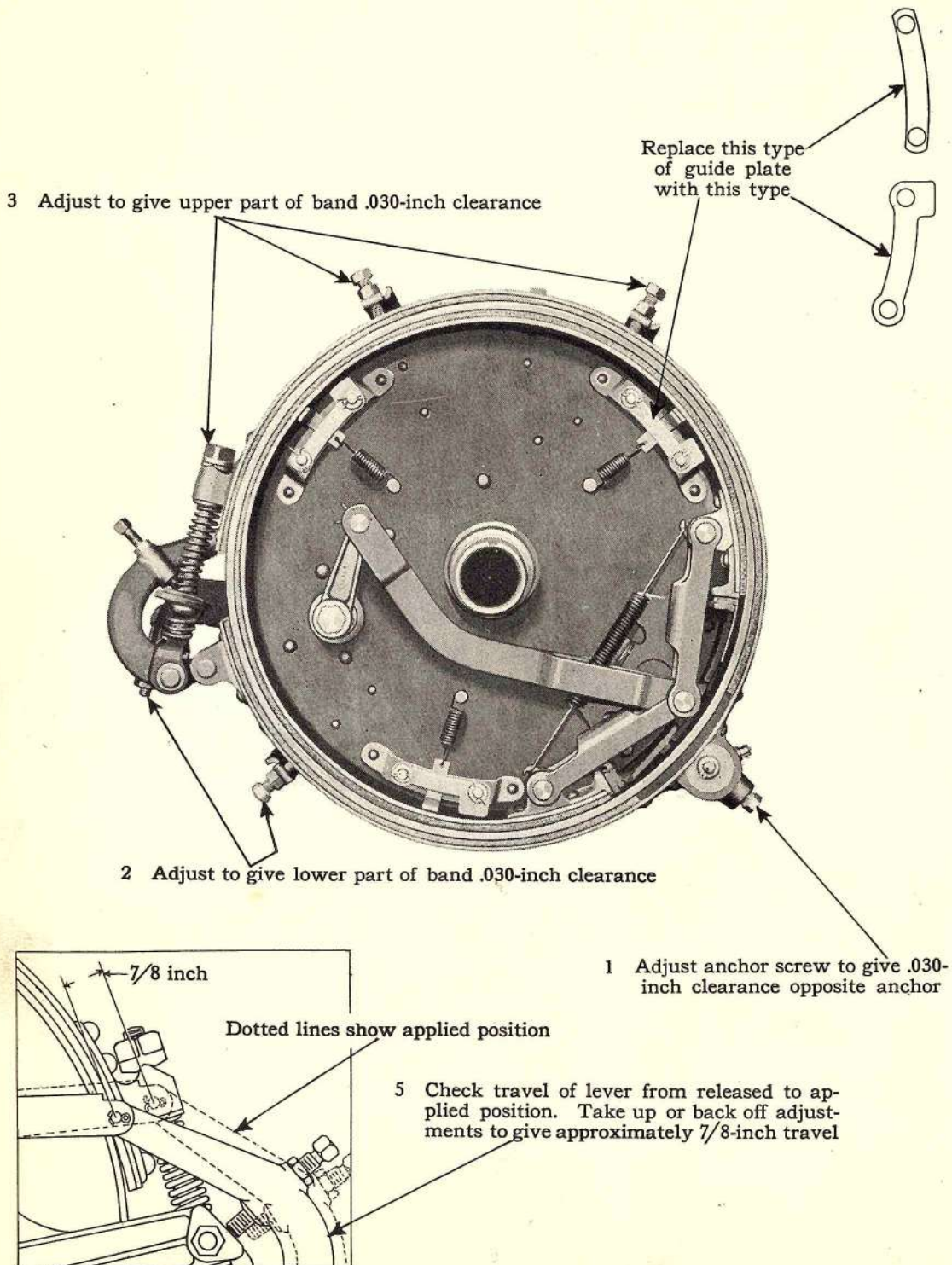


Plate 15. Adjustment of Cadillac 341-A rear foot brakes.

Note: Unless brake connections are known to be O. K., check them as shown in Plate 14 before proceeding with band adjustments

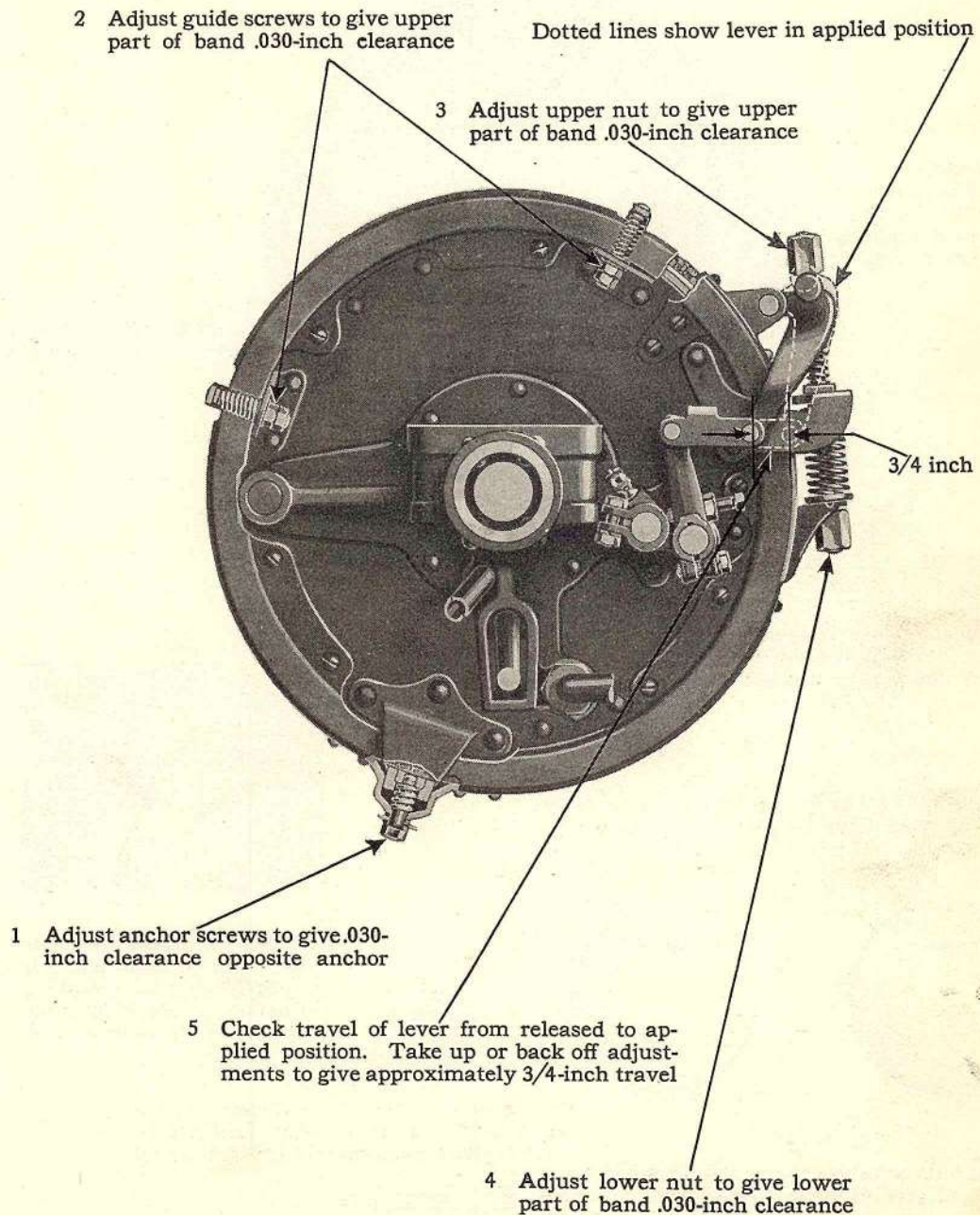


Plate 16. Adjustment of La Salle 303 rear foot brakes.

Note: Unless brake connections are known to be O. K., check them as shown in Plate 14 before proceeding with band adjustments

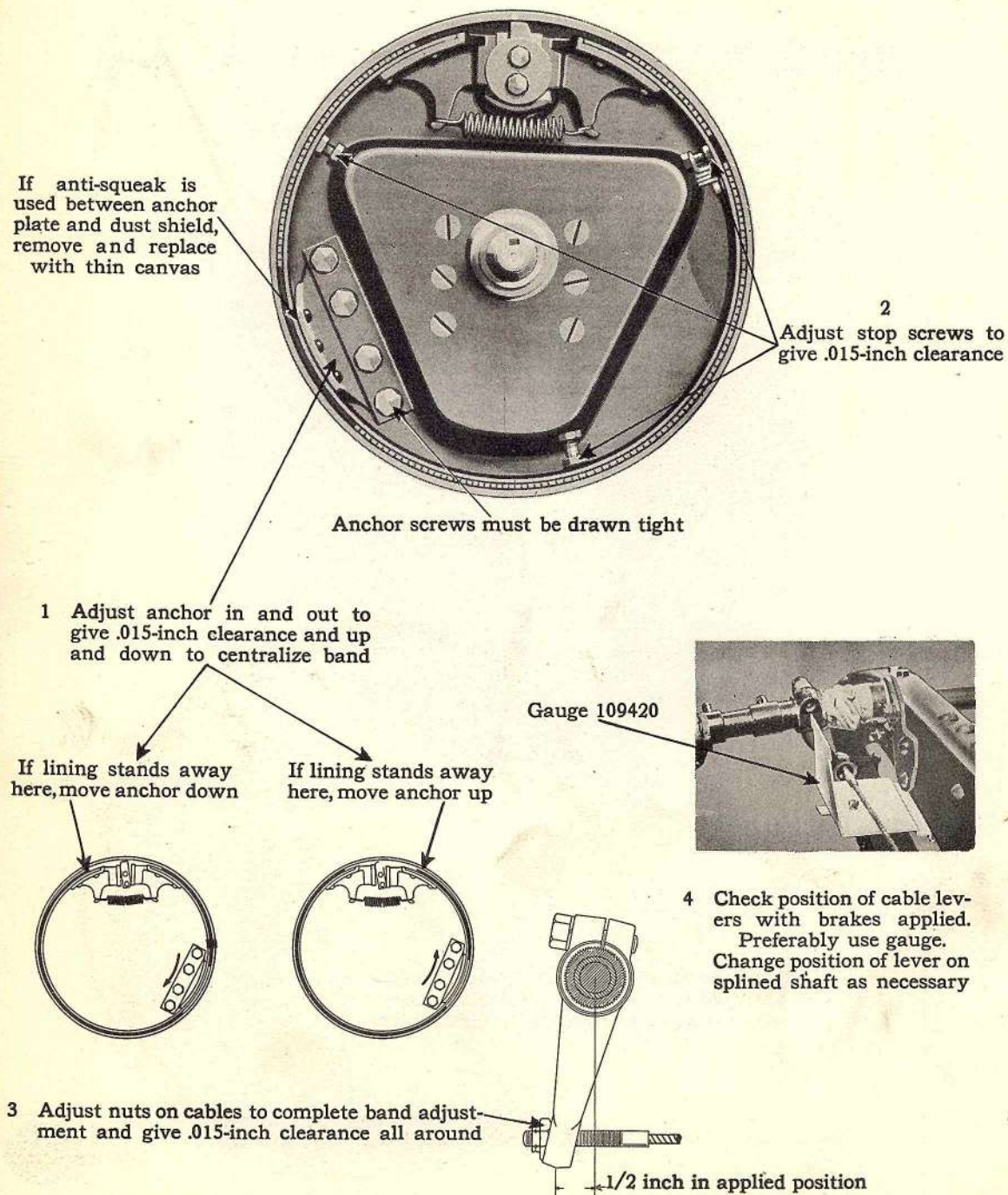


Plate 17. Adjustment of La Salle 303 front brakes—first type.

Note: Unless brake connections are known to be O. K., check them as shown in Plates 13,14 before proceeding with band adjustments

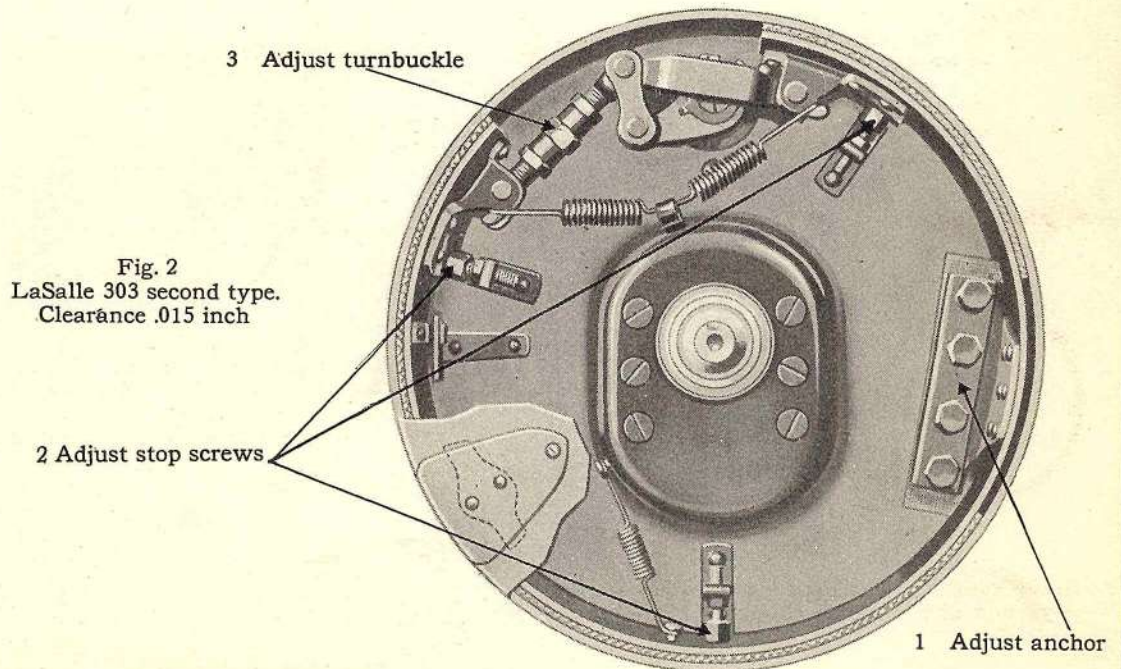
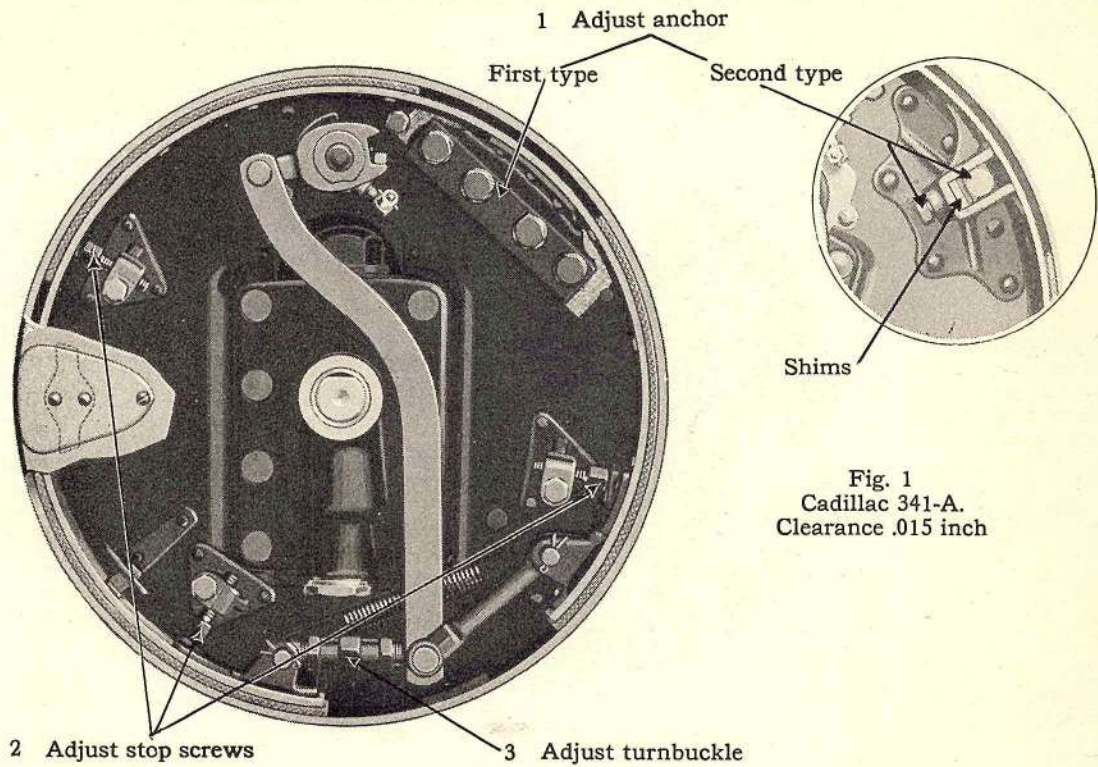


Plate 18. Adjustment of front brakes, Cadillac 341-A and La Salle 303—second type.

Clutch

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
PLATE TYPE						After engine unit 2-12001 on 303 cars.
Clearance between driving plates and driving pins.....	A	B	303 ²	328	New limits, .005—.008 in. Worn limit, not over .010 in.	
Clearance between hub and splines on clutch connection shaft.....	A	B	303 ²	328	New limits, .0005—.002 in. Worn limit, not over .005 in.	
Clearance between release bearing sleeve and transmission bearing cap.....	A	B	303 ²	328	New limits, .001—.004 in. Worn limit, not over .006 in.	
Clearance between release shaft and bearings in transmission case.....	A				New limits, .003—.006 in. Worn limit, not over .010 in.	
Clutch pedal, free movement..	A	B	303 ²	328	$\frac{7}{8}$ —1 $\frac{1}{8}$ in.	
Clutch spring compression...	A	B	303 ²	328	67—73 lbs. at 1 $\frac{3}{8}$ in.	
Clutch spring, number.....	A	B	303 ²	328	12	
Disc facing diameter, inside...	A	B	303 ²	328	6 $\frac{1}{2}$ in.	
Disc facing diameter, outside..	A	B	303 ²	328	9 $\frac{1}{2}$ in.	
Disc facing, number.....	A	B	303 ²	328	4	
Disc facing, thickness.....	A	B	303 ²	328	.125—.130 in.	
Disc with facings, thickness...	A	B	303 ²	328	New limits, .305—.315 in. Worn limit, not less than .250 in.	See note 1.
Release bearing.....	A ¹					
Release bearing pull-back spring, free length.....	A		303 ²		2 $\frac{1}{4}$ in., approximately	See note 2.
Release bearing pull-back spring, tension.....	A	B	303 ²	328	6—8 lbs. when stretched to 3 $\frac{3}{8}$ in. between loops	
Removal of clutch.....	A	B	303 ²	328		See note 3. Before engine unit 2-12001 on 303 cars.
MULTIPLE DISC TYPE						
Clearance between driven discs and teeth on hub. (Except rear disc).....			303 ¹		Worn limit, not over .008 in.	Fit rear disc tight on hub; next to rear disc, snug sliding fit.
Clearance between teeth on driving discs and teeth on fly-wheel. (Except rear disc)...			303 ¹		Worn limit, not over .010 in.	Rear disc, snug sliding fit in fly-wheel.
Clearance between release bearing sleeve and transmission bearing cap.....			303 ¹		New limits, .001—.004 in. Worn limit, not over .006 in.	
Clutch pedal, free movement..			303 ¹		$\frac{7}{8}$ —1 $\frac{1}{8}$ in.	
Clutch spring, compression...			303 ¹		Not under 420 lbs. at 2 $\frac{1}{2}$ in.	
Disc facing diameter, inside...			303 ¹		6 $\frac{1}{8}$ in.	
Disc facing diameter, outside..			303 ¹		7 $\frac{5}{8}$ in.	
Disc facing, number.....			303 ¹		10	
Disc facing, thickness.....			303 ¹		.130—.140 in.	

CLUTCH

Subject	Cadillac 341	LaSalle 303-328	Specifications	Remarks
Disc, installation of.....		303 ¹		See note 4.
Release bearing pull-back spring, free length.....		303 ¹	1½ in., approximately	
Release bearing pull-back spring, tension.....		303 ¹	6—8 lbs. at 1⅞ in. between loops.	
Thickness of driving disc with facing.....		303 ¹	Not under ⅝ in.	

1. Refacing Plate-Type Clutch

Replacement of the clutch driven discs with facings is recommended rather than refacing the original discs. The reason for this is because the surface of the facing must be ground after it is riveted to the disc, to insure the correct thickness. If the facing is too thick the disc will drag on the center plate. As it is impractical to grind the discs in service, the practice of replacing the discs and facing must be followed.

2. Clutch Release Bearing

On a few of the first 341-A cars, the clutch release bearing cannot be removed from the sleeve. If the bearing on these cars requires replacement, replace the sleeve and bearing as a unit. On later cars the sleeve has two holes through which the bearing can be reached to force it off the sleeve.

3. Removal of Plate-Type Clutch

Extreme care must be taken when removing the trans-

mission to support the rear end so as to hold the transmission in perfect alignment with the clutch until the clutch connection shaft has been pulled *all the way out* of the clutch hub.

If the rear end of the transmission is allowed to drop down or is raised too high while the clutch connection shaft is still in the clutch hub, the clutch driven discs will be sprung out of shape. *This must be avoided.*

On cars which do not have the long piloting studs on the sides of the crankcase use special studs (Tool number 109222) provided for these cars. *Plate 60 Fig 1.*

4. Assembling Multiple Disc Clutch

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.

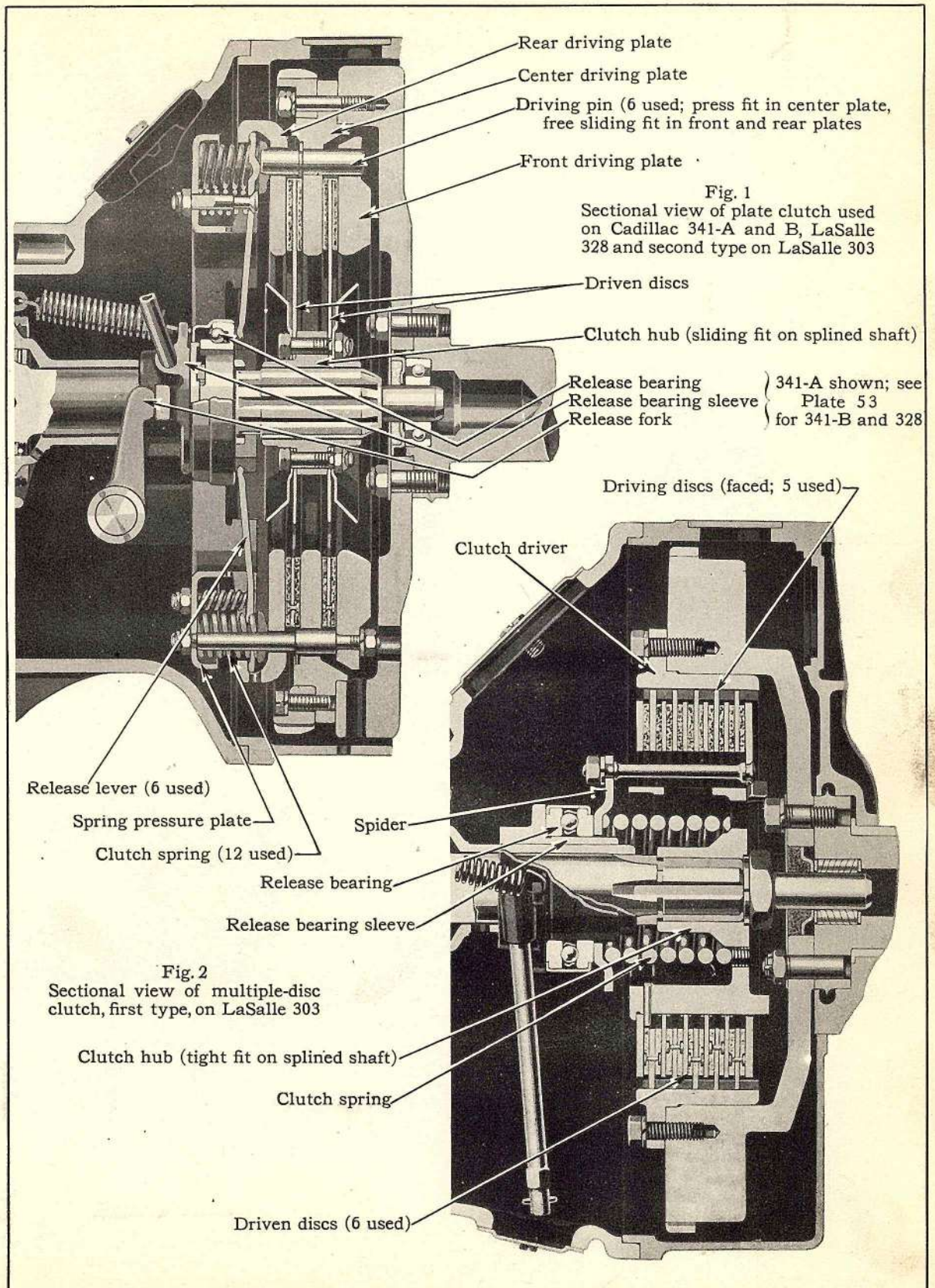


Plate 19. Sectional view of clutch.

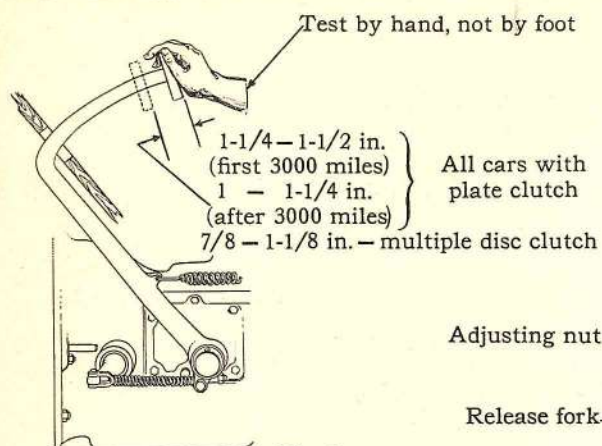


Fig. 1

Measuring free travel or lost motion of clutch pedal before starting to disengage the clutch

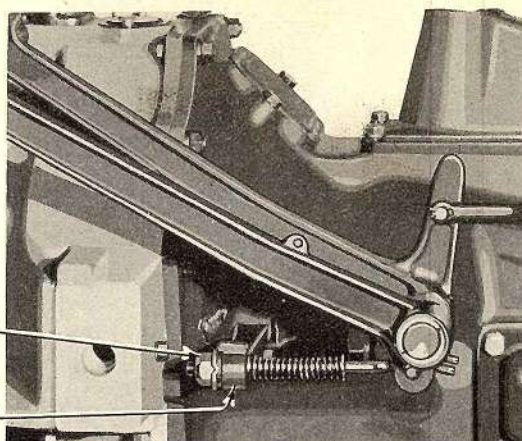


Fig. 2

LaSalle 303

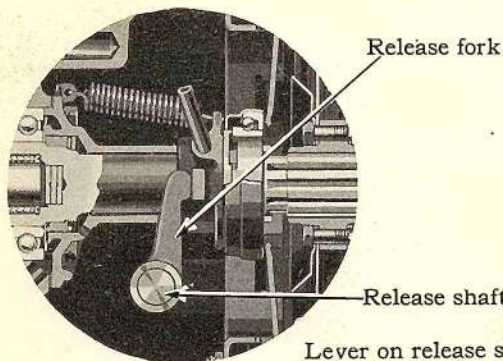
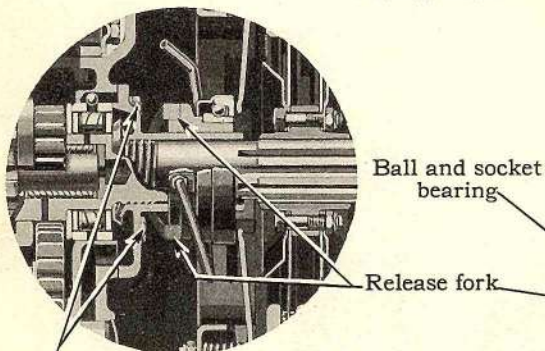
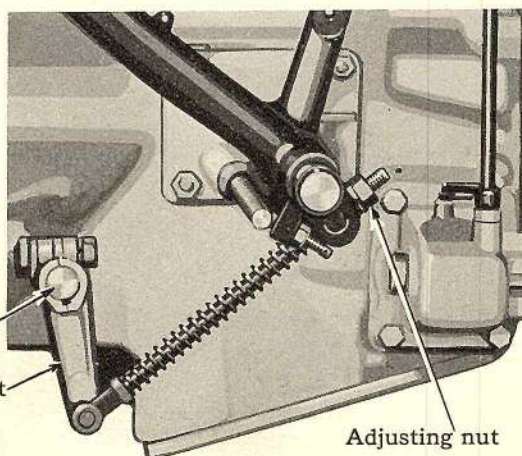


Fig. 3

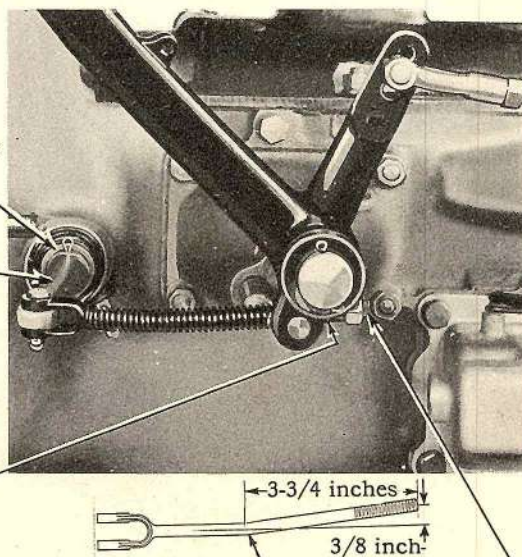
Cadillac 341-A



Install thin head cap screws (part number 871838) with special thin lock washers (part number 110730) in place of studs on 341-B cars before transmission unit 3-31617 and on 328 cars before transmission unit 4-12532. Watch for interference between studs and fork by making sure adjusting nut is tight against trunnion

Fig. 4

Cadillac 341-B and LaSalle 328



On 341-B and 328 cars the clutch release rod should be bent as shown and installed so that the bent part points up

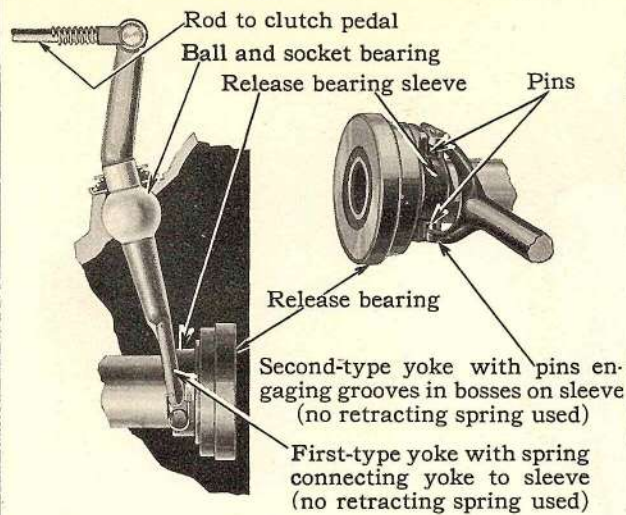


Fig. 1
Clutch release yoke on Cadillac 341-B and LaSalle 328

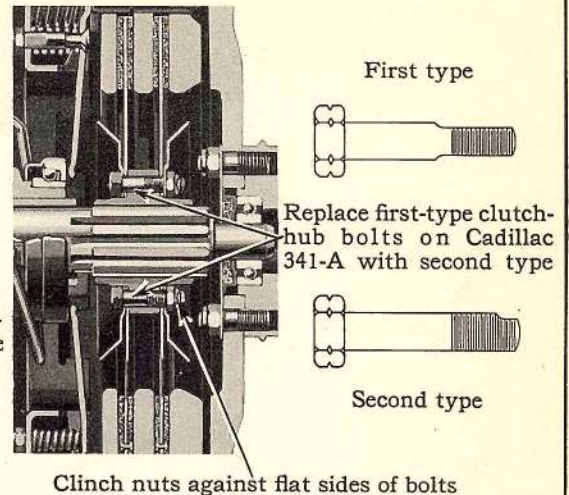


Fig. 2

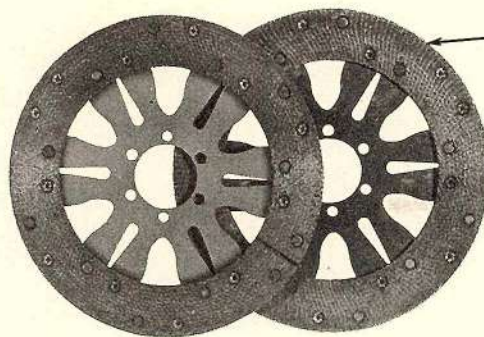


Fig. 3
Clutch driven discs with facing

To remove clutch, remove these 6 nuts

Do not touch these 12 nuts to remove or disassemble clutch or at any other time

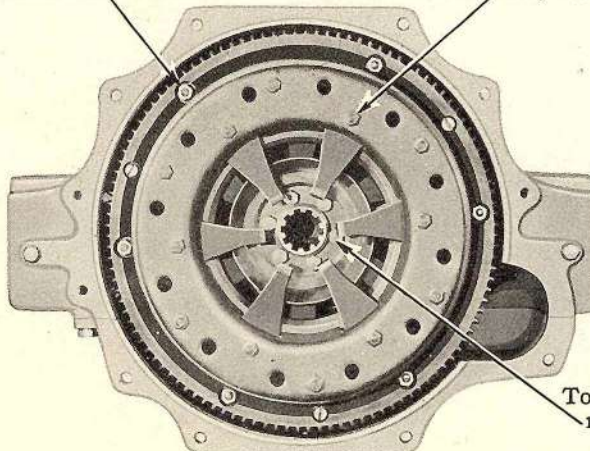


Fig. 4
Rear view of engine showing removal of clutch

Pressure plate assembly with rear driving plate. Service as a unit. Do not disassemble

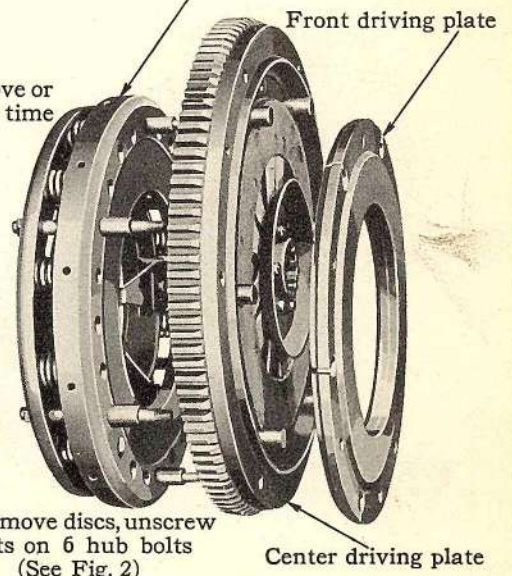
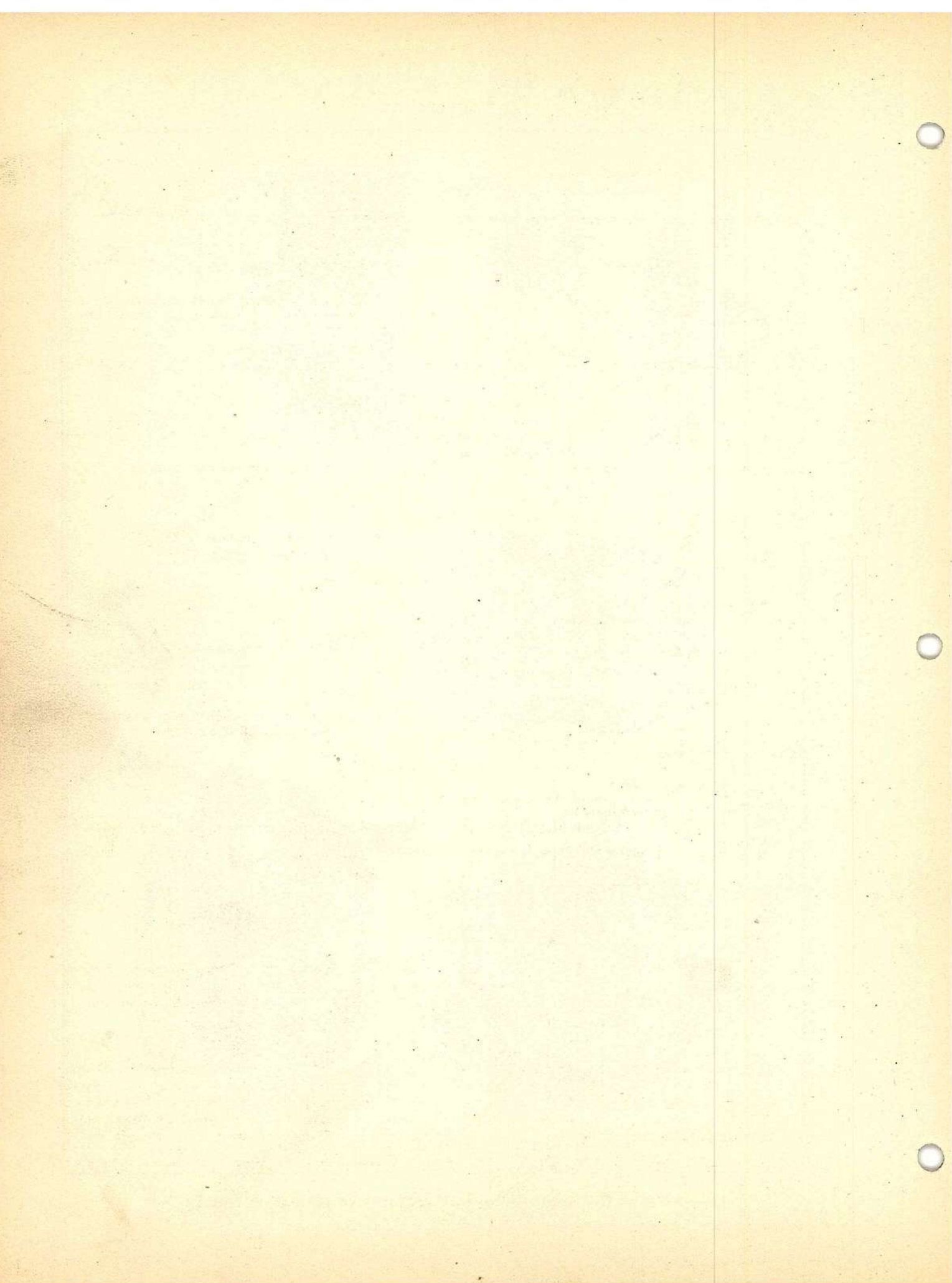


Fig. 5
Clutch disassembled

Plate 21. Removal and disassembly of plate-type clutch.



Cooling System

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
FAN						
Assembly, method of.....	A	B	303	328	.....	See note 1.
Bearing diameter.....	A	B	303	328	$\frac{3}{4}$ in.	
Belt, length.....	A	B	303	328	$\frac{35}{8}$ in.	
Belt, tension.....	A	B	303	328	$\frac{5}{8}$ in. slack with 15 lbs. pull.	Plate 22, Fig. 3.
Belt, width.....	A	B	303	328	1 in.	
Clearance between fanshaft and bushing.....	A	B	303	328	New limits, .004—.006 in. Worn limit, not over .010 in.	
Diameter.....	A	B	303	.....	$20\frac{1}{4}$ in.	When replacing fan on 303 use 21-in. fan.
				328	21 in.	
Identification marks.....	A	B	.....	328	"C" }	Stamped on front face of hub cover.
			.....	303	"L" }	Fan for 328 is 21 in. in diameter.
						Plate 22, Fig. 5.
Lubrication.....	A	B	303	328	At every 1000 miles.	See note 2.
Oil capacity of fan reservoir...	A	B	303	328		See Lubrication Table, page 83
Pitch of blades.....	A	B	.....	328	33°	Cadillac 341-A Stamped "C"
			.....	303	25°	Stamped "L"
HOSE CONNECTIONS						
Cylinder to radiator hose, diameter.....	A	B	303	328	$1\frac{1}{4}$ in.	
Cylinder to radiator hose, length.....	A	B	.....	.....	$16\frac{3}{4}$ in.	Before engine unit 3-11595 this hose was $16\frac{1}{4}$ in. long. When replacing, use $16\frac{3}{4}$ in. hose.
			.....	303	$10\frac{3}{4}$ in. R. H., $12\frac{5}{16}$ in. L. H.	
			.....	328	$14\frac{1}{2}$ in.	
Cylinder block nipple to elbow hose, diameter.....	A	B	303	328	$1\frac{1}{4}$ in. (either side)	
Cylinder block nipple to elbow hose, length.....	A	B	303	328	$2\frac{1}{4}$ in. (either side)	
Pump to elbow hose, diameter.....	A	B	303	328	$1\frac{5}{8}$ in.	
Pump to elbow hose, length.....	A	.....	303	.....	$13\frac{3}{4}$ in.	
		B	.....	328	$16\frac{5}{8}$ in.	
Radiator to pump hose, diameter.....	A	B	303	328	$1\frac{7}{8}$ in. }	See note 3.
Radiator to pump hose, length.....	A	B	303	328	$12\frac{1}{8}$ in. }	
RADIATOR						
Anti-freeze solution					Qts.	Sp. gr. at 60°F. % by Vol.
Alcohol required for 10°F...	A	B	.....	.....	$7\frac{1}{4}$	.9668 30
			.....	303	$6\frac{1}{4}$	.9668 30
Alcohol required for 0°F...	A	B	.....	.....	9	.9567 38
			.....	303	8	.9567 38
Alcohol required for - 10°F..	A	B	.....	.....	$10\frac{3}{4}$	.9485 45
			.....	303	$9\frac{1}{2}$	.9485 45
Alcohol required for - 20°F..	A	B	.....	.....	$12\frac{1}{4}$	.9350 51
			.....	303	$10\frac{3}{4}$	.9350 51
Alcohol required for - 30°F..	A	B	.....	.....	$13\frac{3}{4}$	.9260 57
			.....	303	12	.9260 57
						The calculations are based on 180-proof alcohol (10% water). If 188-proof alcohol (6% water) is used, the amount of alcohol required can be reduced by 4% (volume).

COOLING SYSTEM

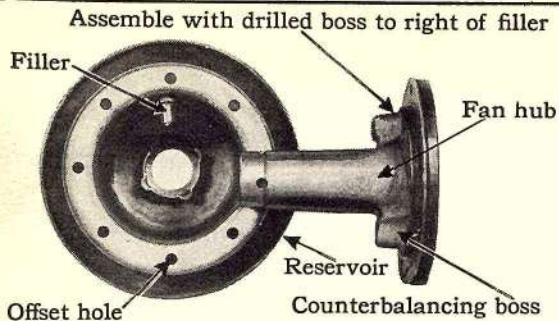


Fig. 1

To preserve balance fan hub and reservoir must be properly assembled

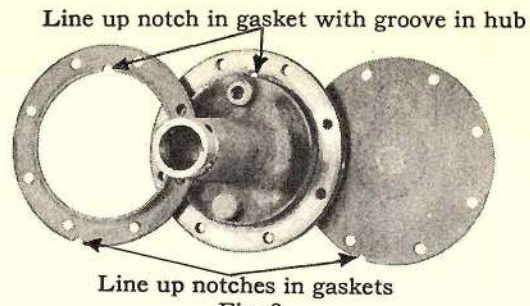


Fig. 2

Correct assembly of fan gaskets

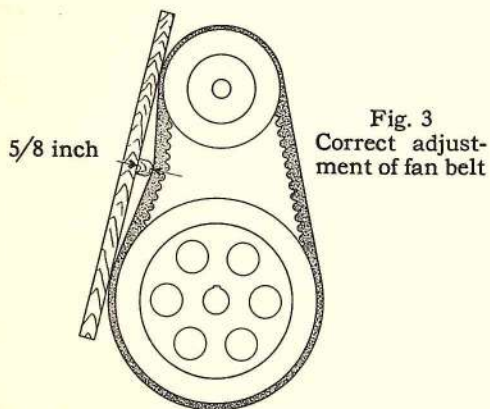


Fig. 3

Correct adjustment of fan belt

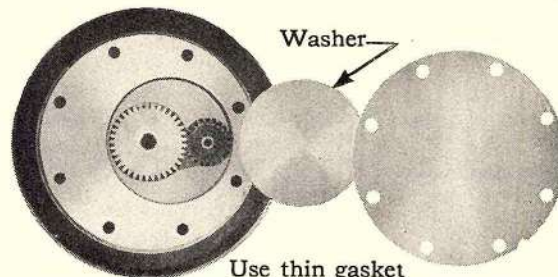


Fig. 4

Fan hub and thrust washer used on Cadillac 341-B and LaSalle 328. Use also for replacement on 341-A and 303

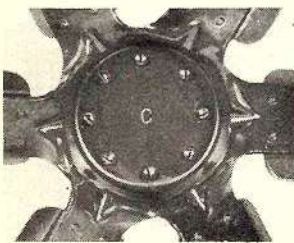


Fig. 5
Fan identification
C - Cadillac
L - LaSalle(303)



Fig. 6

Always place fan on bench with front down to prevent oil running out. Carry in same position

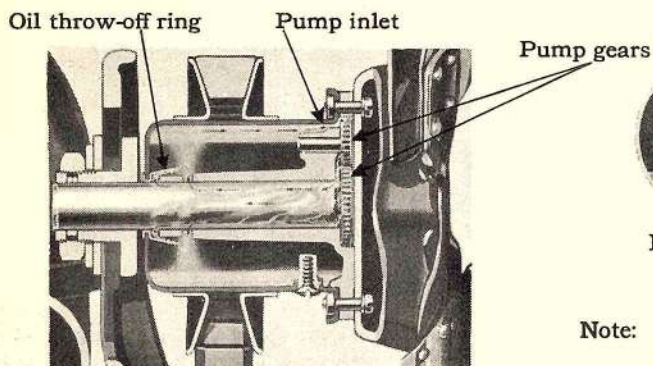
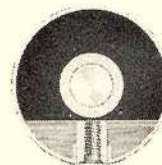


Fig. 7

Circulation of oil in fan. Centrifugal force holds oil against outer wall of reservoir. Pump gears draw it through small hole and force it to bearing surface



Filler up for adding oil



Filler down for draining off surplus

Fig. 8

Note: If reservoir is air-bound and surplus does not drain off at once, wait a few seconds to let air work in. Fan will throw oil if there is too much in reservoir

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
	A	B	303	328		
Capacity of cooling system...	A	B	.....	.....	6 gals. 5 $\frac{1}{4}$ gals.	Total capacity of cylinder water jackets, hose connections and radiator. Do not fill radiator full. This will result in overflow when the water heats and expands. Expensive when anti-freeze is used.
Flushing radiator.....	A	B	303	328	.....	See note 4.
Manufacturer's number, location of.....	A	B	303	328	Rear of upper tank—right side	
Spacing of studs.....	A	.....	.....	.....	.....	See note 5.
Thermostat.....	A	B	303	328	.....	See note 6.
Shutters open.....	A	B	303	328	Start to open 155°—165°F Full open—180°F.	
Shutters close.....	A	B	303	328	165°—170°F.	
Shutter rod adjustment.....	A	B	303	328	Adjustable end $\frac{1}{8}$ in past operating arms.	See note 7. Plate 23, Fig. 4.
WATER PUMP						
Clearance between impeller and pump body.....	A	B	303	328	New limits, .055—.065 in. Worn limit, not over .075 in.	
Clearance between drive sprocket and support.....	A	B	303	328	New limits, .003—.005 in. Worn limit, not over .010 in.	
Clearance between pump shaft and bushings.....	A	B	303	328	New limits, .001—.003 in. Worn limit, not over .006 in.	

1. Fan Assembly

The fan must be assembled correctly to prevent unbalance.

Inspection of the fan will show that the hub has two bosses (*Plate 22 Fig. 1*), one of which is drilled to receive the smaller pump gear. The drilled boss should take a position just to the right of the filler plug at which point the bolt holes will line up correctly. The other boss is on the opposite side of the hub and is of sufficient weight to counterbalance the small gear and drilled boss together with the filler plug in the oil reservoir.

In order to maintain the correct position of the balancing parts when assembling the fan, one of the eight bolt holes in the hub, the reservoir, the gaskets and the blades, is purposely off-set $\frac{1}{16}$ inch. (*Plate 22 Fig. 1*). When assembling these parts the holes should line up correctly and under no consideration should the off-set hole be filed or elongated to enable the blades to be installed in any other position.

A further precaution in assembling the fan should be observed in the placing of the gasket. The ring type gasket has a notch on its inner circumference which must coincide with the small oil intake hole in the hub. The notches on the outer circumference of the ring type gasket and the solid gasket should also be in line. (*Plate 22 Fig. 2*)

On fans for 341-B and 328 cars, the hub is counterbored deeper to permit the installation of a metal plate between the oil pump gears and the gasket.

With these fans a thinner gasket should be used as it is easier to keep oil tight. On fans that do not have this metal plate the thicker gasket must be used so that it will fill in the space in front of the gears.

2. Lubrication of Fan

The only way to make sure that the fan has the proper amount of oil is to add more than enough and then turn the filler hole down and allow the surplus to drain off. (*Plate 22 Fig. 8*). If the surplus oil does not drain off at once, it is because the reservoir is "air-bound," and the filler hole should be left inverted for several minutes until the oil drains out. Oil should be added to the fan every 1000 miles.

3. Aligning Water Pump Hose with Radiator Connection

The holes for the screws by which the pump is attached to the sprocket support are purposely made $\frac{1}{32}$ inch larger in diameter than the screws themselves. The reason for this is to permit the pump inlet connection to be lined up with the water outlet on the radiator, so that the hose will be as nearly in a straight line as possible.

In order to make use of this feature the pump screws should be loosened whenever the generator chain is adjusted. Then, as the sprocket support is moved, the pump will be free to align itself.

Because of the fact that the holes in the pump flange are so much larger than the screws, flat washers as well as lock washers are used under the heads of the screws. It is very important that these washers always be in place. If they are omitted, the screws will bottom against the chain housing, instead of clamping the pump to the face of the sprocket support. This would tend to pry the support away from the chain housing and cause an oil leak.

If a water pump is removed for any reason the flat washers must be reinstalled.

4. Flushing Cooling System

In order to keep the Cooling System free from an excessive accumulation of sediment and scale, it should be flushed by the reverse-flow method every 4000 miles.

To flush the system, the hose connection at the bottom of the radiator should be disconnected and the flushing hose attached to the radiator outlet. The flushing water will then be forced up through the radiator, back through the cylinder jackets and pump and out through the disconnected hose. The flushing operation should be continued until the water from the pump is reasonably clear.

The pressure of the water used in flushing the cooling system should not exceed 20 to 25 pounds as a higher pressure is liable to damage the radiator.

5. Spacing of Radiator Studs

On 341-A Cadillac cars previous to engine unit 300600 and after engine unit 301200 (these numbers are approximate), the radiator studs are 9 inches apart on centers. On cars between these two unit numbers and also on some

later 152-inch chassis, the radiator studs are 15 inches apart.

Whenever a radiator core having the studs 15 inches apart requires replacement, it will be necessary to remove the anchorage from the old core and use it with the new core to permit installing the new radiator on the chassis. To replace the anchorage, it is simply necessary to remove the two bolts which hold the anchorage on each side.

6. Operation of Thermostat

The thermostat plunger should start its stroke at a temperature of not less than 150° and should have a full stroke of $\frac{1}{32}$ inch at a temperature of not over 175°. The test may be made by placing the thermostat in water of the proper temperature.

7. Adjustment of Shutter Rod

The yoke end of the shutter operating rod should be adjusted to bring the center of the hole in the yoke about $\frac{1}{8}$ inch beyond the center of the holes in the operating arms when the rod is detached. *Plate 23, Fig. 4.*

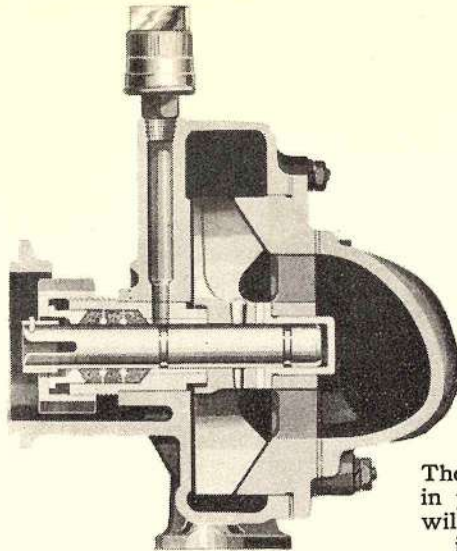


Fig. 1
Sectional view of water pump

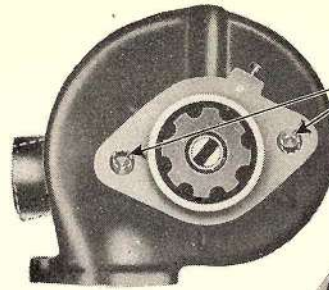


Fig. 2
Enlarged holes in water pump flange to permit lining up inlet with radiator connection

These flat washers must be in place; otherwise screws will bottom on chain housing and cause oil leak

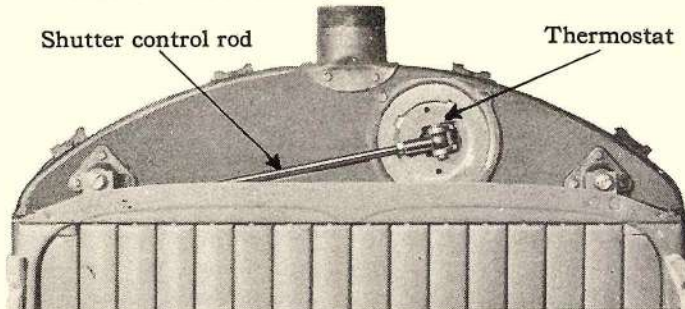
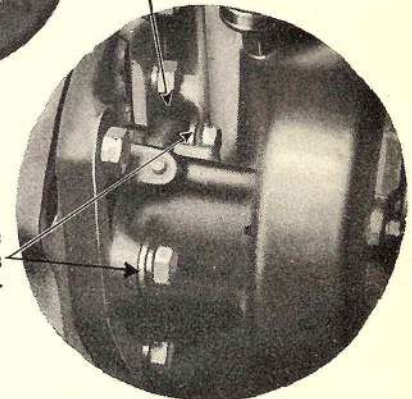


Fig. 3
Front view of radiator showing thermostat and shutter control

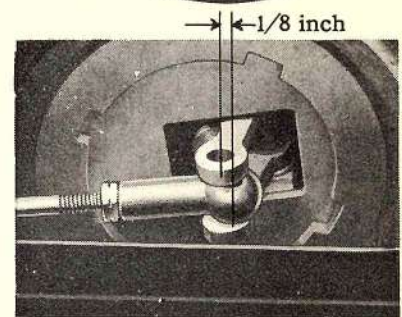


Fig. 4
Adjustment of shutter control rod

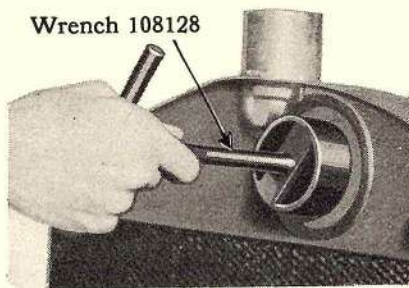


Fig. 5
To remove thermostat unscrew retaining nut

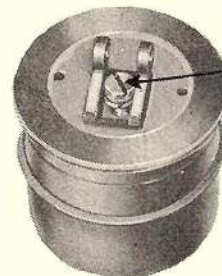


Fig. 6 Thermostat assembly.
To disassemble remove trunnion screw

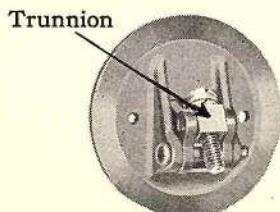


Fig. 7
Thermostat cover assembly

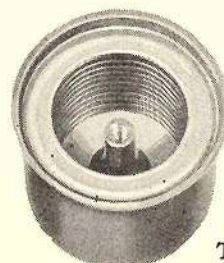


Fig. 8
Thermostat

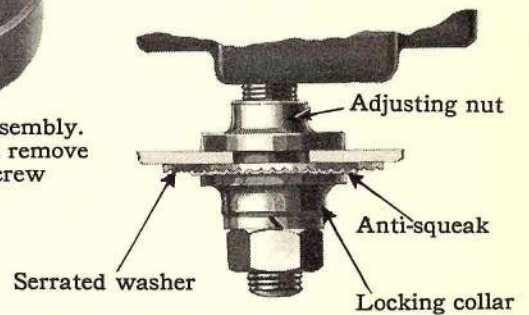


Fig. 9
Radiator support

Electrical System

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
Connections on gasoline tank float unit.....	A	...	...	...	.....	See note 1.
Stentor phones.....	A	B	303	328	.....	See note 2.
STORAGE BATTERY						
Manufacturer's number.....	A	B	...	...	Exide, 3-LXRV-15-2-G	
			303	...	Exide, 3-XC-15-1-G	
			328	...	Exide, 3-MXV-15-1	
Capacity, rated.....	A	B	...	...	130 ampere hours	
			303	328	100 ampere hours	
Capacity, lighting.....	A	B	...	...	5 amperes for 26 hours	
			303	328	5 amperes for 20 hours	
Capacity, starting.....	A	B	...	...	137 amperes for 20 minutes	
			303	328	114 amperes for 20 minutes	
Charging rate on bench, start..	A	B	...	...	10 amperes	
			303	328	8 amperes	
Charging rate on bench, finish..	A	B	303	328	4 amperes	
Corrosion on terminals.....	A	B	303	328	.....	See Note 3.
Number of plates.....	A	B	303	328	15 plates	
Specific gravity of battery solution.....	A	B	303	328	.....	See Note 4.
Terminal grounded.....	A	B	303	328	Positive	
Voltage, rated.....	A	B	303	328	6 volts	
Water, add to storage battery..	A	B	303	328	.....	See Note 5.
CIRCUIT BREAKER						
Manufacturer's number.....	A	B	303	328	Delco-Remy 5759	
Lockout circuit breaker opens..	A	B	303	328	25-30 amperes	
Vibrating circuit breaker starts.	A	B	303	328	25-30 amperes	See Note 6.
CUT-OUT RELAY						
Manufacturer's number.....	A	B	303	328	Delco-Remy 266N	
Air gap between contacts.....	A	B	303	328	.015-.025 in.	
Air gap between cut-out armature and core.....	A	B	303	328	.014-.021 in.	This measurement is made with contacts together.
Cut-out closes.....	A	B	303	328	At 7.5 volts, approximately	Corresponding armature speed, 420 R. P. M.; car speed, 8-10 M. P. H
Cut-out opens.....	A	B	303	328	At discharge of 0 to 2.5 amperes	
GENERATOR						
Manufacturer's number.....	A	B	303	328	Delco-Remy 384	
ARMATURE						
Commutator, out of round...	A	B	303	328	Not over .002 in.	
End play in ball bearing....	A	B	303	328	Not over .015 in.	
Radial (side) play in ball bearing.....	A	B	303	328	Not over .004 in.	
BRUSHES						
Tension of brush arm springs	A	B	303	328	16-20 oz.	Test with spring scale, Tool number 100242.
Charging rate on bench—						
700 R. P. M. (cold).....	A	B	303	328	7 amperes at 7.2-7.4 volts	
1400 R. P. M. (cold).....	A	B	303	328	18 amperes at 8.2-8.62 volts	
1600 R. P. M. (hot).....	A	B	303	328	10-12 amperes at 7.3-7.7 volts	
Charging rate after thermostat opens.....	A	B	303	328	5-6 amperes, approximately	

Fig. 1
Sectional view of generator

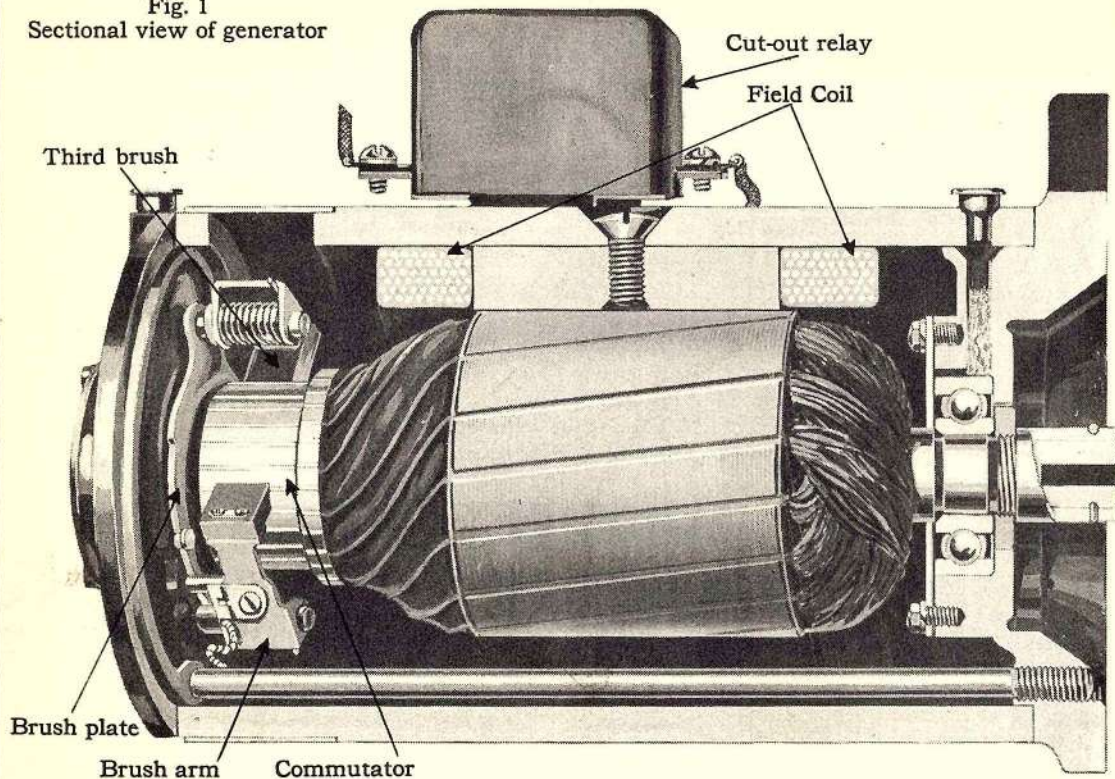


Fig. 2
Adjusting charging rate.
Pry against brush arm, not
brush. On later-type gen-
erator, pry against slot in
brush plate

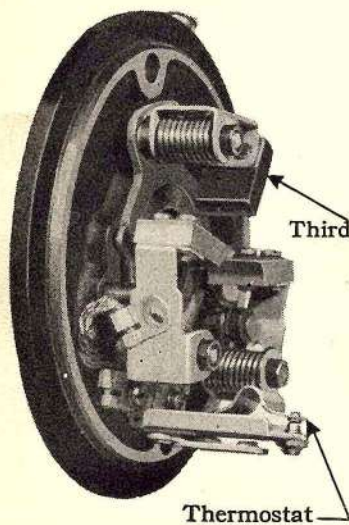


Fig. 3
End-frame of first-type
generator showing split-
pole type of thermostat

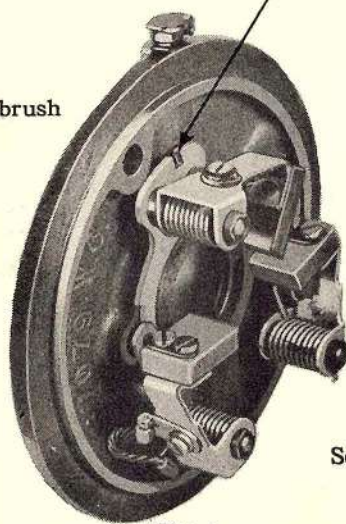
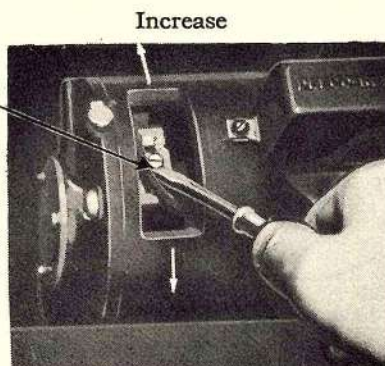


Fig. 4
End-frame of second-type generator.
Thermostat on housing instead of end-frame



Decrease
Resistance



Fig. 5
Second-type thermostat with resistance

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
Charging rate on car.....	A	B	303	328	16-18 amperes, maximum (cold)	
Current regulation.....	A	B	303	328	Third brush (thermostat control)	Plate 24, Figs. 3, 4, 5
Running engine with storage battery disconnected.....	A	B	303	328	.....	See Note 7
Thermostat control.....			303 ¹	.....	Split field	Before engine unit 2-10750.
	A	B	303 ²	328	Resistance in series with field coils	Beginning with engine unit 2-10750 on 303 cars. See Note 8.
Thermostat opens.....	A	B	303	328	175° Fahrenheit	
Voltage, rated.....	A	B	303	328	6 volts	
HORN						
Manufacturer's number.....			303 ¹	.....	Delco-Remy K25 Type C991	
	A	B	303 ²	.....	Delco-Remy K19 Type 1050	
				328	Delco-Remy K19 Type 1053	
ADJUSTMENTS						
Air gap between armature and field core.....			303 ¹	.....	.025 in. clearance	Adjust by loosening retaining nut and turning aluminum disc to give proper clearance. Plate 25, Fig. 1
	A	B	303 ²	328	.025 in. clearance	Adjust by loosening three stud nuts and raising or lowering field coil to give proper clearance. Plate 25, Fig. 2.
Position of vibrating spring.....			303 ¹	.....	Horizontal	Plate 25, Figs. 1, 2.
	A	B	303 ²	328	Slight angle below horizontal	
Contact point adjustment.....	A	B	303	328	Until proper tone is secured	
Current consumption.....	A	B	303	328	7-8 amperes	
IGNITION						
COIL						
Manufacturer's number.....	A	B	303	328	Delco-Remy 2195	
Current consumption.....	A	B	303	328	2 amperes, engine stopped 2½ amperes, engine running	
DISTRIBUTOR						
Manufacturer's number.....	A		303	.....	Delco-Remy 4023	
		B	.....	328	Delco-Remy 4041	
Angle between contact arms.....	A	B	303	328	135°	See Note 9.
Contact point gap.....	A	B	303	328	.0225-.0270 in.	
Firing order.....	A	B	303	328	1L, 4R, 4L, 2L, 3R, 3L, 2R, 1R.	18756542
Side play in ball bearing.....	A	B	303	328	Worn limit, not over .003 in.	
Spark advance, automatic.....	A		303	.....	32°	
		B	.....	328	21°	
Spark advance, manual.....	A	B	303	328	38°	
Tension of contact arm springs	A	B	303	328	16-20 oz.	Measure with spring scale, Tool 100242. Plate 27, Fig. 1.
Timing, low-compression cylinder heads.....	A	B	303	328	⅜ in. ahead of center, manual control advanced	See Note 10.
Timing, high compression heads.....	A		303	.....	½ in. ahead of center, manual control advanced	
		B	.....	328	⅜ in. ahead of center, manual control advanced	
SPARK PLUGS						
Coated with Duco.....	A	B	303	328	.....	Clean plugs with alcohol or Duco thinner.
Gap.....	A	B	303	328	.025-.028 in.	
Type.....	A	B	303	328	A. C. Type Y	

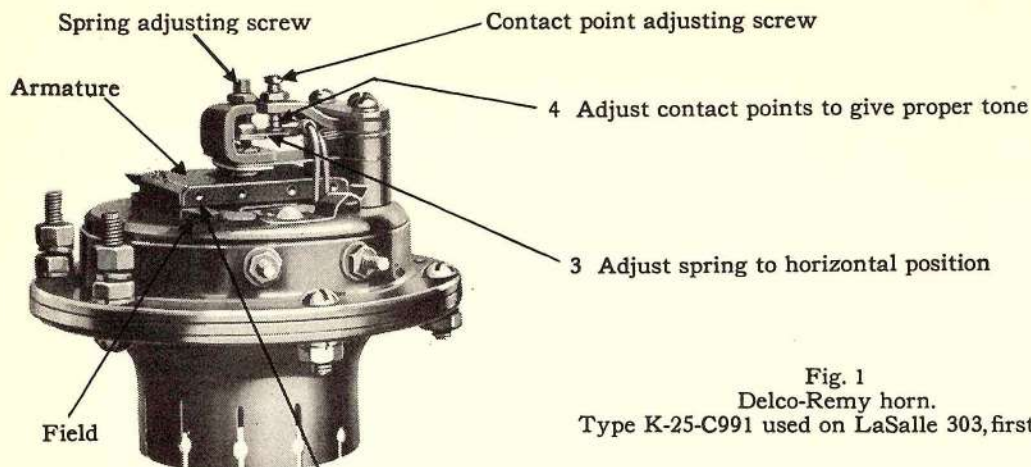
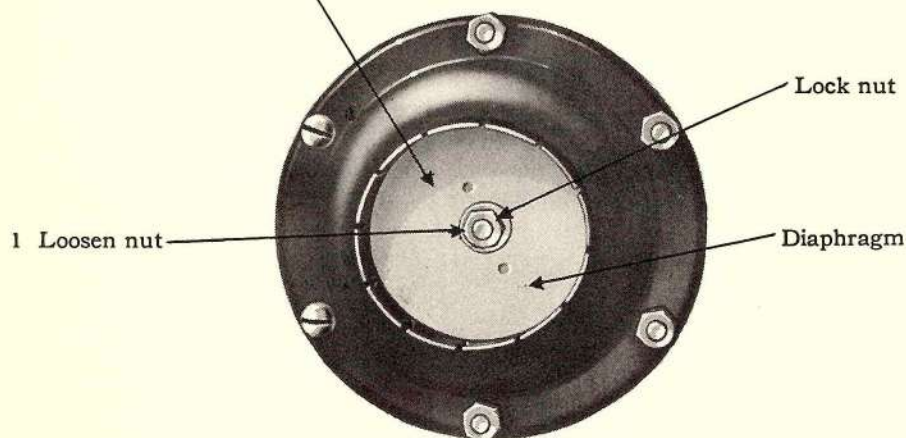


Fig. 1
Delco-Remy horn.
Type K-25-C991 used on LaSalle 303, first type

- 2 Turn diaphragm to give .025-inch clearance between armature and field poles



- 3 Adjust contact points to give proper tone

Fig. 2
Delco-Remy horn.
Type K-19-1050 used on Cadillac 341-A
and B and LaSalle 303 second type.
Type K-19-1053 used on LaSalle 328.
(The same adjustments are applicable to both types)

If condenser shorts on horn frame, place small strip of fibre between condenser and frame

Field adjusting nuts.

(4 on opposite side of armature)

- 1 Adjust field to give .025-inch clearance between armature and field poles

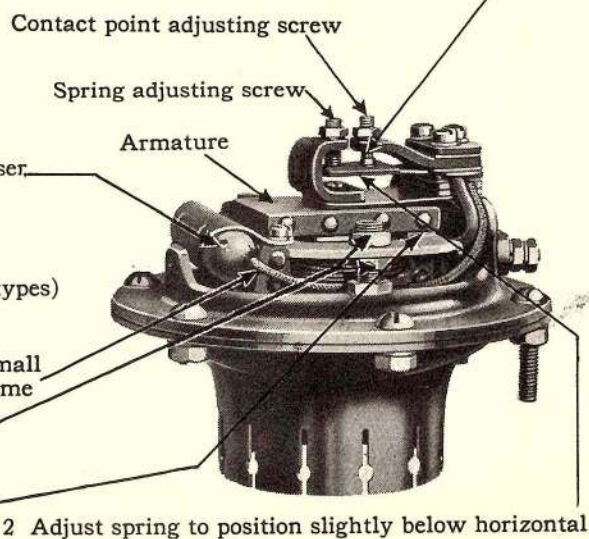


Plate 25. Horn adjustments.

Subject	Cadillac 341		LaSalle 303-328		Specifications	Remarks
STARTING MOTOR						
Manufacturer's number.	A	B			Delco-Remy 382	
.....	...	...	303	328	Delco-Remy 725-C.	
ARMATURE						
Clearance between armature shaft and bearings.	A	B	303	328	Worn limit, not over .010 in.	Before engine number 312924 on 341-A cars and 219923 on 303 cars. Beginning with engine number 312924 on 341-A cars and 219923 on 303 cars. Before engine number 312924 on 341-A cars and 219923 on 303 cars. Beginning with engine number 312924 on 341-A cars and 219923 on 303 cars.
Clutch spring, free length. . . .	A ¹	...	303 ¹	....	2 in., approximately	
	A ²	B	303 ²	328	2¼ in., approximately	
Clutch spring, compression. . .	A ¹	...	303 ¹	....	34—38 lbs. at 1 in.	
	A ²	B	303 ²	328	46—52 lbs. at 1 in	
Commutator, out of round. . .	A	B	303	328	Worn limit, not over .002 in.	
End play.	A	B	303	328	Worn limit, not over .025 in.	
BRUSHES						
Number of brushes.	A	B			6	Test with spring scale, Tool 100242. Ratio between starter gear and fly- wheel gear.
.....	...	...	303	328	4	
Tension of brush arm springs	A	B	....	....	36-40 oz.	
.....	...	...	303	328	24-28 oz.	
Gear ratio.	A	B	303	328	12 to 1	
Number of poles.	A	B	....	....	6	
.....	...	...	303	328	4	

1. Arrangement of Units in Circuit Diagrams.

The positions of the units and wires in the circuit diagrams do not always correspond to their location on the car.

For instance, the float unit of the gasoline gauge is shown in the center of the 341-A Cadillac diagram (Plate 32). When looking at the float unit from the rear of the car the green wire is connected to the right terminal, which is terminal No. 2, and the black wire to the left terminal, which is terminal No. 1.

On the diagram, however, terminal No. 1 is on the right and terminal No. 2 on the left, which makes it appear that the unit is upside down. This was done so that the wires to the float unit would not have to be crossed in the diagram. As the terminals on the car are marked with the proper numbers no difficulty should arise in properly connecting the gasoline gauge.

2. Stentor Phone Replacement.

The stentor phones in the Imperial and the Fleetwood Town Cars are matched and installed in pairs. Therefore, if the original transmitter and receiver are not kept together the operation of the phone is likely to prove unsatisfactory.

If the signals are weak when it is known that the set is properly matched, the connections should be carefully checked for looseness and the wiring tested out for possible shorts caused by staples and tacks. If, however, replacement is found to be necessary both the transmitter and receiver should be replaced.

3. Corrosion on Terminals

See that the terminals are clean and free from corrosion. The terminals and battery posts should be wiped with a cloth saturated with household ammonia or a solution of

water and bicarbonate of soda (cooking soda). These solutions will neutralize any acid that may be present on the parts to be cleaned. Therefore, do not allow any of the solution to get into the cells of the battery.

After the parts are cleaned they should be given a heavy coat of vaseline or heavy grease.

4. Specific Gravity of Battery Solution

Test the specific gravity of the battery solution with a hydrometer.

The specific gravity of a fully charged battery is 1.270 to 1.290 at 60° F. A fully discharged battery has a specific gravity of 1.150 to 1.170 and should be removed from the car for charging.

If the gravity of the battery solution is below 1.250 investigate, if possible, to determine whether or not there has been a recent temporary abnormal demand for current, such as excessive use of the lights or starter. If the low gravity is the result of a temporary abnormal demand, it is possible that the charging rate will be sufficient as it is to bring up the gravity. If the gravity is below 1.250 and there is no evidence of a temporary excessive demand for current, the charging rate should be observed and if low the necessary steps should be taken to increase it.

In any case if the gravity is below 1.225 the battery should be removed and charged.

If any battery solution has been spilled or leaked from the cell it should be replaced with a freshly mixed solution and the battery given an over-charge by charging it from an outside source.

CAUTION: In mixing the acid solution be sure to pour the acid slowly into the water. *Do not pour the water into the chemically pure acid.*

5. Adding Water to Storage Battery

In winter it is sufficient to inspect the level of the battery solution every 1000 miles when the car is lubricated. In summer, however, the battery solution should be inspected every 500 miles or at least every two weeks. Enough water should be added to keep the level of the solution above the tops of the plates and even with the bottom of the filling tubes.

Water for filling the battery must be pure. Distilled water, melted artificial ice or fresh rain water are suitable for this purpose. Do not use water that has come in contact with any metal.

6. Adjustment of Circuit Breaker

The circuit breaker is of the lock-out and vibrating type, the same as on previous cars. The lock-out side protects the horn, inspection lamp, dome lamp, quarter lamps, stop lamp, step lamps and cigar lighter. In case of a ground in any of these circuits, the breaker opens and remains open until the ground is removed.

The remaining lamps including the headlamps are protected by the vibrating circuit breaker. In case of a ground in any of the circuits protected by the vibrating circuit breaker, the breaker will start to vibrate and will continue until the ground is removed.

When 32 candle power bulbs are used in the headlamps the initial rush of the current when the lamps are first turned on sometimes causes the circuit breaker to vibrate a few times. This is only a temporary overload and should not necessitate any adjustments on the circuit breaker.

7. Running Engine with Storage Battery Disconnected

Serious damage will be done to the generator if the engine is run with the battery disconnected unless the generator terminal is grounded. This can be done by using a short wire attached at one end to the front terminal of the cut-out relay and at the other end fastened under one of the cut-out hold-down screws.

8. Generator Thermostat Control

Before engine unit 2-10750 on 303 cars, the generator is of the split-field type, thermostatically controlled. One of the field coils is connected between the third brush and one of the main brushes in the usual manner. The other field coil is connected between the two main brushes and the thermostat is in series with this field. The function of the thermostat is to disconnect this field from the ground as soon as the generator reaches the temperature of 175°F.

Before the thermostat operates, both fields are in use and the out-put of the generator is correspondingly higher. When, as a result of the combined heat of the generator and the engine, the temperature reaches the predetermined point, the thermostat cuts out the field to which it is connected and the generator out-put is reduced.

Beginning with engine unit 2-10750 on 303 cars, both field coils are in series with the thermostat which in turn is in parallel with a resistance. When the thermostat operates, the entire field current is shunted through this resistance with a corresponding reduction of current out-put.

9. Contact Point Adjustment

There are two sets of contact points, one for the odd-numbered cylinders (1-3-5-7), the others for the even-numbered cylinders (2-4-6-8). The contact arm for the odd-numbered cylinders is mounted on a stationary plate and the ignition for these cylinders is timed by adjusting the cam. The contact arm for the even-numbered cylinders is at an angle of 135° from the other arm and is mounted on a plate which is adjustable for timing these cylinders. The complete timing operation should include both adjustments.

10. Timing Marks

A few early 303 cars have the IG/A mark stamped $1\frac{1}{8}$ inch ahead of dead center instead of $\frac{1}{8}$ inch. On these cars the IG/A marks should be disregarded and the timing should be set $\frac{1}{8}$ inch ahead of the dead-center marks.

Fig. 1
Top view with head and rotor removed

Contact point gap. Adjust to .025 inch for ordinary work; not less than .020 inch for high speeds

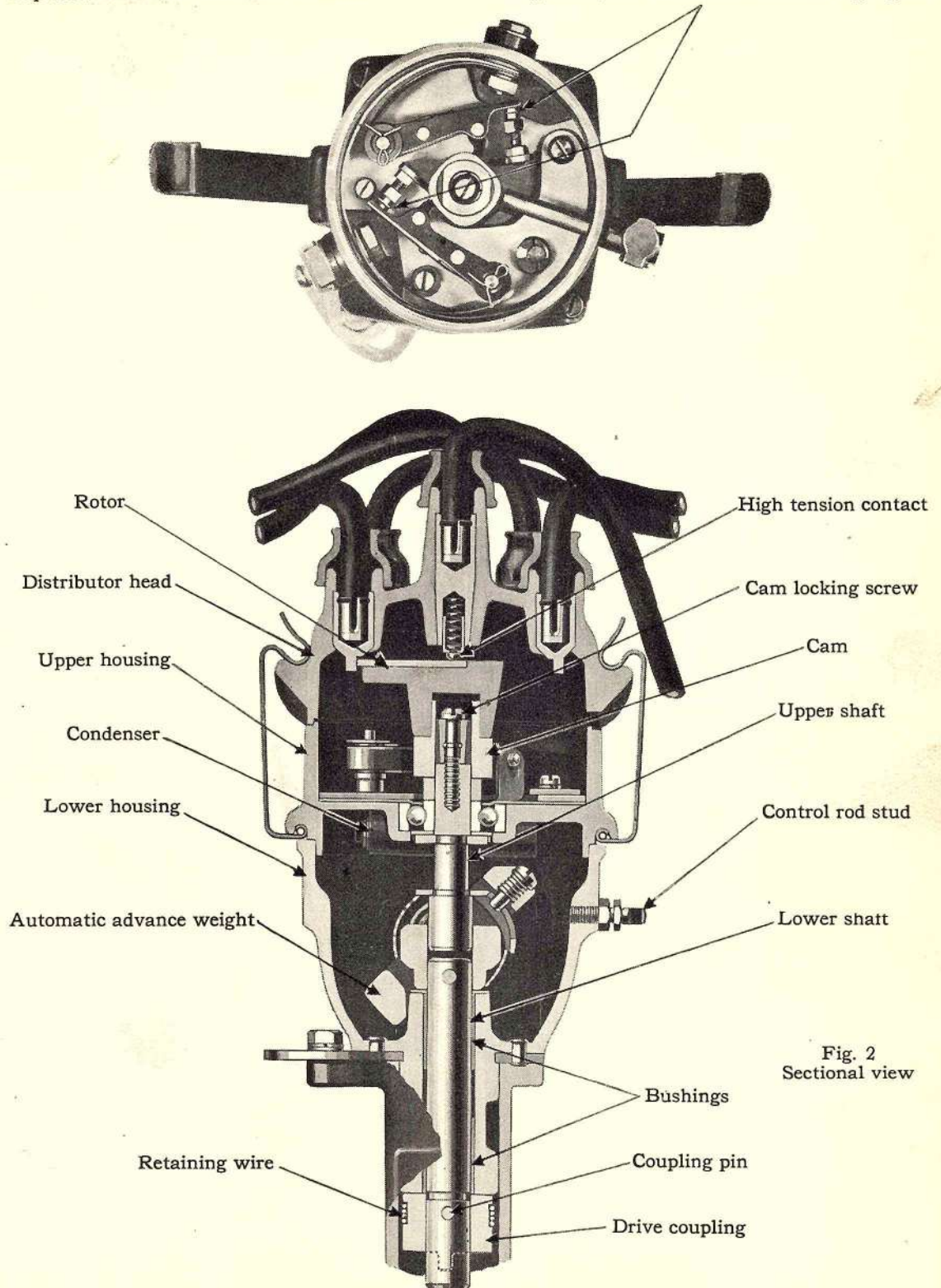
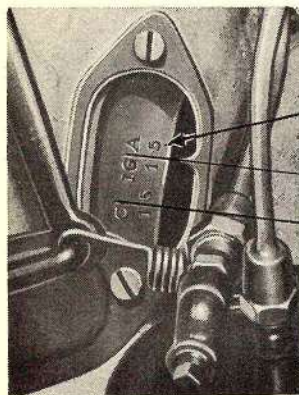
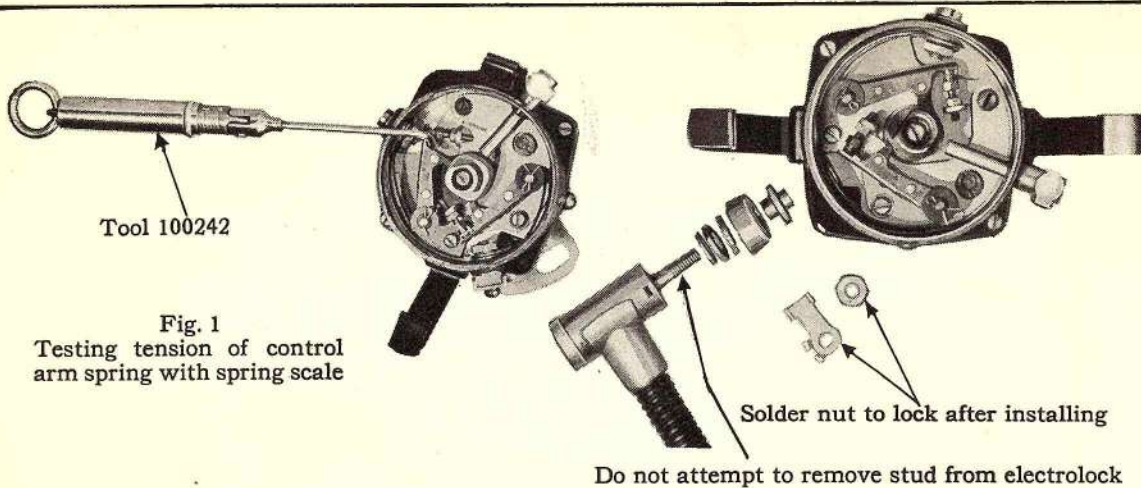


Fig. 2
Sectional view

Plate 26: Sectional and Top Views of Distributor.



Time by cam in reference to mark IG 1/5 on flywheel

7/8 inch

Contact arm and screw for cylinders 1, 3, 5, 7.

Loosen screws when adjusting eccentric

Cam

Fig. 4

Note: With high-compression cylinder heads on Cadillac 341-A and LaSalle 303, time ignition 1/2-inch ahead of center

Note: Time ignition with hand control lever fully advanced

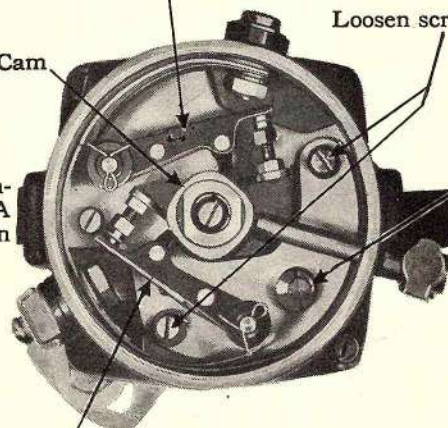


Fig. 5

Contact arm and screw for cylinders 2, 4, 6, 8. Time by eccentric adjustment

First method—Time in relation to mark IG 2/6 on flywheel

7/8 inch

Second method—Synchronize with other arm by using special ignition fixture, Tool 109224

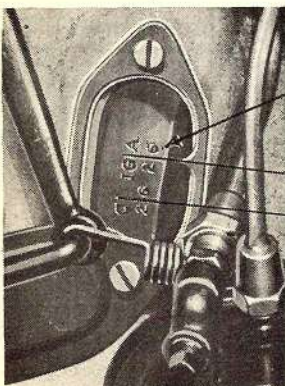
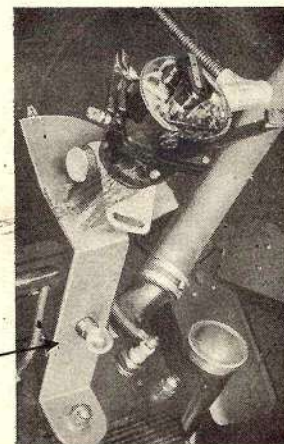


Fig. 6



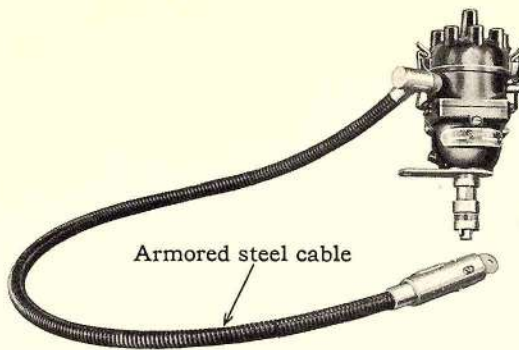


Fig. 1

Electrolock used on Cadillac 341-A and LaSalle 303. For service on distributor, remove Electrolock with distributor or use fixture shown in Plate 27, Fig. 6.

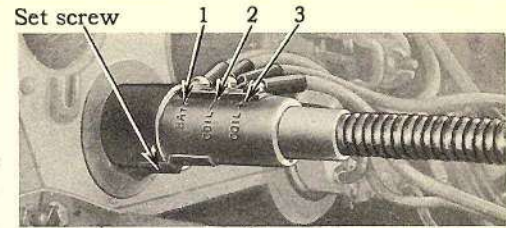


Fig. 2

Electrolock from front of instrument board. To remove, unlock and take out set screw.

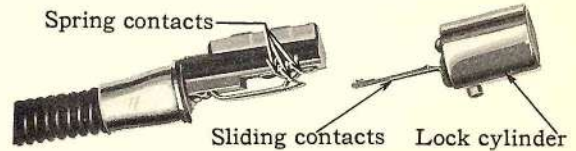


Fig. 3

Electrolock switch with casing and cylinder removed.

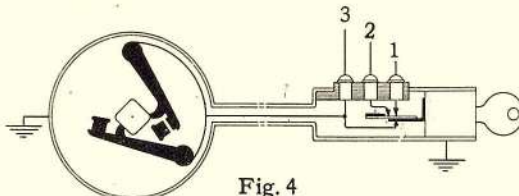


Fig. 4

Electrolock locked. No current flowing to coil. Coil and distributor grounded.

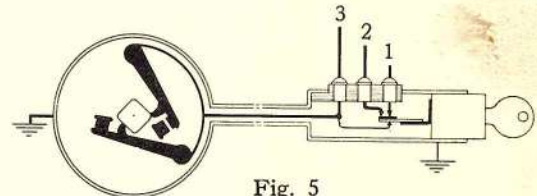


Fig. 5

Electrolock unlocked. Terminals 1 and 2 connected by contact on slide. Heavy line indicates flow of current.

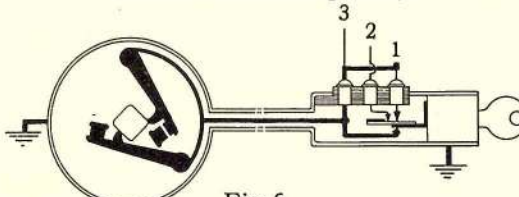


Fig. 6

Never attempt to wire around the Electrolock. A "jumper" between terminals 1 and 3 will cause a short, damaging both switch and distributor.

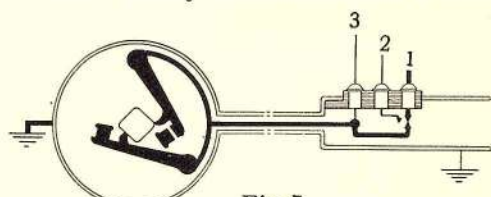


Fig. 7

Never remove the lock cylinder without disconnecting the feed wire. No. 1 contact will touch the lower contact and short through the distributor.

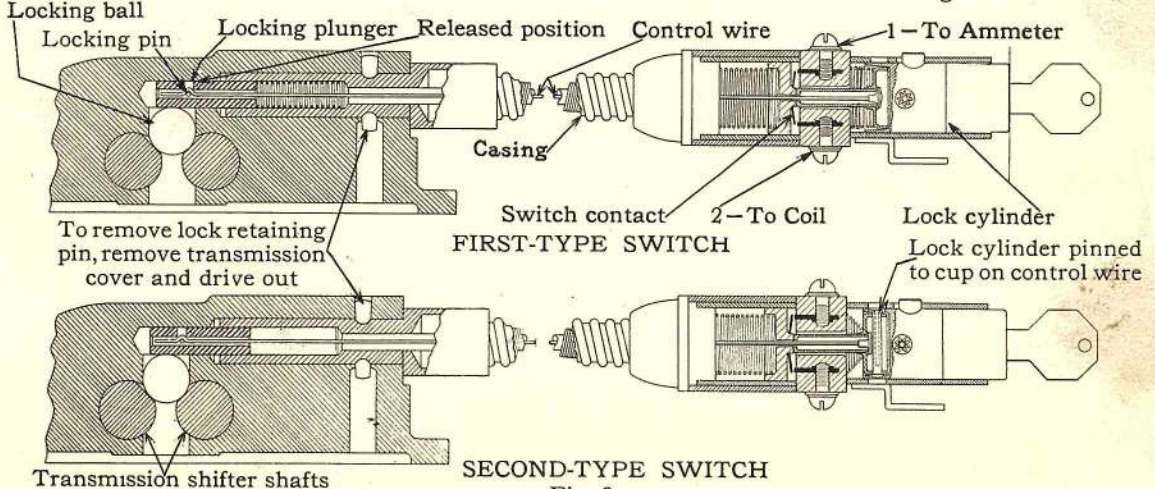


Fig. 8

Transmission lock and ignition switch on Cadillac 341-B and LaSalle 328.

Plate 28. Electrolock and dual ignition and transmission lock.

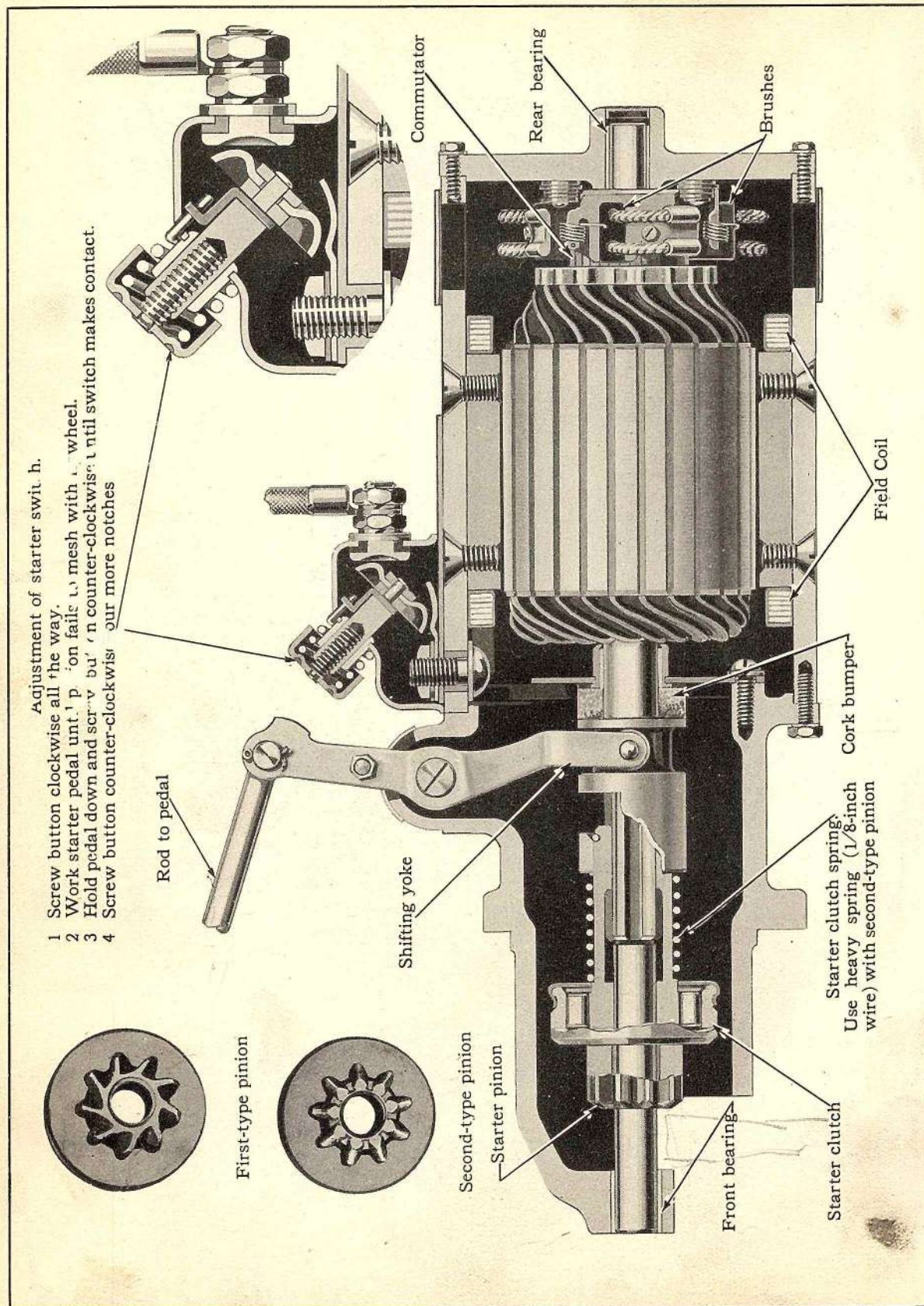


Plate 29. Starting motor details.