

What is a swivel joint and what is the swing bearing

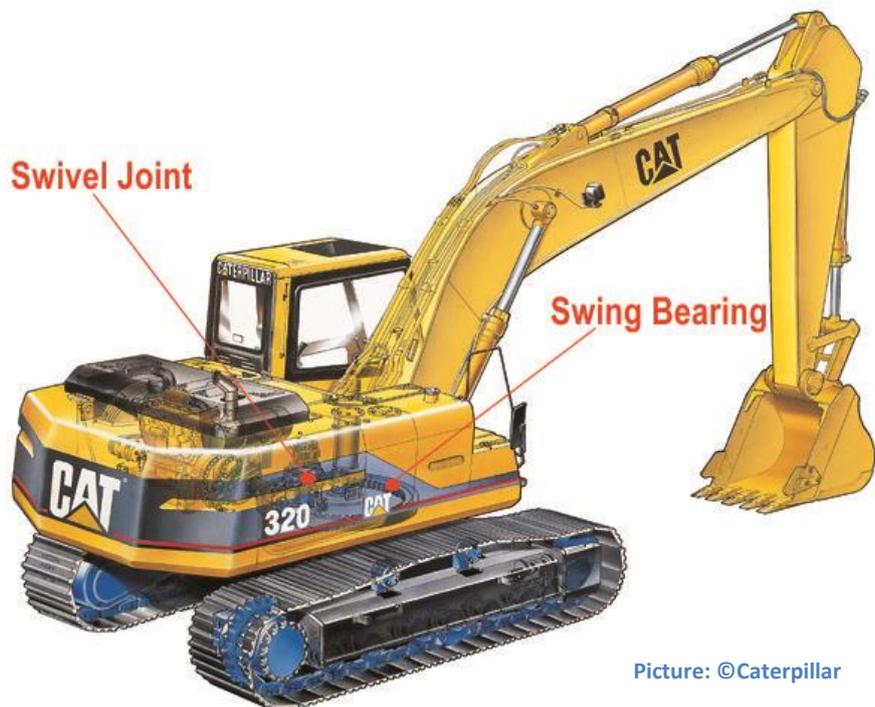
While talking about excavator details it happens the conversation comes across specific machine details. Most people understand what the chassis is and what boom or stick means. Also a counterweight and the bucket are easy to tell.

But when describing the condition of an excavator and where problems were found while an inspection more specific items are named. To help customers understanding the description of problems we have made a little guide.

So what is a swivel joint? An excavator has its engine and hydraulic pump inside of the superstructure. But the drive motors on tracked excavators are assembled on the chassis. The superstructure is swiveling endless and somehow the pressurized oil needs to come down to these motors without drilling up hydraulic hoses. On some excavators even a dozer blade is available. Also this blade is moved by hydraulic cylinders. It means a specific part is required to lead oil down to the hydraulic system in the carrier.

Possible problems in swivels: After many hours of use the sealing of swivel joints get leak and oil starts to come out. On some makes it can happen already at a level of 5000 working hours. Excavator swivels of high quality machines can last twice as long.

Another important part is the swing bearing. In some areas it is also called slew ring or corona. As mentioned above the superstructure of an excavator is endless pivoting on the chassis. This is realized by a large bearing in which are either steel balls or steel rollers. The bearing is lubricated with grease and sealed to keep the grease inside.

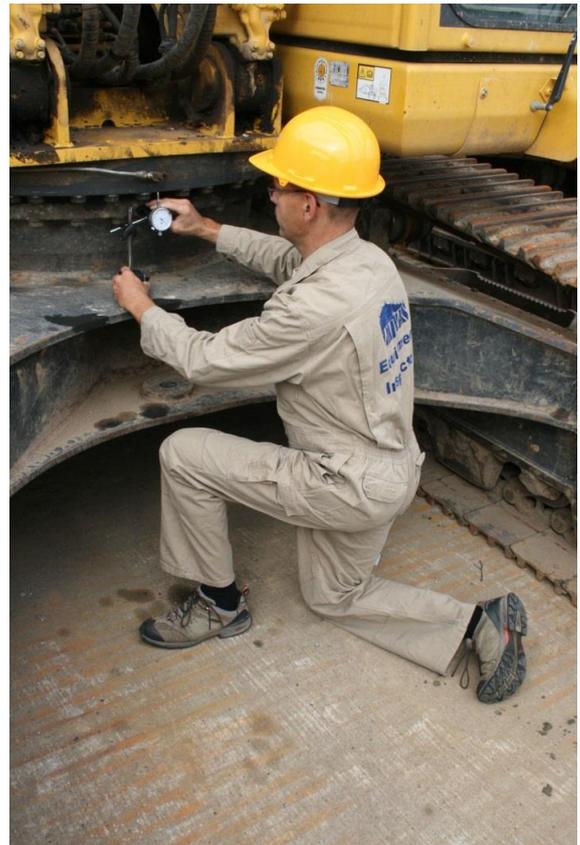


Picture: ©Caterpillar

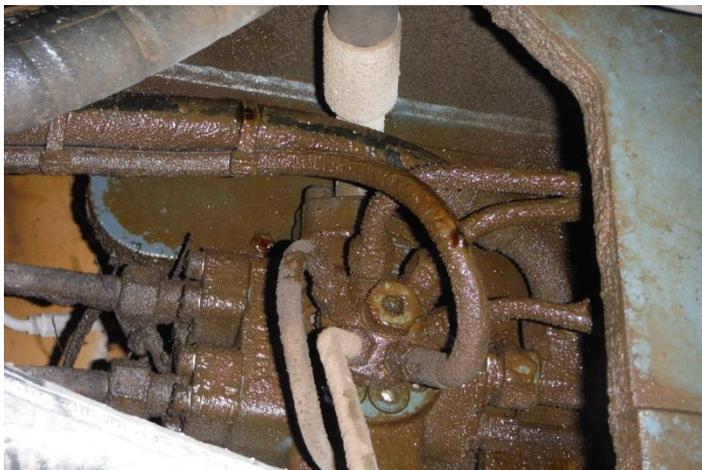
Possible problems in swing bearings: Sooner or later some play in the bearing will appear. With lack of maintenance or due damaged seal it will happen more quickly. Each swing bearing has a tolerance and the OEM machine supplier or his service staff will know the allowed values. On some brands of excavators there is quite some play even in new bearings. Komatsu and Hitachi are known for it.

What does this information mean for buyers of used machinery? It would probably be a clever decision having used excavators inspected by experienced people before a decision for a purchase is made. Talking about exchange of a swivel joint on a 25ton hydraulic excavator means parts and labor for at least 2.500\$. But if the swing bearing is worn and needs exchange the required amount is significant above this number. It can easily cost 10.000\$ if exchange is required for an excavator in the 20-30 ton range.

Qualified used machine inspectors know how to measure the play in a slew ring. Just moving the machine up and down with the arm is not very clever as vertical play may look like horizontal play. It is required using a dial gauge and the inspector need to follow a specific procedure.



Engineer measuring play in swing bearing



Leaking swivel joint from underside

If support with inspections for used excavators or other heavy machinery is required feel free to contact qualified used machine inspectors. For Europe & Middle East this service is offered by MEVAS, www.mevas.eu. Within the US the team of Honestinspections www.honestinspections.com can probably help.

More detailed articles about excavators, undercarriage knowledge, adaption of a hydraulic hammer and other heavy equipment specifications is available on:

<http://www.mevas.eu/articles/knowledge-articles.html>