

MAKING SOME NOISE?

By Ian Speer

Well, we are drilling contractors and drilling is a noisy business. After almost 30 years in this business I for one am a little deaf and, thankfully, there has been a lot of attention paid in recent times to the subject of noise reduction.

The reasons for noise reduction are easy to understand and there is little dispute with the proposition that reducing noise generation by our plant is important.

What is interesting to consider is the alternative ways that noise can be reduced and how they impact on the functionality of the equipment.

During the past decade there were several valiant efforts made by rig owners and manufacturers to try to reduce noise emanating from RC drilling rigs in particular. Several of these attempts were what could best be described as a band-aid approach where enclosures were constructed around the rigs.

Yes, the noise output was reduced. The serviceability of some of these rigs was appalling, with several injuries sustained by people attempting to reach inside enclosures and losing their footing and falling onto the edges of enclosures.

Heat build-up was also an issue with prolonged operation in extremely hot conditions a problem for some units.

In parallel with the "enclosure" trend there were a few brave souls who attempted a different solution, which was to try to address the individual sources of noise on the rig and thereby reduce the noise produced by the rig as a whole.

This approach was not easy and much work was done to locate engines, which produced less noise. There manufacturers who make "bus" specification engines with double skinned tappet covers, additional noise suppression plating on the outside of the engine, and other noise reduction features.

In addition there are mufflers capable of reducing exhaust noise to very low levels these are sometimes known as hospital mufflers. Engines of course will emit less noise if they are turbo charged as the energy (temperature) of the exhaust gas is reduced by using it to drive the turbo charger. This also brings out an important point that the exhaust noise from a given engine with a given exhaust system rises

as the exhaust temperature rises. Simply if you can afford a slightly larger engine and run it at a lower load it will make less noise.

It will almost certainly use less fuel and last far longer, which adds to the attraction of such an approach.

RC rig cooling systems have large and powerful fans and there is much that can be done to reduce fan noise by reducing the tip speed of the fan, reducing the restriction of the coolers to the flow of cooling air and finally to fit variable speed fan drives to save fuel as well as to further reduce noise.

After a lot of work on one occasion to reduce noise output from the engine, fans and exhaust system on a rig we had rebuilt, we were confronted by a terrible cacophony emanating from the recently rebuilt tri box which drove the hydraulic pumps.

The rig was immediately shut down and the apparent problem in the gearboxes investigated without any problem being found.

Further testing revealed that there was no mechanical problem with the tri box which had always been very noisy, however, it had never been noticeable due to the previous level of noise coming from other sources.

There is no other technology that has yet to reach our industry called white noise. This is where sound is produced at a frequency to effectively cancel out the noise coming from some nuisance source. Such devices are commonly found in airport shops where they sell as noise cancelling headphones for use when flying.

The moral to the story?

Ask for the noise output figures for each mechanical component you select for your rig/s and all things being equal go for the quietest items. If a rig was constructed using the quietest components it is conceivable that any additional component costs could be offset against the cost of a noise reduction enclosure and, of course, there would be a weight saving as well as a real improvement in accessibility for servicing.

Yes, the issue of a quiet down hole hammer will be quite a challenge, however, I for one look forward to the day I see a drill rig with a sign on the side stating that hearing protection is NOT required.

PS. In the last issue the adequacy of many cooling systems on compressors and boosters was called into question. Shortly after that article was written I came across the cooling system pictured below while repairing a failed coupling on the booster.

The unit was NOT overheating although daytime temperatures on the site were in the high 40s, with pit temperatures even higher.



Western Air deserves a pat on the back for the performance of their cooling systems under extreme conditions and, yes, the system was cleaned out prior to being returned to service.

Ian Speer can be contacted at
Speer Compression Systems P/L
PO Box 682, Kalamunda, WA 6076
Tel: + 61 0400 077 165
Fax: + 61 8 9257 2435
Email: ian@speer.com.au
Web: www.speer.com.au