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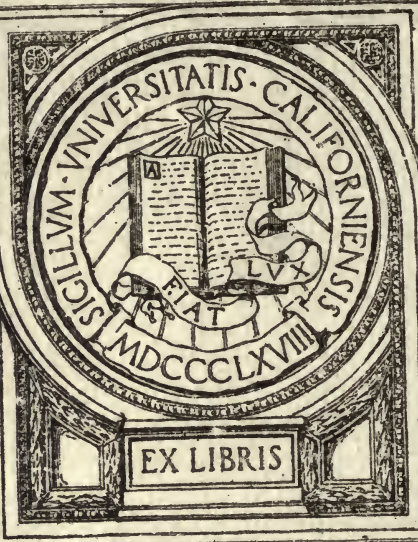


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The
Society of Automobile
Engineers

29 W. 39th St., New York



AUTOMOBILE NOMENCLATURE

Including Names of Car Parts and
Items of Terminology

From the Report of the
Nomenclature Division, adopted by the Society, Aug. 1, 1916



S.A.E. STANDARD AUTOMOBILE NOMENCLATURE

For several years there has been an insistent demand for standardization of names of car parts. Uniformity in the use of names and terminology would save many of the delays common in parts replacement service, and make for clearness and brevity in the use of automobile terms generally.

The nomenclature contained in the following list was developed at a series of meetings of engineering and service representatives of several of the leading automobile manufacturers of America. It has been approved in detail by the Nomenclature Division of the Standards Committee, and has been passed upon in turn by the Standard Committee, the Council and adopted by the members of the Society of Automobile Engineers.

An attempt has been made to include in the list the more important parts throughout the whole car, bolts, studs and the like being indicated in general terms. Body parts have not been included generally nor parts of some units such as carbureter, which vary so much in construction as to make anything like uniform nomenclature very difficult.

Definitions of different types of construction have been included for several units in order to encourage uniform terminology in descriptions appearing in the trade press and in catalogs, as well as in the technical discussions of the Society. Definitions of different types of bodies are also included, because it is thought that some authority should take action to make possible the use of names which will be understood generally, rather than those which are meaningless except to persons conversant with the terminology peculiar to individual manufacturers. It is surprising how many distinctly different types of body are being sold under the name "brougham," for instance.

A scheme of classification based entirely on assemblies is impracticable for general use, on account of diverse arrangement of elements of so-called conventional cars. The classification adopted is therefore based largely on function.

In most cases the names do not need defining to anyone familiar with automobile construction, especially when considered in connection with the other names in the same group.

For spring nomenclature see sheets 49, 49xa and 49b in the S.A.E. Handbook. (Reprints furnished upon request.)

GENERAL DIVISIONS

- I Cylinders
- II Valves
- III Cooling System
- IV Fuel System
- V Exhaust System

General Divisions—Continued

- VI Lubrication
- VII Ignition
- VIII Starting and Lighting Equipment
- IX Miscellaneous Electrical Equipment
- X Clutch
- XI Transmission
- XII Rear Axle
- XIII Braking System
- XIV Front Axle and Steering
- XV Wheels
- XVI Frame and Springs
- XVII Hoods, Fenders and Shields
- XVIII Body and Top
- XIX Accessories

DIVISION I—CYLINDERS

- Group 1—Cylinders
- Group 2—Crankcase
- Group 3—Crankshaft
- Group 4—Starting-crank
- Group 5—Connecting-rods
- Group 6—Pistons

DIVISION II—VALVES

- Group 1—Camshaft
- Group 2—Valves

DIVISION III—COOLING SYSTEM

- Group 1—Fan
- Group 2—Radiator
- Group 3—Pump
- Group 4—Pipes and Hose

DIVISION IV—FUEL SYSTEM

- Group 1—Carbureter and Inlet Pipe
- Group 2—Carbureter Control
- Group 3—Carbureter Air-heater
- Group 4—Fuel Tank
- Group 5—Fuel Pipes and Feed System

DIVISION V—EXHAUST SYSTEM

- Group 1—Exhaust Manifold
- Group 2—Exhaust Pipe and Muffler

DIVISION VI—LUBRICATION SYSTEM

- Group 1—Oil Pan or Reservoir
- Group 2—Oil Pump
- Group 3—Oil Pipes, Strainers, Gages

DIVISION VII—IGNITION

- Group 1—Spark-plugs, Cables and Switches
- Group 2—Ignition Distributor
- Group 3—Magneto
- Group 4—Ignition Control

DIVISION VIII—STARTING AND LIGHTING EQUIPMENT

- Group 1—Generator
- Group 2—Starting Motor
- Group 3—Wiring
- Group 4—Battery

DIVISION IX—MISCELLANEOUS ELECTRICAL EQUIPMENT

- Group 1—Lamps and Wiring
- Group 2—Switches and Instruments
- Group 3—Horn
- Group 4—Miscellaneous

DIVISION X—CLUTCH

- Group 1—Clutching Parts
 - Cone Clutch
 - Disk Clutch
 - Plate Clutch
- Group 2—Releasing Parts

DIVISION XI—TRANSMISSION

- Group 1—Transmission
- Group 2—Shifting Mechanism
- Group 3—Control
- Group 4—Propeller-shaft

DIVISION XII—REAR AXLE

- Group 1—Housing
- Group 2—Torque-arm and Radius-rod
- Group 3—Drive Pinion
- Group 4—Differential
- Group 5—Axle Shafts

DIVISION XIII—BRAKES

- Group 1—Outer Brake
- Group 2—Inner Brake
- Group 3—Pedal (or outer) Brake Control
- Group 4—Hand (or inner) Brake Control

DIVISION XIV—FRONT AXLE AND STEERING

- Group 1—Axle Center
- Group 2—Steering-knuckles
- Group 3—Steering-rods
- Group 4—Steering-gear

DIVISION XV—WHEELS

- Group 1—Front Wheels
- Group 2—Rear Wheels

DIVISION XVI—FRAME AND SPRINGS

- Group 1—Frame
- Group 2—Frame Brackets and Sockets
- Group 3—Front Springs
- Group 4—Rear Springs

DIVISION XVII—HOOD, FENDERS AND SHIELDS

- Group 1—Hood
- Group 2—Engine Shield
- Group 3—Fenders and Running-boards
- Group 4—Windshield

DIVISION XVIII—BODY

- Group 1—Floor-boards and Dash
- Group 2—Body
- Group 3—Upholstering
- Group 4—Top

DIVISION XIX—ACCESSORIES

- Group 1—Speedometer
- Group 2—Tire-pump

GENERAL

Where terms "front" and "rear" are used, "front" should always be toward the front end of the car. These terms are sometimes confused in regard to parts that are mounted on the dash. The front side of the dash is always that next the engine.

Where parts are numbered, No. 1 should be toward the front of the car. For instance, No. 1 cylinder is the one nearest the radiator (in conventional construction).

"Right" and "left" are to the right- and left-hands when sitting in one of the seats of the car.

Studs, screws and bolts shall take names from parts they serve to hold in place, although they are assembled with other parts. For example, the cylinder stud is permanently screwed into crankcase but holds the cylinder in place.

The name "engine" should be used rather than "motor" to avoid confusion with electric motors and to secure a lower freight rate.

DIVISION I—CYLINDERS

Group 1—Cylinders

Cylinder

L-head cylinder (valves on one side of cylinder)

T-head cylinder (valves on opposite sides of cylinder)

I-head cylinder (valves in cylinder head)

F-head cylinder (one valve in head, other on side directly operated)

(Cast in block, not cast en bloc)

(Cylinders of V-type engines should be numbered IR, IL, 2R, etc.)

Inlet-valve cap

Exhaust-valve cap

Group 1—Cylinders—Continued

Valve-cap gasket

Cylinder-head

Cylinder-head gasket

Cylinder-head plug

Water-jacket top cover

Water-jacket top cover gasket

Water-jacket side (or front or rear) cover

Valve-spring cover

Valve-spring-cover gasket

Valve-spring-cover stud

Valve-stem guide

Priming-cup

Group 2—Crankcase

Crankcase

Barrel-type crankcase

Split-type crankcase (split horizontally, at or near center line of crankshaft)

Crankcase upper half

Crankcase lower half (used only when the lower half contains bearings. A crankcase of either barrel or split type, in which all the bearings are mounted directly on the part to which the cylinders are attached, is called a "crankcase," the terms "upper half" and "lower half" not being used)

Oil-pan (used for lower part of split-type or barrel-type crankcase, whether this serves as an oil reservoir or not)

Oil-pan drain-cock (or -plug)

Breather

Oil-pan gasket

"Bushing" instead of "bearing" for removable and renewable lining used in a plain bearing.

Crankshaft front bearing bushing (upper half and lower half)

Crankshaft front bearing cap

Crankshaft front bushing support (sometimes used in barrel-type crankcase)

Crankshaft rear bearing bushing

Crankshaft rear bearing shims (other shims accordingly)

Crankshaft center bearing bushing (if only three bearings or if all except end bearings are alike)

Crankshaft second bearing bushing, etc. (if more than three bearings, for example, front bearing, second bearing, third bearing, fourth bearing, rear bearing)

Hand-hole cover

Hand-hole-cover gasket

Timing-gear cover

Timing-gear-cover gasket

Flywheel housing

Generator bracket (other brackets take name of part supported)

Group 3—Crankshaft

- Crankshaft
- Flywheel
- Crankshaft timing-gear (or sprocket)
- Crankshaft timing-gear key
- Flywheel starter-gear
- Crankshaft starter-sprocket
- Flywheel studs
- Clutch-spring stud
- Crankshaft starting jaw (or pin)

Group 4—Starting-crank

- Starting-crank
- Starting-crank jaw
- Starting-crank shaft
- Starting-crank handle
- Starting-crank-handle pin

Group 5—Connecting-rods

- Connecting-rod
- Straight connecting-rod } V-type engine
- Forked connecting-rod }
- Connecting-rod cap
- Connecting-rod bushing (upper half and lower half)
- Connecting-rod cap stud (or bolt)
- Connecting-rod cap nut
- Connecting-rod bearing shims
- Connecting-rod dipper
- Piston-pin bushing

Group 6—Pistons

- Piston
- Piston-pin
- Piston-pin lock-screw (in connecting-rod or piston)
- Piston-ring
- Piston-ring groove

DIVISION II—VALVES

Group 1—Camshaft

- Camshaft
- Eccentric shaft (Knight engine)
- Camshaft timing-gear
- Camshaft timing-gear key
- Camshaft idler gear
- Camshaft oil-pump gear
- Camshaft ignition-distributor gear
- Exhaust cam
- Inlet cam
- Oil-pump eccentric (or cam)

Group 2—Valves

Valves should be numbered 1 Ex, 1 In, 2 Ex, 2 In, etc., according to the number of the cylinder. On V-type engines the numbers should be 1 REx, 1 LEx, etc.

Poppet valve

Inlet valve

Exhaust valve

Valve-spring

Valve-spring retainer

Valve-spring retainer lock

Valve-lifter

Valve-lifter guide

Valve-lifter-guide clamp

Valve-lifter roller

Valve-lifter-roller pin

Valve adjusting screw

Valve adjusting screw nut

Valve-rocker (either at cam or at overhead valve; if both, upper and lower)

Valve push-rod (intermediate between lifter and valve in I-head engine)

DIVISION III—COOLING SYSTEM

Group 1—Fan

Fan

Stationary fan support

Adjustable fan support

Fan hub

Fan-blades

Fan pulley

Fan-belt

Fan driving pulley

Group 2—Radiator

Radiator core

Radiator shell

Radiator upper tank

Radiator right side

Radiator left side

Radiator lower tank

Radiator filler-cap

Radiator strainer

Radiator drain-cock

Group 3—Pump

Water-pump

Water-pump impeller

Water-pump-impeller key

Water-pump body (in case of doubt, body is member mounted on engine)

Water-pump cover

Group 3—Pump—Continued

Water-pump shaft

Water-pump gland (part in contact with packing, whether threaded or not)

Water-pump-gland nut (or screw, or other part used to compress gland)

Water-pump shaft gear

Group 4—Pipes and Hose

Engine water outlet

Engine water inlet

Radiator hose (upper and lower)

Radiator water fitting (upper and lower)

Water-pump outlet pipe

DIVISION IV—FUEL SYSTEM

Group 1—Carbureter and Inlet Pipe

Carbureter

Inlet manifold (more than one connection to cylinder)

Inlet pipe (only one connection to cylinder)

Inlet manifold or pipe gaskets (at cylinders)

Carbureter gasket.

Group 2—Carbureter Control

(Throttle control rods will take names from parts they connect, shafts by location or arrangement, and brackets by parts they support)

Accelerator pedal

Accelerator pedal bracket

Accelerator pedal pin

Accelerator pedal rod

Accelerator pedal rod-end pin

Carbureter mixture hand-regulator

Carbureter choke

Group 3—Carbureter Air-heater

Carbureter air-heater

Carbureter hot-air pipe

Group 4—Fuel Tank

Fuel tank

Fuel reserve tank

Fuel gage

Fuel gage float

Fuel gage glass

Fuel tank outlet strainer

Fuel tank outlet (flange, fitting, etc.)

Fuel tank pressure flange (or fitting)

Group 5—Fuel Pipes and Feed Systems

Main fuel valve

Reserve fuel valve

Fuel pipe, main tank to auxiliary tank (or names of other parts connected)

- Fuel pressure-pump (power pump)
- Fuel hand-pump
- Fuel pressure-gage pipe
- Fuel pressure-gage tee
- Fuel pressure pipe to tank
- Fuel pressure-pump pipe
- Fuel hand-pump pipe
- Fuel hand-pump tee
- Fuel pressure gage

DIVISION V—EXHAUST SYSTEM

Group 1—Exhaust Manifold

- Exhaust manifold
- Exhaust manifold gasket

Group 2—Exhaust Pipe and Muffler

- Muffler

Exhaust pipe (extends from exhaust manifold to muffler. If in more than one part name sections front and rear. For V-type engines with two pipes, name right and left)

- Muffler outlet pipe

DIVISION VI—LUBRICATION SYSTEM

Group 1—Oil-pan or Reservoir

- Oil-pan
- Oil tank (when separate)
- Oil-filler strainer
- Oil-filler cap

Group 2—Oil-pump

- Oil-pump
- Oil-pump body (any type of pump)
- Oil-pump plunger
- Oil-pump-plunger spring
- Oil-pump inlet valve
- Oil-pump outlet valve
- Oil-pump shaft
- Oil-pump shaft gear (outside the pump)
- Oil-pumping shaft gear (inside the pump)
- Oil-pumping follower gear
- Oil-pump cover

Group 3—Oil Pipes, Strainers, Gages

(Oil pipes should be named from the parts they connect, as "Oil-pump to pressure-gage pipe")

- Circulating-oil strainer
- Oil strainer cap
- Sight feed
- Sight-feed glass
- Oil level-gage
- Oil level-gage float
- Oil level-gage glass
- Oil pressure-gage

DIVISION VII—IGNITION

Group 1—Spark-plugs, Cables and Switches

Spark-plugs

Spark-plug cables (numbered according to cylinders)

Coil high-tension cable

(Low-tension cables should be named from the parts they connect, as: "Storage battery to ignition switch cable." In case of more than one conductor the cable should be designated as double, triple, etc.)

Ignition coil

Ignition switch

Dry cell (two or more cells make a dry battery)

Group 2—Ignition Distributor

Ignition-distributor breaker

Ignition-distributor breaker-arm

Ignition-distributor breaker-arm point

Ignition-distributor fixed breaker-point

Ignition-distributor brush

Ignition-distributor shaft

Ignition-distributor shaft gear

Group 3—Magneto

Magneto

Magneto distributor

Magneto breaker-box

Magneto breaker-arm

Magneto fixed breaker-point

Magneto breaker-arm point

Magneto distributor brush

Magneto-collector-ring brush

Magneto coupling, pump end

Magneto coupling, center member

Magneto coupling, magneto end

Group 4—Ignition Control

Spark control rod (name parts connected)

(Other control parts named as explained under throttle control)

DIVISION VIII—STARTING AND LIGHTING EQUIPMENT

General

A one-unit system uses a starter-generator.

A two-unit system uses a generator and a starting motor.

A combined unit system uses a duplex starter-generator.

Group 1—Generator

Generator

Generator brush

Generator brush-holder

Generator gear

Generator shaft

Generator coupling (members as indicated under magneto coupling)

Group 2—Starting Motor

- Starting motor
- Starting-motor brush
- Starting-motor brush-holder
- Starting-motor pinion
- Starting-motor intermediate gear
- Starting-motor intermediate-gear shaft
- Starting-motor intermediate pinion
- Overrunning clutch

Group 3—Wiring

(Cables and conduits should be named from parts they connect)

- Starting switch
- Starting-switch pedal (or lever)

Group 4—Battery

- Storage battery
- Filler cap
- Terminal post
- Connector strip

DIVISION IX—MISCELLANEOUS ELECTRICAL EQUIPMENT

Group 1—Lamps and Wiring

- Head-lamp
- Tail-lamp
- Side-lamp
- Instrument lamp
- Tonneau lamp
- Dome lamp
- Pillar lamp
- Inspection lamp
- Inspection-lamp cord
- Inspection-lamp plug
- Inspection-lamp socket
- Head-lamp socket
- Head-lamp support
- Head-lamp support tie-rod
- Tail-lamp support
- (Cables and conduits should be named from the parts they connect)
- Junction-box (wires not attached to box)
- Junction-box screw
- Junction-box cover
- Fuse-box
- Fuse-box cover
- Fuse-block
- Fuse-clip
- Fuse (designated by name of part fed by circuit)
- Junction panel

Group 2—Switches and Instruments

Lighting switch
Ammeter
Voltmeter
Volt-ammeter
Charging indicator
Reverse current cutout
Current regulator

Group 3—Horn

(No names have been selected for horn parts)

Group 4—Miscellaneous

(Will include any additional electrical equipment such as electrical gearshift)

DIVISION X—CLUTCH

General

Plate clutch (one plate clamped between two others)
Disk clutch (more than three disks)
Dry disk clutch
Lubricated disk clutch
Cone clutch (leather faced, asbestos faced)
Expanding clutch

Group 1—Clutching Parts

Cone Clutch

Clutch cone
Clutch facing
Clutch-facing spring
Clutch-facing-spring plunger
Clutch spring
Clutch thrust-bearing
Clutch cone hub
Clutch cone bushing
Clutch-spring spider (for cone clutch with multiple springs)
Clutch-spring stud
Clutch-spring retainer
Clutch-spring nut
Clutch spindle
Clutch shaft (not attached to crankshaft)
Clutch shaft bearing (not in transmission case)

Disk Clutch

Clutch case (rotating member)
Clutch housing (non-rotating member)
Clutch cover
Clutch housing cover
Clutch driving disk
Clutch driven disk
Clutch driving disk stud

- Clutch pressure plate (front and rear, if two—used on both disk and plate clutches)
- Clutch driven spider (or drum—driving and driven if two)
- Clutch cork-inserts
- (Facing, spring, thrust-bearing, etc., as under cone clutch)

Plate Clutch

- Clutch driven plate
- Clutch driving plate
- Clutch pressure levers
- (Other parts as under cone and disk clutches)

Group 2—Releasing Parts

- Clutch release sleeve
- Clutch release shoe or clutch release bearing housing
- Clutch release bearing
- Clutch release fork
- Clutch release fork shaft
- Clutch pedal shaft
- Clutch pedal adjusting link
- Clutch release fork lever
- Clutch pedal
- Clutch pedal pad
- Clutch brake
- Clutch brake facing

DIVISION XI—TRANSMISSION

Group 1—Transmission

- Transmission case (upper half and lower half, if bearings seat in both)
- Transmission case cover
- Clutch gear
- Clutch gear bearing (front and rear if two)
- Clutch gear bearing retainer
- Countershaft
- Countershaft front bearing (if ball or roller)
- Countershaft front bearing bushing (if plain bearing)
- Countershaft front bearing retainer
- Countershaft rear bearing retainer
- Countershaft drive gear
- Countershaft second-speed gear
- Countershaft low-speed gear
- Countershaft reverse gear
- Reverse idler gear
- Reverse idler gear shaft
- Reverse idler gear bushing
- Transmission shaft
- Transmission shaft pilot bearing
- Transmission shaft pilot bearing bushing (if plain)

Group 1—Transmission—Continued

- Transmission shaft rear bearing
- Transmission shaft rear bearing retainer
- Second and high sliding gear
- Low and reverse sliding gear

Group 2—Shifting Mechanism

- High-gear shift fork
- Low-gear shift fork
- Reverse shift fork (if three are used)
- High-gear shift bar
- Low-gear shift bar
- Reverse shift bar

Group 3—Control

- Gearshift bar selector
- Gearshift lever shaft
- Low gearshift connecting-rod
- High gearshift connecting-rod
- Gearshift hand lever ("hand" may be omitted)
- Gearshift hand lever bracket ("hand" may be omitted)
- Gearshift housing (center control)
- Gearshift gate

Group 4—Propeller-shaft

- Propeller-shaft
- Propeller-shaft front universal-joint (assembly—"propeller-shaft" may be omitted)
- Propeller-shaft rear universal-joint (assembly—"propeller-shaft" may be omitted)
- Propeller-shaft front bearing (with enclosed shaft)
- Transmission shaft universal-joint flange (substitute name of any other shaft on which flange is mounted)
- Universal-joint flange yoke
- Universal-joint slip yoke
- Universal-joint plain yoke
- Universal-joint center cross (ring or block)
- Universal-joint bearing bushing
- Universal-joint pin (may be designated as long and short, straight and shoulder, etc.)
- Universal-joint inner casing
- Universal-joint outer casing
- Universal-joint casing packing
- Universal-joint casing nut
- Universal-joint trunnion (for trunnion type joint)
- Universal-joint trunnion block

DIVISION XII—REAR AXLE

General Types

Dead Axle—An axle carrying road wheels with no provision in the axle itself for driving them.

Live Axle—General name for type of axle with concentric driving shaft.

Plain Live Axle—Has shafts supported directly in bearings at center and at ends, carrying differential and road wheels.

(The plain live axle is practically extinct.)

Semi-Floating Axle—Has differential carried on separate bearings, the inner ends of the shafts being carried by the differential side gears, and the outer ends supported in bearings.

The semi-floating axle shaft carries torsion, bending moment, and shear. It also carries tension and compression if the wheel bearings do not take thrust, and compression if they take thrust in only one direction.

Three-Quarter Floating Axle—Inner ends of shafts carried as in semi-floating axle. Outer ends supported by wheels, which depend on shafts for alignment. Only one bearing is used in each wheel hub.

The three-quarter floating axle shaft carries torsion and the bending moment imposed by the wheel on corners and uneven road surfaces. It also carries tension and compression if the wheel bearings are not arranged to take thrust.

Full-Floating Axle—Same as three-quarter floating axle except that each wheel has two bearings and does not depend on shaft for alignment. The wheel may be driven by a flange or a jaw clutch.

The full-floating axle shaft is relieved from all strains except torsion, and in one possible construction, tension and compression.

Types of Axle Drive

The different types of live axle can be driven by *Bevel Gear*, *Spiral Bevel Gear*, *Worm*, *Double-reduction Gear* or *Single Chain*.

In other constructions, the rear wheels are driven by *Double Chains*, *Internal Gears*, or *Jointed Cross-shaft*.

Group 1—Housing

Rear-axle housing (if one piece)

Right and left halves (if two pieces)

Bevel (or worm) gear housing

Right rear-axle tube

Left rear-axle tube

Rear-axle-housing cover

Differential carrier (bolted to housing)

Rear-axle spring-seat

Axle brake-shaft bracket (right and left)

Group 1—Housing—Continued

Wheel brake-support, right and left (“wheel” may be omitted)

Wheel brake-shield (“wheel” may be omitted)

Group 2—Torque-arm and Radius-rod

Radius-rods

Group 3—Drive Pinion

Axle drive bevel pinion (or worm)

Axle drive pinion (or worm) shaft

Axle drive pinion front bearing

Axle drive pinion rear bearing

Axle drive pinion thrust-bearing

Axle drive pinion front bearing adjuster

Axle drive pinion front bearing adjuster lock

Axle drive pinion rear bearing adjuster

Axle drive pinion rear bearing adjuster lock

Axle drive pinion adjusting sleeve (containing both bearings)

Axle drive pinion (or worm) carrier

Group 4—Differential

Axle drive bevel (or worm) gear

Differential

Differential case, right

Differential case, left

Differential side gear

Differential spider pinion (“spider” may be omitted)

Differential spider (or pinion shaft)

Differential bearing

Differential thrust-bearing

Differential bearing adjuster

Differential bearing adjuster lock

Group 5—Axle Shafts

Axle shaft (right and left)

Axle shaft wheel-flange (or clutch)

DIVISION XIII—BRAKES

General

In the following list of brake parts the terms “outer” and “inner” are used, being applicable to any case of two sets of brakes on the rear wheels. Where the brakes are external and internal these terms may be substituted for “outer” and “inner.” Where one brake is located at the wheels and the other at the transmission the terms “wheel brake” and “transmission brake” should be substituted. With other concentric or side-by-side brakes the terms “outer” and “inner” should be retained, “outer” indicating in the latter case the ones nearer the wheels.

The list is made up for external contracting and internal expanding brakes. If both brakes are of one type the necessary changes will be obvious. The designation of brake parts on the rear axle

as foot-brake or hand-brake parts, or by equivalent terms, is too remote to be clear, especially in the case of stock axles whose brakes may be connected either way according to chassis design. Nearly the same condition prevails in regard to designating parts on the chassis according to whether they are connected to the inner or outer brakes at the axle.

The terms "service brake" and "emergency brake" should not be used. Better designations are "foot brake" and "hand brake"; or if both brakes foot-operated, "right foot-brake" and "left foot-brake."

Group 1—Outer Brake

- Outer brake band
- Outer brake band lining
- Outer brake band adjusting nut (yoke, etc.)
- Outer brake hand lever
- Outer brake lever shaft
- Outer brake shaft inner end lever
- Outer brake shaft outer end lever

Group 2—Inner Brake

- Inner brake shoe (or band)
- Inner brake shoe (or band) lining
- Inner brake toggle (link, etc.)
- Inner brake toggle lever
- Inner brake toggle shaft
- Inner brake cam
- Inner brake camshaft
- Inner brake camshaft (or toggle shaft) lever

Group 3—Pedal (or outer) Brake Control

- Outer brake rod
- Outer brake rod yoke
- Outer brake intermediate shaft (or tube)—right and left
- Outer brake intermediate shaft (or tube)—right lever
- Outer brake intermediate shaft (or tube)—left lever
- Outer brake intermediate shaft (or tube)—center lever
- Outer brake right equalizer lever
- Outer brake left equalizer lever
- Outer brake equalizer
- Brake pedal
- Brake pedal rod
- Brake pedal rod yoke
- Brake pedal pad
- Brake pedal shaft

Group 4—Hand (or inner) Brake Control

- Inner brake rod
- Inner brake rod yoke
- Inner brake intermediate shaft (or tube)—right and left
- Inner brake intermediate shaft (or tube)—right lever
- Inner brake intermediate shaft (or tube)—left lever

Group 4—Hand (or inner) Brake Control—Continued

Inner brake intermediate shaft (or tube)—center lever
Inner brake right equalizer lever
Inner brake left equalizer lever
Inner brake equalizer
Brake hand lever rod
Brake hand lever rod yoke
Brake hand lever
Brake lever segment (or sector)
Brake lever pawl
Brake pawl spring
Brake pawl button
Brake pawl finger lever
Brake pawl rod

DIVISION XIV—FRONT AXLE AND STEERING

Group 1—Axle Center

Front axle center
Front spring seats
Front axle bushing

Group 2—Steering-knuckles

Right steering-knuckle
Left steering-knuckle
Steering-knuckle bushing (upper and lower)
Steering-knuckle pivot
Steering-knuckle-pivot nut
Steering-knuckle thrust-bearing
Right steering-knuckle arm
Left steering-knuckle arm
Steering-knuckle gear rod arm

Group 3—Steering-rods

Steering-knuckle tie-rod
Steering-knuckle tie-rod end
Steering-knuckle tie-rod clamp bolt
Steering-knuckle tie-rod pin
Steering-gear connecting-rod

Group 4—Steering-gear

Steering-gear case
Steering-gear-case cover
Steering-gear bracket
Steering-gear arm
Steering-arm shaft (if separate from sector or other operating member)
Steering-wheel rim
Steering-wheel spider
Steering-wheel tube (or shaft)
Spark and throttle sector
Spark and throttle sector tube

- Spark hand-lever
- Spark hand-lever tube (or rod)
- Throttle hand-lever
- Throttle hand-lever tube (or rod)
- Steering-column tube (stationary)
- Steering-column cowl (or dash or floor) bracket

The various bushings in the steering-column take names from parts to which they are permanently fitted, being further distinguished as upper and lower, inner and outer, if necessary. Bushings in the steering-gear case take names from the worm and sector or other main operating parts which they support, as: Steering-gear worm upper bushing; although the steering-wheel tube may be the member which turns inside the bushing.

- Steering worm
 - Steering-worm sector (or gear)
 - Steering-worm shaft
- } (worm and sector gear)

DIVISION XV—WHEELS

Group 1—Front Wheels

- Front wheel felloe
- Front wheel felloe band
- Front wheel rim
- Rim bolts
- Rim clamps
- Front wheel hub
- Front wheel hub-flanges
- Front wheel hub-cap
- Front wheel outer bearing
- Front wheel outer bearing inner race
- Front wheel outer bearing outer race
- Front wheel outer bearing balls
- Front wheel outer bearing ball retainer
- Front wheel outer bearing rollers
- Front wheel outer bearing roller cage
- Front wheel inner bearing (parts same as outer bearing)
- Front wheel bearing spacer
- Front wheel bearing nut
- Front wheel bearing lock nut
- Front wheel bearing locking washer

Group 2—Rear Wheels

- Rear wheel hub
 - Rear wheel hub-flange
 - Rear wheel hub-cap
 - Rear wheel outer bearing
 - Rear wheel inner bearing
 - Wheel brake-drum
- (Other parts named like front wheel parts)

DIVISION XVI—FRAME AND SPRINGS

Group 1—Frame

- Frame side member (right and left)
- Front cross member
- Rear cross member
- Center cross member
- (As above if only three cross members, as below if more than three)
- First cross member
- Second cross member, etc.
- Sub-frame side member (right and left)
- Sub-frame cross member (front and rear)
- Right rear gusset (upper and lower)
- (Gussets at other cross members named according to member)

Group 2—Frame Brackets and Sockets

- Front spring front bracket (right and left)
- Front spring rear bracket (right and left)
- Rear spring front bracket (right and left)
- Rear spring rear bracket (right and left)
- Running-board bracket (front, right, etc., if not duplicates)
- Running-board bracket brace
- Engine front support bracket
- Engine rear support bracket
- Torque-arm bracket
- Radius-rod bracket

Group 3—Front Springs

- Front spring (right and left)
- Front spring shackle
- Front spring shackle-bolt (upper and lower)
- Front spring front bolt
- Front spring rebound-clip
- Front spring seat
- Front spring seat pad
- Front spring clip
- Front spring clip plate
- Front spring center-bolt

Group 4—Rear Springs

- Rear springs (upper and lower for elliptic and three-quarter elliptic)
 - Rear spring pivot bolt (or pin)
 - Rear spring pivot seat
 - Rear spring double shackle
 - Rear side spring
 - Cross spring
 - (Other parts as for front springs)
- } (for half-elliptic cantilever spring)
- } (for platform spring)

DIVISION XVII—HOOD, FENDERS AND SHIELDS

Group 1—Hood

- Hood
- Hood sill
- Hood handle
- Hood fastener
- Hood fastener bracket (spring, lever, etc.)

Group 2—Engine Shield

- Engine shield
- Engine shield fastener
- Engine shield bracket (spring, etc.)

Group 3—Fenders and Running-boards

- Running-board (right and left)
- Running-board linoleum covering
- Running-board outside binding
- Running-board inside binding
- Running-board front binding
- Running-board rear binding
- Running-board shield (right and left)
- Right front fender
- Left front fender
- Right rear fender
- Left rear fender
- Fender support socket
- Right front fender front support
- Right front fender rear support
- (Other fender supports accordingly)

Group 4—Windshield

(Names for windshield parts have not been selected)

DIVISION XVIII—BODY

Types of Bodies

- Roadster—An open car seating two or three. It may have additional seats on running-boards or in rear deck.
- Coupelet—Seats two or three. It has a folding top and full-height doors with disappearing panels of glass.
- Coupe—An inside operated, enclosed car seating two or three. A fourth seat facing backward is sometimes added.
- Convertible Coupe—A roadster provided with a detachable coupe top.
- Clover Leaf—An open car seating three or four. The rear seat is close to the divided front seat and entrance is only through doors in front of the front seat.
- Touring Car—An open car seating four or more with direct entrance to tonneau.
- Salon Touring Car—A touring car with passage between front seats, with or without separate entrance to front seats.

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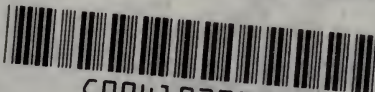
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*Names for parts in these groups have not been selected.

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