

PACKARD

Service Counselor

PARTS ★ ACCESSORIES ★ PRODUCT ★ PROFITS

INSTITUTIONAL

APPROVED
Packard
SERVICE

PROMOTIONAL

VOL. 21 NO. 6

MARCH 15, 1947

MECHANICAL SPECIFICATIONS AND ADJUSTMENTS

21st SERIES—7 PASS. SEDAN—LIMOUSINE—TAXICAB

MODELS	2126	2130
ENGINE		
Make	Packard	Packard
Type	L-Head—Vertical En Bloc	L-Head—Vertical En Bloc
A.M.A. Horsepower	39.2	29.4
Maximum Brake Horsepower	165 @ 3600 rpm	105 @ 3600 rpm
Suspension	Rubber Mounted	Rubber Mounted
Firing Order	1-6-2-5-8-3-7-4	1-5-3-6-2-4
Torque	292 ft.-lb. @ 2000 rpm	192 ft.-lb. @ 2000 rpm
Bore	3 1/8"	3 1/8"
Stroke	4 5/8"	4 1/4"
Piston Displacement	356 cu. in.	245 cu. in.
Cylinders	8 in line	6 in line
Compression Ratio—Standard	6.85 to 1	6.71 to 1
Weight with Clutch and Transmission	925 lb.	706 lb.
Weight with Overdrive	985 lb.	
Cylinder Head Material	Cast Iron	Cast Iron
Engine rpm per mile—Standard Ratio	2753	3296

CRANKCASE

Type	Integral with Cylinders	Integral with Cylinders
Upper Half Material	Cast Iron	Cast Iron
Lower Half Material	Steel Stamping	Steel Stamping
Oil Capacity	7 qt.	5 qt.
Crankcase Oil Gauge	Dip Stick, Left Side	Dip Stick, Left Side
Crankcase Drain Plug	5/8"—18	5/8"—18
Main Bearing Length No. 1	1 3/32"	1 13/32"
Main Bearing Length No. 2	1 1/16"	1 1/2"
Main Bearing Length No. 3	1 1/16"	1 1/2"
Main Bearing Length No. 4	1 1/16"	2 5/16"
Main Bearing Length No. 5	1 1/16"	None
Main Bearing Length No. 6	1 1/16"	None
Main Bearing Length No. 7	1 1/16"	None
Main Bearing Length No. 8	1 1/16"	None
Main Bearing Length No. 9	2 3/32"	None
Total Main Bearing Area	86.8 sq. in.	45.1 sq. in.

Universal Joint - AC H-35-638 - 31

VALVES

Valve Lift	Exhaust .340 Intake .340	Exhaust .3175 Intake .318
Valve Arrangement	L Head	L Head
Valve Head Diameter—Inlet	1.670"	1 $\frac{13}{32}$ "
Valve Head Diameter—Exhaust	1 $\frac{7}{16}$ "	1 $\frac{3}{8}$ "
Valve Stem Diameter—Inlet	.34025"	.33975"
Valve Stem Diameter—Exhaust	.34025"	.33975"
Valve Over-All Length	6.224"	5.619"
Valve Material—Inlet	Chrome Nickel	Chrome Nickel
Valve Material—Exhaust	Austenitic	Austenitic
Valve Spring Keeper Type	Split Cone	Split Cone
Valve Stem Clearance—Inlet	.002"	.0025"
Valve Stem Clearance—Exhaust	.004"	.0045"
Valve Tappet Clearance Inlet—Warm	Automatic Take-Up	.007"
Valve Tappet Clearance Exhaust—Warm	Automatic Take-Up	.010"
Inlet Valve Opens	4° btdc	1° btdc
Inlet Valve Closes	51° aldc	39° aldc
Exhaust Valve Closes	10° aldc	5° atdc
Exhaust Valve Opens	49° bldc	45° bldc
Tappet Clearance for Timing Inlet	Not Used	.0125"
Tappet Clearance for Timing Exhaust	Not Used	.015"
Valve Seat Angle—Inlet	30°	30°
Valve Seat Angle—Exhaust	45°	45°
Valve Spring	Single	Single
Valve Spring Load Valve Closed	60-66 lb. (1 $\frac{3}{4}$ ")	52-57 lb. (1 $\frac{5}{8}$ ")
Valve Spring Load Valve Open	135-145 lb. (1 $\frac{11}{16}$ ")	119-129 lb. (1 $\frac{1}{8}$ ")
Exhaust Pipe Diameter	2 $\frac{1}{2}$ "	2"
Muffler Size	6.075 x 41 $\frac{5}{8}$ "	5 $\frac{3}{16}$ " x 37 $\frac{7}{8}$ "

FRONT END

Gear Cover	Steel Stamping	Steel Stamping
Camshaft Drive	Silent Chain	Silent Chain
Make of Chain	Morse	Morse or Ramsey
Length, Width and Pitch of Chain	62 Links; 1 $\frac{1}{4}$ "; .375"	58 Links; 1 $\frac{1}{4}$ "; .375"
Number of Camshaft Bearings	8	4
Clearance of Camshaft Bearings	.001"-.003"	.001"-.003"
Camshaft End Play	.0025"-.006"	.0025"-.006"
Camshaft Sprocket—Material and Size	Cast Iron—42 Teeth—Hardened	Cast Iron—42 Teeth

PISTON

Type and Material	Autothermic Aluminum Alloy	Autothermic Aluminum Alloy
Weight	20 $\frac{1}{4}$ oz.	20 $\frac{1}{4}$ oz.
Weight with Rings and Pin	26 $\frac{3}{4}$ oz.	26 $\frac{3}{4}$ oz.
Over-All Height	3 $\frac{7}{8}$ "	3 $\frac{7}{8}$ "
Height Centerline of Pin to Top	2 $\frac{1}{8}$ "	2 $\frac{1}{8}$ "
Skirt Clearance	.0005"-.001"	.0005"-.001"
Assemble Slot Toward	Camshaft	Camshaft
Piston Pin—Size	3 $\frac{1}{16}$ " x $\frac{7}{8}$ "	3 $\frac{1}{16}$ " x $\frac{7}{8}$ "
Type	Floating	Floating
Lubrication of Pin	Pressure	Pressure
Piston Pin Fit in Piston	Palm Push at 160°F in Water	Palm Push at 160°F in Water
Piston Pin Fit in Rod	Size to Size	Size to Size
Piston Pin Oversizes	.003"-.006"	.003"-.006"
Number of Rings per Piston	3	3
Number of Oil Rings per Piston	1	1
Type of Compression Rings		
Top Groove	No. 200	No. 200
Second Groove	No. 70	No. 70
Type of Oil Rings	No. 86	No. 86
Width of Compression Rings No. 1	.0930"-.0935"	.093"-.0935"
Width of Compression Rings No. 2	.1235"-.124"	.1235"-.124"
Width of Oil Rings	.186"-.1865"	.186"-.1865"
Piston Ring Cap—Compression	.007"-.017"	.007"-.017"
Piston Ring Gap—Oil	.007"-.015"	.007"-.015"
Location of Rings	Above Pin	Above Pin
Piston Oil Drain Holes	12 $\frac{5}{32}$ "	12 $\frac{5}{32}$ "
Piston Oversizes	.020", .030", .040"	.020", .030", .040"

Conn. Rod Bearing = 86E7

MODELS	2126	2130
CONNECTING ROD		
Weight	2 lb. 7 oz.	1 lb. 15.6 oz.
Material	Steel Forging	Steel Forging
Bearing Type	Detachable Shell	Detachable Shell
Center to Center Length	9 1/4"	7 11/16"
Length of Crankpin	1 3/8"	1 1/4"
Clearance Bearing to Crankpin	.0005"-.0015"	.0005"-.0015"
End Play on Crankshaft	.004"-.010"	.004"-.010"
Oil Lead to Piston Pin	Rifle Drilled	Rifle Drilled
Bearing Material	Special Composite Construction	Special Composite Construction
Assembled in Engine	Oil Hole Toward Camshaft	Oil Hole Toward Camshaft
Cap Attached	Bolts, Nuts, and Cotteners	Bolts, Nuts, and Lock Nuts
Bearing Adjustment	Replace Bearing Shells	Replace Bearing Shells
CRANKSHAFT		
Type	Counterbalanced	Counterbalanced
Material	Steel Forging	Steel Forging
Number of Counterweights	8 Bolted	6 Forged Integral
Number of Main Bearings	9	4
Main Bearing Journal Diameter	2.7465"	2.7465"
Connecting Rod Journal Diameter	2.250"	2.094"
Thrust Taken On	Center	Front
Vibration Damper	Rubber Friction Disc, Waterproof	Rubber Friction Disc, Waterproof
Weight	104 lb.	81 1/2 lb.
End Play	.003"-.008"	.003"-.008"
Main Bearing Material	Special Composite Construction	Special Composite Construction
Clearance—All Main Bearings	.0005"-.0015"	.0005"-.0015"
Crankshaft Sprocket—Material and Size	Steel—21 Teeth	Steel—21 Teeth
Bearing Adjustment	Replace Bearing Shells	Replace Bearing Shells
ENGINE OILING SYSTEM		
Type	Full Pressure	Full Pressure
Oil Pump Type	Gear	Gear
Crankcase Capacity	7 qt.	5 qt.
Oil Filler Location	Left Side	Left Side
Oil Filter Location	Left Side	Left Side
Oil Measuring Stick	Left Crankcase	Left Crankcase
Oil Pump Intake	Floating Screen	Floating Screen
Crankcase Ventilator	Yes	Manifold Vacuum Type
Oil Pressure—Normal Driving	50 lb.	40 lb.
Oil Drain	Hex. Head Flange Plug 5/8"-18	Hex. Head Flange Plug 5/8"-18
CLUTCH		
Type	Single Dry Plate	Single Dry Plate
Pedal Free Play	1 3/4"-2 1/4"	1 1/2"-2"
Facing Material	U. S. Asbestos, Woven	U. S. Asbestos, Woven
Size Facing	6 5/8" x 11" x .125"	6 5/8" x 11" x .125"
Throw-Out Bearing	Prelubricated Ball	Prelubricated Ball
Clutch Spring Pressure	163 lb. at 1 1/8"	149 lb. at 1 1/8"
Number of Springs	9	9
Vibration Neutralizer	Springs	Springs
TRANSMISSION		
Type	Selective—Silent—Synchronized	Selective—Silent—Synchronized
Number of Forward Speeds	3	3
Engine to Rear Wheel Ratio	Std.	Std.
Overdrive		
Direct	4.09	4.54
Second	6.25	6.94
First	9.93	11.03
Reverse	12.94	14.35
Oil Capacity—Standard Transmission	2 pints	2 pints
Oil Capacity—OD Unit	1 1/4 pints	
Oil Level Plugs	1/8"-14 Pipe	1/8"-14 Pipe
Gear Teeth	Helical	Helical
FRAME		
Type	Taper Pressed Steel Double Drop. Side Rail Box Sectioned at Front and Rear.	Taper Pressed Steel Double Drop. Side Rail Box Sectioned at Front and Rear.
Thickness	1 1/8"	1 1/8"
Cross Members	Three plus X-member	Three plus X-member

generator 4823E serial 5B06582 40 amp
 Regulator V R P 4402-B GB364825
 starter M A W 4024

MODELS	2126	2130
STEERING GEAR		
Make	Packard—Gemmer	Packard—Gemmer
Type	Worm & 3 Tooth Roller	Worm & 3 Tooth Roller
Ratio	20.4 to 1	20.4 to 1
Steering Wheel	18"—3 Spoke "T"	18"—3 Spoke "T"
Minimum Turning Radius	26 ft.	21 ft.
FRONT SUSPENSION		
Make	Packard Safe-T-Flex	Packard Safe-T-Flex
Type	Independent Parallelogram	Independent Parallelogram
Steering Knuckle	Reverse Elliot	Reverse Elliot
Steering Knuckle Pin Bearings		
Lower	.866 x 1.1875 Long x 1.189 OD	.866 x 1.1875 Long x 1.189 OD
Upper	Needle Bearing	Needle Bearing
Thrust Bearings	Steel Ball Bearing	Steel Ball Bearing
Caster	Neg. 2° Plus or Minus ½°	Neg. 1° Plus or Minus ½°
Front Wheel Toe-In	0 Plus ⅛ Minus 0	0 Plus ⅛ Minus 0
Knuckle Pin Angle	5°35'	5°35'
Tread	59⅜"	59¼"
Camber	0° Plus or Minus ¼°	0° Plus or Minus ¼°
Wheel Bearings—Inner and Outer	Tapered Roller	Tapered Roller
Wheel Bearing Adjustment	Tighten Nut and Back Off ½ Turn and Lock	Tighten Nut and Back Off ½ Turn and Lock
ELECTRICAL		
Battery Make	Auto-Lite-17-ZR	Willard-SW-D-100
Capacity	120 hr.	Auto-Lite-P-15-ZR
Plates	17	100 hr.
Ignition Timing	4° btdc	15
Breaker Point Gap	.0125"-.0175"	4° btdc
Breaker Arm Spring Tension	19-23 oz.	.018"-.022"
Spark Control	Full Automatic	19-23 oz.
Spark Advance Begins at	500 Engine rpm	Full Automatic
Distributor (Vacuum Controlled)	Auto-Lite IGT-4102	600 Engine rpm
Spark Plug—Size	10 mm.	Auto-Lite IGC-4505
Spark Plug—Make and Type	104 AC or Champion Y4A	10 mm.
Spark Plug Gap	.025"-.030"	104 AC or Champion Y4A or Auto-Lite P-4
Generator—Make and Type	Auto-Lite GEA-4802A	.025"-.030"
Generator Drive	Belt	Auto-Lite GEB-0802C
Generator Cut-In Speed—Cold	780 rpm	Belt
Generator Output—Maximum	35 Amperes	550 rpm
Generator Voltage—Maximum	7.4	32 Amperes
Generator Voltage Regulator	Auto-Lite VRP-4002C	7.4
Generator Voltage to Close Cut-Out	6½ to 7 Volts	Auto-Lite VRP-02
Starter Motor—Make and Type	Auto-Lite MAX-4052	6½ to 7 Volts
Starter Drive	Solenoid Actuated	Auto-Lite MAW-4027
Number of Flywheel Teeth	140	Bendix Shift
Number of Teeth in Starter Pinion	9	140
Pinion Meshes	From Front	9
Light Control	On Instrument Board and Foot Switch	From Front
Headlight Current Protection	Thermostatic Relay	On Instrument Board and Foot Switch
Auxiliary Fuse	SFE 20 Ampere	Thermostatic Relay
Body Fuse	SFE 20 Ampere	SFE 20 Ampere
Tail Light Fuse	SFE 20 Ampere	SFE 20 Ampere
Stop Light Fuse	SFE 20 Ampere	SFE 20 Ampere
Windshield Wiper Protection	Thermostatic Relay	SFE 20 Ampere
Clock Fuse	SFE 4 Ampere	Thermostatic Relay
Overdrive Relay	SFE 30 Ampere	SFE 4 Ampere
Headlight Bulb—Sealed Beam	40-30 Watt	—
Horn—Make	Sparton	40-30 Watt
Horn—Location	Mounted on Engine	Sparton
Battery Terminal Grounded	Positive	Mounted on Engine
Ampere Draw of Horns	33-36 Amperes	Positive
Ampere Draw of Car Heater Motor	6 Amperes at 7 Volts	22-25 Amperes
Ampere Draw of Car Defroster	4½ Amperes at 7 Volts	6 Amperes at 7 Volts
Ampere Draw of Windshield Wiper	4½ Amperes at 6 Volts	4½ Amperes at 7 Volts
Ampere Draw of Headlights (each)	30-40 Watts	4½ Amperes at 6 Volts
Ampere Draw of Coil—Idling Cold	2.4 Amperes	30-40 Watts
Ampere Draw of Coil—Stopped Cold	5. Amperes	2.75 Amperes
Clock—Type and Make	Electric—Borg	5. Amperes
Cigar Lighter	Automatic	Electric—Borg
Starter Stall Torque	45.9 ft. lb. @ 4 Volts—906 Amperes	Automatic
Ignition Coil—L.H.D.	Auto-Lite CE-3224ABS	18 ft. lb. @ 4 Volts—670 Amperes
		Auto-Lite CE-3224US

Heater hose about 18'
 7' 1" 9" 2" 1'

MODELS	2126	2130
COOLING SYSTEM		
Water Pump	Centrifugal—Self-Adjusting	Centrifugal—Self-Adjusting
Water Pump Drive	Fan Belt	Fan Belt
Radiator Core	Tubular	Tubular
Capacity of System	5 gal.	3½ gal.
Fan	5 Blade 18½"	4 Blade 18"
Driving Pulley	On Crankshaft	On Crankshaft
Ratio	.973 to 1	.963 to 1
Thermostat Starts to Open		
Standard	145°-150°	145°-150°
High Reading	160°-165°	160°-165°
Fan Belt	52¼" x 1" x 42°	49¼" x ¾" x 42°
Radiator Hose—Inlet	11½" x 2½" OD x 1¼" ID 130° Angle-Moulded	12⅝" x 2½" OD x 1¼" ID 120° Angle-Moulded
Radiator Hose—Outlet	3¾" x 1¾" ID	3¾" x 1¾" ID
Heat Indicator	Pressure Bulb Type	Pressure Bulb Type
Fan Belt Adjustment	At Generator	At Generator
Gravity Flow of Radiator	45 gal. per min.	30 gal. per min.
Radiator Cap	Pressure Type—(7 lb. per sq. in.)	Pressure Type—(7 lb. per sq. in.)
GASOLINE SYSTEM		
Carburetor—Make and Type	Carter WDO-531-S Downdraft 1¼" Duplex	Carter WAI-530-S Downdraft 1¼" Single Barrel
Gasoline Feed	Mechanical Pump	Mechanical Pump
Pump Drive	Off Camshaft	Off Camshaft
Gasoline Filter	Incorporated in Fuel Pump	Incorporated in Fuel Pump
Gasoline Gauge	Electric	Electric
Gasoline Tank Capacity	20 gal.	17 gal.
Air Cleaner and Silencer	Oil Bath Standard Equipment	Oil Coated Mesh
Carburetor Heat Control	Thermostatic	Thermostatic
Automatic Choke	Thermostatically Controlled	Thermostatically Controlled
Carburetor Fuel Level	⅝" Below Top of Bowl	⅜" Below Top of Bowl
REAR AXLE		
Type	Semi-floating	Semi-floating
Make	Packard	Packard
Final Drive	Hypoid Gears	Hypoid Gears
Propulsion	Through Rear Springs	Through Rear Springs
Axle Housing	Pressed Steel Banjo Type	Pressed Steel Banjo Type
Oil Capacity	6 pt.	4 pt.
Wheel Bearings	Tapered Roller	Tapered Roller
Tread	60⅝"	60⅜"
Standard Gear Ratio	4.09 to 1	4.54 to 1
Pinion Backlash	.003"-.005"	.003"-.005"
Number Teeth—Gear and Pinion	45-11	50-11
Oil Drain Plugs	½"-14 Pipe	½"-14 Pipe
Universal Joints	"Mechanics" Roller Bearing Type	"Mechanics" Roller Bearing Type
Number Required	3—Double Drive Shaft	2
SPRINGS		
Front	2450 x 120 Coil	1950 x 90 Coil
Rear	1250 x 155 Leaf	1000 x 140 Leaf
Front Size	5.69 OD, 4¼ ID	5.58 OD, 4¼ ID
Rear Length and Width	54⅜" x 2"	54⅜" x 2"
Shackles	Rubber Mounted	Rubber Mounted
Spring Covers	No	No
Shock Absorbers—Front	Hydraulic Two-Way	Hydraulic Two-Way
Shock Absorbers—Rear	Hydraulic Direct Acting	Hydraulic Direct Acting
Stabilizer—Front	Torsional	Torsional
Stabilizer—Rear	Hydraulic Direct Acting	Hydraulic Direct Acting
Spring Material—Front and Rear	Silico-Manganese	Silico-Manganese
BRAKES		
Type	Hydraulic—2 Shoe	Hydraulic—2 Shoe
Effective Area	260 sq. in.	184 sq. in.
Effective Area Hand Brake	130 sq. in.	98 sq. in.
Drum Diameter—Front	12" Centrifuse	12" Centrifuse
—Rear	12" Centrifuse	12" Centrifuse
Lining Size and Material		
Primary—Marshall 2201H-8		
Front	2½" x ⅜" x 13"	1¾" x ⅜" x 11½"
Rear	2½" x ⅜" x 13"	2" x ⅜" x 11½"
Secondary—Marshall 9017		
Front	2½" x ⅜" x 13"	1¾" x ⅜" x 13"
Rear	2½" x ⅜" x 13"	2" x ⅜" x 11½"
Wheel Cylinder Size		
Front	1¼"	⅝"
Rear	1⅝"	⅝"

Fan Belt
 403079
 good year
 M704

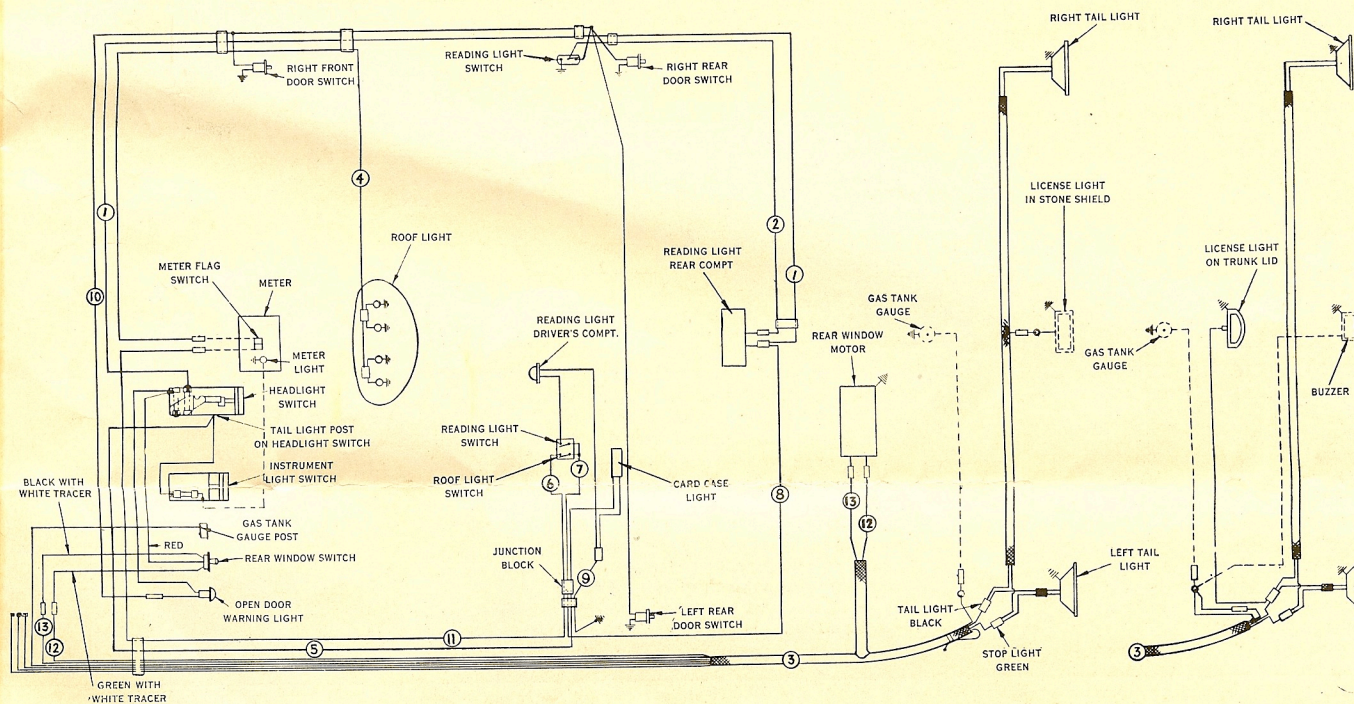
MODEL	BODY MODEL	SHIPPING WEIGHT
WHEELS		
Type	Demountable Disc	Demountable Disc
Size of Tire	16 x 7.50—6 Ply	15 x 7.00—6 Ply
Recommended Tire Pressure—Front	30 lb.	28 lb.
—Rear	30 lb.	28 lb.

CAR DIMENSIONS		
Wheelbase	148"	120"
Overall Length Bumper to Bumper	236½"	208½"
Overall Height Loaded	67"	63½"
Overall Width	76½"	76½"

SHIPPING WEIGHTS

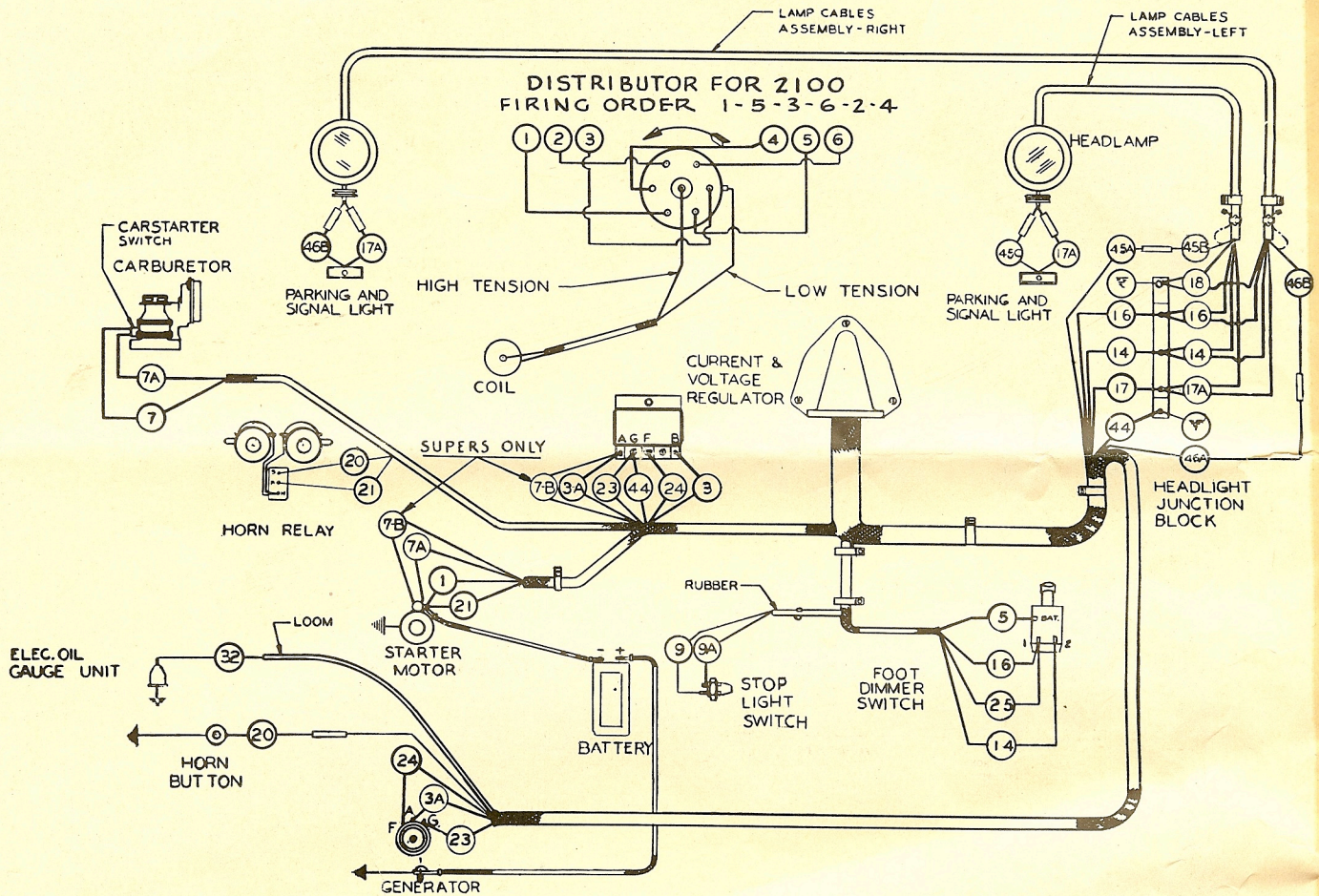
Limousine	1650—2150	4765
Sedan	1651—2151	4700
Partition Type Taxicab	1684—2184	3875
Sedan Type Taxicab	1686—2186	3785

TAXICAB BODY WIRING DIAGRAM



NO.	COLOR	LOCATION
1	Red and White Tracer	Body Feed Cable Assembly
2	Black	Reading Lamp Switch Cable Assembly
3		Electrical Wiring Harness—Rear
4	Black	Meter Connector to Roof Light Cable Assembly
5	Yellow	Partition Junction to Tail Light Terminal Cable Assembly
6	Brown	Header Switch to Partition Junction Cable Assembly
7	Red	Partition Junction to Header Switch Cable Assembly
8	Red	Reading Lamp (rear) to Partition Junction
9	Black and Green Tracer	Left Center Pillar Ground to Partition Junction Cable Assembly
10	Black and Green Tracer	Open Door Warning Light to Door Switches Cable Assembly
11	Brown	Meter Connector to Partition Junction Cable Assembly
12	Black and Yellow Tracer	Electrical—Instrument Board Rear Window Control Switch Cable (to close)
13	Green and Yellow Tracer	Electrical—Instrument Board Rear Window Control Switch Cable (to open)

TAXICAB CHASSIS WIRING DIAGRAM



NO.	GAUGE	COLOR	LOCATION
1	10	Red	Starter Motor Switch to Ammeter
3	10	Black	Ammeter to Regulator
3A	10	Red	Generator to Regulator
3B	12	Black	Ammeter to Ignition Switch
3C	12	Black	Ignition Switch to Headlight Switch
3D	16	Black	Headlight Switch to Map Light
5	14	Black	Headlight Switch to Foot Dimmer Switch
7	16	Black	Ignition Switch to Car Starter Switch
7A	16	Black	Car Starter Switch to Starter Solenoid Switch
7B	16	Black	Starter Solenoid Switch to Voltage Regulator
8	16	Black	Panel Light Switch to Rear Wiring Harness
8A	16	Black	Front Harness to Rear Tail Lights
8B	16	Black	Panel Light Switch to Speedometer Pointer Light
8C	16	Black	Headlight Switch to Panel Light Switch
8D	16	Black	Panel Light Switch to Panel Lights
8E	14	Black	Cigar Lighter to Headlight Switch
9	16	Green	Headlight Switch to Stoplight Switch
9A	16	Green	Stoplight Switch to Rear Wiring Harness
9B	16	Green	Front Harness to Stoplights
11	16	Black	Ignition Switch to Gasoline Gauge (Instr.)
11A	18	Tan—with Black and Red Tracer	Gasoline Gauge (Instr.) to Gasoline Gauge (Tank)
14	14	Red	Foot Dimmer Switch to Headlight (City)
16	14	Green	Foot Dimmer Switch to Headlights (Drive)
17	16	Black with Red Tracer	Headlight Switch to Junction Block
17A	16	Blue	Junction Block to Parking Lights

**FOR WIRING DIAGRAMS ON 7 PASS. SEDANS AND LIMOUSINES
SEE 21st SR. MECHANICAL SPECIFICATIONS AND ADJUSTMENTS**

TAXICAB LUBRICATION DIAGRAM

