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# SERVICE INSTRUCTION

DATE: April 5, 2012

Service Instruction No. 1256F  
(Supersedes Service Instruction No. 1256E)  
Engineering Aspects are  
FAA Approved

SUBJECT: Valve Guides For Service Use

MODELS AFFECTED: Intake and exhaust valve guides on all Lycoming engines except as listed below:

Intake valve guides only on O-235 and O-290 series unless modified in accordance with the latest revision of Service Instruction No. 1246.

TIME OF COMPLIANCE: When replacing valve guides

### NOTE

Incomplete review of all the information in this document can cause errors. Read the entire Service Instruction to make sure you have a complete understanding of the requirements.

This Service Instruction identifies flanged intake and exhaust valve guides, and respective valve guide drifts, reamers, and gauges necessary to install valve guides on applicable Lycoming engine models.

Installation and removal procedures for the valve guides are outlined in the applicable Maintenance/Overhaul Manual. Refer to Table 1 for valve guide installation drift and Table 2 for correct reamer and gauge.



IF IT IS NECESSARY TO COOL THE VALVE GUIDE PRIOR TO INSTALLATION, YOU CAN PUT THE VALVE GUIDE IN A FREEZER. DO NOT USE NITROGEN TO COOL THE VALVE GUIDE.

TABLE 1  
REPLACEMENT DRIFT

| Drifts |                                | in.              | mm                 |
|--------|--------------------------------|------------------|--------------------|
| 64505  | All intake valve guides        | -                | -                  |
| 64505  | Exhaust valve guides with I.D. | 0.4040 to 0.4050 | 10.2616 to 10.2870 |
| 64796  | Exhaust valve guides with I.D. | 0.4360 to 0.4370 | 11.0744 to 11.0998 |
|        |                                | 0.4370 to 0.4380 | 11.0998 to 11.1252 |
|        |                                | 0.4375 to 0.4385 | 11.1125 to 11.1379 |
| 64923  | Exhaust valve guides with I.D. | 0.4985 to 0.4995 | 12.6619 to 12.6873 |
|        |                                | 0.4995 to 0.5005 | 12.6873 to 12.7127 |



**General Aviation  
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Do not install the valve guide into a cold cylinder head. You must heat the cylinder between 400° to 425° F (204° to 218° C) for a period of at least 2 hours.

TABLE 2  
REAMER AND GUIDE

| Flanged Valve Guide Part No. | Superseded Flangeless Valve Guide Part No. | Oversize |       | I.D. Valve Guide Hole In Cyl. Head Diameter |                 | Reamer    | Gauge     |
|------------------------------|--|----------|-------|---|-----------------|-----------|-----------|
|                              |  | in.      | mm    | in.   | mm              |           |           |
| 61681-P05                    | 76943-P05                                  | 0.005    | 0.127 | 0.5963-0.5973                               | 15.1460-15.1714 | ST-430-5* | ST-429-5* |
| 61681-P10                    |  | 0.010    | 0.254 | 0.6013-0.6023                               | 15.2730-15.2984 | ST-430-1* | ST-429-1* |
| 61681-P20                    |  | 0.020    | 0.510 | 0.6113-0.6123                               | 15.5270-15.5524 | ST-430-2* | ST-429-2* |
| 61681-P30                    |  | 0.030    | 0.762 | 0.6213-0.6223                               | 15.7810-15.8064 | ST-430-3* | ST-429-3* |
| 61681-P40                    |  | 0.040    | 1.016 | 0.6313-0.6323                               | 16.0350-16.0604 | ST-430-4* | ST-429-4* |
| 66713-P05                    | LW-11956-P05S                              | 0.005    | 0.127 | 0.5963-0.5973                               | 15.1460-15.1714 | ST-430-5* | ST-429-5* |
| 66713-P10                    |  | 0.010    | 0.254 | 0.6013-0.6023                               | 15.2730-15.2984 | ST-430-1* | ST-429-1* |
| 66713-P20                    |  | 0.020    | 0.510 | 0.6113-0.6123                               | 15.5270-15.5524 | ST-430-2* | ST-429-2* |
| 66713-P30                    |  | 0.030    | 0.762 | 0.6213-0.6223                               | 15.7810-15.8064 | ST-430-3* | ST-429-3* |
| 16R22291-P05                 | 16R22126-P05                               | 0.005    | 0.127 | 0.6663-0.6673                               | 16.9240-16.9494 | ST-432-5  | ST-431-5  |
| 16R22291-P10                 |  | 0.010    | 0.254 | 0.6713-0.6723                               | 17.0510-17.0764 | ST-432-1  | ST-431-1  |
| 16R22291-P20                 |  | 0.020    | 0.510 | 0.6813-0.6823                               | 17.3050-17.3304 | ST-432-2  | ST-431-2  |
| 16R22291-P30                 |  | 0.030    | 0.762 | 0.6913-0.6923                               | 17.5590-17.5844 | ST-432-3  | ST-431-3  |
| 16R22291-P40                 |  | 0.040    | 1.016 | 0.7013-0.7023                               | 17.8130-17.8384 | ST-432-4  | ST-431-4  |
| 75838-P05                    | LW-11958-P05                               | 0.005    | 0.127 | 0.6663-0.6673                               | 16.9240-16.9494 | ST-432-5  | ST-431-5  |
| 75838-P10                    |  | 0.010    | 0.254 | 0.6713-0.6723                               | 17.0510-17.0764 | ST-432-1  | ST-431-1  |
| 75838-P20                    |  | 0.020    | 0.510 | 0.6813-0.6823                               | 17.3050-17.3304 | ST-432-2  | ST-431-2  |
| 75838-P30                    |  | 0.030    | 0.762 | 0.6913-0.6923                               | 17.5590-17.5844 | ST-432-3  | ST-431-3  |
| 75838-P40                    |  | 0.040    | 1.016 | 0.7013-0.7023                               | 17.8130-17.8384 | ST-432-4  | ST-431-4  |
| 16R21710-P05†                | LW-18833-P05                               | 0.005    | 0.127 | 0.6663-0.6673                               | 16.9240-16.9494 | ST-432-5  | ST-431-5  |
| 16R21710-P10†                |  | 0.010    | 0.254 | 0.6713-0.6723                               | 17.0510-17.0764 | ST-432-1  | ST-431-1  |
| 16R21710-P20†                |  | 0.020    | 0.510 | 0.6813-0.6823                               | 17.3050-17.3304 | ST-432-2  | ST-431-2  |
| 16R21710-P30†                |  | 0.030    | 0.762 | 0.6913-0.6923                               | 17.5590-17.5844 | ST-432-3  | ST-431-3  |
| LW-11626-P05                 | LW-12137-P05S                              | 0.005    | 0.127 | 0.5963-0.5973                               | 15.1460-15.1714 | ST-430-5* | ST-429-5* |
| LW-11626-P10                 |  | 0.010    | 0.254 | 0.6013-0.6023                               | 15.2730-15.2984 | ST-430-1* | ST-429-1* |
| LW-11626-P20                 |  | 0.020    | 0.510 | 0.6113-0.6123                               | 15.5270-15.5524 | ST-430-2* | ST-429-2* |
| LW-11626-P30                 |  | 0.030    | 0.762 | 0.6213-0.6223                               | 15.7810-15.8064 | ST-430-3* | ST-429-3* |
| LW-11626-P40                 |  | 0.040    | 1.016 | 0.6313-0.6323                               | 16.0350-16.0604 | ST-430-4* | ST-429-4* |
| LW-15680-P05                 |  | 0.005    | 0.127 | 0.6663-0.6673                               | 16.9240-16.9494 | ST-432-5  | ST-431-5  |
| LW-15680-P10                 |  | 0.010    | 0.254 | 0.6713-0.6723                               | 17.0510-17.0764 | ST-432-1  | ST-431-1  |
| 16R21705-P05                 | LW-14045-P05S                              | 0.005    | 0.127 | 0.6983-0.6993                               | 17.7368-17.7622 | ST-258-5  | ST-259-5  |
| 16R21705-P10                 |  | 0.010    | 0.254 | 0.7033-0.7043                               | 17.8638-17.8892 | ST-258-1  | ST-259-1  |
| 16R21705-P20                 |  | 0.020    | 0.510 | 0.7133-0.7143                               | 18.1178-18.1432 | ST-258-2  | ST-259-2  |
| 16R21705-P30                 |  | 0.030    | 0.762 | 0.7233-0.7243                               | 18.3718-18.3972 | ST-258-3  | ST-259-3  |
| 16R21705-P40                 |  | 0.040    | 1.016 | 0.7333-0.7343                               | 18.6258-18.6512 | ST-258-4  | ST-259-4  |
| 16P21709-P05†                | LW-18753-P05S                              | 0.005    | 0.127 | 0.5963-0.5973                               | 15.1460-15.1714 | ST-430-5* | ST-429-5* |
| 16P21709-P10†                |  | 0.010    | 0.254 | 0.6013-0.6023                               | 15.2730-15.2984 | ST-430-1* | ST-429-1* |
| 16P21709-P20†                |  | 0.020    | 0.510 | 0.6113-0.6123                               | 15.5270-15.5524 | ST-430-2* | ST-429-2* |
| 16P21709-P30†                |  | 0.030    | 0.762 | 0.6213-0.6223                               | 15.7810-15.8064 | ST-430-3* | ST-429-3* |
| 16P21709-P40†                |  | 0.040    | 1.016 | 0.6313-0.6323                               | 16.0350-16.0604 | ST-430-4* | ST-429-4* |
| 66529-P05                    |  | 0.005    | 0.127 | 0.5963-0.5973                               | 15.1460-15.1714 | ST-430-5* | ST-429-5* |
| 66529-P10                    |  | 0.010    | 0.254 | 0.6013-0.6023                               | 15.2730-15.2984 | ST-430-1* | ST-429-1* |
| 66529-P20                    |  | 0.020    | 0.510 | 0.6113-0.6123                               | 15.5270-15.5524 | ST-430-2* | ST-429-2* |
| 66529-P30                    |  | 0.030    | 0.762 | 0.6213-0.6223                               | 15.7810-15.8064 | ST-430-3* | ST-429-3* |

\* Reamer and gauge applicable to intake and exhaust valves; all others applicable to exhaust only.

\*\* TO-360-C1A6D and TIO-360-C1A6D.

† LTIO, TIO-540-V2AD, -W2A only.

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| MO     | DAY | YEAR | MO      | DAY | YEAR | 2 of 3   | F        |          |
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NOTES

1. Valve guides are not available for service use in standard size.
2. Guides do not have to be used in sets.

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