PINO INTERNATIONAL LTD.
6835 E. 9 Mile Rd. Warren, Michigan 48091
~~105 N. KINROSS - - - - - CLAWSON, MICHIGAN 48017 - - - - - (313) 435-2400~~



Pino Hub Crank

Specifications, Maintanence and Assembly Instructions:

I. This unit works on two MRC 1903s Series or Fafnir 9303k, Any bearing store technician in the USA can supply and explain the bearings in greater detail. The two bearings are not the shield or seal type which means they can be cleaned and greased at any time.

II. In order to use such precision ball bearings, it is necessary that they be assemblied in a precision Housing or adequate to the bearing specification.

III. In any thin wall welding construction, it is just about impossible to build a precision housing, this is especially true for a bicycle frame, which has basically a four cavity, produced by the two tubes and the lower rear fork.

IV. Pino's Bottom Bracket provides a precision housing in the frame housing, this means that once the unit is installed with the shell and corresponding lock ring nuts, it is a permanent member of the frame.

V. A solid unit tap is required for Pino's Bottom Bracket assembly. In order to have the frame's thread in line on both sides, such a tap comes with a threaded lead and allows even an apprentice to perform the work. Such a tap is the same size and thread as the original, except for the 1.370x24 where the diametor and thread is the same but right hand all the way. This is established by starting the tap from the right hand thread side and going straight through. The tap has to go through, up to the full thread spot, meaning after the undersize pilot thread.

VI. It is recommended to use lock tight 242 threaded fitting type to seal the two aluminum ring nuts permanently.

VII. The shell and the crank shaft can be assemblyed offset to the desired position by the rings nuts and the bearing fastener caps. This is to provide a proper chain wheel sproket line up. It is of my opinion that for road assemblys, the line up would be better toward the small gear (13-14-15), because the offline draging of the chain will be greater where extra tork action is needed. This unit is built like a micrometric spindle, thrust bearing adjusting is not required.

VIII. The whole unit can be pushed out by unscrewing the two bearing cap fasteners and tapping the unit with a rubber or wood hammer. Do not ever hammer the bearing on the outer ring. Always hammer on the inner rings. This unit should be sold with an extra heavy duty bolt and washer with the sole intention of fastening the crank arms firmly the first they are installed.

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Finally, in the future, as soon as an agreement or deal can be established with the frame manufacturers, there will be no need for a thread in the frame housing, but merely a reaming job to suit the shell stock size so the unit will show only a short thread for the ring nuts on both ends.

Sincerely Yours,

Pino International Ltd.
President

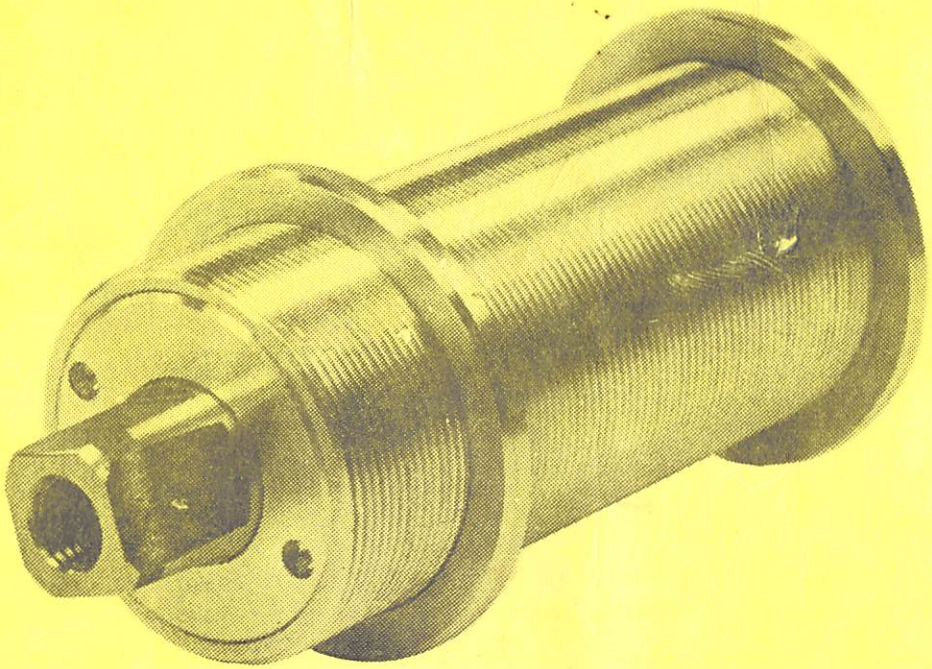
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Pedal with Pino International Ltd.



Professional Bicycle Crank Hub Assembly

U.S. Patent 5-903-754

The Pino professional crank hub assembly provides the ultimate in lightweight strength and smooth pedaling action. This superior quality crank hub assembly removes essentially all drag, cuts friction and provides for exact alignment of assembly with rear sprockets.

Precision-made from magnesium, aluminum and titanium components for universal frame hanger application.

