98-17-11 Textron Lycoming and Teledyne Continental Motors: Amendment 3910713. Docket 98-ANE-27-AD.

Textron Lycoming (LYC) O-235, O-235-C1, O-235-C2C, O-235-L2C, O-235-N2C, O290, O-290-D2, O-320, O-320-A, O-320-A1A, O-320-A2B, O-320-B2B, O-320-B2C, O-320-D2J, O-320-D3G, O-320-E2A, O-320-E2D, O-320-E2G, O-320-E3D, O-320-H2AD, O-360, O-360-A1A, O-360-A1D, O-360-A3A, O-360-A4A, O-360-A4K, O-360-B1B, IO-360-F1A6, AEIO-320-E1B, HIO-360-C1A, IO-320, IO-320-B1A, IO-360, IO-360A1A, IO-360-A1B6, IO-360-B1E, IO-360-C, IO-360-CIC, IO-360-C1C6, IO-360-C1D6, IO-360-D, O-540-A1B5, O-540-A1D5, O-540-R2AD, IO-540, IO-540-C4B5, IO-540S1A5, TIO-540-A2, LIO-320-C1A, LIO-360-C1E6, and IO-720 reciprocating engines; and Teledyne Continental Motors (TCM) A-65, A65-3, A65-8, A75, A75-8, C75-12, C85, C85-8, C85-12, C90-8FJ, C90-12, O-200, O-200-A, O-300, O-300-D, IO-360-C, E-185-4, E-225-8, O-470, O-470-K, O-470-L, O-470-R, O-470-11, IO-470, IO-470-N, IO-470-S, IO-520, IO-520-D, GTSIO-520, and TSIO-520-VB reciprocating engines, with installed crankshafts repaired by Nelson Balancing Service, Bedford, Massachusetts, Repair Station Certificate No. NB7R820J, between February 1, 1995, and December 31, 1997, inclusive, as listed (by work order (W/O)) in Table 1 of this AD.

Table 1

| ENGINE <br> \& MODEL | W/O | DATE | ENGINE <br> SER\# | ENGINE <br>  <br> MODEL | W/O | DATE | ENGINE <br> SER\# |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| LYC: |  |  |  |  |  |  |  |


| $\begin{aligned} & \text { IO-540- } \\ & \text { C4B5 } \end{aligned}$ | 1313 | 12/17/96 | $\begin{aligned} & \text { L-19547- } \\ & 48 \end{aligned}$ | $\begin{aligned} & \text { IO-540- } \\ & \text { S1A5 } \end{aligned}$ | 1513 | 10/27/97 | $\begin{aligned} & \text { L-19597- } \\ & \text { 48A } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| IVO-435- G1A | 1271 | 10/1/96 |  | $\begin{aligned} & \text { LIO-320- } \\ & \text { C1A } \end{aligned}$ | 1158 | 2/8/96 |  |
| LIO-360C1E6 | 1280 | 10/7/96 |  | LIO-360- <br> C1E6 | 1281 | 10/9/96 |  |
| O-235 | 1013 | 2/21/95 |  | O-235 | 1051 | 6/2/95 |  |
| O-235 | 1054 | 6/9/95 |  | O-235 | 1057 | 6/14/95 | $\begin{aligned} & \text { L-9041- } \\ & 15 \end{aligned}$ |
| O-235 | 1058 | 6/29/95 |  | O-235 | 1060 | 6/30/95 |  |
| O-235 | 1069 | 8/10/95 |  | O-235 | 1110 | 2/20/96 |  |
| O-235 | 1145 | 1/23/96 |  | O-235 | 1151 | 1/25/96 |  |
| O-235 | 1160 | 2/9/96 | $\begin{aligned} & \text { RL- } \\ & 24636-15 \end{aligned}$ | O-235 | 1305 | 12/5/96 | $\begin{aligned} & \mathrm{L}-22542- \\ & 15 \end{aligned}$ |
| O-235 | 1329 | 2/11/97 |  | O-235 | 1332 | 2/11/97 |  |
| O-235 | 1481 | 9/2/97 |  | O-235-C1 | 1089 | 10/8/95 | $\begin{aligned} & \text { L-6475- } \\ & 15 \end{aligned}$ |
| O-235-C1 | 1188 | 4/2/96 | $\begin{aligned} & \text { L-7143- } \\ & 15 \end{aligned}$ | O-235-C1 | 1335 | 3/12/97 | $\begin{aligned} & \text { L-5569- } \\ & 15 \end{aligned}$ |
| O-235-C1 | 1367 | 3/24/97 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{C} 2 \mathrm{C} \end{aligned}$ | 1019 | 2/24/95 | $\begin{aligned} & \text { L-12284- } \\ & 15 \end{aligned}$ |
| O-235-C2C | 1040 | 5/8/95 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{C} 2 \mathrm{C} \end{aligned}$ | 1105 | 12/1/95 | $\begin{aligned} & \text { L-12273- } \\ & 15 \end{aligned}$ |
| O-235-L2C | 1030 | 4/6/95 | $\begin{array}{\|l} \text { L-14545- } \\ 15 \end{array}$ | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1036 | 4/24/95 |  |
| O-235-L2C | 1037 | 4/24/95 | $\begin{aligned} & \text { L-23012- } \\ & 15 \end{aligned}$ | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1050 | 6/2/95 | $\begin{aligned} & \text { L-15542- } \\ & 15 \end{aligned}$ |
| O-235-L2C | 1062 | 7/5/95 | $\begin{aligned} & \text { L-18306- } \\ & 15 \end{aligned}$ | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1067 | 8/8/95 |  |
| O-235-L2C | 1070 | 8/10/95 | $\begin{aligned} & \text { L-16005- } \\ & 15 \end{aligned}$ | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1095 | 11/14/95 | $\begin{aligned} & \text { RL- } \\ & 023227- \\ & 15 \end{aligned}$ |
| O-235-L2C | 1101 | 11/4/95 | $\begin{aligned} & \text { L-15300- } \\ & 15 \end{aligned}$ | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1102 | 11/15/95 | $\begin{aligned} & \text { L-20183- } \\ & 15 \end{aligned}$ |
| O-235-L2C | 1162 | 2/14/96 | $\begin{aligned} & \text { L-16114- } \\ & 15 \end{aligned}$ | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1251 | 8/22/96 |  |
| O-235-L2C | 1219 | 5/16/96 | L-21215- | O-235- | 1365 | 3/24/97 |  |
|  |  |  | 15 | L2C |  |  |  |
| O-235-L2C | 1285 | 10/19/96 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1414 | 8/5/97 |  |
| O-235-L2C | 1400 | 4/28/97 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1433 | 6/26/97 | $\begin{array}{\|l} \text { L-17074- } \\ 15 \end{array}$ |


| O-235-L2C | 1417 | 12/5/97 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1504 | 10/31/97 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| O-235-L2C | 1435 | 6/9/97 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 1524 | 11/12/97 |  |
| O-235-L2C | 1508 | 11/18/97 |  | $\begin{aligned} & \mathrm{O}-235- \\ & \mathrm{L} 2 \mathrm{C} \end{aligned}$ | 2010 | 11/19/97 |  |
| O-235-L2C | 1536 | 11/24/97 |  | O-290 | 1257 | 9/4/96 |  |
| O-235-N2C | 1511 | 10/29/97 | $\begin{aligned} & \mathrm{L}-23857- \\ & 15 \end{aligned}$ | O-290-D2 | 1082 | 9/26/95 | $\begin{aligned} & \text { L-6019- } \\ & 21 \end{aligned}$ |
| O-290 | 1326 | 3/26/97 |  | O-320 | 1024 | 3/17/95 |  |
| O-320 | 1018 | 2/22/95 |  | O-320 | 1045 | 5/24/95 |  |
| O-320 | 1038 | 5/3/95 | $\begin{aligned} & \text { L-39272- } \\ & \text { 27A } \end{aligned}$ |  |  |  |  |
| O-320 | 1084 | 9/28/95 |  | O-320 | 1116 | 1/8/96 |  |
| O-320 | 1125 | 1/8/96 |  | O-320 | 1169 | 2/28/96 |  |
| O-320 | 1175 | 3/7/96 |  | O-320 | 1184 | 3/28/96 |  |
| O-320 | 1189 | 8/27/96 |  | O-320 | 1202 | 4/30/96 |  |
| O-320 | 1212 | 5/10/96 |  | O-320 | 1283 | 10/17/96 |  |
| O-320 | 1316 | 12/21/96 |  | O-320 | 1340 | 2/25/97 | L-24367 |
| O-320 | 1347 | 2/18/97 |  | O-320 | 1360 | 3/10/97 |  |
| O-320 | 1361 | 3/10/97 |  | O-320 | 1436 | 5/29/97 |  |
| O-320 | 1468 | 8/14/97 |  | O-320 | 1474 | 8/22/97 | $\begin{aligned} & \text { L-13130- } \\ & 39 \mathrm{~A} \end{aligned}$ |
| O-320 | 1477 | 9/13/97 |  | O-320 | 1519 | 11/21/97 |  |
| O-320 | 1507 | 11/18/97 |  | O-320 | 1171 | 3/1/96 |  |
| O-320 | 1546 | 12/7/97 |  | O-320-A | 1194 | 4/13/96 |  |
| O-320-A | 1192 | 4/13/96 |  | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{A} 1 \mathrm{~A} \end{aligned}$ | 1244 | 8/13/96 | $\begin{aligned} & \text { L-5270- } \\ & 27 \end{aligned}$ |
| O-320-A | 1196 | 4/13/96 |  | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{A} 2 \mathrm{~B} \end{aligned}$ | 1461 | 9/9/97 | $\begin{aligned} & \text { L-12626- } \\ & 27 \end{aligned}$ |
| O-320-A2B | 1081 | 9/22/95 |  | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{B} 2 \mathrm{C} \end{aligned}$ | 1315 | 12/17/96 |  |
| O-320-B2B | 1452 | 7/10/97 | L-2977- | O-320- | 1173 | 3/7/96 | L- |
|  |  |  | 39 | D2J |  |  | $\begin{aligned} & \text { 123412- } \\ & 39 \mathrm{~A} \end{aligned}$ |
| O-320-D2J | 1172 | 3/4/96 | $\begin{aligned} & \text { L-13039- } \\ & \text { 39A } \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{D} 2 \mathrm{~J} \end{aligned}$ | 1534 | 11/25/97 |  |
| O-320-D2J | 1253 | 9/4/96 |  | $\begin{aligned} & \text { O-320- } \\ & \text { D3G } \end{aligned}$ | 1077 | 9/17/95 |  |
| O-320-D2J | 1539 | 12/3/97 |  | $\begin{aligned} & \text { O-320- } \\ & \text { D3G } \end{aligned}$ | 1354 | 2/25/97 |  |


| O-320-D3G | 1114 | 1/8/96 | $\begin{aligned} & \text { L-10983- } \\ & \text { 39A } \end{aligned}$ | $\begin{aligned} & \text { O-320- } \\ & \text { D3G } \end{aligned}$ | 1544 | 12/3/97 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| O-320-D3G | 1370 | 3/26/97 | H45247 | $\begin{aligned} & \text { O-320- } \\ & \text { E2A } \end{aligned}$ | 1191 | 4/13/96 | $\begin{aligned} & \text { L-19377- } \\ & \text { 27A } \end{aligned}$ |
| O-320-E2A | 1103 | 11/10/95 | $\begin{aligned} & \text { L-26363- } \\ & 27 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & \text { O-320- } \\ & \text { E2A } \end{aligned}$ | 1439 | 6/9/97 | $\begin{aligned} & \text { L-38003- } \\ & 55 A \end{aligned}$ |
| O-320-E2A | 1317 | 12/21/96 | $\begin{aligned} & \text { L-15219- } \\ & \text { 27A } \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{D} \end{aligned}$ | 1078 | 9/17/95 |  |
| O-320-E2D | 1068 | 8/10/95 | $\begin{aligned} & \text { L-35528- } \\ & 27 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{D} \end{aligned}$ | 1181 | 3/14/96 |  |
| O-320-E2D | 1177 | 3/9/96 | $\begin{aligned} & \text { L-44732- } \\ & 27 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{D} \end{aligned}$ | 1245 | 8/13/96 | $\begin{aligned} & \text { L-40483- } \\ & \text { 27A } \end{aligned}$ |
| O-320-E2D | 1241 | 8/9/96 | $\begin{aligned} & \text { L-42691- } \\ & \text { 27A } \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{D} \end{aligned}$ | 1343 | 2/17/97 |  |
| O-320-E2D | 1260 | 9/9/96 | $\begin{aligned} & \text { L-15300- } \\ & 15 \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{D} \end{aligned}$ | 1385 | 4/16/97 |  |
| O-320-E2D | 1346 | 3/2/97 | $\begin{aligned} & \text { L-44320- } \\ & \text { 27A } \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{D} \end{aligned}$ | 1533 | 11/25/97 |  |
| O-320-E2D | 1458 | 7/18/97 |  | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{E} 2 \mathrm{G} \end{aligned}$ | 1338 | 3/10/97 | $\begin{aligned} & \text { L-38264- } \\ & \text { 27A } \end{aligned}$ |
| O-320-E2D | 1549 | 12/12/97 |  | $\begin{aligned} & \text { O-320- } \\ & \text { E3D } \end{aligned}$ | 1074 | 8/24/95 | $\begin{aligned} & \text { L-29495- } \\ & \text { 27A } \end{aligned}$ |
| O-320-E3D | 1034 | 4/18/95 | $\begin{aligned} & \text { L-29668- } \\ & \text { 27A } \end{aligned}$ | $\begin{aligned} & \text { O-320- } \\ & \text { E3D } \end{aligned}$ | 1444 | 6/13/97 |  |
| O-320-E3D | 1431 | 6/9/97 | $\begin{aligned} & \text { L-33770- } \\ & \text { 27A } \end{aligned}$ | $\begin{aligned} & \mathrm{O}-320- \\ & \mathrm{H} 2 \mathrm{AD} \end{aligned}$ | 1322 | 1/22/97 | $\begin{aligned} & \text { L-1530- } \\ & 78 \mathrm{~T} \end{aligned}$ |
| O-320-E3D | 1500 | 10/7/97 | $\begin{aligned} & \text { L-33841- } \\ & \text { 27A } \end{aligned}$ | O-360 | 1157 | 2/7/96 |  |
| O-360 | 1025 | 3/17/95 |  | O-360 | 1362 | 3/10/97 |  |
| O-360 | 1199 | 4/18/96 |  | O-360 | 1394 | 5/6/97 |  |
| O-360 | 1386 | 4/17/97 |  | $\begin{aligned} & \mathrm{O}-360- \\ & \mathrm{A} 1 \mathrm{~A} \end{aligned}$ | 1170 | 2/28/96 | $\begin{aligned} & \text { L-20677- } \\ & 36 \mathrm{~A} \end{aligned}$ |
| O-360 | 1528 | 11/19/97 |  | $\begin{aligned} & \text { O-360- } \\ & \text { A1A } \end{aligned}$ | 1239 | 8/5/96 |  |
| O-360-A1A | 1214 | 5/14/96 | $\begin{aligned} & \text { L-20190- } \\ & 36 A \end{aligned}$ | $\begin{aligned} & \mathrm{O}-360- \\ & \text { A3A } \end{aligned}$ | 1531 | 11/25/97 |  |
| O-360-A1D | 1411 | 5/5/97 |  | $\begin{aligned} & \mathrm{O}-360- \\ & \mathrm{A} 4 \mathrm{~A} \end{aligned}$ | 1464 | 7/30/97 | $\begin{aligned} & \text { L-24796- } \\ & 36 \mathrm{~A} \end{aligned}$ |
| O-360-A4A | 1270 | 9/27/96 | $\begin{aligned} & \text { L-14008- } \\ & \text { 36A } \end{aligned}$ | $\begin{aligned} & \mathrm{O}-360- \\ & \mathrm{A} 4 \mathrm{~A} \end{aligned}$ | 1529 | 11/25/97 |  |
| O-360-A4A | 1486 | 9/6/97 |  | $\begin{aligned} & \mathrm{O}-360- \\ & \mathrm{B} 1 \mathrm{~B} \end{aligned}$ | 1262 | 9/9/96 | $\begin{aligned} & \text { L-5261- } \\ & 51 \mathrm{~A} \end{aligned}$ |


| O-360-A4K | 1166 | $2 / 22 / 96$ | L-26455- <br> $36 A$ | O-540- <br> A1B5 | 1132 | $1 / 9 / 96$ | L-1165- <br> 40 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| O-540- <br> A1B5 | 1129 | $12 / 29 / 95$ |  | IO-720 | 1510 | $10 / 26 / 97$ |  |
| O-540- <br> A1D5 | 1462 | $7 / 28 / 97$ | L-5661- <br> (0 | TIO-540- <br> A2 | 1111 | $1 / 10 / 96$ |  |
| TIO-540- <br> A2 | 1064 | $7 / 13 / 95$ |  |  |  |  |  |
| TIO-540- <br> R2AD | 1106 | $11 / 27 / 95$ | L-5949- <br> $61 A$ |  |  |  |  |

TCM:

| A-65 | 1152 | $1 / 25 / 96$ |  | A-65 | 1154 | $2 / 7 / 96$ | 7187 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| A-65 | 1183 | $2 / 22 / 96$ |  | A-65 | 1185 | $3 / 28 / 96$ |  |
| A-65 | 1233 | $6 / 23 / 96$ |  | A-65 | 1290 | $10 / 29 / 96$ |  |
| A-65 | 1296 | $11 / 14 / 96$ | 4933868 | A-65 | 1299 | $11 / 19 / 96$ |  |
| A-65 | 1325 | $3 / 26 / 97$ |  | A-65 | 1326 | $3 / 26 / 97$ |  |
| A-65 | 1376 | $4 / 29 / 97$ |  | A-65 | 1438 | $6 / 17 / 97$ | 5890178 |
| A-65-3 | 1243 | $8 / 13 / 96$ | 324993 | A-65-8 | 1541 | $12 / 2 / 97$ |  |
| A-65-8 | 1276 | $10 / 5 / 96$ | 5762568 | A75 | 1156 | $2 / 7 / 96$ | 5321868 |
| A75 | 1255 | $9 / 3 / 96$ |  | A75 | 1256 | $9 / 4 / 96$ |  |
| A75-8 | 1275 | $10 / 5 / 96$ | 5162868 | C75-12F | 1293 | $11 / 4 / 96$ | $3316-6-$ |
| C85 | 1088 | $10 / 4 / 95$ |  | C85 | 1092 | $10 / 18 / 95$ |  |
| C-85 | 1198 | $4 / 17 / 96$ | $29652-7-8$ | C-85 | 1297 | $11 / 14 / 96$ |  |
| C-85 | 1352 | $3 / 10 / 97$ |  | C-85 | 1381 | $4 / 28 / 97$ |  |
| C-85 | 1391 | $4 / 19 / 97$ |  | C-85 | 1392 | $4 / 19 / 97$ |  |
| C-85 | 1484 | $9 / 4 / 97$ | $28487-6-$ | C-85-8FJ | 1139 | $1 / 17 / 96$ | $29845-$ |
|  |  |  | 12 |  |  |  | $7-8$ |
| C-85-8FJ | 1420 | $5 / 12 / 97$ | $29465-7-8$ | C-85-12 | 1031 | $4 / 6 / 95$ |  |
| C85-12 | 1182 | $3 / 18 / 96$ | $21596-6-$ | C-85-12 | 1217 | $5 / 15 / 96$ |  |
| C85-12 | $9 / 12 / 96$ | 14657 |  |  | C-85-12 | 1298 | $11 / 14 / 96$ |$|$| $23610-$ |
| :--- |
| 1265 |


| IO-470 | 1028 | 3/23/95 | 87329-R | IO-470-N | 1421 | 5/13/97 | $\begin{aligned} & 95271- \\ & 1-\mathrm{N} \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| IO-470-S | 1331 | 3/11/97 | $\begin{aligned} & 102412-2- \\ & \text { S-I } \end{aligned}$ | IO-520 | 1174 | 3/4/96 |  |
| IO-520-D | 1167 | 2/22/96 |  | O-200 | 1033 | 4/18/95 |  |
| O-200 | 1043 | 5/12/95 |  | O-200 | 1049 | 6/2/95 |  |
|  | 1076 | 9/11/95 |  | O-200 | 1104 | 11/21/95 | $\begin{aligned} & \text { 213830- } \\ & 71 \mathrm{~A} \end{aligned}$ |
| O-200 | 1131 | 1/5/96 |  | O-200 | 1142 | 1/18/96 | $\begin{aligned} & 265349- \\ & \mathrm{R} \end{aligned}$ |
| O-200 | 1147 | 1/23/96 |  | O-200 | 1190 | 4/13/96 |  |
| O-200 | 1193 | 4/13/96 |  | O-200 | 1195 | 4/13/96 |  |
| O-200 | 1197 | 4/17/96 |  | O-200 | 1213 | 5/13/96 |  |
| O-200 | 1261 | 9/9/96 |  | O-200 | 1303 | 12/5/96 |  |
| O-200 | 1321 | 2/7/97 | 28115 | O-200 | 1324 | 2/6/97 |  |
| O-200 | 1344 | 3/2/97 |  | O-200 | 1393 | 5/5/97 |  |
| O-200 | 1413 | 5/7/97 | 61001-5-4 | O-200 | 1430 | 5/23/97 |  |
| O-200 | 1437 | 6/17/97 | $\begin{aligned} & 255759 \mathrm{~A}- \\ & 48 \end{aligned}$ | O-200 | 1488 | 9/7/97 |  |
| O-200 | 1506 | 11/18/97 |  | O-200 | 1522 | 11/11/97 |  |
| O-200-A | 1052 | 6/21/95 | $\begin{aligned} & \text { 254150- } \\ & \text { A-48 } \end{aligned}$ | O-200-A | 1085 | 9/29/95 |  |
| O-200-A | 1120 | 12/29/95 | 253971 | O-200-A | 1161 | 2/9/96 | 24R-469 |
| O-200-A | 1215 | 5/15/96 |  | O-200-A | 1240 | 8/5/96 | 69589- |
|  |  |  |  |  |  |  | 8-A |
| O-200 | 1254 | 9/3/96 | $\begin{aligned} & \text { 6105-71- } \\ & \text { A-R } \end{aligned}$ | O-200-A | 1264 | 9/12/96 |  |
| O-200- | 1356 | 3/10/97 |  | O-300 | 1027 | 3/20/95 |  |
| O-300 | 1042 | 5/12/95 | $\begin{aligned} & 34012-\mathrm{D}- \\ & \text { 6-D } \end{aligned}$ | O-300 | 1083 | 9/26/95 |  |
| O-300 | 1096 | 10/23/95 | 464481 | O-300 | 1137 | 1/17/96 |  |
| O-300 | 1259 | 9/4/96 |  | O-300 | 1387 | 4/22/97 |  |
| O-300 | 1397 | 4/26/97 | 5928-9A | O-300 | 1403 | 4/28/97 |  |
| O-300 | 1423 | 6/9/97 | 3834D8Z | O-300 | 1555 | 1/13/98 |  |
| O-300-A | 1446 | 6/27/97 |  | O-300-D | 1022 | 3/17/95 | $\begin{aligned} & 35110- \\ & \mathrm{D}-6-\mathrm{D} \end{aligned}$ |
| O-300-D | 1079 | 9/17/95 |  | O-300-D | 1487 | 9/6/97 |  |
| O-300-D | 1543 | 12/3/97 |  | O-470 | 1046 | 6/1/95 |  |
| O-470 | 1383 | 4/4/97 |  | O-470-11 | 1017 | 2/22/95 |  |


| O-470-11 | 1491 | $10 / 19 / 97$ |  | O-470-11 | 1492 | $10 / 19 / 97$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| O-470-11 | 1493 | $10 / 19 / 97$ |  | O-470-11 | 1494 | $10 / 19 / 97$ |  |
| O-470-F | 1236 | $7 / 25 / 96$ | $76956-4-\mathrm{F}$ | O-470-K | 1087 | $10 / 3 / 95$ | $47172-$ <br> $6-\mathrm{K}$ |
| O-470-L | 1128 | $1 / 10 / 96$ | $68681-8-\mathrm{L}$ | O-470-L | 1359 | $5 / 19 / 97$ | $68245-$ <br> $8-\mathrm{L}$ |
| O-470-L | 1399 | $4 / 28 / 97$ |  | O-470-R | 1016 | $2 / 10 / 95$ | $133087-$ <br> $6-\mathrm{R}$ |
| O-470-R | 1086 | $10 / 3 / 95$ |  | O-470-R | 1165 | $2 / 22 / 96$ |  |
| O-470-R | 1178 | $3 / 10 / 96$ |  | O-470-R | 1201 | $6 / 2 / 96$ | $83164-$ <br> $1-\mathrm{R}$ |
| O-470-R | 1319 | $1 / 6 / 97$ | 459408 | TSIO- <br> $520-\mathrm{VB}$ | 1055 | $6 / 9 / 95$ |  |

Note 1: Blank spaces indicate unknown data. Where the engine serial number is blank in this table, it is either unknown or the crankshaft may not be installed in an engine.

Note 2: This airworthiness directive (AD) applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (c) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request
should include specific proposed actions to address it.
Compliance: Required as indicated, unless accomplished previously.
To prevent crankshaft failure due to cracking, which could result in an inflight engine failure and possible forced landing, accomplish the following:
(a) Within 10 hours time in service after the effective date of this AD , determine if this AD applies, as follows:
(1) Determine if any repair was conducted on the engine that required crankshaft removal during the February 1, 1995, to December 31, 1997, time frame; if the engine was not disassembled for crankshaft removal and repair in this time frame, no further action is required.
(2) If the engine and crankshaft was repaired during this time frame, determine from the maintenance records (engine log book), and Table 1 of this AD if the crankshaft was repaired by Nelson Balancing Service, Repair Station Certificate No. NB7R820J, Bedford, Massachusetts. The maintenance records should contain the Return to Service (Yellow) tag for the crankshaft that will identify the company performing the repair. Also the work order number contained in Table 1 of this AD was etched on the crankshaft propeller flange, adjacent to the closest connecting rod journal. Because some etched numbers will be difficult to see, if necessary, use a 10X magnifying glass with an appropriate light
source to view the work order number. In addition, the propeller spinner, if installed, will have to be removed in order to see this number.
(3) A person with a private pilot or higher rated certificate may make the determination of applicability of this AD provided the propeller spinner does not have to be removed.
(4) If it cannot be determined who repaired the crankshaft, compliance with this AD is required.
(5) If the engine and crankshaft were not repaired during the time frame specified in (a)(1), or if it is determined that the crankshaft was not repaired by Nelson Balancing Service, no further action is required.
(b) Within 10 hours time in service after the effective date of this AD, accomplish the following:
(1) Perform a visual inspection as defined in paragraph (b)(2) of this AD, magnetic particle inspection, and a dimensional check of the crankshaft journals, or remove from service affected crankshafts and replace with serviceable parts.
(2) For the purpose of this AD , a visual inspection of the crankshaft is defined as the inspection of all surfaces of the crankshaft for cracks which include heat check cracking of the nitrided bearing surfaces, cracking in the main or aft fillet of the main bearing
journal and crankpin journal, including checking the bearing surfaces for scoring, galling, corrosion, or pitting.

Note 3: Further guidance on all inspection and acceptance criteria is contained in applicable TCM or LYC Overhaul or Maintenance Manuals, or other FAA-approved data.
(3) Replace any crankshaft that fails the visual inspection, magnetic particle inspection, or the dimensional check with a serviceable crankshaft, unless the crankshaft can be reworked to bring it in compliance with:
(i) All the overhaul requirements of the appropriate TCM or LYC Overhaul/Maintenance Manuals; or
(ii) All of the FAA-approved requirements for any repair station which currently has approval for limits other than those in the appropriate TCM or LYC Overhaul/Maintenance Manuals.
(4) For the purpose of this AD, a serviceable crankshaft is one which meets the requirements of paragraph (b)(3)(i) or (b)(3)(ii) of this AD.

Note 4: Crankshafts removed from TCM engine models IO-360, IO-520, and TSIO-520 series engines are also subject to compliance with AD 97-26-17.
(c) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, New York (LYC) or Atlanta (TCM) Aircraft Certification Offices. Operators shall submit their
requests through an appropriate FAA Airworthiness Inspector, who may add comments and then send it to the Manager, New York or Atlanta Aircraft Certification Offices.

Note 5: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Atlanta Aircraft Certification or New York Aircraft Certification Office, as applicable.
(d) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the requirements of this AD can be accomplished.
(e) This amendment becomes effective on October 19, 1998.

