

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

Component(s) Affected:

567, 645, 710 Valve Bridge Assemblies, and Lash Adjusters

Purpose:

EMD has developed a *NEW VALVE BRIDGE ASSEMBLY AND LASH ADJUSTER*. Photographs are shown in Figures 1, 2, 3, 4, 5 and 6. The intent of this Service Advisory is for introductory purposes, and to demonstrate the proper adjustment procedure. The new valve bridge and lash adjusters are available for Aftermarket Sales starting approximately July 01 of 2008. Application to new production engines has begun in June 08.

Background:

A long travel *valve bridge assembly* has been developed for 567, 645, and 710 engines. This new valve bridge makes it possible to use the modern *short travel lash adjusters* in rebuilt engines where the valve seats have been re-machined to correct for wear.

This is prevalent when valve seats are cut too deeply into a remanufactured cylinder head, thus preventing proper seating of the valve bridge seat into the cylinder head. In some cases it has been observed that the lash adjuster tips come in contact with the top of the exhaust valves before the valve bridge spring seat was able to fully seat into the cylinder head machined valve bridge pocket. This usually resulted in the hydraulic lash adjuster bottoming out and acting as a "solid" lash adjuster, thus negating the hydraulic properties of the lash adjuster.

Additionally, the new lash adjuster has been redesigned for reduced leak down degradation. This will help the lash adjuster maintain zero lash, and help eliminate broken or dropped valves.

Interchangeability:

The new lash adjuster can be retrofitted into existing valve bridge bodies, providing the new valve bridge spring seats are replaced, reference comparison of Figures 5 and 6. The new part number for the valve bridge spring seat is 40140140. Valve bridge spring seats should not be changed independently of the lash adjusters.

Under no circumstances should new lash adjusters be mixed with the older lash adjusters on the same valve bridge assembly. The new lash adjuster can be correctly identified by viewing Figure 3, which shows a thick collar, the last three digits of the part number, and a date code.

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

Previously issued Service Advisory 05-036 shows lash adjusters 40118613 and 8085254. Both of these part number lash adjusters are discontinued. Lash adjuster 40118613 also used a thick collar **and should not be mixed with new lash adjuster 40145726**, reference Figures 4A and 4B.

The new valve bridge assemblies are interchangeable **within an engine** but it is recommended that new and old style valve bridge assemblies **not be mixed on an individual cylinder**. The new valve bridge assembly should **always be applied in pairs**.

The new valve bridge assembly and lash adjuster replaces the old part number, which is being discontinued and is suitable for use as replacements **in pairs** on all 567, 645, and 710 engines.

Description	Old Part Number	Superseded by
Lash Adjuster	40118613	40145726
Valve Bridge	8085260	40145929
Utex Valve Bridge	8361504	40145929UX
Utex Valve Bridge	40126370	40145929UX

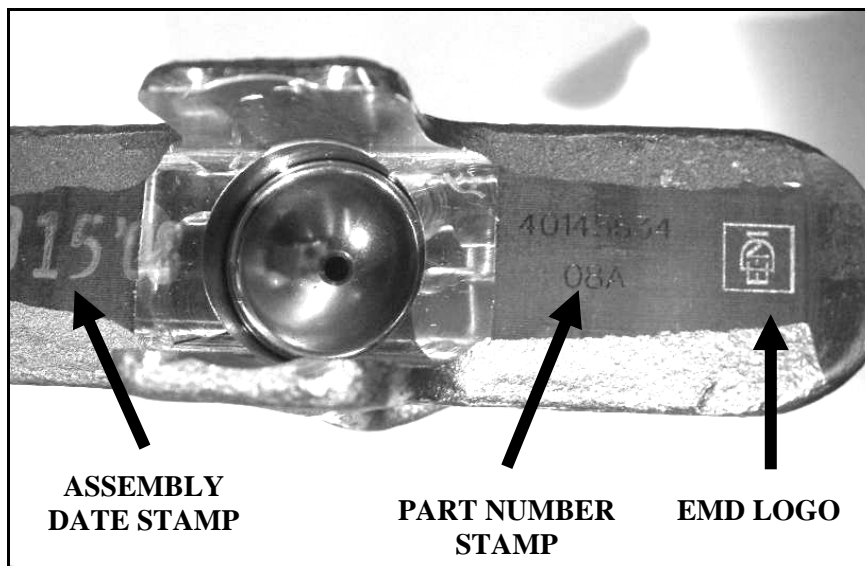


Figure 1. NEW VALVE BRIDGE MARKING.

NOTE: The “part number stamp” is the part number of the machined valve bridge, not the part number of the new valve bridge assembly.

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

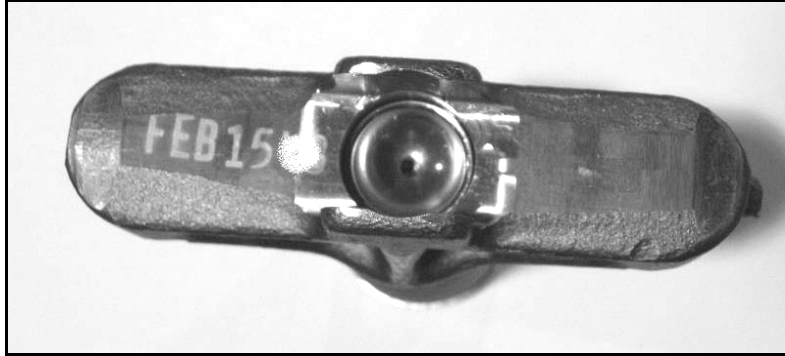


Figure 2. UTEX VALVE BRIDGE MARKING.

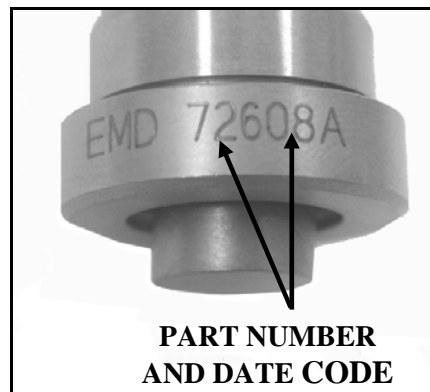


Figure 3. NEW LASH ADJUSTER - Thick Shoulder.

NOTE: The last 3 digits of the EMD part number (726) and the date code (08A) are inscribed on the thick collar of the new lash adapter.

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

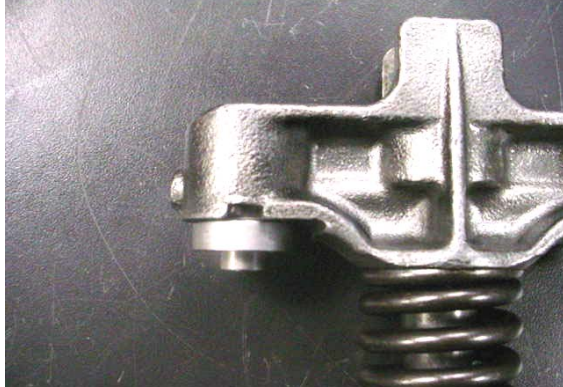


Figure 4A. LASH ADJUSTER - Thick (P/N 40118613).



Figure 4B. LASH ADJUSTER - Grooved (P/N 8085254)

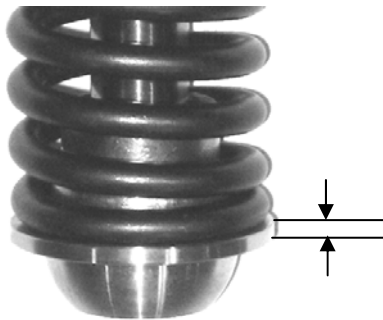


Figure 5. 1/8" OLD STYLE SEAT.

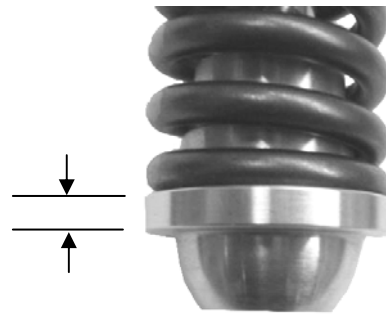


Figure 6. NEW 3/16" STYLE SEAT.

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

New Lash Adjuster Setting Procedure:

A new adjustment procedure for the new valve bridge assembly has been developed. This method is preferred to the previous long standing practice of counting turns on the rocker arm adjusting screw currently shown in both the 645 and 710 (EMM) Engine Maintenance Manuals. The new procedure makes use of (3) forked thickness tools; 40146268 (.100") "SET" tool, 40146267 (.060") "GO" tool, 40146269 (.140) "NO GO" tool. See figure 7.



Figure 7. FORK GAUGE SETTING TOOL.

Description	EMD Part Number
EXTENSION GAUGE-.060 ("GO")	40146267
EXTENSION GAUGE-.100 ("SET")	40146268
EXTENSION GAUGE-.140 ("NO GO")	40146269

PLEASE NOTE

The new fork gauge setting tool(s) should not be confused with minimum clearance gauge part number 8107788. The minimum clearance gauge cannot be substituted or used in this procedure.

This new procedure is applicable to previous valve bridge designs, but setting is limited based on the depth of the valve seats on reconditioned heads. For further information on setting issues on previous design valve bridges, please refer to Service Advisory 05-036.

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

New Lash Adjuster Setting Procedure Continued:

- Before beginning this procedure, ensure that the flywheel pointer has been properly positioned. This can be found in any 567, 645, or 710 Engine Maintenance Manual.
- Bar the engine over until the flywheel degree marker corresponding to the cylinder being adjusted is under the pointer. The set positions for all cylinders are given on the engine timing plate.
- Back off the rocker arm adjusting screw until the valve bridge is fully extended. At this point the brass spring seat should be loosely seated into the machined area of the cylinder head and the lash adjuster plungers will not be in contact with the valve tips.
- Advance the adjusting screw until spring load can be felt from the valve bridge spring. At this point there should be considerable clearance between the tip of the lash adjuster and the tip of the valve.
- A • Insert a .001" feeler gauge between the clearance at the tip of the lash adjuster and the tip of the valve. Further advance the adjusting screw until the last lash adjuster tip contacts the .001" feeler gauge.
- In the past, at this point, the adjusting screw would have been turned down 1-1/2 turns. This step is no longer required as the forked thickness tool(s) will now be used, reference Figure 7.
- Hold the 40146268 (.100") "**Set**" forked thickness tool between the lash adjuster body on the **outboard** end of the valve bridge and the valve stem. You will note that the opening of the fork gauge fits around the lash adjuster plunger.
- If the lash adjuster is full or partially full of oil (pumped up) the exhaust valves can be forced off their seats momentarily as the adjusting screw is advanced. If this condition is observed, allow the lash adjuster plunger to compress. The pressure from the exhaust valve spring load will force the oil out of the lash adjuster and the lash adjuster plunger will compress. This should only take a minute or two.
- Advance the adjusting screw until the **outboard** plunger is depressed enough to feel slight resistance on the forked thickness tool. The **outboard** lash adjuster plunger is now set at approximately .100", which centers the plunger mid-way in its travel.
- Check the **inboard** lash adjuster plunger for clearance using the 40146267 (.060") "**Go**" forked thickness tool; then check the **inboard** lash adjuster plunger for **non**-clearance using the 40146269 (.140") "**No Go**" forked thickness tool.
- Snug down the locknut on the top of the adjusting screw. Recheck the above clearance(s) in the last step. The **outboard** lash adjuster should be at "**SET**" (.100"). The **inboard** lash adjuster should accept the "**Go**" tool and **not** accept the "**No Go**" tool.
- Torque the locknut to 80 ft-lbs.

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

Form CEF-001 Rev B. 7/1/2006

If after setting the **outboard** lash adjuster clearance at (.100") and the **inboard** lash adjuster clearance does **not** accept the "**Go**" (.060") or accepts the "**No Go**" (.140") check, refer to the supplemental procedure below.

Special Note for Reconditioned Cylinder Heads

Utex heads from EMD have equal amounts of material machined off all four valve seats during the reconditioning process. This may not be true of heads from other sources. Unequal cutting of the valve seats or resurfaced valves will affect valve stem heights and cause the lash adjuster plunger clearance to be uneven. If this condition is observed use the following valve lash adjustment procedure:

SUPPLEMENTAL PROCEDURE TO BE USED FOR CYLINDER HEADS WITH UNEVEN VALVE STEM HEIGHTS:

- If after setting the outboard lash adjuster with the "**Set**" (.100") forked thickness tool and it is observed that the inboard lash adjuster will not accept the "**Go**" (.060") or accepts the "**NO Go**" (.140") forked thickness tool you must use the following procedure(s).
- Before proceeding, make sure that the valve bridge is properly seated into the cylinder head, the valve bridge is properly assembled, and that the lash adjusters are not pumped up. All of these conditions could be preventing normal adjustment of the valve bridge assembly.
- Adjust the rocker arm adjusting screw until both the inboard and outboard lash adjusters accept the minimum "**Go**" .060" fork gauge (40146267) but do not accept the maximum "**No Go**" .140" fork gauge (40146269). Since this is not a normal condition; it is allowable to set the inboard and outboard lash adjusters at different depths but under no circumstances should lash adjuster plunger clearance be less than .060" or exceed .140".
- If adjustment is still not possible using the supplemental method, it is recommended that the cylinder head be exchanged.



SA#: 08-020
 REVISION: A
 REVISION DATE: 8/4/08
 ISSUE DATE: 06/16/08
 AUTHOR: J. Pantos

SERVICE ADVISORY - NEW VALVE BRIDGE AND LASH ADJUSTER

FormCEF-001 Rev B. 7/1/2006

(For EMD Office Use Only)

Approvals (Required):

Approval Needed Y N	Approver	Approved Y N	Approved By	Date
<input checked="" type="checkbox"/> <input type="checkbox"/>	CES/CEM	<input checked="" type="checkbox"/> <input type="checkbox"/>	Greg Palumbo	8/4/08
<input type="checkbox"/> <input checked="" type="checkbox"/>	Warranty	<input type="checkbox"/> <input type="checkbox"/>		
<input type="checkbox"/> <input checked="" type="checkbox"/>	Marketing	<input type="checkbox"/> <input type="checkbox"/>		

Service Advisory – General Classification (Select All that Apply):

- GENERAL INFORMATION:** This document is being issued to provide general information to the Customer Care Field Organization.
- REQUEST FOR FIELD SUPPORT:** This document is being issued to request Customer Care Field resources for the purpose of information/data collection in support of a current field issue investigation.
- PRELIMINARY:** This document is being issued to provide notable preliminary findings with regard to a current field issue. It will be followed by the issuance of an appropriate revision, or revisions, as the investigation progresses through closure, or more information becomes available.
- FINAL:** This document is being issued to provide final findings and recommendations on the proper handling of a current field issue. This document is intended to provide official closure of the subject field issue.