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Ford Price List of Parts and Instruction Book of Model T

Ford Motor Company

Detroit, U. S. A.

BRANCHES

BOSTON

147 Columbus Avenue

BUFFALO

727 Main Street

CHICAGO

1444 Michigan Avenue

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1914 Euclid Ave., S. E.

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268 E. Jefferson Avenue

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117 Long Acre

Canadian Trade Supplied By

THE FORD MOTOR CO., of Canada, Limited

WALKERVILLE, ONTARIO

Standard Manufacturers—American Motor Car Manufacturers' Ass'n



T TOURING CAR

INSTRUCTIONS FOR ORDERING PARTS



T TOWN CAR

1. Order all parts through the branch or dealer representing us in your territory, as parts are generally carried in stock by them.
2. Specify model, and give number and name of each part ordered, as well as the machine number. We will not be responsible for errors made in filling orders when this information is not given.
3. Cash should accompany all orders. If it is desired to have parts shipped C. O. D., a deposit sufficient to cover transportation charges must be remitted with the order.
4. Mail orders must be accompanied by an amount sufficient to cover postage.
5. All prices are net f. o. b. Detroit.
6. Specify whether shipments are to be forwarded by mail, express or freight.
7. Orders for parts should be written separately from correspondence pertaining to other matters, as this will insure prompt handling by the proper department at the factory.



T LANDAULET



T COUPE

TELEGRAPH CODE

TO save expense, to expedite ordering and for the convenience of those ordering parts, we have arranged a code word for each part of the Model "T" car. In addition to the parts code we list below a brief general code covering miscellaneous instruction, questions and answers relative to the entering and shipping of parts ordered. ¶ In telegraphing an order for parts start with the code telling us how to ship, then use the word for the next part, stating the number required and then give the number of your car.

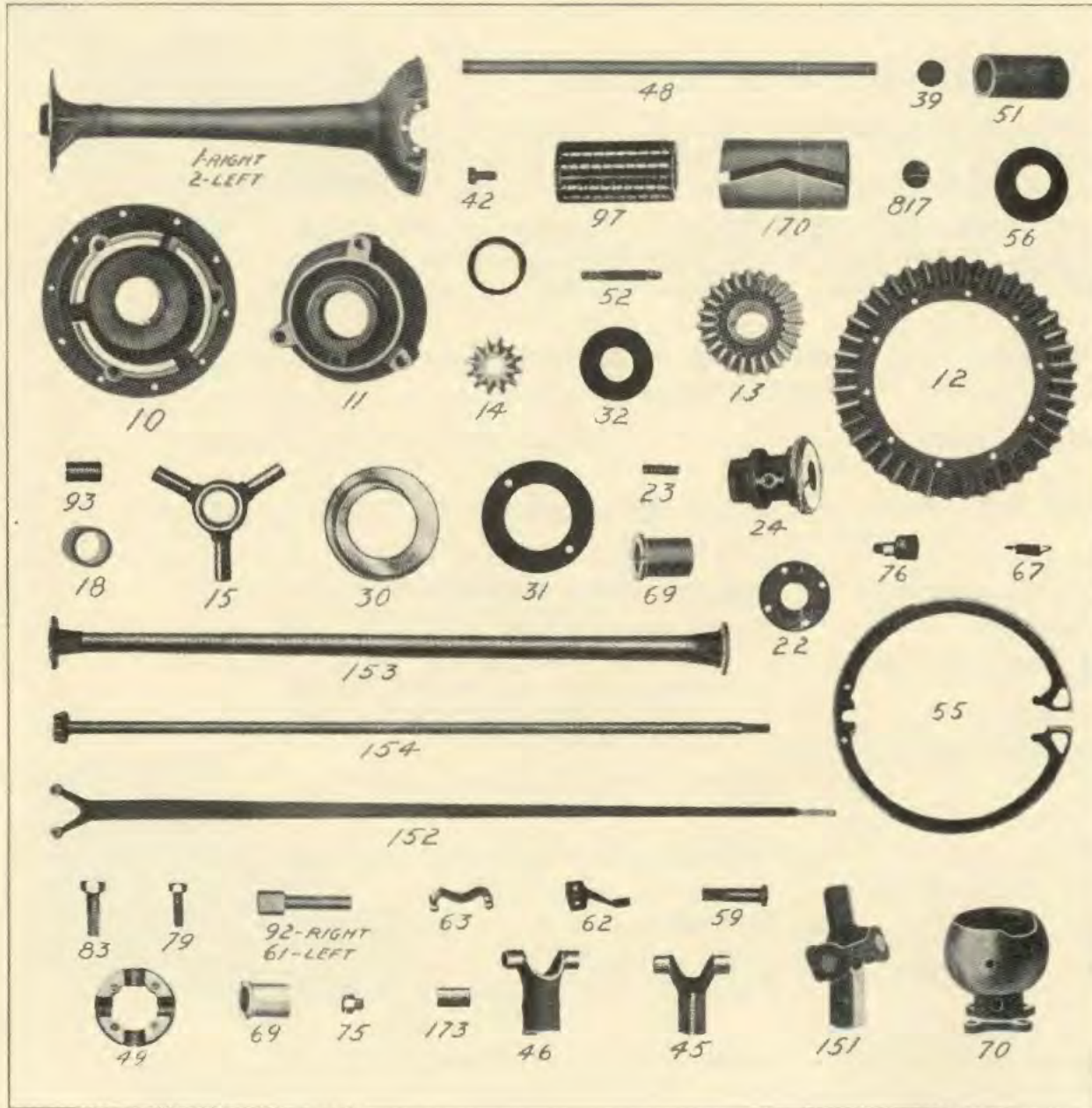
¶ The following will illustrate how to send in an express order for 8 push rods No. 426, 1 fan No. 496, and 3 transmission band springs No. 841:

FORD MOTOR COMPANY,
Detroit, Mich.

Toperig, eight Tubgener, one Tuburbain, three Tubmergin.

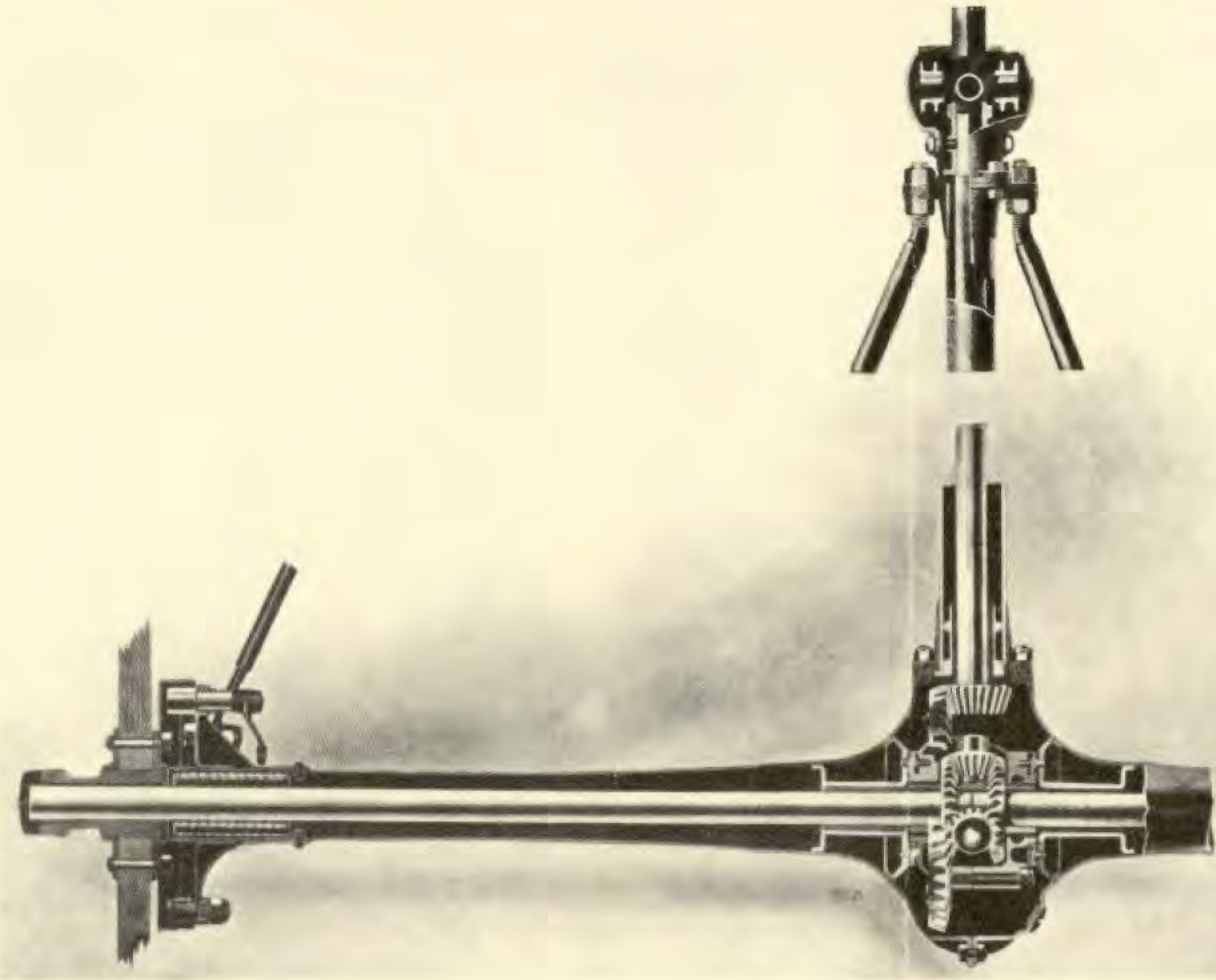
Signed _____

Toperig	Ship to me (us) by express.	Topflunter	When and how did you ship parts called for in my (our) telegram of —
Toperkleur	Ship by express to	Topfwasser	When and how will you ship parts called for in my (our) letter of —
Topermolen	Ship to me (us) by American Express	Topfgeld	Cancel order for parts our (my) telegram of —
Toperoker	Ship to me (us) by U. S. Express	Topfgicht	Cancel order for parts my (our) letter of —
Toperpool	Ship to me (us.) by Pacific Express	Topfkiemer	Add to our (my,) telegraph order of—
Toperslak	Ship to me (us) by National Express	Topfartig	Will send duplicate shipment by — express at once.
Topersteen	Ship to me (us) by freight	Topfhaar	Will send duplicate order — freight at once.
Toper	Ship to me (us) by mail		
Topfton	When and how did you ship parts called for in my (our) telegram of —		
Topflutch	When and how will you ship parts called for in my (our) telegram of —		

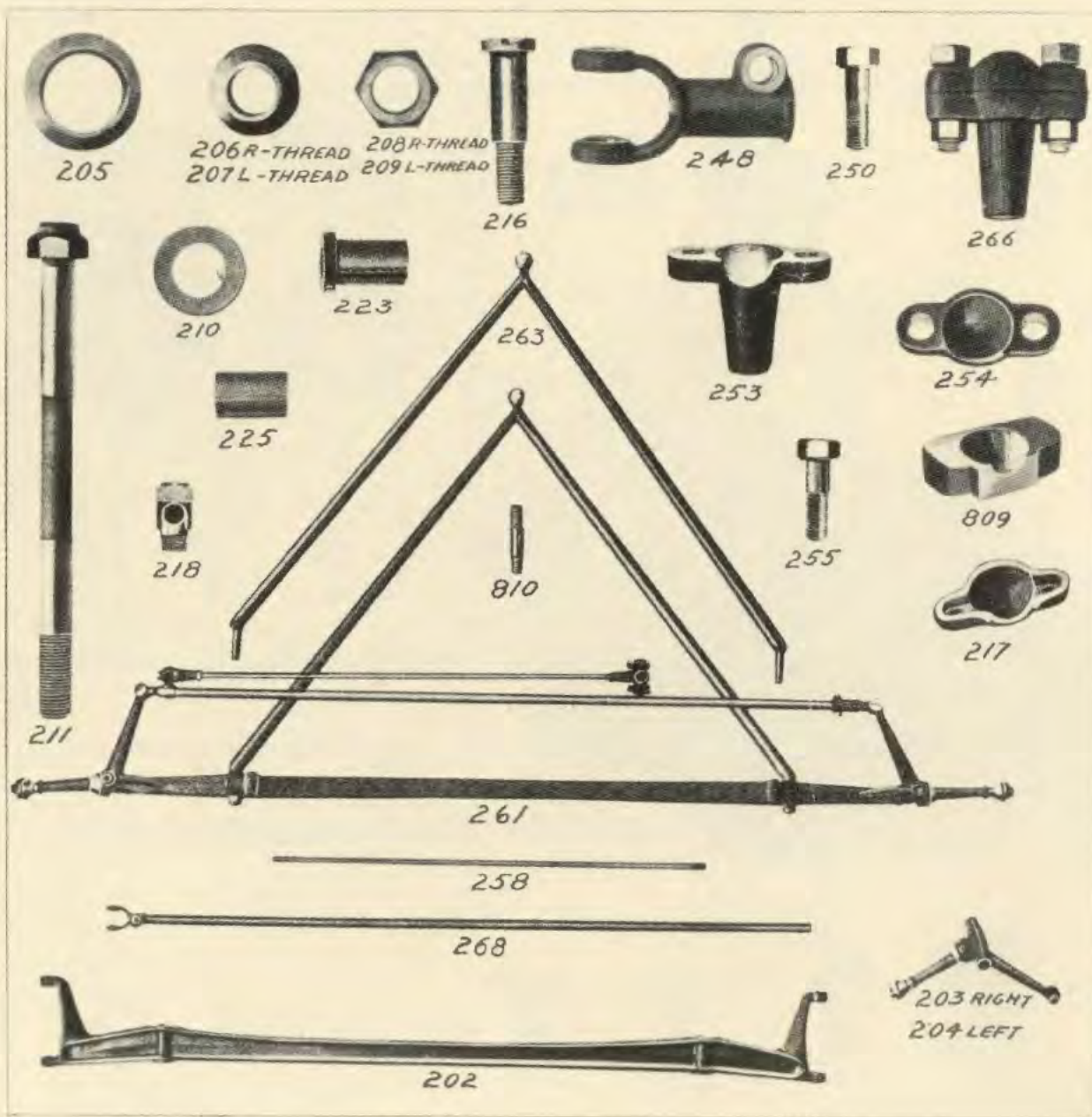


Rear Axle

No.	Description.	Price.	Code Word.
95	Rear axle assembly	\$90 00	Tuabin.
1	Rear axle housing—right half	12 00	Tusability.
2	Rear axle housing—left half	12 00	Tuadabant
42	Rear axle housing bolt	05	Tuadelan.
44	Rear axle housing bolt nut	02	Tuadials.
48	Rear axle shaft	2 50	Tuadibale.
39	Rear axle shaft thrust washer (fibre)	05	Tuadibas.
51	Rear axle shaft babbitt bearing	80	Tuadibil.
97	Rear axle shaft roller bearing	1 00	Tuadibox.
170	Rear axle shaft roller bearing sleeve	40	Tuadiega.
56	Rear axle housing brass cap	10	Tuadieot.
5	Differential assembly	30 00	Tuadiera.
10	Differential gear case—left half	5 00	Tuadieres.
11	Differential gear case—right half	4 00	Tuadieron.
52	Differential gear case stud	10	Tuadistes.
53	Differential gear case stud nut	10	Tuadora.
88	Differential gear case stud cotter pin	01	Tuadoura.
19	Differential gear case bushing (bronze)	60	Tuair.
12	Differential driving gear—40 teeth	8 00	Tuanetes.
38	Differential driving gear rivet	02	Tuardones.
13	Differential gear—24 teeth	2 50	Tuarismo.
21	Differential gear key (Woodruff)	10	Tuarista.
36	Differential gear pin each	05	Tuasible.
32	Differential gear thrust washer (fibre)	15	Tuasion.
14	Differential pinion—12 teeth	1 25	Tuasive.
93	Differential pinion bushing	25	Tuasively.
15	Differential spider with bushing	2 00	Tuasoribis.
18	Differential spider bushing (bronze)	40	Tuasso.
30	Differential thrust plate washer (babbitt)	50	Tuastene.
31	Differential thrust plate (steel)	20	Tuavely.
17	Differential thrust plate pin (13/32" long)	05	Tuavement.
37	Differential thrust plate pin (7/32" long)	05	Tuaveolen.
817	Differential housing oil plug	05	Tuaveolus.
153	Drive shaft housing assembly	9 00	Tuavidade.
23	Drive shaft & R/A housing stud	05	Tuavident.
8	Drive shaft & R/A housing stud nut	05	Tuavidico.
34	Drive shaft & R/A housing stud cotter pin	01	Tuadivorm.



No.	Description.	Price.	Code Word.
35	Drive shaft & H/A housing pin (3/16x3/8")	02	Tuaviffa.
33	Drive shaft housing rivets, per doz	05	Tuaviffct.
24	Drive shaft housing bushing—rear	1 00	Tuavioqy.
69	Drive shaft housing bushing— front	60	Tuaviloux.
154	Drive shaft with pinion.....	7 00	Tuavitate.
87	Drive shaft only	2 50	Tuaviza.
16	Drive shaft pinion—11 teeth.....	4 50	Tuavizde.
57	Drive shaft pinion key (Woodruff)	10	Tuavizamo.
76	Drive shaft grease cup.....	15	Tuavizape.
22	Drive shaft thrust washer (steel)	15	Tuavizar.
152	Rear radius rod (right and left) each	3 50	Tuavizbra.
77	Rear radius rod nut.....	05	Tuavizon.
78	Rear radius rod lock nut.....	05	Tuavizque.
82	Rear radius rod nut cotter pin....	01	Tubasurd.
83	Rear radius rod bolt.....	01	Tubaccusa.
84	Rear radius rod bolt nut.....	05	Tubacetat.
85	Rear radius rod bolt cotter pin....	01	Tubacidos.
79	Rear radius rod ball joint support bolt.....	05	Tubacques.
80	Rear radius rod ball joint support bolt nut.....	05	Tubacribu.
81	Rear radius rod cotter pin.....	01	Tubacrib.
92	Hub brake cam shaft—right	30	Tubact.
61	Hub brake cam shaft—left	30	Tubactaro.
173	Hub brake cam shaft bushing.....	20	Tubactjon.
63	Hub brake spring	05	Tubactrem.
64	Hub brake spring rivet, per doz....	05	Tubadjuva.
62	Hub brake cam shaft lever.....	30	Tubadjus.
7	Hub brake cam shaft lever pin....	02	Tubadmove.
65	Hub brake cam shaft lever clevis pin.....	02	Tubagregu.
68	Hub brake lever clevis pin cotter.. (Above Parts Comprise Rear Axle Assembly.)	01	Tubagrest.
55	Hub brake shoe	2 00	Tubalding.
59	Hub brake shoe support bolt.....	05	Tuballe.
60	Hub brake shoe support bolt nut..	05	Tubalar.
89	Hub brake shoe support cotter pin	01	Tubalarjo.
67	Hub brake shoe coil spring.....	05	Tubalbens.
151	Universal joint assembly	3 50	Tubalbib.
45	Universal joint knuckle (male)....	1 00	Tubalbido.
46	Universal joint knuckle (female)..	1 25	Tubalborn.
6	Universal joint knuckle pin.....	05	Tubalbula.
49	Universal joint ring (complete)....	1 25	Tubalcaid.
50	Universal joint ring rivets, each...	05	Tubalkins.
70	Universal joint housing	1 00	Tubaltenu.
75	Universal joint housing plug.....	05	Tubambige.
156	Universal ball cap oil hole plug...	15	Tubambros.
1518	Universal ball cap felt gasket.....	10	Tubamigue.



Front Axle

No.	Description.	Price.	Code Word.
205	206 R-THREAD 207 L-THREAD		
	208 R-THREAD 209 L-THREAD		
210	211		
218	223		
225	225		
248	248		
250	250		
253	253		
254	254		
255	255		
258	258		
266	266		
809	809		
217	217		
203 RIGHT 204 LEFT			
261	261		
263	263		
268	268		
202	202		
202	Front axle assembly	30 00	Tubapenin.
203	Front axle only	12 00	Tubapent.
204	Spindle assembly—right	4 00	Tubaperes.
205	Spindle assembly—left	4 00	Tubaperio.
206	Spindle stationary cone (inside)	40	Tubapkalt.
207	Spindle adjusting cone—right thread	30	Tubaquat.
208	Spindle adjusting cone—left thread	30	Tubaqueo.
209	Spindle nut (right hand)	05	Tubaquilo.
210	Spindle nut (left hand)	05	Tubaqulos.
211	Spindle washer	05	Tubarabun.
212	Spindle bolt (6 3/4" long)	50	Tubarando.
213	Spindle bolt nut	05	Tubarator.
214	Spindle bolt cotter pin	01	Tubardura.
215	Spindle body bushing (upper and lower)	50	Tubardust.
216	Spindle arm bushing	20	Tubaresa.
217	Spindle oiler	15	Tubaresco.
218	Steering spindle connecting rod with yoke	2 60	Tubarmale.
219	Steering spindle connecting rod with ball pin only	2 00	Tubasper.
220	Steering spindle connecting rod bolt (2 7/16")	05	Tubassam.
221	Steering spindle connecting rod bolt nut	05	Tubassese.
222	Steering spindle connecting rod bolt cotter pin	01	Tubastada.
223	Steering spindle connecting rod yoke	60	Tubastam.
224	Steering yoke clamping bolt (1 5/8" long)	05	Tubastane.
225	Steering yoke clamping bolt nut	02	Tubastape.
226	Steering yoke clamping bolt cotter pin	01	Tubastarn.
227	Steering gear connecting rod only	30	Tubastasl.
228	Steering ball socket assembly	1 00	Tubastato.
229	Steering ball socket only	50	Tubastava.
230	Steering ball socket cap	20	Tubasto.
231	Steering ball socket bolt	05	Tubastral.
232	Steering ball socket bolt nut	03	Tubaud.
233	Steering ball socket bolt cotter pin	01	Tubauded.
234	Steering ball socket lock nut	03	Tubaurabs.
235	Front radius rod	5 00	Tubaurad.
236	Front radius rod nut	05	Tubaurtos.
237	Front radius rod cotter	01	Tubaurvfl.
238	Front radius rod ball cap	20	Tabauster.
239	Front radius rod ball socket	15	Tubaxilar.
240	Front radius rod ball stud	05	Tubbajlas.
241	Front radius rod ball stud nut	03	Tubbajulo.

Wheels

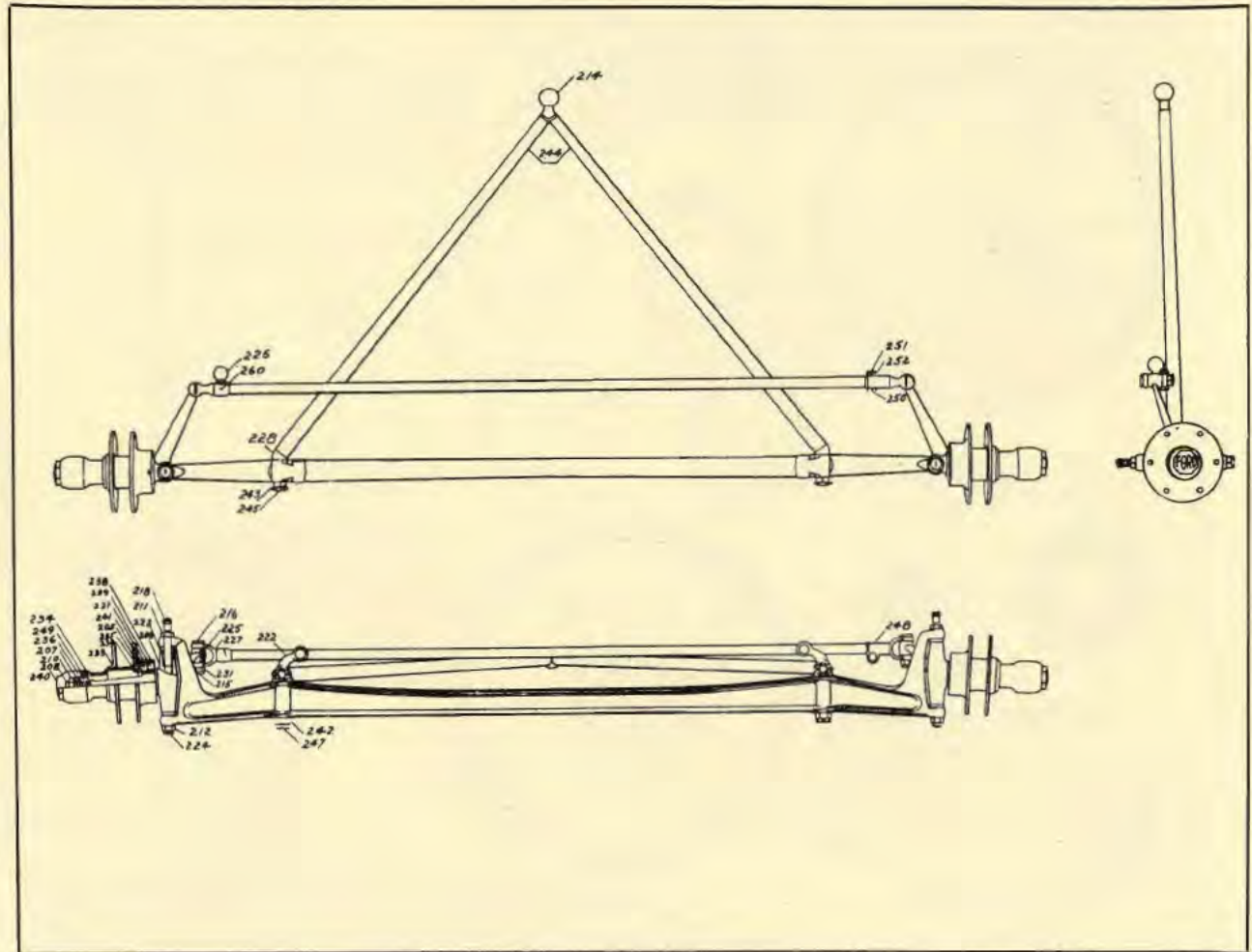
No.	Description.	Price.	Code Word.
291	Front wheel	\$12 00	Tubbal.
200	Front hub assembly	8 00	Tubbalas.
234	Front hub outer race (small)	50	Tubbalbe.
235	Front hub inner race (large)	60	Tubbarne.
236	Front hub outer ball retainer	10	Tubbanous.
237	Front hub inner ball retainer	10	Tubbabanted.
238	Front hub dust ring (steel)	25	Tubbaste.
239	Front hub felt washer	05	Tubbalano.
241	Front hub large balls (1/2")	05	Tubbiase.
249	Front hub small balls (3/8")	04	Tubbiavan.
99	Rear wheel	12 00	Tubbibets.
102	Rear hub	8 00	Tubbibims.
26	Rear hub key	05	Tubbibo.
27	Rear hub pin	02	Tubbibent.
3	Rear hub brake drum	1 50	Tubbiello.
240	Hub cap	75	Tubbiato.
28	Hub bolt	05	Tubbracha.
29	Hub bolt nut	02	Tubbrade.
233	Hub flange (front or rear)	60	Tubbrevia.
54	Rear hub felt washer	05	Tubbrezum.

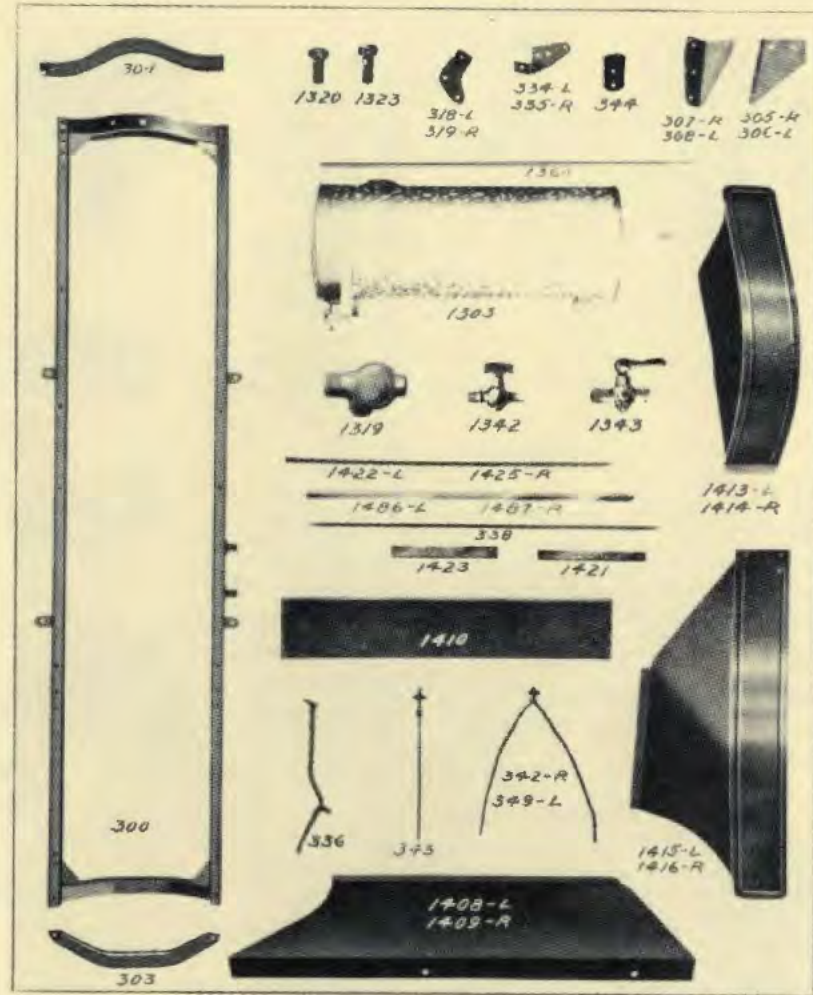
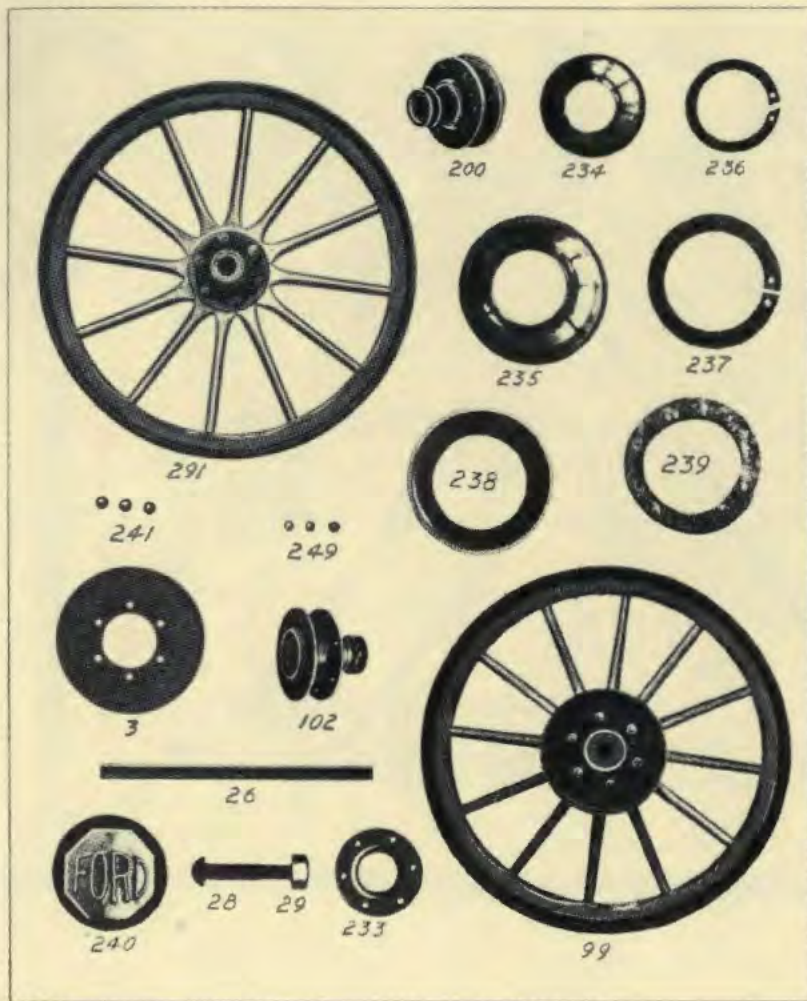
Frames

No.	Description.	Price.	Code Word.
300	Frame assembly	\$25.00	Tubcandid.
301	Frame side member—right	7 00	Tubcarre.
302	Frame side member—left	7 00	Tubeaudal.
303	Frame front cross member	3 00	Tubcaute.
304	Frame rear cross member	3 00	Tubcaurn.
305	Frame front corner bracket—right	50	Tubcava.
306	Frame front corner bracket—left	50	Tubcavabo.
307	Frame rear corner bracket—right	50	Tubcaves.
308	Frame rear corner bracket—left	50	Tubcaveux.
318	Frame front end spacer—left	20	Tubcavorm.
319	Frame front end spacer—right	20	Tubcelest.
334	Frame rear cross member spacer—left	20	Tubcenauro.
335	Frame rear cross member spacer—right	20	Tubcenbas.
344	Frame body bracket (on frame)	15	Tubcentda.

Gasoline Tank

No.	Description.	Price.	Code Word.
1303	Gasoline tank	\$ 5 00	Tubcerna.
1317	Gasoline tank filling plug	30	Tubcernoe.
1319	Gasoline tank sediment bulb	35	Tubcernut.
1320	Gasoline tank bolt (3/4" long)	05	Tublavio.
1323	Gasoline tank bolt (1/2" long)	05	Tubcommun.
1321	Gasoline tank bolt nut	03	Tubconque.
1322	Gasoline tank bolt cotter	01	Tubconres.
1343	Gasoline tank stop cock	35	Tubconsay.
1342	Gasoline tank pet cock	25	Tubcontin.
1364	Gasoline tank feed pipe	40	Tubcoques.
1374	Gasoline tank feed pipe pack nut	05	Tubcoquo.



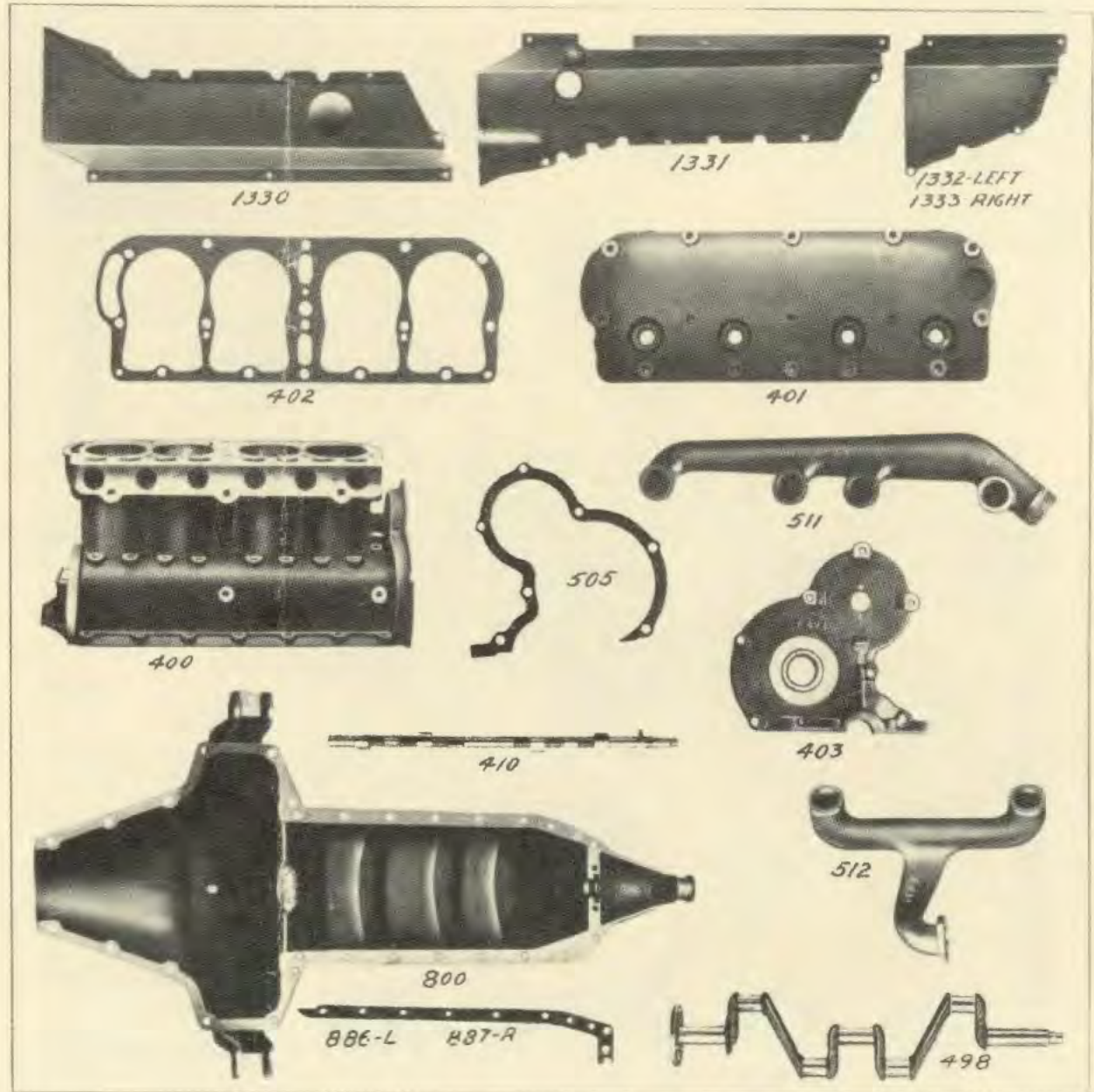


Fenders

No.	Description.	Price.	Code Word.	No.	Description.	Price.	Code Word.	No.	Description.	Price.	Code Word.
1413	Front fender—left	4 00	Tubcortad.	346	Fender iron bolt nut	03	Tubcanald.	1425	Running board brass (right outside)	75	Tubdealbo.
1414	Front fender—right	4 00	Tubcortax.	348	Fender iron bolt cotter	01	Tubcanose.	1426	Running board brass (left inside)	75	Tubdean.
1415	Rear fender—left	3 53	Tubcortam.	1410	Running board complete—right	4 00	Tubcurat.	1487	Running board brass (right inside)	75	Tubdeary.
1416	Rear fender—right	3 53	Tubcostal.	1411	Running board complete—left	4 00	Tubcurral.	1488	Running board brass screw (1/2")	01	Tubdebams.
342	Front fender iron (right and left)	1 00	Tuberania.	1412	Running board rubber matting	1 00	Tubcurrod.	1344	Running board fender bolt	05	Tubdebile.
342	Rear fender iron—right	1 50	Tubcrudum.	1408	Running board metal shield—left	2 50	Tubcurvos.	1347	Running board fender bolt nut	02	Tubdeboous.
349	Rear fender iron—left	1 50	Tuberuna.	1409	Running board metal shield—right	2 50	Tubcutano.	336	Running board bracket	75	Tubdeacana.
345	Fender iron bolt—short	05	Tubcruned.	1421	Running board brass (rear end)	30	Tubdanus.	338	Running board truss rod	40	Tubdecupe.
347	Fender iron bolt—long	05	Tubcrnot.	1422	Running board brass (left outside)	75	Tubdeacon.	339	Running board truss rod nut	02	Tubdefend.
				1423	Running board brass (front end)	30	Tubdenlas.	340	Running board bolt	05	Tubdela.
				1424	Running board brass screw (5/8")	01		341	Running board bolt nut	02	Tubdelero.

Motor

No.	Description.	Price.	Code Word.
400	Cylinder only	\$30 00	Tubdelega.
401	Cylinder head	5 00	Tubdelega.
402	Cylinder head gasket	1 20	Tubdented.
483	Cylinder head cap screw	05	Tubdepost.
446	Cylinder head outlet connection	60	Tubdiacox.
445	Cylinder head outlet connection gasket	15	Tubdiala.
448	Cylinder head outlet hose	60	Tubdialet.
554	Cylinder head outlet hose clip	10	Tubdifido.
550	Cylinder head outlet connection screw	05	Tubdigite.
403	Cylinder cover (front end)	1 75	Tubdigous.
432	Cylinder cover cap screw	05	Tubdumida.
504	Cylinder cover felt	10	Tubditasm.
505	Cylinder cover paper liner	10	Tubditas.
442	Cylinder water inlet connection	30	Tubdited.
444	Cylinder water inlet pack nut	15	Tubdituro.
557	Cylinder water jacket plug	10	Tubdivid.
586	Piston assembly	4 00	Tubdivine.
418	Piston only	3 00	Tubdivisti.
419	Piston pin	35	Tubdoceas.
420	Piston pin screw	05	Tubdoceba.
421	Piston pin screw cotter pin	01	Tubdito.
422	Piston ring	17	Tubdoctor.
587	Connecting rod assembly	3 00	Tubdolor.
487	Connecting rod only	2 00	Tubdbolous.
488	Connecting rod cap (babbitted)	60	Tubdomba.
489	Connecting rod cap bolt	05	Tubdomo.
490	Connecting rod cap bolt nut	03	Tubduable.
500	Connecting rod cap bolt cotter pin	01	Tubducum.
491	Connecting rod bolt cotter pin (piston end)	01	Tubducote.
423	Connecting rod piston pin bushing	25	Tubducton.
578	Connecting rod clamp screw (piston end)	05	Tubductor.
498	Crank shaft	16 00	Tubdument.
405	Crank shaft bearing cap—rear	1 10	Tubdulam.
406	Crank shaft bearing cap—front	1 00	Tubdulba.
407	Crank shaft bearing cap—center	1 00	Tubdulce.
408	Crank shaft bearing bolt (center and front)	15	Tubduplas.
409	Crank shaft bearing bolt nut	05	Tubdorrum.
478	Crank shaft rear bearing bolt	05	Tubduros.
506	Crank shaft bearing bolt cotter pin	01	Tubdebat.
501	Crank shaft center bearing liner	05	Tubedunt.
502	Crank shaft front bearing liner	05	Tubendo.
503	Crank shaft rear bearing liner	05	Tubenroul.
530	Crank shaft ratchet	50	Tubepinex.
529	Crank shaft ratchet pin	02	Tubequal.





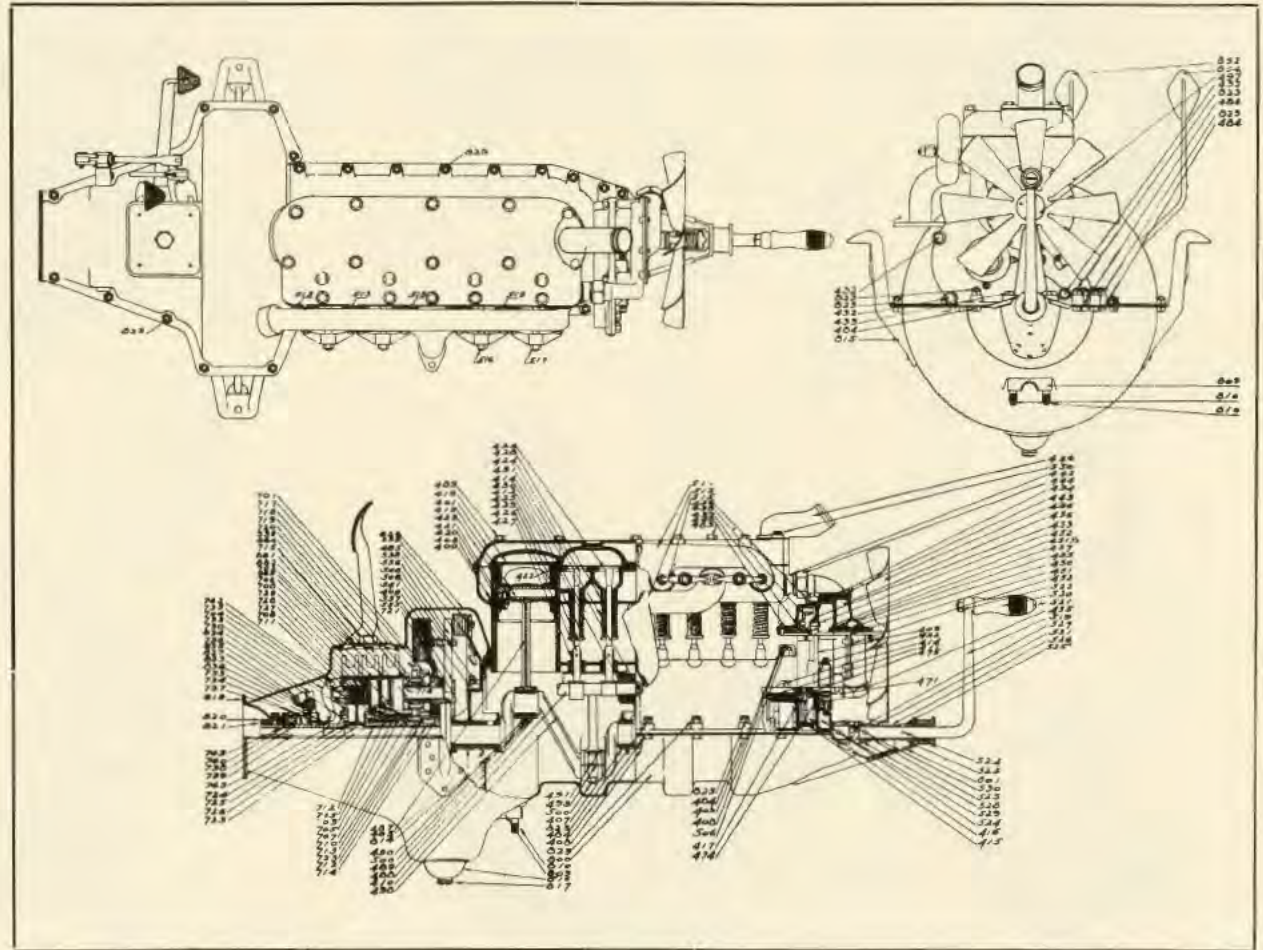
No.	Description.	Price.	Code Word.
410	Cam shaft	6 00	Tuberamid.
411	Cam shaft bearing—front	60	Tuberanol.
412	Cam shaft bearing—center	60	Tuberate.
413	Cam shaft bearing—rear (bronze)	40	Tubexcuse.
534	Cam shaft bearing ring	05	Tubexplic.
414	Cam shaft bearing set screw	05	Tubfeudo.
415	Cam shaft gear—large	1 50	Tubfeum.
416	Cam shaft gear—small	1 00	Tubfeunos.
417	Cam shaft gear dowel pin	05	Tubfidros.
475	Cam shaft large gear lock nut	15	Tubfolice.
477	Cam shaft small gear key	05	Tubfolion.
424	Exhaust and inlet valve	40	Tubfolius.
428	Exhaust and inlet valve bushing	15	Tubfolom.
430	Intake valve spring	10	Tubfumes.
431	Exhaust valve spring	10	Tubfuscus.
425	Valve spring seat	05	Tubfosk.
429	Valve spring seat pin	01	Tubgemine.
426	Push rod	30	Tubgener.
427	Push rod bushing	20	Tubgenus.
511	Exhaust pipe	1 50	Tubgibeux.
518	Exhaust pipe pack nut (brass)	40	Tubgliabre.
512	Inlet pipe	2 00	Tubglacal.
513	Inlet and exhaust pipe gasket	05	Tubgronde.
514	Inlet and exhaust pipe gland	05	Tubhashtab.
515	Inlet and exhaust pipe clamp	15	Tubhaste.
516	Inlet and exhaust pipe clamp stud	05	Tubhircos.
517	Inlet and exhaust pipe clamp nut	03	Tubhircum.
582	Breather pipe complete (1" tube)	90	Tubhorido.
509	Breather pipe (1 1/2" tube)	30	Tubhumids.
508	Breather pipe hood	60	Tubida.
510	Breather pipe hood plug	10	Tubidarum.
808	Crank case front wall felt block	10	Tubidora.
800	Crank and trans lower case	15 00	Tubidres.
886	Crank case & cylinder gasket—left	10	Tublendo.
887	Crank case & cylinder gasket—right	10	Tubliron.
433	Crank case and cylinder front cover cap screw	05	Tubleroud.
484	Crank case and cylinder front cover bolt	05	Tublerunt.
499	Crank case and cylinder front cover nut	03	Tublightab.
479	Crank case arm bolt (side)	05	Tubligites.
480	Crank case arm bolt (top)	05	Tubilla.
320	Crank case front end bearing (on frame)	60	Tublincem.
321	Crank case front end bearing cap	40	Tublincs.
322	Crank case front end bearing screw	05	Tublilma.
817	Trans case drain cup plug	05	Tubumos.
890	Trans case arm block (wood)	05	Tubunana.
1330	Engine pan—right	60	Tubnanis.
1331	Engine pan—left	60	Tubinda.
1332	Trans pan—left	30	Tubindate.
1333	Trans pan—right	30	Tubindebat.
1335	Engine and trans pan bolt	05	Tubindece.
1336	Engine and trans pan nut	02	Tubundesu.
1338	Engine and trans pan cotter	01	Tubindu.

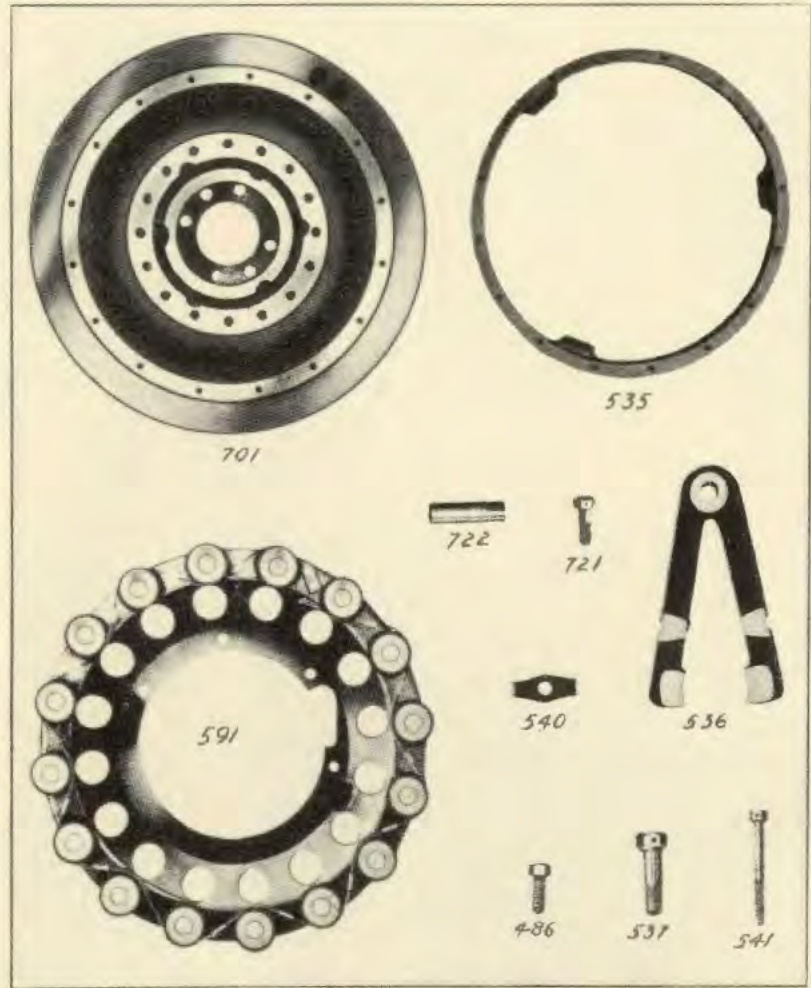
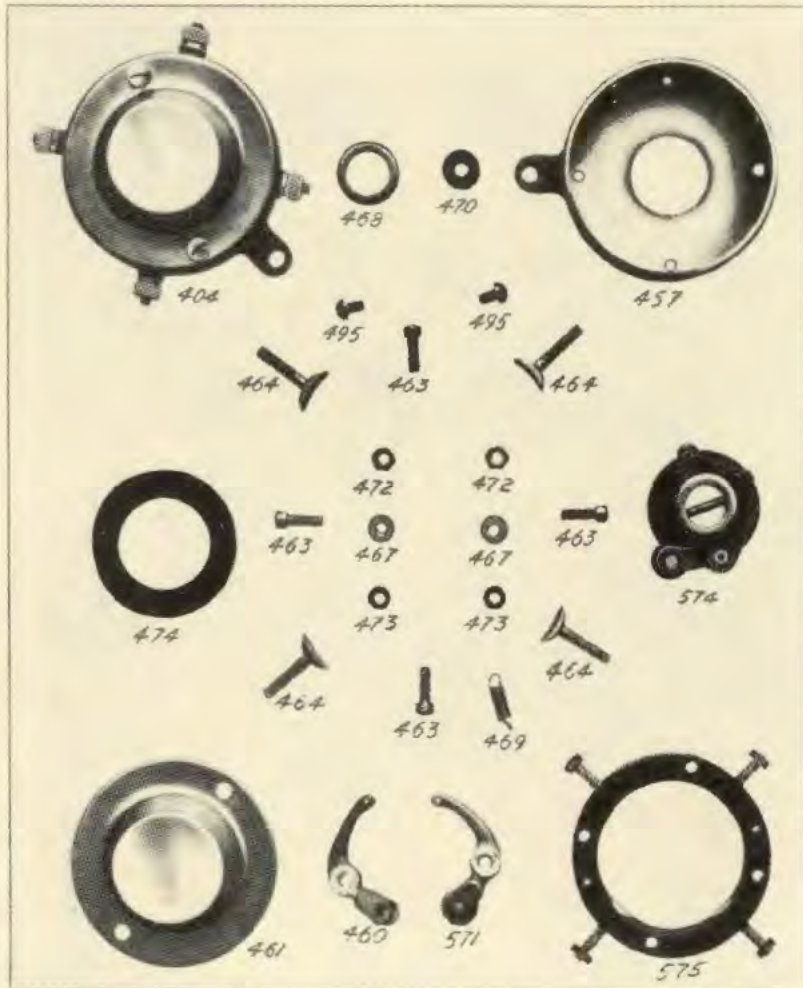
Commutator

No.	Description.	Price.	Code Word.
404	Commutator assembly	\$ 3 50	Tubindud.
457	Commutator body	1 25	Tubinental.
461	Commutator cover	15	Tubinfer.
495	Commutator cover screw—brass	02	Tubinfos.
463	Commutator body screw	02	Tubunfoud.
574	Commutator brush assembly	75	Tubinfule.
468	Commutator brush cap (steel)	05	Tubunsulo.
466	Commutator brush cap pin	02	Tubintrat.
575	Commutator fibre assembly	1 00	Tubuntroe.
464	Commutator contact point	10	Tubinvine.
472	Commutator contact point nut	05	Tubinvito.
473	Commutator contact point fibre insulator	05	Tubirate.
467	Commutator thumb nut (brass)	05	Tubiranno.
474	Commutator felt ring	10	Tubirateo.
470	Commutator roller	10	Tubiratos.
465	Commutator roller pin	02	Tubirebbe.
460	Commutator roller arm	30	Tubireld.
476	Commutator roller arm pin	02	Tubiremo.
469	Commutator roller spring	05	Tubirians.
571	Commutator roller and arm	40	Tubireno.

Magneto

No.	Description.	Price.	Code Word.
591	Magneto coil assembly	\$20 00	Tubissais.
485	Magneto coil support	2 00	Tubissant.
486	Magneto coil support screw to crank case	05	Tubisse.
536	Magnet	1 00	Tubissimo.
537	Magnet bolt	05	Tubista.
540	Magnet clamp	05	Tubistels.
541	Magnet clamp screw	05	Tubitaped.
535	Magnet support (bronze)	3 00	Tubitaron.
568	Magnet clamp screw wire (44" long)	05	Tubitates.
569	Magnet clamp screw wire (30" long)	05	Tubitave.
570	Magnet coil wire pin	02	Tubitten.
1545	Magneto contact assembly (on trans. cover)	50	Tubjacmus.
1508	Magneto contact thumb nut	10	Tubjeccente.
1509	Magneto contact spring	05	Tubjected.
1510	Magneto contact washer (brass)	05	Tubjection.
1518	Magneto contact tube	20	Tubjectif.
1503	Magneto insulating fibre washer	15	Tubjectue.





No.	Description.	Price.	Code Word.
1505	Magneto insulating fibre washer screw	03	Tubjewel.
1504	Magneto insulating fibre block	10	Tubjoined.
1512	Magneto insulating fibre block screw	03	Tubjoilnem.
701	Fly wheel	7 00	Tubjubago.
721	Fly wheel cap screw	10	Tubjugdor.
722	Fly wheel dowel pin	10	Tubjugete.
Transmission			
No.	Description.	Price.	Code Word.
744	Transmission assembly	70 00	Tubjugmos.
747	Transmission reverse plate assembly	6 50	Tubjugorm.

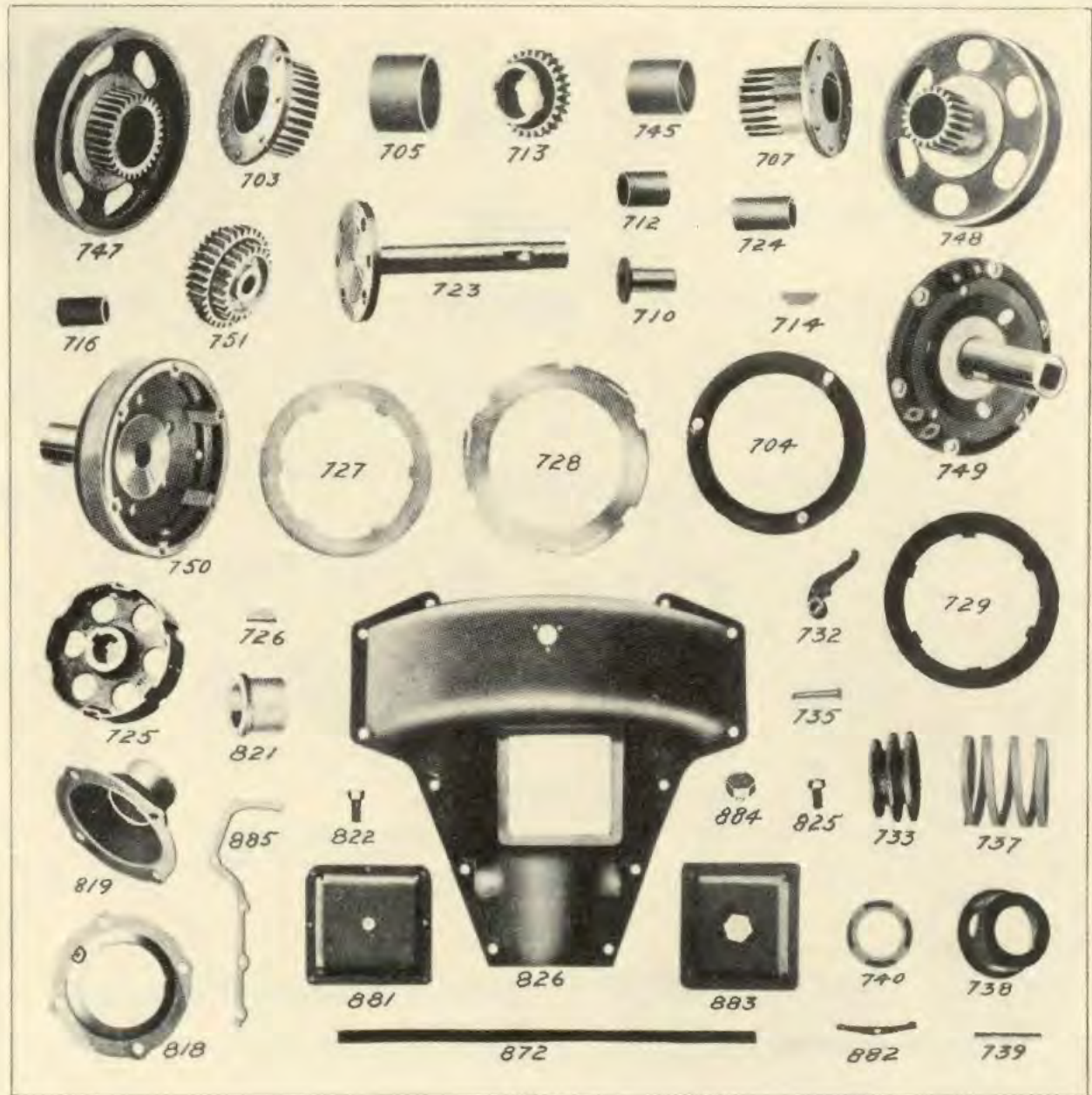
No.	Description.	Price.	Code Word.
702	Transmission reverse plate	2 50	Tubjuncto.
703	Transmission reverse gear (30 teeth)	2 75	Tubjunk.
705	Transmission reverse gear bushing	1 00	Tubjurm.
708	Transmission reverse plate rivet	03	Tublaba.
748	Transmission slow speed plate assembly	6 75	Tublavana.
706	Transmission slow speed plate	2 50	Tublabend.
707	Transmission slow speed gear (21 teeth)	3 00	Tublalia.
745	Transmission slow speed gear bushing	1 00	Tublabo.
708	Transmission slow speed plate rivet	03	Tublaboat.
750	Transmission brake drum assembly	10 00	Tublabord.
709	Transmission brake drum only	5 00	Tublabone.

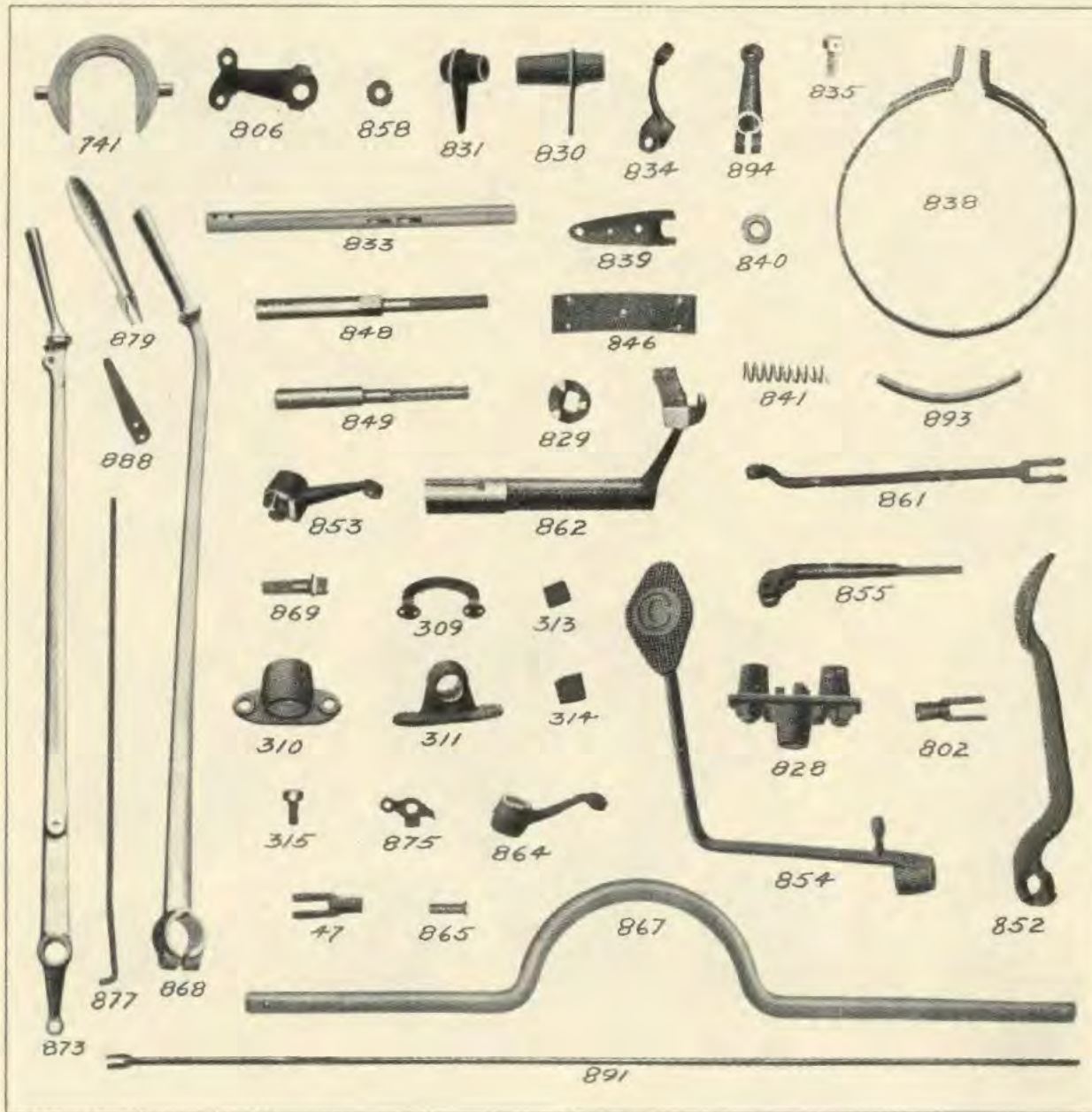
No.	Description.	Price.	Code Word.
751	Transmission triple gear assembly	6 00	Tublamous.
716	Transmission triple gear bushing	50	Tublalat.
715	Transmission triple gear shaft	50	Tublalriv.
720	Transmission triple gear riveting pin	05	Tublacens.
713	Transmission driving gear (27 teeth)	2 00	Tublacrim.
714	Transmission driving gear key	10	Tublapsar.
710	Transmission driving gear sleeve (on brake drum)	4 00	Tublapsi.
712	Transmission driving gear sleeve bushing	50	Tublapsos.
749	Transmission driving plate assembly (including clutch fingers)	8 00	Tublaquad.
730	Transmission driving plate only	3 00	Tublared.

No.	Description.	Price.	Code Word.
731	Transmission driving plate screw...	10	Tublarm.
734	Transmission driving plate key...	10	Tublartar.
736	Transmission driving plate rivet...	03	Tublartine.
743	Transmission driving plate hub...	3 00	Tublartion.
744	Transmission driving plate bushing...	50	Tublarturo.
727	Transmission thrust plate (small)...	30	Tublartuss.
728	Transmission thrust plate (large)...	30	Tublartavams.
729	Transmission distance plate.....	40	Tublartavets.
723	Transmission shaft	4 40	Tublartease.
725	Transmission disc drum.....	3 00	Tublartube.
726	Transmission disc drum key.....	10	Tublartectar.
704	Transmission clutch push ring.....	2 00	Tublartegero.
732	Transmission clutch finger.....	50	Tublartet.
735	Transmission clutch finger pin.....	10	Tublartevaba.
742	Transmission clutch finger pin cotter	01	Tublartevaco.
737	Transmission clutch spring.....	50	Tublartevad.
738	Transmission clutch spring support	50	Tublartevaen.
739	Transmission clutch spring thrust ring pin	10	Tublarteveto.
740	Transmission clutch spring thrust ring	1 20	Tublartevo.
733	Transmission clutch shift..... (Above parts included in transmission assembly.)	2 00	Tublarticcam.
826	Transmission cover	9 00	Tublarticlbs.
825	Transmission cover bolt.....	10	Tublartildeva.
872	Transmission cover felt.....	10	Tublartidim.
885	Transmission cover gasket.....	10	Tublartidunt.
881	Transmission cover door only.....	50	Tublartiga.
882	Transmission cover door spring.....	15	Tublartigars.
883	Transmission cover door assembly.....	75	Tublartimabe.
884	Transmission cover door knob.....	15	Tublartimaca.
892	Transmission cover door gasket.....	10	Tublartimadi.
818	Universal ball cap (rear).....	75	Tublartimano.
819	Universal ball cap with bushing (front)	2 50	Tublartimave.
821	Universal ball cap bushing.....	1 25	Tublartime.
822	Universal ball cap bolt.....	05	Tublartimely.
823	Universal ball cap bolt nut.....	03	Tublartimink.
824	Universal ball cap bolt cotter.....	01	Tublartimlis.

Transmission Control

No.	Description.	Price.	Code Word.
741	Transmission clutch release ring (bronze)	1 50	Tublartimite.
806	Transmission clutch lever.....	50	Tublartimorn.
858	Transmission clutch lever roller...	10	Tublartimend.
833	Transmission clutch lever shaft (8 3-16" long).....	30	Tublartingal.
830	Transmission clutch lever shaft bracket—left	40	Tublartobato.
831	Transmission clutch lever shaft bracket—right	35	Tublartabula.
834	Transmission clutch release fork—right	50	Tublartucana.
894	Transmission clutch release fork—left	50	Tublartid.
836	Transmission clutch release fork key	05	Tublartucius.
835	Transmission clutch release fork clamp screw	05	Tublartuebat.
837	Transmission clutch release fork clamp screw wire.....	02	Tublartucro.
857	Transmission clutch and reverse lever clevis pin.....	02	Tublartuims.
856	Transmission clutch, slow speed pedal pin	02	Tublartuisan.
859	Transmission clutch and reverse lever cotter pin.....	01	Tublartunair.
838	Transmission band	1 50	Tublartunase.
839	Transmission band car.....	20	Tublartuteos.
840	Transmission band washer.....	02	Tublartuxias.
1555	Transmission band fibre complete (5 pieces)	40	Tublartyre.
846	Transmission band center fibre strips, each	08	Tublartmanus.
893	Transmission band end fibre strips, each	08	Tublartmarln.

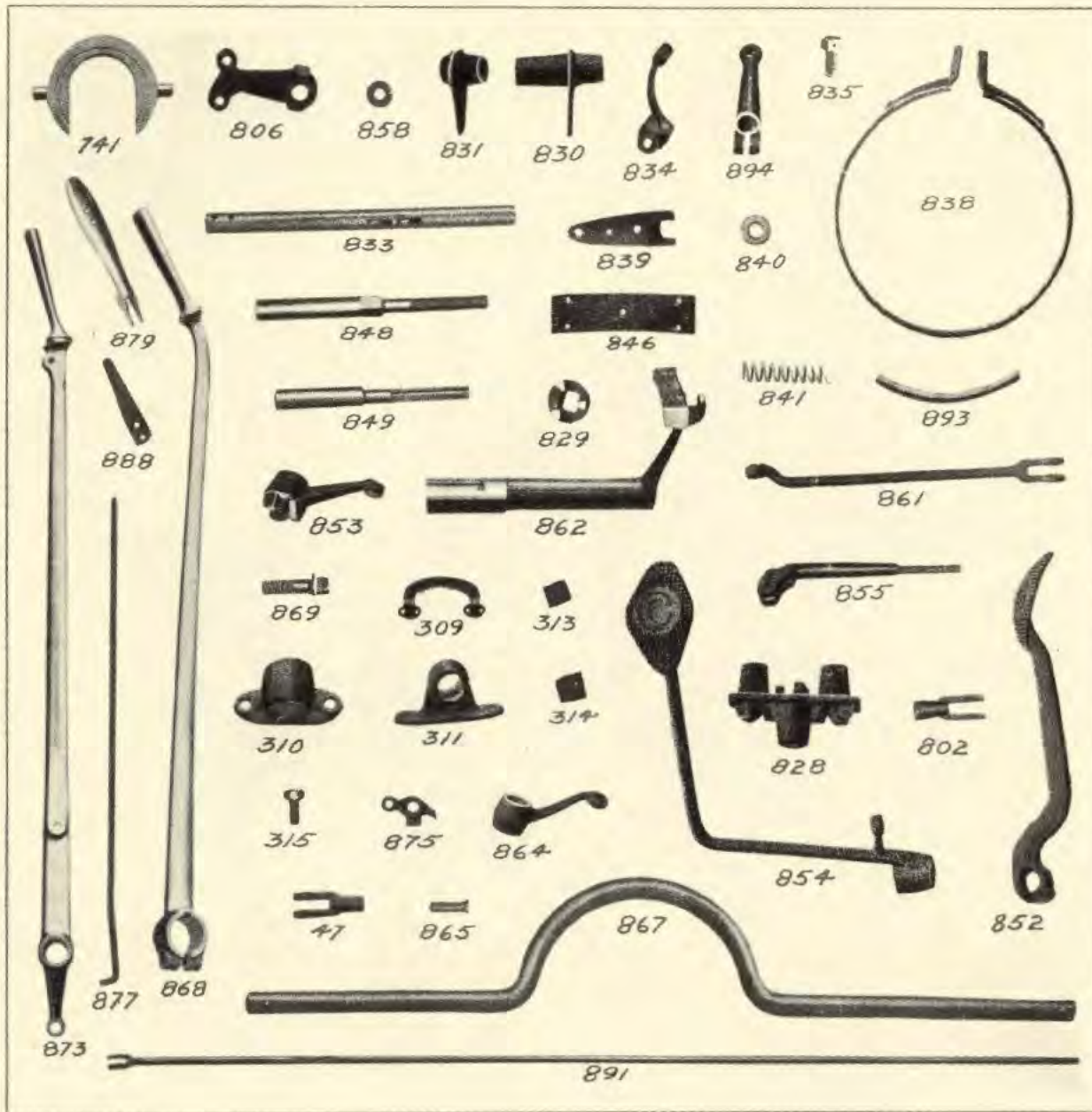




No.	Description.		
842	Transmission band rivet (a/16"x 7/16"), per doz.....	05	Tublat.
843	Transmission band rivet (3/16"x 5/16"), per doz.....	05	Tubmedial.
844	Transmission band rivet (3/32"x 3/8"), per doz.....	05	Tubmedios.
845	Transmission band rivet (3/32"x 3/16"), per doz.....	05	Tubmerge.
841	Transmission band spring (reverse and brake).....	05	Tubmergin.
851	Transmission band adjusting nut..	05	Tubmergus.
848	Transmission slow speed shaft (6 3/4" long).....	40	Tubmersa.
829	Transmission slow speed notched cam.....	50	Tubmersed.
746	Transmission slow speed band spring.....	10	Tubmettid.
862	Transmission speed lever.....	2 50	Tubmisims.
898	Transmission speed lever shoulder pin.....	05	Tubmiss.
1389	Transmission speed lever oiler....	15	Tubmissab.
853	Reverse lever.....	75	Tubmissao.
861	Reverse lever connection.....	50	Tubmissiv.
849	Reverse and brake shaft.....	30	Tubmissly.
852	Brake foot pedal.....	1 00	Tubmissos.
854	Slow speed foot pedal.....	1 00	Tubmissur.
855	Foot pedal connection.....	25	Tubmite.
850	Foot pedal connection lock nut...	02	Tubmittu.
860	Brake pedal and reverse lever pin..	02	Tubmittut.
828	Foot pedal support.....	75	Tubmolest.
802	Foot pedal connection clevis.....	25	Tuboload.
868	Controller lever.....	2 00	Tubmoneas.
1521	Reverse lever connecting clevis....	40	Tubmonebl.
1522	Reverse lever connecting joint nut..	10	Tubmoneo.
1527	Reverse and brake shaft washer...	05	Tubmonish.
869	Controller lever clamp screw.....	05	Tubmoroso.
870	Controller lever clamp screw cotter	01	Tubmotos.
863	Controller lever key.....	02	Tubmotur.
309	Controller quadrant (on frame)....	60	Tubmoveda.
867	Controller shaft.....	60	Tubmoveo.
310	Controller shaft bracket—left.....	40	Tubmucous.
311	Controller shaft bracket—right.....	40	Tubmurner.
313	Controller shaft bracket felt—left..	05	Tubmurole.
314	Controller shaft bracket felt—right..	05	Tubmused.
315	Controller shaft bracket bolt.....	05	Tubmutedo.
316	Controller shaft bracket bolt nut...	03	Tubmutque.
317	Controller shaft bracket bolt cotter	01	Tubnascat.
1550	Hand brake lever assembly.....	2 50	Tubnascel.
873	Hand brake lever.....	1 75	Tubnascor.
866	Hand brake lever pin.....	02	Tubnatabo.
874	Hand brake lever key.....	05	Tubnatads.
875	Hand brake lever pawl.....	20	Tubnaviga.
876	Hand brake lever pawl pin.....	05	Tubnavimo.
877	Hand brake lever pawl rod.....	15	Tubnectes.
878	Hand brake lever pawl rod cotter..	01	Tubnecto.
879	Hand brake lever pawl lift.....	40	Tubnectum.
880	Hand brake lever pawl lift pin....	05	Tubnegada.
888	Hand brake lever pawl lift spring..	05	Tubnegams.
864	Hub brake lever (on controller shaft).....	40	Tubnegart.
865	Hub brake lever pin.....	02	Tubnerons.
47	Hub brake lever clevis.....	25	Tubnerra.
891	Hub brake pull rod—right.....	45	Tubnervas.
1513	Hub brake pull rod—left.....	45	Tubnervo.

Steering Gear

No.	Description.	Price.	Code Word.
900	Steering gear assembly.....	\$25 00	Tubneuter.
901	Steering gear rim.....	2 00	Tubneutro.
919	Steering gear rim screw.....	05	Tubnexed.
902	Steering gear spider.....	2 00	Tuborno.
903	Steering gear cover.....	1 25	Tubostend.
910	Steering gear cover screw.....	05	Tuboval.
914	Steering gear cover bushing.....	25	Tubovtrae.
904	Steering gear internal gear case..	2 00	Tuboxide.
905	Steering gear case bushing.....	1 25	Tubpectin.
906	Steering gear quadrant.....	1 20	Tubpenne.



Transmission Control—Three Pedal Type

Order these parts for machines numbered above 800

1563 Trans cover complete (includes 3 pedal assembly).....\$18.00

Parts included in 1563 assembly

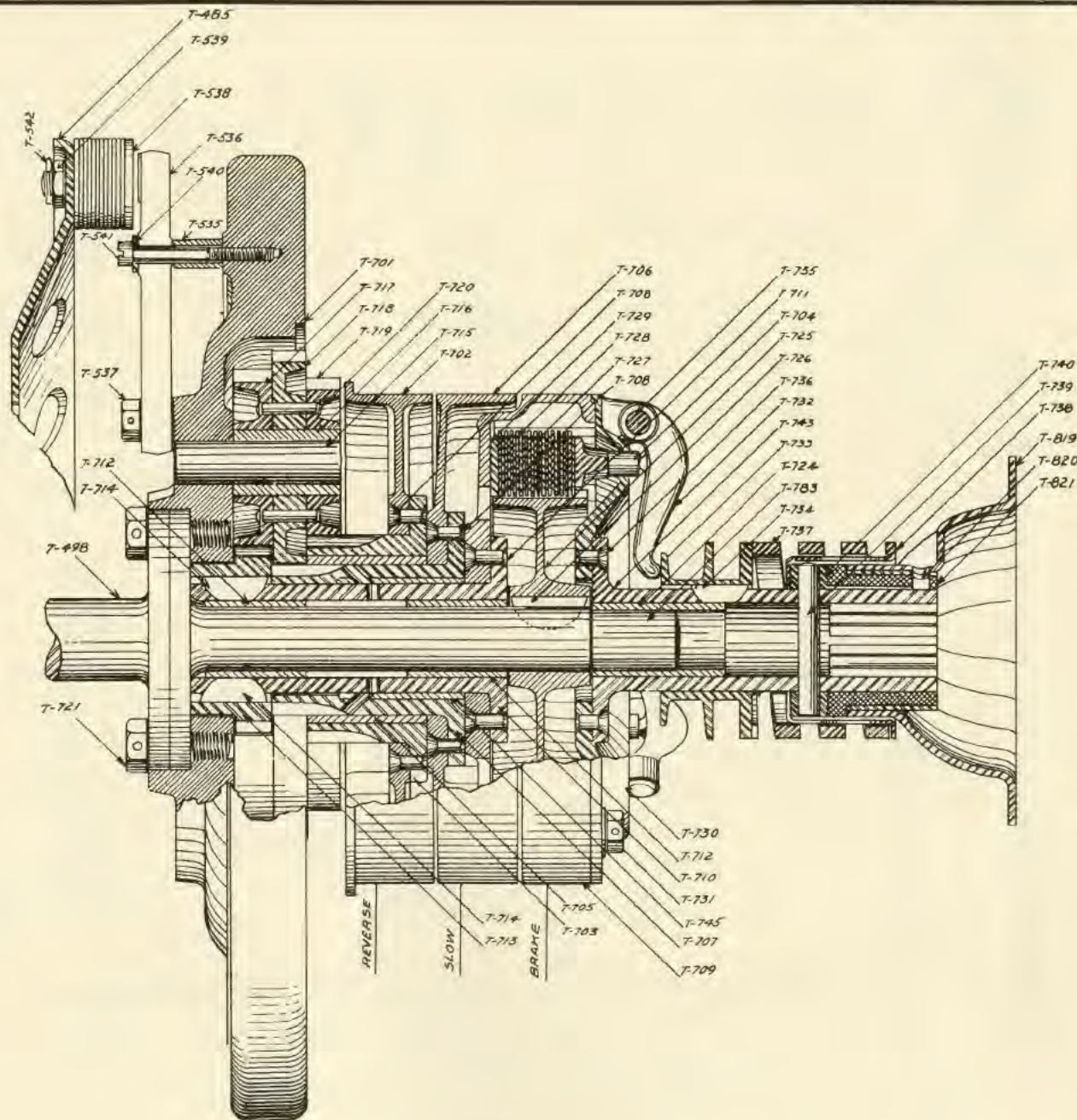
826B	Trans cover only.....	9.00
825B	Trans cover bolts (12-1 1/4" long), each.....	.10
1546A	Trans cover door with knob and spring.....	.75
884B	Trans cover door knob.....	.15
882B	Trans cover door spring.....	.15
1547	Trans cover door gasket.....	.10
1549	Trans cover door stop screws (2) each.....	.05
1552	Trans cover oil pocket plate.....	.10
852B	Brake pedal.....	1.25
853B	Reverse pedal.....	1.25
854B	High and slow speed pedal.....	1.00
1553	Pedal pins (3), each.....	.05
849B	Brake and Reverse pedal shafts (2), each.....	.20
1530	Brake and Reverse pedal support (2), each.....	.60
1534	Brake and Reverse support bolts (2), each.....	.10
1535	Brake and Reverse support bolts nuts (2), each.....	.05
1531	High and Slow speed pedal support.....	.30
1536	High and Slow speed pedal support bolts (2) each.....	.05
1537	High and Slow speed pedal support bolt nuts (2), each.....	.05
806B	Clutch lever.....	.30
833B	Clutch lever shaft.....	.25
1541	Clutch lever screw.....	.10
1542	Clutch lever screw nut.....	.05
1554	Clutch lever pin.....	.03
848B	Slow Speed shaft.....	.30
829B	Slow Speed notch.....	.60
1560	Slow Speed notch pin.....	.03
1540	Foot pedal connection.....	.25
802	Foot pedal connection clevis.....	.02
850	Foot pedal connection lock nut.....	.50
1545B	Magneto contact assembly (on trans. cover).....	.50
Below to and including 1545B are included in 1563 assembly		
862B	Speed lever.....	3.50
838B	Transmission bands (3), each.....	1.50
893B	Transmission band end fibre.....	.10
1533	Transmission band adjusting screw.....	.15
1532	Transmission band adjusting screw nut.....	.05
887B	Controller shaft with speed lever assembled.....	1.00
311	Controller shaft bracket.....	.25
314	Controller shaft bracket, felt.....	.10
309B	Hub brake cam shaft—left.....	.60
61B	Hub brake cam shaft—right.....	.30
92B	Foot pedal board forward plates (3), each.....	.30
1400B	Foot pedal board rear plates (3), each.....	.35
1095B	First floor board.....	.40
1094B	Second floor board.....	.35
1098B	Third floor board.....	.35
1402B	Fourth floor board.....	.40
1404B	Front floor rubber mat.....	.25
1616B		3.25

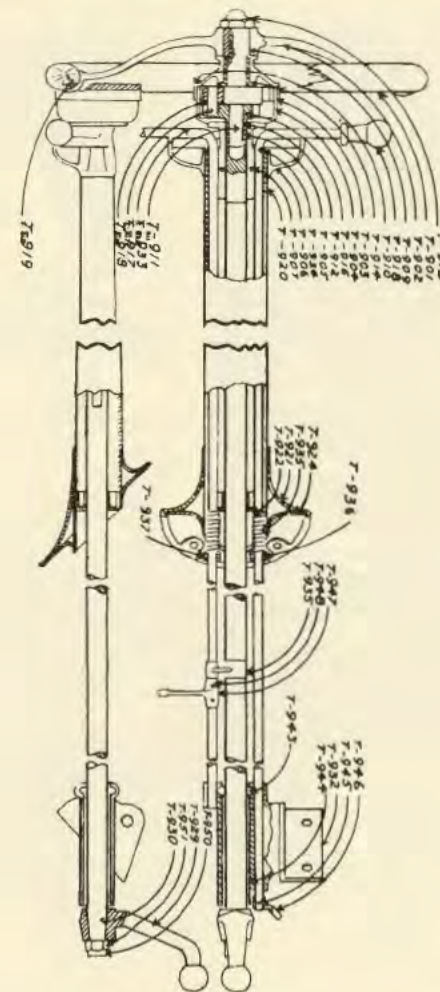
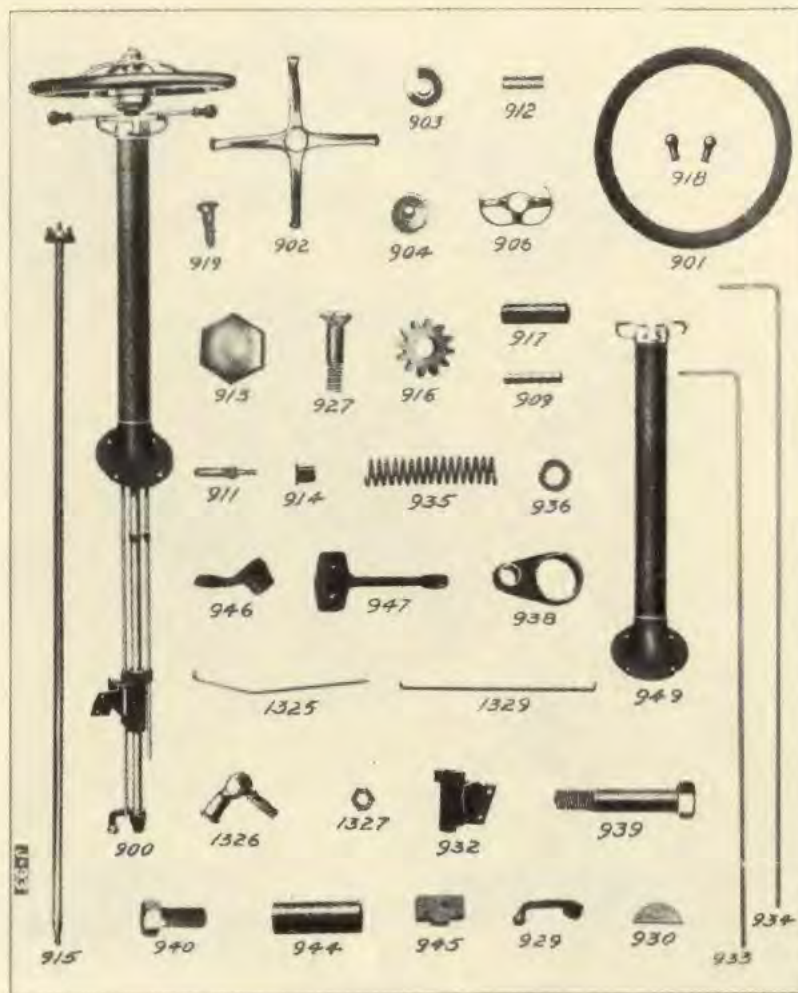
Steering Gear

No.	Description.	Price.	Code Word.
900	Steering gear assembly.....	\$25 00	Tubneuter.
901	Steering gear rim.....	2 00	Tubneuro.
919	Steering gear rim screw.....	05	Tubnexed.
902	Steering gear spider.....	2 00	Tuborno.
903	Steering gear cover.....	1 25	Tubostend.
910	Steering gear cover screw.....	05	Tuboval.
914	Steering gear cover bushing.....	25	Tubovtrae.
904	Steering gear internal gear case.....	2 00	Tuboxide.
905	Steering gear case bushing.....	1 25	Tubpectin.
906	Steering gear quadrant.....	1 20	Tubpenne.

No.	Description.	Price.	Code Word.
907	Steering gear quadrant pin.....	05	Tubperfor.
913	Steering gear wheel nut.....	20	Tubjetrol.
949	Steering gear tubing assembly (in- cludes gear case, also lead and throttle rods).....	10 00	Tubpliquat.
927	Steering gear tubing flange screw..	10	Tubplinth.
928	Steering gear tubing flange screw nut.....	10	Tubplinos.
925	Steering gear tubing flange screw washer.....	05	Tublisse.
915	Steering gear post.....	3 00	Tubpolar.
918	Steering gear pinions (3), each....	50	Tubperan.
917	Steering gear pinion pin (5/16 x 1-16")	05	Tubprefer.
911	Steering gear driving pinion.....	1 20	Tubprior.
909	Steering gear driving pinion key....	05	Tubquarto.
912	Steering gear pinion shaft bushing	30	Tubradend.
950	Steering gear post cotter.....	01	Tubradlab.
951	Steering gear post castle nut.....	05	Tubradie.
933	Throttle rod.....	50	Tubrados.
934	Lead rod.....	50	Tubralem.
918	Lead and throttle handle (rubber)..	25	Tubrameal.
935	Lead and throttle rod spring.....	10	Tubramoso.
936	Lead and throttle rod collar.....	10	Tubrasos.
937	Lead and throttle rod collar pin...	05	Tubrasauro.
948	Lead rod lever.....	30	Tubraucid.
947	Throttle rod lever.....	30	Tubraucos.
938	Throttle rod gulde.....	40	Tubradad.
948	Throttle and lead lever pin.....	20	Tubray.
1325	Commutator pull rod (13 3/4" long)..	25	Tubrayado.
1329	Carburetor pull rod (15 1/4" long)..	20	Tubrayn.
1326	Lead lever ball and socket joint...	30	Tubraya.
1327	Lead lever ball and joint nut.....	03	Tubrayors.
1328	Commutator and carburetor conn. cotter.....	01	Tubrayote.
932	Steering post bracket with bushing	2 50	Tubregano.
939	Steering post bracket bolt (2 1/4" long).....	20	Tubregion.
940	Steering post bracket bolt (1 1/2" long).....	10	Tubridebe.
941	Steering post bracket bolt nut.....	10	Tubrident.
942	Steering post bracket cotter.....	01	Tubrigid.
943	Steering post bracket felt washer..	10	Tubrigor.
944	Steering post bracket bushing (bronze).....	1 00	Tubrigous.
945	Steering post bracket block.....	10	Tubrigum.
929	Steering ball arm.....	1 20	Tubringe.
930	Steering ball arm key.....	10	Tubrusion.

Body Parts			
No.	Description.	Price.	Code Word.
1484	Body complete.....	130 00	Tubrogamo.
1002	Body bracket (on body).....	10	Tubrogaor.
1304	Body bracket conn. bolt (1 1/2" long)	05	Tubroanus.
1305	Body bracket conn. bolt (25/32" long).....	05	Tubrogolt.
1306	Body bracket conn. bolt cotter.....	01	Tubroguet.
1628	Body bracket bolt cotter.....	05	Tubroyy.
1629	Body bracket bolt on body (3" long)	05	Tubroil.
1307	Body bracket conn. bolt nut.....	05	Tubroine.
1000	Body bracket bolt.....	05	Tubrolam.
1001	Body bracket bolt nut.....	03	Tubrole.
1806	Tonneau carpet.....	2 50	Tubroad.
1802	Tonneau carpet fastener screw.....	05	Tubrorle.
1805	Tonneau door strap.....	35	Tubroste.
1800	Tonneau door strap clip screw.....	05	Tubrubect.
1443	Tonneau door handle.....	60	Tubrufarm.
1479	Tonneau door handle screw.....	05	Tubremax.
1442	Tonneau door lock—left.....	2 50	Tubrumaba.
1444	Tonneau door lock—right.....	2 50	Tubrumado.
1445	Tonneau door lock striker plate— left.....	30	Tubrumarm.
1446	Tonneau door lock striker plate— right.....	30	Tubruplet.
1632	Tonneau door hinge assembly—right	1 50	Tubrustic.
1633	Tonneau door hinge assembly—left	1 50	Tubrutile.
1012	Tonneau door hinge pin.....	10	Tubruto.
1019	Tonneau heel board hinge.....	15	Tubrsaline.
1020	Tonneau heel board latch.....	35	Tubsalsam.

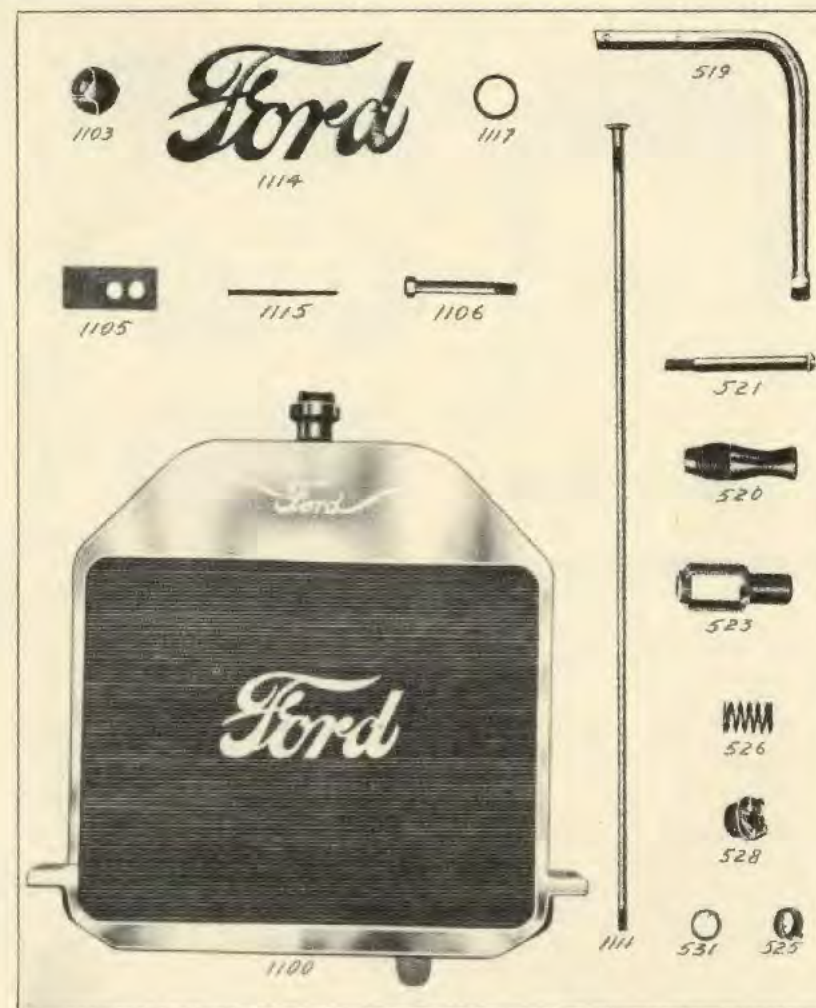
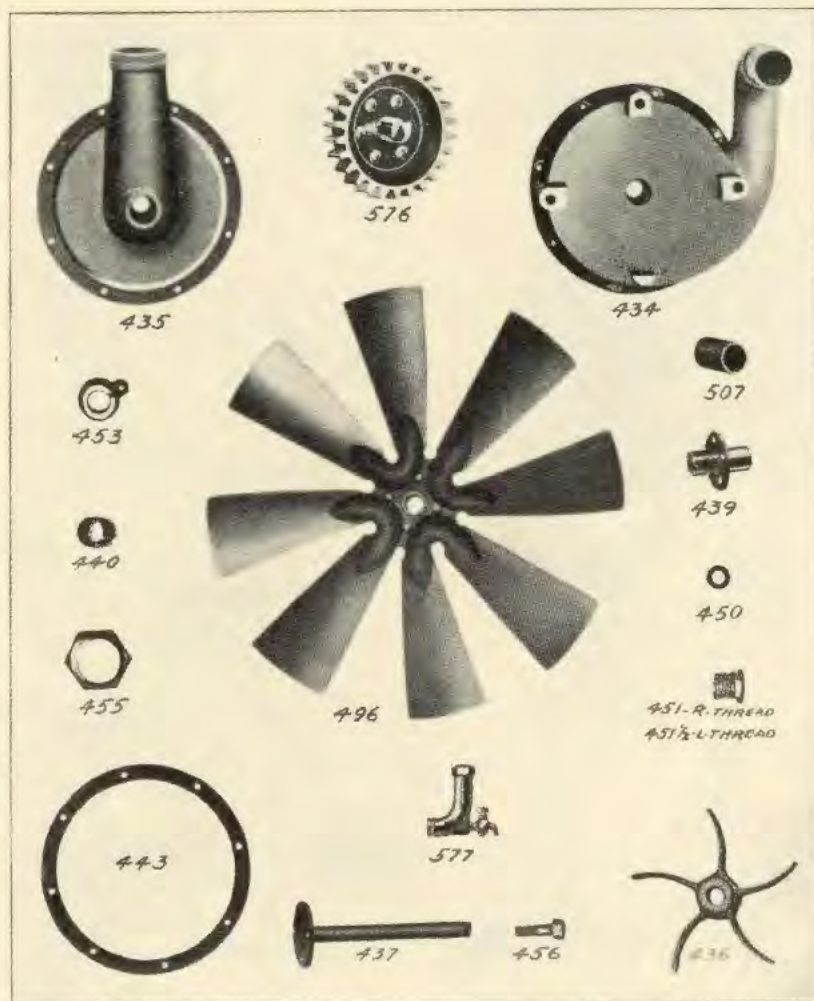




No.	Description.	Price.	Code Word.
1471	Tonneau heel board hinge screw...	05	Tubsalsoe.
1067	Tonneau heel board latch screw...	05	Tubsalsud.
1618	Front floor rubber matting...	3 25	Tubsalt.
1043	Floor board hinge...	10	Tubsanabe.
1044	Floor board hinge screw...	02	Tubsanamo.
1098	Floor board (first)...	35	Tubsanar.
1401	Floor board (second)—left half...	20	Tubsaned.
1092	Floor board (second)—right half...	20	Tubsannm.
1402	Floor board (second) complete...	40	Tubsannab.
1404	Floor board (third)...	50	Tubsato.
1403	Floor board (fourth)...	35	Tubsclinda.
1099	Floor board plate for brake pedal (right)...	15	Tubscreve.
1400	Floor board forward plate for pedal	20	Tubscribe.

No.	Description.	Price.	Code Word.
1407	Floor board plate screw...	05	Tubscrime.
1795	Floor board plate for clutch pedal.	30	Tubscript.
1098	Floor board plate for brake pedal (left)	15	Tubscruto.
1094	Floor board plate for side lever complete	60	Tubscrudis.
1094-B	Floor board long plate for side lever	40	Tubscus.
1094½-B	Floor board short plate for side lever	35	Tubsecaba.
1091	Dash	6 00	Tubsectin.
1063	Dash brass moulding...	1 50	Tubsecutis.
1064	Dash brass moulding screw...	02	Tubsequor.
1405	Dash shield screw...	02	Tubserat.

No.	Description.	Price.	Code Word.
1093	Dash shield guide...	50	Tubsereba.
1406	Dash shield guide screw...	02	Tubseriol.
1017	Dash bracket (left)...	75	Tubserite.
1018	Dash bracket (right)...	75	Tubserved.
1028	Dash bracket bolt (on frame)...	05	Tubservin.
1029	Dash bracket bolt nut...	05	Tubsessa.
1030	Dash bracket bolt cotter...	01	Tubsesses.
1031	Dash bracket top bolt...	05	Tubsessie.
1032	Dash bracket lower bolt...	05	Tubsessix.
1033	Dash bracket top bolt washer...	02	Tubsessor.
1034	Dash bracket lower bolt washer...	02	Tubsetace.
1035	Dash bracket top bolt nut...	03	Tubsetassie.
1036	Dash bracket lower bolt nut...	03	Tubalccas.
1097	Dash shield	20	Tubsciccto.

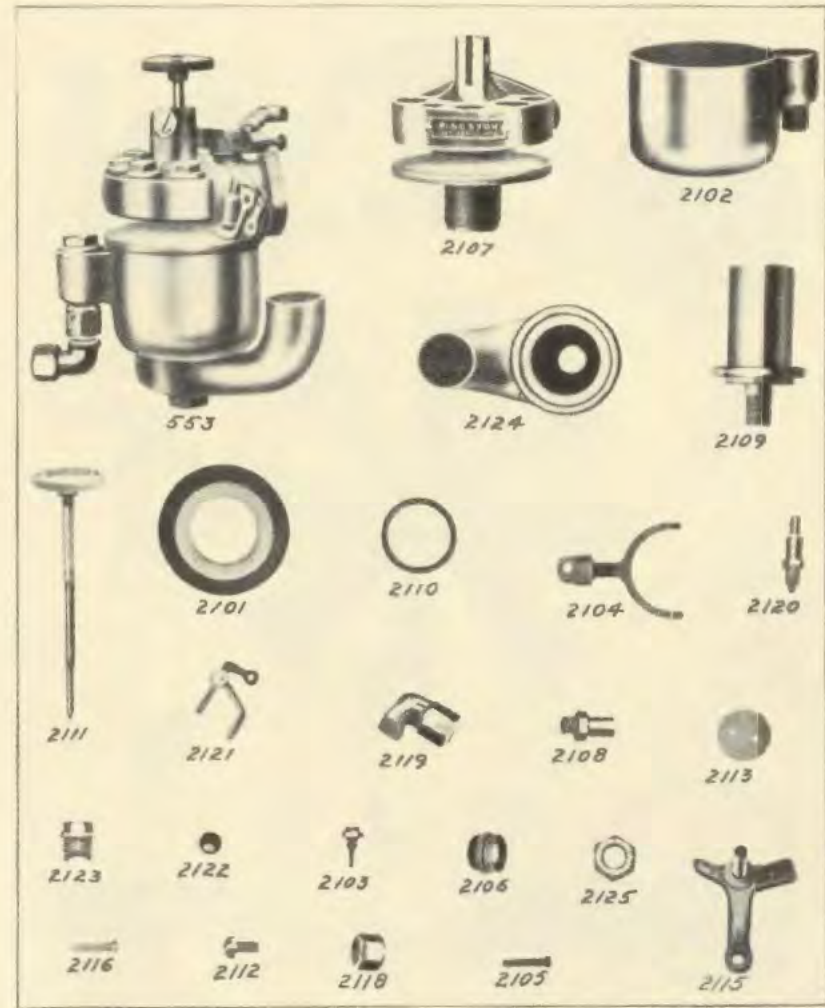
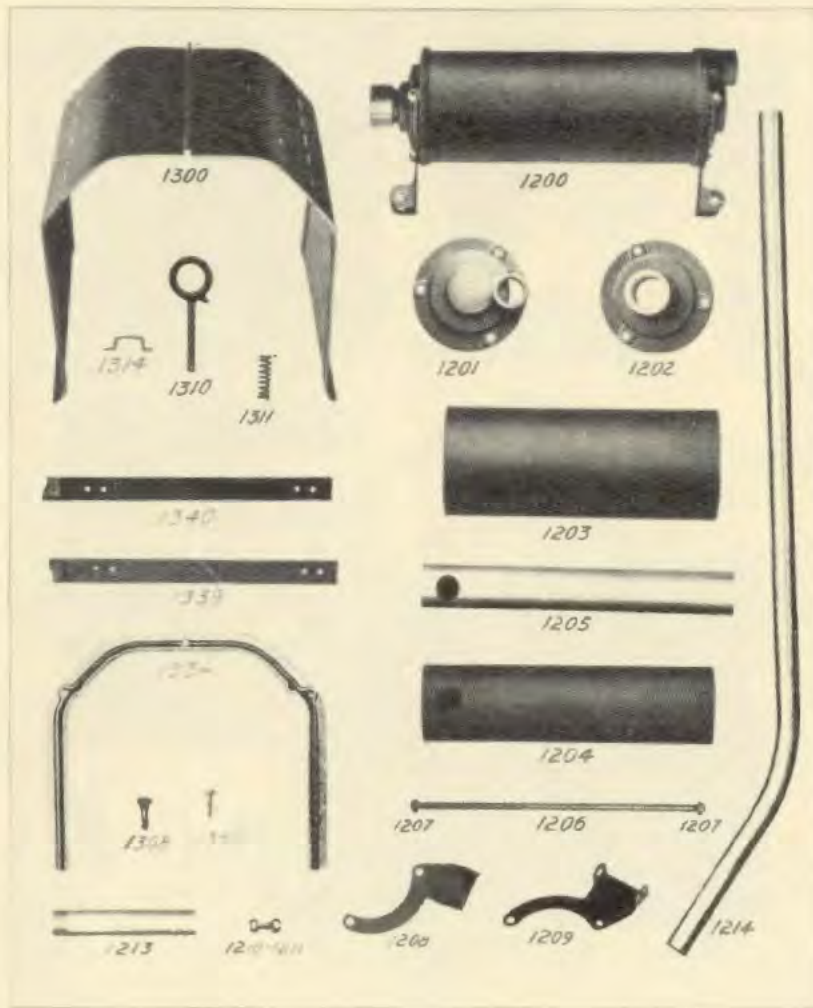


No.	Description.	Price.	Code Word.
222 1/2	Front spring perch—left.....	1 00	Tubterago.
230	Front spring perch bushing (also used on spring).....	20	Tubtereba.
242	Front spring perch nut.....	05	Tubterfue.
247	Front spring perch cotter pin.....	01	Tubterar.
262	Front spring leather.....	10	Tubtevac.
333	Rear spring.....	14 00	Tubterit.
361	First leaf (main leaf).....	2 60	Tubtera.
362	Second leaf.....	2 25	Tubtlendo.
363	Third leaf.....	2 00	Tubtilely.
364	Fourth leaf.....	1 75	Tubtileza.
365	Fifth leaf.....	1 60	Tubtiliba.
366	Sixth leaf.....	1 50	Tubtilisa.
367	Seventh leaf.....	1 30	Tubtility.
368	Eighth leaf.....	1 10	Tubtimear.

No.	Description.	Price.	Code Word.
326	Rear spring clip.....	25	Tubtinies.
328	Rear spring clip nut.....	05	Tubtituba.
329	Rear spring clip bar.....	10	Tubtive.
331	Rear spring clip cotter pin.....	01	Tubtlenes.
1352	Rear spring tie bolt.....	05	Tubtly.
1353	Rear spring tie bolt nut.....	02	Tubtonic.
1355	Rear spring tie bolt cotter pin.....	01	Tubtorque.
91	Rear spring hanger (narrow flange).....	50	Tubtorse.
91 1/2	Rear spring hanger (wide flange).....	50	Tubtraca.
94	Rear spring leather pad.....	15	Tubtrack.
41	Rear spring perch.....	60	Tubtracto.
172	Rear spring perch bushing (also used on spring).....	10	Tubtrahr.
174	Rear spring perch nut.....	05	Tubtraho.

No.	Description.	Price.	Code Word.
551	Pump assembly.....	\$ 9 00	Tubtrifid.
434	Pump body.....	4 00	Tubtrilo.
435	Pump cover.....	2 00	Tubtriple.
432	Pump cover screw.....	05	Tubtripos.
443	Pump cover gasket.....	10	Tubtriste.
436	Pump fan.....	1 00	Tubtrude.
437	Pump shaft.....	1 00	Tubturbin.
454	Pump cotter pin.....	01	Tubtuto.
451	Pump packing nut (right thread).....	25	Tubtutorm.
451 1/2	Pump packing nut (left thread).....	25	Tubuculam.
450	Pump thrust washer (steel).....	10	Tubucule.

(Above parts comprise pump assembly.)



No.	Description.	Price.	Code Word.
576	Pump drive gear and shaft.....	2 50	Tubularia.
438	Pump drive gear only.....	1 50	Tubule.
439	Pump drive gear shaft only.....	1 00	Tubulines.
440	Pump drive gear shaft bushing (rear).....	25	Tubulipap.
453	Pump drive gear shaft bushing (front).....	25	Tubuliped.
577	Pump inlet connection assembly... 1 00	1 00	Tubumdon.
556	Pump inlet connection pet cock.... 30	30	Tubunctis.
455	Pump inlet nut.....	30	Tubunkor.
507	Pump inlet hose.....	30	Tubungual.
555	Pump inlet hose clip.....	10	Tubungunt.
456	Pump support screw.....	05	Tuburb.
496	Radiator fan and shaft.....	2 00	Tuburbain.
497	Radiator fan rivet.....	02	Tuburbana.

Starting Crank

No.	Description.	Price.	Code Word.
519	Starting crank only.....	1 00	Tuburbial.
520	Starting crank handle (rubber).... 40	40	Tuburblio.
521	Starting crank handle bolt.....	20	Tuburend.
522	Starting crank handle bolt nut.... 05	05	Tuburimus.
523	Starting crank sleeve.....	50	Tuburran.
524	Starting crank collar.....	02	Tubvadem.
525	Starting crank collar.....	25	Tubvectab.
526	Starting crank spring.....	10	Tubvelout.
527	Starting crank ratchet pin.....	02	Tubven.
528	Starting crank ratchet.....	35	Tubvencas.
531	Starting crank washer.....	05	Tubvende.

Radiator

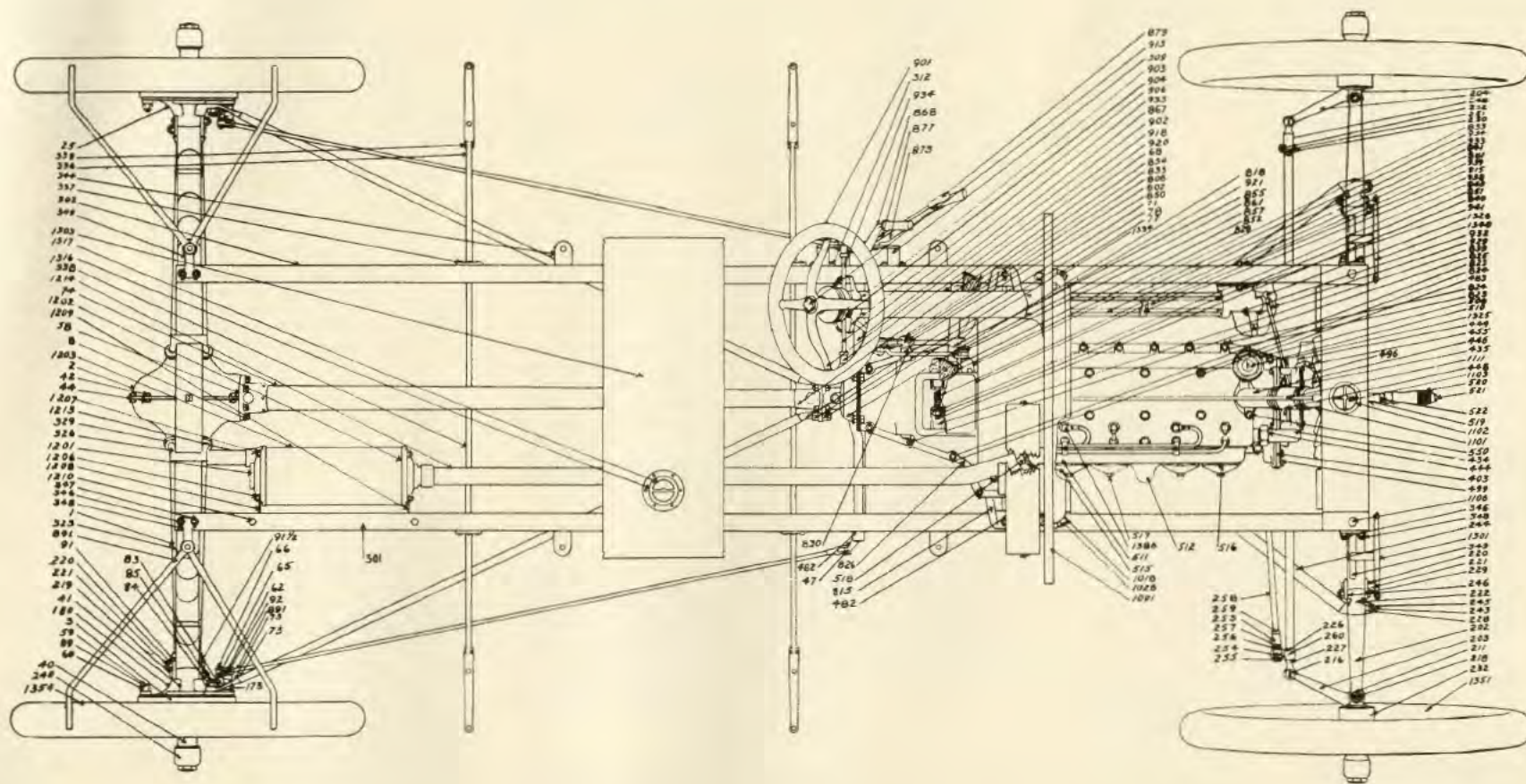
No.	Description.	Price.	Code Word.
1100	Radiator.....	335 00	Tubvendra.
1103	Radiator cap gasket (fibre)..... 50	50	Tubvendt.
1117	Radiator cap gasket (fibre)..... 05	05	Tubvenga.
1105	Radiator pad (leather).....	05	Tubvenida.
1106	Radiator bolt.....	15	Tubvenir.
1321	Radiator bolt nut.....	05	Tubvenons.
1108	Radiator bolt washer.....	05	Tubvensao.
1111	Radiator rod.....	25	Tubverif.
1112	Radiator rod washer.....	05	Tubversod.
1113	Radiator rod nut.....	05	Tubverse.
1114	Name plate.....	40	Tubvert.
1115	Name plate bolt.....	05	Tubverter.
1116	Name plate bolt nut.....	02	Tubvertid.
1118	Name plate bolt nut washer..... 02	02	Tubvertra.



Muffler		
No.	Description.	Price. Code Word.
1200	Muffler assembly	\$ 3 50 Tubvesper.
1201	Muffler head—exhaust	75 Tubvienta.
1202	Muffler head—intake	60 Tubvientes.
1203	Muffler shell (outer)	30 Tubvinier.
1204	Muffler shell (middle)	25 Tubvinmes.
1205	Muffler shell (inner)	60 Tubvoade.
1206	Muffler rod only	10 Tubvoralt.
1207	Muffler rod nut	05 Tubvolaba.
1208	Muffler bracket—exhaust	30 Tubvolem.
1209	Muffler bracket—intake	30 Tubvoy.
1210	Muffler bracket bolt	05 Tubworker.
1211	Muffler bracket bolt nut	03 Tubyaga.
1212	Muffler bracket bolt cotter	01 Tubyugaso.
1213	Muffler exhaust pipe (rear end)	25 Tubyugais.
1214	Long exhaust pipe	1 50 Tubygare.

Hood		
No.	Description.	Price. Code Word.
1300	Hood	\$ 7 50 Tubyugot.
1314	Hood handle	25 Tubyugur.
1310	Hood clip	10 Tubzuar.
1311	Hood clip spring	05 Tubzuril.
1312	Hood clip washer	02 Tubcaro.
1313	Hood clip cotter	01 Tuccade.
1339	Hood board—left	40 Tuccantab.
1340	Hood board—right	40 Tuccendan.
1308	Hood board bolt	05 Tuccedase.
1309	Hood board bolt nut	02 Tuccedbt.
1334	Hood support on dash	1 00 Tuccedemo.
1350	Hood support screw	01 Tucceden.

Carburetor		
No.	Description.	Price. Code Word.
553	Carburetor complete	\$ 9 00 Tuccedia.
2101	Float	30 Tuccediem.
2102	Float chamber	2 00 Tuccedige.
2103	Gasoline valve	50 Tuccedipt.
2104	Gasoline valve operating lever	30 Tuccedoel.
2105	Gasoline valve operating lever shaft	10 Tuccedion.
2106	Gasoline valve cap	30 Tuccedoxe.
2107	Mixing chamber	2 00 Tuccembet.
2108	Spray nozzle	30 Tuccende.
2109	Center member	1 00 Tuccendre.
2110	Gasket for center member	20 Tuccesara.
2111	Gasoline needle valve	50 Tuccesao.
2112	Gasoline needle valve set screw	05 Tucceser.
2113	Throttle gate	30 Tuccesiv.
2114	Throttle gate screw	05 Tuccesue.



How to Run the Model "T" Ford

When Your Car is Shipped, the tires are inflated; the emergency brake is set; the gasoline tank and the radiator drained, and the valve in pipe leading from gasoline tank to carburetor is closed; the switch on the coil box open, and all magneto and ignition connections made. A little oil is left in the engine base. The wheels are carefully blocked to prevent the car getting away and thereby sustaining injury in transit.

Remove the blocks carefully with a pinch bar and draw out, or drive down, all nails, so as to avoid injury to the tires. Release the emergency brake and take the automobile out of the car, being careful not to mar or scratch the body.

WATER.

On Receiving Your Car, and before starting the motor, fill the Water Tank, which is incorporated in the radiator, with clean, fresh water, preferably straining it through muslin or other similar material to prevent foreign matter getting into the small tubes.

It is important that the car should not even be run out of the freight car under its own power unless the water tank is full. The tank may appear to be full before all parts of the circulation system have been supplied. It will, therefore, be necessary to turn the motor over a few times by hand so that the pump will force water into the cylinder jackets. This will lower it in the radiator. Pour in the water until you are sure both radiator and jacket have been filled and the water runs out of the overflow pipe. During the first few hours that the engine is running, it is a good plan to examine the radiator frequently and see that it is full and the water circulating properly. Soft rain water, when it is to be had in a clean state, is superior to water which may contain alkalies and other salts which are injurious, or which tend to deposit sediment and clog up the radiator.

VIGILANCE AND—OIL.

The first rule in motoring is to see that every part has, at all times, plenty of oil—then more oil. The second is to see that every adjustment is made immediately the necessity of such adjustment is discovered; and the third rule is—exercise "common sense"—that's what they drive horses with.

The liability of trouble and the consequent marring of pleasure trips through neglect to make adjustments promptly, increases by the square of the time they are neglected.

Permitting any part to run for even a brief period without proper lubrication will certainly result in serious injury to the machine and expense to the owner; and the results of reckless driving, while they may not show up immediately, will none the less certainly appear later, for all that.

Do not use graphite as a lubricant, as it will interfere with the proper operation of the magneto.

If the history of all the joyously anticipated pleasure trips that have ended disastrously could be written, it would be shown that in 90 per cent of the cases the humiliation and disappointment might have been avoided by making a certain repair and adjustment, the necessity of which was known before starting, instead of trusting to luck and a crippled part.

In the flush of enthusiasm, just after receiving your car, remember a new machine should have better care until she "finds herself" than she will need later, when the parts have become better adjusted to each other, limbered up and more thoroughly lubricated by long running.

You have more speed at your command than you can safely use on the average roads, or even on the best roads save under exceptional conditions, and a great deal more than you ought to attempt to use until you have become thoroughly familiar with your machine, and the manipulation of brakes and levers has become practically automatic.

Your Ford car will climb any climbable grade. Do not, in your anxiety to prove it to every one, climb everything in sight. A good rule is, if you crave the fame, climb the steepest grade in your neighborhood once, and let others take your word for it, or the word of those who witnessed the performance, for the deed thereafter.

Extraordinary conditions must be met when they present themselves—they should not be made a part of the everyday routine.

GASOLINE.

The Gasoline Tank is Under the Seat. See that it is supplied with gasoline. Always strain through chamois skin to prevent water and other foreign matter getting into the carburetor. When filling the gasoline tank, extinguish all lamps; throw away your cigar, and be sure that there are no naked flames within several feet, as the vapor is extremely volatile and travels rapidly. Always be careful about lighting matches near where gasoline has been spilled, as the atmosphere within a radius of several feet is permeated with highly explosive vapor.

Unless it has been tampered with, the carburetor adjustment is right, having been set by the head tester, so do not meddle with it until you are certain it needs adjusting. To make adjustment, manipulate button on dash—when leaving factory, adjustment is O. K., and arrow points up. To give more air, turn to left; for less air, turn to right.

OIL.

No mechanical device will operate very long without ample lubrication, neither will the Model T cars. Be-

fore your car is shipped the oil is drained out of the engine crank case and the oil reservoir. Before starting, the transmission cover should be removed and two quarts of high-grade gas engine oil should be poured into the transmission and a half gallon emptied into the engine crank case through the breather pipe.

Thereafter all oil replenishments are made through transmission, unless the engine crank case has been emptied.

There are two drain cocks in the flywheel casing which acts as the oil reservoir. The oil level should be between these two cocks; if it runs out of the upper, there is too much oil, and it should be allowed to drain out to that level. If on opening the lower drain cock the oil does not run out, being at a lower level, a new supply is needed.

Do not use graphite for lubricating engine; its use prohibits the proper operation of the magneto, tending to short circuit same.

The axles are well supplied with lubrication when the car leaves the factory, but it is well to examine frequently. For differential use any high-grade semi-fluid lubricant. It is false economy to use a poor or cheap lubricant at any time.

WIRING.

See that all wires leading from the magneto and the commutator to coils, plugs and "grounds" are intact.

CONTROL.

Carefully study out all details in regard to control and familiarize yourself thoroughly with the functions of both foot pedals and both hand levers.

The foot pedal at the right marked "B" operates the brake on the transmission; the foot pedal on the left marked "C" is the control lever acting on the clutch.

SLOW SPEED.

The inside hand lever (without the ratchet device), when thrown forward, engages high speed; when pulled back, operates the reverse. The second hand lever (with ratchet controlling device) operates the emergency brake on the rear hubs.

Hand levers are in neutral with brake set when almost vertical and clutch is in a released condition. Throwing control lever forward engages the clutch in high speed; a light pressure on foot pedal "C" throws in neutral; a full pressure on this pedal throws into a slow; a partial, gradual release of the pedal again engages high speed. A pressure on pedal "B" operates the transmission brake.

To apply emergency brake, grasp the brake lever on the side, compress the ratchet control lever in the hand and pull back. Releasing pressure on the ratchet locks the brake in position, to be unlocked by pressing the ratchet toward the handle; then throw forward, releasing the brake.

IGNITION.

The Model "T" Ford is supplied with a special Ford design magnetic, built in as an integral part of the power plant. As there are no contact points, no brushes, no moving wires, no commutator, no gears, the only precaution to take is to be sure that all electrical connections are properly made and all binding posts tight. A four-unit coil is located on the dash, and a switch on front of the coil box throws the magneto in circuit when turned to the left.

The timer or commutator is in front, easily gotten at by raising the right side of the hinged hood.

TO START THE MOTOR.

After making sure that your water and gasoline tanks are filled, and plenty of oil has been supplied; that the valve between gasoline tank and carburetor is open; speed change lever and pedal "C" in neutral position; brake set; spark lever set in third or fourth notch of quadrant; throttle lever set in eighth or ninth notch; ignition connections correct and switch closed—you are ready to start.

Prime carburetor by pressing small lever on top of carburetor until gasoline bubbles out.

With the starting crank dropped down to a vertical position, push it until it engages with the crank shaft, then pull up sharply to the left—do not jerk, but make a quick, steady pull, not a sluggish drag. A slight upward movement should start the motor unless it is cold, when three or four turns may be necessary. In extreme cases it may be necessary to close the carburetor air intake, by holding your hand or glove over it until motor starts, then immediately withdraw it.

Do Not Wear Yourself Out Cranking a motor that won't start after three or four turns—there is something wrong—a switch open; a faulty electric connection; a short circuit; foul plugs; lack of gasoline in the carburetor; a closed throttle, or imperfect mixture. Search for trouble in the above order. Do not monkey with the carburetor or coil trembler adjustment until you are sure the trouble is not elsewhere; unless it has been tampered with in transit, the carburetor adjustment is correct, as is also the trembler adjustment.

There is no "guess work" about a gasoline motor, a popular superstition to the contrary notwithstanding; if everything is as it should be the motor will start on the first turn. Atmospheric temperature affects the vaporizing qualities of gasoline—but that is all. There is no excuse for a person suffering a back-kick from a gasoline engine except absentmindedness in setting the spark.

As soon as the motor starts, push forward the throttle lever to prevent racing. The spark may be advanced a few notches, as it is better practice to retard the motor speed by throttling the charge of gas than to leave the throttle open and slacken the speed of the engine by a slow spark.

A retarded spark with full gasoline charge tends to overheating of the cylinders, and should be avoided at all times. The spark lever, however, should ordinarily remain in third or fourth notch and never beyond the sixth notch of the quadrant.

TO START THE CAR.

With the motor running and yourself properly seated, grasp the steering wheel with the right hand, release emergency brake by pushing hand lever forward, with the pedal "C" slightly forward; throw the control lever full forward, then press foot pedal "C" full forward, engaging slow speed, then gradually release the pressure on the foot pedal. If foot pedal is released too fast, it causes the clutch to grab hold too quickly and may stall the engine. A gradual, easy release engages the high-speed clutch without jerking. High speed ought not to be thrown in until the car has gained a certain momentum; the exact moment is soon determined by a little practice; ordinarily, after the car is run fifteen or twenty feet you can begin to release the pressure on the foot pedal.

As all parts of transmission operate in oil, neither high speed, low speed, or reverse will take hold immediately. If applied too quickly, there will first be noted a slight slippage; then, as the surfaces of contact are freed of oil, a sudden grab. To avoid this and to secure instead a soft velvety action, apply pressure gradually until you feel it taking hold, then press full forward for slow, pull full back for reverse, or entirely release pressure on pedal C for high speed.

Should you inadvertently stall the motor, release the clutch, set the emergency brake and start over again. If the driver remains in his seat, and has someone else to "crank" for him, then it is not necessary to pull back the hand lever into neutral, as a slight forward pressure on the pedal "C" accomplishes the same result. Then a gradual pressure forward throws in slow speed, and a release of this pressure after the motor starts throws into high.

TO STOP THE CAR.

When it is desired to stop the car for any length of time, or so that the driver can leave it, pull back control lever to neutral—be careful not to pull too far back, as the reverse is then engaged—then apply the brake foot pedal "B" gradually, but firmly, until car stops.

For a temporary stop, a slight forward pressure on the pedal "C" into neutral answers in place of pulling back the control lever. The pressure must be continued, however, for releasing it then engages the clutch and pressing further forward, engages slow speed. Start by pressing pedal full forward into slow,

and then gradually release until in high. Never leave the seat, however, without first pulling back the hand control lever into neutral.

REVERSE.

Having stopped as above, with motor running at moderate speed, pull back this same control lever at first gently, then more firmly as car moves backward. To stop, release the lever and apply brake as before.

TO STOP THE MOTOR.

Turn off the switch.

SUGGESTIONS.

You Will Not Realize the fullest pleasure from driving until you become so familiar with your car, its moods, peculiarities, its sensitiveness to the throttle and spark control—separately and in combination—and the way it "likes" to take grades, hard roads and heavy roads, that you can instinctively feel whether it is working to the best advantage or laboring because of improper handling—in other words, until sympathy has been established between the car and driver, you have not realized to the full the exhilarating sense of having at your control a machine that is as a living thing in its responsiveness to your slightest wish, and its adaptability to all manner of conditions. Each driver has his peculiarities, and by the way he makes adjustments and handles the car lends to it some of his own individuality.

Endeavor to so familiarize yourself with the operation of the machine that to disengage a clutch and apply the brake becomes practically automatic—the natural thing to do in case of an emergency. For the same reason accustom yourself to frequent use of the "emergency" brake. In moments of excitement the driver invariably performs that operation which has become most natural to him.

The Best Brake can be easily and quickly ruined by slipping them until they burn out. Negotiating long down-grades in this way will necessitate frequent adjustment of the brakes.

The skillful driver seldom uses his brakes—having his car always under control and checking speeds by throttling.

Always be Sure that one clutch is disengaged before engaging another. In climbing very steep grades, you will find it necessary to drive with spark a little slower and throttle well open.

In Turning Corners, it is unnecessary to disengage the clutch or to apply the brake; as you approach the corner check the speed of the car by throttling—opening up when about half-way around; not, however, until you have ascertained that the coast is clear.

Do Not Rush Hills—take them at a moderate rate, but open up just as you strike the grade so as to give the motor the "benefit" of the doubt.

You Will Have a Feeling at First that you must hang on to the steering wheel "like grim death"; this is unnecessary and the feeling will wear away after a few days driving, when you will find that a slight touch is sufficient to turn the car in any direction.

It is Good Practice to use the right hand for steering only—the throttle lever may very easily be manipulated with the index finger for opening, and the thumb for closing. This leaves the left hand free to operate the reverse or emergency brake levers.

Learn to Control the Speed of the car with the spark and throttle as much as possible, releasing the high speed clutch only when absolutely necessary and resorting to the low gear only in extreme cases. It is hard to explain just how to use the spark and throttle so that the beginner will understand, but the rule is "use the spark for speed and the throttle for power." When you release the clutch, close the "throttle," and prevent racing.

POWER PLANT LUBRICATION.

The entire power plant is lubricated by the most reliable system ever devised—a combination of all the good features of the splash system with the good features of the gravity.

The oil that is poured through opening in top of transmission casing, courses through the transmission, giving each part a thorough oil bath. The oil gravitates to a sump in the bottom of the extended one-piece crank case, the lowest point being under the flywheel and so naturally becoming the oil reservoir. The revolving flywheel running in this oil splashes it into every part of the transmission.

The flywheel also acts as a distributor, throwing the oil against the sides of the flywheel casing into wells provided for that purpose. From there it is then carried forward to the engine and back to the transmission through oil ducts and so distributed to all parts of the power plant. This oil that is fed forward to the engine settles in the engine crank case and the crank shaft revolving in it splashes the oil to every working member.

A "baffle" or oil level plate with an overflow arrangement keeps the oil at a constant level in the engine crank case, the surplus returning to the reservoir to be distributed again by the flywheel.

As there is no oil feed except when the engine is operating and the faster it runs—necessarily calling for increased lubrication—the faster the oil is distributed. The exact proportion between oil and speed being scientifically worked out, excessive or insufficient lubrication is impossible. Do not have the oil level so high that it will flow from the upper pet cock or so low that it will not run out of the lower pet cock.

IMPORTANT POINTS TO BEAR IN MIND.

There is a right way and a wrong to do everything and anything under the sun. Done right, and the results are satisfactory; done wrong, the reverse is the case. There is a right way to run the Model "T" car—followed, and the owner knows he has the best car on earth—ignored and he blames Mr. Ford, the car and

everything else but HIMSELF. It is also a fact that the correct way is usually easiest, often obvious, which, perhaps, accounts for its not being followed.

THE MAGNETO.

With the Ford low tension magneto, as furnished with the Model "T," the spark control is a little different from that of former models where batteries were used to supply current. That is, there are certain notches on the spark advance quadrant which indicate what might be called "dead centres" of the ignition system. At these points the spark is slightly retarded instead of advanced. These positions can be determined by the "feel of the car." You will recognize them and easily learn to skip them instead of stopping at these points.

Then another fact to bear in mind—if for any cause it is desired to connect a battery in on the ignition system, do not connect on the same terminal that is used for conducting the current from the magneto into the coil. There are two terminals—the one at the left as you are seated in the car—is the magneto connection. A battery connection is provided at the right in the same relative position on the front of the dash.

To connect the battery on the same side as the magneto, without breaking the magneto connection, runs the battery current through the magneto and demagnetizes the magneto.

There should be no occasion ever to use a battery, but if by accident a battery is required, or if for some unknown reason some one wants to hook in a battery, be sure to use the "battery terminal."

VIBRATOR ADJUSTMENTS.

When the car is shipped, the vibrators on the coil are properly adjusted and should require no attention. If, however, there arises any necessity for further adjustment, bear in mind that the thumb screw should be tightened only enough so as to hit or spark at high speed. A very light adjustment is all that is required.

CYLINDER HEAD.

The cylinder head on the Model "T" is a one-piece detachable part. By removing thirteen bolts this head can be lifted off and the inner workings of the engine exposed. In removing these bolts, it is essential that it is done right. Do not grab a wrench and, starting on a bolt, persist until that bolt is out and laid aside.

Loosen each bolt a couple of turns at a time, one after the other, so releasing all sides at once. The wrong way throws the strain on the remaining bolts as each is removed or replaced. This rule is even more essential when replacing the cylinder head. Tighten the bolts a few turns to each in rotation until all are tight.

This is a good rule to follow: Wherever two or more bolts or screws are required to bind or fasten or attach one part to another, apply or remove the tension at each point gradually. It's the surest, yes, the only way to secure tight connections.

REPAIRS AND ADJUSTMENTS.

Through the use of Vanadium Steel and similar high-grade materials throughout, the exercise of infinite care in the manufacture of every part, the use of only the best machinery obtainable to guarantee accuracy, we have been able in this Model "T" to offer a car that will call for the minimum amount of replacements, repairs and adjustments.

So, while we are listing the means to be employed to get at any part of the car to adjust bearings, to remove transmission gears and a number of similar operations, these instructions are not given with the idea that there will be need of any frequent use being made of them; but because once a year every car ought to be thoroughly overhauled and these directions will assist in this general "cleaning up." And so we will start with removing the radiator, simply because the radiator is the first and foremost part on the car, as far as position is concerned.

TO REMOVE RADIATOR.

Drain water first, by opening pet cock at base. Remove two bolts, one on each side, holding radiator to frame; then loosen packing nut at lower water connection; then remove two bolts that hold flange on top water connection to cylinder head. The radiator can then be easily lifted off.

TO REMOVE PUMP.

Remove three bolts that hold pump to motor casing. Notice that three-point suspension?

TO REMOVE FAN.

Take out bolts in front cover of pump; loosen cover by backing up nuts on shaft—both sides of pump. Pull out pin holding pump blade to fan shaft.

TO REMOVE COMMUTATOR.

Take off brass cover plate by removing two small screws, then unscrew center retaining nuts; remove collar, drive out pin holding rotating part No. 574; remove No. 574, and then remove commutator body, Nos. 457 and 575 together.

(To remove pump gear and "two-to-one" gears, take out four bolts holding cover in place; remove 475, etc. Gears are not locked in place, but will pull out readily when cover is removed.)

TO REMOVE CAM SHAFT.

First, raise valve-push rods high enough so that retaining nails or cotter pins can be inserted in holes provided for that purpose, and which will be exposed when push-rods are raised. This keeps push-rods from falling out or from dropping and so interfering with cam shaft. Remove two cam shaft bearing set screws; pull shaft out toward front of motor. To replace, reverse the operation, being careful to mesh the gears as they were before. The gears are marked, one gear on the tooth, the other between the two teeth into which the first one meshes.

STEERING GEAR.

To Remove Complete Steering Gear. Take out four steering gear flange screws connecting flange to dash-

board; remove cotter-pinned nut from end of steering shaft; drive off steering arm lever No. 929; disconnect commutator and carburetor pull rods, drive steering shaft upward—if commutator and throttle lever rod do not readily push out with steering shaft, it may be necessary to loosen two bolts in steering post bracket 932, which remains attached to frame, to release the strain on these two rods.

The gears, which are arranged in the "sun-and-planet form," are located at the top of the post, just below the hub of wheel. By loosening the set screw and unscrewing the knurled brass cap—after having removed the wheel—they may be readily inspected and replenished with oil. A good axle grease is best for this place, and one filling will last six months at least.

To Remove Steering Wheel. Unscrew the brass nut on top of the post; remove key and draw the wheel off.

To Take Up Wear in Ball Joint. Disconnect two halves of the ball socket and file off faces until they fit closely around the ball. If ball is badly worn, it is safest to replace it with a new one.

To Remove Steering Shaft.—Remove pin and disconnect steering arm from bottom of post. Unscrew knurled cap from gear housing; lift off wheel with center pinion; push shaft upward.

TO REMOVE DASH BOARD.

As the entire power plant is in single unit, these directions cover removing all at once, and then the separate operations on magneto, flywheel and transmission follow.

With radiator and dash board removed, to remove power plant, take out nineteen bolts holding cylinders to lower crank-casing; take out twelve bolts that fasten upper half of transmission case to lower, and four bolts that join front half of universal joint to rear half—thirty-five bolts in all. Disconnect gasoline tube to carburetor. When you remove upper half of transmission casing, first disconnect reverse lever, and then the pedals and pedal connections will lift out with the transmission cover. Disconnect exhaust tube to muffler; disconnect all ignition wires; remove all spark plugs. The power plant can now be lifted out.

Turn upside down and rest on head.

TO DISSEMBLE MAGNETO.

Magnets Are Attached to Flywheel. Each can be detached by removing the bolt in apex and the screw in clamp. When replacing, it is necessary to string wire through all bolts and screws; this to prevent their falling out if loosened. In replacing, magnets must be put back in same order as removed, so that the negative pole of one is next to negative pole of second. Coils are fastened to a support which is secured to engine casting by four bolts.

As coils and coil support are specially treated, coils should not be separated from support. If new coil or coils are required, a full set, with support, must be ordered and the old set and support returned for credit.

In remounting be sure that space between coils and magnets is 1-32 inch.

TO REMOVE MUFFLER.

To Disconnect the Muffler it is not necessary to disconnect the exhaust pipe from the motor. Take out four bolts holding muffler to frame; slide muffler back.

To Clean Muffler. Remove nuts on ends of rods which hold muffler together, and disassemble. To reassemble muffler, reverse above operation, being careful not to get the holes in the different sections opposite each other.

TO DISMANTLE TRANSMISSION.

Remove cotter pins and six bolts holding front or disc drive plate of transmission. In removing bolts, loosen each a little at a time, one after the other. To remove one and leave the rest tight causes an unequal strain on those remaining.

In replacing these bolts, tighten in the same way, a few turns to each in rotation until all are tight. The cone, spring and spring support come off with the drive plate; lift out disc control ring, remove twenty-seven discs, one at a time.

There are two kinds of discs, thirteen male and thirteen female, and these are alternated. The "female" discs each have three springs. The position of these springs is alternated so that the springs on every other disc come between the springs of the preceding disc. When replacing discs, be sure that this arrangement is adhered to.

Then pull out disc drum; lift out transmission drum—the main pinion gears will come with the drum.

TO REASSEMBLE TRANSMISSION.

With transmission shaft in place, lay flywheel face down with shaft in air.

Assemble drums separately, as follows:

Slip No. 748 slow speed plate over 750, brake drum; then 747, reverse plate gears up. Insert two Woodruff keys in transmission shaft, then drive gear No. 713 so as to set flush with top of sleeve of No. 750.

Insert assembled drums and slide over shaft; with drums held slightly raised, slip triple gears 751 over respective shafts, with smallest gear down. To properly meet, triple gears must be so placed that a straight line drawn from center of transmission shaft through center of pinion shaft will extend and pass through punch mark on face of top gear.

Insert Woodruff key in transmission shaft, locking clutch drum No. 725, which is next dropped in place.

Next comes distance plate No. 729; then thrust plate No. 728; then small thrust plate No. 727, and alternating until thirteen 728 and thirteen 727 have been placed. The No. 728 plates are to be so placed that the springs of the second come between the springs of the first, while the springs of the third are in line with those of the first.

Next add clutch push ring No. 704; then drive plate No. 749 (which includes clutch fingers); then bolt 749 to 750 and string a wire through bolts in fans between fingers.

Next slide clutch shift No. 733 over shaft; then clutch spring No. 737; then clutch spring support No. 738, and thrust ring No. 740. Then insert thrust pin No. 739. No. 739 passes through holes in 738 and then through shaft.

The instructions for reassembling are given rather than those for tearing down, as same can be given more clearly. To disassemble, the movements are reversed.

ADJUST LOW, REVERSE AND BRAKE BANDS.

Adjustments to low, reverse and brake bands are made from top after removing transmission casing cover. No. 1 nearest the seat is brake; No. 2 is slow speed; No. 3 is reverse. Turn adjustment nut; turning to the right tightens, to the left loosens the band. The fiber segments can be replaced by ordering No. 893 and riveting in place.

Care should be taken to see that the bands are a true circle, so that they do not drag when disengaged, and that they take hold all around the drum when applied; high points cause noise when starting.

TO REMOVE CRANK SHAFT.

The only time the crank shaft should require any attention under ordinary circumstances is at the time of the annual overhauling, and then only so as to make the "clean-up" complete.

With the motor out and resting on its head, remove six cotter-pinned bearing nuts; remove eight cotter-pinned connecting rod bolts; take out four lower halves of connecting rod, and three halves of bearings; remove four bolts connecting crank shaft flange to flywheel; lift off fly wheel, now pull out shaft.

Caution. The flywheel contains a part of the magneto; always set down the flywheel on the side, never on the face, otherwise you may injure the magneto.

To Adjust Connecting Rod and Crank Shaft Bearings. If at the time of the general overhauling it is desired to adjust connecting rod and crank shaft bearings, proceed as follows: With motor resting on head, remove cotter bolts, so separating two halves of bearing. If connecting rod bearing is loose, file off inside of cap, otherwise, simply tighten. If crank shaft bearing is loose, remove one or two paper liners; if not then tight enough, file off inside of cap.

Sprung Crank Shaft. Owners occasionally send in crank shafts that have been damaged in collisions with trees, lamp posts, hydrants, or other objects, expecting us to replace or make some allowance on them. We wish to impress upon all such that a crank shaft, if sprung even the slightest, is utterly useless except as scrap metal. No method has ever been devised for straightening one to the degree of accuracy necessary. Barring collisions, Ford shafts should never break. However, we always like to inspect them, and if they show defect in work or material, will be replaced.

If the crank has been cut by letting the bearings run dry and hot, you can, provided they are not cut deeply, create a new bearing surface by carefully filing the bearings straight and round. A very fine file must be used, as the slightest scratch will serve to cut the babbitt and it will soon run hot again. If possible, get a piece of crocus cloth (never use emery), attach a piece of heavy twine or belt lacing to each end of the crocus cloth, and carefully lap the bearing.

If the connecting rod bearing is found too large for the shaft, in cases such as the above, file sufficient off the cap to make it fit the crank shaft. Connecting rod bearings should be tight fit and yet not have the slightest play—it should be sufficient to almost hold its own weight, just turning slowly on the shaft when released.

VALVES.

Valves should be ground at regular intervals—about every three months—whether they leak or not; the grinding of the seats will cause them to seat accurately and prevent uneven wear of the guides and consequent leaks past the valve stems—a condition which results in the most puzzling symptoms in the carburetor and unevenness in the running of the motor.

To Grind a Valve Seat. This operation requires care and skill. Place on the valve a small quantity of very fine ground glass, or, if this is not obtainable, very fine emery powder. Use sufficient oil to make a very thin paste, being careful not to allow the paste to run into the cylinder. The valve is then rotated back and forth, being firmly pressed down against its seat at the same time.

Occasionally lift the valve, change its position a part of a turn and drop down; then rotate as before. This prevents carrying a particle of emery or grit round and cutting a groove in the seat.

Notsy half-time gears are due either to worn teeth, or, more likely, to worn cam shaft and crank shaft bearings, which permit the gears to get out of true mesh. Examine gears, and if excessive wear is not apparent, try shafts for looseness and play. If the latter, replace bushings.

Inspection of Cams. If the motor seems to produce less power than formerly, and you have ascertained that it is not due to carburetor adjustments, spark coils, leaking or sticking valves, or carbon deposit in cylinders, it would be well to inspect the cams or pushers and see that they are not worn so as to reduce the lift of the valves. By raising the valves (see "To Remove Cam Shaft," page 27), it will be possible to remove the cam shaft without disconnecting the cylinder or removing crank shaft.

Carbon Deposit. This is one of the most fruitful sources of trouble in a gas engine. If the cylinders get too much oil, a portion of it will work up past the pistons; the intense heat will consume or evaporate the oil, leaving a deposit of carbon. This may be augmented by too rich a mixture, which serves to deposit lamp black or carbon in a film on the inside and top of the compression chamber and on the heads of the pistons. The films thus formed will in time commence to scale and, the projections becoming fused by the heat of explosions, will serve to prematurely ignite the charge.

The symptoms are back firing and knocking in the cylinders—as if the spark were too far advanced. An almost infallible symptom of excessive carbon deposit in the cylinders is the motor showing plenty of power at high car speeds, but deficient in hill climbing on high gear. At slow engine speeds, the incandescent carbon projections serve to pre-ignite the charge, thereby reducing the power of the motor. The cure

is to take off the cylinder head and scrape off the carbon deposit from the top of piston and inside of cylinder head.

Carbon will also form on the porcelain portion of the spark plugs, thereby furnishing a circuit which the high tension current may travel over, rather than jump between the sparking points of the plug. Usually, only a part of the current will pass by way of the carbon film, still leaving a weak spark at the points, which in open air, when testing plugs may seem strong enough. This causes intermittent firing. The symptoms are similar to a poor contact commutator.

This condition is difficult to detect, for the reason that when the plug is subjected to the usual test of removing from the cylinder and closing the electrical circuit, the spark is seen to jump free and "fat" between the points. This, because of the electrical energy which is sufficient to jump between two points $\frac{1}{8}$ inch apart in the open air, will jump less than 1-16 of an inch in the chamber under 60 pounds compression.

Overheating. The cause of overheating in motors may be summed up as follows: Poor oil, insufficient oil, bad mixture, slow spark, obstructed muffler, broken pump, flat or obstructed water pipe, low water, and valves out of time. The pump may be broken and still circulate the water. The radiator will get hot because slow circulating water does not cool as fast as circulating water. Occasionally, the pin which holds the pump on shaft, may shear off. Remove cover plate and replace pin.

REMOVE FRONT AXLE.

Jack up front end of car so wheels are suspended, disconnect steering gear, disconnect radius rods at ball joint and remove two cotter pinned bolts from shackle on each side, so detaching front spring. To replace reverse.

Remove front wheels same as rear.

To disconnect radius rods from axle, remove cotter pinned nuts. To remove entirely, take out two bolts and ball joint and remove lower half of cap.

Once every thirty days, the axles should be carefully gone over to see that every moving part, such as the bushings in spring connections, shackles, steering knuckles and hub bearings and every other moving part, however small or apparently unimportant, are thoroughly lubricated and that all nuts and connections are secure with "cotter" pins in place.

If this is done, replacement of bearings should be unnecessary during the first year or two of the car's service. Wherever balls are used, there is a liability of one splitting, so it is well to watch carefully the balls and races in the front wheels, and the slightest wear or defect in either, should be followed by immediate replacement.

Ball bearings in front wheels should be adjusted so there is not the slightest play, and yet, so that the wheel will turn freely. After tightening the lock nut, turn the wheel as the last operation may have tightened the cones too much.

The spring clips, which attach the front spring to the frame, should be inspected frequently to see that the

nuts are not working loose, as this will permit the axle to slip sidewise, interfering with the steering and may result in an accident when turning suddenly.

Bent Steering Knuckle. Should a steering knuckle become bent, it is necessary to have a large gauge or jig to straighten it accurately. The eye is not sufficient to determine whether it is correct; and excessive wear of the front tire will be the result of inaccuracy in this place. In all cases, it would be better to send to us for correction.

Angle of the Front Wheels. The front wheels should be set at an angle of about 3 degrees, that is to say, the distance, center to center, between the tops of the front wheels should be about $1\frac{1}{2}$ " greater than that between the bottoms. This is to give perfect steering qualities and to save wear on tires when turning the corners. The wheels should not, however, "toe in" at the front, lines drawn along the outsides of the wheels when the latter are in a straight-forward position, should be parallel.

REMOVE REAR AXLE.

Jack up car with heavy bar on two horses so that wheels hang free. Take out four cotter pinned castle nutted bolts connecting two halves of universal ball collar. Disconnect brake rods. Remove rear wheels by unscrewing hub cap using special hub wrench furnished with car. Drive out pin, pull out key with pliers, pull off wheel.

To dis-assemble rear axle and differential, disconnect drive shaft tube by removing nuts on front ends of radius rods; draw away the tube; remove bolts which hold two halves of differential housing together, and draw the housing apart.

If necessary, and it is not under ordinary circumstances, to dis-assemble differential gear, a very slight mechanical knowledge will permit one to immediately discern how to do it once it is exposed to view. Care must be exercised to get every pin, bolt and key back in its exact position when re-assembling.

To Remove Bevel Driving Pinion. In order to make a "fool proof" and absolutely reliable job, the drive pinion is keyed onto the shaft and the end of the shaft riveted over. Inasmuch as the average machine shop will not have facilities for accurately replacing pinion and making sure that it is in perfect alignment, it is advisable to replace the entire shaft and pinion when the latter becomes too much worn for safe usage. This is best also, because the shaft will likely have become worn at its bearings. If, however, it is desired to replace the pinion only, it may be removed from the shaft by cutting away the edges where riveted over and driving out the shaft.

In replacing, rivet over the end of the shaft as well as possible and be sure that the gear is on perfectly straight, as otherwise, it is sure to cause trouble and perhaps incur a larger bill for new gears than would pay for the complete shaft and gear in the first place.

Noise in the axle driving gears usually indicate, wear either in the gears; in the thrust washers, or the bearings. Inspection should be carefully made to ascertain the cause as soon as an unusual sound is heard.

To Remove Master Bevel Driving Gear. Cut off rivets holding gear to flange on differential case with cold chisel, being careful not to rupture the flange.

The master gear will wear longer than the pinion, ordinarily, although there are exceptions to this rule. When the gear teeth begin to "pit," it is a good plan to renew the gear, as the pitting shows that the case hardened shell has worn through, exposing the soft metal.

To Remove Babbitt Bushing from drive shaft tube. If properly lubricated at all times, these bearings should not require replacement more than once in two years. However, should the bearings run dry and cut sufficiently to allow of play, it would be economy to replace them. Take $\frac{3}{4}$ inch or $\frac{5}{8}$ inch round steel bar, about 4 feet long—or a few inches longer than tube—insert from opposite end of tube and drive bushing out. A wooden mallet is better than a hammer for this purpose.

To Insert New Bushing. Rest one end of the tube on a solid wood block and drive the bushing in, using a wooden block; also to cushion the blow so as not to mar the bushing. Of course, if a press is available, the bushing can be more easily forced into place.

The shaft will be a tight fit in the new bushing and it is proper that it should fit as tightly as it can be pushed in by hand.

When in place, it may be found that the shaft (unless also a new one), will have worn slightly at the bearing section, and so it will be a loose fit even though the larger part of the shaft goes in tight. If excessively tight when in place, it will be liable to run hot. This tightness may have caused bushing when forced in, to slightly compress. If necessary to relieve bearing, scrape the babbitt bushing carefully, or better still, use a one-inch hand reamer, being very careful not to make the hole so large as to allow the slightest play.

To Disconnect Universal Joint From Drive Shaft. Remove two plugs from top and bottom of ball casting. Revolve shaft until pin comes opposite hole; drive out pin and drive universal joint away.

Wear in the universal joint may be taken up by disconnecting the two halves, cutting off the rivets with a cold chisel and carefully filing or turning down the faces so as to allow them to come together. The hole will not then be perfectly round and should be carefully scraped or reamed to fit. Excessive wear in the steel parts calls for replacement of these parts.

If rear axle or wheel is sprung by skidding against a curb or other accident, it is false economy to drive it. Tires, gears, and all other parts will suffer and the bill for repairs will grow daily. If axle shaft is bent, it is better to get a new one than try to straighten the old one.

Every FORD owner, as well as every repair man, should have a wheel puller, similar to No. 1305. A tire can be removed easily and more carefully repaired and

replaced by removing the wheel, and there are many occasions when it is necessary to remove the wheel. A good puller is cheap to buy, or, can be easily made. Some make a threaded cap to screw over hub cap threads. As the threads on Model "T" are very fine, this is not the best method, as it sometimes strips the threads, spoiling the hub. A puller like No. 1305, grasps the enlarged end of the hub and will sustain more force without danger of injury to hub or thread.

Coil Adjustment. Screw vibrator adjustment tight until it stops buzzing; then unscrew just far enough to get a good spark. Do this while engine is running—you can then easily "feel" the explosion.

To ascertain, which, if any, of the four plugs are fouled with oil, short circuited with carbon, or in-operative from some other cause, open the throttle two or three notches to speed up the motor; now hold your two fingers on two outside vibrators, so that they cannot buzz. The evenness of the exhaust will show that the other two are working correctly and that the trouble is not there; or, procontra, an uneven exhaust will indicate that it is between the two that are free. If the two cylinders fire evenly, change the fingers to the two inside vibrators, and again listen to the exhaust. Having ascertained in which pair the trouble is, hold down three fingers at a time until you find the one on which the motor does not fire. This will indicate in which and they number in rotation 1-2-3-4. No. 4 coil unit is the one next steering post and they number 2-3-4 to the left.

Before deciding that your coil is the cause of the trouble, inspect every other possible source of trouble. In ninety-nine cases out of a hundred, you will locate it elsewhere. The first symptom of a broken coil is the buzzing of the vibrator with no spark at the plug. A short circuit in a secondary wire will produce the same effect, so be sure it is not a short circuit before blaming it on to the coil. A good way to test is to remove the wire from the coil, and ground the spark plug end on engine. Hold other end of wire near terminal and look for spark. If sparks, it's in the plug. If not then located, try changing position of units in coil box. If No. 1 for instance, works O. K. in No. 3 position, then winding is O. K., but connections are at fault. Once certain that the trouble is in the coil and that it cannot be remedied by a simple adjustment of the vibrator, a better plan is to send coil to the maker.

Never meddle with the coil or its parts, except to make an inspection every week or so to see that all nuts are tight and everything in place, so that no mysterious short circuits will occur from this cause. In looking for a short circuit, it should be remembered that the secondary current is a static, or alternating, current and will "creep" on any liquid,—water, or oil mixed with dirt. The current creeping on the oil will form carbon on the outside of the insulation of the wires and will finally form a short circuit that will cause a lot of trouble and be difficult to locate.

Platinum Points will burn away if adjusted too tight. After adjusting vibrators, they will arc for a short time until both points fit each other.

One symptom of a "leak" in the condenser is a very "fat" bluish spark at the vibrator points. To make sure that this is the cause of the trouble, put a spark gap of about one thirty-second of an inch between the secondary wire and the plug. If the condenser leaks the spark will be irregular at the gap.

Plugs. Sparking plugs are so well made nowadays that they give very little trouble. Every motorist should carry half a dozen extra porcelains to fit his plugs and these can be readily replaced in case of the porcelain cracking from overheating. Some drivers have a great deal of plug trouble, while others using the same cars and the same plugs, claim they "never see a plug." It is unnecessary to tighten the thumb screw on top of the plug with pliers,—in fact this should never be done as you are liable to turn the core and thereby open or close the spark gap more than is desirable. Tighten the nut with the fingers just sufficiently so it will not come off and get lost.

In case of a foul plug on the road, when you do not want to spend the time to clean or change it, a good expedient is to create a spark gap by disconnecting the wire and, with a string or shred of waste, tie it to the plug so the brass terminal will be about 1-16 or 1-32 inch from the plug core or nuts will generally suffice to remedy the trouble, temporarily at least.

A "miss" in a motor just after starting cold, will usually disappear after a minute or two as the motor warms up. Sometimes, only after a high speed clutch has been engaged, usually a "miss" can be remedied by "slowing" the spark—putting lever as far forward as it will go. This gives a long hot spark at the points and serves to burn away oil or other foreign matter lodged there. A drop of water—precipitated by quickly cooling a hot motor—between plug points; a drop of oil or particle of carbon can frequently be dislodged by disengaging the clutch and racing the engine a few seconds.

COMMON SOURCE OF TROUBLE.

- 1st—Imperfect vibrator action.
- 2nd—Dirty spark plug.
- 3rd—Loose or broken wire.
- 4th—Weak commutator spring.
- 5th—Worn Commutator.
- 6th—Water or dirt in gasoline.
- 7th—Ice in connecting pipes and pump.
- 8th—Sticky valve seats.
- 9th—Leaky valves.
- 10th—Weak valve springs.
- 11th—Leak at gasket at intake pipe.
- 12th—Leak at gasket at carburetor to intake.
- 13th—Too large or too small gap in spark plug.

