

Search history

Search [SP]: Disclosed is a method for controlling super-knocks of a direct-injection supercharged gasoline engine, which is able to control super-knocks efficiently. The control method comprises: identifying cylinders in which super-knocks are triggered due to mixed gas pre-ignition triggered by the spontaneous combustion of the lubricating oil entering the cylinders, and identifying same as super-knock cylinders; putting off the last oil injection of the super-knock cylinders to the compression stroke, and enabling the crank angle when forming mixed gas for combustion to not be ahead of the crank angle corresponding to pre-ignition by controlling the timing of the last oil injection. The control method in the present invention is relatively simple; as long as the timing of oil injection for individual super-knock cylinders can be controlled, operational reliability is relatively high; and the number of super-knock cylinders identified can be one or more than one. Experiments show that the control method mentioned above is able to control super-knocks efficiently. (Results 6)

Search PA=(JIANGLING MOTORS CO LTD) (Results 1007)

2:

Search injection and knocks (Results 1806)

3:

Search 2 and 3 (Results 1)

4:

Search injection (Results 1000000)

5:

Search 2 and 4 (Results 1)

6:

Search 2 and 5 (Results 14)

7:

Search PN=(CN103291480) (Results 1)

8:

Search fn=(59239890 or 59239890 or 61275218 or 61618259 or 62693333 or 62693333 or 63047755 or 41178697 or 41178708 or 51065517 or 15199111 or 13710699 or 44669770 or 42614589) (Results 12)

1) Family number: 15199111 (US6055956A)

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Title: Control system for an engine equipped with exhaust gas recirculation system

Abstract: An engine control system for a direct injection-spark ignition type of engine which is equipped with a fuel injector for spraying fuel directly into a combustion chamber and an exhaust system having a lean NOx conversion catalyst for lowering an emission level of nitrogen oxides (NOx) in exhaust gas at an air-fuel ratio of $\lambda > 1$ controls divides a given amount of fuel into two parts which are intermittently delivered through early and late split injection respectively in a intake stroke and controls a fuel injector such that a midpoint between points at which the early and late split injection are timed respectively to start is before a midpoint of a intake stroke while the engine is in a lean fuel charge zone.

Classifications:

International (IPC 8-9): F02D21/08 F02D33/00 F02D35/00 F02D41/00 F02D41/02 F02D41/04 F02D41/06 F02D41/30 F02D41/34 F02D41/40 F02D43/00 (Advanced/Invention);

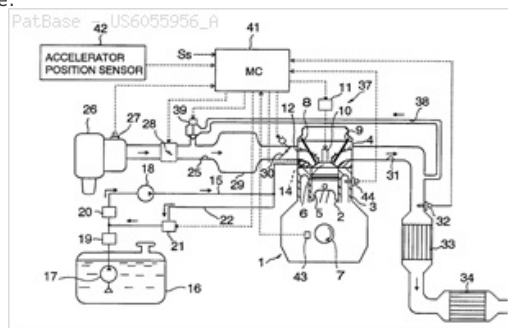
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F02D21/00 F02D33/00 F02D35/00 F02D41/00 F02D41/02 F02D41/04 F02D41/06 F02D41/30 F02D41/34 F02D41/40 F02D43/00 (Core/Invention);
F01N3/08 F02B75/00 (Core/Non-invention)

International (IPC 1-7): F01N3/20 F02B17/00 F02D21/08 F02D41/02 F02D41/04 F02D41/14 F02D41/30 F02D41/34 F02D41/40 F02D43/00 F02M25/07

CPC: Y02T10/128 Y02T10/148 F02D41/0047 F02D33/00 F02D21/08 F02B2075/125 F02D41/064 F02D41/005 F01N3/0842 F02D35/0092 F02D41/0275 F02D41/3029 F02D41/402 F02D2041/389 F02D2200/0806 F02D41/0057 F02D41/0235 F02D2200/0804 Y02T10/123 Y02T10/44 Y02T10/47

European: F01N3/08B6D F02D21/08 F02D33/00 F02D35/00D4D F02D35/00D6 F02D41/00F6 F02D41/00F6B F02D41/00F6B6 F02D41/02C4 F02D41/02C4D1 F02D41/06D2 F02D41/30C F02D41/30C2B2 F02D41/40D R02B75/12D R02D200/0804 R02D200/0806 R02D41/00F6B6 R02D41/30C2B2 R02D41/38D

US: 123/295 123/299 123/300 123/480 123/491 123/672 60/278 60/285

**Family:**

Publication number	Publication date	Application number	Application date
DE69823616 D1	20040609	DE19986023616	19981126
DE69823616 T2	20050525	DE19986023616T	19981126
DE69824371 D1	20040715	DE19986024371	19981126
DE69824371 T2	20041007	DE19986024371T	19981126
DE69824529 D1	20040722	DE19986024529	19981126
DE69824529 T2	20050818	DE19986024529T	19981126
DE69824531 D1	20040722	DE19986024531	19981126
DE69824531 T2	20050630	DE19986024531T	19981126
DE69828480 D1	20050210	DE19986028480	19981126

DE69828480 T2	20051229	DE19986028480T	19981126
EP0919709 A2	19990602	EP19980309721	19981126
EP0919709 A3	20001220	EP19980309721	19981126
EP0919709 B1	20040616	EP19980309721	19981126
EP0919711 A2	19990602	EP19980309719	19981126
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EP0919711 B1	20050105	EP19980309719	19981126
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JP11218049 A2	19990810	JP19980274625	19980929
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JP11218051 A2	19990810	JP19980274628	19980929
JP3368217 B2	20030120	JP19980274622	19980929
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JP3518366 B2	20040412	JP19980274628	19980929
JP3945040 B2	20070718	JP19980274627	19980929
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KR19990045571 A	19990625	KR19980050734	19981125
KR19990045572 A	19990625	KR19980050735	19981125
US6055956 A	20000502	US19980199452	19981125
US6085718 A	20000711	US19980199450	19981125
US6116208 A	20000912	US19980199449	19981125
US6257197 BA	20010710	US19980199451	19981125
US6513320 BA	20030204	US19980199448	19981125

Priority:

JP19970324730 19971126	JP19980274622 19980929	JP19980274625 19980929
JP19980274624 19980929	JP19980274627 19980929	JP19980274628 19980929
KR19980050731 19981125	KR19980050732 19981125	KR19980050734 19981125
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Probable Assignee: MAZDA MOTORS CORP

Assignee(s): (std): MAZDA MOTOR

Assignee(s): MAZDA MOTOR CORP ; MAZDA MOTOR CORP HIROSHIMA ; MAZDA MOTOR CORPORATION ; MAZDA MOTORS CORP

Inventor(s): (std): KUJI YUICHI ; NISHIMURA HIROFUMI ; NISHIMURA HIROBUMI ; KUJI YOICHI

Agent(s): KOYAMA HIROKI ; MAEDA HIROSHI

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

2) Family number: 13710699 (JP2000230444A)

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Title: IN-CYLINDER INJECTION ENGINE CONTROL SYSTEM

Abstract: PROBLEM TO BE SOLVED: To enable effective refreshing of an NOx-occluded lean NOx catalyst and, particularly, to enhance refreshing effect while keeping fuel economy from being aggravated. SOLUTION: This system is for a cylinder fuel injection type engine that is equipped with an injector 22 that directly injects fuel into a combustion chamber and a lean NOx catalyst. It is provided with an air-fuel ratio changing means that varies the air-fuel ratio that can range from those exceeding the stoichiometric air-fuel ratio to generally the stoichiometric air-fuel ratio or those below it and a control means 71 for refreshing the catalyst. When the air-fuel ratio is changed from the lean to the generally stoichiometric or richer ratio, the control means 71 splits fuel injection from the injector 22 into several shots that are injected at an injection start timing during an intake stroke, as provided as a catalyst refreshing control. Furthermore, it retards the ignition timing with respect to MBT.

Classifications:

International (IPC 8-9): F02D37/02 F02D41/02 F02D41/04 F02D41/34

F02D41/40 (Advanced/Invention);

F01N3/08 (Advanced/Non-invention)

International (IPC 1-7): F02D41/02 F02D41/04 F02D41/34

CPC: F01N3/0842 F02D37/02 F02D41/0275 F02D41/402 Y02T10/44

European: F01N3/08B6D F02D37/02 F02D41/02C4D1 F02D41/40D

Publication number	Publication date	Application number	Application date
JP2000230444 A2	20000822	JP19990031973	19990209
JP3680613 B2	20050810	JP19990031973	19990209

Probable Assignee:	MAZDA MOTORS CORP
Assignee(s): (std)	MAZDA MOTOR ; MAZDA MOTORS CORP
Assignee(s):	MAZDA MOTOR CORP
Inventor(s): (std)	TAGA JUNICHI ; NISHIMURA HIROBUMI

International (pc 8-9): F02B3/00 F02D41/02 F02D41/04 F02D41/30 F02D41/34 F02D41/38 F02D41/40 F02M7/00 (Advanced/Invention); F02D41/02 F02D41/04 F02D41/30 F02D41/34 F02D41/38 F02D41/40 F02M7/00 (Core/Invention)
CPC: Y02T10/44 F02D41/402 F02D41/047 F02D41/3029 F02D2041/389 F02D2250/11
European: F02D41/04W F02D41/40D R02D250/11 R02D41/30C2B2 R02D41/38D
US: 123/299 123/300 123/301 123/305 123/436 123/436S 701/103 701/103P 701/105

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CN101484680 B	20120229	CN200780004621	20070727
EP2047092 A1	20090415	EP20070789567	20070727
JP2008031932 A2	20080214	JP20060207022	20060728
JP4277883 B2	20090610	JP20060207022	20060728
KR101043108 B1	20110620	KR20087019348	20070727
KR20080094030 A	20081022	KR20087019348	20070727
US2009177364 AA	20090709	US20070162867	20070727
US7730871 BB	20100608	US20070162867	20070727
WO08012667 A1	20080131	WO2007IB02149	20070727

Priority:

JP20060207022 20060728 WO2007IB02149 20070727

Probable Assignee: TOYOTA JIDOSHA KK

Assignee(s): (std): HATTORI FUMIAKI ; TOYOTA MOTOR CO LTD ; TOYOTA MOTOR CORP

Assignee(s): TOYOTA JIDOSHA KABUSHIKI KAISHA ; TOYOTA JIDOSHA KK ; TOYOTA MOTOR CO

Inventor(s): (std): FUMIAKI HATTORI ; HATTORI FUMIAKI

Agent(s): TBK-PATENT; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 41178708 (US2009194069A)

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Title: CONTROL APPARATUS AND CONTROL METHOD OF IN-CYLINDER INJECTION TYPE SPARK IGNITION INTERNAL COMBUSTION ENGINE

Abstract: An ECU controls an internal combustion engine which generates a tumble flow inside a cylinder and strengthens the tumble flow by fuel injected near bottom dead center of an intake stroke. The ECU includes an injection timing changing device that changes the injection timing of fuel based on the amount of air drawn into a cylinder of the internal combustion engine.

Classifications:

International (IPC 8-9): F02B23/10 F02B3/00 F02B31/00 F02D41/00 F02D41/02 F02D41/04 F02D41/34 F02D41/40

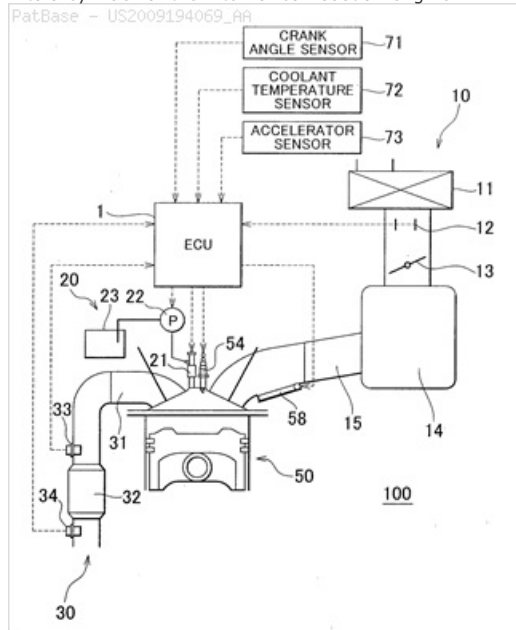
F02P5/04 (Advanced/Invention);

F02B23/10 F02B31/00 F02D41/00 F02D41/02 F02D41/04 F02D41/34 F02D41/40 F02P5/04 (Core/Invention)

CPC: Y02T10/44 F02D41/401 F02B23/101 F02B31/06 F02B2023/106 F02B2075/125 F02B2275/48 F02D41/18 F02D41/402 Y02T10/123 Y02T10/125

European: F02D41/40B F02D41/40D R02B23/10C R02B23/10T R02B275/48 R02B31/06 R02B75/12D R02D41/18

US: 123/294 123/305 123/306 123/306S 123/406.12 123/406.120P 701/105 701/105S



Family:

Publication number	Publication date	Application number	Application date
CN101495740 A	20090729	CN200780027878	20070726
CN101495740 B	20120215	CN200780027878	20070726
DE602007031283 D1	20130822	DE200760031283T	20070726
EP2047091 A1	20090415	EP20070789560	20070726
EP2047091 B1	20130626	EP20070789560	20070726
JP2008031893 A2	20080214	JP20060204611	20060727
JP2008031894 A2	20080214	JP20060204612	20060727
JP4240083 B2	20090318	JP20060204611	20060727
JP4240084 B2	20090318	JP20060204612	20060727
KR101035439 B1	20110518	KR20087024325	20070726
KR20090003312 A	20090109	KR20087024325	20070726
US2009194069 AA	20090806	US20070303302	20070726
US7938098 BB	20110510	US20070303302	20070726
WO08012656 A1	20080131	WO2007IB02128	20070726

Priority:

JP20060204611 20060727 JP20060204612 20060727 EP20070789560 20070726
WO2007IB02128 20070726

Probable Assignee: TOYOTA JIDOSHA KK**Assignee(s):** (std): ASHIZAWA TAKESHI ; TOYOTA MOTOR CO LTD ; TOYOTA MOTOR CORP**Assignee(s):** TOYOTA JIDOSHA KABUSHIKI KAISHA ; TOYOTA JIDOSHA KK ; TOYOTA JIDOSHA TOYOTA SHI KK ; TOYOTA MOTOR CO**Inventor(s):** (std): TAKESHI ASHIZAWA ; ASHIZAWA TAKESHI**Inventor(s):** ASHIZAWA TAKESHI AICHI KEN**Agent(s):** TBK; TBK-PATENT; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT LLP**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**5) Family number: 42614589 (US2008295798A)**

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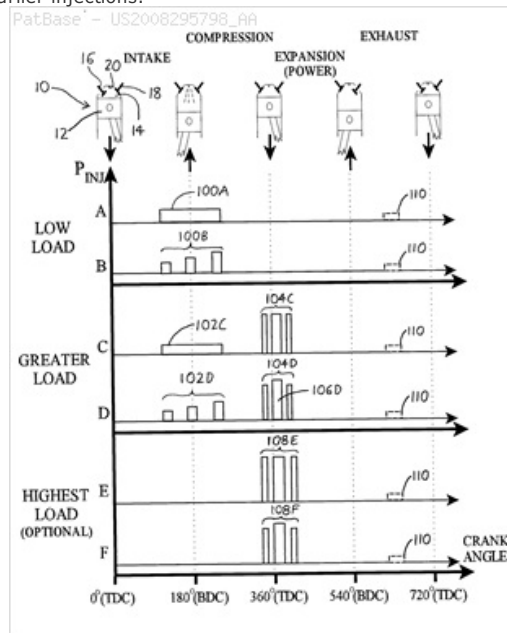
Title: ADAPTIVE ENGINE INJECTION FOR EMISSIONS REDUCTION

Abstract: NOx and soot emissions from internal combustion engines, and in particular compression ignition (diesel) engines, are reduced by varying fuel injection timing, fuel injection pressure, and injected fuel volume between low and greater engine loads. At low loads, fuel is injected during one or more low-pressure injections occurring at low injection pressures between the start of the intake stroke and approximately 40 degrees before top dead center during the compression stroke. At higher loads, similar injections are used early in each combustion cycle, in addition to later injections which preferably occur between about 90 degrees before top dead center during the compression stroke, and about 90 degrees after top dead center during the expansion stroke (and which most preferably begin at or closely adjacent the end of the compression stroke). These later injections have higher injection pressure, and also lower injected fuel volume, than the earlier injections.

Classifications:**International (IPC 8-9):** F02B1/00 F02B3/00 (Advanced/Invention);

F02B3/04 (Advanced/Non-invention);

F02B1/00 F02B3/00 (Core/Invention)

CPC: F02D41/402 F02D41/3035 F02D41/3836 F02M45/02 Y02T10/44**European:** F02D41/30C2D F02D41/38C6 F02D41/40D R02M45/02**US:** 123/299 123/300**Family:**

Publication number	Publication date	Application number	Application date
US2008295798 AA	20081204	US20070754402	20070529
US7464690 BA	20081216	US20070754402	20070529

Priority:

US20070754402 20070529

Probable Assignee: WISCONSIN ALUMNI RESEARCH FOUNDATION**Assignee(s):** (std): REITZ ROLF D ; SUN YONG ; WISCONSIN ALUMNI RES FOUND**Assignee(s):** WISCONSIN ALUMNI RESEARCH FOUNDATION ; UNITED STATES DEPARTMENT OF ENERGY**Inventor(s):** (std): REITZ ROLF D ; SUN YONG**Agent(s):** INTELLECTUAL PROPERTY DEPT DEWITT ROSS AND STEVENS WISCONSIN ALUMNI RESEARCH FOUNDATION; FIESCHKO ESQ CRAIG A; DEWITT ROSS AND STEVENS SC; CRAIG A**6) Family number: 44669770 (US2010077990A)**

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Title: CONTROL OF SPARK IGNITED INTERNAL COMBUSTION ENGINE

Abstract: There is provided a method of controlling a spark ignited internal combustion engine having a fuel injector which injects fuel directly into its combustion chamber. The method comprises injecting a total amount of fuel into a combustion chamber by early in a compression stroke during a cylinder cycle at a first engine speed. The method further comprises injecting a first stage of fuel into the combustion chamber during a cylinder cycle by an early in a compression stroke of the cylinder cycle, and injecting a second stage of fuel by late in the compression stroke during the cylinder cycle at a second engine speed less than the first engine speed, after injecting the first stage of fuel. The amount of the second stage fuel is greater than an amount of said first stage fuel. Accordingly, the first and second stage fuels may not be pre-ignited before the spark ignition.

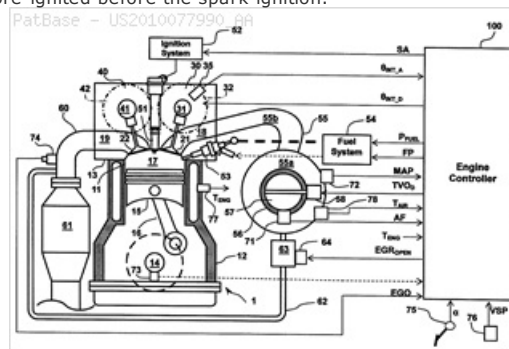
Classifications:

International (IPC 8-9): F02B3/00 F02D13/02 F02D41/30 F02D41/34 F02D41/38 F02D41/40 F02D43/00 F02D45/00 (Advanced/Invention); F02B3/00 F02D13/02 F02D41/30 F02D41/34 F02D41/38 F02D41/40 F02D43/00 F02D45/00 (Core/Invention)

CPC: Y02T10/18 F02D41/3023 F02D13/0261 F02D41/402 F02P5/152 Y02T10/44

European: F02D13/02L F02D41/30C2B F02D41/40D R02P5/152

US: 123/299 701/104 701/104S



Family:

Publication number	Publication date	Application number	Application date
EP2169202 A1	20100331	EP20090012289	20090928
EP2169202 B1	20180411	EP20090012289	20090928
JP2010101312 A2	20100506	JP20090221259	20090925
JP5051201 B2	20121017	JP20090221259	20090925
US2010077990 AA	20100401	US20090566561	20090924

Priority:

JP20080247541 20080926 JP20090221259 20090925

Probable Assignee: MAZDA MOTORS CORP

Assignee(s): (std): MAZDA MOTOR

Assignee(s): MAZDA MOTOR CORP ; MAZDA MOTORS CORP

Inventor(s): (std): FUJIKAWA TATSUYA ; MATSUO NAOKA ; NISHIMOTO TOSHIKI ; NISHIMOTO TOSHIRO ; OHASHI MIKINORI ; SHISHIME KOUJI ; YAMAGUCHI NAOKI ; YAMAKAWA MASAHISA ; YAMAKAWA MASANAO ; YOSUO TAKASHI

Agent(s): MUELLER BORE AND PARTNER PATENTANWALTE; MUELLER BORE AND PARTNER PATENTANWALTE PARTG MBB; ALLEMAN HALL MCCOY RUSSELL AND TUTTLE LLP

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

7) Family number: 51065517 (US2012111302A)

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Title: METHOD AND DEVICE FOR CONTROLLING SPARK-IGNITION DIRECT INJECTION ENGINE

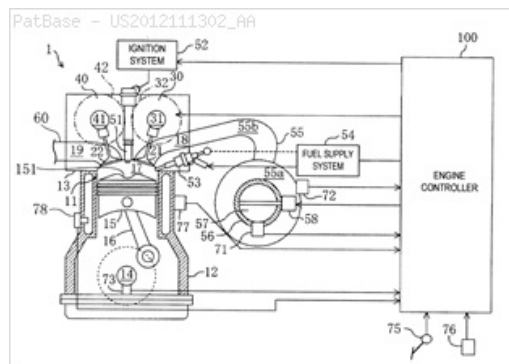
Abstract: A method for controlling an engine includes, when the engine is operating within a particular range with comparatively low engine speed and high load, setting an effective compression ratio of 10:1 or above, retarding ignition timing by a predetermined amount and retarding the ignition timing within a first, relatively low engine speed range more than within a second, higher engine speed range, setting an injection mode of an injection valve to divided injections performed at least twice in a period from an intake stroke to an earlier-half stage of a compression stroke, performing, within the first engine speed range, a final injection in the earlier-half stage of the compression stroke, and performing, within the second engine speed range, the final injection in a late stage of the intake stroke and at least one injection other than the final injection in a middle stage of the intake stroke.

Classifications:

International (IPC 8-9): F02B3/00 F02B3/02 F02B31/00 F02D13/02 F02D15/00 F02D41/02 F02D41/04 F02D41/22 F02D41/34 F02D41/40 F02D43/00 F02D45/00 F02P5/15 F02P5/152 (Advanced/Invention)

CPC: F02D41/405 F02P5/1514 F02P5/152 Y02T10/44 Y02T10/46

US: 123/299 123/305



Family:

Publication number	Publication date	Application number	Application date
CN102465782 A	20120523	CN201110348771	20111107
CN102465782 B	20150722	CN201110348771	20111107
DE102011117712 A1	20120510	DE201110117712	20111104
DE102011117712 B4	20140911	DE201110117712	20111104

JP2012102654 A2	20120531	JP20100251073	20101109
JP4924751 B1	20120425	JP20100251073	20101109
US2012111302 AA	20120510	US20110284352	20111028
US8985086 BB	20150324	US20110284352	20111028

Priority:

JP20100251073 20101109

Probable Assignee: MAZDA MOTORS CORP

Assignee(s): (std): MAZDA MOTOR ; OMORI HIDEKI ; SASAKI JUNSOU ; SHISHIME KOUJI

Assignee(s): MAZDA MOTOR CORP ; MAZDA MOTORS CORP

Inventor(s): (std): HIDEKI OMORI ; JUNSOU SASAKI ; KOUJI SHISHIME ; OMORI HIDEKI ; SASAKI JUNSOU ; SASAKI JUNZO ; SHISHIME KOUJI

Agent(s): NINOMIYA KATSUYA; HARADA TOMOO; SHIMADA TAKAHISA; TAKEUCHI HIROSHI; ISEKI KATSUMORI; IMAE KATSUMI; MAEDA HIROSHI; SEKI HIRAKU; TAKEUCHI YUJI; ALLEMAN HALL MCCOY RUSSELL AND TUTTLE LLP

8) Family number: 59239890 (CN104612869A)

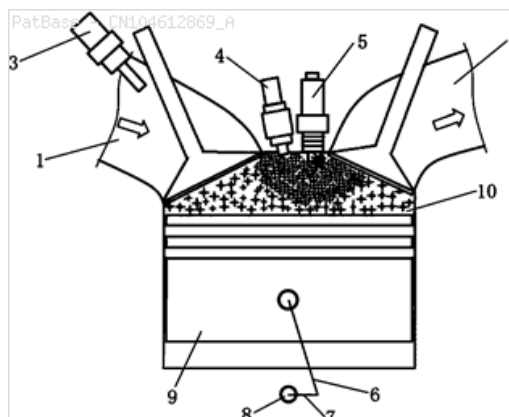
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Title: METHOD FOR RESTRAINING SUPERCHARGE GASOLINE ENGINE SUPER DETONATION THROUGH DOUBLE-FUEL INJECTION

Abstract: The invention relates to the technical field of internal combustion engines, in particular to a method for restraining the supercharge gasoline engine super detonation through double-fuel injection. According to the method for restraining the supercharge gasoline engine super detonation through double-fuel injection, gasoline is injected in an intake channel of an engine, alcohol fuel is injected in a combustion chamber one or more times, the alcohol fuel with high latent heat of vaporization is injected in intake stroke and can lower the intake temperature, the charging quantity coefficient is increased, and the dynamic property is improved; due to the compression stroke injection, the temperature of mixed gas at a compression terminal can be reduced, and premature combustion is effectively restrained; injection is conducted in the combustion process, fuel layered mixed gas can be formed, and the spreading route of detonation waves is cut off; the super detonation of a supercharge small-displacement gasoline engine can be effectively restrained through one or more times of injection, and an important support is provided for energy conservation and emission reduction of the engine. Meanwhile, only a set of intake channel injection nozzle needs to be additionally added to an existing supercharge gasoline engine, cost is low, upgrading of an existing engine product technology is forcefully supported, and the industrial prospect is good.

Classifications:

International (IPC 8-9): F02D19/08 F02M43/00 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
CN104612869 A	20150513	CN201410773594	20141212
CN104612869 B	20170922	CN201410773594	20141212

Priority:

CN201410773594 20141212

Probable Assignee: UNIV TSINGHUA

Assignee(s): (std): TSINGHUA UNIV ; UNIV TSINGHUA

Inventor(s): (std): LIU HUI ; LONG YAN ; WANG ZHI

9) Family number: 61275218 (CN105201670A)

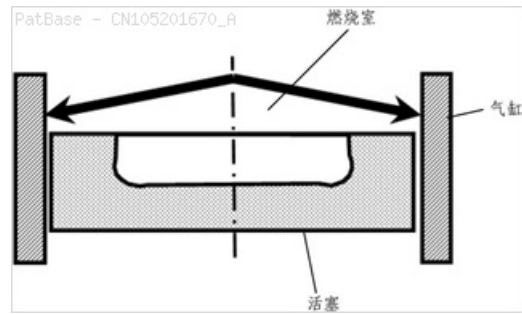
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Title: METHOD AND DEVICE FOR INHIBITING SUPER-KNOCK OF SUPERCHARGED DIRECT-INJECTION ENGINE

Abstract: The invention discloses a method and a device for inhibiting super-knock of a supercharged direct-injection engine. According to the method, fuel injection is performed twice during compression stroke of the engine, super-knock of the supercharged direct-injection engine can be effectively inhibited, additional devices are not required, besides, the oil consumption and the emission performance of the engine are optimized, and the industrial prospect is good.

Classifications:

International (IPC 8-9): F02D41/30 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
■ CN105201670 A	20151230	CN201510568160	20150908

Priority:

CN201510568160 20150908

Probable Assignee: UNIV TSINGHUA

Assignee(s): (std): TSINGHUA UNIV ; UNIV TSINGHUA

Inventor(s): (std): LIU HUI ; SHUAI SHIJIN ; WANG BUYU ; WANG JIANXIN ; WANG ZHI

10) Family number: 61618259 (CN105317573A)

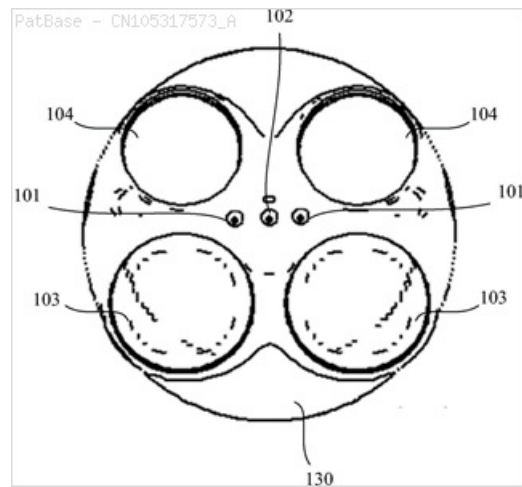
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Title: FUEL INJECTION METHOD FOR DIRECT INJECTION COMBUSTION SYSTEM

Abstract: The invention relates to a fuel injection method for a direct injection combustion system. A spark plug and two fuel injectors of the direct injection combustion system are all located in a middle area on the top of a combustion chamber. The two fuel injectors are symmetrically arranged on the two sides of the spark plug. Fuel spray injected by the fuel injectors does not interfere with the spark plug, and the fuel spray injected by the two fuel injectors does not interfere with each other. Under the working condition that an engine operates at a large load, the two fuel injectors are controlled to conduct injection simultaneously in the air-intake stroke; under the working condition that the engine operates at a medium or small load, the two fuel injectors are controlled to conduct injection alternately or intermittently and alternately in the air-intake stroke. Under different working conditions, the flow coefficient of mist can be adjusted while the injection pressure is ensured, and the requirements of the corresponding working conditions are met.

Classifications:

International (IPC 8-9): F02D41/30 F02M61/14 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
■ CN105317573 A	20160210	CN201410268140	20140616
■ CN105317573 B	20180330	CN201410268140	20140616

Priority:

CN201410268140 20140616

Probable Assignee: SAIC MOTOR CORP LTD

Assignee(s): (std): SAIC MOTOR CO LTD ; SAIC MOTOR CORP LTD

Inventor(s): (std): CHEN MING ; DING NING ; XIN XI ; XU ZHENG ; YANG YANG ; ZHANG XIAOMAO

11) Family number: 62693333 (CN105697163A)

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Title: SUPER KNOCKING CONTROL SYSTEM AND METHOD FOR SUPERCHARGED DIRECT INJECTION ENGINE

Abstract: The invention provides a super knocking control system for a supercharged direct injection engine. The super knocking control system comprises a super knocking judging unit, a data acquisition and storage unit, a super knocking suppression unit

and an engine controller. The super knocking judging unit is used for determining whether super knocking occurs to the engine or not and outputting super knocking signals. The engine controller outputs acquisition control signals and suppression signals according to the super knocking signals. The data acquisition and storage unit acquires and stores engine operation parameter data when receiving the acquisition control signals. The super knocking suppression unit accumulatively counts the times of super knocking according to the suppression signals and controls the engine operation state. The super knocking suppression unit further controls the engine operation state according to the engine operation parameter data. The super knocking control system can effectively suppress continuance of super knocking, reduce the phenomenon of the super knocking, prolong the service life of the engine and improve the safety of an automobile.

Classifications:

International (IPC 8-9): F02D35/02 F02D41/22 (Advanced/Invention)

CPC: F02D35/023 F02D41/22 F02D2200/02 F02D2200/021

F02D2200/1002 F02D2200/101



Family:

Publication number	Publication date	Application number	Application date
■ CN105697163 A	20160622	CN201610105389	20160225
■ CN105697163 B	20180601	CN201610105389	20160225

Priority:

CN201610105389 20160225

Probable Assignee: ANHUI JIANGHUAI AUTOMOBILE CO LTD

Assignee(s): (std): ANHUI JIANGHUAI AUTOMOBILE CO ; ANHUI JIANGHUAI AUTOMOBILE CO LTD

Inventor(s): (std): HAN XIAOFENG

12) Family number: 63047755 (WO16119554A1)

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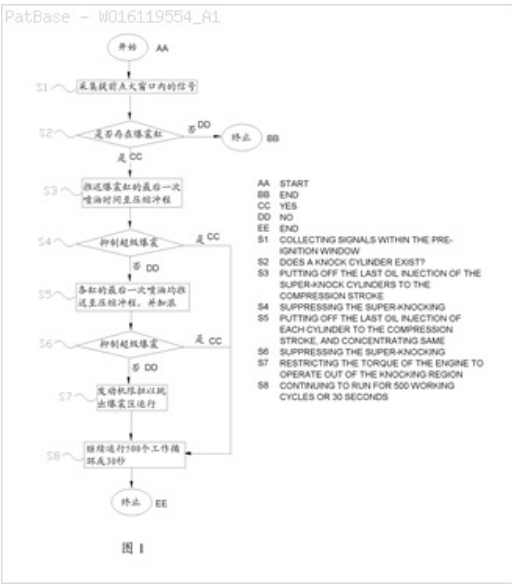
Title: METHOD FOR CONTROLLING SUPER-KNOCKS OF DIRECT-INJECTION SUPERCHARGED GASOLINE ENGINE

Abstract: Disclosed is a method for controlling super-knocks of a direct-injection supercharged gasoline engine, which is able to control super-knocks efficiently. The control method comprises: identifying cylinders in which super-knocks are triggered due to mixed gas pre-ignition triggered by the spontaneous combustion of the lubricating oil entering the cylinders, and identifying same as super-knock cylinders; putting off the last oil injection of the super-knock cylinders to the compression stroke, and enabling the crank angle when forming mixed gas for combustion to not be ahead of the crank angle corresponding to pre-ignition by controlling the timing of the last oil injection. The control method in the present invention is relatively simple; as long as the timing of oil injection for individual super-knock cylinders can be controlled, operational reliability is relatively high; and the number of super-knock cylinders identified can be one or more than one. Experiments show that the control method mentioned above is able to control super-knocks efficiently.

Classifications:

International (IPC 8-9): F02D41/22 F02D41/30 (Advanced/Invention)

CPC: F02D41/22 F02D41/30



Family:

Publication number	Publication date	Application number	Application date
■ CL2017001888 A1	20180420	CL20170001888	20170724
■ CN105986915 A	20161005	CN201510041093	20150127
■ CO20170007319 A2	20170929	CO20170007319	20170724
■ WO16119554 A1	20160804	WO2015CN099343	20151229

Priority:

CN201510041093 20150127

WO2015CN099343 20151229

Probable Assignee: JIANGLING MOTORS CO LTD

Assignee(s): (std): JIANGLING MOTORS CO LTD

Assignee(s): JIANGLING MOTORS CO

Inventor(s): (std): CAO LIMING ; HU TINGJUN ; LIAO SHANBIN ; LUO XUWEI ; MIAO RUIGANG ; TENG HE ; TENG HO ; WU MIN ; XIONG CHUNYING

Inventor(s): XUWEI LUO ; TINGJUN HU ; MIN WU ; RUIGANG MIAO ; SHANBIN LIAO ; LIMING CAO ; CHUNYING XIONG ; HO TENG

Agent(s): JORGE GARAY; HELENA CAMARGO WILLIAMSON; UNITALEN ATTORNEYS AT LAW

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