ANDREWS
HIGH PERFORMANCE CAMS & GEARS

Camshaft Installation Instructions: H/D Milwaukee 8 Engines

M8 107 inch engines and M8 114 engines utilize the same 4 lobe camshafts.

1. Verify that your new camshaft is the correct grind - verify the part number stamp on the end of the cam.

2. Remove exhaust pipes and pushrods. A current Harley Davidson service manual part number will have very explicit instructions for removing exhaust pipes. For example, the service manual for 2017 touring bikes is 94000383A. Different model bikes will have their own specific service manuals.

3. To make camshaft installation easier, rotate engine to align cam timing marks before removing old camshaft.

4. Next two instructions relate to use of original stock H/D pushrods with new Andrews Products M8 camshafts.

4a. Keep in mind that stock H/D pushrods in M8 engines are NON adjustable for length and were made in TWO different lengths. If you are going use the stock pushrods, they MUST be installed back into their original positions in the engine.

4b. Two shorter intake pushrods are marked with blue stripes. Two longer exhaust pushrods are marked with yellow stripes.

5. Using stock pushrods will require disassembly of rocker boxes to remove stock pushrods for re-installation later.

6. To make the job of changing camshafts easier, stock pushrods can be cut (with bolt cutter) and removed (without removing rocker boxes). Changing cams becomes easier but aftermarket adjustable pushrods must then be installed as replacements for stock pushrods.

7. Andrews Products adjustable M8 pushrods:
Part #: **292017** (set of 4 adjustable pushrods)

8. Tappet adjustments can now be made by correctly setting lengths of each pushrod according to accepted practice for adjusting hydraulic tappets. For Andrews Products M8 adjustable pushrods with 5/16 x 32 threaded adjusters, the procedure is covered on page 17 of our 2017 and earlier catalogs and is stated as follows:

9. *With a pushrod installed in each roller lifter at the low lift point of the cam lobe, manually lengthen the adjuster screw until there is snug contact with the pushrod seat in the lifter. Then, extend the adjuster screw longer by three or four turns. (The exact number of turns is not critical).*

10. As long as the pushrod seat can move up or down in the lifter body and not contact the upper retaining ring or "bottom out" during operation, the pushrod length will be set for correct hydraulic lifter operation.

11. When installing new camshafts on M8 motorcycles, tuning the engine correctly almost always means working with a laptop computer and some appropriate tuning maps. Several companies make quality tuners.

12. Just to emphasize the point, we do not recommend solid lifters or oversize valves. New four valve M8 engines have so much valve area with stock valves compared to similar two valve engines that oversize valves can actually result in very poor low speed performance by reducing the air flow velocity through the head ports.

13. All Andrews Products camshafts including M8 cams are finish ground (after heat treat) on Landis CNC 3L or LT1 camshaft grinders which have basic tolerance limits of +.0003/-.0000 in. on all cam lobe surfaces.

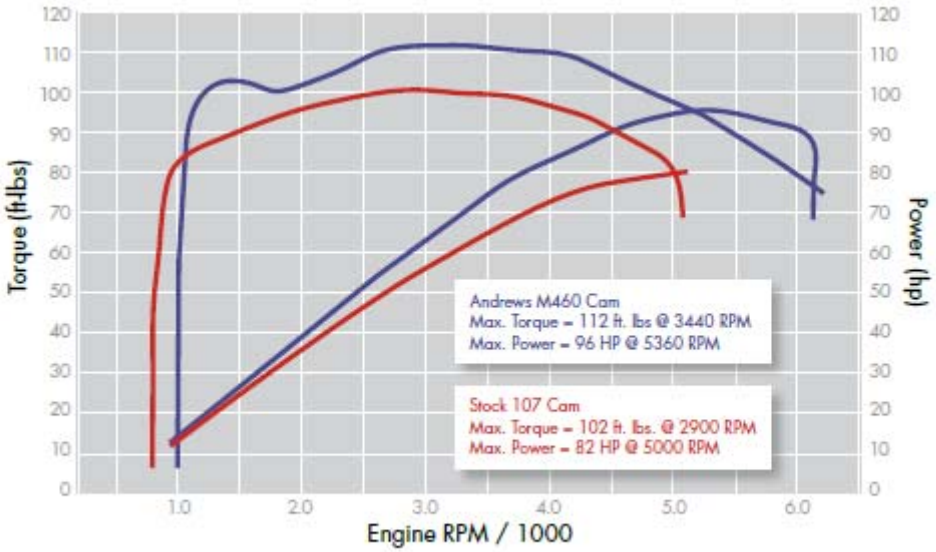
Milwaukee 8 Camshafts: Specifications & Timing

Part #	Grind	Timing*	CL**	Duration@ .050	Duration@ .020	Valve Lift*** Max Lift	Valve Lift*** TDC	Springs
Stock 107 & 114	Intake	-07/01	94	174	212	.350	.055	Stock
	Exhaust	33/-14	113.5	199	252	.370	.035	
217450	M450	00/14	97	194	226	.450	.080	Stock
		34/00	107	214	251	.450	.076	
217460	M460	00/20	100	200	233	.460	.080	Stock
		38/02	108	220	258	.460	.086	
217462	M462	06/14	94	200	230	.460	.106	Stock
		40/00	110	220	258	.460	.080	
217464	M464	06/24	099	210	241	.464	.106	Stock
		50/00	115	230	267	.460	.080	
217504	M504	06/30	102	216	249	.504	.105	Hi-Lift
		56/00	118	236	274	.504	.080	
217520	M520	08/40	106	228	260	.520	.115	Hi-Lift
		64/04	120	248	285	.520	.094	

(*) Timing and duration at .050 & .020 cam lift in crank degrees
(**) Camshaft centerline angle
(***) Valve lift at **T**op **D**ead **C**enter
Maximum lift calculated for a 1.66 Rocker Ratio

Dynomometer curves shown are the same as page 4 of our 2017 catalog
Bike used for testing was a 2017 Road Glide with stock exhaust pipes

Dyno Curves show big power boost from stock camshaft in 107 inch engine (red) and same engine with Andrews M460 cam (blue). Other than tuning, engine did not have ANY modifications!



CamsMilw8-3.pmd (01-14-19)