# Lark-Hawk-Cruiser 1963 Preliminary Service Information

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## Model Identification

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<tr>
<th>MODEL NAME AND BODY TYPE</th>
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### OPTIONAL ENGINES

## SPECIFICATIONS

All pertinent service specifications given are those that differ from the 1962 specifications. Specifications not given are the same as the 1962 service specifications.

### Brake System

<table>
<thead>
<tr>
<th>Make</th>
<th>Type</th>
<th>ALL MODELS-STANDARD</th>
<th>ALL MODELS-DISC TYPE</th>
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<td>Wagner</td>
<td>Bendix</td>
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<td>Self-Energizing</td>
<td>Front (Disc)-Rear (Drum)</td>
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<td>Self-Centering</td>
<td>Automatic Adjusting-Front</td>
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<td>Front-Mintex</td>
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<td>Rear-Marshall Eclipse</td>
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<td>Front-Gray Iron Disc</td>
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<td>Rear-Budd Composite Finned</td>
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<td>Front (Disc)-11-1/2&quot; O.D.</td>
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<td>Rear (Drum)-11 x 2</td>
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- **Make**: Wagner, Bendix
- **Type**: Self-Energizing, Self-Centering, Automatic Adjusting
- **Brake Lining**: Composite, Labryinth seal
- **Drum Type**: Composite
- **Drum Size**: 2" x 1/16" Useable

#### Brake Lining Specifications

- **Lining-Length per Shoe**
  - **Front**:
    - Rear-Primary: 12.52" 10" 2" 2" .416" Useable .180"
    - Rear-Secondary: .180"
  - **Rear**:
    - Front Wheel: .416" Useable
    - Rear Wheel: .180"

- **Total Braking Area**: 105
- **Division of Braking Power**
  - **Front**: 62
  - **Rear**: 38

#### Parking Brake Lever Operates

- **Rear Brakes**

- **Specify**: Air cooled Rib Drum on Hawk, Taxi & 8 cyl. Police Car Model & Models equipped with 289 cu. in. and Jet-Thrust Engine.

### Clutch

<table>
<thead>
<tr>
<th>Make</th>
<th>Type</th>
<th>Jet-Thrust</th>
<th>Jet-Thrust and Super Jet-Thrust</th>
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<td>With 3-Speed Transmission</td>
<td>With 4-Speed Transmission</td>
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<td>and 259-289 with 4-Speed</td>
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<td>Semi-Centrifugal</td>
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<td>1784 lbs.</td>
<td>1784 lbs.</td>
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<td>No. of Springs (Pressure Plate)</td>
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<td>12</td>
<td>12</td>
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#### Clutch Specifications

- **Vibration Damper**: Yes, Yes
- **Clutch Driven Disc**: 1, 1
- **Facing Material**: Molded, Woven-Molded
- **Inside Diameter**: 642", 6-1/2"
- **Outside Diameter**: 10-1/2", 10-1/2"
- **Thickness**: .125, .135"
- **Pedal Free Play**: 3/4", 3/4"
- **Spring Pressure (Plate Pressure)**: 1456 lbs., 1784 lbs.
- **No. of Springs (Pressure Plate)**: 9, 12

### Cooling

#### Jet-Thrust Engines

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<th>Length (Outside)</th>
<th>Width (Normal)</th>
<th>Angle of Vee (Pulley)</th>
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<td>15/32&quot;</td>
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<td>54&quot; 75</td>
<td>31/32&quot;</td>
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</table>

- **Fan Belt Length (Outside)**: 57.00"
- **Width (Normal)**: 15/32"
- **Angle of Vee (Pulley)**: 38"
Electrical System

Ignition
Coil-Make: 63S
Model: 63V
Resistor

Distributor-Make
Model
Centrifugal Advance
Crankshaft Degrees
Vacuum Advance
Crankshaft Degrees
Spark Timing
(Vacuum Chamber Disconnected)
Distributor Point Gap
Cam Angle
(Overall-Both Sets of Points)

DISTRIBUTOR BREAKER
Arm Tension
Firing Order
Spark Plug-Make
Gap
Thread

ALTERNATOR
Make: PRESTOLITE
Model: ALK 5001
Maximum Controlled Charging Rate
Temperature: 70°
Amperes: 35
Voltage: 14.2
RPM: 1700-1750

ALTERNATOR REGULATOR
Make: PRESTOLITE
Model: VTB 6201A

LAMP BULBS
Location
Headlight-Single, Dual 2 outer-4002
2 inner-4001
Instruments 4-57
Directional Signals F-2-1034 Indicator R-2-1034 1816
Front & Parking Lamp 2-1034
Rear Tail & Stop 2-1034
Tell-Tale 1-1445
Highbeam Indicator 1-1445
Dome 1-1004

CIRCUIT BREAKER and FUSES
ALL Except K Models
Circuit Breaker
Headlights, Park & Tail Lights, Instruments
Windshield Wiper
Station Wagon Tailgate Power Window

Jet-Thrust
W/Supercharger
PRESTOLITE 200674
W/O Supercharger
PRESTOLITE 200567

W/Externally Mounted in Coil
External
Resistor: .035 OHM's
Distributor: 18°+/− 2 at 1200 RPM
20°+/− 2 at 2000 RPM
Spark: 24° BTC at 1600 RPM
4° BTC at 650 RPM

ALTERNATOR REGULATOR
Make: PRESTOLITE
Model: VTB 6201A

LAMP BULBS
Location
License Plate 2-67
Trunk 1-67
Ignition Switch 1-1445
Back-up Light 2-141
Glove Compartment 1-57
Radio 1-1892
Clock 2-57
Cigar Lighter 1-1445
Auto. Transmission Selector Indicator 1-1445

CIRCUIT BREAKER and FUSES
ALL Except K Models
Circuit Breaker
Headlights, Park & Tail Lights, Instruments
Windshield Wiper
Station Wagon Tailgate Power Window

Amperes
20CB
5CB
20CB

Location
In Headlight Switch
In Wiper Switch
Left front fender apron
### Fuses

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<th>Type</th>
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<td>On Directional Signal Bracket</td>
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<td>In Kick-Down Switch</td>
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<td>In lead behind instrument panel</td>
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<td>Electric Clock</td>
<td>1 AG-2</td>
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<td>Climatizer &amp; Defroster</td>
<td>SAE 14</td>
<td>In lead behind instrument panel</td>
</tr>
<tr>
<td>Directional &amp; Backup Lights</td>
<td>AG C 15A</td>
<td>On Directional Signal Bracket</td>
</tr>
</tbody>
</table>

### Engine 259 & 289

#### Pistons and Rings

<table>
<thead>
<tr>
<th>Oil Ring per Piston</th>
<th>Width</th>
<th>Gap</th>
<th>Side Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.187</td>
<td>.015 to .055</td>
<td>None</td>
</tr>
</tbody>
</table>

### Jet-Thrust Engine 289 Cu. In.

#### Compression Ratio

- **W/Supercharger:** 9.66:1
- **W/O Supercharger:** 10.25:1

#### Standard Compression Pressure at Cranking Speed Approx.

- **W/Supercharger:** 160-170
- **W/O Supercharger:** 185-195

#### Crankshaft

- **Vibration Damper Type:** Rubber mounted inertia member
- **Main Bearing Type:** Removable
- **Material:** Front & Rear-Steel back-Babbitt lined
- **No. 2-3 & 4 Steel back-trimetal aluminum**

*Steel back type trimetal-copper lead-Optional.

#### Piston Clearance

<table>
<thead>
<tr>
<th>Oil Ring per Piston</th>
<th>Width</th>
<th>Gap</th>
<th>Side Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.187</td>
<td>.015 to .055</td>
<td>None</td>
</tr>
</tbody>
</table>

#### Compression Ring Number per Piston

<table>
<thead>
<tr>
<th>Oil Ring Number per Piston</th>
<th>Width</th>
<th>Gap</th>
<th>Side Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.078</td>
<td>.012&quot;-.20&quot;-Top</td>
<td>.008&quot;-.016&quot;-2nd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.0025 to .004</td>
<td></td>
</tr>
</tbody>
</table>

#### Connecting Rod Bearing Material

- **Steel back-Trimetal-Aluminum**

(Trimetal-Copper Lead Opt.)

#### Valves

<table>
<thead>
<tr>
<th>Operating Clearance</th>
<th>Intake &amp; Exhaust (Hot)</th>
<th>Valve Spring Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.025&quot;-.027&quot;</td>
<td>125 to 135 lbs. at 134°</td>
</tr>
</tbody>
</table>

#### Timing

<table>
<thead>
<tr>
<th>Intake Opens</th>
<th>Intake Closes</th>
<th>Exhaust Opens</th>
<th>Exhaust Closes</th>
</tr>
</thead>
<tbody>
<tr>
<td>17°BTC</td>
<td>63°ABC</td>
<td>56°BBC</td>
<td>24°ATC</td>
</tr>
</tbody>
</table>

### Frame

- **Side Rail Thickness on P models:** 11 gage
- **No. of Crossmembers:**

### Lubrication

<table>
<thead>
<tr>
<th>Oil Filler Location</th>
<th>63S:Front Center</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63V:Cap on either Rocker Arm Cover</td>
</tr>
<tr>
<td>Supercharger</td>
<td>8 ozs.</td>
</tr>
<tr>
<td>M-35 Automatic Transmission</td>
<td>18 pints</td>
</tr>
</tbody>
</table>
Gasoline System

63S  63V

**Fuel Pump**
- **Make**: ...........................................
- **Pressure**: ...........................................

**Carburetor**
- **Make**: ...........................................
- **Model**: ...........................................
- Optional Carter AFB-3548S

**Supercharger**
- **Make**: ...........................................
- **Model**: ...........................................

**Gasoline System 63S**
- **Carter** 5-I2-7 psi at 1,000 RPM
- **Stromberg** WW6-130*

**Supercharger**
- **Make**: ...........................................
- **Model**: ...........................................

**Transmission**
- **Jet-Thrust Engine**
- **Standard**: ...........................................
- **Optional**: ...........................................

**Automatic Transmission**
- **Car-Model**: ...........................................
- **Body Type**: ...........................................
- **Transmission Model**: ...........................................
- **Serial Plate Color**: ...........................................

**Note:**
Model 44 axle available as Special Order Option in place of Model 27 Axle using corresponding Axle Ratios except: Specify 4.69 in place of 4.10 Ratio, also specify 4.55 in place of 4.56 Ratio.

Use Model 44 Axle in place of Model 27, whenever the following Engines are specified as Special Order items:
- E-289 Engine; Jet-Thrust Engine; Supercharged Jet-Thrust Engine.

**Rear Axle Ratios**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>BODY TYPE</th>
<th>AXLE MODEL</th>
<th>STD.</th>
<th>OPT.</th>
<th>O/D TRANS.</th>
<th>STD.</th>
<th>OPT.</th>
<th>AUTO. TRANS.</th>
<th>STD.</th>
<th>OPT.</th>
<th>4-Speed TRANS.</th>
<th>STD.</th>
<th>OPT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>63S</td>
<td>Y4-Y6</td>
<td>27</td>
<td>3.73</td>
<td>3.31</td>
<td>4.1</td>
<td>3.73</td>
<td>4.1</td>
<td>3.73</td>
<td>4.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F4-F6-J8</td>
<td>4.1</td>
<td>4.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63S</td>
<td>F3-Y3</td>
<td>44</td>
<td>3.73</td>
<td>3.31</td>
<td>4.69</td>
<td>3.73</td>
<td>4.69</td>
<td>3.73</td>
<td>4.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63S</td>
<td>L-P4-P8</td>
<td>27</td>
<td>4.1</td>
<td>3.73</td>
<td>4.56</td>
<td>4.1</td>
<td>3.73</td>
<td>4.1</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>K</td>
<td></td>
<td>4.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63S</td>
<td>P3</td>
<td>44</td>
<td>4.69</td>
<td>3.73</td>
<td>4.55</td>
<td>4.09</td>
<td>4.69</td>
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<td></td>
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</tr>
<tr>
<td>63S</td>
<td>Y1</td>
<td>44</td>
<td>4.69</td>
<td>3.73</td>
<td></td>
<td></td>
<td>3.73</td>
<td>3.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63V</td>
<td>Y4-Y6</td>
<td>27</td>
<td>3.07</td>
<td>3.31</td>
<td>3.07</td>
<td>3.07</td>
<td>3.31</td>
<td>3.31</td>
<td>3.73</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>F4-F6-J8</td>
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</tr>
<tr>
<td>63V</td>
<td>L</td>
<td>27</td>
<td>3.31</td>
<td>3.31</td>
<td>3.31</td>
<td>3.31</td>
<td>3.31</td>
<td>3.31</td>
<td>3.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63V</td>
<td>F3-Y3</td>
<td>44</td>
<td>3.07</td>
<td>3.31</td>
<td>3.07</td>
<td>3.07</td>
<td>3.31</td>
<td>3.31</td>
<td>3.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63V</td>
<td>P-PY-E-K</td>
<td>44</td>
<td>3.31</td>
<td>3.73</td>
<td>3.31</td>
<td>3.31</td>
<td>3.31</td>
<td>3.31</td>
<td>3.73</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>63V</td>
<td>Y1</td>
<td>44</td>
<td>3.31</td>
<td>3.73</td>
<td></td>
<td></td>
<td>3.31</td>
<td>3.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**OIL FILTER**

The full flow oil filtering system is standard equipment on all models. The standard oil filter is of the replaceable element type. A replaceable cartridge type oil filter is available as a special order item.

**Removal**

1. Unscrew the element from the base. A wrench may be used on the hexagonal boss on the lower end of the filter element. On the replaceable cartridge type unscrew the center through bolt and remove bolt and cartridge container.

**Installation**

**NOTE:** Use a new cartridge-to-base gasket when installing a new cartridge in the replaceable cartridge type oil filter.

1. Lubricate the gasket on the element or cartridge container with light oil and screw element onto the base until the gasket is seated. Then, tighten another half-turn by hand. On the replaceable cartridge type tighten the center through bolt to a maximum of 25 ft. lbs. torque. The replaceable element type must be tightened by hand only—do not use a wrench or tool when installing the filter element.

**Change Intervals**

The recommended engine oil change and the oil filter replacement interval are as follows:

1. The initial engine oil change and the initial oil filter change should be made at 1,000 miles.
2. Thereafter the engine oil should be changed every 4,000 miles or 60 days when the average ambient temperature is above +32°F and every 4,000 miles or 30 days when the average ambient temperature is below +32°F.
3. The oil filter should be replaced every 4,000 miles or 6 months of operation, whichever occurs first.
4. The above recommendations are based on average driving conditions. Under severe service or dusty conditions it is advisable to change engine oil and filter elements more frequently than outlined above. IMPORTANT: Should the filter become plugged, the engine oil is by-passed to the engine without being filtered. A plugged filter condition indicates that the element or cartridge has not been changed frequently enough.

The current oil classification, capacities, and viscosity recommendations remain unchanged. It is however, necessary to add one additional quart of oil to the engine crankcase when the engine oil and filter are changed.

**SUPERCHARGER**

The supercharger uses Type A-Suffix-A Automatic Transmission fluid (SP-50018). The supercharger fluid should be drained and refilled every 15,000 miles.

**BRAKES**

**Self-Adjusting**

All 1963 Lark and Hawk Models will use a Wagner Brake with a wire link automatic adjuster mechanism as standard equipment. The backing plate and shoes are relatively the same as used on 1962 models with the addition of a self-adjuster mechanism attached to the primary shoe.

**Operation**

Opposite the fixed anchor pin, a star wheel adjustment link floats between the brake shoes. The star wheel teeth engage a spring lever adjuster, (7, Fig. 1) attached to the primary shoe and held in place by the star wheel adjustment link. A wire link (6) is attached to one end of the spring lever adjuster and to a crank lever (4) mounted on the primary shoe. A second wire link (3) is attached to the crank lever and snapped in a groove on the anchor pin, (2) thereby forming a mechanical linkage between the brake anchor pin and spring lever adjuster. The self-adjusting ratchet action occurs during forward brake applications when the primary shoe moves away from the brake anchor block and contacts the brake drum. This movement of the primary shoe to which the crank lever is mounted, causes the mechanical linkage between the anchor pin and spring lever to operate which results in moving the spring lever on the star wheel. If lining wear is sufficient to require an adjustment, the movement of the spring lever adjuster will be great enough so the adjuster will engage the
next star wheel tooth. When the brakes are released, the spring force of the spring lever adjuster will rotate the star wheel one tooth thereby expanding the adjusting screw assembly which results in automatically adjusting the brakes.

Disassembly
1. Unhook the long wire link (6, Fig. 1) from the spring lever adjuster (7) and remove. Rotate the crank lever (4) to unhook the short adjusting link from the anchor pin and remove.
2. Unhook primary and secondary shoe return springs (1) at the anchor pin. On rear wheel, pull the parking brake lever (10, Fig. 2) toward the axle shaft and unhook the cable.
3. Compress shoe hold-down clip (5) and remove clip and pin from each shoe.
4. Spread shoes and lift shoes off the backing plate. On rear wheels, remove the parking brake link (11) and anti-rattle spring.
5. Unhook adjusting star wheel spring (9) from shoe webs and remove adjusting star wheel assembly (8), end guide and spring lever adjuster.
6. unscrew crank lever assembly retaining screw from primary shoe. On rear wheels, remove the spring clip (12) that retains the parking brake lever to the secondary shoe and remove pin and lever.
7. Lift anchor plate and anchor block from anchor pin.
NOTE: Star wheel adjuster link, spring lever, crank lever and parking brake lever are left hand or right hand parts and are not interchangeable.

Reassembly
1. Apply a small amount of Lubriplate to the wear surfaces on the backing plate.
2. Install anchor block on the fixed anchor pin with the curved side of the anchor block against the primary shoe and the arrow pointing toward the primary shoe.
3. Install the parking brake lever and retaining clip to the secondary shoe. On rear brakes, attach parking brake cable to lever.
4. Place shoes on backing plate, align the shoes with wheel cylinder push rod slots. On rear brakes install parking brake link and anti-rattle spring in shoe slots (anti-rattle spring is installed on the primary shoe side of the parking brake link).
5. Install shoe hold-down pin and retaining clips to hold shoes against backing plate.
6. Place the spring lever adjuster on the primary shoe web, make sure the slot in the adjuster engages to full depth with the slot in the shoe web. Spring lever adjuster is painted Blue on RH brakes and Red on LH brakes.
7. Using an approved brake lubricant fully grease the adjusting screw and nut threads and the socket cup that fits over the screw shank. Collapse adjusting screw and nut assembly, threading screw into nut. Leave a gap of approximately 3/16 inch between the nut and the star wheel for new lining; for worn lining leave comparatively more gap. Make certain the adjusting screw and star wheel turns freely inside the socket cup and threaded nut. The star wheels are right and left hand threaded and must be assembled right hand threads on right hand brake assemblies and left hand threads on left hand brake assemblies. Interchanging screw assemblies will cause shoes to retract rather than expand. Install the adjusting screw and nut assembly engaging the slots with the primary and secondary shoe webs. When in place, the lever spring is spring loaded down against the star wheel teeth.

Next assemble the spring that fastens to the two shoe webs near the adjusting screw. The long hook end should be hooked in the small hole of the primary (forward) shoe and should be under the web. The short hook end should be hooked into the small hole of the secondary (reverse) shoe. If spring is correctly assembled the long hook end will not interfere with either the spring lever or star wheel teeth. Star wheel must also be assembled over front adjusting hole in backing plate. Recheck the spring lever assembly to see that it engages the full depth of the shoe web slot.
8. Install anchor plate on fixed anchor pin on top of the block.
9. Install primary and secondary shoe return springs (green on 10 and 11" dia. brakes; black on 9" dia. brakes) by hooking them between the shoe tab and the anchor pin. The long hook end is tangent to the spring coils and should be assembled flat against the anchor plate.
10. Install crank lever assembly and self-tapping retaining screw on the primary shoe web. The crank lever screw must be secured tightly to the shoe web. The lever cranks are stamped L or R for identification. They must be assembled on left
hand and right hand brake assemblies as identified, with the stamping too the outside. Make certain lever rotates freely on the screw.

11. Assemble short wire link with large hook by first inserting the “S” shape offset end into the largest hole in the crank lever which is closest to the screw head.

The large hook end is then snapped in place in the top groove of the anchor pin. Next insert the long wire link “S” shape offset end into the small hole in the lever crank. Then, by moving the spring lever across the star wheel teeth, the hooked end of the wire link can be slipped in place into the slotted hole of the spring lever adjuster. Note that the wire links are color coded, Green Links are used on 11” dia. brakes, Red Links on 10” dia. brakes, and Black Links on 9” dia. brakes. After assembly of the adjuster parts are completed the spring lever adjuster will engage the teeth of the star wheel approximately 1/16 below the top of the star wheel teeth. If the spring lever adjuster does not properly engage the star wheel, it indicates a spring lever misalignment.

12. Make certain shoes are centered on backing plate and slide freely on shoe guide pads. Be sure the wheel cylinder push rods engage the shoe webs.

Adjustment

If new linings have been installed or brake shoes removed from backing plate, manually adjust the brakes for the initial adjustment.

1. With drums installed, bleed brakes (if necessary) and depress pedal, repeating until brakes apply with pedal free of floor board.

2. Remove backing plate access slot cover and tighten star wheel until a drag is obtained between the lining and drum. Back off the star wheel 20 notches. Note: Additional force will be needed to back off the star wheel to overcome the automatic adjuster spring lever. This spring lever will snap over the star wheel teeth and spring back into place when the star wheel is rotated. DO NOT insert a tool past the star wheel to lift or pry the spring lever off the star wheel teeth.

3. After manually adjusting brakes, replace locking plate access slot cover, drive vehicle and make 4 or 5 forward stops. This will automatically set up the brakes evenly and set pedal to correct height.

Description

The split system type hydraulic master cylinder uses two separate hydraulic pressure systems: a primary and a secondary system are combined into a single master cylinder housing (See Fig. 3). The primary system supplies the fluid for the operation of the front wheel brakes while the secondary system provides the fluid for the operation of the rear brakes. The primary and secondary pistons are arranged in tandem separated by retainer and spring with a screw connecting the retainer with the primary piston. Each system has its own fluid reservoir, compensating port, residual pressure check valve and fluid outlet.

Operation

The operation is basically the same as for the single system type master cylinder. The split system differs from the single system in operation when hydraulic failure occurs in either the front brake system or the rear brake system.

Should hydraulic failure occur in the rear brake system, the front brake system remains operative. Fluid under pressure is displaced by the primary piston into the front brake system as in the conventional type brake master cylinder.

However, should hydraulic failure occur in the front brake system (such as a broken hydraulic line) resulting in loss of fluid and pressure from the primary system, the primary piston will move in the applied direction to transmit mechanical force to the secondary piston through the spring and retainer to displace fluid under pressure into the rear brake system the same as in the conventional type master cylinder. In the split system type master cylinder, failure in any one part of the brake system does not result in failure of the entire hydraulic brake system. Failure in the front brake system leaves the rear brake system still operative or failure in the rear brake system leaves the front brake system operative.

Disassembly

1. Remove master cylinder from car.
2. Remove the master cylinder cover (18, Fig.3),
snap ring (2) and stop screw (13) from the cylinder body.

3. Pull the primary piston and spring assembly from the cylinder bore.

4. Apply clean compressed air to the secondary fluid outlet in the cylinder housing and blow the secondary piston and spring assembly out of the cylinder bore.

5. Remove the plastic seal retainer (5), from the secondary piston and remove the cup seals (6) from the outer groove of the piston, and the inner piston diameter. Remove the secondary piston spring (11) from the end of the piston and remove cup seal retainer (10) and seal (9).

NOTE: Do not attempt to remove the cup seal from the primary piston or disassemble the primary piston and spring assembly. This unit is serviced only as an assembly.

6. When a complete overhaul is indicated, use two No. 6-32 self tapping screws and thread them into front and rear wheel tube seat outlets (14) as shown in Fig. 4. Position two screw drivers under the screw head and pry screw upward to unseat and remove tube seats residual check valve and spring (15 & 16).

**Disc Brakes**

Caliper-type front disc brakes are available as optional equipment on all 1963 Lark and Hawk models. For service information, refer to the Avanti Workshop Manual.

**Brakes-Power**

**LARKS**

A vacuum suspended single diaphragm type Bendix Master-Vat unit and Split-System Master Cylinder is used on 1963 Lark models equipped with power brakes. The power unit is serviced only as an assembly.

**LARK WITH DISC BRAKES**

A vacuum suspended tandem diaphragm type Bendix Master-Vat and Master Cylinder Assembly are used on Lark models equipped with disc brakes. For service information, refer to the Avanti Workshop Manual.

**HAWK**

The 1963 Hawk models equipped with power brakes will use the same Bendix Hydrovac unit and Master Cylinder as used on the 1962 Hawk models. For service information refer to the 1959-62 Shop Manual.

**HAWK WITH DISC BRAKES**

The Hawk models equipped with disc brakes will use a Bendix Hydrovac, a single piston type unit that differs internally from the standard Hawk Hydrovac unit.

**COOLING**

**WATER PUMP**

A new water pump is used in all 1963 model passenger cars. These new pumps minimize the possibility of water entering the pump shaft ball bearing and washing away the lubricant.

**VISCOUS FAN DRIVE**

A viscous drive fan is standard equipment with all Jet-Thrust engines and is available as an option on all 1963 models (with or without air conditioning). For service information refer to the Avanti Workshop Manual.
**ELECTRICAL**

**ALTERNATOR**

A 35 ampere Prestolite alternator is used as standard equipment on all 1963 models except models equipped with the Jet-Thrust Engine. A 40 ampere Prestolite alternator is used as standard equipment on models equipped with Jet-Thrust engines.

All service information outlined in the Avanti Workshop Manual applies to both the 35 ampere and 40 ampere alternators except "Testing Alternator Output." This information applies only to the 40 ampere alternator.

**Testing Alternator Output - 35 Ampere**

1. **NOTE:** This test must be made with a fully charged battery. **DO NOT CHARGE BATTERY WITH EITHER CABLE CONNECTED.**

The test will indicate whether difficulty is in the regulator or alternator as well as determining whether the alternator is capable of developing its rated output. Test connections are made as shown in Fig. 5.

2. Disconnect the field lead from the regulator and from the 'F' terminal on the alternator.
3. Disconnect the charging circuit lead wire from the 'A' (output terminal on the alternator).
4. Install a jumper wire between the 'F' and the 'A' terminals on the alternator.
5. Connect an ammeter in series between the alternator output terminal and the disconnected charging circuit lead wire.
6. Connect a voltmeter across the charging circuit with the negative voltmeter lead connected to ground at the alternator frame and the positive voltmeter lead to the alternator output terminal.
7. Connect a carbon pile rheostat across the battery. Be sure it is in the 'OFF' position before connecting the leads.
8. Connect an accurate tachometer to register engine speed and start the engine. While running the engine, adjust the carbon pile rheostat to obtain a 14.2 voltmeter reading and observe the ammeter.
9. The ammeter should indicate an output of 35 amps., plus or minus 2 amps., at 1700-1750 engine RPM (4200 alternator RPM) on the Prestolite ALK 5001 Model Alternator. Be sure the drive belt is tight.
10. If the alternator fails to reach rated output or has no output, it should be removed from the vehicle for repairs. A slightly low ammeter reading may indicate an open rectifier while a considerably lower reading may indicate a shorted rectifier. If one or more of the rectifiers are open, the alternator output reading will usually be 5 or more amperes below full output. If one or more of the rectifiers are shorted, the alternator output will usually not exceed 15 amperes. Usually the alternator will hum or growl with a shorted rectifier.

If the alternator develops rated output it indicates the problem is in the regulator or circuit wiring.

**THE REGULATOR ASSEMBLY**

The single unit alternator regulator consists of a voltage regulator only and can be identified by two terminals marked IGN and FLD. No current regulator is required because the alternator is inherently self-limiting. Since the alternator diodes have a high resistance to the flow of current in one direction, they are connected in a manner which will not allow current to flow from the battery to the alternator and no circuit breaker is required.

**Service**

The regulator is serviced only as an assembly. Regulator adjustments require the use of laboratory-type equipment. If tests indicate a malfunction in the regulator, the regulator assembly should be replaced.

To locate the source of a malfunction in the charging system conduct an 'Alternator Output Test' as outlined under 'Alternator'. If the output test indicates the alternator is capable of developing its rated output, the problem is in the regulator or the circuit wiring. If the circuit wiring is found to be in poor condition or circuit tests indicate high resistance, correct the conditions. If circuit wiring is found to be in good condition, replace the regulator assembly.

**DISTRIBUTOR (JET-THRUST ENGINES)**

The Jet-Thrust Engine uses a Prestolite-Dual Breaker Distributor Model IBS-4012 and, the Super Jet-Thrust Engine uses a Prestolite-Dual Breaker Distributor Model IBS-4012A.

For service information on distributors and ignition timing, refer to the Avanti Workshop Manual.
ENGINE

The Jet-Thrust Engine, and Super Jet-Thrust Engine is available as optional equipment on all 1963 V8 Lark and Hawk models (except Y1 Taxicabs). For service information on the Jet-Thrust Engine refer to the Avanti Workshop Manual.

POSITIVE CRANKCASE VENTILATION

The positive crankcase ventilation system is used as standard equipment on all 1963 Lark and Hawk models. This system is basically the same as the 1962 system. The system uses a new valve assembly that is sealed during manufacturer’s assembly and cannot be disassembled for service. The valve should be cleaned every 10,000 miles. To clean valve, submerge the valve in clean Bendix Metal Cleaner, use a piece of wire and check the hole in the piston to see that it is open and check the piston in the valve assembly for freedom of movement. For service of the positive crankcase ventilation system used on the Jet-Thrust Engines, refer to the Avanti Workshop Manual.

FRONT SUSPENSION

FRONT STABILIZER V8

The V8 model front stabilizer mounting brackets have been changed from the stud and eye type of anchorage to a new stronger pedestal type of anchorage.

Removal
1. Remove the stabilizer shaft retaining clamp-to-lower control arm bolts and stabilizer shaft clamp-to-pedestal type mounting bracket bolts.
2. Unhook the lower stabilizer clamp from the pedestal type anchor and remove stabilizer bar.

Installation
1. Install the shaft-to-lower control arm clamps. Insert the clamp retainers in the slots on the control arms, pushing the shaft in and upward. Make sure the rubber bushings are properly aligned with the clamps and install and tighten the clamp-to-control arm screws.
2. Insert the lower stabilizer clamp retainers in the slots in the mounting bracket. Position the clamp over the rubber bushing and install and tighten the clamp-to-mounting bracket screws.

STEERING BELLCRANK

The steering bellcrank used on the 1963 Lark and Hawk models uses precision bushing instead of needle bearings in the steering bellcrank bracket. Using the new steering bellcrank tool adapter the service procedures outlined in the 1959-62 Shop Manual will apply to the 1963 models.

CARTER RBS CARBURETOR

A new Carter RBS carburetor is used on all 1963 6 cyl. models (except Y1). It incorporates a single lightweight aluminum casting with a pressed steel bowl. Adjustments are readily accessible and most calibration points located in the single casting make it extremely easy to service. Fuel pick-ups are located near the center line of the carburetor bore to gain the benefits of a concentric bowl carburetor, yet so located that engine heat being radiated through the bore and conducted through the casting is not readily conducted to the fuel in the bowl. Vapor vents allow rapid dissipation of vapors to assure smooth idle and to minimize hard starting while engine is hot. A diaphragm controlled step-up provides instantaneous response to engine demands. The carburetor model number is stamped on the side of the flange near the throttle lever.

The five conventional circuits are used in this carburetor, they are: Float circuit, Low Speed Circuit, High Speed Circuit, Pump Circuit and Choke Circuit.

Disassembly
1. Remove pump adjusting nut (2, Fig. 6). Push pump plunger down to remove spring (1) and washer from connector link. Remove retainer (6)
from tip of pump plunger shaft. Remove pump arm retainer screw (3), retainer (4) and arm (5), then remove upper pump plunger spring (7) and washer (8).
will go, hold in place and tap upper end of shaft with light hammer. Hold fingers under lower portion of pump cylinder to catch plunger, spring, intake ball retainer, ball and seat as they are driven out of the lower end of cylinder. Remove main metering jet (8) and gasket.

6. If acceleration troubles have been encountered use discharge check needle seat remover end of tool J-21252-1 and tap the discharge check needle seat from bottom of casting (See Fig. 10). Remove pump discharge needle from passage.

7. If diaphragm problems are indicated, carefully pry cover from casting with knife blade or other suitable tool. Remove lower retainer, spring, diaphragm assembly and step-up rod.

8. If bore of carburetor shows gum or carbon accumulation at throttle valve seat, carefully file upset ends of valve attaching screws, and remove screws, valve, and slide shaft and lever assembly out of carburetor casting. Remove idle (mixture) adjusting screw and spring, and throttle lever (speed) adjusting screw and spring.

9. Clean casting and parts in cleaning solvent or other suitable cleaning solution. Do not immerse needle seat, diaphragm, plunger or float in cleaning solution. If step-up diaphragm has not been removed, do not immerse casting in cleaner. Blow out all passages with compressed air. Be sure carbon and gum accumulation is removed from bore of carburetor.

**Reassembly and Adjustments**

10. If pump discharge needle and seat were removed, insert needle in passage (make sure point of needle is up toward the seat) and install seat by driving into place with seat replacer tool J-21252-2 positioned over protruding tip of seat (See Fig. 11). Drive seat inward until tool bottoms with lower end of casting. Install main metering jet and gasket.

11. With casting inverted on bench, install pump plunger in cylinder. Install lower pump spring (3/8 diameter) in lower end of plunger, ball retainer in lower end of spring, lay ball in retainer and place check ball check seat over entire assembly. Press seat down into place and position cap replacer tool J-21252-7 over end of seat (See Fig. 12), tap tool lightly with hammer until seat is tightly pressed in place. Use a new seat to assure good seal in casting.

12. With carburetor inverted, install fuel intake needle and seat. Insert float pin in float bracket and install in place in casting. Secure float pin with the two attaching screws.

13. Insert step-up rod approximately half way into sleeve of diaphragm assembly. With casting in upright position drop the diaphragm assembly into place, insert spring (1/4 diameter) and retainer and position diaphragm cover in place. Use a new cover to assure a good seal. Using tool J-21252-7, (See Fig. 13) tap tool lightly with hammer until diaphragm cover seats in casting.
14. If throttle shaft assembly was removed, attach connector link and insert shaft in place; install throttle valve and new attaching screws. Do not tighten screws. Trade mark (C) should extend toward idle port when viewed from manifold flange side. With screws loose, tap valve lightly with screwdriver (to seat valve in bore), hold in place with finger and tighten valve screws. If throttle lever adjusting screw has been installed prior to this operation be sure to back screw out so throttle valve can seat. It is advisable to upset ends of screws after valve has been installed.

15. Install upper pump washer and spring (1/4 diameter). Install washer and pump delayer spring on connector link and then install pump arm. Be sure connector link extends through hole in lower end of arm, and upper end of arm is over pump plunger. Hold in place and install retainer and screw. Install pump adjusting nut on connector link and retainer clip on upper end of plunger shaft.

16. If choke was completely disassembled install choke shaft and valve, center valve in bore by tapping lightly with screwdriver, hold in place and install new choke valve attaching screws. (Upset the ends of the screws.). Attach fast idle connector rod to choke lever and install choke lever on shaft. Crimp forked ends of a new lever with pliers to secure in place. Attach fast idle cam to lower end of connector rod and install cam, washer and retainer. Assemble choke piston and link (wire) to choke piston lever, slide piston into cylinder, position lever on end of shaft and secure with attaching screw. Be sure choke linkage moves freely and does not bind in any position. Install choke housing gasket, thermostatic coil housing, and revolve housing counterclockwise until indicator mark is 1 notch rich. Install the three retainers and attaching screws.

17. Install throttle lever adjusting screw and spring, and idle adjusting screw and spring.

18. FLOAT ADJUSTMENT
This carburetor is equipped with the new Resilient Seat and special precautions must be taken in the adjustment as the Resilient Seat material will assume a “temporary set” if the needle is pressed into the seat. This will result in an incorrect fuel level when the temporary set is relieved. NEVER

19. STEP-UP ROD ADJUSTMENT
With carburetor inverted, press on lower end of step-up rod until upper end of diaphragm assembly touches diaphragm retainer. Resistance will be felt when this point is reached. Use Metering Rod Gage J-21252-4 and press rod inward until tool bottoms on lower surface of jet. Install bowl ring gasket and bowl. Tighten screws securely.

20. PUMP ADJUSTMENT
Pump adjustment must be made each time carburetor is disassembled, and must be made before
fast idle and unloader adjustments.
Proceed as follows:
a. Back out throttle lever (idle speed) adjusting screw and hold choke wide open so throttle valve seats in bore of carburetor.
b. Turn pump adjusting nut (1, Fig. 16) to obtain a clearance of 1/16" between washer on pump plunger shaft and boss on bowl cover. Adjusting nut is self-locking.

21. FAST IDLE ADJUSTMENT
a. Revolve fast idle cam until tang (1, Fig. 17) on throttle lever is aligned with index mark (2) on cam. Bend tang (1) on throttle lever to give .052" clearance between throttle valve and bore of carburetor (idle port side).
b. With choke valve tightly closed and fast idle connector rod against end of slot in cam, bend connector rod (3) at offset portion to align index mark (2) with tang.

22. UNLOADER ADJUSTMENT
With throttle valve wide open, there should be 5/32" clearance between upper edge of choke valve and inner wall of air horn. Adjust by bending tang (1, Fig. 18) on throttle lever.

CARTER AFB CARBURETOR

A Carter AFB Four Barrel Carburetor is used as optional equipment on all 1963 V8 models and is standard equipment with the Jet-Thrust Engine. The AFB Carter Carburetor Models 35898 and 35888 used on the Jet-Thrust Engine and Super Jet-Thrust engine are the same carburetors as used on the AVanti R and RS Engines, except for the fuel inlet fitting. All service procedures and adjustments listed in the AVanti Workshop Manual may be used. The AFB Carter Carburetor Model 35403 used on the standard 259 and 289 cu. in. engines has a different float level, fast idle cam and fast idle setting. The float level is 9/32" and the fast idle adjustment is .040 to .044. This AFB Model 35408 Carburetor may be identified by the letter “A” stamped on the carburetor bowl adjacent to the model number and building date code. All service procedures and adjustments except float level and fast idle setting, outlined in the AVanti Workshop Manual may be used.

AFB 35883 is for supercharged Jet-Thrust
AFB 35898 is for unsupercharged Jet-Thrust

STROMBERG CARBURETOR

The Stromberg Carburetor WW6 is basically the same as used on the 1962 models except that a rubber-tipped needle is used in the float needle and seat assembly.

All adjustments and servicing procedures are the same as for the 1962 Models except the method of checking and adjusting the float level. The procedures outlined below under “Float Level Check and Adjustments” must be carefully performed to obtain the correct float setting and avoid damaging the rubber-tipped needle.

FLOAT LEVEL CHECK AND ADJUSTMENT
Checking the Float level
1. Remove the carburetor cover, baffle, idle tubes, pump plunger outlet check ball.
2. Invert the carburetor bowl assembly. With the
weight of the floats on the needle assembly use the 3/16" side of the Float Level Gage, J-6646, check the distance from the top of float at center to top of main body (See Fig. 19). The floats should just touch the gage to obtain the correct setting of 3/16".

Adjusting the Floats

1. Hold the float down against the bottom of the bowl and bend the float lip as required to obtain the proper adjustment. When bending, be careful not to bend the float lip in against the needle assembly.

2. Invert carburetor bowl assembly and recheck float level. Repeat the operations until the correct setting of 3/16" is obtained.

PROPELLER SHAFT AND UNIVERSAL JOINTS

The propeller shaft and universal joints used with the 1963 Lark and Hawk models basically are the same as those used in 1962 models. The design of the universal joints and shaft yoke differ in the snap rings that retain the bearing cups in the shaft yoke. The snap rings and grooves are now located in the bearing cups on the inside of the shaft yoke. Therefore, the individual parts are not interchangeable with previous models.

REAR SUSPENSION

REAR SHOCK ABSORBER

A new rear shock absorber, designed to minimize the transmittal of road vibration to the chassis is used on all 1963 Lark and Hawk models. The new shock absorber has larger upper insulators and has a bayonet-type lower mounting.

M-35 AUTOMATIC TRANSMISSION

All 1963 six cylinder models (except Taxi, Police and Heavy-Duty Models) equipped with automatic transmission will use a more compact and lighter aluminum-cased M-35 Automatic Transmission (See Fig. 20). Generally, this unit operates the same as the 1962 6-Cylinder Automatic Transmission. The design, and function of the valve assembly and throttle control are new. In addition to the transmission proper, a new converter aluminum housing, converter assembly and the throttle linkage from the transmission to-carburetor are used. The biggest difference in the throttle step-up is, rather than kickdown being produced by over-travel after reaching full throttle, a kickdown ramp on the throttle valve cam starts at about 3/4 throttle opening with full kickdown being reached at about the same point as full throttle. A sharp rise in the throttle valve cam at the start of the kickdown ramp provides a detent feel.

ROAD TEST PROCEDURES

A thorough road test should be made to determine the shift speeds and performance of the transmission. The initial application of the various bands and clutches should be checked in all driving ranges by stopping the car and moving the selector lever to all the various positions. Use the following procedures and check when making the road test.

NOTE: Check oil level before road testing.

Sticking valves or governor may produce erratic
and varying behavior. With this exception, however, a short methodical road test will help pinpoint a transmission problem.

1. If the car won’t move forward in ‘D’ range, but reverses normally, place selector lever in manual ‘L’ range. If car now moves forward, the one-way clutch is slipping.

2. If the car won’t move forward or slips in the ‘D’ range, but reverses normally, place selector lever in manual ‘L’ range. If slippage still exists, the front clutch is slipping.

3. If the car won’t reverse or slips in the ‘R’ range, but drives forward, the rear band or rear clutch is slipping.
   a. Tighten the rear band adjusting screw until the band holds the drum mechanically. If the car reverses now, the rear band was slipping.
   b. If, after tightening the rear band onto the drum, the transmission still slips in reverse, the rear clutch is slipping. In this case, the rear band should be readjusted, and the car road tested. There should be more indication of slippage during or after upshifting into direct.

4. If only one upshift occurs, and that upshift is from first to direct, this indicates that the front band is slipping.

5. If no upshifts occur in ‘D’ range, this indicates a sticking governor, or incorrect control pressure.

6. While going downhill, place selector lever in ‘L’ range at 20 MPH and close the throttle. An automatic downshift to first should occur between 9 to 13 MPH, and engine braking should be noticeable. If the car freewheels after downshifting from second, the rear band is slipping.

7. If all upshift speeds are high and tend to be harsh, this indicates control pressure which is too high.

8. If slippage is noted during the second-to-direct upshift, or during a direct-to-second downshift, and the upshift speeds tend to be slow, this indicates control pressure which is too low. With a cold transmission, some slippage may be observed during the first or second 2-3 upshift. This is normal.

9. If the kickdown position upshift speeds are low, or, if kickdown downshifts are difficult to obtain, check for detent feel near the wideopen throttle position. If the detent cannot be felt, adjust the position of the accelerator pedal.

10. Place the selector lever in the ‘D’ position and check the shift speeds:

| Minimum throttle 1-2 | 5-8 |
| Minimum throttle 2-3 | 11-15 |
| 1-2 at K.D. Detent | 24-29 |
| 2-3 at K.D. Detent | 42-48 |
| K.D. at 1-2 | 34-40 |
| K.D. at 2-3 | 57-63 |
| Maximum 3-2 K.D. | 53-59 |
| Maximum 3-1 K.D. | 19-23 |
| Inhibited 2-1 | 9-13 |
| Closed Throttle 3-1 | 3-5 |

The above shift points are based on a 3.73 axle ratio.

NOTE: Obviously, several different things can cause slippage of a band or clutch. After determining which member is slipping, further inspection will be necessary to determine the exact cause.

ADJUSTMENT

Front Band
1. Remove transmission oil pan and gasket.
2. Loosen the front servo adjusting screw lock nut two full turns.
3. Insert a .250 gage block (1, Fig. 21) between the servo piston rod and adjusting screw.
4. Place adjusting tool, J-9636, (2) on the adjusting screw and using an accurate torque wrench tighten to 10 in. lbs. Torque lock nut to 20-25 ft. lbs. and remove gage block.
5. Reduce oil pan, using new gasket and fill transmission to proper fluid level.

![Fig. 21]

1. Gage
2. Adjusting tool

Rear Band
1. Remove the inspection hole cover and loosen rear band adjusting screw lock nut.
2. Use Rear Band Adjusting Tool, J-5883, and tighten screw until the tool overruns, back off the adjusting tool 3/4 turn and torque lock nut to 25-30 ft. lbs. It is important that the adjusting screw be backed off 3/4 turns to avoid damage to the band and servo.

Carburetor-To-Throttle linkage Adjustment
1. Run engine until it is at normal operating temperature.
2. Set the carburetor on the lowest position of the fast idle cam.
3. On the right side of the engine, disconnect the adjustable crossover bellcrank-to-carburetor rod from the carburetor. Adjust the engine idle to 550 RPM in P or N position.
4. Attach the bellcrank-to-carburetor rod to the carburetor throttle lever. Place a .010" feeler gage between the crossover bellcrank stop lever and the
stop. Lengthen the bellcrank-to-carburetor rod until the feeler gage can just be removed freely. Lock the adjustable end locknut on the rod.

5. On the left side of the engine, adjust the length of the rod between the accelerator pedal bellcrank and the crossover bellcrank to provide 5/8 inch clearance between the rib on the floor pan and the accelerator pedal bellcrank arm. It is important that this dimension be right to prevent possible engine race on hard brake application or improper kickdown operation.

6. Install a pressure gage on the transmission. The pressure takeoff is located near the bottom flange of the case at the rear. Adjust the length of the rod from the crossover bellcrank to the transmission throttle valve control lever to provide 85 to 95 p.s.i. at 1000 rpm in D range, with the brakes applied and wheels locked.

7. Remove pressure gage.

Manual Control Valve and Selector lever
1. Disconnect the shift lever-to-transmission manual valve lever rod at the transmission manual valve lever by removing the swivel assembly.
2. Place the selector lever in the R position and place the manual valve lever on the transmission in the R position. (This is the end of the manual valve lever travel).
3. Loosen the locknuts and adjust the shift lever-to-manual valve lever rod until the swivel pin will slip freely through the hole in the manual valve lever.
4. Lock both locknuts of the rod against the swivel assembly and reinstall swivel assembly to selector shaft lever.
5. Check the various quadrant positions against the corresponding transmission detents and readjust if necessary.

TESTING
Before proceeding with the stall test and pressure tests the car must have been operated for at least 15 minutes to normalize the operating temperature. Normal operating temperature is 170° to 210°F. Normal operating temperature must be reached as it will affect the pressure testing and fluid level checks.

Stall Speed
Place selector lever in the D, L, or R position, set hand brake and apply foot brake and operate engine at full throttle. The stall speed should be between 1450 and 1550 RPM. A stall of 800 to 1000 RPM indicates slippage in the torque converter. A stall of 1,000 to 1,450 usually indicates an engine deficiency. A stall of 1550 or higher indicates slippage in the transmission.

Free Running Test
Place selector lever in N position and slowly accelerate engine. Tachometer should readily reach 4000 RPM's before wide open throttle. If speed is 3900 RPM's or less it indicates a stuck stator.

Fluid Pressure
To make pressure tests, remove the 1/8" pipe plug located near the bottom flange of the case at the rear and install a pressure gage (See Fig. 22).

IDLE PRESSURE
With engine at idle, move selector lever between D, L, or R position. Pressure gage should read between 50 and 62 p.s.i. in all ranges.

Pressure Build-Up Check
Place selector lever in D position, set hand and foot brake, run engine at 1000 RPM's and note pressure reading. Pressure should read approximately 85-95 p.s.i.

Stall Pressure Test
Operate engine at full throttle kickdown with selector lever in the D, L, or R positions. The pressure gage should read approximately 170-200 p.s.i.

4-SPEED TRANSMISSION

The 4-speed transmission used with the 1963 Lark and Hawk models is a Warner AS6-T--10D Model.

The mounting face of the transmission case has been modified to fit the conventional T86 clutch housing.

The servicing procedures that apply to the present 4-speed T-10B Transmission will apply to the new 4-speed T-10D Transmission.

The gear ratio specifications are:

<table>
<thead>
<tr>
<th>Gear</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th</td>
<td>1.00</td>
</tr>
<tr>
<td>3rd</td>
<td>1.51</td>
</tr>
<tr>
<td>2nd</td>
<td>1.89</td>
</tr>
<tr>
<td>1st</td>
<td>2.54</td>
</tr>
<tr>
<td>Reverse</td>
<td>2.61</td>
</tr>
</tbody>
</table>
AUTOMATIC TRANSMISSION-JET-THRUST ENGINE

The Automatic Transmission used with the Jet-Thrust Engine is basically the same as the current Heavy-Duty V8 Transmission except as follows:

1. A ball check assembly in the front clutch piston to minimize the susceptibility of front clutch practical application, due to residual pressure build-up from centrifugal force, when the front clutch is not normally applied.

2. A different governor assembly giving the transmission different shift speed. The new shift speeds are:

   Minimum Throttle Upshift  2 to 3  7-10 M.P.H
   Kickdown Position Upshift  1 to 2  43-49 M.P.H.
   Kickdown Position Upshift  2 to 3  88-98 M.P.H.
   Maximum Kickdown          3 to 2  84-92 M.P.H.
   Maximum Kickdown          2 to 1  10-18 M.P.H.
   Maximum Kickdown          3 to 1  6-12 M.P.H.
   Inhibited Downshift       2 to 1  9-15 M.P.H.
   Closed Throttle Downshift 3 to 2  2-5 M.P.H.

The shift speeds are based on a 3.31 axle ratio.

The shift points for the 3.07 ratio are approximately 7% faster than shown. The shift points for the 3.73 ratio are approximately 12% slower than shown. The Torque Converter is a high stall assembly. The testing specifications are:

Stall test — Minimum 2100 RPM
Free Running — 4000 RPM
Fluid Pressure — 80-85 lbs. at 1400 RPM-D position

The transmission serial number plate has a black background for the AS-14-7A transmission used in LARK & HAWK equipped with V8 Jet-Thrust Engine, LHC Models.

DOORS

The body doors have been redesigned and now consist of a lower door body and an upper frame assembly. The rear door body pillar and door hinges are new in design. The lower rear door hinge incorporates a new type door check (See Fig. 23).

DOOR GLASS AND VENTILATOR ASSEMBLY

Removal

1. Lower the window to its lowest position.
2. Remove the top section of the window run channel (7, Fig. 24).
3. Remove the door handle, remote control handle, inside door lock remote control knob and arm rest.
4. Remove the door trim panel.
5. Remove the three ventilator retainer screws (1) from the upper frame assembly. (The top screw is visible. The front two screws are hidden by the weatherstrip).

FIG. 23

FIG. 24
6. Remove the two ventilator window run retaining screws (3) from the inner door panel.
7. Remove the waterproof tape from the access hole and disengage the regulator lift arm studs from the nylon rollers.
8. Lift the door glass to the top of its travel and secure it there.
9. Lower the door glass by hand to its lowest position and support it to avoid breakage.
10. Press the ventilator window run away from the door glass and disengage the door glass from the channel permitting the glass to rest between the run channel and the inner door panel.
11. Remove the ventilator assembly from the upper frame by pulling it out of the frame channel then remove the assembly from the door.
12. Remove the door window upward through the top of the door opening.

Installation

1. Insert the door window glass through the top of the door opening.
2. Install the ventilator assembly.
3. Press the ventilator assembly run channel forward and install the window glass into the rear and front run channels.
4. Raise-the door window glass to the top of its travel and secure it there.
5. Lower the door window glass assembly.
6. Install the regulator lift arm studs into the nylon rollers of the lift channel and press firmly to engage the hair pin type locks.
7. Install the ventilator assembly retaining screws in the frame assembly.
8. Install the vent assembly run channel retainer screws on the inner door panel.
9. Install the top section of the window channel in the frame assembly.
10. Loosen the window regulator adjustment and raise and lower the window. Align the glass in the opening then lock the adjusting screw lock nut.
11. Install the waterproof tape over the adjusting nut and screw.
12. Install the water proof tape over the access hole.
13. Install the door trim panel.
14. Install the arm rest, regulator and remote control handle and knob.

Door Adjustment

The basic door adjustment is unchanged from previous models however, the upper frame assembly is adjustable within the range of the elongated holes in the lower door body. The upper frame assembly is secured to the lower door body by two capscrews (2) at the ventilator end of the door, one capscrew (6) at the opposite edge and two capscrews through the inner door panel (8).

WINDOW REGULATORS

Removal

1. Remove the door trim panel.
2. Remove the waterproof tape from the access hole.
3. Expose the regulator retainer screws.
4. Lower the window until the regulator arm and lift channel are accessible through the access hole in the inner door panel.
5. Remove the hair-pin type of locks from the nylon rollers of the lift channel to regulator arm studs.
6. Disengage the regulator studs from the nylon rollers.
7. Lift the window towards the top by hand and secure it.
8. Remove the regulator attaching screws.
9. Remove the regulator and rubber seal from the door.

Installation

1. Install the regulator and rubber seal into the door through the access opening.
2. Install the regulator attaching screws.
3. Temporarily install the regulator handle and lower the lift arms of the regulator to the full down position.
4. Carefully lower the door window by hand.
5. Remove the nylon rollers from the lift channel and insert a suitable shaft through the holes and install the hair-pin type locks in the slots of the rollers. Reinstall the nylon rollers in the lift channel.
6. Press the regulator studs into the nylon rollers until the hair-pin type locks engage the grooves of the regulator arm studs.
7. Raise and lower the window and check the operation and alignment.
8. Adjust the window alignment as necessary by loosening the regulator adjusting lock nut and shifting the screw (9, Fig. 24) as required. After desired alignment has been attained, secure the lock nut.
9. Reseal all attaching screws and replace the waterproof tape over the access hole. Be sure that wrinkles do not exist in the lower area of the tape application.
10. Reinstall the door trim panel and remote control handles and knob.

INSTRUMENT BOARD

The instrument board has been redesigned to incorporate direct reading gages, crash pad and a vanity tray within the package compartment. The instrument cluster assembly, containing the fuel and heat gages, the ammeter and oil pressure gage, and the speedometer and clock are removable from the front of the instrument panel.
VANITY
Adjustment
The hinge pivot brackets (1, Fig. 26) are formed with elongated holes which will permit adjustment in all directions. Adjustment is accomplished in the following manner:
1. Loosen all hinge pivot bracket mounting bolts.
2. Align the vanity to the desired position and tighten the bolts.
3. Further adjustment is accomplished by moving the individual hinge pivot bracket as required to obtain desired results.

Station Wagon

TAIL GATE WINDOW
Removal
1. Remove both inside door panel access hole covers.
2. Extend the door window outward.
3. Disengage the hair pin type locks from the lower lift channel rollers.
4. Disengage the regulator lift arm studs from the lower lift channel rollers.
5. Remove the window from the door.

Installation
1. Install the window into the left and right run channels with the lift channel groove and rollers towards the window regulator.
2. Install the window regulator lift arm studs into the rollers securely until the hairpin type locks engage the lock groove of the pins.
3. Test the window operation and alignment.
4. Install access hole cover retainer screws.

REGULATOR
Removal
1. Remove the tail gate window assembly.
2. Turn the regulator handle until the marks on the window lift gears come into alignment with one another and the arms extend outward.
3. Remove the regulator attaching nuts, washers and lock nuts.
4. Note carefully the spacers and shim pack at each retainer stud then lift the regulator off the studs and out of the door.
Installation

1. Turn the regulator shaft until the marks on the window lift gears come into alignment with one another.
2. Install the regulator using the original spacers and shim pack and at the same time engage the regulator handle mechanism properly on the regulator shaft. (Manual Regulator installation uses the lower group of 4 holes-Electric Regulator uses the upper group of 4 holes).
3. Install the retainer washers and locknuts.
4. Install the tail gate window assembly and engage the regulator lift arm studs securely into the lift channel rollers.

Window Adjustment

1. Open the tailgate.
2. Remove the access hole covers.
3. Loosen the window regulator to gate retainer nuts.
4. Rotate the regulator on the mounting studs as required to obtain proper alignment.
5. Close the tail gate and operate the regulator handle to raise and lower the window assembly. Check for proper operation.
6. Install access hole covers.

SLIDING ROOF PANEL

The sliding roof panel is provided with four sliding rollers and four locking rollers which are controlled through linkage by the control handle located in the center of the sliding roof panel.

When the rear tail gate window has been lowered the sliding roof may be opened or closed.

Turning the control handle in a clockwise direction disengages the four locking rollers permitting the roof panel to lower on the tracks and engage the four sliding rollers.

Turning the control handle in a counterclockwise direction causes the locking rollers to extend outward on the ramps of the support tracks thereby raising the roof panel to proper position and locking it securely at either the fully open or closed position.

Operate the vehicle only when the sliding roof panel is locked in either the fully open or fully closed position.

Alignment of the sliding roof panel within the roof panel opening is dependent upon the adjustment or length of the locking roller brackets. The rollers should engage the ramp of the sliding roof tracks at the same time the control handle is turned in the counter clockwise direction.

CLIMATIZER

The climatizer core on the 1963 Hawk models is located in the engine compartment on the right front fender apron. The blower motor is located in the firewall.

Fresh air taken in at the cowl ventilator door in the right fender passes through an air duct under the fender to the heating core, through the core and air filter, and another air duct to the blower assembly. Air from the blower flows directly to the distribution duct which is located along the inner edge of the firewall.