

TSB DXX 0009

TECHNICAL SERVICE
BULLETIN

**GEAR OIL
RECOMMENDATIONS**



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BACKGROUND

These recommendations include the description of when heavier oils can and should be used in these gearboxes. We have traditionally recommended ISO 220 EP or AGMA 5 EP gear oil with extreme pressure additives. This oil provides a good combination of all-season gearing and bearing protection for those applications with 40-50 hour production schedules and normal loading. However, longer production schedules, heavier loads, and higher speeds mean more heat is generated in the gearbox, and the oil stays hot and runs thinner (less viscous). This creates less than optimal protection for gearing and has led to the recommended use of more viscous gear oils in specific applications.

LUBRICANT DESCRIPTION & WHEN TO USE IT

- **ISO 220 EP (also classified as AGMA 5 EP):** Use this oil when ambient temperatures are below 100 degrees Fahrenheit and when the normal production schedule stays less than 12 hours per day.
- **ISO 320 EP (also classified as AGMA 6 EP):** Use this oil when ambient temperatures exceed 100 degrees Fahrenheit or when the production schedule consistently exceeds 10 to 12 hours per day. If this oil is used it should be kept above 60°F (15.6°C) (maximum viscosity 1800 centistokes) to insure it will be thin enough to adequately lubricate the gearbox bearings on cold start-ups and thin enough to pump properly. If needed, use heater strips on the gearbox oil sump but monitor the oil temperature and lubrication system to determine how many heater strips are needed and when the heat should be applied.
- **ISO 460 EP (also classified as AGMA 7 EP):** This is recommended on a case by case basis for heavily loaded or very hot applications. ISO 460 oil has over twice the viscosity at 100 degrees F of ISO 220 oil and nearly three times the viscosity at 75°F (23.9°C). If this oil is used it should be heated above 75°F so it will be thin enough to adequately lubricate the gearbox bearings and to pump properly.

OTHER CONSIDERATIONS

- More viscous oils can help with gear wear but hurt bearing lubrication. It is critical that these heavier oils are at or above the recommended minimum operating temperatures to make sure they will adequately lubricate the bearings and will properly pump. These

more viscous oils require significantly more suction from the pump to draw the oil out of the sump. For example, Chevron Gear Compound ISO 460 EP has nearly three times the viscosity at 75°F (23.9°C) as ISO 220 EP.

- Make sure the lubrication pump is working properly, filters are in good order, and that all sight glasses show a stream of oil. If pressure switches or flow switches are used do not override them on cold start-ups.
- Never mix brands of oil or grades of oil without flushing the old lubricant out. Mixing of additives from two different brands or different grades of the same brand can be disastrous. Consult the oil manufacturer or distributor for recommended practices. Make sure the machine is not loaded with clay when flushing old lubricant.
- Any mineral-base oil (not synthetic oil) should not exceed 165°F (73.9°C). Above this temperature, the oil degrades very quickly and loses many of its designed properties. If the oil in the gearbox is running hotter than 165°F, the oil should be changed immediately. If the problem persists, consult J.C. Steele for possible causes and corrective actions.
- Install the current magnetic trap vent plug if the machine is not already equipped with it. This prevents air from being drawn into the pump suction line, yet still allows the sump oil level to be checked.
- Synthetic oils can be used, but the viscosity should match the recommended mineral oil viscosity.

CHEVRON MINERAL-OIL BASED LUBRICANTS

These are provided for cross-reference:

- Chevron Gear Compound EP ISO 220
- Chevron Gear Compound EP ISO 320
- Chevron Gear Compound EP ISO 460