BSA

DEALER PARTS and SERVICE BULLETIN

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INDEX

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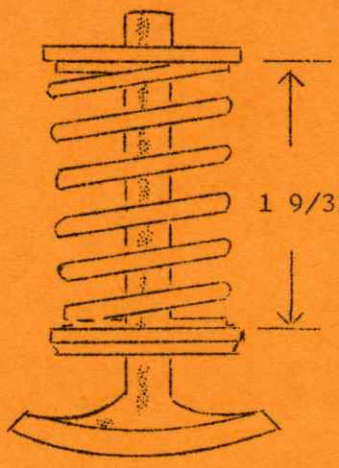
= SUBJECTS =

SPECIAL VALVE SPRING INSTALLATION



Cases of damage to the valve actuating mechanism have been reported where the valve springs have been incorrectly "packed"to increase valve spring pressure in high performance engines. This sometimes occurs when special S&W racing valve springs are incorrectly installed, leading to galled camshafts or tappets and the belief that these components were "soft" or that the spring pressure was excessive whereas, in reality, the sole cause is incorrect assembly which left the valve springs coil-bound.

With the many modifications made to engines such as offset rocker buttons, changes in cam contour, length of special valves, etc. it is not possible to give a hard and fast rule of dimension on the spring pack. The important thing is to have a complete mechanical knowof what is being attempted and the installation rule.

= THE VALVE SPRING MUST NOT BE COIL-BOUND UNDER ANY CIRCUMSTANCES =

There is only one way to install special valve springs and that is CORRECTLY. Camshafts and tappets can last the life of the engine in or under normal load.Incorrect valve spring installation can ruin both in as little as 20 miles.

"Coil-binding" simply means that the lower valve collar has had some form of "washering" to raise it and thus compress the spring to maximum limits for maximum pressure in a high-revving engine. Carelessly done this often results in over-compressing the spring to a point where - when the valve is fully open - the coils close up and touch. When this occurs there can be no more compression - something has to give. If it is a slight closure - a few thousandths more than it should be - either the push rod has to bend or the tappet has to bear down on the camshaft. This immediately destroys the hard-surfacing on the camshaft, grinding away the top of the lobe and galling the tappet. As soon as the tappet galls the rough surface grinds away the remainder of the camshaft. None of this has any bearing on the quality of the valve spring or valve gear - only on the quality of the workmanship of the mechanic. For a starting point it is recommended that a minimum spacing of 1 9/32" (as per sketch) be employed between the upper and lower valve spring collars with the valve spring in position, fully closed.

THEN - WITH THE VALVE FULLY OPEN TO MAXIMUM CAM LIFT IT IS ESSENTIAL THAT THERE SHOULD BE AT LEAST SUFFICIENT ADDITIONAL CLEARANCE TO TAKE ABOUT TWO FULL TURNS ON THE TAPPET ADJUSTING SCREW BEFORE THE COILS CLOSE UP. IN THE CASE OF GOLD STAR MODELS THERE SHOULD BE SUFFICIENT ADDITIONAL CLEARANCE TO TURN THE ECCENTRIC ADJUSTING SCREW ABOUT .050".

It is emphasized that this is NOT a hard and fast rule. A competent mechanic can and often does pack the collars to leave only a few thousandths clearance between coils. For such mechanics this reminder is unnecessary. For those who do such work only infrequently it is recommended that the installation be carefully checked and a little tolerance left. A simple error can ruin the valve gear in only a few miles.