**SERVICE INSTRUCTION M20-17**

**MODELS AFFECTED:** M20, 1002-1200; M20A, 1201-1700; M20B, 1701-1851, 1853-1939; M20C, 1852, 1940 and on; M20D, 1, 101 and on

**SUBJECT:** Directional Gyro & Gyro-Horizon Air Filter

**TIME OF COMPLIANCE:** Within the next 25 hours and every 50 hours thereafter

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**INTRODUCTION**

To insure trouble-free operation of the Directional Gyro and Attitude Indicator, the instrument manufacturer recommends the air filters be cleaned or replaced every 50 hours. The trouble shooting guide is included to help diagnose any problems that might develop in these instruments.

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**TABLE 1 MAINTENANCE**

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>PROBABLE CAUSE</th>
<th>REMEDY</th>
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<tbody>
<tr>
<td>EXCESSIVE DRIFT IN EITHER DIRECTION</td>
<td>Air filter dirty (high vacuum indication)</td>
<td>Inspect filter. Replace if necessary.</td>
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<td></td>
<td>Excessive vibration</td>
<td>Examine shock mountings and note whether connections are pulling on instruments.</td>
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<tr>
<td></td>
<td>Insufficient vacuum. If vacuum indication is below 3.5 inches Hg, check as follows:</td>
<td>Correct for insufficient vacuum as follows:</td>
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<td></td>
<td>2. Faulty pressure switch</td>
<td>2. Check calibration of pressure switch.</td>
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<td></td>
<td>4. Vacuum line kinked, leaking, or too long for its diameter</td>
<td>4. Locate and, if defective, replace or repair vacuum line. Check for collapsed inner wall of flexible hose.</td>
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<td></td>
<td>Defective mechanism (worn or dirty pivots and bearings)</td>
<td>Remove instrument from airplane and replace.</td>
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<tr>
<td>MAL SPINS CONTINUOUSLY IN ONE DIRECTION</td>
<td>Operating limits have been exceeded</td>
<td>Gage and reset the instrument when plane is level-ed out.</td>
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<tr>
<td></td>
<td>Defective mechanism</td>
<td>Remove instrument from airplane and replace.</td>
</tr>
<tr>
<td>TROUBLE</td>
<td>PROBABLE CAUSE</td>
<td>REMEDY</td>
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</table>
| HORIZON BAR FAILS TO RESPOND | Air filter dirty (high vacuum indication)  
Insufficient vacuum—resulting from the following:  
1. Vacuum regulating valve improperly adjusted  
2. Faulty pressure switch  
3. Pump malfunction  
4. Vacuum line kinked, leaking, or too long for its diameter | Examine filter. Clean or replace if necessary.  
Correct insufficient vacuum as follows:  
1. Adjust vacuum regulating valve.  
2. Check calibration of pressure switch.  
3. Repair or replace pump.  
4. Locate and repair. Check for collapsed inner wall of flexible hose. |
| HORIZON BAR DOES NOT SETTLE | Defective mechanism  
Insufficient vacuum  
Excessive vibration | Remove instrument from airplane and replace  
Correct for insufficient vacuum as outlined above.  
Examine installation to determine whether flexible hose connections are restricting movement of instrument; examine shock mountings and replace if necessary. |
| HORIZON BAR OSCILLATES OR VIBRATES EXCESSIVELY | Excessive vacuum, resulting from the following:  
1. Air filter dirty  
2. Vacuum regulating valve improperly adjusted  
3. Faulty pressure switch  
Defective mechanism  
Excessive vibration | Correct for excessive vacuum as follows:  
1. Examine filter, clean or replace if necessary.  
2. Adjust vacuum regulating valve.  
3. Check calibration of pressure switch.  
Remove instrument from airplane and replace.  
Examine installation to determine whether flexible hose connections are restricting movement of instrument; examine shock mountings and replace if necessary. |

Filters may be purchased through your local Mooney distributor.