

CHALLENGE SOLUTION

Problem	Lube	Outcome	Reason	Correct lube	Note
Bearings fail	Grease for 5 th wheel	Lubrication failure due to heat , EP	Wrong grease: oil too heavy, EP	Bearing grease	80-100 cSt at 40 °C, no EP
Lathe: does not cut nicely	20W-50	Jerky feed and poor cutting	Wrong types of oil	Machine tool oil & cutting fluid	See comments
Lathe: jerky	20W-50	Stick-slip	No lubricity	Machine tool oil	ISO VG 68
Lathe: gears	20W-50	Wear	Wrong oil: no EP	Machine tool oil	ISO VG 68
Lathe: cut	20W-50	Noise and smoke	Wrong oil: no EP or anti-wear*	Cutting fluid	* Depends what metal is cut
Press: slow	20W-50	Pump cannot cope	Oil too heavy	Hydraulic fluid	ISO VG 46
Press: slow start	Grease for 5 th wheel	Motor cannot cope	Wrong grease (see above)	Bearing grease	80-100 cSt at 40 °C, no EP
Press: hot bearings	Grease for 5 th wheel	Too much heat generation	Wrong grease (see above)	Bearing grease	80-100 cSt at 40 °C, no EP
Compressor: valves	20W-50	Carbon deposits	Wrong type of oil	Compressor oil (viscosity is OK)	Diester is best
Compressor: pressure	20W-50	Worn rings	Oil starvation (i.e. not enough oil)	Compressor oil	At the correct feed rate
Car: differential	20W-50 + grease	Wear	Too light, not enough EP	Automotive oil for hypoid gears	SAE 90 API GL-5
Car: engine needs flush	20W-50	Contaminants left in engine	Old spec. = not enough additives	Good engine oil (20W-50 is OK)	API SL recommended
Car: needs extra additives	20W-50	Oil performance no good	Old spec. = not enough anti-wear	Good engine oil (20W-50 is OK)	API SL recommended
Worm gear	20W-50	Wear of the bronze wheel	Wrong oil: no lubricity, too light	PAG	Or Cylinder oil (lubricity)
Wind pump (oil lubricated)	20W-50	Slow at cold weather	Oil too heavy	Not critical → can use hydraulic fluid	ISO VG 46: correct viscosity

Comments:

Some problems overlap:

- grease is in bearings of all electric motors, Vic has several motors including one driving the hydraulic pump of the press;
- the bad surfaces on the piece cut on the lathe are probably due to the stick-slip motion of the lathe parts and due to using the engine oil as a cutting fluid (which also causes noise and smoke);
- a compressor oil will allow Vic to inspect valves less often and to stop the wear of piston rings – he will change the rings and adjust the oil feed;
- a better engine oil should solve both car engine problems.

The choice of ISO VG 46 hydraulic fluid would be alright in moderate climate.

It is good to rationalize lubricants (use as few different ones as possible – thus the use of the hydraulic oil in the wind pump) but all the other applications in our story need correct lubricants.