



1. Abnormal Wear/Debris Checks

- Check magnetic drain plug for particles and examine
- Check magnetic screens
- Drain oil through a fine cloth or sieve
- Drain oil and flush if necessary to clear system
- Check operation of system (eg noise, vibration, oil pressure etc)
- Thief sample drawn from bottom of the sump
- Not sampled hot and midstream at drain (see sampling instructions)
- Check correct oil level is being maintained
- Check correct oil grade is being used
- Lack of/excessive particles can result from cold sampling procedures as oil is not well mixed
- Debris could come from a previous failure or an accumulation of wear particles
- Check shaft alignment
- Check diff lock operation
- Oil pump not operating
- Extended lubricant use
- Check for misalignment of drive train
- Check type diameters are the same size

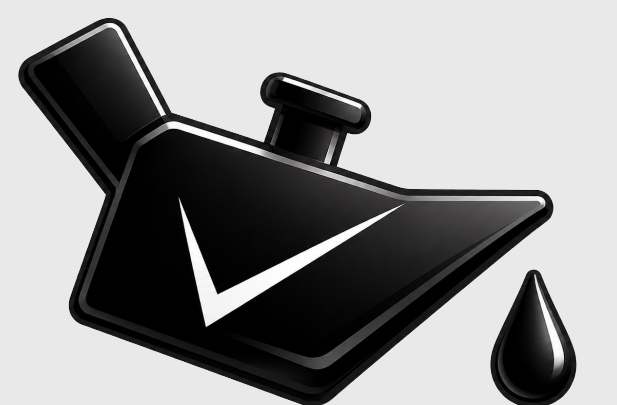
2. Dirt and Water Checks

- Check for leaking oil seals
- Check for damaged or missing breathers
- Loose cover plates or linkage boots/seals damaged
- Oil storage or top-up containers/funnels dirty
- Dirt entering when unit filled or topped up with oil
- Pressure cleaning procedure introducing water or dirt
- Condensation due to low operating temp. or blocked breather
- Oil cooler leaks
- Check sampling technique
- Recent overhaul/rebuild

3. Overheating Checks

- Sump overfull
- Heat transfer (e.g. binding brakes)
- Low oil level
- Unit caked with dirt
- Oil cooler blocked or restricted
- Incorrect oil grades
- Overload conditions
- Shaft misalignment
- Localised high temp. due wear problems
- Diff lock left engaged for extended periods

Clean Oil System



1. Abnormal Wear/Debris Checks

- Check oil filter for particles and examine
- Drain oil through a fine cloth or sieve
- Sample taken from filter bowl (incorrect sampling method)
- Drain oil and flush if necessary to clear system
- Check operation of system (eg noise, vibration, oil pressure etc.)
- Debris could come from a previous failure or an accumulation of wear particles through extended lubricant use
- Not sampled hot and midstream at drain (see sampling instructions)
- Lack of/excessive particles can result from cold sampling procedure as oil is not well mixed
- Check magnetic screens
- Oil pump not operating
- Thief sample drawn from bottom of the sump (incorrect sampling)
- Carry out stall test and check for knocking at stall speed (transmission)

2. Overheating Checks

- Incorrect oil grade
- Sump overfull
- Low oil level
- Unit caked with dirt
- Oil cooler blocked or restricted
- Localised high temperature due to wear problem
- Overload conditions

3. Dirt and Water Checks

- Check sampling technique
- Check for leaking oil seals
- Loose cover plates or linkages boots/seals damaged
- Dirt entering when unit filled or topped up
- Recent overhaul/rebuild
- Oil storage or top-up containers/funnels dirty
- Oil cooler leaks
- Pressure cleaning procedure introducing water and dirt
- Condensation due to low operating temp. or blocked breather
- Water traps not functioning or breather blocked (compressor)
- Check for damaged or missing breathers
- Check oil filter for by-pass operations