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CADILLAC-LA SALLE

CADILLAC-LA SALLE INDEX

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YEAR AND MODEL	SERIAL NO.	ENGINE NO.	ENGINE DATA				
			BORE AND STROKE	Piston Displacement, Cubic Inches	Compression Ratio, Std.	Taxable H.P.	BRAKE H.P. @ R.P.M.

CADILLAC MODELS

1935	V-8.....355D	3100001 to 3108318	3100001 to 3108318	3 $\frac{3}{8}$ x4 $\frac{1}{16}$	353.0	6.25	36.45	120 @ 3000
	V-12.....370D	4100001 to 4101098	4100001 to 4101098	3 $\frac{1}{8}$ x4	368.0	6.00	46.90	133 @ 3400
	V-16.....452D	5100001 to 5100150	5100001 to 5100150	3 x4	452.0	6.00	57.50	169.2 @ 3400
1936	V-8.....36-60	6010001 to 6016712	6010001 to 6016712	3 $\frac{3}{8}$ x4 $\frac{1}{2}$	322.0	6.25	36.45	125 @ 3400
	V-8.....36-70	3110001 to 3115248	3110001 to 3115248	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....36-75	3115248	3115248					
	V-12.....36-80	4110001 to 4110901	4110001 to 4110901	3 $\frac{1}{8}$ x4	368.0	6.00	46.90	150 @ 3600
	V-12.....36-85	4110901	4110901					
	V-16.....36-90	5110201 to 5110252	5110201 to 5110252	3 x4	452.0	6.00	57.50	169.2 @ 3400
1937	V-8.....37-60	6030001 to 6037003	6030001 to 6037003	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....37-65	7030001 to 7032401	7030001 to 7032401	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....37-70	3130001 to 3134232	3130001 to 3134232	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....37-75	3134232	3134232					
	V-12.....37-85	4130001 to 4130478	4130001 to 4130478	3 $\frac{1}{8}$ x4	368.0	6.00	46.90	150 @ 3600
	V-16.....37-90	5130301 to 5130350	5130301 to 5130350	3 x4	452.0	6.00	57.60	185 @ 3800
1938	V-8.....38-60	8270001 to 8272052	8270001 to 8272052	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....38-60S	6270001 to 6273704	6270001 to 6273704	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....38-65	7270001 to 7271476	7270001 to 7271476	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.25	39.20	135 @ 3400
	V-8.....38-75	3270001 to 3271911	3270001 to 3271911	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	346.0	6.70	39.20	140 @ 3400
	V-16.....38-90	5270001 to 5270315	5270001 to 5270315	3 $\frac{1}{4}$ x3 $\frac{1}{4}$	431.0	6.80	67.60	175 @ 3600

CADILLAC—LA SALLE

YEAR AND MODEL		SERIAL NO.	ENGINE NO.	ENGINE DATA				
				BORE AND STROKE	Piston Displacement, Cubic Inches	Compression Ratio, Std.	Taxable H.P.	BRAKE H.P. @ R.P.M.
CADILLAC MODELS								
1939	V-8.....39-60S	6290001 to 6295513	6290001 to 6295513	3½x4½	346.0	6.25	39.20	135 @ 3400
	V-8.....39-61	8290001 to 8295913	8290001 to 8295913	3½x4½	346.0	6.25	39.20	135 @ 3400
	V-8.....39-75	3290001 to 3292069	3290001 to 3292069	3½x4½	346.0	6.70	39.20	140 @ 3400
	V-16.....39-90	5290001 to 5290138	5290001 to 5290138	3¼x3¼	431.0	6.75	67.60	185 @ 3600
1940	V-8.....40-60S	6320001 to 6324600	6320001 to 6324600	3½x4½	346.0	6.25	39.20	135 @ 3400
	V-8.....40-62	8320001 to 8325903	8320001 to 8325903	3½x4½	346.0	6.25	39.20	135 @ 3400
	V-8.....40-72	7320001 to 7321525	7320001 to 7321525	3½x4½	346.0	6.70	39.20	140 @ 3400
	V-8.....40-75	3320001 to 3320956	3320001 to 3320956	3½x4½	346.0	6.70	39.20	140 @ 3400
	V-16.....40-90	5320001 to 5320061	5320001 to 5320061	3¼x3¼	431.0	6.75	67.60	185 @ 3600
1941	V-8.....41-60S	6340001 to 6344101	6340001 to 6344101	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....41-61	5340001 to 5369258	5340001 to 5369258	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....41-62	8340001 to 8364734	8340001 to 8364734	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....41-63	7340001 to 7345050	7340001 to 7345050	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....41-67	9340001 to 9340922	9340001 to 9340922	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....41-75	3340001 to 3342104	3340001 to 3342104	3½x4½	346.0	7.25	39.20	150 @ 3400
1942	V-8.....42-60S	6380001 and up	6380001 and up	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....42-61	5380001 and up	5380001 and up	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....42-62	8380001 and up	8380001 and up	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....42-63	7380001 and up	7380001 and up	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....42-67	9380001 and up	9380001 and up	3½x4½	346.0	7.25	39.20	150 @ 3400
	V-8.....42-75	3380001 and up	3380001 and up	3½x4½	346.0	7.25	39.20	150 @ 3400

SERIAL OR ENGINE NUMBER LOCATION, CADILLAC—355D and 40-90: upper left rear corner of left rear cylinder block, and on left frame side bar opposite steering gear. V-12's and V16's, 1935-1937: on generator drive chain housing. V-8, 1936: Top of crankcase behind fan support. V-8, 1937 and all 1938-1939: Parallel to dash at left rear of crankcase. 1940-41 (except 40-90): On crankcase behind left cylinder block, and on left frame side bar opposite steering gear. 1942: On engine block behind water pump and on right frame side bar.

CADILLAC—LA SALLE

YEAR AND MODEL		SERIAL NO.	ENGINE NO.	ENGINE DATA				
				BORE AND STROKE	Piston Displacement, Cubic Inches	Compression Ratio, Std.	Taxable H.P.	BRAKE H.P. @ R.P.M.
LA SALLE MODELS								
1935	Eight.....35-50	2200001 to 2208653	2200001 to 2208653	3 x4 $\frac{3}{8}$	248.0	6.25	28.80	105 @ 3600
1936	Eight.....36-50	2210001 to 2223004	2210001 to 2223004	3 x4 $\frac{3}{8}$	248.0	6.25	28.80	105 @ 3600
1937	V-8.....37-50	2230001 to 2262005	2230001 to 2262005	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	322.0	6.25	36.45	125 @ 3400
1938	V-8.....38-50	2270001 to 2285501	2270001 to 2285501	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	322.0	6.25	36.45	125 @ 3400
1939	V-8.....39-50	2290001 to 2313028	2290001 to 2313028	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	322.0	6.25	36.45	125 @ 3400
1940	V-8.....40-50	2320001 to 2330082	2320001 to 2330082	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	322.0	6.25	36.45	130 @ 3400
	V-8.....40-52	4320001 to 4333751	4320001 to 4333751	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	322.0	6.25	36.45	130 @ 3400

SERIAL OR ENGINE NUMBER LOCATION—LA SALLE—1935-1936: Top edge of left opposite No. 1 cylinder. 1937-1939: Parallel to dash at left rear of crankcase. 1940: On crankcase behind left cylinder block, and on left frame side bar opposite steering gear.

TUNE UP CHART

FIRING ORDER—See footnotes. POSITIVE battery terminal grounded.

YEAR AND MODEL	SPARK PLUG		BREAKER		Cam Angle, Degrees	SPARK ADVANCE CRANKSHAFT DEGREE @ R.P.M.		Maximum Vacuum Advance, Crankshaft Deg.	Location Timing Marks	Spark Timing, Degrees	TAPPET CLEARANCE	
	Make and Number	Gap, Inch	Gap, Inch	Spring Pressure, Ounces		Start	Maximum				For Running, Hot	For Timing, Intake

CADILLAC MODELS

1935, 355D	AC-84	.025-.027	.0125-.0175	17-21	31	1.5 @ 1000	24 @ 2400	No	Flywheel	4° or 1/2" BTDC	Cold Int. .006 Ex. .010	.006
370D	AC-84	.025-.027	.018-.024	17-21	① 37	2 @ 600	38 @ 2800	No	Flywheel	4° or 1/2" BTDC	Int. .000 Ex. .000	.000
452D	AC-84	.025-.027	.0125-.0175	17-21	② 31	2.5 @ 400	34 @ 2200	No	Flywheel	4° or 1/2" BTDC	Int. .000 Ex. .000	.000
1936, 36-60	AC-45	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	15	Vibration Damper	4° or 1/2" BTDC	Int. .000 Ex. .000	.000
36-70, 75	AC-84	.025-.030	.018-.024	17-21	① 37	2 @ 600	38 @ 2800	No	Flywheel	4° or 1/2" BTDC	Int. .000 Ex. .000	.000
36-80	AC-84	.025-.027	.0125-.0175	17-21	② 31	2.5 @ 400	34 @ 2200	No	Flywheel	4° or 1/2" BTDC	Int. .000 Ex. .000	.000
36-90	AC-84	.025-.027	.0125-.0175	17-21	② 31	2.5 @ 400	34 @ 2200	No	Flywheel	4° or 1/2" BTDC	Int. .000 Ex. .000	.000
1937, 37-60, 65	AC-45	.025-.028	.0125-.0175	17-21	31	1 @ 1000	24 @ 4000	No	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
37-70, 75	AC-84	.025-.027	.018-.024	17-21	① 37	2 @ 600	38 @ 2800	No	Flywheel	10 BTDC	Int. .000 Ex. .000	.000
37-85	AC-84	.025-.027	.0125-.0175	17-21	② 31	2.5 @ 400	34 @ 2200	No	Flywheel	4 BTDC	Int. .000 Ex. .000	.000
37-90	AC-84	.025-.027	.0125-.0175	17-21	② 31	2.5 @ 400	34 @ 2200	No	Flywheel	4 BTDC	Int. .000 Ex. .000	.000
1938, 38-60, 60S	AC-45	.025-.028	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	No	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
38-65, 75	AC-84	.025-.027	.0125-.0175	17-21	② 31	2.5 @ 400	34 @ 2200	No	Flywheel	4 BTDC	Int. .000 Ex. .000	.000
38-90	AC-45	.025-.028	.0125-.0175	17-21	31	1.5 @ 1600	20 @ 4000	No	Vibration Damper	6 BTDC	Int. .000 Ex. .000	.000

CADILLAC—LA SALLE

TUNE UP CHART

FIRING ORDER—See footnotes. POSITIVE battery terminal grounded.

YEAR AND MODEL	SPARK PLUG		BREAKER		Cam Angle, Degrees	SPARK ADVANCE CRANKSHAFT DEGREE @ R.P.M.		Maximum Advance, Vacuum Advance, Crankshaft Deg.	Location Timing Marks	Spark Timing, Degrees	TAPPET CLEARANCE	
	Make and Number	Gap, Inch	Gap, Inch	Spring Pressure, Ounces		Start	Maximum				For Running, Hot	For Timing, Intake

CADILLAC MODELS

1939, 39-60S 39-61, 75	AC-104	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	No	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
39-90	AC-104	.030-.035	.0125-.0175	17-21	31	1.5 @ 1600	20 @ 4000	No	Vibration Damper	6 BTDC	Int. .000 Ex. .000	.000
1940, Eight's	AC-104	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	18	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
40-90	AC-104	.030-.035	.0125-.0175	17-21	31	1.5 @ 1600	20 @ 4000	No	Vibration Damper	6 BTDC	Int. .000 Ex. .000	.000
1941-42, All	AC-104	.027	.0125-.0175	19-23	31	1 @ 1000	23 @ 4000	11	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000

LA SALLE MODELS

1935, 35-50	AC-46	.025-.030	.018-.024	17-21	33	1.0 @ 1000	28 @ 3700	No	Vibration Damper	8° or 3/8" BTDC	Int. .006 Ex. .009	.015
1936, 36-50	AC-45	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	28 @ 3700	18	Vibration Damper	8° or 3/8" BTDC	Int. .006 Ex. .009	.015
1937, 37-50	AC-45	.025-.027	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	No	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
1938, 38-50	AC-45	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	No	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
1939, 39-50	AC-104	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	No	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000
1940, 40-50 40-52	AC-104	.025-.030	.0125-.0175	17-21	31	1.0 @ 1000	24 @ 4000	18	Vibration Damper	5 BTDC	Int. .000 Ex. .000	.000

TDC—Before top dead center. ①—Firing interval 22½ and 37½ cam degrees. ②—Firing interval 22½ and 22½ cam degrees. CADILLAC V8, 1935. FIRING ORDER: Odd Nos. right bank. Even Nos. left bank. 1-2-7-8-4-5-6-3. WIRING ORDER: 1-2-3-4-5-6-7-8. V12's: Odd Nos. left bank. Even Nos. right bank. FIRING ORDER: 1-4-9-8-5-2-11-10-3-6-7-12. WIRING ORDER: 1-10-9-6-5-12-11-4-3-8-7-2. V16's, 1935-37. Odd Nos. left bank. Even Nos. right bank. FIRING ORDER: 1-8-9-14-3-6-11-2-15-10-7-4-13-12-5-16. WIRING ORDER: 1-10-9-4-3-12-11-16-15-8-7-14-13-6-5-2. V8's, 1936-42. Odd Nos. left bank. Even Nos. right bank. FIRING ORDER: 1-8-7-3-6-5-4-2. WIRING ORDER: 1-2-3-4-5-6-7-8. V16's, 1938-40. Odd Nos. right bank. Even Nos. left bank. FIRING ORDER: 1-4-9-12-3-16-11-8-15-14-7-6-13-2-5-10. WIRING ORDER: Right bank, 1-9-3-11-15-17-13-5. Left bank, 2-10-4-12-16-8-14-6. LA SALLE, 1935-36. FIRING ORDER: 1-6-2-5-8-3-7-4. 1937-40: Same as Cadillac.

VALVE MEASUREMENTS AND COMPRESSION PRESSURE

YEAR AND MODEL	STEM CLEARANCE		TAPPET CLEARANCE				SPRING PRESSURE Pounds @ Inches, Length		VALVE SEAT ANGLE, DEGREES	COMPRESSION PRESSURE POUNDS AT R.P.M.
	Intake	Exhaust	Running, Hot		Timing		Valve Closed	Valve Open		
			Intake	Exhaust	Intake	Exhaust				

CADILLAC MODELS

1935, 355D	.0015-.0035	.0025-.0045	.006	.010	.006	.010	I 18-21 @ 1 3/4 O 48-52 @ 1 5/8 C 66-73 @ 1 5/8	I 49-54 @ 1 13/32 O 111-120 @ 1 37/64 C 160-174 @ 1 37/64	Int. 30 Ex. 45	148 1/2 @ 1000
370D	.001-.0025	.001-.0025	.000	.000	.000	.000	I 18-21 @ 1 3/4 O 48-52 @ 1 5/8 C 66-73 @ 1 5/8	I 49-54 @ 1 13/32 O 111-120 @ 1 37/64 C 160-174 @ 1 37/64	Int. 30 Ex. 45	145 @ 1000
452D	.001-.0025	.001-.0025	.000	.000	.000	.000	I 18-21 @ 1 3/4 O 48-52 @ 1 5/8 C 66-73 @ 1 5/8	I 49-54 @ 1 13/32 O 111-120 @ 1 37/64 C 160-174 @ 1 37/64	Int. 30 Ex. 45	153 1/2 @ 1000

I—Inner spring. O—Outer spring. C—Combined pressure of both springs.

CADILLAC—LA SALLE

VALVE MEASUREMENTS AND COMPRESSION PRESSURE

YEAR AND MODEL	STEM CLEARANCE		TAPPET CLEARANCE				SPRING PRESSURE Pounds @ Inches, Length		VALVE SEAT ANGLE, DE- GREES	COM- PRESSION PRESSURE POUNDS AT R.P.M.
	Intake	Exhaust	Running, Hot		Timing		Valve Closed	Valve Open		
			Intake	Exhaust	Intake	Exhaust				
CADILLAC MODELS										
1936, 60	.001- .0023	.002- .0033	.000	.000	.000	.000	62-69 @ $1\frac{15}{16}$	140-151 @ $1\frac{9}{16}$	45	155 @ 1000
70, 75	.001- .0023	.002- .0033	.000	.000	.000	.000	62-69 @ $1\frac{15}{16}$	140-151 @ $1\frac{9}{16}$	45	170 @ 1000
80, 85	.001- .0015	.001- .0025	.000	.000	.000	.000	I 18-21 @ $1\frac{3}{4}$ O 48-52 @ $1\frac{15}{16}$ C 66-73 @ $1\frac{15}{16}$	I 49-54 @ $1\frac{7}{16}$ O 111-120 @ $1\frac{9}{16}$ C 160-174 @ $1\frac{9}{16}$	45	145 @ 1000
90	.001- .0015	.001- .0025	.000	.000	.000	.000	I $19\frac{1}{2}$ @ $1\frac{3}{4}$ O 50 @ $1\frac{15}{16}$ C $69\frac{1}{2}$ @ $1\frac{15}{16}$	I $51\frac{1}{2}$ @ $1\frac{7}{16}$ O $115\frac{1}{2}$ @ $1\frac{9}{16}$ C 167 @ $1\frac{9}{16}$	45	$153\frac{1}{2}$ @ 1000
1937, 60, 65, 70, 75	.001- .0023	.002- .0033	.000	.000	.000	.000	66 @ $1\frac{15}{16}$	145 @ $1\frac{9}{16}$	45	170 @ 1000
85	.001- .0015	.001- .0025	.000	.000	.000	.000	I $19\frac{1}{2}$ @ $1\frac{3}{4}$ O 50 @ $1\frac{15}{16}$ C $69\frac{1}{2}$ @ $1\frac{15}{16}$	I $51\frac{1}{2}$ @ $1\frac{7}{16}$ O $115\frac{1}{2}$ @ $1\frac{9}{16}$ C 167 @ $1\frac{9}{16}$	45	145 @ 1000
90	.001- .0015	.001- .0025	.000	.000	.000	.000	I $19\frac{1}{2}$ @ $1\frac{3}{4}$ O 50 @ $1\frac{15}{16}$ C $69\frac{1}{2}$ @ $1\frac{15}{16}$	I $51\frac{1}{2}$ @ $1\frac{7}{16}$ O $115\frac{1}{2}$ @ $1\frac{9}{16}$ C 167 @ $1\frac{9}{16}$	45	154 @ 1000
1938, 60, 60S, 65	.001- .0023	.002- .0033	.000	.000	.000	.000	66 @ 1.926	145 @ 1.581	45	155 @ 1000
75	.001- .0023	.002- .0033	.000	.000	.000	.000	66 @ 1.926	145 @ 1.581	45	170 @ 1000
90	.001- .0023	.002- .0033	.000	.000	.000	.000	49 @ $1\frac{13}{16}$	Int. $93\frac{1}{2}$ @ 1.5225 Ex. $95\frac{1}{2}$ @ 1.51	45	180 @ 1000
1939, 60S, 61	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{25}{32}$	45	155 @ 1000
75	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{25}{32}$	45	170 @ 1000
90	.001- .003	.002- .004	.000	.000	.000	.000	50 @ $1\frac{25}{32}$	100 @ $1\frac{15}{32}$	45	180 @ 1000
1940, 60S, 62	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{37}{64}$	45	155 @ 1000
72, 75	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{37}{64}$	45	170 @ 1000
90	.001- .003	.002- .004	.000	.000	.000	.000	50 @ $1\frac{25}{32}$	100 @ $1\frac{15}{32}$	45	180 @ 1000
1941, All	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{37}{64}$	45	182 @ 1000
1942, All	.0023	.0033	.000	.000	.000	.000	$63\frac{1}{2}$ @ 1.926	145 @ 1.581	45	182 @ 1000
LA SALLE MODELS										
1935, 50	.001- .002	.001- .003	.006	.009- .010	.015	.015	40-46 @ $2\frac{1}{4}$	112-120 @ $1\frac{15}{16}$	Int. 30 Ex. 45	160 @ 1000
1936, 50	.001- .002	.001- .003	.006	.009- .010	.015	.015	40-46 @ $2\frac{1}{4}$	112-120 @ $1\frac{15}{16}$	Int. 30 Ex. 45	160 @ 1000
1937, 50	.001- .0023	.002- .0033	.000	.000	.000	.000	66 @ $1\frac{15}{16}$	145 @ $1\frac{9}{16}$	45	155 @ 1000
1938, 50	.001- .0023	.002- .0033	.000	.000	.000	.000	66 @ 1.926	145 @ 1.581	45	155 @ 1000
1939, 50	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{37}{64}$	45	155 @ 1000
1940, 50, 52	.0012- .0032	.0022- .0042	.000	.000	.000	.000	66 @ $1\frac{59}{64}$	145 @ $1\frac{37}{64}$	45	155 @ 1000

I—Inner spring. O—Outer spring. C—Combined pressure of both springs.

CADILLAC—LA SALLE

ENGINE CLEARANCES

YEAR AND MODEL	PISTON		RING GAP		Wristpin	ROD BEARINGS		MAIN BEARINGS		
	Top	Bottom	Oil	Comp.	① Clearance	Clearance	Endplay	Thrust on No.	Endplay	Clearance
CADILLAC MODELS										
1935, 355D	.019	.0023	.007-.015	.007-.012	.0002-.0008	.001-.0025	.006-.012	3	.001-.005	.001-.0015
370D	.019	.002	.007-.015	.007-.012	.0002-.0008	.001-.0025	.006-.012	3	.001-.005	.001-.0015
452D	.018	.0018	.007-.015	.007-.012	.0002-.0008	.001-.0025	.006-.012	3	.001-.005	.001-.0015
1936, 60	.023	.0019	.007-.015	.007-.012	.0002-.0008	.001-.0025	.003-.006	2	.001-.005	.0015
70, 75	.025	.0021	.007-.015	.007-.012	.0002-.0008	.001-.0025	.003-.006	2	.001-.005	.0015
80, 85	.019	.002	.007-.015	.007-.012	.0002-.0008	.001-.0025	.004-.007	3	.001-.005	.001
90	.018	.0018	.007-.015	.007-.012	.0002-.0008	.001-.0025	.004-.007	3	.001-.005	.001
1937, 60, 65, 70, 75	.025	.0021	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.003-.006	2	.001-.005	.0015
85	.019	.0020	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.004-.007	3	.001-.005	.001
90	.018	.0018	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.004-.007	3	.001-.005	.001
1938, 60, 60S, 65, 75	.0196	.002-.0025	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.003-.006	2	.001-.005	.0015-.0025
90	.0196	.002-.0025	.007-.015	.007-.012	.0001-.0006	.0015-.0025	.003-.006	5	.001-.005	.0015-.0025
1939, 60S, 61, 75	.0196	.002-.0025	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.003-.006	2	.001-.005	.0015-.0025
90	.0196	.002-.0025	.007-.015	.007-.012	.0001-.0006	.0015-.0025	.003-.006	5	.001-.005	.0015-.0025
1940, 60S, 62, 72, 75	.0196	.002-.0025	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.003-.006	2	.001-.005	.0015-.0025
90	.0196	.002-.0025	.007-.015	.007-.012	.0001-.0006	.0015-.0025	.003-.006	5	.001-.005	.0015-.0025
1941-42, All	.0196	.002-.0025	.007-.017	.007-.017	②	.0015-.0025	.003-.006	2	.001-.005	.0015-.0025

LA SALLE MODELS

1935, 50	.015	.0011-.0015	.007-.015	.007-.012	.0002-.0008	.001-.0025	.003-.006	1	.001-.004	.002
1936, 50	.015	.0011-.0015	.007-.015	.007-.012	.0002-.0008	.001-.0025	.003-.006	1	.001-.004	.002
1937, 50	.023	.0019	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.003-.006	2	.001-.005	.0015
1938, 50	.0196	.002-.0025	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.003-.006	2	.001-.005	.0015-.0025
1939, 50	.0196	.002-.0025	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.008-.014	2	.001-.005	.0015-.0025
1940, 50, 52	.0196	.002-.0025	.007-.015	.007-.012	.0002-.0008	.0015-.0025	.008-.014	2	.001-.005	.0015-.0025

①—Clearance between pin and bushing fitted at 70° F. Clearance between pin and piston fitted with a light hand push at 212° F. ②—Fitted with hand push fit in rod and piston at normal room temperature.

MAIN AND ROD BEARING JOURNAL DIMENSIONS

YEAR AND MODEL	DIAMETER AND LENGTH, INCHES							
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	Rod Bearings
CADILLAC MODELS								
1935, 355D	2 $\frac{5}{8}$ x1 $\frac{11}{32}$	2 $\frac{5}{8}$ x1 $\frac{11}{16}$	2 $\frac{5}{8}$ x2 $\frac{1}{8}$	None	None	None	None	2 $\frac{5}{8}$ x1 $\frac{3}{8}$
370D	2 $\frac{5}{8}$ x2 $\frac{5}{16}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x3 $\frac{11}{16}$	None	None	None	2 $\frac{1}{2}$ x1 $\frac{1}{8}$
452D	2 $\frac{5}{8}$ x2 $\frac{5}{16}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x3 $\frac{11}{16}$	None	None	2 $\frac{1}{2}$ x1 $\frac{1}{8}$
1936, 36-60, 70, 75	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	None	None	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{16}$
36-80, 85	2 $\frac{5}{8}$ x2 $\frac{5}{16}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x3 $\frac{11}{16}$	None	None	None	2 $\frac{1}{2}$ x1 $\frac{1}{8}$
36-90	2 $\frac{5}{8}$ x2 $\frac{5}{16}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x3 $\frac{11}{16}$	None	None	2 $\frac{1}{2}$ x1 $\frac{1}{8}$
1937, 37-60, 65, 70, 75	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	None	None	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{16}$
37-85	2 $\frac{5}{8}$ x2 $\frac{5}{16}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x3 $\frac{11}{16}$	None	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{4}$
37-90	2 $\frac{5}{8}$ x2 $\frac{5}{16}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x3 $\frac{11}{16}$	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{4}$
1938, 38-60, 60S, 65, 75	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	None	None	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{16}$
38-90①	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 x1 $\frac{3}{4}$
1939, 39-60S, 61, 75	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	None	None	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{16}$
39-90①	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 x1 $\frac{3}{4}$
1940, 40-60S, 62, 72, 75	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	None	None	None	None	2 $\frac{1}{2}$ x2 $\frac{1}{16}$
40-90①	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 x1 $\frac{3}{4}$
1941-42, All	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	None	None	None	None	2.460x2 $\frac{1}{16}$

MAIN AND ROD BEARING JOURNAL DIMENSIONS

YEAR AND MODEL	DIAMETER AND LENGTH, INCHES							
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	Rod Bearings
LA SALLE MODELS								
1935, 35-50	2 $\frac{3}{8}$ x1 $\frac{5}{8}$	2 $\frac{3}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{5}{8}$	2 $\frac{1}{2}$ x1 $\frac{1}{2}$	2 $\frac{3}{4}$ x1 $\frac{25}{32}$	None	None	2 $\frac{1}{4}$ x1 $\frac{3}{4}$
1936, 36-50	2 $\frac{3}{8}$ x1 $\frac{5}{8}$	2 $\frac{3}{8}$ x1 $\frac{1}{2}$	2 $\frac{5}{8}$ x1 $\frac{5}{8}$	2 $\frac{1}{2}$ x1 $\frac{1}{2}$	2 $\frac{3}{4}$ x1 $\frac{25}{32}$	None	None	2 $\frac{1}{4}$ x1 $\frac{3}{4}$
1937, 37-50	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{31}{32}$	None	None	None	None	2 $\frac{15}{32}$ x2 $\frac{1}{2}$
1938, 38-50	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{31}{32}$	None	None	None	None	2 $\frac{29}{64}$ x2 $\frac{1}{2}$
1939, 39-50	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{31}{32}$	None	None	None	None	2 $\frac{29}{64}$ x1 $\frac{1}{2}$
1940, 40-50, 52	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{1}{16}$	2 $\frac{1}{2}$ x1 $\frac{31}{32}$	None	None	None	None	2 $\frac{29}{64}$ x1 $\frac{1}{2}$

①—No. 8: 2 $\frac{1}{2}$ x1 $\frac{1}{16}$. No. 9: 2 $\frac{1}{2}$ x2 $\frac{1}{2}$.

GENERATOR

YEAR AND MODEL	BRUSH SPRING TENSION, OZ.		FIELD AMPERES AT 6 VOLTS	MAXIMUM COLD OUTPUT			MAXIMUM HOT OUTPUT		
	Main	Third		Amperes	Volts	R.P.M.	Amperes	Volts	R.P.M.
CADILLAC MODELS									
1935, All	25	17	1.6-1.9	13-16	7.7-8.1	1200	9-11	7.3-7.55	1200
1936, 60, 70, 75	25	None	1.7-1.9	22	8.0	1550	②	②	②
80, 85, 90	25	None	1.7-2.0	26	8.0	1600	②	②	②
1937, 60, 65	25	17	③	27-31	8.0	4000	25-28	8.0	4200
70, 75	25	None	2.0-2.2	25	8.0	1650	②	②	②
85, 90	25	None	1.7-2.0	26	8.0	1600	②	②	②
1938, 60, 60S, 65	25	17	③	27-31	8.0	4000	25-28	8.0	4200
75, 90	25	None	2.0-2.2	25	8.0	1650	②	②	②
1939, 60S, 61	25	17	③	27-31	8.0	4000	25-28	8.0	4200
75	25	None	2.0-2.2	30	8.0	1700	②	②	②
90	25	None	2.0-2.2	25	8.0	1650	②	②	②
1940-42, All	24-28	None	1.76-1.88	30④	8.0	1800	34	8.0	2400

LA SALLE MODELS

1935, 1936	25	None	1.7-1.9	22	8.0	1550	②	②	②
1937-1939	25	17	③	27-31	8.0	4000	25-28	8.0	4200
1940	25	None	1.76-1.88	30④	8.0	1800	②	②	②

② Controlled by current regulator. ③ Shunt, 1.44-1.56. Third brush, .89-.94. ④ Output at given speed; not necessarily maximum output.

STARTING MOTOR

YEAR AND MODEL	BRUSH SPRING TENSION OZ.	NO LOAD TEST			LOCK TEST		
		Amperes	Volts	R.P.M.	Amperes	Volts	Torque, Pounds Feet
CADILLAC MODELS							
1935, 355D	24-28	70	5.0	2500	600	3.0	28.0
370D, 452D	36-40	70	5.7	2200	600	3.0	35.0
1936, 60, 70, 75	24-28	65	5.0	5500	600	3.0	16.0
80, 85, 90	36-40	70	5.7	2200	600	3.0	35.0
1937, 60, 65, 70, 75	24-28	65	5.0	5500	600	3.0	16.0
85, 90	36-40	70	5.7	2200	600	3.0	35.0
1938, 60, 60S, 65, 75	24-28	65	5.0	5500	600	3.0	16.0
90	36-40	70	5.0	3000	500	3.0	19.0
1939, 60S, 61, 75	24-28	65	5.0	5500	600	3.0	16.0
90	36-40	70	5.0	3000	500	3.0	19.0
1940, 60S, 62, 72, 75	24-28	65	5.0	5500	600	3.0	16.0
90	36-40	70	5.0	3000	500	3.0	19.0
1941-42, All	24-28	65	5.0	5500	600	3.0	16.0
LA SALLE MODELS							
1935, 1936	24-28	65	5.0	5500	600	3.0	15.0
1937-1940	24-28	65	5.0	5500	600	3.0	16.0

CADILLAC—LA SALLE

CLUTCH AND BRAKE SPECIFICATIONS

YEAR AND MODEL	CLUTCH			BRAKE								Master Cyl. Diam., Ins.
	Facing Material	Facing Dimensions	Free Pedal, Travel, Inches	Lining Material	Lining Dimensions		Shoe Clearance, Inch		Wheel Cyl. Diameter, Inch			
					Front Shoe	Rear Shoe	Toe	Heel	Front	Rear		
CADILLAC MODELS												
1935, 355D	Woven	6½x 9½x.120	1¼-1½	Woven	15½x2 x¼	14¼ x2 x½	.010	.010	None	None	None	None
370D	Woven	5½x10 x.120	1¼-1½	Woven	15½x2 x¼	14¼ x2 x½	.010	.010	None	None	None	None
452D	Woven	6½x11 x.135	1¼-1½	Woven	15½x2 x¼	14¼ x2 x½	.010	.010	None	None	None	None
1936, 60	Woven	6½x11 x.135	¾-1½	P-Molded S-Woven	F-10½ x2 x¾ R-13 x2 x¾	13 x2 x¾	.010	.010	1½	1½	1	
70, 75, 80, 85	Woven	6½x11 x.135	¾-1½	P-Molded S-Woven	F-12¼ x2¼ x¼ R-15 x2¼ x¼	15 x2¼ x¼	.010	.010	1¼	1½	1½	
90	Woven	6½x11 x.135	¾-1½	Woven	15½x2 x¼	14¼ x2 x½	.010	.010	None	None	None	
1937, 60, 65, 70	Woven	6½x11 x.135	¾-1½	P-Molded S-Woven	F-12½x2¼ x¾ R-12½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.010	.010	1½	1	1	
75, 85, 90	Woven	6½x11 x.135	¾-1½	P-Molded S-Woven	F-12¼ x2¼ x¼ R-15 x2¼ x¼	15 x2¼ x¼	.010	.010	1¼	1½	1½	
1938, 60, 60S	Woven	6½x11 x½	¾-1½	Molded	F-12½x2¼ x¾ R-12½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.010	.010	1½	1	1	
65	Woven	6½x11 x½	¾-1½	Molded	F-12½x2¼ x¾ R-12½x2¼ x¾	F-12½x2¼ x¾ R-12½x2¼ x¾	.010	.010	1½	1	1	
75	Woven	6½x11 x½	¾-1½	Molded	F-12¼ x2¼ x¼ R-15 x2¼ x¼	15 x2¼ x¼	.010	.010	1¼	1½	1½	
90	Woven	7 x11½x½	¾-1½	Molded	F-12¼ x2¼ x¼ R-15 x2¼ x¼	15 x2¼ x¼	.010	.010	1¼	1½	1½	
1939, 61	Woven	6½x11 x½	¾-1½	Molded	11½x2 x¾	12½x2 x¾	.015	.015	1½	1	1	
60S	Woven	6½x11 x½	¾-1½	Molded	F-11½x2¼ x¾ R-11½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.015	.015	1½	1	1	
75	Woven	6½x11 x½	¾-1½	Molded	13½x2¼ x¼	15½x2¼ x¼	.010	.010	1¼	1½	1½	
90	Woven	7 x11½x½	¾-1½	Molded	13½x2¼ x¼	15½x2¼ x¼	.010	.010	1¼	1½	1½	
1940, 60S, 62	Woven	7 x10½x.137	¾-1½	Molded	F-11½x2¼ x¾ R-11½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.007- .010	.007- .010	1½	1	1	
72	Woven	7 x11 x.137	¾-1½	Molded	F-11½x2¼ x¾ R-11½x2¼ x¾	F-12½x2¼ x¾ R-12½x2¼ x¾	.007- .010	.007- .010	1½	1	1	
75	Woven	7 x11 x.137	¾-1½	Molded	13½x2¼ x¼	15½x2¼ x¼	.007- .010	.007- .010	1¼	1½	1½	
90	Woven	7 x11½x.137	¾-1½	Molded	13½x2¼ x¼	15½x2¼ x¼	.007- .010	.007- .010	1¼	1½	1½	
1941 } 60S, 61, 62, 63	Woven	7x10½x.137	¾-1½	Molded	F-11½x2¼ x¾ R-11½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.007- .010	.007- .010	1½	1	1	
1942 } 67, 75	Woven	7x11x.137	¾-1½	Molded	F-11½x2¼ x¾ R-11½x2¼ x¾	F-12½x2¼ x¾ R-12½x2¼ x¾	.007- .010	.007- .010	1½	1	1	

LA SALLE MODELS

1935, 50	Woven	6 x10 x½	¾-1½	P-Molded S-Woven	F-10½ x2 x¾ R-13 x2 x¾	13 x2 x¾	.010	.010	1½	1½	1	
1936, 50	Woven	6 x10 x½	¾-1½	P-Molded S-Woven	F-10½ x2 x¾ R-13 x2 x¾	13 x2 x¾	.010	.010	1½	1½	1	
1937, 50	Woven	6½x10½x.135	¾-1½	P-Molded S-Woven	F-12½x2¼ x¾ R-12½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.010	.010	E-1½ L-1½	E-1½ L-1	1	
1938, 50	Woven	6½x10½x.137	¾-1½	Molded	F-12½x2¼ x¾ R-12½x2 x¾	F-12½x2¼ x¾ R-12½x2 x¾	.010	.010	1½	1	1	
1939, 50	Woven	E-6½x10½x½ L-6 x10 x½	¾-1½	Molded	11½x2 x¾	12½x2 x¾	.015	.015	1½	1	1	
1940, 50, 52	Woven	6¾x10 x.137	¾-1½	Molded	11½x2 x¾	12½x2 x¾	.007- .010	.007- .010	1½	1	1	

P—Primary. S—Secondary. E—Early production. L—Late production. F—Front wheel. R—Rear wheel.

FRONT END MEASUREMENTS

YEAR AND MODEL	CASTER, DEGREES	CAMBER, DEGREES	TOE-IN, INCHES	TOE-OUT ON TURNS, DEGREES	KINGPIN INCLINATION, DEGREES	KINGPIN DIAMETER, INCHES
CADILLAC MODELS						
1935, 355D	1	$\frac{3}{4}$ to $1\frac{1}{2}$	0 to $\frac{1}{16}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	4	.999
370D	1	$\frac{3}{4}$ to $1\frac{1}{2}$	0 to $\frac{1}{16}$	22 to $23\frac{1}{2}$	4	.999
452D	1	$\frac{3}{4}$ to $1\frac{1}{2}$	0 to $\frac{1}{16}$	22 to $23\frac{1}{2}$	4	.999
1936, 60	$1\frac{1}{2}$ to 2	$\frac{1}{4}$ to 1	0 to $\frac{1}{16}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	5	.999
70, 75	$\frac{3}{4}$ to $1\frac{1}{4}$	0 to $\frac{1}{2}$	0 to $\frac{1}{16}$	22 to $23\frac{1}{2}$	$5\frac{1}{2}$	.999
80, 85	$\frac{3}{4}$ to $1\frac{1}{4}$	0 to $\frac{1}{2}$	0 to $\frac{1}{16}$	22 to $23\frac{1}{2}$	$5\frac{1}{2}$	.999
90	1	$\frac{3}{4}$ to $1\frac{1}{2}$	0 to $\frac{1}{16}$	22 to $23\frac{1}{2}$	4	.999
1937, 60	$\frac{1}{4}$ to 1	$\frac{1}{4}$ to 1	$\frac{1}{32}$ to $\frac{3}{32}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	$4^{\circ} 5'$	.862
65, 70	$0 \pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	22 to $23\frac{1}{2}$	$5\frac{1}{2}$	.999
75, 85	$0 \pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	22 to $23\frac{1}{2}$	$5\frac{1}{2}$	.999
90	$0 \pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	22 to $23\frac{1}{2}$	$4^{\circ} 38'$	.999
1938, 60, 60S	$-\frac{1}{4}$ to $-1\frac{1}{4}$	$-\frac{1}{4}$ to $+\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	$5^{\circ} 44'$	.862
65, 75	$0 \pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	22 to $23\frac{1}{2}$	$5^{\circ} 1'$	.999
90	$0 \pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	22 to $23\frac{1}{2}$	$5^{\circ} 1'$	.999
1939, 61	$-\frac{1}{4}$ to $-2\frac{1}{4}$	$-\frac{1}{4}$ to $+\frac{3}{4}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{1}{4}$ to $23\frac{3}{4}$	5	.862
60S	$-\frac{1}{4}$ to $-1\frac{1}{4}$	$-\frac{1}{4}$ to $+\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{3}{4}$ to $24\frac{1}{4}$	$5\frac{1}{2}$	.862
75	0 to $\pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{3}{4}$ to $24\frac{1}{4}$	5	.999
90	0 to $\pm \frac{1}{4}$	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{3}{4}$ to $24\frac{1}{4}$	5	.999
1940, 60S, 62	$-1\frac{3}{4}$ to $-2\frac{3}{4}$	0 to $\frac{3}{4}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{1}{4}$ to $23\frac{3}{4}$	$5^{\circ} 6'$	.924
72	$-1\frac{3}{4}$ to $-2\frac{3}{4}$	0 to $\frac{3}{4}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{1}{4}$ to $23\frac{3}{4}$	$5^{\circ} 6'$	.924
75	$-\frac{1}{2}$ to -1	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{3}{4}$ to $24\frac{1}{4}$	$5^{\circ} 1'$	.999
90	$-\frac{1}{2}$ to -1	0 to $\frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{3}{4}$ to $24\frac{1}{4}$	$5^{\circ} 1'$	.999
1941 60S, 61, 62, 63	$-1\frac{3}{4}$ to $-2\frac{3}{4}$	$-\frac{3}{8}$ to $+\frac{3}{8}$	$\frac{1}{32}$ to $\frac{3}{32}$	③	$5^{\circ} 51'$	.924
1942 67, 75	$-1\frac{3}{4}$ to $-2\frac{3}{4}$	$-\frac{3}{8}$ to $+\frac{3}{8}$	$\frac{1}{32}$ to $\frac{3}{32}$	③	$5^{\circ} 51'$	.924

③ On a left turn, $25^{\circ} 25'$ for 1941-42 Series 60S, 61, 62, 63. For Series 67, 75, $24^{\circ} 7'$. On a right turn, $24^{\circ} 42'$ for Series 60S, 61, 62, 63. For Series 67, 75, $23^{\circ} 6'$.

LA SALLE MODELS

1935, 50	$1\frac{1}{2}$ to 2	$\frac{1}{4}$ to 1	0 to $\frac{1}{16}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	5	.862
1936, 50	$1\frac{1}{2}$ to 2	$\frac{1}{4}$ to 1	0 to $\frac{1}{16}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	5	.862
1937, 50	$\frac{1}{4}$ to 1	$\frac{1}{4}$ to 1	$\frac{1}{32}$ to $\frac{3}{32}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	5	.862
1938, 50	$-\frac{1}{4}$ to $-1\frac{1}{4}$	$-\frac{1}{4}$ to $\pm \frac{1}{2}$	$\frac{1}{32}$ to $\frac{3}{32}$	$21\frac{3}{4}$ to $23\frac{1}{4}$	$5^{\circ} 44'$	.862
1939, 50	$-\frac{1}{4}$ to $-2\frac{1}{4}$	$-\frac{1}{4}$ to $\pm \frac{3}{4}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{1}{4}$ to $23\frac{3}{4}$	5	.862
1940, 50, 52	$-1\frac{3}{4}$ to $-2\frac{3}{4}$	0 to $\frac{3}{4}$	$\frac{1}{32}$ to $\frac{3}{32}$	$22\frac{1}{4}$ to $23\frac{3}{4}$	$5^{\circ} 6'$	.862

① With outer wheel turned to an angle of 20 degrees, inner wheel should set as specified.

LUBRICATION AND CAPACITY CHART

YEAR AND MODEL	ENGINE			TRANSMISSION			REAR AXLE		FUEL TANK, GALS.
	S.A.E. NO.	REFILL, QUARTS	COOLING SYSTEM, QUARTS	S.A.E. NO.	TRANS- MISSION CAPACITY, POUNDS	TRANS. & OVERDRIVE CAPACITY, POUNDS	S.A.E. NO.	CAPACITY, POUNDS	
CADILLAC MODELS									
1935, 355D	S. 30 W. 20W	8	20	S. 160EP W. 90EP	4½	None	S. 160EP W. 90EP	6	①
370D	S. 30 W. 20W	9	18¾	S. 160EP W. 90EP	4½	None	S. 160EP W. 90EP	6	30
452D	S. 30 W. 20W	10	22¼	S. 160EP W. 90EP	4½	None	S. 160EP W. 90EP	6	30
1936, 60	S. 30 W. 20W	7	30	S. 160EP W. 90EP	2½	None	S. 160EP W. 90EP	5	21
70, 75	S. 30 W. 20W	7	29	S. 160EP W. 90EP	4½	None	S. 160EP W. 90EP	5	25
80, 85	S. 30 W. 20W	9	19	S. 160EP W. 90EP	4½	None	S. 160EP W. 90EP	5	25
90	S. 30 W. 20W	10	22¼	S. 160EP W. 90EP	4½	None	S. 160EP W. 90EP	6	30

CADILLAC—LA SALLE

LUBRICATION AND CAPACITY CHART

YEAR AND MODEL	ENGINE			TRANSMISSION			REAR AXLE		FUEL TANK, GALS.	
	S.A.E. NO.	REFILL, QUARTS	COOLING SYSTEM, QUARTS	S.A.E. NO.	TRANS- MISSION CAPACITY, POUNDS	TRANS. & OVERDRIVE CAPACITY, POUNDS	S.A.E. NO.	CAPACITY, POUNDS		
CADILLAC MODELS										
1937, 60	S. 30 W. 20W	7	25	S. 160EP W. 90EP	2½	None	90HY	5	22	
65, 70, 75	S. 30 W. 20W	7	25	S. 160EP W. 90EP	2½	None	90HY	5	25	
85	S. 30 W. 20W	9	17	S. 160EP W. 90EP	2½	None	90HY	5	25	
90	S. 30 W. 20W	10	24	S. 160EP W. 90EP	4½	None	90HY	6	30	
1938, 60, 60S	S. 30 W. 20W	7	24	S. 160EP W. 90EP	2½	None	90HY	5	24	
65, 75	S. 30 W. 20W	7	25	S. 160EP W. 90EP	2½	None	90HY	6	26	
90	S. 30 W. 20W	11	30	S. 160EP W. 90EP	2½	None	90HY	6	25	
1939, 60S	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	5	24	
61	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	5	23	
75	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	6½	26½	
90	S. 30 W. 20W	11	30	90EP	2½	None	90HY	6½	26½	
1940, 60S, 62	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	5	22	
72	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	6½	24	
75	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	6½	26	
90	S. 30 W. 20W	11	30	90EP	2½	None	90HY	6½	26	
1941 } 60S, 61, 62, 63, 67	S. 20W W. 20W	7	25	90EP	4②	None	90HY	5	20	
	S. 20W W. 20W	7	25	90EP	4②	None	90HY	5	24	

LA SALLE MODELS

1935	S. 30 W. 20W	7	16½	S. 160EP W. 90EP	2½	None	S. 160EP W. 90EP	5	20
1936	S. 30 W. 20W	7	16½	S. 160EP W. 90EP	2½	None	S. 160EP W. 90EP	5	18
1937, 1938	S. 30 W. 20W	7	25	S. 160EP W. 90EP	2½	None	90HY	5	22
1939	S. 30 W. 20W	7	24½	90EP	2½	None	90HY	5	23
1940	S. 30 W. 20W	7	24½	90EP	4	None	90HY	5	22

S—Summer. W—Winter. EP—Extreme pressure. HY—Hypoid. ① For 128" and 136" W.B., 22 gallons. For 146" W.B., 30 gallons.
②—Hydra-Matic transmission: See text.

ENGINE

CYLINDER HEAD TIGHTENING

1935-42: To prevent gasket failure or cylinder distortion, cylinder head bolts should be tightened gradually and evenly. As no particular order is recommended by the manufacturer, the bolts should be tightened from the center of the head outward.

However, on the V12 and V16 cylinder overhead valve models, the top row of nuts should be tightened fairly tight. The intermediate row should be

tightened securely next, and then, the lower row. Finally, tighten the top row securely.

On all 1940-42 cars, when using a tension indicating wrench, the final tightening should be from 70 to 75 pounds foot.

CYLINDER HEADS, INSTALL

1936-42 V-8's: The two cap screws at the water outlet are longer than the others. They may break through the jacket if used elsewhere.

1938-40 V-16's

When re-installing cap screws, make sure that the short screws are installed along the lower edge of the head.

CYLINDER HEAD, R&R

1935-37 V-12's and V-16's: Cylinder heads may be removed without disturbing rocker assemblies, by using a ⅝" universal socket wrench on the nuts under the rocker shaft. When installing cylinder heads or rocker arm assemblies, release the

hydraulic silencers several times while tightening them or the heads in order to avoid excessive strains on the mechanism. Silencers are released by inserting a $\frac{3}{32}$ " diameter hook into the small hole in the plunger head.

There are three rows of nuts and those in each row should be tightened gradually as follows: Tighten top row fairly tight. Tighten intermediate row securely and then do the same on the lower row. Finally tighten the top row securely.

CYLINDER BLOCK EXCHANGE

1935-37 12's & 16's: Standard cylinder blocks with less than .012" wear should be returned in exchange for the .015" oversize but if wear is between .012" and .027", the .030" oversize should be ordered.

VALVES, ADJUST

1935 V-8's: Make valve tappet adjustment with the engine cold. The tappet clearance for running should be .004" for intake and .006" for the exhaust valves. Use the correct feeler gauges and be careful to obtain even adjustment on all the valves, making sure that the lifter is on the heel of the cam when adjusting each tappet. Tappet clearance for timing is: .006" intake and .010" exhaust.

HYDRAULIC VALVE LIFTER SERVICE

1935-37 V-12's and V-16's: First loosen the lock nut on the valve rocker, then push plunger down until the hole in its side is slightly below the top edge of the dashpot. Turn adjusting screw until all clearance is removed from both ends of rocker. Release plunger and back off adjusting screw until shoulder on plunger is flush with dashpot. The mechanism may become noisy due to dirt. Always cover the mechanism when rocker arm covers are removed. Plungers and dashpots are not interchangeable. The number on the dashpot casting should correspond to the number etched on the plunger.

1936-42 V-8's; 1938-40 V-16's: Noisy valve operation is caused by dirty, scored or worn parts or by incorrect oil level or pressure. The oil level should not be allowed to fall below the 7 quart mark on the V-8's, and the "Full" mark on V-16's, or air will enter the pump inlet. If the level is too high, foaming results. The oil baffle used after Engine No. 6011419 on the 36-60, and after Engine No. 3110947 on 36-70 and 36-75, reduces tendency to foam and should be installed on prior engines. The part number is #3502415.

Oil pressure must be correct. Extremely high pressure may lift the entire hydraulic unit against the plunger spring, permitting excessive plunger movement and wear. Low pressure permits oil relief leakage between the plunger and the cylinder to exceed the oil feed through the ball

TORQUE WRENCH READINGS

Where Used	ENGINE	Size	Pounds Feet
Camshaft sprocket nut		$\frac{3}{4}$ -16	90—95
Intake and exhaust manifold		$\frac{3}{8}$ -24	25—30
Connecting rod bolts		Special	50—60
Crankshaft counterweights		$\frac{5}{8}$ -18	145—155
Cylinder head bolts		$\frac{1}{2}$ -14	70—75
Flywheel to crankshaft		$\frac{1}{2}$ -20	65—70
Oil pan drain plug		$\frac{1}{2}$ -20	20—25
Main bearing caps to crankcase		$\frac{1}{2}$ -12	130—140
Fan support to bracket		$\frac{3}{8}$ -11	85—95
Engine rear supports		$\frac{1}{2}$ -14	50—60
FUEL TANK AND EXHAUST			
Gas tank brackets and strap to frame		$\frac{1}{2}$ -24	10—15
Gas tank strap draw bolts		$\frac{1}{2}$ -24	2—3
Support brackets, exhaust pipe to frame		$\frac{1}{2}$ -24	10—15
Rubber mountings for muffler		$\frac{1}{2}$ -24	12—15
Exhaust system "U" bolts		$\frac{1}{4}$ -20	10—12
Self-tapping screws for muffler supports, mud pan, and gas line		Special	10—12
CLUTCH & TRANSMISSION			
Clutch pressure plate to flywheel		$\frac{1}{2}$ -18	18—22
Clutch and brake pedal clamp bolt		$\frac{3}{8}$ -16	35—40
Shift levers on tube and shaft		$\frac{1}{2}$ -24	18—24
REAR SUSPENSION			
Differential carrier to axle housing		$\frac{3}{8}$ -24	25—30
Brake backing plate to axle housing		$\frac{3}{8}$ -24	35—40
Rear shock absorber to frame		$\frac{1}{2}$ -18	120—140
Shock absorber connecting links		$\frac{1}{2}$ -20	40—48
Front of rear spring		Special	65—75
Rear spring bushing and hanger bushing		Special	65—75
Rear stabilizer—both ends		$\frac{1}{2}$ -20	80—90
Universal joint screws		$\frac{1}{2}$ -24	18—22
Axle shaft hub nuts		1-14	285—315
FRONT SUSPENSION			
Shock absorber bolts		$\frac{1}{2}$ -20	100—115
Shock absorber connecting links		$\frac{1}{2}$ -20	40—48
Suspension arms to frame		$\frac{1}{2}$ -20	60—70
Knuckle to brake backing plate and steering arm		$\frac{1}{2}$ -20	60—70
Front stabilizer to frame		$\frac{1}{2}$ -20	50—60
Knuckle support arm—fixed threaded bushings—			
In shock absorber arm		Special	145—155
In lower suspension arm		Special	195—205
Rubber bumper to lower suspension arm		$\frac{3}{8}$ -24	16—20
STEERING			
Tie rods—Pivot to steering arms		$\frac{1}{2}$ -20	50—60
Idler arm threaded bushing		Special	70—110
Clamp bolts on tubes		$\frac{1}{2}$ -24	8—10
Steering gear to frame		$\frac{1}{2}$ -14	40—45
Steering wheel nut		Special	45—50
MISCELLANEOUS			
Wheel mounting nuts		$\frac{1}{2}$ -20	110—120
Bumper to brackets		$\frac{1}{2}$ -20	80—90
Bumper brackets to frame		$\frac{1}{2}$ -18	80—90

check. If the tappets are noisy after the oil has warmed up, check the oil pressure at the supply pipe. It should be 3 to 5 pounds when the gauge on the instrument board reads 12 to 15 pounds.

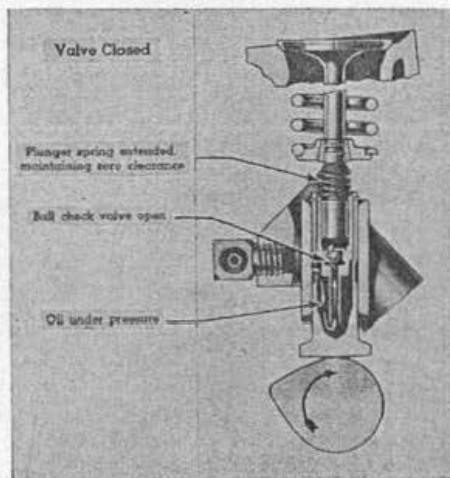
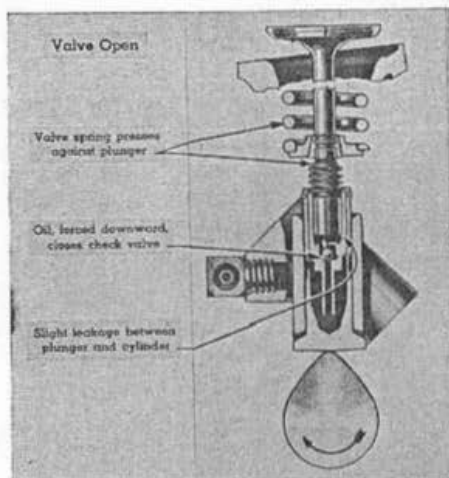
A tap or click which is synchronized with the valve action may be due to the following defects: Sticking, dirt, pitting or incorrect clearance between

plunger and cylinder, wrong clearance between plunger and valve stem.

Sticking is usually caused by dirt and the remedy is cleaning in gasoline.

A stuck ball check valve may be unseated with a small blunt tool and then the cylinder should be washed in gasoline.

CADILLAC—LA SALLE



HYDRAULIC VALVE LIFTER, 1936-42, V-8's

When dirt causes the trouble, the engine should be flushed and the oil pan should be removed and cleaned. The valve oil reservoir and bleed holes should also be carefully cleaned.

If sticking is due to pitting and scoring, the cylinder and plunger (but not the body) should be replaced. But slight scratches are not objectionable.

Incorrect clearance between the cylinder and plunger is usually due to mismatched parts. Cylinder and plunger are carefully fitted in production and are not interchangeable.

Clean the valve lifter assemblies thoroughly and wipe them dry. It is important that all parts be entirely dry. The engine must be run until all the air is expelled from the mechanism before operation will be entirely quiet. This may take from ten minutes to one hour of running.

When assembling the parts, note that the ball check should rattle when the cylinder unit is shaken. The plunger should bounce back quickly into the cylinder when pulled out and released. The plunger spring should be locked into the cylinder by a twist of the plunger, and the cylinder should slide smoothly into the tappet body when free of oil.

With no oil in the unit and with the plunger and plunger spring fully depressed there should be between .030" and .070" clearance between the valve stem and the top of the plunger. If less than .030", grind the end of the valve stem.

VALVES, REMOVE

1936-42: V-8's: To remove the valves, first remove the valve lifter and bracket assemblies.

1938-40 V-16's. Remove the valves and then remove the individual valve silencer assemblies. Although this type lifter permits removal of individual valves without taking off the fenders, it is recommended that the

front fender and radiator assembly be removed whenever valves are to be ground or all the valves removed.

VALVE SPRING PRESSURE

1935-37 V-12's and V-16's: With valves installed, total spring pressure should be 48 to 66 pounds. If less, install one or more .040" spacers under the valve spring retainers. One spacer raises the pressure 10.9 pounds. All springs should be tested whenever valves are refaced.

1938-40 V-16's. If the strength of the valve lifter plunger springs is such that less than 6 or 7 pounds is required to compress them, the hydraulic unit should be replaced. The valve cylinder and plunger are mated and should be replaced as a unit. Weak springs will cause noisy valve operation.

ROCKER ARMS, INSTALL

1935-37 V-12's and V-16's: When installing rocker arm assemblies, the dashpot valves should be released frequently to avoid jamming eccentrics. An icepick with its tip bent over 1/8" will serve for this purpose as well as for holding the plungers fully released to set initial clearance to .040". When released, the silencers will adjust the clearance to zero.

TIMING CASE GASKET, RENEW

1936-42 V-8's: The gasket is continuous for easy handling. After installation, tear off the lower portion.

TAPPET GUIDES, R&R

1935-37 V-12's & V-16's: Remove cylinder head and push rods. Remove the cam slides and guides by means of a hooked puller, inserting it in holes provided at the side of each unit.

VALVE TIMING

V8's. Right cylinders have odd numbers, 1, 3, 5, 7. Left cylinders are 2, 4, 6, 8 on 1935 models. On 1936-42 models odd numbers are in left bank.

V12's, V16's. Right cylinders have even numbers and left cylinders have odd numbers.

35-50 & 36-50: With No. 1 intake tappet set to .015" clearance and No. 1 piston nearing the end of its exhaust stroke, No. 1 valve should be ready to open when the second line on the outside diameter of the vibration damper lines up with the pointer on the chain case cover.

1935 V-8: With No. 1 exhaust tappet set for .008" clearance and No. 1 piston in the right bank nearing the end of its compression stroke, No. 1 valve should be ready to open when the C1-4 mark on the flywheel lines up with the peep hole pointer.

1935-37 V-12 & V-16: With No. 1 intake tappet set for clearance as described under HYDRAULIC VALVE LIFTER SERVICE, and with No. 1 piston in the left bank nearing the end of its compression stroke, No. 1 valve should be ready to open when the C1/11 mark on the flywheel (for the V12) or when the C1/15 mark on the flywheel (for the V16) lines up with the peep hole pointer.

1936-42 V-8's: The intake valve should begin to open for No. 1 cylinder when the piston is at TDC.

1938-40 V-16's: The intake valve should begin to open 8°, crankshaft rotation (for 38-90), 6° (for 39-90 & 40-90), before TDC.

CHAIN, ADJUST 355D

Timing chain is not adjustable. The accessory chain is adjusted as follows: Loosen the pivot screws on the generator and water pump support plates. Force support plates outward until all slack is taken up, then back off 1/8" and lock in this position.

CHAIN, RENEW 355D

To renew the accessory chain, it is necessary to remove the timing chain, water pump and generator. The support plates can be taken off after removing the left-hand threaded nut at the water pump drive end. Withdraw the driving sprocket assembly completely and then remove the chain.

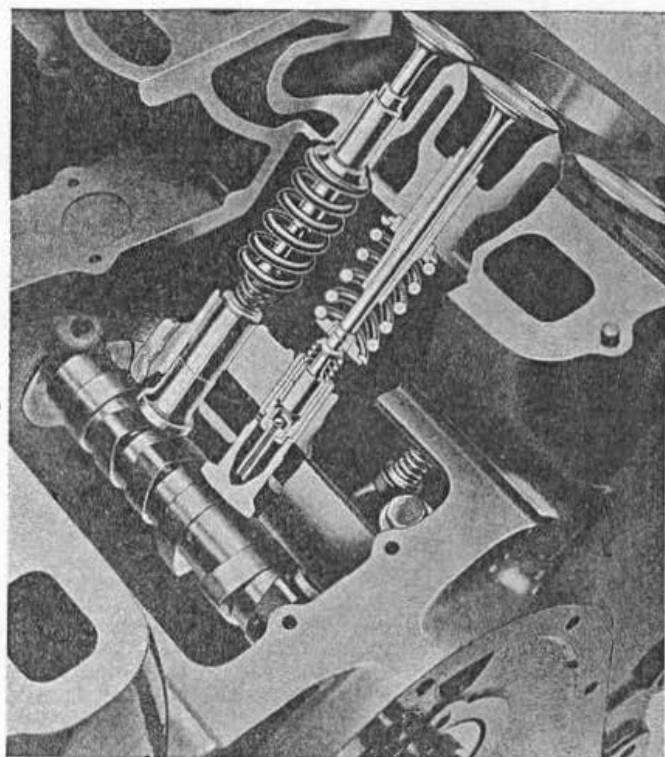
1935-42

When installing the chain, the punch marks on the sprockets should be opposite each other, in line with the center of the shafts.

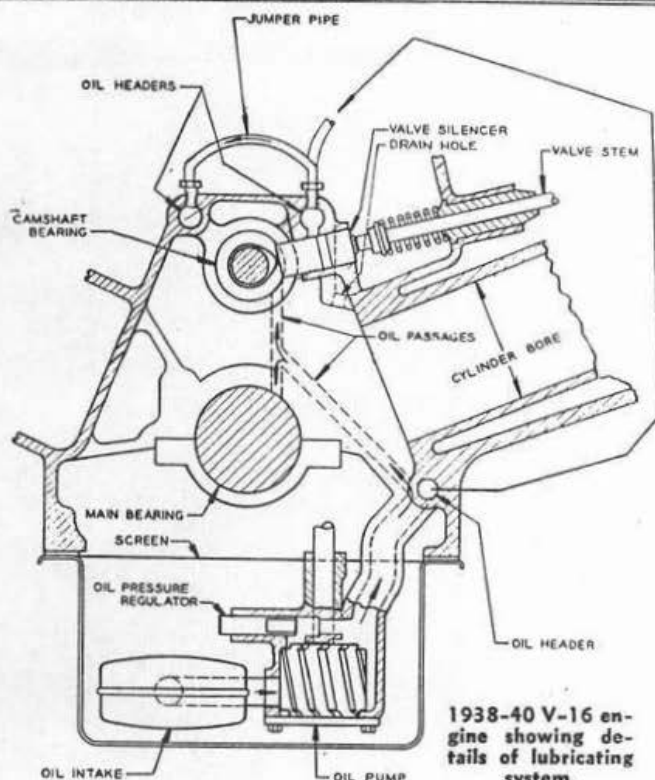
CAMSHAFT, R&R 355D

Remove lifter assemblies, vacuum, pump, distributor and the two cap screws behind the camshaft sprocket hub.

1935-37 V-12's and V-16's: Remove cylinder head, distributor drive, vacu-



HYDRAULIC VALVE LIFTERS Typical of all V-8's, 1936-42



1938-40 V-16 engine showing details of lubricating system.

um pump, fuel pump, tappets, camshaft sprocket and cap screws in front camshaft bearing.

1938-40 V-16's. Remove radiator core and grille (38-90), radiator and fender assembly as a unit (39-90 & 40-90). Disconnect the flexible tubing between the gas lines and fuel pumps. Jack up the front end of the engine to obtain clearance for removal of the vibration damper and pulley. Remove the vibration damper and pulley, the timing cover, the timing chain and camshaft sprocket. Remove the valves and valve lifters. Remove the vacuum pump and operating plunger, using Tool No. J-841 (which was originally used for manifold drain and breather pipe connection on V-8 engines). Attach special camshaft removing tool, J-1210, to the front of the camshaft by turning it into the hole for the sprocket screw. Remove the camshaft.

When installing the camshaft, be careful to install the front camshaft bearing in its correct position. Due to the offset holes there is only one correct way to install this bearing. Do not try forcing it in place until certain of correct position.

CAMSHAFT BEARINGS, RENEW

1936-42 V-8's: Flywheel housing and timing case cover must be removed. A special tool is required. Coat the outside of the bearings with white lead and install the front bearing first, rear bearing second, and center bearing third.

PISTONS AND RODS, R&R

1935-37: Pistons and rods are removed from below except on 1936-37 V-8's. T-slot pistons should be installed with slot to left.

1936-37 V-8 & all 1938-42: Pistons and connecting rods are removed from above.

35-50 & 36-50: The spurt hole big end of rod should point toward camshaft.

1935 V-8's: Number on connecting rod cap should correspond to number on rod and rod should be installed so that the number is on the down side.

PISTONS, RENEW

1935-42: When fitting pistons, use two clean feeler ribbons which are free of kinks, wrinkles or frayed edges. They should be from $\frac{3}{16}$ " to $\frac{1}{2}$ " wide, and for convenience, from 8" to 10" long.

For all 1936-42 V-8's and 1938-40 V-16's, the thick feeler should be .0025" and the thin one, .002". For La Salle 1935-36, Cadillac 355D and 1935-37 V-12's and V-16's, the thick feeler should be .002" and the thin one, .0015".

Measure the clearance by placing the feeler between the piston and the cylinder bore next to the T-slot in the piston skirt. With the piston in running position, but without rings, it should fall of its own weight on the thin feeler and hold tight on the thick one.

NOTE: When assembled to the connecting rod, the T-slot should be toward the left side of the engine.

PISTON RINGS, RENEW, 1935-42

NOTE: To prevent the possibility of bending or breaking the second ring land—thus ruining the piston—the ridge at the top of the cylinder bore should be cut away BEFORE removing the piston and rod assemblies.

If the available ridge reamer has no provision to control the depth of the cut, it is good practice to bring the piston up far enough into the cylinder to allow the reamer to rest on top of the piston. This will serve to prevent cutting down into the piston ring travel area.

CAUTION: Never cut down into the ring travel area more than $\frac{1}{32}$ "—or more than half the depth of the top ring.

CONNECTING ROD BEARINGS, ADJUST

1935-42: Under no circumstances should rods or caps be filed or altered in any way to affect an adjustment.

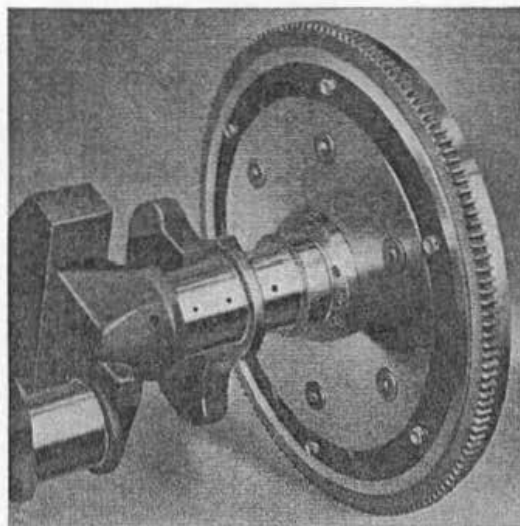
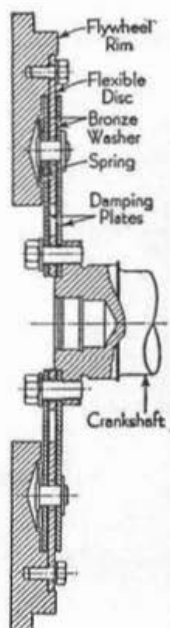
CONNECTING ROD BEARINGS, RENEW

1935-42: For Cadillac 1935 and 1936-37 V-12 and V-16's, the rod bearings are spun babbit and are not adjustable. Service is on an exchange basis only.

All other models use shell type bearing liners and are replaced by simply

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The 1938-42 Cadillac V-8 flywheel is attached to the crankshaft by a flexible disc in order to improve engine smoothness.



removing the bearing caps. The upper bearing halves are identified by the oil holes, and when installed, be sure that these oil holes are properly lined up with the corresponding holes in the rods.

NOTE: On all 1936-42 V-8's and 1938-40 V-16's, lock washers of special design and material are used, and no substitutes should be installed. Special cap screws are also used to attach the rods to the caps, and when installing, use a wrench with a "T" handle no longer than 12" across.

CONNECTING RODS, RENEW

1935-42: On all V-type engines, when assembling the rods to the crankshaft, see that the numbers on the rods are toward the bottom of the engine, and that they correspond with, and are at the same side as, the numbers on the caps. **NOTE:** See PISTONS, RENEW and CONNECTING ROD BEARINGS, RENEW for special precautions.

PIN BUSHINGS, RENEW

1935-42 (except 1938-40 V-16's): A kit of special tools is required for the split type bushings. Remove the bushing in an arbor press by giving the handle a sudden jerk. The new bushing is pressed into the rod, expanded by the special bar and then burnished, using kerosene as a lubricant.

PINS, RENEW

1935: 36-50, 80, 85; 37-85, 90 Heat the piston in boiling water and push the piston pin out from locking screw side. Do not use an arbor press. To install pin in piston, lubricate pin with engine oil, heat piston in boiling water and push the pin in from side of piston opposite the locking screw.

36-60, 70, 75; 1937-40 V-8's: Follow instructions in preceding para-

graph, excepting that a locking screw is not used. Push the pin out by hand, from the raised rib side of the piston pin hole boss, and push it in by hand, from the side opposite the boss with the raised rib.

1938-40 V-16. To remove the pin, first remove the lock screw, spread the split end of the rod, (preferably with a special tool), then drive the pin out of rod and piston with a brass drift. When replacing the piston pin it must be positioned so the locking screw aligns with the groove in the pin. Start the screw through the rod before removing the spreading tool.

1941-42: As these pins are fitted with a free hand push fit in both sides of the piston, it is not necessary to heat the piston to remove the pin. Merely remove the snap rings and push the pin out by hand from either side. When replacing, install new snap rings.

REAR MAIN BEARING OIL SEAL, RENEW

1938-42: Installing a new rear main bearing oil seal requires the use

of Special Tool No. J-1177. First, remove the rear main bearing shells to avoid damaging them. Install a length of new packing in the groove in the crankcase, inserting it behind the sheet metal retainer. Drive the packing into place with tool J-1177, pounding on the handle of the tool. Hold the tool in position and cut off the ends of the packing, flush with the edge of the bearing. In a similar manner, pack the bearing cap, using an arbor press to force the packing in place and hold it while cutting off the ends.

ELECTRIC SYSTEM

IGNITION TIMING

V8's. Right cylinders have odd numbers, 1, 3, 5, 7. Left cylinders are 2, 4, 6, 8 on 1935 models. On 1936-42 models, odd numbers are in the left bank.

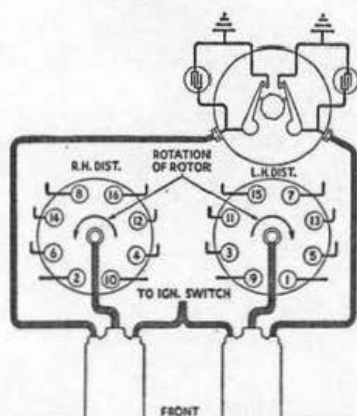
355D. Two distributor breaker arms, four-lobe cam and a single ignition coil are used. There is no manual spark control. With No. 1 piston in the right bank nearing the end of its compression stroke, the stationary breaker points should open when the IG/A mark 4 degrees or $\frac{1}{2}$ " ahead of the TDC mark, on the flywheel lines up with the pointer in the peep-hole on the flywheel housing. Then crank the engine a quarter turn until the IG/A mark for cylinders 2-5 registers with the pointer. Now the adjustable points should break.

To synchronize the points with a gauge, remove the cam and place the gauge in its place. Do not tighten the screw as the gauge should be free to turn on the shaft. Rotate the gauge until the stationary breaker arm drops into one of the notches. Hold the shoulder of the notch firmly against the breaker arm block and loosen the adjustable breaker arm plate screws. Turn the eccentric screw until the adjustable breaker arm drops into the other notch. In checking the adjustment a slight friction will be felt as the arms are raised from the gauge.

V12's, V16's. Right cylinders have even numbers and left cylinders have odd numbers.

V12's. A six-lobe cam and two breakers, each working through its own coil, are used. One end of a double-arm rotor distributes current to the left bank and the other end supplies the right bank. The latter end is connected to the center terminal in the distributor while the former is in contact with an off-center terminal.

With No. 1 piston in the left bank nearing the end of its compression stroke, the stationary breaker points should open when the IG/A mark, 4 degrees or $1\frac{1}{2}$ " ahead of the C 1/11 mark, on the flywheel, lines up with



1938-40 V-16s Ignition Wiring

the pointer in the peephole on the flywheel housing.

Loosen the cam locking screw and turn the cam until the stationary points just break. Tighten the locking screw. Crank the engine until the next IG/A flywheel mark, for cylinders 4 and 10, registers with the pointer. In this position the adjustable points should just break.

V-16's (except 1938-40). An eight lobe cam and two sets of breaker points, each working through its own coil, are used. Otherwise the ignition system is the same as used on the V12's. The ignition is timed in the same way too, the only difference being that the IG/A mark which is used for the stationary points is 4 degrees or $1\frac{1}{2}$ " ahead of the C 1-15 mark on the flywheel. The IG/A mark for the adjustable points is for cylinders 8 and 10.

La Salle 35-50 before Eng. No. 30-3608. With the spark control dash button pushed in for full advance and with No. 1 piston nearing the end of its compression stroke, the stationary breaker points should open when the IGA mark on the vibration damper lines up with the pointer on the timing chain case cover.

Adjustable points open when the line marked IGA#6, a quarter of a revolution from the IGA mark, lines up with the pointer.

35-50 after Engine No. 30-3608 36-50. An eight lobe cam and a single breaker arm are used. With the octane selector set at 0, the points should break when the IGA mark on the crankshaft pulley aligns with the pointer on the timing case cover.

1936-42 V-8's: Before timing the spark, set the pointer of the octane selector at zero on its scale. With No. 1 piston nearing the end of its compression stroke, breaker points should open when the IGA mark on the crankshaft pulley (IGN mark on 1941-42) lines up with the pointer on the timing chain cover.

1938-40 V-16's. Two coils, two condensers and two distributors are used. Two breaker arms and an eight-lobe cam, located in the left-hand distributor housing, operate for both banks of cylinders. The two breakers are separate electrically. The right-hand distributor contains no breaker, but has a rotor for distributing the high tension current to the spark plugs in the right bank of cylinders. The two distributor shafts are driven by the same gear on the camshaft and rotate in opposite directions. The left-hand distributor turns clockwise, the right-hand unit counter-clockwise, viewed from above.

Adjust the distributor housing so the stationary points break for No. 1

cylinder when the IG/A mark on the vibration damper aligns with the pointer. Adjust the movable points to break for No. 4 cylinder when the IG/A mark for that cylinder aligns with the pointer.

The points break at equally spaced intervals of 45°, crankshaft travel. Synchronize dual breakers to fire 22½ distributor degrees apart.

The firing order is: 1, 4, 9, 12, 3, 16, 11, 8, 15, 14, 7, 6, 13, 2, 5, 10.

The left front cylinder is designated as No. 1, all left bank cylinders bearing odd numbers from 1 to 15. The right front cylinder is designated as No. 2, and all right bank cylinders bear even numbers, from 2 to 16.

The wiring order, on each distributor cap, is 1-5-2-6-8-4-7-3, (Counting the cylinders of each bank as 1 to 8).

DISTRIBUTOR DRIVE SHAFT, R&R

1935-42 (except 1938-40 V-16's): On the V-12's and V-16's, remove the fuel pump before removing the distributor drive shaft. On all models, turn the crankshaft to the firing position for No. 1 cylinder. On the V-8's mesh the gears so that the slot in the upper end of the distributor shaft is toward the rear. In other words, the narrow part of the shaft, beside the slot, should be to the rear. On the V-12 and V-16, mesh the gears so that the slot in the upper end of the distributor shaft is toward the front, or in other words, the narrow part of the shaft, beside the slot, is to the front.

On the 355D, the oil pump shaft must be carefully aligned with the driving shaft.

1938-40 V-16's. Locate the timing marks on crankshaft and camshaft, directly opposite each other. Use distributor shaft setting gauge, No. J-1212, and locate it in the dowel holes for the distributor support. Note approximate position of pointers on the gauge. Remove the gauge and install the distributor drive shafts as near the correct position as possible. Check with the gauge. The teeth in the distributor drive gear permit fine adjustment and it is essential to be accurate in aligning timing marks and aligning the drive shaft slots with the gauge pointers.

The slots for the driving are not offset. Therefore it is possible to install these distributors 180 degrees out of time. To install these units correctly, turn the crankshaft to the firing center for No. 1 cylinder and install the distributors with the rotors pointing forward and to the left. The left hand rotor should point 38 degrees for the 38-90, and 33 degrees for the 39-90 and 40-90. The right hand rotor should point 56 degrees for the 38-90, and 60 degrees for the 39-90 and 40-90.

DISTRIBUTOR DRIVE IDLER GEAR SUPPORT, R&R

1936-42 V-8's: Remove the flywheel housing, the left rear tappet assembly and the idler gear. Remove the retaining screw at the top of the housing and push the support out toward the rear. When installing, use a new gasket and force the locking screw down tight while tapping the pilot lightly with a hammer.

IGNITION COIL, R&R

1936-42: V-8's: Remove the high tension wire. Loosen the bolts holding coil to dash, and the screws holding the ignition switch. Insert a flat tool between coil body and cover about one inch to the left of cable. Revolve coil clockwise and cover counter-clockwise and remove cover. Remove wire from ignition switch to coil.

HORNS, ADJUST

1935-37: If the air horns have a poor tone, look for loose or dirty contacts. See that the short projector is on the power unit marked S and the long projector on the power unit marked L. Set the air gap within .003" of parallel and adjust between .045" to .050" for a low note and between .036" to .040" for a high note.

1938. Tone adjustment is practically the same as for 1937, but the horns are located behind the radiator grille and the method of reaching the horns for adjustment varies among the different models, as follows: 38-50—Remove the radiator grille and remove the horns to adjust them. 38-60 & 60S—Remove the radiator shroud and remove the horns. 38-65 & 75—(1st type without hand holes) Remove the radiator grille and remove the horns; (2nd type with hand holes in shroud)—remove horns through hand holes. 38-90—(1st type without hand holes) remove radiator grille and remove horns; (2nd type with hand holes in shroud), remove horn covers only and adjust on the car.

1939-42: For the V-8's, the air gap should be set within .003" parallel and to the following limits: Low note from .042" to .045". High note from .032" to .036".

For the V-16's, low note from .045" to .050", and the high note from .036" to .040".

HORN BUTTON, R&R, 1939-42

To remove the horn button, press down on the cap and turn it to the left or right until the catch is released, after which the button can be lifted out.

The horn blowing ring on flexible wheels is removed with the steering wheel.

GENERATOR DRIVE, ADJUST

38-90. Before attempting this adjustment, the engine and drive ring must be cold. Loosen the fan belt ad-

CADILLAC—LA SALLE

justments to a point where the blades can be turned by hand. With a spring scale hooked into one of the ventilating blades of the generator, turn the engine fan by hand and note the scale readings. Adjust the screw at the right hand side of the generator mounting bracket until the force required to slip the pulley is between 10 and 13 pounds at all points on the outside of the friction ring. Tighten the generator mounting and recheck the adjustment, making certain that it is within the 3-pound allowable range throughout a complete revolution of the ring. If the friction varies more than the 3-pound range, the friction ring exceeds the eccentricity limits and must be replaced. It is necessary to replace the pulley and hub as an assembly. If the adjustment comes within the range, cross-check by hooking the scale on several different blades of the generator ventilating fan. Readjust the fan belts as given under FAN BELTS, ADJUST.

STARTER GEARS, ADJUST

1935-42: If starter gears do not mesh properly, remove starter. Take out pin in upper end of shifting yoke and push the solenoid plunger all the way into the solenoid. Then move the pinion all the way back to what would be the engaged or cranking position and adjust the stud in the plunger until the pin may just be inserted at the forward end of the slot.

FUEL SYSTEM

FUEL PUMP

1938-40 V-16's. Two fuel pumps are used. They are connected so that either pump can supply fuel to one or both carburetors. Ordinarily only one fuel pump will operate with the engine idling. This does not indicate a defective unit, and both pumps will operate when engine speed requires.

If the fuel pump action is noisy, disassemble the pump and install new valve cages. It is recommended that cages be installed in both pumps.

When assembling the pumps, the pipe from the gasoline tank should be connected to the fitting marked "IN" and the pipe to the carburetor should be connected to the fitting marked "EX". Install the pump covers so that these connections can be made correctly.

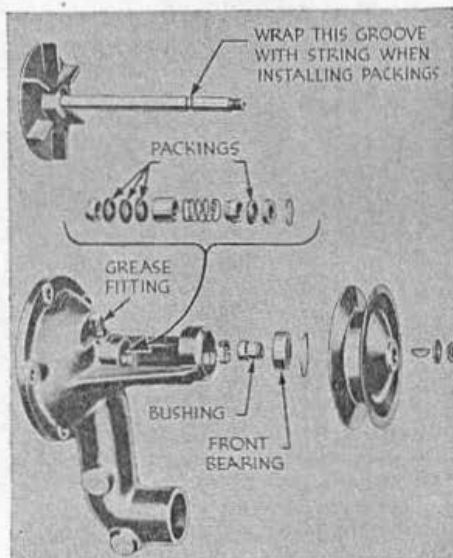
MANIFOLDS, TIGHTEN

1935-42: Nuts should be tightened with the engine running but they should not be drawn up too tightly. The possibility of intake and exhaust gaskets blowing out can be greatly reduced by coating both sides with graphite or gasket paste.

HEAT CONTROL VALVE, RENEW

35-50, 36-50. Remove exhaust manifold from car and take out old

valve and bushings. Install the new bushings. Insert the valve in the throat of the manifold and slide the valve shaft through the bushings and the valve. The slotted end of the valve should face forward. With the valve turned to the "heat-on" position and the shaft turned so that the slot is at a 45° angle, spot weld the valve to the shaft at the center. If spot welding equipment is not available use an acetylene torch.



WATER PUMP, 1937-41 V-8
Typical of 1942

COOLING SYSTEM

WATER PUMP PACKING, TIGHTEN

355D Cadillac. Lift up the locking pin while the nut is being turned. If fabric packing is used, draw gland nut up very tight, back off and then draw it up until it just touches the packing. When replacing the packing it is a good plan to lubricate it before installing.

WATER PUMP DRIVE, ADJUST

1935-37 V-12's and V-16's: Fibre couplings should have at least $\frac{1}{8}$ " total end play between discs and driving flanges. Pump should be lined up to give equal clearance at all points between the discs and the driving flanges.

38-90. See GENERATOR DRIVE, ADJUST.

FAN BELTS, ADJUST, 1938-40, V-16's

Loosen the studs which hold the fan bracket and pry the bracket up to the correct tension. By holding the prying tool in the notch on the edge of the bracket, the stud can be tightened.

FAN BELTS, RENEW, 1938-40 V-16's

Whenever it becomes necessary to replace one of the dual belts, both belts must be renewed. These belts are matched as to length and by replacing both, satisfactory operation

will result because of the equal load distributed between the two belts.

FAN ASSEMBLY, BALANCE, 1938-40 V-16's

Whenever it becomes necessary to disassemble the fan assembly, all parts should be marked to insure their proper assembly. Cars now in production have a $\frac{1}{16}$ " hole drilled through all the parts. Serious vibration will result if this procedure is not adhered to and the entire assembly may have to be replaced.

WATER PUMP, OVERHAUL

355D. Remove the water pump by removing two bolts from pump flange. Do not disturb the mounting plate. Disconnect lower water flange coupling and remove from intake hose. Packing gland nut has a spring lock plunger which must be held released when turning packing nut. Do not use force to tighten packing as a scored shaft is likely to result. Just turn up slowly on packing nut enough to stop water leak, also see that there is lubricant of the proper kind in the water pump grease cup, which should be turned down at regular intervals. Driver can be removed without removing timing chain cover. Remove generator, left hand nut at front end of driver, and mounting plates. Remove driver, being careful not to drop the chain. Tie chain in place until reassembling. Pump shaft is drilled for lubrication to inner bushing. To remove inner bushing tap a thread into bushing and pull bushing with a bolt screwed into it. When installing new bushings they should be line reamed. Impeller is secured to shaft with a pin.

35-50 and 36-50. Remove the fan blades and pulley by removing the cap screws holding them to the impeller hub. Remove the screws from the cover on the back of the pump housing and pry the cover off. Press the impeller shaft out forward, out of the impeller. Remove the packing nut and the packing. Press out the front bushing forward and the rear bushing rearward. Either bushing may be removed without the other. A special tool should be used, with an arbor press, to remove and install the bushings and to burnish the new bushings after installation.

1936-42 V-8's: Remove pump and fan. Remove fan pulley and snap ring. Push impeller to rear and remove split washer in back of front bearing. Remove lock spring at front of rear bushing. Remove impeller and shaft. Remove rear bushing assembly toward front, being careful not to lose any parts. Remove front bearing by forcing it toward front. Remove bushing from front bearing.

To assemble the pump packings on the shaft, a special pilot tool is recommended. Install it on the end

of the shaft and insert pump body. Wind a string in the groove of the shaft to present a smooth surface. Install bushings and packings on shaft and slide them into position in the pump housing. Coat the chevron packings with water pump grease before installing. Install the center bushing with the grooved side toward the rear packing.

370D, 452D, 1936-37 80, 85, 90. To remove, disconnect both outlet flanges and inlet hose. Remove 2 nuts, remove bolt through coupling shaft. Impeller is mounted in cover. To remove impeller and shaft, remove drive coupling, cover, shaft and impeller. Impeller is pinned to shaft. Leave at least $\frac{1}{2}$ " play between driving flange and fibre drive disc. Do not tighten packing nut so tight that it cannot be moved by hand.

1938-40 V-16's. Two belt-driven pumps are used, one for each bank of cylinders. No lubrication is required. The hubs of the impellers bear against carbon thrust blocks.

With the pump removed from the engine, remove the belt pulleys by taking out the 4 cap screws. To remove the pulley drive flange, support the flange in an arbor press and press the shaft out of the flange. Remove the bearing lock rings at the front of the shaft, support the front end of the pump housing and press the pump shaft out of the impeller. Remove the lock ring at the rear and take out the carbon ring, rubber seal, spring and spring retainers. Note the order of these parts when disassembling so they may be reassembled in the correct order. When assembling, spread a light coating of water pump grease on contact surfaces of rubber seal and carbon ring. This will insure a water tight assembly. After assembling, check the clearance between the pump housing and the forward face of the impeller. This clearance should be between .015" and .025". Note: A new or rebuilt pump may leak slightly until the carbon ring seats on the face of the impeller.

RADIATOR SHUTTER THERMOSTAT

1935: On early cars with 30-99 stamped on the thermostat flange, the unit should begin to open at 145° to 150° and be fully open at 165°. On later cars with 31-10 stamped on the flange, it starts to open at 135° and is fully open at 147°.

RADIATOR CORE, R&R

35-50 & 36-50: The core may be removed without disturbing the shell, as follows: Remove hood, radiator brace rods, air silencer, water pump and thermostat unit. Loosen radiator core from its mounting. Loosen the shell and the lower hose

connection, and carefully lift the core out over the engine.

355D, 372D, 452D. First protect fenders and lamps with shop covers. Cover sheet metal between shell and fenders proper with masking tape from extreme lower edge to 6" back of radiator shell. Remove hood. Jack up car at center of front cross member, remove front wheels, place blocks under outer ends of lower suspension arms and remove jack. Remove the three screws (under the anti-squeak strip) which hold the shell to the core.

Remove all bolts holding the front fenders to the radiator casing, beginning with the bolt under the fender brace and continuing to the extreme front of the car. Remove the two bolts, at either side, holding the front dust shield to the casing. Loosen, but do not remove, the four bolts attaching the fender brace to the frame. Remove the fender lace from between the fender and the radiator casing on each side. Pull on the other edges of the fenders to spread them and at the same time pull the radiator grille forward about 3". Lift the radiator shell and grille upward, sliding it over the core until it is free of the fenders. Then remove it from the core and the dust shield will drop out of the casing. Remove hose connections and core mounting bolts and remove core.

While the radiator shell is off of the car, install the dust shield on it by attaching the two screws on either side. Place the casing over the radiator core. Start by placing the lower edge of the lower radiator grille about even with the headlamp brackets. Then slide the casing straight downward over the core. At the proper moment, pull the grille outward and downward over the suspension support plate. Insert the anti-squeak between the fenders and lower grille and install the bolts loosely. Next install the lacing between fenders and shell.

1936 Cadillac

Remove the hood and loosen the tie rods and turn them up out of the way. Remove the grille. Disconnect the headlamp wires and draw cables out from between core and shell. Remove the shell from the fenders and core. Remove bolts from the fender braces and the radiator hold down nut from the bottom of the radiator support. Disconnect hose connections and lift the core with the shutters up enough to clear the overhang of the fenders. Disassemble the shutters and thermostat from the core. Reverse the procedure to install. Align the hood after installation by adjusting the tie rod nuts at the dash.

1937 except 37-90

Remove the hood and radiator brace rods. On 37-50 cars, remove the two brace rods which connect the sides of the shell and the top tank. On the 37-85, remove the horn assembly and ignition coils from the tie rods and the temperature gauge bulb from the fitting in the top tank. Loosen the carburetor silencer and slide it back out of the way on the 8-cylinder cars. Remove the fan assembly and loosen hose connections. Remove the screws from each side of the anchorage that holds the core to the shell. Slide core backward sufficiently to allow its removal from the car. Disassemble the shutter assembly from the core while on the bench. Reverse the procedure for installation.

37-90

Remove the hood and disconnect the radiator to dash brace rods. Disconnect the radiator shell support rod which passes in back of core. Loosen hose connections. Remove all the screws which hold the front fenders to the running boards and to the body. Remove the nut holding the radiator cradle to the frame front cross member. Lift the entire assembly, consisting of the front fenders, radiator shell, grille and core from the car at one time. Remove the core from the shell by removing the screws holding them together. Remove the screws which hold the fender braces to the cradle. After the core is disconnected from the shell, remove the cross brace from the front side of the cradle. Remove the shutter assembly and the two filister head screws on each side of the anchorage that hold the core to the cradle. To install the core, follow the above procedure in the reverse order.

1938-40

It is not necessary to remove the hood. Remove the hood side panels. Remove the air cleaner on the 8-cylinder cars. On the V-16, remove the ignition coils, distributor heads, both fuel pumps and the fan assembly. On all cars, remove the radiator to dash brace rods. Loosen hose connections at the radiator. On the V-16 remove the lower elbows also. Remove the sheet metal shroud from above the core and remove the cap screws which hold the core in place. Slide top of core backward and lift out. Disassemble shutter assembly from the core on the bench. Reverse the procedure for installation.

1941

Drain the radiator and remove the hose. Disconnect the thermostat to the shutter rod at the thermostat end. Remove the air cleaner and fan. Disconnect the radiator from the cradle at each side and lift out the core assembly. Install in the reverse order.

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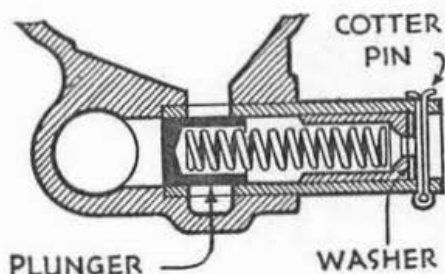
COOLING SYSTEM, FLUSH

1938-40 V-16's. Do not reverse flush the cooling system, as a unit, with strong air or water pressure. The pressure may lift the water pump seal from its seat, permitting dirt to lodge there, causing leakage.

RADIATOR GRILLE, REMOVE

1937. Except on the V-16, the die cast grille is held in the radiator shell by screws around the outer edge of the casting. On the Cadillac cars, ten screws are used, on the LaSalle, eight screws are used.

On the V-16 the grille must be removed from the inside of the radiator shell, after the shell has been removed from the car.



OIL PRESSURE REGULATOR
1936-42 V-8's & 1938-40 V-16's

ENGINE OILING

OIL PRESSURE REGULATOR

1935-42: Normal oil pressure for La Salle 1935-36 is 25 pounds at 60 MPH. For all other 1935-37 models, 30 pounds at 60 MPH. For 1938-42 engines, 25 pounds at 30 MPH.

The oil pressure relief valve is built into the oil pump and is not adjustable.

CLUTCH

CLUTCH PEDAL, ADJUST

1935 La Salle: Adjust the pedal stop screw to obtain free pedal travel of $\frac{3}{8}$ " to $1\frac{1}{8}$ ". If clearance is not correct between pedal and underside of toe board, adjust the release rod to obtain $\frac{3}{8}$ " to $\frac{5}{8}$ " clearance at this point.

1935 Cadillacs: Adjust the pedal stop screw to obtain $\frac{1}{4}$ " to $\frac{3}{8}$ " clearance between the pedal and the under side of the toe board. Adjust the length of the release rod to obtain free pedal travel of $1\frac{1}{4}$ " to $1\frac{1}{2}$ ".

1936 (except La Salle), 1937-42. Turn the adjusting nut on the pedal rod to obtain $\frac{3}{8}$ " to $1\frac{1}{8}$ " free pedal travel.

CLUTCH, R&R

35-50; 1936 (Except 36-90): Disconnect the front universal joint and remove the transmission (see TRANSMISSION, R&R).

On 35-50, 36-50 and 36-60 cars, remove the clutch housing pan. On the 35-50, before the clutch housing pan can be removed, it is necessary to remove the frame cross member at the rear of the engine.

On the 36-50, do not disturb the rear engine supports, located on each side of the clutch housing.

On 35-50, 36-50 and 36-60 cars, remove the clutch release yoke retaining screw.

On all cars, mark the flywheel, clutch cover, and the spring pressure plate, so that the parts may be reassembled in the same relative position to maintain the proper clutch balance.

Loosen the six retaining screws, which connect the clutch to the flywheel, gradually, until the spring pressure is released. The careful releasing of these screws will prevent springing the flanged edge of the clutch cover plate. After the screws have been removed, the clutch assembly and the driven disc may be removed.

Installation can be made in the reverse order. However, be sure to locate the clutch on the flywheel according to the marks previously made before the clutch was removed.

When installing the driven disc, the side on which the cushion springs project should be toward the transmission. It is recommended that tool No. J-832 for 35-50, 36-50 and 36-60 cars, and tool No. J-883 for 36-70, 36-75, 36-80 and 36-85 cars be used to align the driven disc with the pilot bearing before tightening the clutch retaining screws.

If a new clutch disc or transmission clutch gear is installed, be sure that the hub of the driven disc slides freely on the splines of the clutch shaft to prevent any spinning action in the clutch which will result if the fit is too tight. Graphite applied to the splineways will facilitate assembly of these parts.

After the transmission and floor boards have been installed, adjust the clutch pedal free travel as described under CLUTCH PEDAL, ADJUST.

355D, 370D, 452D, 36-90, 37-90: Disconnect the front and rear universal joints and remove the transmission as described under TRANSMISSION, R&R. Remove the four retaining nuts which hold the clutch on the flywheel, after which the clutch assembly may be removed.

Installation is made in the reverse order, but, be sure to check the clutch pedal free travel after the transmission and floor boards have been installed.

1937-42 (except 37-90): Disconnect the front universal joint and remove the transmission as described under

TRANSMISSION, R&R. Remove the clutch housing pan on all models except 37-85. Mark the flywheel and clutch pressure plate assembly so that assembly can be made in same relative position to maintain proper clutch balance.

Loosen the retaining screws that hold the clutch to the flywheel gradually, a turn or two at a time, until the spring pressure is fully released. The clutch assembly and the driven disc may now be removed.

Installation may be made in the reverse order. When removing or installing the transmission, do not allow it to hang in the clutch assembly, as this would bend or otherwise damage the driven disc.

Be sure to install the assembly so that the mating marks on the pressure plate and the flywheel match.

On 1937-38 cars, be sure to install the driven disc with the side on which the cushion springs project toward the transmission.

On 1939-42 models, make sure that the driven disc is installed with the oil guard toward the rear.

On all models, it is recommended that tool No. J-1031 be used to line up the driven disc with the pilot bearing before tightening the clutch retaining screws. This tool may also be used on the 37-85 to align the flywheel housing after the clutch has been installed, to secure proper alignment between the clutch hub and the clutch shaft.

If a new driven disc or clutch gear is installed, be sure that the hub of the driven disc slides freely on the splines of the clutch shaft to prevent clutch drag. Graphite applied to the splineways will facilitate assembly of these parts.

After the transmission and floor boards have been installed, be sure to check the clutch pedal free travel as described under CLUTCH PEDAL, ADJUST.

TRANSMISSION

TRANSMISSION, R&R

1935-36: (1)—Remove floor boards. (2)—Disconnect speedometer cable. (3)—Disconnect rear universal joint and remove propeller shaft. (4)—On Cadillac cars only, remove the transmission rear support together with the cross member—bolted to the frame—that carries this support. (5)—On all cars, remove the front propeller shaft housing together with the front propeller shaft and universal joint. NOTE: This assembly need not be removed at this time on La Salles and Cadillac 36-60, but to lighten the load and facilitate handling of the transmission, it is recommended that it be done. (6)—On all Cadillacs, except 36-60, disconnect the clutch release mechanism. (7)—On La

Salles and Cadillac 36-60, remove the transmission mounting bolts and insert two guide studs in the two top holes. On the other models, remove all the mounting bolts and install guide studs in the holes provided at each side of the transmission case. (8)—Remove the unit by pulling it straight back on the guide studs until the main drive gear is free of the clutch disc hub.

NOTE: On La Salles and 36-60 Cadillac, if the transmission is to remain out of the car for a long period of time, care should be exercised to prevent the main drive gear assembly from slipping out of place. Since this assembly is loose in the case and, when the transmission is out of the car, it is free to slip out far enough for the fingers of the high speed synchronizing drum to pull out of the splines in the mainshaft.

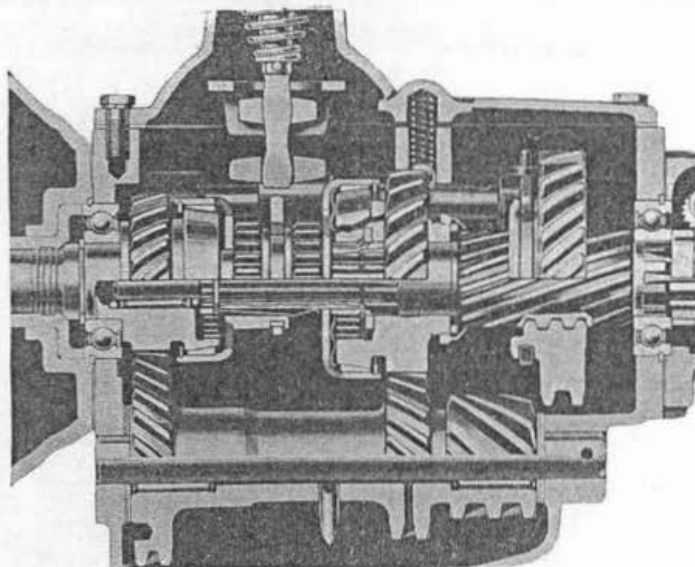
To prevent this condition, either keep the transmission in high gear all the time it is out of the car, or, as an extra precaution, install a brace across the face of the transmission case to hold the main drive gear assembly in position.

Installation is made in the reverse order of removal, but be sure to use the guide studs in order to guide the assembly safely into place.

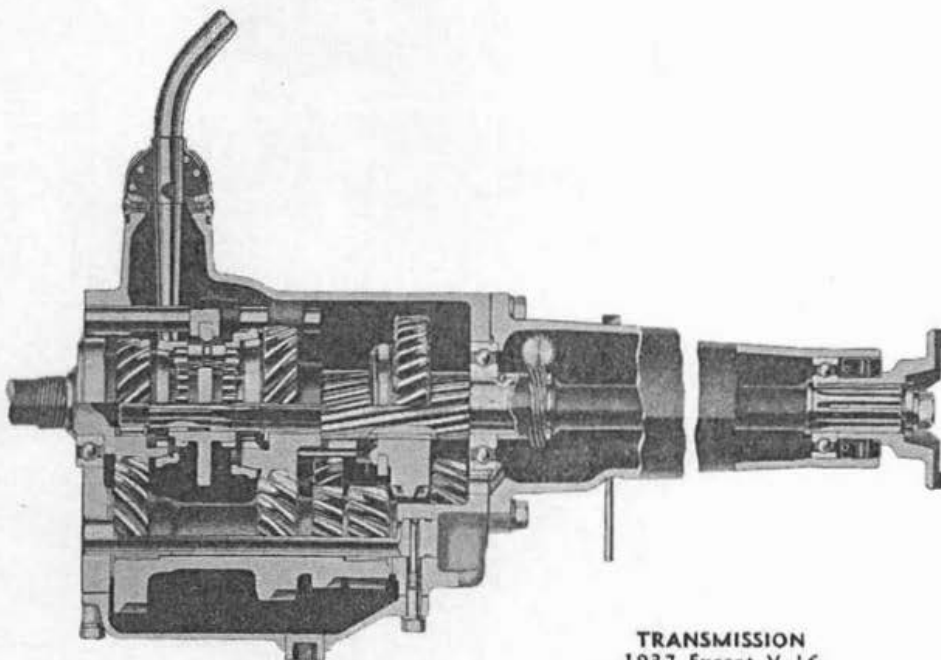
1937 Except V-16: (1)—Remove floor boards. (2)—Jack up the engine—placing the jack under the oil pan next to the drain plug, using a wooden block to avoid damage to the oil pan. (3)—Disconnect the propeller shaft at the front universal joint, and the transmission extension at the rear engine support. (4)—Detach the engine support stabilizer (not on 37-50 & 60) on the right hand side of the transmission by removing the pin on the forward end. (5)—Unfasten the exhaust pipe brace from the transmission case. (6)—Remove the transmission support cross member. (7)—Disconnect the speedometer cable. (8)—Remove the transmission mounting bolts and insert guide studs in the upper holes. (9)—Slide the unit straight back on the guide studs. **NOTE:** As soon as the transmission is moved back far enough to gain access to the drain hole for the main drive gear bearing, insert a $\frac{1}{4}$ " cork plug to prevent loss of the lubricant. (10)—Remove the transmission.

Replace the transmission in the reverse order, being sure to use the pilot studs to guide the assembly safely into place. Be sure also, to remove the cork plug from the drain hole before installing the unit all the way into position.

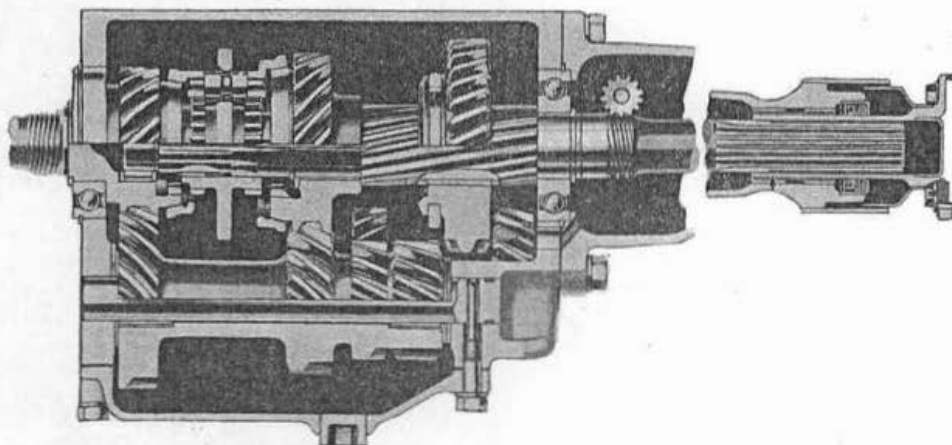
1937, V-16: (1)—Remove the propeller shaft together with the front



TRANSMISSION—La Salle 1935-36. Cadillac 36-60



TRANSMISSION
1937 Except V-16



TRANSMISSION—1938-42 All

CADILLAC—LA SALLE

and rear universal joints. (2)—Take out the floor boards. (3)—Unclip the vacuum brake booster line from the top of the transmission. (4)—Remove the starting motor. (5)—Unbolt the transmission support cross member. (6)—Disconnect the clutch release yoke. (7)—Remove the front propeller shaft and housing from the transmission. NOTE: To prevent loss of lubricant, insert a cork plug in the oil hole at the rear of the transmission case. (8)—Remove all transmission mounting bolts and place guide pins in the holes provided at each side of the case. (9)—Slide the transmission straight back until the main drive gear shaft is free of the clutch disc hub.

Replace in the reverse order of removal but be sure to use the pilots to guide the assembly safely into place. Be sure also, to remove the cork plug from the back of the case before installing the front propeller shaft and housing; failure to do so will prevent lubrication of the speedometer gears and the front propeller shaft bearing.

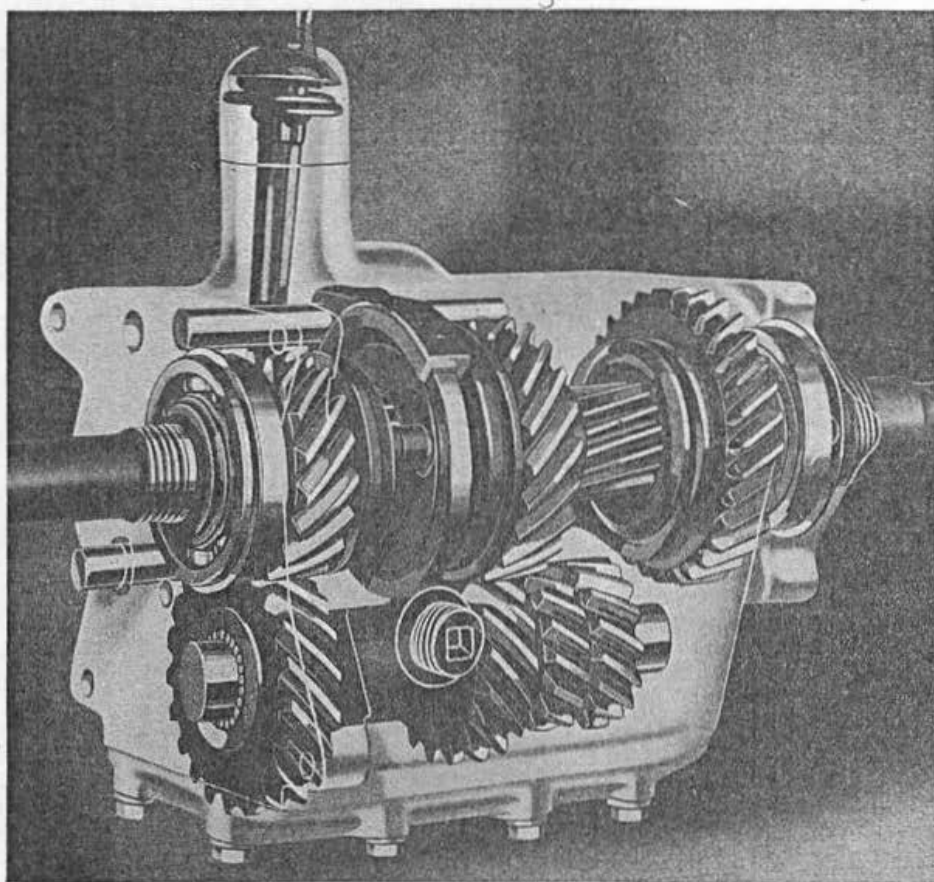
1938-42: Not necessary to remove floor boards. (1)—Support the engine with a jack placed at the back end of the oil pan—near the drain plug—using a block of wood to avoid damaging the pan. NOTE: This is not required on the V-16's as these models have five engine supports. (2)—Remove the propeller shaft together with the front and rear universal joints. (3)—Disconnect the transmission support at the rear of the extension housing. (4)—Remove the transmission support cross member. (5)—Detach the shift control rods from the levers at the transmission. (6)—Remove the transmission mounting bolts and insert guide studs in the top holes. (7)—Slide the transmission straight back on the guide studs. NOTE: As soon as the transmission is moved back far enough to gain access to the drain hole for the main drive gear bearing, insert a cork plug in the hole to prevent loss of the lubricant. (8)—Remove the transmission by lowering it to the floor.

Install the transmission in the reverse order of removal, using the pilot studs to guide the assembly safely into place. Be sure also, to remove the cork plug from the main drive gear bearing drain hole. After the assembly is completely installed, connect the shift control rods to the levers at the transmission and adjust the mechanism as described under **GEARSHIFT, ADJUST**.

TRANSMISSION, OVERHAUL

Cadillac 1935; 1936-70, 75, 80, 85
90; 1937-90

See **TRANSMISSION, R&R** and proceed as follows: Remove cover and



TRANSMISSION—1937 Except V-16

disassemble by removing the spring attached to the second and high speed yokes. Remove the yoke stop and the oil trough which lubricates the universal joint. Remove the yoke adjusting quadrants and the eccentrics. Then remove the yokes. Remove the plunger assemblies from the yokes and disassemble them by removing the valve spring retainer which is attached to the bottom of the valve.

Remove the universal flange and the rear bearing retainer. Remove the front propeller shaft and bearing. Then remove the front propeller shaft housing. Remove speedometer driven gear and the universal joint housing. Remove the cap screw from the end of the mainshaft to remove the coupling.

Remove the idler gear cover and idler shaft lock screw. Then remove the idler gear and shaft. Remove the lock screw at each end of the countershaft cluster and remove the bearings, which will allow the cluster to drop out of mesh with the gears of the mainshaft.

Remove the main drive gear bearing retainer after removing the clutch release bearing. Remove the snap ring which retains the main drive gear and remove the bearing. Pull the main drive gear out forward. Remove the

mainshaft rear bearing and lift the mainshaft assembly through the top. Lift out the countershaft cluster assembly.

To disassemble the mainshaft, pull the splined sleeve together with the sliding gears and bearings off the rear of the shaft. Remove the synchronizer mechanism from the front of the shaft.

Reverse the operations to assemble.

ASSEMBLY DETAILS: Be sure that the dowel pins, which are fitted to the flywheel housing so as to align the transmission, are not bent or cocked. If either pin is cocked, the transmission may jump out of high gear. If this condition arises, the dowel hole in the transmission case should be relieved so that the pin does not contact the housing when in position, which will eliminate the effect of the pin on the alignment of the transmission.

Make sure that the specified lubricant is used, to eliminate the possibility of gear clash. If the lubricant becomes too thin, the proper operation of the synchronizing mechanism will be affected.

When installing the shifter mechanism, install the plunger assemblies into the second and high speed yokes. Set the yokes in place and install the

four quadrants with the eccentric shafts, and set the screws in loosely. Install the oil trough, and the two bolts which hold the second and high yoke and the yoke stop. Fasten the pull back spring to the top of the two yokes, using a small pry bar to shift the yokes. Measure the distance between the top of the rear yoke when it is in the neutral position, and also, when in the rear position, to determine the clearance between the rear drum and the cone, which should be from $\frac{3}{32}$ " to $\frac{5}{32}$ ". Repeat this procedure with the front yoke. To increase the travel of the high gear yoke, turn the high speed adjusting quadrant clockwise. To decrease the travel, adjust the quadrant anti-clockwise. To increase the travel of the second gear yoke, turn the second gear adjusting quadrant anti-clockwise. Turn the quadrant clockwise to decrease the yoke travel. Make sure that the quadrants are adjusted an equal amount to avoid unequal and rapid wear.

To maintain proper adjustment of the tapered roller bearings for the low and second speed gears on the mainshaft, make sure that mainshaft retaining screw is securely tightened. The low and second speed gears should have a slight drag when the bearings are properly adjusted. If the bearings are loose, dress down both spacers between the bearings until a slight drag is felt on the gears. Measure the thickness of the spacers after dressing, with a micrometer, to make sure they are the same thickness all around the surface. This precaution is for the purpose of avoiding the possibility of slipping out of low and intermediate gears.

La Salle 1935-36; Cadillac 36-60

See TRANSMISSION, R&R and proceed as follows: Remove the cover and disassemble, being careful not to lose the locking balls and springs. Remove speedometer driven gear and shaft. Remove the universal companion flange and the mainshaft rear bearing retainer. Drive the countershaft out rearward. Remove the drive gear bearing retainer lock ring, and the snap ring from the inner circumference of the high speed drum. Pull the clutch forward as far as possible—do not attempt to remove it until the mainshaft assembly is removed. Remove the mainshaft rear bearing through the rear. Shift the mainshaft assembly back far enough to disengage it from the drive gear and lift it through the top. Now remove the main drive gear assembly through the top also. Lift out the countershaft cluster and thrust washers, together with the roller bearings. Remove the idler shaft lock screw and remove the idler shaft through the rear, after which, lift the idler gear assembly through the top.

To disassemble the mainshaft, remove the low and reverse gear, mainshaft pilot bearing, high speed synchronizing drum and sliding gear, being careful not to lose the three long and three short detent springs. Remove the second speed synchronizing drum by removing its snap ring, being careful not to damage the release spring inside the drum. Remove the second speed gear snap ring to remove the gear.

Assemble in the reverse order.

ASSEMBLY DETAILS: Assemble the reverse idler gear with the large thrust washer to the front. Use a tapered dummy shaft to position the cluster gear, thrust washers and roller bearings into the case. Be sure to install the pronged washer on the rear of the shaft.

Install the long detent springs so they engage the high speed drum and the short detent springs so they engage the second speed drum. Be sure they are installed alternately around the mainshaft.

Be sure the specified lubricant is used to insure proper synchronization. Do not add any more lubricant to the transmission than the quantity specified because a pressure may be built up in the transmission which will force the lubricant into the clutch housing where it may reach the clutch facings.

1937-42 (except 37-90)

See TRANSMISSION R&R and proceed as follows: Remove the transmission cover. Remove speedometer driven gear adapter housing and remove the driven gear. Remove universal joint flange and extension housing. The extension housing bearing and oil seal can be removed by tapping them off with a soft hammer. Remove the transmission bottom cover. Drive the countershaft out rearward, and remove the cluster gear, washers, spacers and needle bearings, taking care not to lose any of the needle bearings. Remove the drive gear lock screws and pry the drive gear and bearing assembly through the front of the case, being careful not to lose any of the needle bearings. Remove the sliding coupling and synchronizer assembly off the front end of the mainshaft. Remove the second speed gear lock ring. Tap mainshaft and rear bearing out of rear of case, and remove gears from the mainshaft.

Tap reverse idler gear shaft out rearward, and remove the gear and thrust bearings.

On 1938-42 models, remove shifting lever shafts through inside of case, being careful not to lose any of the interlock balls, spring or tubes.

ASSEMBLY DETAILS: Handle gears and bearings with care to avoid nicks. Examine all gears and splines

for scoring or cutting, and bearings for roughness.

When assembling the shifter mechanism on 1938-42 models, install the high and second speed lever in neutral position, being sure that the shoe is properly placed. Install ball, spring and tube interlock assembly into case. Compress the spring and locking balls and install the low and reverse shifter shaft with sector in neutral position, with the shoe properly placed. Install new cork seals at the outer end of shift shafts. Brace the inner end of the sector, and tap the shifter levers into place on their shafts, and tighten the clamp screws.

Tap reverse idler shaft partly into place and install steel-backed babbit thrust washer at the rear, making sure that the clip in the washer fits in slot in case. If the idler gear, bushings or washers show evidence of excessive wear, replace the entire assembly. Always install a new cork seal on the outer end of the shaft. Make sure that the idler shaft locking screw hole lines up with the hole in the bottom of the case.

To install the mainshaft, hold the low speed shifter gear in contact with shifter shoe and insert the mainshaft through end of case and low speed shifter gear. New lock rings should be installed whenever removed.

Install a new cork seal on the outer end of the countershaft and be sure to align the hole at the rear of the countershaft with the hole in the case.

HYDRA-MATIC DRIVE

HYDRA-MATIC DRIVE SERVICE, 1941-42

Cleanliness is the most important thing to be remembered when performing any operation which exposes the internal parts of the unit. This cannot be over-emphasized because of the fact that some of the parts function within such close limits that the smallest particle of dirt or other foreign matter might interfere with the smooth functioning of the unit.

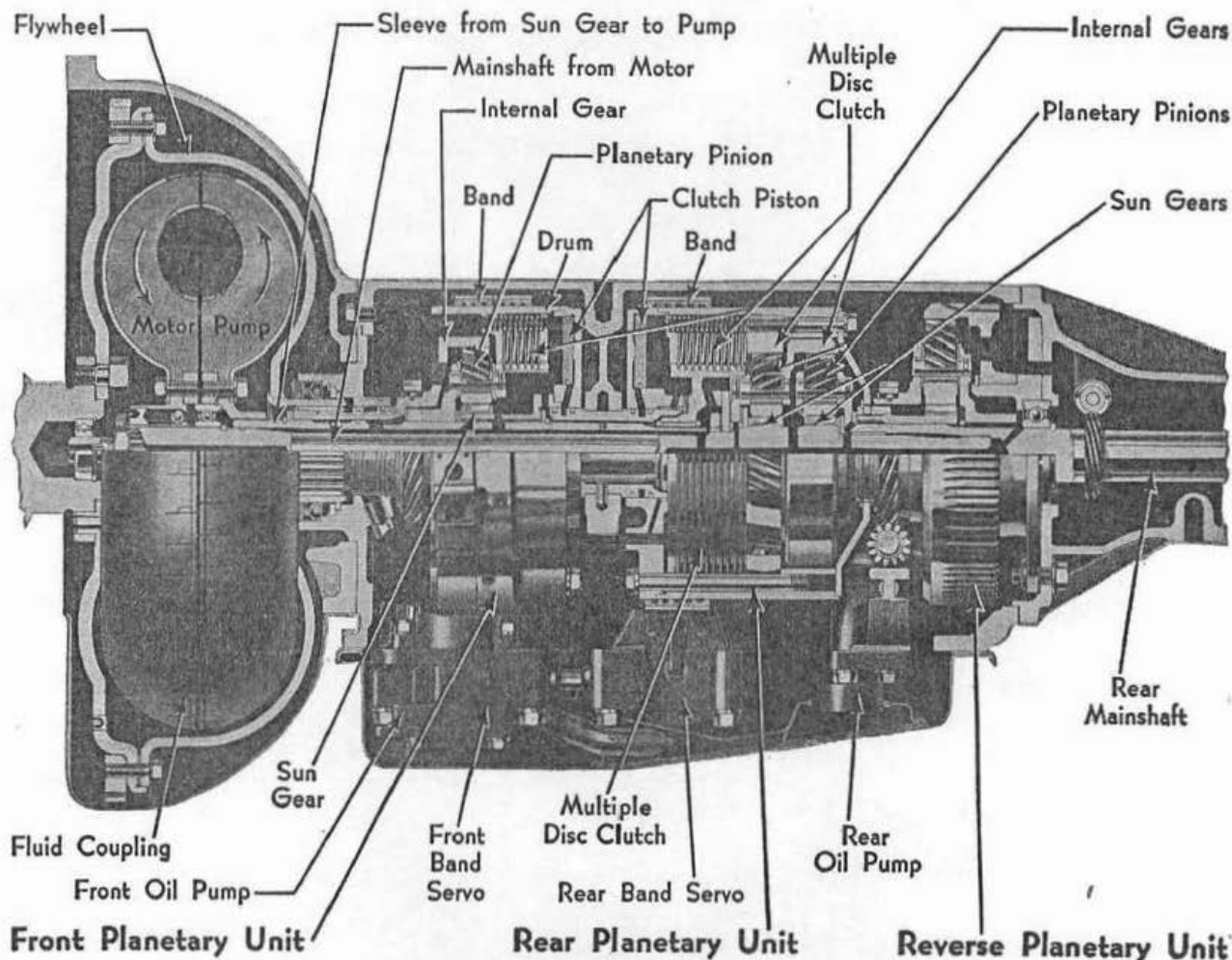
HYDRA-MATIC DRIVE LUBRICATION, 1941-42

It is of extreme importance that only the fluid which is designed for the unit be used. This fluid is compounded especially to secure the correct viscosity for year-round use, and is also treated with inhibitors to prevent the formation of sludge and varnish. The fluid level should be checked every 1000 miles.

To check the level of the fluid, raise the right edge of the front compartment rug and brush away all dirt, lint or other foreign matter which would be in a position to fall on, or into, the transmission. Remove the small sheet metal cover from the top of the unit.

Run the engine for about $\frac{1}{2}$ minute and before checking the fluid level, allow the oil to settle for about one

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HYDRA-MATIC DRIVE, 1941. Typical of 1942

minute. Remove the level indicator plunger and wipe clean. Reinstall the plunger and check the level. If necessary, add fluid to bring the level to the "Full" mark.

The fluid should be replaced after the first 6000 miles, and every 12,000 miles thereafter.

To replace the fluid, remove the flywheel housing pan and remove the drain plug which is located in front of the flywheel. Remove the other drain plug from the bottom of the transmission case. After the unit has been completely drained, install 8 quarts of fluid and operate the engine for a few minutes. Stop the engine, allow the fluid to settle, and add sufficient fluid to bring the level up to the "Full" mark on the level indicator.

MANUAL CONTROL LEVER, ADJUST, 1941-42

Remove the clevis pin from the lower control rod at the transmission end. Set the lever at the steering wheel in reverse and move the manual shift lever on the transmission into reverse as far back as possible. In order to make certain that this has been accomplished, rotate the pro-

peller shaft until you feel the anchor engage.

With the manual shift lever at the transmission held all the way back, the clevis should be adjusted until the clevis pin slips into the clevis and the lever freely. After tightening the lock nut against the clevis, check the operation of the control lever in all positions to make sure that it works freely.

CARBURETOR IDLE SPEED, ADJUST, 1941-42

This adjustment should be made when the engine is thoroughly warmed. Make sure that the choke valve is fully opened, and that the fast idle cam is on the slow idle step of the carburetor.

With the throttle linkage at the transmission disconnected, adjust the carburetor throttle stop screw to the point where the engine idles at exactly 375 RPM. The use of a tachometer (tool No. KMO-298) is recommended for this procedure. Be sure that the throttle stop screw is snug against the slow idle step of the fast idle cam. After obtaining the desired result, adjust the throttle control linkage as explained under THROTTLE LINKAGE, ADJUST.

THROTTLE LINKAGE, ADJUST, 1941-42

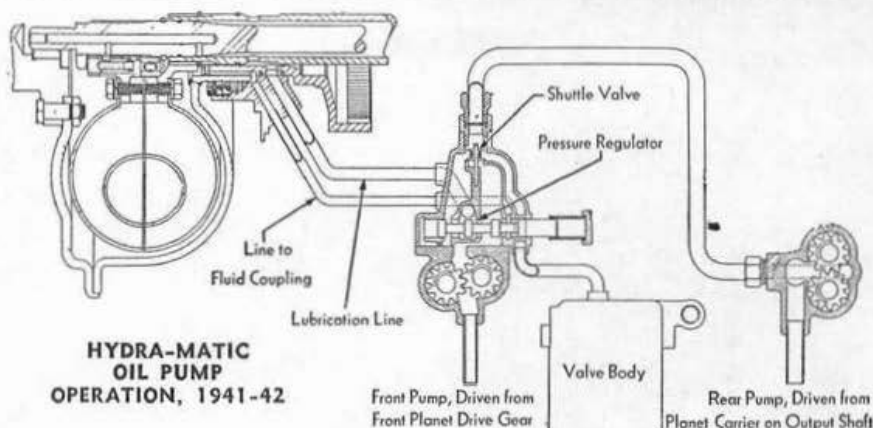
With the throttle completely closed against the slow step of the fast idle cam on the carburetor, remove the cotter pin and anti-rattle spring from the upper end of the intermediate throttle rod. With Tool No. J-1653 snapped in place on the intermediate throttle rod as shown in the illustration, turn the adjusting nuts on the throttle-to-relay rod—at the carburetor end—until the tool contacts both the relay shaft at the distributor support and the projection on the intermediate throttle rod.

With the throttle lever at the side of the transmission in the fully rearward position, adjust the throttle rod trunnion so that the pin can be installed freely when the throttle lever is against the stop.

After reinstalling the cotter pin and anti-rattle spring, and the transmission does not shift in the proper ranges, the intermediate throttle rod is probably bent. Check the dimensions as shown in the illustration.

MANUAL CONTROL INDICATOR BULB, R&R, 1941-42

Remove the two screws from the



control cover and remove the cover by sliding it sideways. The socket and bulb can then be removed by removing the screw which holds the socket to the indicator.

PLANETARY SERVO BANDS, ADJUST 1941-42

REAR: To adjust the servo bands it is not necessary to remove the unit from the car. Drain the fluid from the transmission and remove the bottom cover. Adjust the rear band first in the following manner:

Loosen the adjusting screw lock nut at the top of the transmission. Place the brake band servo gauge (tool No. J-1460) on the bottom of the servo. Turn the adjusting screw until the end of the servo plunger is flush with the outer edge of the gauge within—plus or minus $\frac{1}{32}$ ". Be sure to tighten the lock nut.

FRONT: Loosen the lock nut and place tool No. J-1459 over the cap screw in the front unit. Tighten the adjusting screw just to the point where the drum cannot be moved in either direction by hand. Now mark the servo band adjusting screw to identify its position and then back it off 8 full turns. Tighten the adjusting screw lock nut and see that the adjusting screw does not turn during the process.

FLUID COUPLING

FLUID COUPLING, R&R, 1941-42

Raise both ends of the car until it clears the floor about 8 inches. Remove the propeller shaft, flywheel housing pan, and drain the fluid from the unit.

Jack up the engine at the back end of the oil pan; disconnect the engine rear support at the transmission extension and remove the rear engine support cross member.

Disconnect the speedometer cable, and the linkage from the side of the transmission. With a suitable transmission hoist or tool No. J-1636, remove the unit from the car after disconnecting it from the flywheel cover.

After the transmission is removed, move the shift lever at the transmission all the way back to the reverse position. Using a suitable socket wrench or tool No. KMO-334, remove the nut from the transmission mainshaft and slide the driven member from the mainshaft.

Grip the vanes of the driving member with pliers at two opposite points and at the same time, tap the end of the mainshaft with a soft hammer. Do not push or pull the flywheel cover to remove the driving member as damage to the oil seal ring may result.

After installing the unit, check the run-out of the flywheel hub cover which should not exceed .005" as

measured with a dial indicator. If the run-out exceeds .005", re-locate the cover on the flywheel. Replace the cover if this cannot be accomplished.

When installing the transmission, be sure that the dowel pins in the crankcase enter the holes in the bell housing without sagging or cocking. The lower bolts should be tightened first.

It is recommended that a torque indicating wrench be used and when tightening the bell housing to the crankcase, the bolts should be tightened from 70 to 75 foot pounds. Do not tighten the flywheel cap screws less than 20 nor more than 25 foot pounds. Less pressure may be enough to cause leakage.

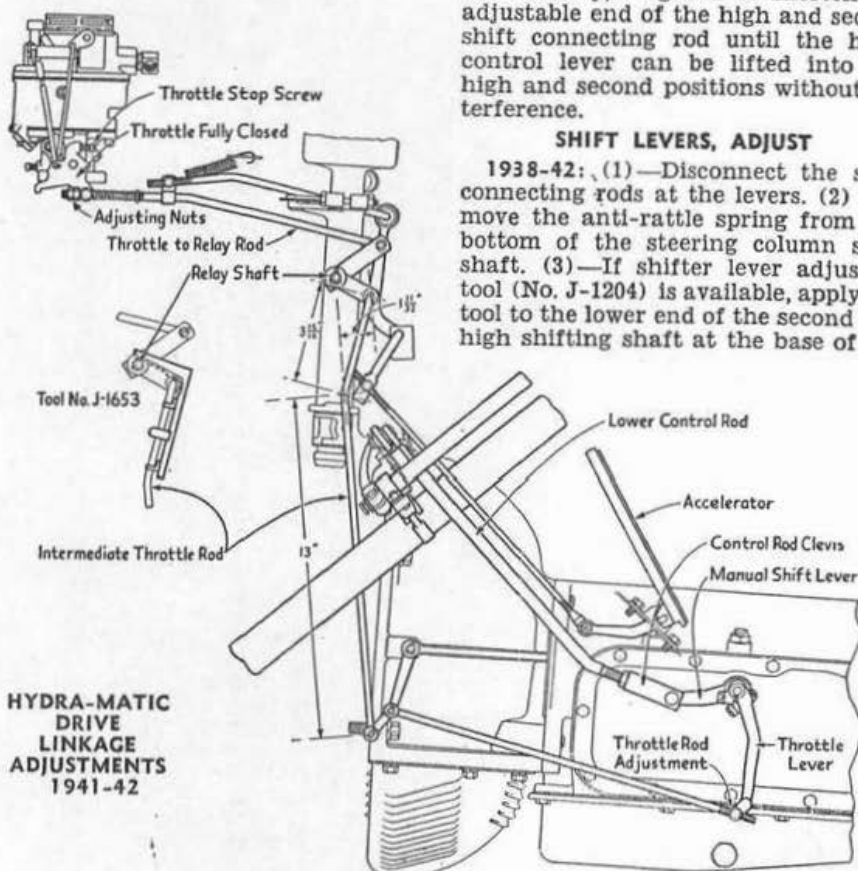
STEERING GEARSHIFT

SHIFT CONNECTING RODS, ADJUST

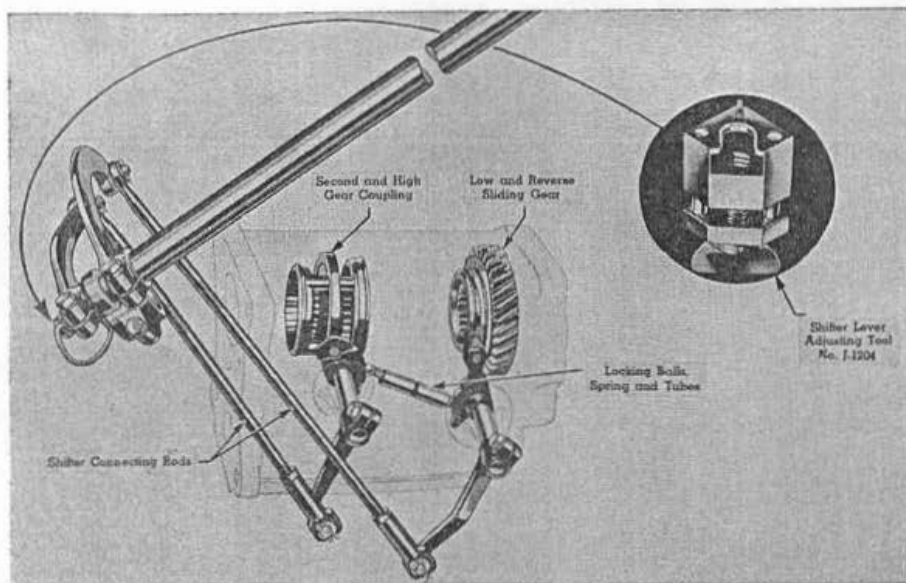
1938-42: (1)—Set the hand control lever in neutral. (2)—Lengthen or shorten the adjustable end of the low and reverse shifter rod until the control lever can be lifted into the low and reverse positions without interference. NOTE: If this adjustment is not made accurately, it will be impossible to cross over from high and second to low and reverse; and may also cause the transmission to slip out of gear. Slipping out of gear may also be caused by a binding in the rubber bushings of the shifter connecting rods or to a loose rear engine support. (3)—Finally, lengthen or shorten the adjustable end of the high and second shift connecting rod until the hand control lever can be lifted into the high and second positions without interference.

SHIFT LEVERS, ADJUST

1938-42: (1)—Disconnect the shift connecting rods at the levers. (2) Remove the anti-rattle spring from the bottom of the steering column shift shaft. (3)—If shifter lever adjusting tool (No. J-1204) is available, apply the tool to the lower end of the second and high shifting shaft at the base of the



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Method of Adjusting Shifting Mechanism, 1938-42

steering column and tighten the screw on the tool slightly. (4)—Loosen the clamp screw on the second and high lever. (5)—Turn the screw on the tool until two pounds tension is required to move the second and high lever back and forth (tension can be measured with a spring scale hooked to the outer end of the lever); then tighten the clamp screw.

(6)—On 1938-39 cars, adjust the low and reverse lever by pushing it down until there is no more than .005" clearance between the lever and the bracket. NOTE: On 1940-42 cars, the low and reverse lever does not require adjustment, because the adjustment between the second and high shifter shaft and the low and reverse shifter tube is definitely maintained by a collar on the lower end of the shifter shaft.

If adjusting tool No. J-1204 is not available, use a large blunt screwdriver to pry the levers into position. With this method, the lever clamp screw on either lever must be tightened for each trial of the shift control.

On a few early 1938 models, the lower end of the inner torsion shaft had a 1/4-20 threaded hole instead of a groove. Therefore, to adjust the levers on these cars, use a bolt and a number of washers, turning the bolt into the threaded end of the shaft to bring the washers up against the levers, pressing them into the proper position.

REAR END

DIFFERENTIAL, R&R, 1935-42

Disconnect the rear universal joint. Remove axle shafts as described under AXLE SHAFT, R&R. Remove the cap screws holding the carrier to

the housing and remove carrier assembly. Reverse the procedure to install.

On the 452D, the differential assemblies are supplied with all the lubricant washed out of the bearings. Therefore, before the assembly is installed it is important to lubricate the pinion shaft bearings with about a pint of lubricant, making sure that it reaches all parts of the pinion and its bearings. However, after the assembly has been installed, the differential should be filled to the proper level.

AXLE SHAFT, R&R

35-50; 1936-42 (except 36-90)
37-90)

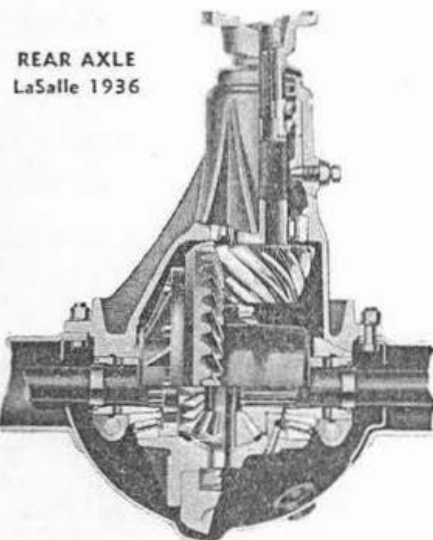
Dismount the wheel. Remove axle shaft retaining nut. Use a puller to remove the hub and brake drum from the axle shaft. Disconnect the hydraulic brake line and remove the brake backing plate. The axle shaft is held in place in the housing by the backing plate which bears against the outer race of the wheel bearing. Use a puller to remove the axle shaft and bearing. Reverse the procedure to install the shaft. It will be necessary to bleed the brake line.

1935 Cadillac, 36-90, 37-90

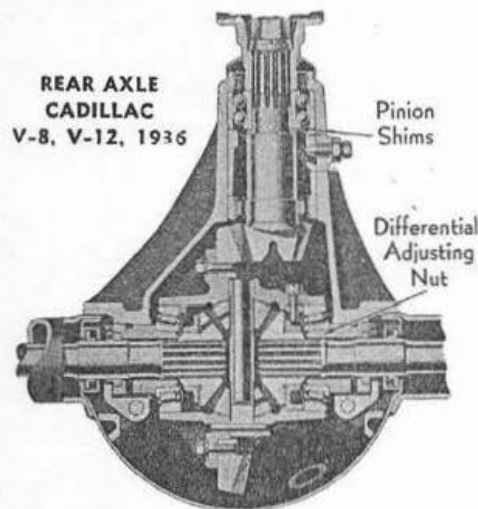
Remove the hub cap and wheel. Remove the bolts from the flange of the wheel hub. Remove the wheel hub and the axle shaft.

DIFFERENTIAL CARRIER PARTS, RENEW

1935-42: The complete carrier assembly should be replaced and the old one returned to the factory on an exchange basis. The factory does not recommend servicing differential assemblies locally.



REAR AXLE
LaSalle 1936



REAR AXLE
CADILLAC
V-8, V-12, 1936

REAR AXLE VENT HOLES, 1935-42

Whenever the rear axle lubricant is changed or checked, it is important to make sure that the vent holes are cleaned. If they are allowed to remain clogged, the lubricant may become too high and might overflow to the wheels and get on the brake lining.

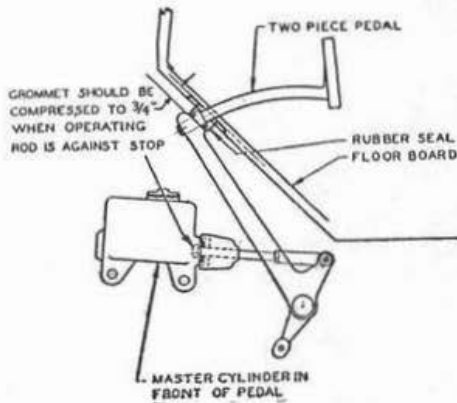
REAR AXLE CLEARANCES

1935-37: The flange on the differential case should have less than .001" wobble and eccentricity. The hubs of the differential side gears should have no more than .005" radial clearance and end play should not exceed .020". The differential pinions should have a radial clearance of not more than .010" on the pinion shaft and not more than .020" backlash with the side gears.

RING AND PINION, ADJUST

1935 All Models: In making an initial pinion adjustment, use sufficient shims to give a total thickness of .075" to .090". Shims are supplied in thicknesses of .010", .015" and .035". Differential side bearings should be

tightened until a pull of 8 to 10 pounds is required tangential to the outer circumference of the ring gear. A pull of 15 pounds may be required to start the gear. Backlash between pinion and ring gear should be between .004" and .012".



**BRAKE PEDAL ADJUSTMENT, 39-50, 61
40-50, 52, 62. All 1941-42**

BRAKES

BRAKE PEDAL, ADJUST

35-50; 1936-38; Series 60S, 67, 72, 75, 90, 1939-42

Adjust the pedal rod to obtain from 1/4" to 3/8" pedal lash before engaging the master cylinder piston.

Series 50, 51, 52, 61, 62, 1939-42

Loosen the lock nut on the rod and turn the rod in the clevis until the pedal grommet is compressed to 3/4", with the shoulder on the pedal rod against its stop in the master cylinder.

HAND BRAKE, ADJUST

35-50; 1936-41 (except 36-90)

With brake pedal released, pull up on the hand lever until horizontal strut rod under wheel cylinder begins to move. Hold the shoes in this position, release the hand lever and shorten the cable by adjusting the clevis at the front until the clevis pin can barely be inserted. Adjust the other brake in the same way. Lengthen both cables slightly an equal amount, if the brakes drag, and check for equalization.

FRONT SUSPENSION

KNEE ACTION SERVICE

Whenever it becomes necessary to jack up the car, its weight should be relieved from the front suspension, especially when lubricating the knuckle supports and related parts. It should be raised in such a manner as to keep the car level in order to make front end adjustments properly.

Before checking the front end alignment, inflate the tires to the recommended pressures. Check the front wheel bearings for looseness.

See that the front wheels do not run out excessively, and check the wheels for proper balance.

To check the run-out of the wheels, hold a piece of chalk against the rim or tire sidewall and spin the wheel. The chalk will make a wide mark where the wheel runs out, and will miss where the wheel runs in. When checking camber, caster and kingpin inclination, the chalk mark on the rim or tire should be placed halfway up and down on the side, whereas, when checking toe-in and toe-out, the chalk mark should be placed at the top position.

NOTE: All alignment checks should be made with the weight of the car on the wheels, and on a level place of the floor. The front springs should be "normalized" by working the bumper up and down. This is necessary because the height of the springs affects the wheel alignment. A reputable gauge should be used when checking the measurements, to obtain the readings as specified in the **FRONT END MEASUREMENTS** table.

1935 Cadillac; 36-90

The following paragraphs apply to the above models only. For other models, see the subsequent paragraphs, under their respective headings.

CASTER, ADJUST: Loosen the yoke on the lower suspension arm and turn the threaded pin to the right (clockwise) on the right side of the car—as viewed from the driver's seat—to move the top of the steering knuckle support toward the rear. This increases the caster angle. To decrease the caster, turn the threaded pin counter-clockwise.

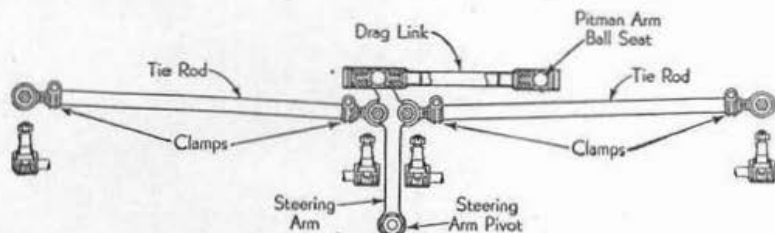
On the left side of the car, the caster adjusting pin is installed with its head toward the front. Therefore, the left pin must be turned to the

left (counter-clockwise) as viewed from the driver's seat—to increase the caster, and to the right to decrease it. One complete turn of the pin changes the caster one-half degree. After completing the adjustments, lock the threaded pins securely in position. Make sure that both sides have exactly the same amount of caster.

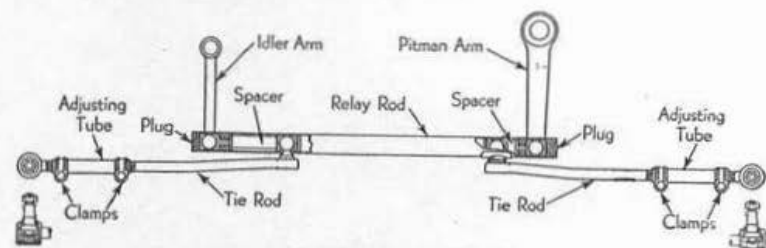
CAMBER, ADJUST: It is only possible to decrease the camber by placing shims between the steering knuckle support yoke and the lower suspension arm. No change can be made to increase the camber at the upper end of the support or at the lower suspension arm. A 1/16" shim changes the camber approximately 1/4 degree.

TOE-IN, Adjust. When making the adjustment, the rear end of the intermediate steering arm must be exactly at the center of the car. Both tie rods are then turned an equal amount to retain the same distance between the rear end of the intermediate steering arm and the front wheels. Do not adjust only one tie rod. Turning the tie rods in the same direction as the wheels revolve, when the car moves forward, decreases the toe-in, and turning in the opposite direction increases it. Large errors in toe-in indicate bent steering knuckle arms.

TOE-OUT, Check: Before making a check for toe-out on turns, the toe-in must be corrected. Check the toe-out by turning the wheels to the right or left, locating the wheel in a definite position and determining the position of the inside wheel. With the outside wheel set to 20 degrees, the setting of the inside wheel should be as given in the **FRONT END MEASUREMENTS** table. If this is incorrect, check for bent steering arms or incorrect caster, camber or toe-in.



STEERING LINKAGE—1939-40, 75, 90



STEERING LINKAGE

1939, 50, 61; 1940, 50, 60S, 62, 72; All 1941-42

CADILLAC—LA SALLE

STEERING KNUCKLE SUPPORT, R&R.

Two types of knuckles are used. One is the conventional design and the other has an oiler which supplies a felt wick which runs the length of the kingpin.

A plunger which bears against a flat spot on the kingpin, pumps oil into the felt each time the wheels are turned in one direction. Before removing this type knuckle, swing the spindle at right angles to the car, which corresponds to the position of the wheels in the straight-ahead position. When removing the kingpin, the plunger will not be damaged because it is on the rounded portion of the kingpin when in this position.

Before removing the knuckle support, measure the clearance at either side, between the knuckle support and the shock absorber arms, or yoke. This procedure will eliminate the necessity of re-adjusting the caster with a gauge, when replacing the threaded pins. Now, remove the threaded pin at the top of the support. Disassemble this unit on the bench as the lower yoke bolt is a taper fit in both bushings and requires considerable pressure to remove it.

For the Cadillac models using the type construction without the oiler, turn the threaded bushings in against the steering knuckle support, allowing about $\frac{1}{8}$ " more clearance at the rear, by installing the threaded bushing with the shoulder at the side, which will allow full caster adjustment at the top. Both threaded bushings should be turned IN the same amount against the support, so as to bring their outer ends approximately flush with the outer yoke surface. After installing the bushings, replace the yoke bolt and tighten and lock it in position.

For the Cadillac models using the oiler, install the short bushing in front, flush with the front surface of the yoke. Install the long bushing in the rear, flush with the rear surface of the yoke. Insert the taper pin and adjust the bushings for $\frac{1}{16}$ " clearance between the boss on the steering knuckle support and the inner face of the front half of the yoke. When this adjustment is obtained, press in the taper pin until the ends are flush with the bushings. Next, install the cork gaskets and cover plates and secure them in place with the bolt and nut. The nut should be tightened only enough to prevent leakage.

35-50; 36-60 before Eng. No. 60'4008, 1936-70, 75, 80, 85; 1937-65, 70, 75, 85, 90; 1938-65, 75, 90; 1939-75, 90; 1940-75, 90

The following paragraphs apply only to the above models.

CASTER, Adjust. Loosen the clamp screw at the upper end of the steer-

ing knuckle support and remove the lubrication fitting from the front bushing at the upper suspension arm. Insert an Allen wrench through the hole from which the fitting was removed and adjust the caster by turning the threaded pin until the desired caster setting is secured.

Turning the threaded pins in a clockwise direction increases caster and counter-clockwise decreases it.

CAMBER, Adjust. Remove the retaining nut and spacers from the steering knuckle support yoke at the lower suspension arm. Remove this yoke and re-install with spacers re-arranged so as to secure the correct camber.

Normally, there is one spacer between the yoke and the suspension arm, and one between the suspension arm and the retaining nut. To DECREASE the camber, place both spacers between the yoke and the suspension arm. To INCREASE the camber, place both spacers between the suspension arm and the retaining nut.

TOE-IN, Adjust. With the front wheels in the straight-ahead position, turn both tie rods an equal amount in order to maintain the correct position of the steering gear high spot.

TOE-OUT, Check. Turn the wheels to the right or left, locating the outside wheel in a definite position, and determine the setting of the inside wheel. With the outside wheel set to 20 degrees, the setting of the inside wheel should be as given in the FRONT END MEASUREMENTS table.

STEERING KNUCKLE SUPPORT, R&R.

Raise the front end of the car and remove the wheel, wheel hub and brake drum assembly. Disconnect the tie rod at the ball joint. Remove the brake support, being careful not to damage the brake hose.

Remove the locking pin from the steering knuckle on the 37-90 model,

and from the steering knuckle support on the other models. On the 35-50 and 36-60 models, the locking pin is a tight press fit and should be driven out from the end which has the flat surface on the side. For the other models, the locking pin is a threaded bolt.

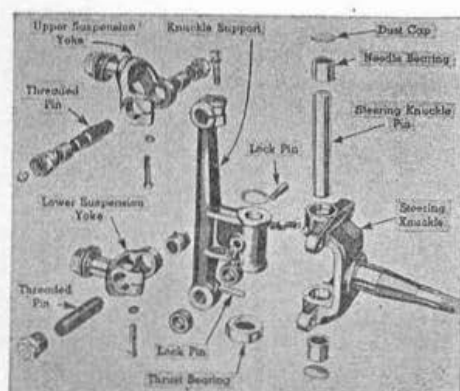
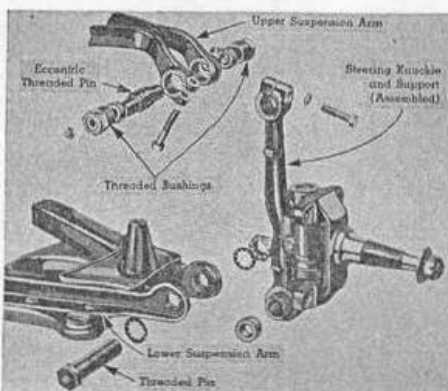
Remove the dust caps from the upper and lower kingpin holes, tap out the kingpin, and disassemble the support from the knuckle, taking care not to damage the thrust bearings. On the 37-90 model, the needle bearings are in the knuckle support, while on the other models, the needle bearings are at the top and bottom of the kingpin.

To remove the knuckle from the yokes, place a jack under the lower control arm to support the coil spring while disconnecting the upper end of the support. Disconnect the stabilizer link (if equipped). For the 37-90 model, remove the two retaining screws holding the threaded pin in position in the upper control arm, and remove the pin from the arm. For the other models, remove the retaining nut which holds the yoke to the upper control arm. On all models, swing the support outward to free it from the upper control arm.

NOTE: The coil spring can be removed, at this point, if desired, by lowering the jack under the lower control arm.

Remove the retaining nut that fastens the yoke to the lower control arm and remove the support and yoke assembly.

To remove the yokes from the knuckle support, loosen the clamp screws at the upper and lower yokes, and at the upper end of the knuckle support. Remove the threaded bushing and pin assembly at the ends of the knuckle support and mark the position of the threaded pins, so that it will be possible to re-assemble the unit in the original position to maintain proper steering alignment.



STEERING KNUCKLE ASSEMBLY

LEFT—1937-40, Models 50, 52, 60, 60S, 61, 62, 72

RIGHT—1936-40, Models 65, 70, 75, 80, 85, 90

Reverse the order of operations to assemble.

36-50; 36-60 after Eng. No. 6014008; 1937-38, 50, 60; 1939-50, 61, 60S; 1940-50, 52, 62, 60S, 72; All 1941-42

The following paragraphs apply to the above models only.

CASTER, Adjust. Loosen the clamp screw at the upper end of the steering knuckle support. Remove the lubrication fitting from the front bushing at the upper control arm. Insert an Allen wrench through the hole from which the fitting was removed and adjust the caster by turning the threaded pin until the desired caster is secured.

NOTE: It is important to turn the pins in complete turns only, so as not to change the camber setting. Turn the pins in a clockwise direction to increase the caster, and counter-clockwise to decrease it.

CAMBER, Adjust. Loosen the clamp screw at the upper end of the steering knuckle support and remove the lubrication fitting from the front bushing of the upper support yoke. Insert an Allen wrench through the hole from which the fitting was removed, and adjust the camber by turning the threaded pin until the desired adjustment is secured. Make adjustments on each side as nearly equal as possible.

NOTE: Since the camber adjustment is controlled by the eccentric action of the threaded pin, 1/2 turn in either direction gives the maximum adjustment.

TOE-IN, Adjust. With the front wheels in the straight-ahead position, turn both tie rods an equal amount in order to maintain the correct position of the steering gear high spot.

For 39-50, 61, 40-50, 52, 62, 60S, 72 and all 1941 models, a cross drag link and an idler lever are used. With the idler lever parallel to the fore and aft centerline of the car, adjust both tie rods an equal amount.

TOE-OUT, Check. Turn the wheels to the right or left, locating the outside wheel in a definite position and determine the setting of the inside wheel. With the outside wheel set at 20 degrees, the inside wheel should set to the number of degrees as given in the **FRONT END MEASUREMENTS** table. If not, look for bent steering arms or incorrect caster, camber or toe-in.

STEERING KNUCKLE SUPPORT, R&R. Raise the front end of the car with a jack and remove the wheel, hub and brake drum assembly and wheel bearings. Disconnect the tie rod at the ball joint. Remove the brake support. Remove the locking pin from the steering knuckle support. Remove the dust caps from the upper and lower king-

pin holes, tap out the kingpin, and disassemble the steering knuckle support from the steering knuckle, taking care not to damage the thrust bearings.

NOTE: The coil spring can be removed at this point, if desired, by lowering the jack under the lower control arm.

Remove the threaded pin from the lower control arm which will release the knuckle support.

When assembling the threaded pins at the upper and lower ends of the support, it is important to install them as nearly as possible to their original position because the eccentric pin at the top controls the camber and caster adjustment.

Reverse the operations to assemble, and check the camber and caster when the installation is completed.

INTERMEDIATE STEERING ARM, R&R 355D, 370D, 452D, 36-90, 37-90.

Detach drag link from pitman arm and screw drag link out of connection at intermediate steering arm. Detach tie rods at intermediate steering arm. Loosen screws in bracket and lift out the intermediate steering arm assembly. To disassemble unit, remove top and bottom covers and press out the hollow shaft. A large press will be required because of the tight fit. Bearings should be adjusted so that a pull of 1 or 2 pounds is required at the end of the arm.

1936-37 (except V-16's). All 1938; 1939 (except 50, 61); 1940-75, 90

The threaded plug which is located in the forward end of the drag link must be removed to disconnect it from the intermediate steering arm. Remove the retaining nut at the top of the arm pivot and press the bolt out through the bottom. Remove bearings by gently tapping. When installing, fill space between the bearings with lubricant and tighten the pivot nut just enough to remove all end play without binding.

DRAG LINK, ADJUST

1935-41: With steering wheel in mid-position the front wheels should point straight ahead. If not, change position of steering arm or cross shaft, or adjust the length of the drag link, on models thus equipped, by rearranging spacers in either or both its ends. On the cross drag link used on 1939-50, 61 and 1940-50, 52, 62, 60S, 72, and 1941, the idler lever must be parallel with the centerline of the car when the steering wheel is in its mid-position.

STEERING GEAR

STEERING WHEEL MID-POSITION, ADJUST

1935-42: With steering gear set on

the high spot, spokes on steering wheel should permit clear vision of the instrument panel. Steering wheel hub may be located on the steering tube in various positions. Place wheel so that center spoke points straight down when front wheels are in straight ahead position.

STEERING WHEEL, R&R

1938-39: Press down on the horn button and turn it in either direction until the catch is released and remove the button. Remove the sponge rubber ring, horn contact assembly, horn button spring, and the steering wheel hub nut, using care not to damage the horn wire terminal. Remove the steering wheel.

To install the wheel, slip it over the end of the steering column so that the middle spoke is vertical, and directly opposite the notch in the end of the steering column shaft.

On 38-75, 38-90, 39-75 and 39-90 models, the middle spoke of the wheel should be vertical when the clamp bolt which holds the lower steering universal joint to the worm shaft, is vertical.

On all models, tighten the steering wheel hub nut down securely, using a wrench with an 18" handle. Place the small end of the horn button spring over the horn terminal, and install the contact assembly with the small end up. Install the sponge rubber ring around the edge of the wheel hub and then, press the horn button down into position, turning it in either direction until the lugs slip under the hub clips, and when properly installed, the emblem should be horizontal when the middle spoke is vertical.

1940-41: Press the horn button down and turn it in either direction until the cap is released, and remove the button. Remove the gasket, sponge rubber ring, retainer, horn button spring and the steering wheel hub nut. Remove the horn blowing ring (if equipped), and remove the steering wheel.

To install the wheel, slip it over the end of the steering column shaft so that the middle spoke is vertical, and directly opposite, the notch in the end of the steering column shaft. Install the horn blowing ring (if equipped). Tighten the hub nut down thoroughly, using a wrench with an 18" handle. Place the horn button spring over the horn terminal and install the retainer with the lugs on top. Install the sponge rubber ring, and press the horn button down into position, turning it either direction until the lugs slip under the hub clips.