ENGINE NUMBER:—Stamped on boss on left hand side of cylinder block between #1 and 2 cylinders.

ENGINE:—**Own.** Eight cylinder, In Line, 'L' head type. Floating Power engine mounting.
Bore—3½". **Stroke**—5".
Piston Displacement—384.8 cubic inches.
Rated Horsepower—39.20.
Developed Horsepower—150 at 3200 R.P.M.
Compression Ratio—6.5-1. No optional ratios.
Compression Pressure—135-140 lbs. at 1000 R.P.M.

NOTE—Cylinder head is aluminum. Washers are used under head nuts. Tighten head cold.

Pistons:—Nelson Bohnalite, aluminum alloy, Invar Strut, split skirt type. Piston length 4⅛".
Weight—Pistons of same size held to 2 gr. (1/10 oz.) maximum variation. Used interchangeably.
Removal—Pistons and rods removed from above.
Clearance—.002" at top of skirt.
Fitting New Pistons—Use .002" feeler stock ½" wide to check clearance. Cylinders should be reconditioned when taper or out-of-round exceeds .0015". Reconditioned cylinders must not be tapered or out-of-round more than .0005"
Installing Pistons—Slot should be toward right or camshaft side of engine.

Piston Rings:—Four compression, one oil control ring per piston, all above pin. Compression rings are 'Tungtite' tongue and groove type. Oil control ring is slotted.

Ring	Width	End Gap
Comp. All	5/32"	.007-.015"
Oil Cont. (#5)	3/16"	.007-.015"

Piston Pin:—Diameter 55/64". Length 3". Pin floats in piston and rod. Held by retaining ring at each end. Heat piston in boiling water to remove or install pins. Pin hole in rod is bronze bushed.
Pin Fit in Piston—Tight thumb push fit with piston heated to 160°F.
Pin Fit in Rod Bushing—Light thumb push fit at room temperature (70°F).

Connecting Rod:—Length 10". Weight held to 2 gr. (1/10 oz.) maximum variation.
Crankpin Journal Diameter—2 3/16".
Lower Bearing—Removable steel-backed, babbitt-lined type. No shims.
Clearance—.001-.00275". Sideplay .003-.009".
Adjustment—None (no shims). Replace bearings. Do not file rods or caps. Install new bearings with small boss registering with groove in rod and cap.
Installing Rods—Oil hole in upper half of lower bearing should be toward camshaft side on all rods.

Crankshaft:—Nine bearing. Integral counterweights.
Journal Diameters—2¾" all bearings.
Bearing Type—Interchangeable steel-backed, babbitt-lined. No shims.
Clearance—.001-.002".
Adjustment—None (no shims). Replace bearings. Do not file caps.
End Thrust—Taken by rear bearing. Endplay 0015-.0045".

Camshaft:—Six bearings. Non-adjustable chain drive.
Bearing Type—#1 bronze-backed, babbitt-lined. All others steel-backed, babbitt-lined.
End Thrust—Taken by thrust plate assembled behind camshaft sprocket hub.
Timing Chain—Morse. Width 1½". Pitch .500". Length 26½" or 53 links.
Camshaft Setting—Sprockets are marked. Mesh chain with sprockets turned so that marks are adjacent and in line with a straightedge across the shaft centers.

Valves:—

	Head Diameter	Stem Diameter	Length
Intake	1 23/32"	.340-.341"	6 9/16"
Exhaust	1 21/32"	.340-.341"	6 9/16"

	Seat Angle	Lift	Stem Clearance
Intake	45°	11/32"	.001-.003"
Exhaust	45°	11/32"	.002-.004"

See Chrysler Special Shop Notes for Exhaust valve seat insert removal and installation instructions.

Installing New Guides—Top of guides must be ⅞" below top of block. Finish ream new guides after installing to inside diameter of .342-.343" (intake), .344-.345" (exhaust).
Tappet Clearance—.006" Int., .008" Exh. with engine warm. Set exhaust clearance at .010" for sustained high speed driving. Valves accessible by removing right front wheel and cover plate under fender.
Valve Springs—Do not compress springs to overall length of less than 2⅛".

	Spring Pressure	Length
Valve Closed	50-55 lbs.	2¾"
Valve Open	80-85 lbs.	2 13/32"

Valve Timing—See Camshaft Setting above.
Intake Valves Open—2° BTDC. Close—44° ALDC.
Exhaust Valves Open—46° BLDC. Close 4° ATDC.
To Check Valve Timing—Use regular timing gauge installed over #1 piston. Set tappet clearance #1 intake valve at .008". This valve should open with piston 2° or .002" before top dead center. Reset tappet clearance at .006" with engine warm.

Lubrication:—Pressure type. Gear type oil pump located in crankcase.
Normal Oil Pressure—30-60 lbs. at normal driving speeds.
Oil Pressure Relief Valve—Located under plug on left hand side of crankcase. Adjustable type. To adjust, remove cap, withdraw locking wire, turn slotted plug clockwise to increase, or counterclockwise to decrease oil pressure, replace locking wire and cap.
Capacity and Oil—8 qts. (refill). Use SAE #30 (summer—normal conditions), #40 (summer—high speed driving or temperatures above 100°F.), #20-W (winter—down to 0°F.), #10-W (winter—0° to —15°F.).

CLUTCH:—**Long Model 12CB.** Single plate, dry disc type. No adjustment required for wear. See article in Clutch Section for complete data.
Clutch Pedal Adjustment—Clutch pedal should just clear under side of toeboard. Adjust by loosening locknut and turning stopscrew at rear of pedal above shaft. Free movement of pedal should be 1 5/32". Adjust by loosening locknut and turning clutch release fork lever setscrew.
Clutch Facings—Woven rubber or asbestos composition, 2 required, 6⅛" I.D., 11" O.D., .133" thick.

NOTE—Transmission should be removed before removing clutch. Mark clutch cover and flywheel and reassemble in same position.

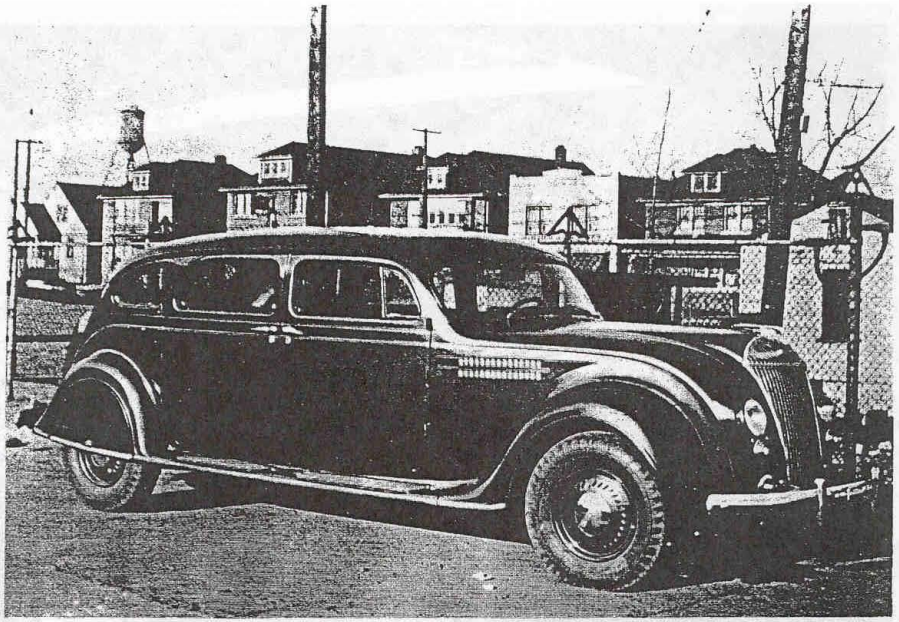
STEERING:—**Front Suspension**—Conventional tubular section front axle with Reverse-Elliott ends and semi-elliptic springs.
Kingpin Inclination—10° crosswise.
Caster—1°. Adjust by inserting angle shims between spring and spring pad on axle.
Camber—½° (¼-¾°). No adjustment. Manufacturer recommends that no attempt be made to bend axle.
Toe In—1/16-⅛" measured at hub height on center of tread. Adjust in usual manner by loosening clamp bolts and turning tie rod.

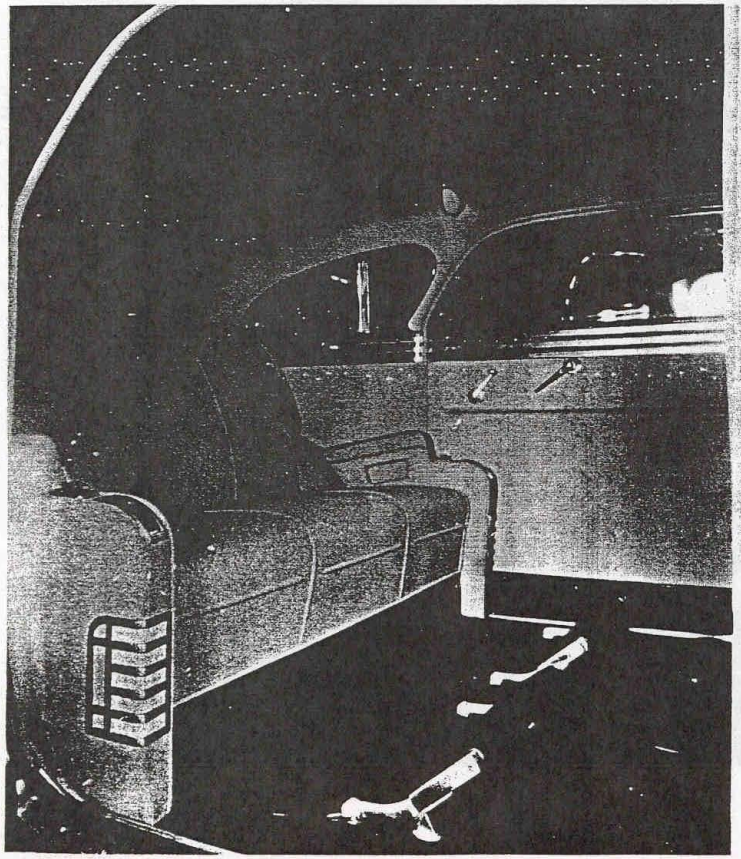
Steering Gear:—Gemmer Model, Worm-and-Roller type. See article in Steering Section for adjustments.

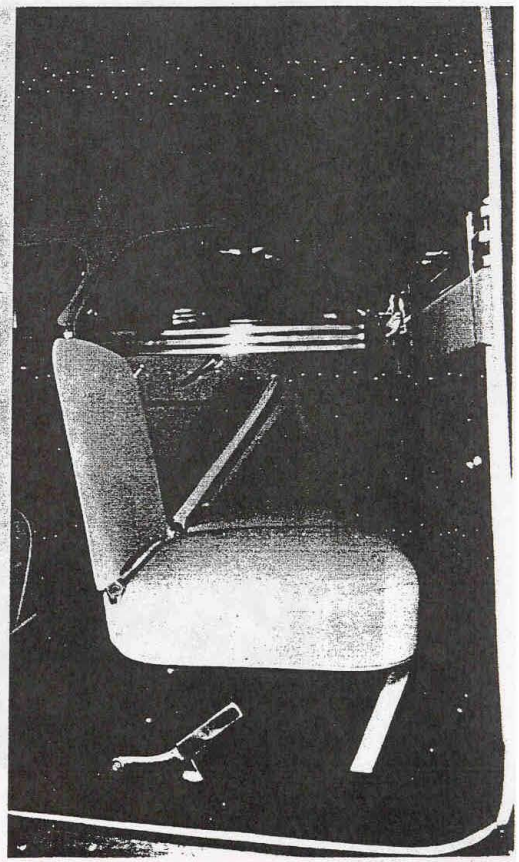
BRAKES:—**Service**—Lockheed Hydraulic, double anchor type with Bendix Vacuum Power Unit. See separate articles in Brake Section for relining and complete adjustment of brakes, and power unit.
NOTE—Wheel cylinders are marked 'R' for right brakes, 'L' for left brakes, and are not interchangeable.
Drum Diameter—15".
Lining—Moulded type. Width 2½". Thickness ¼". Length 30¼" per wheel.
Clearance—.006" heel, .012" toe, for each shoe.

Hand Brake:—External at rear of transmission.
Adjustment—Adjust brake band to give 1/16" clearance.
Drum Diameter—8".
Lining—Woven type. Width 2⅜". Thickness ¼".

Power Brake Unit:—Bendix Internal Valve type. See article in Brake Section.







SERIAL NUMBER:—On right front door hinge pillar post.

COMPRESSION:—Ratio—6.5-1 Std. aluminum head. Pressure—135-140 lbs. at 1000 R.P.M. or approx. 117 lbs. at cranking speed.

VACUUM READING:—Gauge should show steady reading of 16-18" with engine idling.

IGNITION:—Coil Model 540-L. Mounted on hood ledge on right side.
Ignition Switch:—Part of coil assembly (connected to coil by armored cable).

Distributor Model 661-Z. Single breaker, 8 lobe cam, full automatic type. No synchronization required. Manual advance consists of adjustment at distributor.
Breaker Gap—Set gap at .018". Limits, .017-.022".
Breaker Arm Spring Tension—19-23 ounces.
Manual Advance—20° (engine—adjustment only).
Cam Angles (Distributor Degrees) — Closed 31°. Open 14°.

Automatic Advance

Distributor Degrees	R.P.M.	Engine Degrees	R.P.M.
Start	250	4	500
7	400	14	800
16	1800	32	3600

Removal:—Distributor mounted on right side of cylinder head. To remove, take out hold-down screw in advance arm.

IGNITION TIMING:— Flywheel Degs. Piston Position
Aluminum Hed. engines 2° ATDC. ..... .002" ATDC.
See 'Manual Adjustment' (following) for final setting for best performance depending on fuel used.
Timing (Using Timing Light): — Connect timing light between distributor terminal and live terminal on generator relay. Turn engine over with #1 piston on compression, stop with piston 2° after top dead center when 2° mark on impulse neutralizer at front of engine lines up with pointer on chain case, loosen advance arm clamp bolt, rotate distributor until timing lamp goes out (contacts just opening), tighten clamp bolt, see that rotor is opposite #1 segment in distributor cap, check spark plug cable connections (see diagram).
Timing (Using Gauge):—All engines can be timed using a motor gauge installed in timing plug hole over #1 piston. Ignition setting is .002" ATDC.

Manual Adjustment:—After ignition set as above, road test car and adjust for slight ping with wide open throttle when accelerating from 10-30 M.P.H. To adjust, loosen hold-down screw, advance (counter-clockwise), retard (clockwise) pointer on scale. Scale graduated in engine degrees. Do not advance pointer more than 5° on scale.

Firing Order:—1-6-2-5-8-3-7-4 (see diagram).

Spark Plugs:—A.C., Type KL-9. 14 MM. Metric type. These plugs have special longer (7/16") thread length.
Spark Plug Gaps—.025".

CARBURETION: — (Fuel System). See, Carburetion Section for complete data on Carburetor, Automatic Choke, Fuel Pump, and Gasoline Gauge.

Carburetor: — Stromberg, Model EE-3. Dual, 1½" plain tube, downdraft type.
Automatic Choke—Sisson.

Fuel Pump:—A.C., Type I. Combination fuel and vacuum pump.

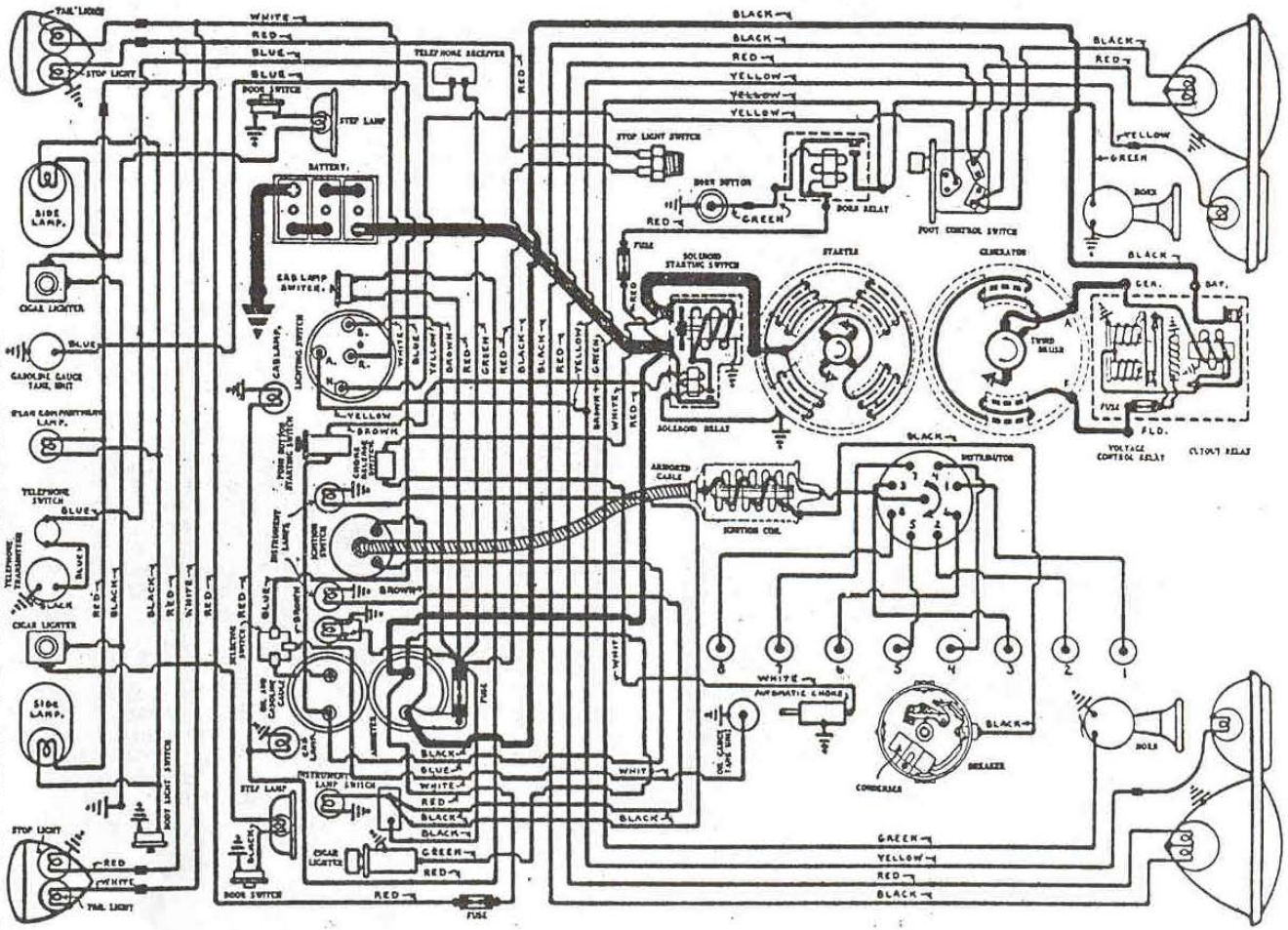
Gasoline Gauge:—Motometer, electric type. Combination fuel and oil gauge. Oil level reading obtained by pressing button on instrument panel.

VALVE TIMING:—To Check Timing—Use regular timing gauge installed over #1 piston. Set tappet clearance #1 intake valve at .008". This valve should open with piston 2° or .002" before top dead center. Reset tappet clearance at .006" with engine hot.
Motor Gauge—Weidenhoff Adapter #114, Rod #42.

Tappet Clearance.—.006" Int., .008" Exh., with engine hot. .010" Exh., recommended for sustained high speed. Valves accessible by removing right front wheel and wheel housing.

Valve Spring Pressure:—50-55 lbs. at 2¾" (valve closed). 80-85 lbs. at 2 13/32" (valve open).

LUBRICATION:—Crankcase Capacity—8 qts. (refill). Normal Oil Pressure—30-60 lbs. at normal driving speeds.



BATTERY:—Willard, Type RH-21, 6 volt, 21 plate, 170 A.H. capacity (20 hour rate).
Starting Capacity—200 amperes for 20 minutes.
Grounded Terminal—Positive (+) terminal.
Location—On left hand side under driver's seat.

STARTER:—Model 728-W. Armature No. 818134.
Starter Drive—Through reduction gears and overrunning clutch to solenoid operated pinion.
Rotation — Clockwise (armature) at commutator end.
Brush Spring Tension—24-28 ounces.

Performance Data

Torque	R.P.M.	Volts	Amperes
0 ft. lbs.	2500	5.0	70
28 "	Look	3.0	600

Starting Switch:—Solenoid Switch, Type 1518. Push-button Switch type. Starting switch and pinion shift operated by solenoid on starter field frame. Solenoid circuit operated by solenoid relay and controlled by pushbutton on instrument panel. Operative only with ignition on. See Equipment Section for complete data.

Removal:—Starter sleeve mounted on left front face of flywheel housing. Accessible by removing left front wheel and cover plate under fender. To remove, take out sleeve mounting pilot screws.

GENERATOR:—Model 967-P. Armature No. 1836971. Third brush control type with external voltage regulation (voltage control relay combined with cut-out relay in case on generator field frame). Use test meters or commutator bar method to set third brush.

Charging Rate Adjustment (using Meters):—Use test ammeter and voltmeter to check generator output. Connect jumper wire from 'F' generator terminal to ground (this is important as voltage control relay must be shorted out while adjustment is being made). With generator at room temperature, remove cover band, loosen lock screw on commutator end plate, shift third brush by hand counter-clockwise to increase, or clockwise to decrease charging rate until output is 19 amperes at 8.6 volts, tighten lock screw, remove jumper wire. See Equipment Section for complete data on Voltage Control Relay.

Commutator Bar Method:—Remove generator from car, mount so that commutator can be seen, loosen lock screw on end plate, shift third brush so there are exactly 2¼ commutator bars exposed between third brush and nearest main brush, tighten locking screw. This setting provides maximum safe output and must not be exceeded.

Performance Data

	Amperes	Volts	R.P.M.
Cold	20-23	8.5-8.8	2000
Hot	16-19	8.0-8.4	2200

Rotation—Counter-clockwise at commutator end.
Field Current—2.1-2.5 amperes at 6.0 volts.
Brush Spring Tension—22-26 ozs. (main), 16-20 ozs. (third brush).
Field Fuse—6 ampere capacity (in regulator case).

Removal:—Generator pivot mounted at left front of engine. Driven by water pump belt. Accessible by removing left front wheel and cover plate under fender. To remove, take out two pivot bolts and one clamp bolt.
Belt Adjustment—Loosen pivot bolts and clamp bolt, swing generator out or away from engine, tighten clamp bolt before slacking off on generator, tighten pivot bolts.

RELAY-REGULATOR (CONTROL UNIT):—Model 5550. Consists of Cut-out Relay and Voltage Control Relay in case on generator field frame. See Equipment Section for complete data on Voltage Control Relay.

Cut-out Relay

Cuts In—6.4-6.8 volts.
Cuts out—3 ampere discharge (maximum).
Relay Contact Gap—.015-.025".
Air Gap—.012-.017" (contacts closed).

Voltage Control Relay

Contacts Open—8.35-8.65 volts at 70°F.
Contacts Close—7.3-7.7 volts at 70°F.
Contact Gap—.008-.013".
Contact Spring Tension—.7-.9 ounces.

Air Gap—.028-.040" between armature and core (armature down against lower stop), .028-.040" armature travel (between armature and lower stop).

LIGHTING:—(1934) Clum Switch Model 9556. Delco-Remy Foot Control Switch Model 465-S. (1935) Douglas Switch Model 5394. Clum Foot Control Switch. For headlight wiring of 1934 model (as-symetrical passing beam) see wiring diagram for Imperial Model CV (1934).

Bulb Specifications

Lamp	Candlepower	Mazda No.
Headlights	32-21	2320-C
Stop and Tail	21-2	1158
All others	3	63

FUSES:—Lighting—20 ampere capacity, one mounted on back of ammeter, one mounted in cartridge behind instrument board.

Horn—30 ampere in horn relay lead near starter.

Generator Field—6 ampere capacity in regulator case.

HORNS:—Klaxon, Model K-33-D, Type 1955 (low note), 1956 (high note). Matched tone, twin horns. Vibrator type. Operated by horn relay (1935 models only).

Horn Relay:—Model 266-TK. Relay requires .25 amperes at 2 volts minimum to close contacts. Current draw .8 amperes.

Contact Gap—.015-.025".

Air Gap—.012-.017" with contacts closed.

Armature Spring Tension—6-8 ounces.

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