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SERVICE INSTRUCTION

DATE: May 16, 2008

Service Instruction No. 1257G
(Supersedes Service Instruction No. 1257F)
Engineering Aspects are
FAA Approved

SUBJECT: Horsepower, Manifold Pressure and RPM Values

MODELS AFFECTED: Lycoming supercharged and turbocharged aircraft engines.

TIME OF COMPLIANCE: During engine maintenance.

To assist maintenance personnel and pilots, the manifold pressure (M.P.) and RPM at which the supercharged and turbocharged Lycoming engines attain their rated horsepower (H.P.) are listed below.

It is important to note that all Lycoming supercharged (GSO and IGSO) engines attain take-off power at less than full throttle, while some turbocharged engines attain take-off power only at full throttle and others at part throttle. It is the operator's responsibility to know the type being operated.

MECHANICAL SUPERCHARGED – (Take-Off Rating)**CAUTION**

THE INSTRUCTIONS IN TABLE 1 BELOW ONLY APPLY TO LYCOMING ENGINES THAT ARE SUPERCHARGER EQUIPPED AS AN INTEGRAL PART OF THE ENGINE AT THE FACTORY. THE MODEL DESIGNATION, APPEARING ON THE ENGINE NAMEPLATE, INCLUDES THE LETTER "S" AS PART OF THE ENGINE MODEL DESIGNATION.

TABLE 1

| ENGINE MODEL | H.P. | M.P. (in. Hg.) | RPM |
|-----------------------|------|-------------------|------|
| GSO-480-B Series | 340 | 48 | 3400 |
| IGSO-480-A Series | 340 | 48 | 3400 |
| IGSO-540-A, -B Series | 340 | 47 | 3400 |

TURBOCHARGED ENGINES**CAUTION**

THE INSTRUCTIONS IN TABLES 2 AND 3 ONLY APPLY TO LYCOMING ENGINES THAT ARE TURBOCHARGER EQUIPPED AS AN INTEGRAL PART OF THE ENGINE AT THE FACTORY. THE MODEL DESIGNATION, APPEARING ON THE ENGINE NAMEPLATE, INCLUDES THE LETTER "T" AS PART OF THE ENGINE MODEL DESIGNATION.

General Aviation
Manufacturers Association

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TURBOCHARGED ENGINES (CONT.):

TABLE 2

| ENGINE MODEL | H.P. | M.P. (in.Hg.) | RPM | NOTE, Also see Table 3 |
|-----------------|------|------------------|------|--|
| TIO-540-AH1A | 300 | 38 | 2500 | Engine has an alternate rating of 40 in. Hg. manifold pressure at 2500 RPM to 5000 feet pressure altitude. |
| (L)TIO-540-R2AD | 340 | 44 | 2500 | Engine has an alternate rating of 350 H.P. at 2575 RPM at standard altitude conditions. |
| (L)TIO-540-V2AD | 350 | 42 | 2500 | Horsepower listed is delivered to propeller; 10 additional horsepower is available for accessories. |

TABLE 3

| AIRCRAFT MODEL | NOTES | ENGINE MODEL | H.P. | M.P. (in. Hg.) | RPM |
|------------------------------------|-------|-------------------------------|------|-------------------|-------|
| Mooney Mustang | 1 | TIO-541-A1A | 310 | 37 | 2575 |
| Beech Baron | 1 | TIO-541-E1B4, -E1D4 | 380 | 41 | 2900 |
| Beech Duke | 1 | TIO-541-E1A4, -E1C4 | 380 | 41 | 2900 |
| Piper Navajo (PA-31-P) | 1 | TIGO-541-E1A | 425 | 45 | *2133 |
| Piper Navajo (PA-31) | 2 | TIO-540-A1A, -A2A, -A1B, -A2B | 310 | 38.6 | 2575 |
| Piper Navajo (PA-31-B) | 2 | TIO-540-A1C, -A2C | 310 | 40 | 2575 |
| Piper Aztec (PA-23-250T) | 2 | TIO-540-C1A | 250 | 33 | 2575 |
| Piper T-1020 | 2 | LTIO & TIO-540-J2B | 350 | 43 | 2575 |
| Piper Navajo (PA-31-II) | 2 | LTIO & TIO-540-J2BD | 350 | 43 | 2575 |
| Piper Navajo (PA-31-II) | 2 | LTIO & TIO-540-F2BD | 325 | 43.5 | 2575 |
| Rockwell Commander 112TC | 3 | TO-360-C1A6D | 210 | 42 | 2575 |
| Partenavia P68-TC | 3 | TO-360-C1A6D | 210 | 42 | 2575 |
| Partenavia P68-TC | 3 | TIO-360-C1A6D | 210 | 44 | 2575 |
| Maule Star Rocket (M-5-210TC) | 3 | TO-360-C1A6D | 210 | 42 | 2575 |
| Siai-Marchetti (S-210) | 3 | TIO-360-A1B | 200 | 34 | 2575 |
| Riley-Cessna Conversion (S-210) | 2 | LTIO & TIO-540-N2BD | 350 | 43 | 2575 |
| Rockwell Commander 700 | 1 | LTIO & TIO-540-R2AD | 340 | 44 | 2500 |
| Piper Turbo Lance (PA-32-RT) | 3 | TIO-540-S1AD | 300 | 36 | 2700 |
| Trident Aircraft Tri-Gull | 2 | TIO-540-T2AD | 330 | 40.5 | 2400 |
| Piper Aerostar 700 | 1 | LTIO & TIO-540-U2A | 350 | 42 | 2500 |
| Piper Mojave (PA-31P-350) | 1, 4 | LTIO & TIO-540-V2AD | 350 | 42 | 2600 |
| Aero Mercantil Gavilan | 1, 4 | LTIO & TIO-540-W2A | 350 | 42.5 | 2600 |
| Piper Mirage (PA-46-350P) | 1 | TIO-540-AE2A | 350 | 42 | 2500 |
| Mooney "TLS" M20M | 2 | TIO-540-AF1A, -AF1B | 270 | 35 | 2575 |
| Rockwell Commander 114TC | 2 | TIO-540-AG1A | 270 | 35 | 2575 |

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TABLE 3 (CONT.)

| AIRCRAFT MODEL | NOTES | ENGINE MODEL | H.P. | M.P. (in. Hg.) | RPM |
|-------------------------------------|--------------|---------------------|-------------|---------------------------|------------|
| Piper Saratoga II TC | 5 | TIO-540-AH1A | 300 | 38 | 2500 |
| Gippsland Aeronautics GA8 Airvan | 5,6 | TIO-540-AH1A | 300 | 38 | 2500 |
| Cessna 206T Turbo Stationair | 5 | TIO-540-AJ1A | 310 | 39 | 2500 |
| Cessna Turbo Skylane T182T | 5 | TIO-540-AK1A | 235 | 32 | 2400 |
| Lake Aircraft Model 250 | 2 | TIO-540-AA1AD | 270 | 32.5 | 2575 |
| Socata Trinidad TC (TB-21) | 2 | TIO-540-AB1AD | 250 | 32.5 | 2575 |
| Schweizer | 2 | TIO-540-AB1BD | 250 | 32.5 | 2575 |

* - Propeller RPM as indicated on tachometer. Actual engine RPM is 3200.

NOTE 1 – These engines are equipped with an adjustable variable-pressure controller, which must be set in accordance with the latest revision of Service Instructions No. 1211 or No. 1431 and with the airframe manufacturer’s recommendations.

NOTE 2 – These engines are equipped with an adjustable density controller, which must be set in accordance with the latest revision of Service Instruction No. 1187.

NOTE 3 – These engines are equipped with a turbo waste-gate control interconnected with the throttle. The interconnect linkage must be adjusted in accordance with the latest revision of Service Instruction No. 1431. Normal take-offs are not at full throttle. The operator controls manifold pressure with the throttle and must avoid exceeding red-line manifold pressure.

NOTE 4 – Horsepower listed is delivered to propeller; 10 additional horsepower is available for accessories.

NOTE 5 – These engines are equipped with a slope controller which must be set by measuring manifold pressure at rated power and engine speed.

NOTE 6 – Replace absolute pressure relief valve assembly P/N LW-14445-12 with P/N LW-14445-2.

In Notes 1 and 2, the pilot must not routinely control take-off manifold pressure overboost by use of part throttle. Instead, the cause for high manifold pressure must be corrected.

For information on overboost and overspeed, see the latest revision of Lycoming Service Bulletin No. 369.

The operator must become familiar with the manifold pressure versus altitude curves that appear in the engine and airframe manuals covering turbocharged engines. Failure to comply with restrictions shown could result in engine damage.

NOTE: Revision “G” adds in. Hg. after M.P. in charts, adds Table 2, adds models to Table 3, and adds Note 6.

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