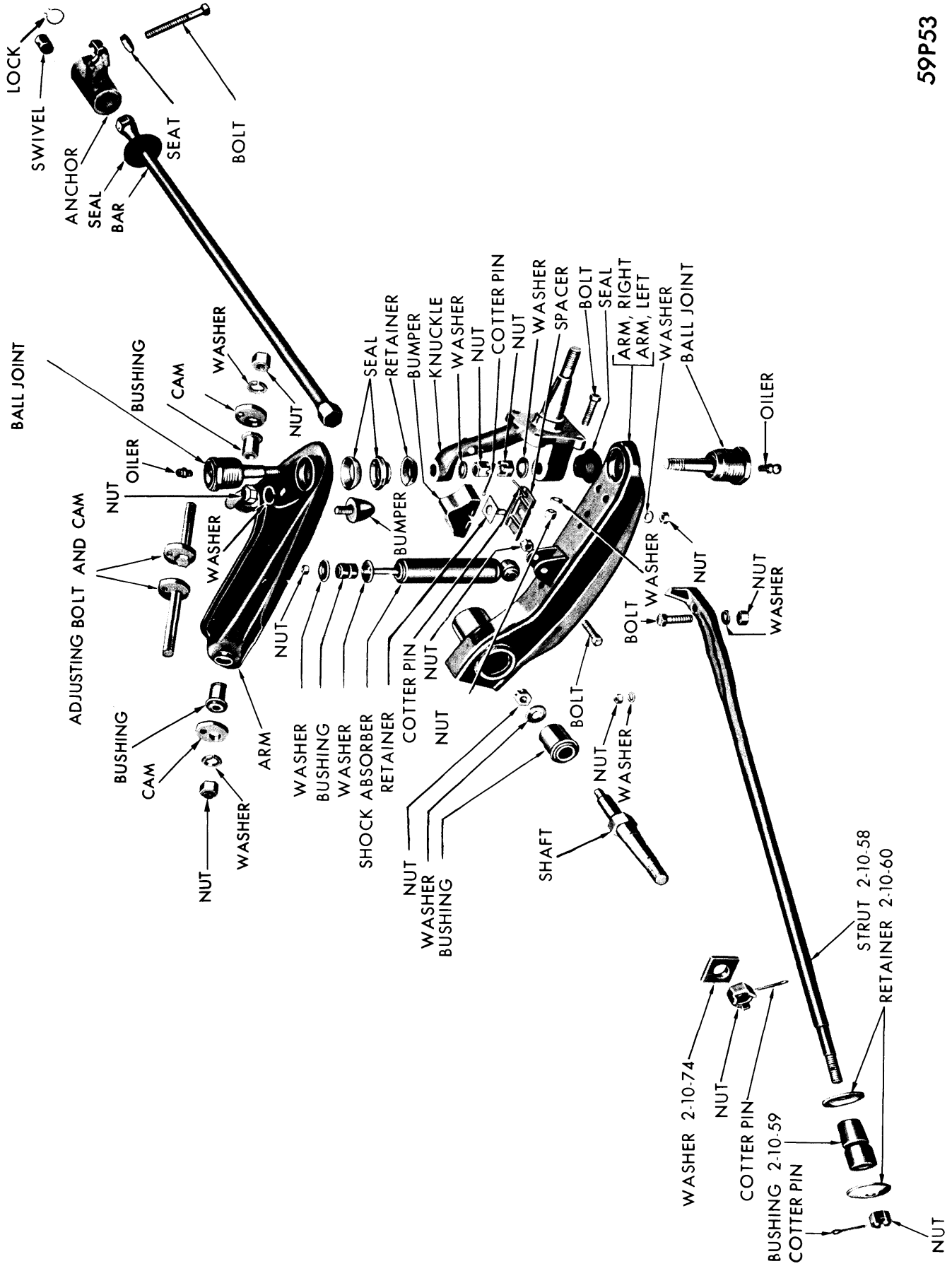
LOCK
SWIVEL
ANCHOR
SEAL
BAR
SEAT
BOLT
BALL JOINT
BUSHING
CAM
WASHER
NUT
OILER
ADJUSTING BOLT AND CAM
NUT
WASHER
ARM
BUSHING
CAM
NUT
WASHER
WASHER
BUSHING
WASHER
SHOCK ABSORBER
RETAINER
COTTER PIN
NUT
NUT
WASHER
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SHAFT
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RETAINER
BUMPER
KNUCKLE
WASHER
NUT
COTTER PIN
NUT
WASHER
SPACER
BOLT
SEAL
ARM, RIGHT
ARM, LEFT
WASHER
BALL JOINT
OILER
BOLT
WASHER
NUT
NUT
WASHER
WASHER 2-10-74
NUT
COTTER PIN
BUSHING 2-10-59
COTTER PIN
STRUT 2-10-58
RETAINER 2-10-60
NUT
59P53

PART 1—CHASSIS

SECTION 1—FRONT SUSPENSION SYSTEM

1. GENERAL INFORMATION

The 1959 Plymouth Torsion-Aire Suspension system has new mounting brackets for the new upper control arms which simplifies the method of adjusting caster and camber. The brackets are of one-piece construction, welded to the frame.

Each pair of frame brackets have cam retainers welded to the front and rear faces, around the slotted openings for the control arm mounting bolts, as shown in Figure 1.

Integral cams are welded under the head of each mounting bolt. A matching removable cam is located over the "flat" at the threaded end of the bolt. When installed, the bolts can be turned a total of 180 degrees, providing ample caster and camber adjustment.

The new shorter torsion bars have a rubber seal at the rear, over the end of the new torsion bar anchor.

A new tool, C-3669, is available for removing and installing the new, larger upper control arm rubber bushings.

2. FRONT SUSPENSION HEIGHT

FRONT SUSPENSION HEIGHT SPECIFICATIONS

All Sedans and Coupes	2⅛" ± ⅛"
Station Wagons and all cars with heavy duty springs	2½" ± ⅛"
All cars with Constant Level Torsion-Aire	1⅞" ± ⅛"

Before taking any measurements, the car must be bounced. Do the following operations in exactly the same manner every time. Just before measurements are taken: bounce the car, front first, then rear, several times by grasping the center of the bumpers. Release the bumpers near the end of the down-stroke each time, after the same number of bounces.

3. CASTER AND CAMBER

Front suspension height must be correct and cars with Constant Level Torsion-Aire must have full operating air pressure during this operation.

Wire brush foreign matter and rust from nuts and exposed threads of the upper control arm attaching bolts and apply 1879318 lubricant to the threads. Inspect tires and wheels. Air pressure must be uniform and within specifications. Inspect chassis parts for looseness, wear or damage and recondition as may be necessary.

Place front wheels on floating turntables and attach caster and camber gauges. Rear wheels should be level with front wheels. After the lubricant has penetrated any rust, carefully loosen the upper control arm attaching nuts while holding the bolts to prevent turning. Use wrench Tool C-3675 on the nuts. Record caster and camber readings.

FRONT SUSPENSION SPECIFICATIONS

	MANUAL STEERING	POWER STEERING
Caster, degrees	0 to −1½ (−¾ preferred)	0 to +1½ (+¾ preferred)
Camber, degrees	+¼ to −¼	+¼ to −¼
right wheel	(0 preferred)	(0 preferred)
left wheel	+½ to 0 (+⅜ preferred)	+½ to 0 (+⅜ preferred)
Toe-in, inches	3/32 to 5/32 (⅛ preferred)	3/32 to 5/32 (⅛ preferred)

Adjustment of caster through camber readings is possible because of the consistent relation between camber change and caster change when either the front or rear cam bolt at each control arm is rotated *singly*.

Turning one bolt affects caster more than camber. Turning both bolts an equal amount in the same direction affects camber directly and caster indirectly. Turning the cams an equal amount in opposite directions will change caster with little change to camber, depending on the relative position of the cams.

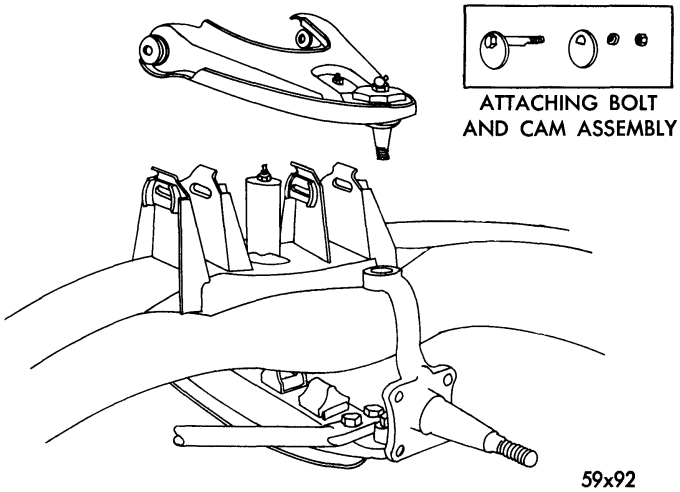

Figure 1—Upper Control Arm Mounting

By bringing caster within specifications by turning one bolt at a time, then turning both bolts an equal amount to bring camber to the preferred reading, caster will usually be brought close to the preferred setting.

After both caster and camber readings are correct, tighten the nuts to 65 foot-pounds while holding the bolts from turning. Use Tool C-3675 as a straight line extension for the torque wrench. A torque wrench reading of 45 foot-pounds will then tighten the nut correctly to 65 foot-pounds.

Always recheck caster and camber after tightening the nuts, *since the bolts may* have turned slightly during the tightening operation.

4. CASTER AND CAMBER ADJUSTMENT WITH USE OF THE CHART

Caster adjustment is obtained through the use of *camber readings.*

1. Check caster and camber in the normal way and record readings.
2. *Adjustment of caster—*
   (a) Determine *caster adjustment* required.
   (b) With instruments set for camber readings, loosen the cam bolt nuts for adjusting and with Tool C-3675, adjust FRONT cam bolt one degree camber for every 4¾ *degrees* of caster change required (about a 1 to 5 ratio). For example, if caster must be changed 2½ degrees then the camber adjustment required on the front bolt would be only ½ degree. (See chart for adjustments required).
   Note: If caster must be changed in a positive direction, camber must be changed in a positive direction in this operation. If caster must be changed in a negative direction, then camber must be changed in a negative direction.
   (c) Then adjust *REAR* bolt to bring *camber* back to its *original setting as recorded.* The *caster* setting should not be as required.
3. *Adjustment of camber—*
   (a) Determine camber *adjustment* required. (Instruments should still be set for camber readings.)
   (b) Adjust front cam bolt *one-half the amount of camber change* required.
   (c) Then adjust the *rear* cam bolt the remaining half. This will give you the correct camber setting without changing the correct setting already obtained for caster.
4. Recheck *caster* setting by normal operation of the checking fixture. If caster is not correct to specifications, repeat steps No. 2 and No. 3 until correct specifications are obtained.
5. If the front end height required readjustment it is necessary that the headlamp aiming be rechecked to conform with state requirements.

CHART TO COMPUTE *CAMBER* CHANGES REQUIRED FOR PROPER *CASTER* ADJUSTMENT

FOR A REQUIRED * CASTER CHANGE OF	THE FRONT CAM BOLT SHOULD BE MOVED THE FOLLOWING CAMBER CHANGE
(Degrees)	(Degrees)
−¼	−1/16
−½	−⅛
−¾	−⅛
−1	−3/16
−1¼	−¼
−1½	−5/16
−1¾	−⅜
−2	−7/16
−2¼	−7/16
−2½	−½
−2¾	−9/16
−3	−⅝
−3¼	−11/16
−3½	−¾
−3¾	−¾
−4	−13/16
−4¼	−⅞
−4½	−15/16
−4¾	−1
−5	−1 1/16

* Note: If the caster change is in a + (positive) direction, then the camber adjustment given in the second column must also be in a positive direction at the front adjustment.

SECTION II—REAR AXLE

SURE-GRIP AXLES

Servicing of 1959 rear axles remains the same as outlined in the 1958 Plymouth Service Manual.

Sure-Grip axles are identified by means of the letter "S" stamped on the ratio pad on the bottom of the carrier housing. A metal tag reading "Use Sure-Grip Lube" is also attached to the carrier attaching bolt below the filler plug.

Sure-Grip differentials use a two-piece differential case. The eight bolts used to hold the two halves of the Sure-Grip differential together have left-hand threads and require tightening to 55 ft. lbs. torque. The case and bolts are visible through the filler plug opening. The conventional differential has a dome shaped, one-piece case, and does not use bolts.

The Sure-Grip axle will be made available in only two ratios, 3.31 and 3.73, and will be produced only in the 8¾ in. ring gear size.