

# CPC COOPERATIVE PATENT CLASSIFICATION

## F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

### ENGINES OR PUMPS

## F01 MACHINES OR ENGINES IN GENERAL; ENGINE PLANTS IN GENERAL; STEAM ENGINES

## F01M LUBRICATING OF MACHINES OR ENGINES IN GENERAL; LUBRICATING INTERNAL COMBUSTION ENGINES; CRANKCASE VENTILATING

### NOTE

Attention is drawn to the notes preceding class [F01](#), specially as regards Note (3).

### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

<b>1/00</b>	<b>Pressure lubrication</b>		
1/02	• using lubricating pumps ( <a href="#">pumps in general F04</a> ; <a href="#">lubricating pumps per se F16N</a> )	2001/105	• • {characterised by the layout of the purification arrangements}
2001/0207	• • {characterised by the type of pump}	2001/1057	• • • {comprising a plurality of filters, parallel or serial}
2001/0215	• • • {Electrical pumps}	2001/1064	• • • {comprising drains for oil to the carter, e.g. to recover spilled oil during change of filters}
2001/0223	• • • {Electromagnetic pumps}	2001/1071	• • • {comprising oil tanks}
2001/023	• • • {Piston pumps}	2001/1078	• • • {comprising an oil pick-up tube to oil pump, e.g. strainer}
2001/0238	• • • {Rotary pumps}	2001/1085	• • • {comprising non-return valves}
2001/0246	• • • {Adjustable pumps}	2001/1092	• • • {comprising valves bypassing the filter}
2001/0253	• • {characterised by the pump driving means}	1/12	• Closed-circuit lubricating systems not provided for in groups <a href="#">F01M 1/02</a> - <a href="#">F01M 1/10</a>
2001/0261	• • • {driven by the camshaft}	2001/123	• • {using two or more pumps}
2001/0269	• • • {driven by the crankshaft}	2001/126	• • {Dry-sumps}
2001/0276	• • • {driven by a balancer shaft}	1/14	• Timed lubrication ( <a href="#">F01M 1/08</a> takes precedence)
2001/0284	• • {mounting of the pump}	1/16	• Controlling lubricant pressure or quantity ( <a href="#">rendering machines or engines inoperative or idling on lubricant pressure failure F01M 1/22</a> )
2001/0292	• • {Sealings}	2001/165	• • • {according to fuel dilution in oil}
1/04	• using pressure in working cylinder or crankcase to operate lubricant feeding devices	1/18	• Indicating or safety devices ( <a href="#">concerning lubricant level F01M 11/06</a> , <a href="#">F01M 11/12</a> )
1/06	• Lubricating systems characterised by the provision therein of crankshafts or connecting rods with lubricant passageways, e.g. bores ( <a href="#">crankshafts, connecting-rods, per se F16C</a> )	1/20	• • concerning lubricant pressure
2001/062	• • {Crankshaft with passageways}	1/22	• • • rendering machines or engines inoperative or idling on pressure failure
2001/064	• • {Camshaft with passageways}	1/24	• • • • acting on engine fuel system
2001/066	• • {Connecting rod with passageways}	1/26	• • • • acting on engine ignition system
2001/068	• • {Bakance shaft with passageways}	1/28	• • • • acting on engine combustion-air supply
1/08	• Lubricating systems characterised by the provision therein of lubricant jetting means	<b>3/00</b>	<b>Lubrication specially adapted for engines with crankcase compression of fuel-air mixture or for other engines in which lubricant is contained in fuel, combustion air, or fuel-air mixture (separating lubricant from air or fuel-air mixture before entry into cylinder F01M 11/08)</b>
2001/083	• • {for lubricating cylinders}	3/02	• with variable proportion of lubricant to fuel, lubricant to air, or lubricant to fuel-air-mixture
2001/086	• • {for lubricating gudgeon pins}	3/04	• for upper cylinder lubrication only
1/10	• Lubricating systems characterised by the provision therein of lubricant venting or purifying means, e.g. of filters		
2001/1007	• • {characterised by the purification means combined with other functions}		
2001/1014	• • • {comprising supply of additives}		
2001/1021	• • • {comprising self cleaning systems}		
2001/1028	• • {characterised by the type of purification}		
2001/1035	• • • {comprising centrifugal filters}		
2001/1042	• • • {comprising magnetic parts}		

<b>5/00</b>	<b>Heating, cooling, or controlling temperature of lubricant (arrangement of lubricant coolers in engine cooling system <a href="#">F01P 11/08</a>); Lubrication means facilitating engine starting</b>	2011/0066	. . {with passages in the wall, e.g. for axles or fluid passages}
5/001	. {Heating}	2011/007	. . {Oil pickup tube to oil pump, e.g. strainer}
5/002	. {Cooling}	2011/0075	. . . {with a plurality of tubes}
2005/004	. . {Oil-cooled engines}	2011/0079	. . {with the oil pump integrated or fixed to sump}
5/005	. {Controlling temperature of lubricant}	2011/0083	. . {Dry sumps}
5/007	. . {Thermostatic control}	2011/0087	. . {Sump being made of different parts}
2005/008	. {Lubrication means facilitating engine starting}	2011/0091	. . {characterised by used materials}
5/02	. Conditioning lubricant for aiding engine starting, e.g. heating	2011/0095	. {Supplementary oil tank}
5/021	. . {by heating}	11/02	. Arrangements of lubricant conduits
2005/023	. . . {Oil sump with partition for facilitating heating of oil during starting}	2011/021	. . {for lubricating auxiliaries, e.g. pumps or turbochargers}
5/025	. . {by prelubricating, e.g. using an accumulator}	2011/022	. . {for lubricating cylinders}
2005/026	. . . {with an auxiliary pump}	2011/023	. . {between oil sump and cylinder head}
2005/028	. . . {with a reservoir under pressure}	2011/025	. . {for lubricating gudgeon pins}
5/04	. . Diluting, e.g. with fuel	2011/026	. . {for lubricating crankshaft bearings}
<b>7/00</b>	<b>Lubrication means specially adapted for machine or engine running-in</b>	2011/027	. . {for lubricating connecting rod bearings}
<b>9/00</b>	<b>Lubrication means having pertinent characteristics not provided for in, or of interest apart from, groups <a href="#">F01M 1/00</a> - <a href="#">F01M 7/00</a></b>	2011/028	. . {for lubricating balance shafts}
9/02	. having means for introducing additives to lubricant	11/03	. Mounting or connecting of lubricant purifying means relative to the machine or engine; Details of lubricant purifying means ( <a href="#">filters <a href="#">B01D</a></a> )
9/04	. Use of fuel as lubricant	2011/031	. . {characterised by mounting means}
9/06	. Dip or splash lubrication	2011/033	. . . {comprising coolers or heat exchangers}
9/08	. Drip lubrication	2011/035	. . . {comprising oil pumps}
9/10	. Lubrication of valve gear or auxiliaries	2011/036	. . . {comprising pumps for the cooling circuit}
9/101	. . {of cam surfaces}	2011/038	. . . {comprising lubricant-air separators}
9/102	. . {of camshaft bearings}	11/04	. Filling or draining lubricant of or from machines or engines
9/103	. . {of valve stem and guide}	11/0408	. . {Sump drainage devices, e.g. valves, plugs}
9/104	. . {of tappets}	2011/0416	. . . {Plugs}
9/105	. . {using distribution conduits}	2011/0425	. . . . {with a device facilitating the change of oil}
9/106	. . {Oil reservoirs}	2011/0433	. . . . {with a device defining the lubricant level during filling}
9/107	. . {of rocker shaft bearings}	2011/0441	. . . . {for measuring the lubricant level}
9/108	. . {of auxiliaries}	11/045	. . {Removing lubricant by suction}
9/109	. . {of rotary slide or sleeve valves}	11/0458	. . {Lubricant filling and draining}
9/12	. Non-pressurised lubrication, or non-closed-circuit lubrication, not otherwise provided for	2011/0466	. . . {Filling or draining during running}
<b>11/00</b>	<b>Component parts, details or accessories, not provided for in, or of interest apart from, groups <a href="#">F01M 1/00</a> - <a href="#">F01M 9/00</a></b>	2011/0475	. . . . {with combustion of used lubricant in the engine}
11/0004	. {Oilsumps}	2011/0483	. . {with a lubricant cartridge for facilitating the change}
2011/0008	. . {with means for reducing vibrations}	2011/0491	. . {Filing cap with special features}
2011/0012	. . . {with acoustic insulation}	11/06	. Means for keeping lubricant level constant or for accommodating movement or position of machines or engines
2011/0016	. . {with thermic insulation}	11/061	. . {Means for keeping lubricant level constant}
2011/002	. . {with means for improving the stiffness}	11/062	. . {Accommodating movement or position of machines or engines, e.g. dry sumps}
2011/0025	. . {with heat exchangers}	11/064	. . . {Movement}
2011/0029	. . {with oil filters}	11/065	. . . {Position}
2011/0033	. . {with special means for guiding the return of oil into the sump}	11/067	. . . . {inverted, e.g. for inverted flight}
2011/0037	. . {with different oil compartments}	2011/068	. . . . {with internal reservoir}
2011/0041	. . . {for accommodating movement or position of engines}	11/08	. Separating lubricant from air or fuel-air mixture before entry into cylinder ( <a href="#">separating in general <a href="#">B01D</a></a> )
2011/0045	. . . {for controlling the oil temperature}	11/10	. Indicating devices; Other safety devices
2011/005	. . {with special anti-turbulence means, e.g. anti-foaming means or intermediate plates}	11/12	. . concerning lubricant level
2011/0054	. . {Fastening to the cylinder block}	2011/14	. . {for indicating the necessity to change the oil}
2011/0058	. . {Fastening to the transmission}	2011/1406	. . . {by considering acidity}
2011/0062	. . {Gaskets}	2011/1413	. . . {by considering dielectric properties}
		2011/142	. . . {by considering speed, e.g. revolutions per minute [RPM]}

2011/1426	. . . {by considering distance}	2013/0488	. . {with oil trap in the return conduit to the crankcase}
2011/1433	. . . {by considering load}	2013/0494	. . . {using check valves}
2011/144	. . . {by considering magnetic properties of the oil}	13/06	. specially adapted for submersible engines, e.g. of armoured vehicles
2011/1446	. . . {by considering pressure}		
2011/1453	. . . {by considering oil quantity}		
2011/146	. . . {by considering moisture level}	<b>2250/00</b>	<b>Measuring</b>
2011/1466	. . . {by considering quantity of soot}	2250/60	. Operating parameters
2011/1473	. . . {by considering temperature}	2250/62	. Load
2011/148	. . . {by considering viscosity}	2250/64	. Number of revolutions
2011/1486	. . . {by considering duration of operation}	2250/66	. Vehicle speed
2011/1493	. . . {by considering total base number [TBN]}		
<b>13/00</b>	<b>Crankcase ventilating or breathing</b>		
2013/0005	. {with systems regulating the pressure in the carter}		
13/0011	. {Breather valves}		
2013/0016	. . {with a membrane}		
2013/0022	. . {electromagnetic}		
2013/0027	. . {with a de-icing or defrosting system}		
13/0033	. {Breather inlet-air filters}		
2013/0038	. {Layout of crankcase breathing systems}		
2013/0044	. . {with one or more valves}		
2013/005	. . {having one or more deoilers}		
2013/0055	. . . {with a by-pass}		
2013/0061	. . . {having a plurality of deoilers}		
2013/0066	. . . . {in parallel}		
2013/0072	. . . . {in series}		
2013/0077	. {Engine parameters used for crankcase breather systems}		
2013/0083	. . {Crankcase pressure}		
2013/0088	. . {Rotation speed}		
2013/0094	. . {Engine load}		
13/02	. by means of additional source of positive or negative pressure		
13/021	. . {of negative pressure}		
13/022	. . . {using engine inlet suction}		
13/023	. . . . {Control valves in suction conduit}		
13/025	. . . . {with an inlet-conduit via an air-filter}		
2013/026	. . . {with pumps sucking air or blow-by gases from the crankcase}		
2013/027	. . . {with a turbo charger or compressor}		
13/028	. . {of positive pressure}		
13/04	. having means for purifying air before leaving crankcase, e.g. removing oil		
13/0405	. . {arranged in covering members apertures, e.g. caps}		
2013/0411	. . {using cooling means}		
13/0416	. . {arranged in valve-covers}		
2013/0422	. . {Separating oil and gas with a centrifuge device}		
2013/0427	. . . {the centrifuge device having no rotating part, e.g. cyclone}		
2013/0433	. . {with a deflection device, e.g. screen}		
2013/0438	. . {with a filter}		
2013/0444	. . {with means for accommodating movement or position of engines}		
2013/045	. . {using compression or decompression of the gas}		
2013/0455	. . {with a de-icing or defrosting system (for breathing valves <a href="#">F01M 2013/0027</a> )}		
2013/0461	. . {with a labyrinth}		
2013/0466	. . {with electrostatic means}		
2013/0472	. . {using heating means}		
2013/0477	. . {by separating water or moisture}		
2013/0483	. . {using catalysis}		