



COVER PAGE

Bid # 2210 DG Hunter Units 5-11 – Spare Parts Electric Production

Sealed bids and electronic submitted bids for the above will be received until **10:00 AM CST or CDT, Tuesday, November 13, 2018**, and publicly opened in the City of Alexandria Council Chambers or Council Committee Room.

Please file bid by one of the following means:

Hand-Delivered or Express Delivery:

Attention: Donna Jones, City Clerk
City of Alexandria - City Hall
915 Third Street, First Floor
Alexandria, LA 71301
Phone: 318-449-5090

Mailed via USPS:

Attention: Donna Jones, City Clerk
City of Alexandria - City Hall
PO Box 71
Alexandria, LA 71309-0071

Electronic Bid Submission: Central Bidding

Pursuant to Louisiana R.S. 38:2212 B.(6)(a) through E. (1-7) and R.S. 38:2212.1 B.(4)(a), vendors/contractors have the option to submit their bids and bid bonds electronically. Bids and bonds to be filed electronically shall be posted with **Central Bidding** at www.centralauctionhouse.com (phone 1-225-810-4814). Registration will need to be completed prior to posting of bid.

Complete bid specifications are available for viewing and downloading at the City of Alexandria's website www.cityofalexandriala.com ; on the left hand side of the opening page, go to the heading "*Business*" then drop down to "*RFP/RFQ/Bids*"; the current bids will be listed for your convenience.

City of Alexandria Buyer Name:	<u>Christine Sims, Sr. Buyer / Acting PM</u>
Phone Number:	<u>(318) 441-6183</u>
Fax Number:	<u>(318) 619-3414</u>
E-Mail Address:	<u>christine.sims@cityofalex.com</u>



Christine L. Sims
Acting Purchasing Manager

City of Alexandria

Purchasing Department
P. O. Box 71
Alexandria, Louisiana
71309-0071



Office: (318) 441-6180
Fax: (318) 441-6185

Sealed bids will be received until **10:00 AM, Tuesday, November 13, 2018**, and publicly opened in the Council Chambers or Council Committee Room.

City of Alexandria Bid # **2210**
Page: 1 of 17 & Appendix A
Date Specifications Prepared: 9/25/18

Bid Bond Requirements: A bid bond or check for N/A% of the total amount of bid.

Performance Bond Requirements: In the event bid is accepted, a performance bond shall be required in the amount of N/A%.

Please file bid with the following:

Donna Jones, City Clerk

City of Alexandria

915 Third Street

P. O. Box 71

Alexandria, LA 71309-0071

Phone: 318-449-5047

INTRODUCTION

DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION

It is the intent of the City of Alexandria to secure pricing on Spare Parts, for use by the City of Alexandria Electric Production Department for the Wartsila Reciprocating Internal Combustion Engines and ancillary parts. Quoted prices are to remain in effect for a period of twelve (12) months from bid award date. Said material is to be inventoried by the City of Alexandria Electric Production Department. Quantities given are estimated and not guaranteed. All products shall be new and of current manufacture.

All bid prices shall NOT include any freight charges. All products are to be shipped F.O.B., freight pre-paid, the City of Alexandria Electric Production Department at 1011 N Third Street, Alexandria, LA 71303, unless otherwise specified.

Completed bid should be returned as issued by the City of Alexandria with ALL PAGES intact and all columns filled in. Incomplete columns or missing pages, to include addendum pages, may result in the bidder's (or proposer's) entire bid being rejected.

Questions and/or clarifications of bid specifications must be submitted in written form only, either mailed, faxed, or e-mailed to the attention of Thomas C. David, Jr., Pan American Engineers, 1717 Jackson Street, Alexandria, LA 71301; Email: tom@paealex.com and must be received by close of business, Thursday, November 1, 2018.

Bidder Information:

Company Name: _____

Address: _____

City/State/Zip: _____

Telephone #: () _____ Fax #: () _____

Authorized Printed Name and Title: _____

Authorized Signature: _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION**

GENERAL CONDITIONS FOR BIDDERS - PLEASE READ CAREFULLY

1. Pursuant to LA R.S 38:2212.1. C.(1)(2), any manufacturer's preference in this proposal is descriptive, but non-restrictive, and is used only to indicate minimum requirement for type, grade and quality unless otherwise specified.
2. Pursuant to LA R.S. 38:2212 B.(1), the provisions and requirement of this bid shall not be considered as informalities and shall not be waived by the City of Alexandria. Therefore, conditions and specifications on this bid form shall be strictly enforced and any and all alterations, deviations, and non-compliance to said conditions and specifications, either on the bid form or by separate attachment, shall be grounds for immediate disqualification.
3. Preference shall be given to bidders quoting F.O.B. Destination (the City of Alexandria using department), FREIGHT PREPAID, unless otherwise requested.
4. Each bidder shall submit his proposal on the proposal form furnished by the City of Alexandria Purchasing Department. The complete bid package must be returned as issued by the City with all pages intact and all specification response columns filled in. Incomplete columns or missing pages, to include addendum pages, shall result in the vendor's entire bid package being rejected.
5. Literature, brochures, and other related paperwork attached to the bid should be identified with the name of the bidder and bid item number.
6. In case of a mathematical discrepancy between unit price and extensions, the unit price shall prevail.
7. Pursuant to LA R.S. 38:2212 F., the bid specifications may contemplate a fixed escalation or de-escalation in accordance with the United States Bureau of Labor Statistic's Consumer Price Index or the Producer Price Index. Bids based on specifications which are subject to a recognized escalation index shall be legal and valid for any item of a public work, at the discretion of the City.
8. Pursuant to LA R.S. 38:2212.1. F., any public procurement unit may participate in a cooperative purchasing agreement with the City of Alexandria to acquire quantities of the above listed items under a contract with the City of Alexandria for items awarded by public bid, pursuant to the cooperative purchasing provisions of Part VII of Chapter 17 of Subtitle III of Title 39 of the Louisiana Revised Statutes of 1950, R.S. 39:1701 et seq.
9. The City of Alexandria reserves the right to award by item or by total bid, unless otherwise specified in the bid specifications. (Price(s) should be itemized.)
10. All erasures or corrections on the bid form must be initialed and the City of Alexandria may rely on the apparent authority represented by the initials.
11. The City of Alexandria reserves the right to reject for cause any and all bids or parts of bids, or accept bids most beneficial to the City.

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION**

General Conditions for Bidders - Please Read Carefully (Continued)

12. Any bid submitted which contains additions, conditional or alternate bids, or irregularities which may make the proposal incomplete, indefinite, or ambiguous as to its meaning, thus requiring clarification after the specified date and time of bid opening shall be rejected.
13. Bids shall be opened publicly in the City Council Chambers or Council Committee Room.
14. Cash discounts may be accepted, but SHALL NOT be considered in making award.
15. Regarding a bid for purchase of materials, supplies or services, not to include construction of any public works, a written notice of acceptance mailed or otherwise furnished to the successful bidder shall result in a binding contract without further action by either party.
16. When any bid is accepted for the construction or doing of any public works, a written contract shall be executed by and between the City of Alexandria and the Contractor. No contract shall be binding upon the City until it has been executed by the City and delivered to the successful bidder. Should the bidder to whom the contract is awarded fail to execute the contract, the award shall then be made to the next lowest responsible bidder, or re-advertised for public bid, said decision to be in the sole judgment of the City of Alexandria. This action may result in the loss of bidding privileges for a period of one (1) year.
17. The City of Alexandria shall schedule for payment the invoices for articles or services purchased under this bid within thirty (30) days after due and proper delivery accompanied by invoice.
18. The City of Alexandria is exempt from all sales taxes. A sales tax exempt form shall be furnished by the City of Alexandria Purchasing Department, if requested.
19. Bidder(s) awarded item(s) by the City of Alexandria shall be responsible for supplying all products at the awarded price(s). Failure may result in the City's cancellation of the remaining items awarded.
20. Regarding Service Contracts and Procurement Contracts, the terms of the contract shall be binding upon any and all parties involved until goods and supplies are delivered, services have been rendered, and/or work has been completed and accepted by the Mayor on behalf of the City of Alexandria and all payments required to be made to the Contractor have been made. However, a contract may be terminated under any and all of the following conditions:
 - (a) By mutual agreement and consent of either party upon thirty (30) days written notice to the other party;
 - (b) By the Mayor, on behalf of the City of Alexandria, as a consequence of the failure of the Contractor to comply with the terms and conditions of the contract or the progress or quality of work to be performed in a satisfactory manner, proper allowance being made for circumstances beyond the control of the Contractor; or
 - (c) By satisfactory completion of all services and obligations described in the contract.

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION**

General Conditions for Bidders - Please Read Carefully (Continued)

If the contract is terminated for any of the terms and conditions authorized in sub-paragraph (b) above, Contractor shall be formally notified in writing by the City of Alexandria Purchasing Department by means of certified mail informing him of cancellation of the contract, giving specific reasons for said cancellation. Contractor shall have the right to appeal to the City Council within ten (10) days from the date that said notification is placed in the U.S. Mail. Contractor's appeal shall be accomplished by means of a letter addressed to the City Council and delivered to the City Clerk, stating that an appeal to the decision of cancellation is desired. The City Council shall thereafter hold a hearing on the appeal, giving all parties the opportunity to present any and all evidence concerning the decision of cancellation. After hearing the appeal, the city Council may, by a majority vote, sustain, modify, or reverse the findings for said decision and shall provide, if requested by Contractor, a written determination of its findings.

21. Contractors submitting bids for Public Works construction projects in excess of \$1.00 must show his Contractor's License Number on the front of the bid envelope, except for certain projects for which a Contractor's License Number is not required by the State Contractor's Licensing Board. Failure to comply with this directive shall result in automatic bid rejection, furthermore, any Contractor who submits a bid for a type of construction for which he is not properly licensed shall be acting in violation of LA R.S. 37:2163, and shall be subject to all provisions for violation and penalties thereof. Contractors who are owned by, and are submitting a bid as a subsidiary of a parent company, whose name is listed in the State of Louisiana's Roster of Licensed Contractors, may do so by including a letter of proof of ownership from the parent company with the submitted bid package. The letter must be signed as per LA R.S. 38:2212 B.(5)(a)(b)(c) (see Item #22 below).

22. All bids submitted via USPS (registered or certified), overnight courier or hand delivered, shall be signed by hand and in ink by an authorized company representative per LA R.S. 38:2212 B.(5)(a)(b)(c), which states:

(c)(i) Evidence of agency, corporate, or partnership authority shall be required for submission of a bid to the division of administration or the State of Louisiana. The authority of the signature of the person submitting the bid shall be deemed sufficient and acceptable if any of the following conditions are met:

(aa) The signature on the bid is that of any corporate officer listed on the most current annual report on file with the Secretary of State, or the signature on the bid is that of any member of a partnership or partnership in commendam listed in the most current partnership records on file with the Secretary of State.

(bb) The signature on the bid is that of an authorized representative of the corporation, partnership, or other legal entity and the bid is accompanied by a corporate resolution, certification as to the corporate principle, or other documents indicating authority which are acceptable to the public entity.

(cc) The corporation, partnership, or other legal entity has filed in the appropriate records of the Secretary of State in which the public entity is located, an affidavit, resolution, or other acknowledged or authentic document indicating the names of all parties authorized to submit bids for public contracts. Such document on file with the Secretary of State shall remain in effect and shall be binding upon the principal until specifically rescinded and canceled from the records of the office.

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION**

General Conditions for Bidders - Please Read Carefully (Continued)

23. In-State preferences shall not apply to procurements involving federal funds.
24. Pursuant to LA R.S. 38:2212 O.(2)(a)(b), any modifications of plans and specifications will be made through an addendum. No addendum shall be issued within seventy-two (72) hours of the bid opening, excluding weekends and legal holidays, without the extension of the bid opening date. An extension of at least seven (7) but no more than thirty (30) working days is required but, re-advertising is not required. The addendum shall be transmitted by any one of the following methods: (1) facsimile transmission; (2) e-mail; (3) by hand; or (4) posted on the City of Alexandria's website (www.cityofalexandria.com) and posted on Central Bidding's website (www.centralauctionhouse.com) if applicable.
25. All Federal Transit Administration (FTA) funded procurements, including operating assistance funding contracts, are to follow the Master Agreement, to include all applicable federal clauses.
- a. Any bidder that is found listed on the Federal Government's *System for Award Management* (SAM) website, at www.sam.gov/portal/sam, under the advanced search feature for *Excluded Parties List System* (EPLS), shall automatically be rejected for the award of this bid, by Category and/or in its entirety. This applies to any portion of the bid that is a procurement funded by FTA.
26. Under the City's *AFEAT (Alexandria Fairness, Equality, Accessibility, and Teamwork Program)*, participation by minority and/or disadvantaged business enterprise firms is encouraged. Inquiries about the *AFEAT* Program should be directed to the Division of Finance. As a part of its RFP response, each Bidder shall submit documentation of its bona fide effort to secure subcontractors that meet the City's *AFEAT* goals. Each bidder shall also submit proof of engagement of any subcontractor selected because of its solicitations. The Bidder's bona fide efforts and engagement(s) are a consideration in bid review and rating.

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION**

Alexandria Fairness, Equality, Accessibility and Teamwork Program (AFEAT)

Dear Vendor:

Under the City's *AFEAT (Alexandria Fairness, Equality, Accessibility, and Teamwork Program)*, participation by minority and/or disadvantaged business enterprise firms is encouraged. The AFEAT Program should be inquired about through the Division of Finance. The goals for qualifying disadvantaged, minority and female owned business in the use of professional service agreements with prime contractors will help effectuate the goals of increasing: the competitive viability of small business, minority, and women business enterprise by providing contract, technical, educational, and management assistance; business ownership by small business persons, minority persons, and women (including professional service opportunities); and the procurement by the City of professional services, articles, equipment, supplies, and materials from business concerns owned by small business concerns, minority persons, and women.

Prime contractors offering subcontracting should take specific action to ensure that a bona fide effort is made to achieve maximum results towards meeting the established goals. Primes shall document efforts and shall implement steps at least as extensive as the following in a good faith effort to reach or exceed the established goals:

- A. *Establish and maintain a current list of minority and female owned businesses in Alexandria, in Rapides Parish, and in the State of Louisiana.*
- B. *Document and maintain a record of all solicitations of offers for subcontracts from minority or female construction contractor and suppliers in Alexandria, in Rapides Parish, and in the State of Louisiana.*
- C. *Secure listing of minority and women owned businesses from the City of Alexandria Purchasing Department, the Central Louisiana Business Incubator, and the State of Louisiana Department of Minority Affairs.*
- D. *Participate in associations which assist in promoting minority and women owned businesses such as the Central Louisiana Business League, the Central Louisiana Business Incubator, and the Entrepreneurial League System.*
- E. *Designate a responsible official to monitor all activity made in the effort to achieve or exceed the established goals; record contacts made, subcontracts entered into with dollar amounts, and other relevant information.*

For more information on AFEAT and the City of Alexandria's Diversity in Action Initiative, and to explore a local and statewide directory of minority businesses, please visit www.diversityinaction.org . Should you have any questions or comments, please do not hesitate to contact our Finance Department at 318-449-5091 or our Purchasing Department at 318-441-6180.

As a part of its RFP response, each Bidder ***shall*** submit documentation of its bona fide effort to secure subcontractors that meet the City's AFEAT goals. Each bidder ***shall*** also submit proof of engagement of any subcontractor selected because of its solicitations. The Bidder's bona fide efforts and engagement(s) are a consideration in bid review and rating.

Sincerely,

City of Alexandria

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION**

BID SPECIFICATIONS

SCOPE: The following bid specifications are to be used as minimum and maximum standards for DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC PRODUCTION. All quoted products shall either meet or exceed the following specifications.

Unless otherwise stated, the use of manufacturer's name and product numbers are for descriptive purposes and to establish general quality levels only, they are not intended to be restrictive.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1. Bids will be awarded by specific item, category, or total low bid, whichever is most beneficial to the City of Alexandria. All items must be bid on for bid to be considered. Bid total shall be achieved by extending unit prices and quantities for all items.
2. The successful Bidders agree to honor the quoted prices for a minimum twelve (12) month period from bid award date. Contingent upon the availability of funds and the ability of the successful Bidders to honor the quoted prices, the City reserves the right to renew the existing contract for an additional twenty-four (24) months in twelve (12) month increments with a thirty (30) day funding out clause. Not less than forty-five (45) days before the end of the Contract term, the successful Bidders shall notify the City, in writing, of their intentions with respect to renewal .
3. Prices shall **NOT** include freight costs or DDP-Hub/U.S. Duties; only goods. All freight and DDP-HUB/U.S. Duties charges will be determined on an order-by-order basis, dependent on the volume and weight of the particular spare parts order.

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

- Note:
1. Part numbers and descriptions are based off of Wartsila North America Spare Part Catalog.
 2. Product data sheets for each Wartsila North America Part number are included in Attachemnt No. 1 to this Bid Form.
 3. Prices shall **NOT** include freight costs or DDP-Hub/U.S. Duties; only goods. All freight and DDP-HUB/U.S. Duties charges will be determined on an order-by-order basis, dependent on the volume and weight of the particular spare parts order.

Bid Item No.	Wartsila Part No.	Description	Qty	Unit Cost	Extension
<u>Category 1 - Engine Safety Spare Parts</u>					
1	100003	Antipolishing ring	3	x _____/ea =	_____
2	100023	O-ring	6	x _____/ea =	_____
3	100110	Cylinder liner	3	x _____/ea =	_____
4	100113	O-ring	3	x _____/ea =	_____
5	100341	Thrust bearing kit	3	x _____/ea =	_____
6	100142	Sealing set	3	x _____/ea =	_____
7	100142	Sealing kit for hydraulic jack	3	x _____/ea =	_____
8	100342	Main bearing kit	3	x _____/ea =	_____
9	111016	bearing kit	3	x _____/ea =	_____
10	111010	Connecting rod, lower part	3	x _____/ea =	_____
11	111011	Connecting rod, upper part	3	x _____/ea =	_____
12	111015	Shim	3	x _____/ea =	_____
13	113001	Piston	3	x _____/ea =	_____
14	113009	Securing ring	6	x _____/ea =	_____
15	113010	Gudgeon pin	3	x _____/ea =	_____

CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION

16	113012	Piston ring set	3 x _____/ea = _____
17	120001	Cylinder head complete	3 x _____/ea = _____
18	120013	Valve guide	3 x _____/ea = _____
19	120015	Sealing set for cylinder head replacement	6 x _____/ea = _____
20	120021	Seat ring for inlet valve	3 x _____/ea = _____
21	120022	Seat ring for outlet valve	3 x _____/ea = _____
22	120054	Sealing set for cylinder head overhaul	6 x _____/ea = _____
23	120095	Ignition coil	6 x _____/ea = _____
24	121001	Exhaust valve, complete	6 x _____/ea = _____
25	121007	Inlet valve, complete	6 x _____/ea = _____
26	123001	Starting valve	6 x _____/ea = _____
27	124002	Spark plug	60 x _____/ea = _____
28	124043	Sealing set	6 x _____/ea = _____
29	124044	Prechamber control valve	6 x _____/ea = _____
30	145001	Push rod	6 x _____/ea = _____
31	145018	Valve tappet	3 x _____/ea = _____
32	156383	Spare part set	3 x _____/ea = _____
33	1562001	Turbocharge shroud ring	2 x _____/ea = _____
34	1561184	Turbocharge nozzle	2 x _____/ea = _____
35	1561300	Turbocharge Short cartridge	2 x _____/ea = _____

CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION

36	1561301	Turbocharge Short cartridge installation kit	2	x	_____	/ea = _____
37	164025	Main gas admission valve	6	x	_____	/ea = _____
38	164089	Spare part set	3	x	_____	/ea = _____
39	181077	Service kit	3	x	_____	/ea = _____
40	182062	Sealing set	3	x	_____	/ea = _____
41	191051	Sealing set	3	x	_____	/ea = _____
42	200009	Screw	36	x	_____	/ea = _____
43	200011	Nut	36	x	_____	/ea = _____
44	200029	Gasket	6	x	_____	/ea = _____
45	200079	Bellows	3	x	_____	/ea = _____
46	200081	Bellows	3	x	_____	/ea = _____
47	200084	Screw	36	x	_____	/ea = _____
48	200085	Nut	36	x	_____	/ea = _____
49	200334	Positioner	3	x	_____	/ea = _____
50	200347	Sealing ring	6	x	_____	/ea = _____
51	202009	Bellows	6	x	_____	/ea = _____
52	202053	Screw	48	x	_____	/ea = _____
53	202148	Sealing ring	12	x	_____	/ea = _____
54	202149	Nut	48	x	_____	/ea = _____
55	202358	Screw	24	x	_____	/ea = _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

56	207992	Butterfly valve	3	x	_____	/ea = _____
57	471063	Filter cartridge	234	x	_____	/ea = _____
58	471126	Sealing set	3	x	_____	/ea = _____
59	473081	Sealing set	3	x	_____	/ea = _____
60	474043	Sealing set	3	x	_____	/ea = _____
61	476009	Sealing set	3	x	_____	/ea = _____
62	504103	Knock sensor	6	x	_____	/ea = _____
63	504128	Temperature sensor	6	x	_____	/ea = _____
64	5071072	Control unit CCM	3	x	_____	/ea = _____
65	5071289	Ignition module	3	x	_____	/ea = _____
66	5071318	Electronic unit IOM	6	x	_____	/ea = _____
67	516292	Control unit	3	x	_____	/ea = _____
68	516387	Engine safety module	3	x	_____	/ea = _____
69	516541	Pressure sensor	6	x	_____	/ea = _____
70	516596	Fuse	24	x	_____	/ea = _____
71	516597	Fuse	24	x	_____	/ea = _____
72	800264	Sealing set for hydraulic tightening tool	6	x	_____	/ea = _____
73	CV519	IP-converter	3	x	_____	/ea = _____
74	PT201	Pressure sensor	3	x	_____	/ea = _____
75	PT401	Pressure sensor	6	x	_____	/ea = _____

CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION

76	PT 471	Pressure sensor, LT water CAC inlet	6 x _____/ea = _____
77	PT 601	Pressure sensor, Charge air engine inlet	6 x _____/ea = _____
78	PT700	Pressure sensor	3 x _____/ea = _____
79	PT901	Pressure sensor, Main gas	6 x _____/ea = _____
80	PT911	Pressure sensor	6 x _____/ea = _____
81	ST173	Speed pick-up	3 x _____/ea = _____
82	ST174	Speed pick-up	3 x _____/ea = _____
83	ST196P	Speed sensor	3 x _____/ea = _____
84	ST196S	Speed sensor	3 x _____/ea = _____
85	ST197P	Speed sensor	3 x _____/ea = _____
86	ST197S	Speed sensor	3 x _____/ea = _____
87	TE201	Temperature sensor	3 x _____/ea = _____
88	TE401	Temperature sensor, HT water engine inlet	3 x _____/ea = _____
89	TE402	Temperature sensor	6 x _____/ea = _____
90	TE432	Temperature sensor	3 x _____/ea = _____
91	TE471	Temperature sensor, LT water CAC inlet	6 x _____/ea = _____
92	TE600	Temperature sensor, Air TC inlet	4 x _____/ea = _____
93	TE601	Temperature sensor	3 x _____/ea = _____

CATEGORY 1 TOTAL: \$ _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

Category 2 - Auxiliary Systems Safety Spare Parts

Auxiliary Modules

MOD 051 - 111 W34 EAM 1-C

CR SECTION - MOD-1001A

94	B00055	FINE FILTER G5XP4-D	2	x	_____	/ea = _____
95	V00082	SPARE PART SET STEM SEAL FOR ARI FIG VALVES	2	x	_____	/ea = _____
96	V00083	BODY GASKET FOR ARI FIG VALVES	2	x	_____	/ea = _____
97	V00086	SPARE PART SET FOR DP34 ACTUATOR	2	x	_____	/ea = _____
98	12EB364500003	SERVICE KIT FOR PUMP EBARA CDU 120/315	2	x	_____	/ea = _____
99	75204	HEATING ELEMENT 54KW	1	x	_____	/ea = _____
100	77682	HEATING ELEMENT 27KW	1	x	_____	/ea = _____
101	VDA009	AIR VENTING VALVE DN15, PN10	2	x	_____	/ea = _____

CATEGORY 2 TOTAL: \$ _____

Category 3 - Auxiliary Systems Safety Spare Parts

Fuel Oil System

Flexible Connections

CR SECTION - SAG-1001A

102	FH104	FLEXIBLE HOSE D28	1	x	_____	/ea = _____
103	FH108	FLEXIBLE HOSE DN80	2	x	_____	/ea = _____
104	FH110	FLEXIBLE HOSE DN25	2	x	_____	/ea = _____

CATEGORY 3 TOTAL: \$ _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

Category 4 - Auxiliary Systems Safety Spare Parts

Gas System

ZAC 051-111 Compact Gas Ramp

CR SECTION - ZAC-1001A

105	1980298	FILTER ELEMENT FOR 1.78.1.160.500 DN80	2 x _____ /ea = _____
106	3030069	O-RING FOR 1.78.1.160.500 DN80	2 x _____ /ea = _____
107	B00055	FINE FILTER G5XP4-D	2 x _____ /ea = _____
108	P00016	PRESSURE TRANSMITTER	2 x _____ /ea = _____
109	T00025	TEMPERATURE SENSOR	2 x _____ /ea = _____
110	V00391	BODY/ BONNET GASKET KIT FOR GX VALVE DN50	2 x _____ /ea = _____
111	V00387	SERVICE KIT PTFE PACKING KIT FOR GX VALVE DN50	2 x _____ /ea = _____
112	RGX750X0032	ACTUATOR 750 REPAIR KIT FOR GX VALVE DN50	2 x _____ /ea = _____
113	V00388	GASKET SET FOR GX VALVE DN25	2 x _____ /ea = _____
114	V00387	SERVICE KIT PTFE PACKING KIT FOR GX VALVE DN25	2 x _____ /ea = _____
115	V00483	ACTUATOR 225 REPAIR KIT FOR GX VALVE DN25	2 x _____ /ea = _____
CATEGORY 4 TOTAL:			\$ _____

Category 5 - Auxiliary Systems Safety Spare Parts

Lubricating Oil System

Flexible Connections

CR SECTION - SAG-1001A

116	FH213	RUBBER BELLOW DN40	1 x _____ /ea = _____
117	FH214	RUBBER BELLOW DN40	1 x _____ /ea = _____
118	FH701	HOSE FOR CRANKCASE VENT PIPE	1 x _____ /ea = _____
119	FH708	FLEXIBLE HOSE FOR NATURAL GAS	1 x _____ /ea = _____
CATEGORY 5 TOTAL:			\$ _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

Category 6 - Auxiliary Systems Safety Spare Parts

Engine Lubricating Oil System

QBF 051- 111 OIL MIST SEPARATOR UNIT

CR SECTION - QBF-1001A

120	B00032	SERVICE KIT 1	1 x _____ /ea = _____
121	B00035	SERVICE KIT 2	1 x _____ /ea = _____
122	B00037	SERVICE KIT 4	1 x _____ /ea = _____
123	0100-3L-0008-4- X+FBIE+A1133+HMGR+GSSE	CONVERTER VACON0100-3L-0008-4-X+HMGR+FBIE	1 x _____ /ea = _____

CATEGORY 6 TOTAL: \$ _____

Category 7 - Auxiliary Systems Safety Spare Parts

Compressed Air System

Flexible Connections

CR SECTION - SAG-1001A

124	FH301	FLEXIBLE HOSE DN32	1 x _____ /ea = _____
125	FH311	FLEXIBLE HOSE OD12	1 x _____ /ea = _____

TSA 901 STARTING AIR UNIT DUAL WP311L

CR SECTION - TSA-1001A

126	WP311L-6KF	SUPPLIER RECOMMENDED SAFETY SPARE PARTS	1 x _____ /ea = _____
-----	------------	---	-----------------------

TSB 901- 904 STARTING AIR BOTTLE

CR SECTION - TSB-1001A

127	00100	SUPPLIER RECOMMENDED SAFETY SPARE PARTS	1 x _____ /ea = _____
-----	-------	---	-----------------------

CATEGORY 7 TOTAL: \$ _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

Category 8 - Auxiliary Systems Safety Spare Parts

Cooling System

Flexible Connections

CR SECTION - SAG-1001A

128	FH401	RUBBER BELLOW DN125	1 x _____ /ea = _____
129	FH402	RUBBER BELLOW DN125	1 x _____ /ea = _____
130	FH404	FLEXIBLE HOSE OD12	1 x _____ /ea = _____
131	FH406	RUBBER BELLOW DN40	1 x _____ /ea = _____
132	FH414	RUBBER BELLOW DN125	1 x _____ /ea = _____
133	FH416	FLEXIBLE HOSE OD12	1 x _____ /ea = _____
134	FH451	RUBBER BELLOW DN125	1 x _____ /ea = _____
135	FH4831	FLEXIBLE HOSE OD12	1 x _____ /ea = _____
136	FH4832	FLEXIBLE HOSE OD12	1 x _____ /ea = _____

CATEGORY 8 TOTAL: \$ _____

Category 9 - Auxiliary Systems Safety Spare Parts

Engine Cooling System

VEA 051- 111 EXPANSION VESSEL

CR SECTION - VEA-1001A

137	VEA003	LEVEL SWITCH	2 x _____ /ea = _____
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VCA 051- 112 RADIATOR

CR SECTION - VCA-1001A

138	9460005842	SAFETY SWITCH KEM316U/U3/EMC	1 x _____ /ea = _____
139	9460065948	FAN MOTOR W-DA284T-F PAD 480/60 NEMA	2 x _____ /ea = _____
140	9460065949	FAN BLADE MW1236/5-5/42/PAG/2WL/41,275/9,525/A	1 x _____ /ea = _____
141	6308-C3	6308-C3 BEARING	7 x _____ /ea = _____
142	6310-C3	6308-C3 BEARING	7 x _____ /ea = _____

CATEGORY 9 TOTAL: \$ _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

Category 10 - Auxiliary Systems Safety Spare Parts

Plant Cooling System

VBA 901- 902 MAINTENANCE WATER TANK

CR SECTION - VBA-1001A

143	12EB364500003	SERVICE KIT FOR PUMP EBARA CDU 120/315	1 x _____ /ea = _____
CATEGORY 10 TOTAL:			\$ _____

Category 11 - Auxiliary Systems Safety Spare Parts

Charge Air System

NGA 051-111 CHARGE AIR FILTER DL-16-F5

CR SECTION - NGA-1001A

144	592*592*360/6 F5	AIRBAG 592X592X360/6 F5	32 x _____ /ea = _____
CATEGORY 11 TOTAL:			\$ _____

Category 12 - Auxiliary Systems Safety Spare Parts

Exhaust Gas System

Flexible Connections

CR SECTION - SAG-1001A

145	FH501	EXHAUST GAS BELLOW DN500	1 x _____ /ea = _____
NHA 051- 111 EXHAUST GAS MODULE			
<u>CR SECTION - NHA-1001A</u>			

146	4437-1	FLOW SWITCH	1 x _____ /ea = _____
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147	435510142-30	VENTILATION FAN	1 x _____ /ea = _____
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148	131-14	BELLOW	1 x _____ /ea = _____
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NHA 010 PSE 001- 003 RUPTURE DISC

CR SECTION - NHA-1001A

149	67111620003-S / CV-S-I-LW-RI D	RUPTURE DISC (SET) CV-S-I-LW-RI DN 1200	1 x _____ /ea = _____
CATEGORY 12 TOTAL:			\$ _____

**CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION**

Category 13 - Safety Spare Parts for Flexible Coupling DCB - GS 658.5

SM50

CR SECTION - SAE-1001A

150	3584438	TUBE GS 8.5 - Material No. PAAE031447	30 x _____ /ea = _____
151	3584441	RUBBER BLOCK 8.5 SM50 - Material No. PAAE 049601	30 x _____ /ea = _____

CATEGORY 13 TOTAL: \$ _____

Category 14 - Safety Spare Parts for Generator AMG 1120LT10 DSE

CR SECTION - BAG-1001A

152	9893305	OPERATIONAL SPARE PART PACKAGE FOR AMG 1120 Serial No.: 4639159-65 Material No.: PAAE178180 INCLUDING: 1. AVR 2. RECTIFIER DIODE (SET) 3. VARISTOR 4. AIR-FILTERS (SET) 5. BEARING RTD 6. BEARING SHELL (SUITABLE FOR DE & NDE) 7. BEARING OIL RING 8. BEARING LABYRINTH SEAL	1 x _____ /ea = _____
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CATEGORY 14 TOTAL: \$ _____

Category 15 - Safety Spare Parts for Control System

CR SECTION - BFA-1001A

CFA 901 COMMON CONTROL PANEL

153	9AFP300842-CACZ-CFA	SUPPLIER RECOMMENDED SAFETY SPARE PARTS Material No.: PAAR297173	1 x _____ /ea = _____
-----	---------------------	---	-----------------------

CR SECTION - CFC-1001A

CFC 051- 111 GENSET CONTROL PANEL

154	9AFP300842-CACZ-CFC	SUPPLIER RECOMMENDED SAFETY SPARE PARTS Material No.: PAAF297174	1 x _____ /ea = _____
-----	---------------------	---	-----------------------

CATEGORY 15 TOTAL: \$ _____

CITY OF ALEXANDRIA BID SPECIFICATIONS FOR:
DG HUNTER UNITS 5-11 – SPARE PARTS – ELECTRIC DISTRIBUTION

Category 16 - Safety Spare Parts for EAM Panel

CR SECTION - BJA-1001A

BJA 051- 111 ENGINE AUXILIARY MODULE PANEL

155 9AFP300842-CACZ-BJA SUPPLIER RECOMMENDED SAFETY SPARE PARTS 1 x _____ /ea = _____

Material No.: PAAF297175

CATEGORY 16 TOTAL: \$ _____

Category 17 - Safety Spare Parts for Frequency Converters, Radiators

CR SECTION - BLP-1001A

BLP 051- 111 FREQUENCY CONVERTER

156 NXP02615A2H0SSFA1A20000CI FREQUENCY CONVERTER UNIT 1 x _____ /ea = _____

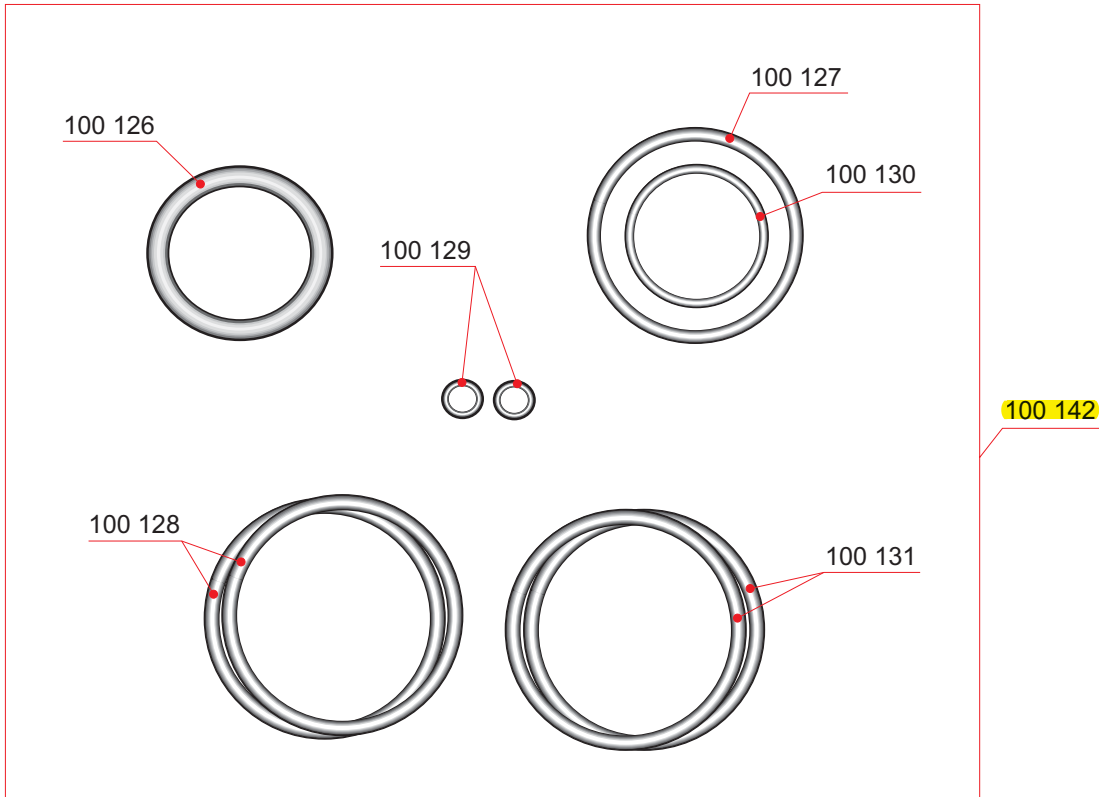
Material No.: PAAF109778

CATEGORY 17 TOTAL: \$ _____

GRAND TOTAL \$ _____

APPENDIX A

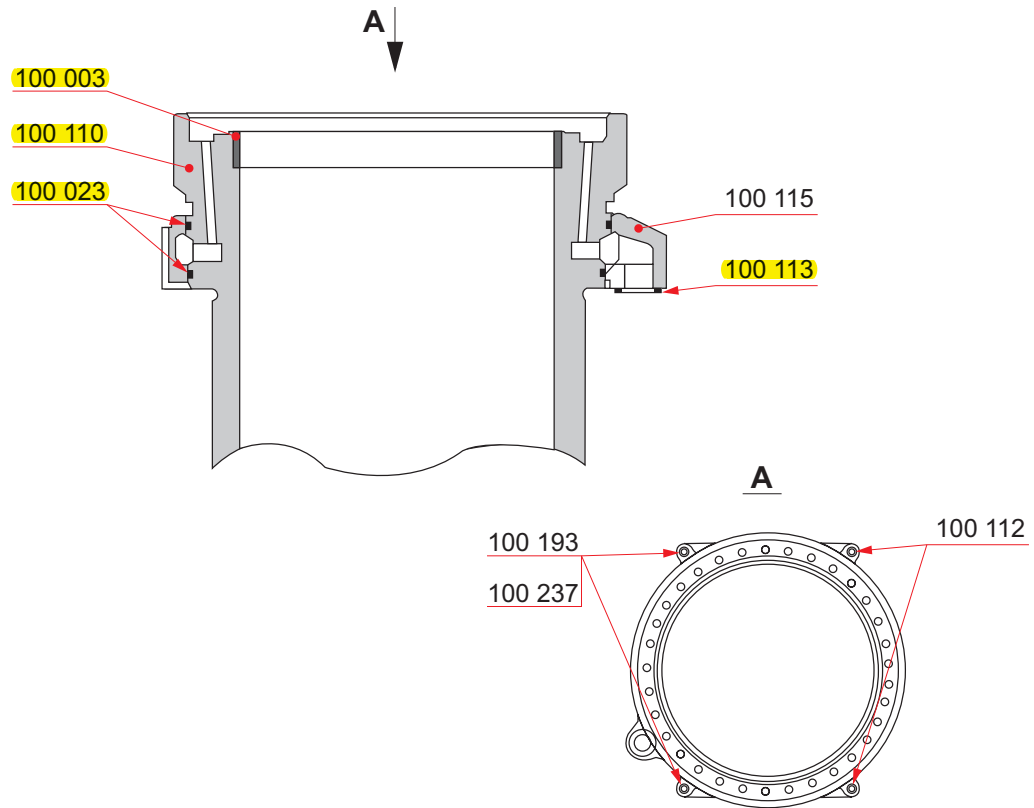
Hydraulic jack for main bearing cap



Part No.	Description	Qty [Pcs]	Wt. [Kg]
100 142	Sealing set	1	-
100 126	O-ring (1)	1	-
100 127	O-ring (1)	1	-
100 128	O-ring (1)	2	-
100 129	O-ring (1)	2	-
100 130	O-ring (1)	1	-
100 131	O-ring (1)	2	-

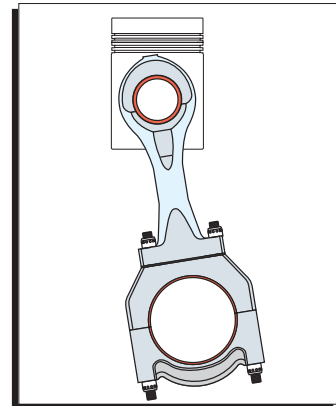
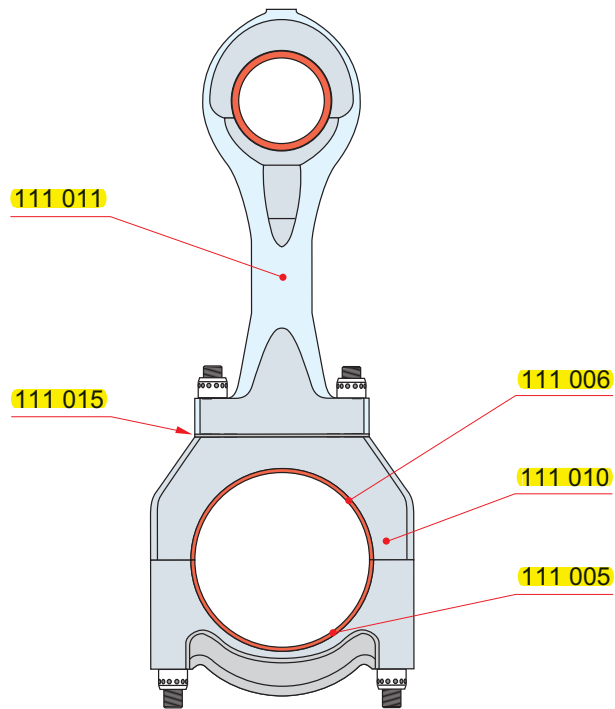
NOTE! (1) Not available separately.

Cylinder liner with anti-polishing ring



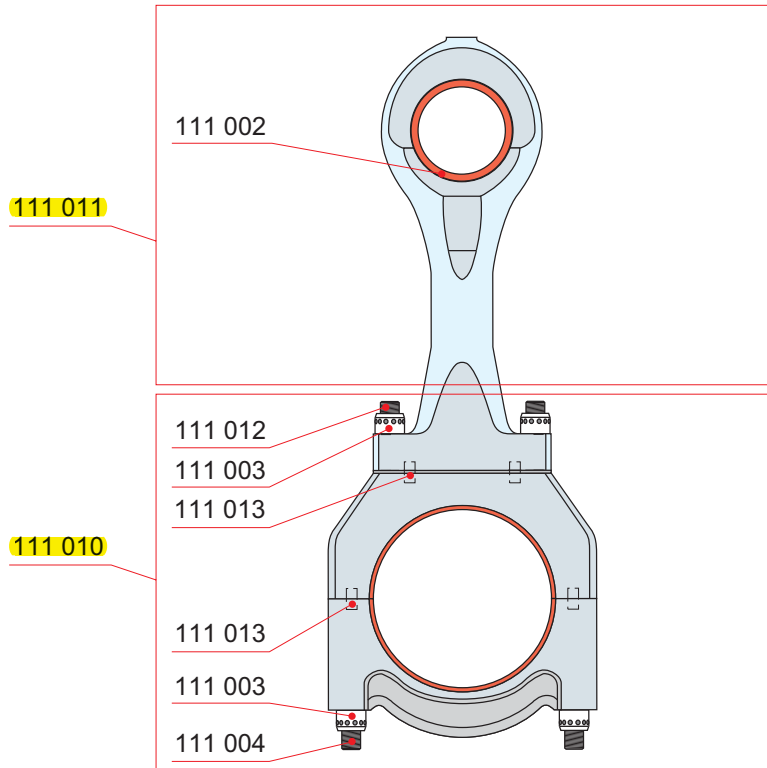
Part No.	Description	Qty [Pcs]	Wt. [Kg]
100 003	Anti-polishing ring	1	-
100 023	O-ring	2	-
100 110	Cylinder liner	1	-
100 112	Screw	2	-
100 113	O-ring	1	-
100 115	Water jacket	1	-
100 193	Screw	2	-
100 237	Clamp	2	-

Connecting rod



Part No.	Description	Qty [Pcs]	Wt. [Kg]
111 005	Big end bearing shell, lower	1	-
111 006	Big end bearing shell, upper	1	-
111 010	Connecting rod, lower part	1	80.2
111 011	Connecting rod, upper part	1	77.0
111 015	Shim	1	-

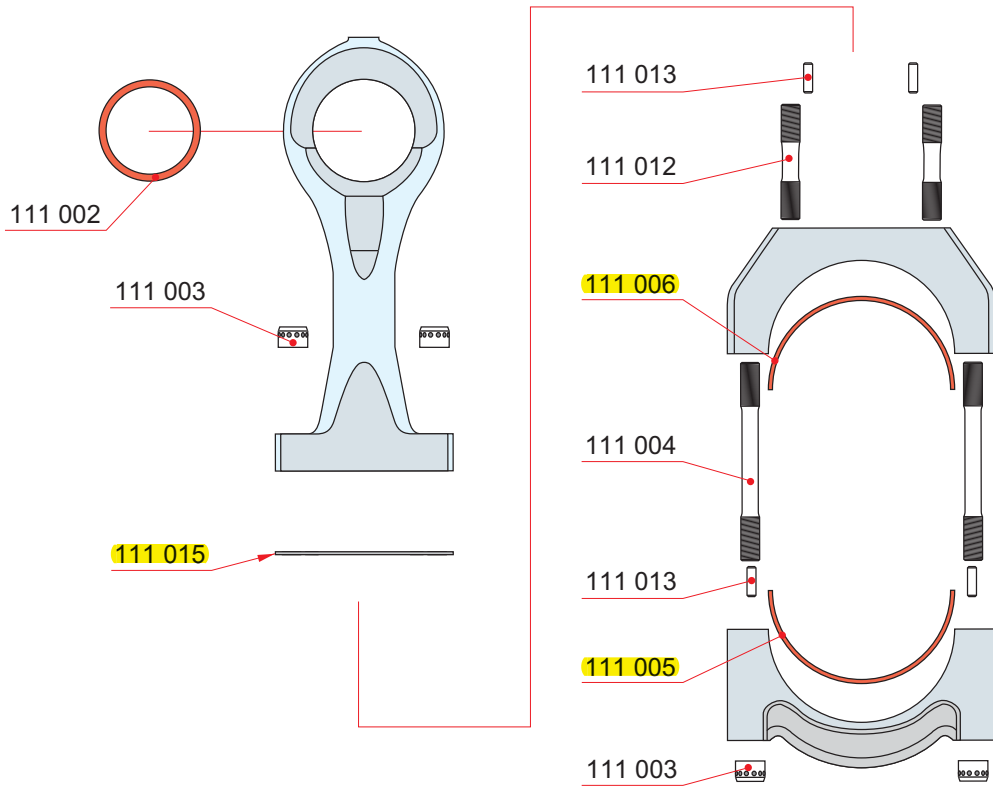
Connecting rod



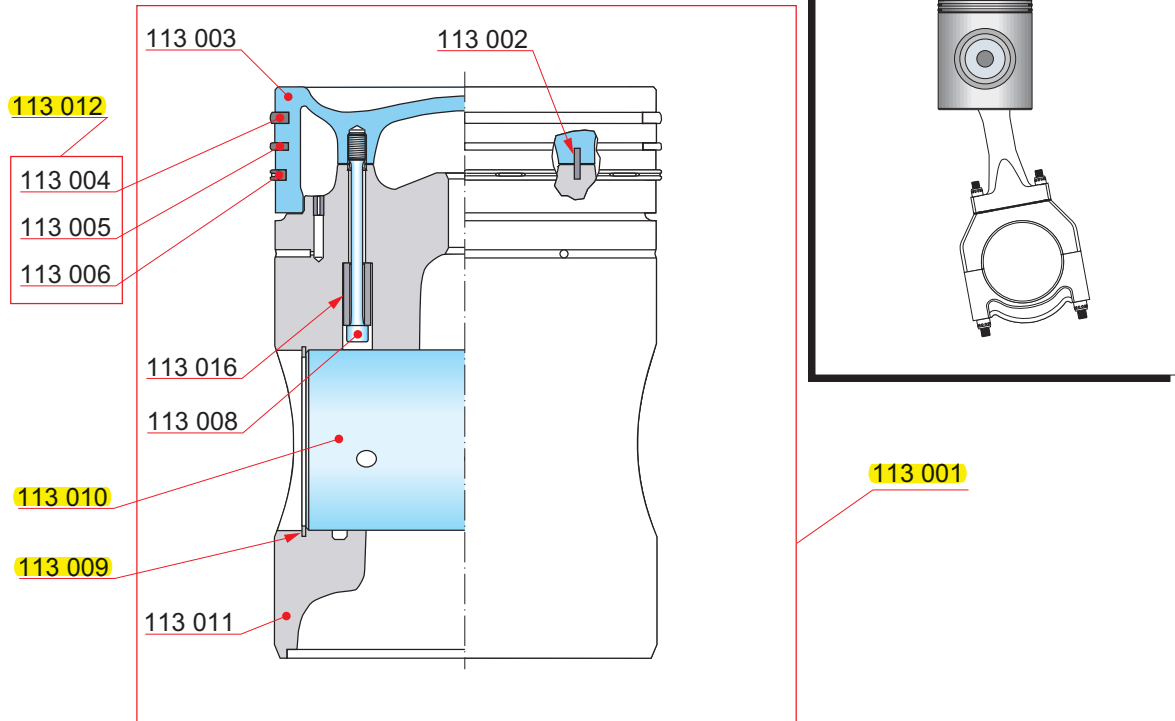
Part No.	Description	Qty [Pcs]	Wt. [Kg]
111 010	Connecting rod, lower part	1	80.2
111 003	Nut	8	0.2
111 004	Screw	4	1.3
111 012	Screw	4	0.8
111 013	Pin	4	-
111 011	Connecting rod, upper part	1	77.0
111 002	Gudgeon pin bearing bush	1	3.8

APPENDIX A

Connecting rod



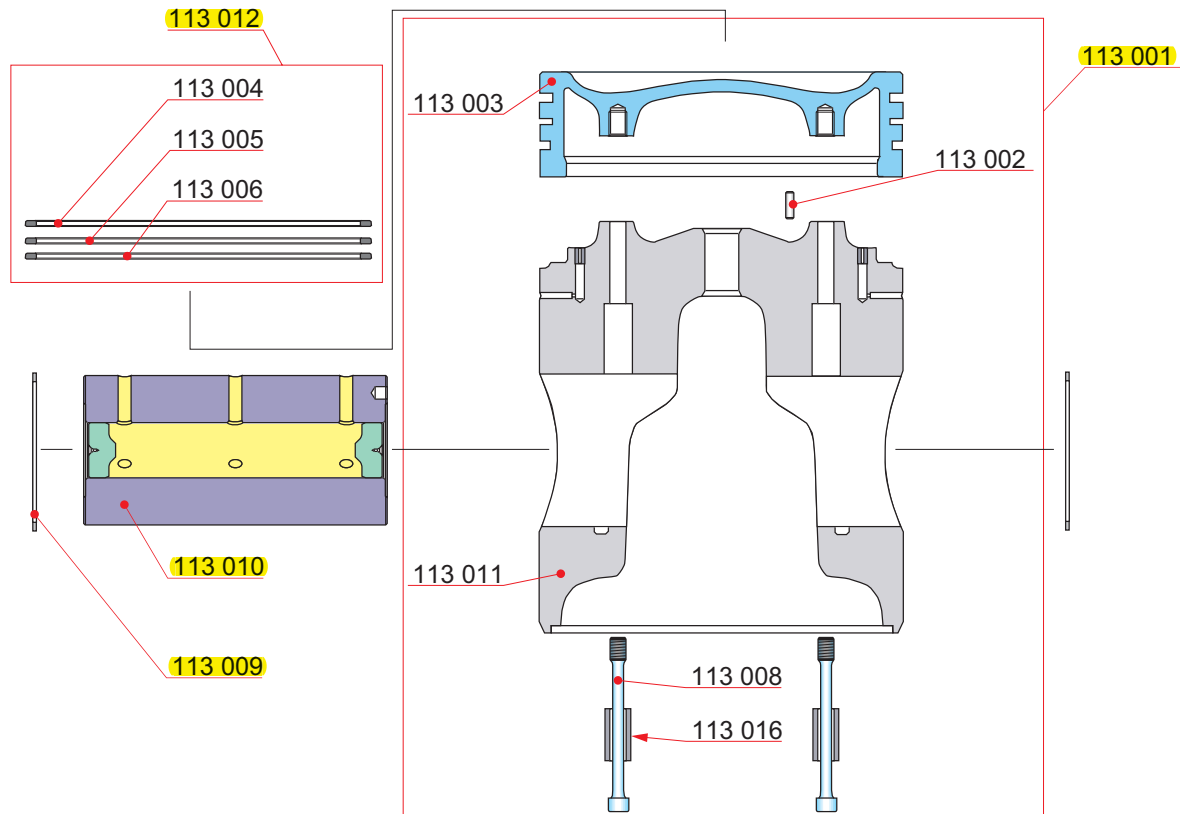
Piston



Part No.	Description	Qty [Pcs]	Wt. [Kg]
113 001	Piston	1	12.5
113 002	Pin	1	0.7
113 003	Piston crown	1	0.5
113 008	Screw	4	0.2
113 011	Piston skirt	1	43.0
113 016	Bush	4	0.1
113 012	Piston ring set	1	-
113 004	Piston ring I	1	0.7
113 005	Piston ring II	1	0.3
113 006	Piston ring III	1	0.3
113 009	Securing ring	2	0.1
113 010	Gudgeon pin	1	0.1

APPENDIX A

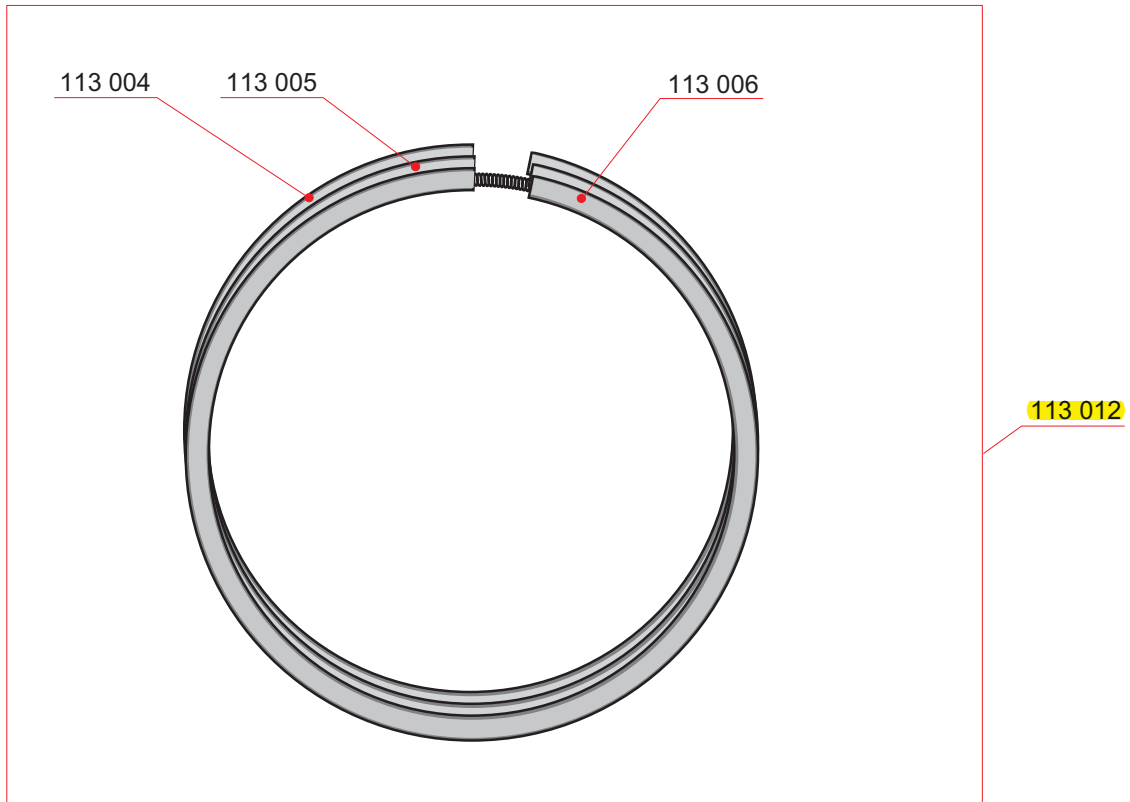
Piston



Part No.	Description	Qty [Pcs]	Wt. [Kg]
113 001	Piston	1	12.5
113 002	Pin	1	0.7
113 003	Piston crown	1	0.5
113 008	Screw	4	0.2
113 011	Piston skirt	1	43.0
113 016	Bush	4	0.1
113 012	Piston ring set	1	-
113 004	Piston ring I	1	0.7
113 005	Piston ring II	1	0.3
113 006	Piston ring III	1	0.3
113 009	Securing ring	2	0.1
113 010	Gudgeon pin	1	0.1

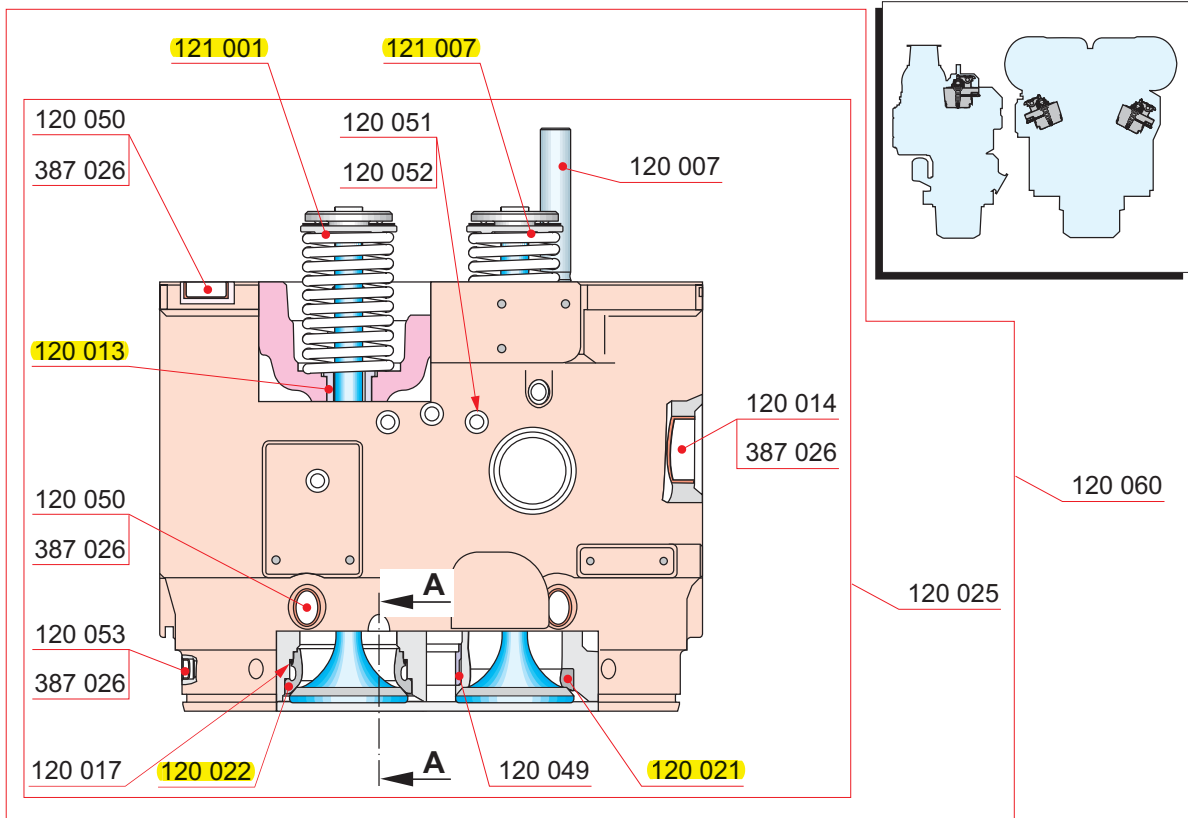
APPENDIX A

Piston



Part No.	Description	Qty [Pcs]	Wt. [Kg]
113 012	Piston ring set	1	-
113 004	Piston ring I	1	0.7
113 005	Piston ring II	1	0.3
113 006	Piston ring III	1	0.3

Cylinder head

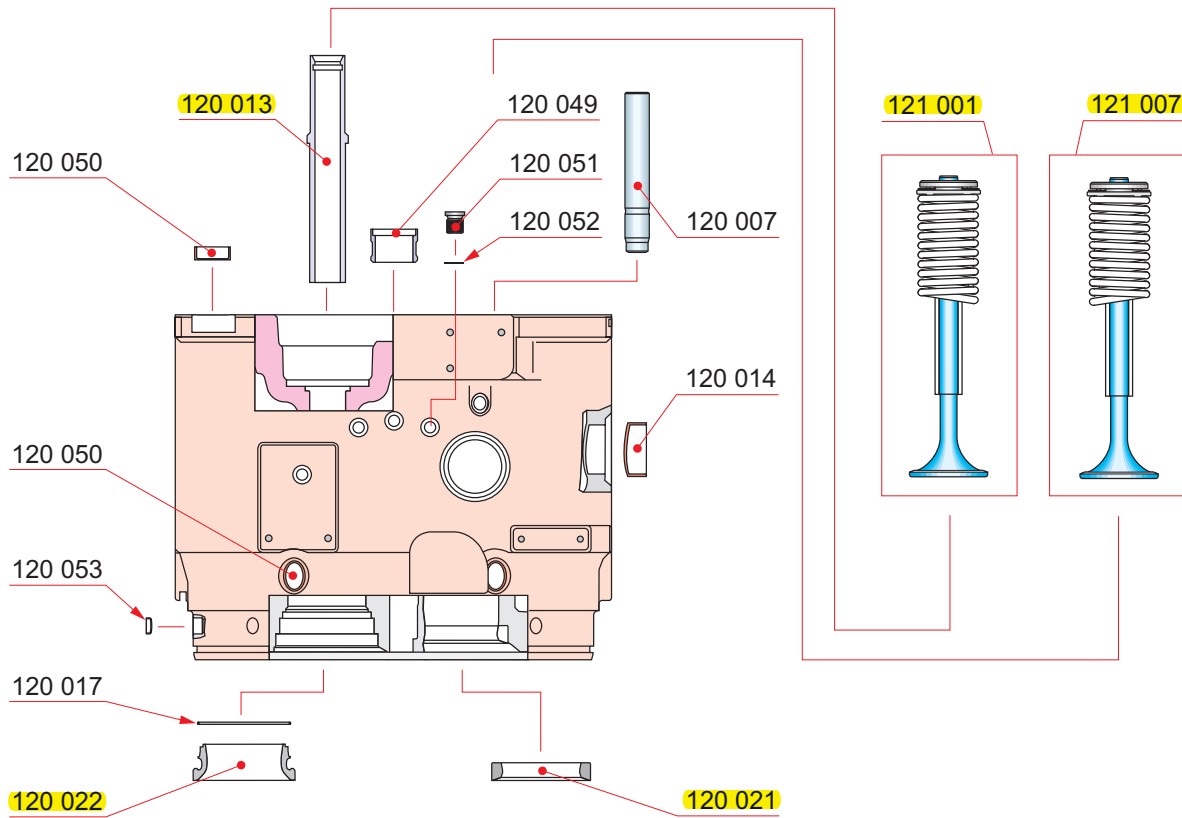


Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 060	Cylinder head with inlet and exhaust valve (1)	1	-
121 001	Exhaust valve, compl.	2	-
121 007	Inlet valve, compl.	2	-
120 025	Cylinder head (2)	1	-
120 007	Yoke pin	2	-
120 013	Valve guide	4	-
120 014	Sealing push-in cap	5	-
120 017	O-ring	2	-
120 021	Seat ring for inlet valve	2	-
120 022	Seat ring for outlet valve	2	-
120 049	Sleeve	1	-
120 050	Sealing push-in cap	13	-
120 051	Plug	2	-
120 052	Sealing ring	2	-
120 053	Sealing push-in cap	8	-
387 026	Glue compound	1	-

NOTE! (1) With valves

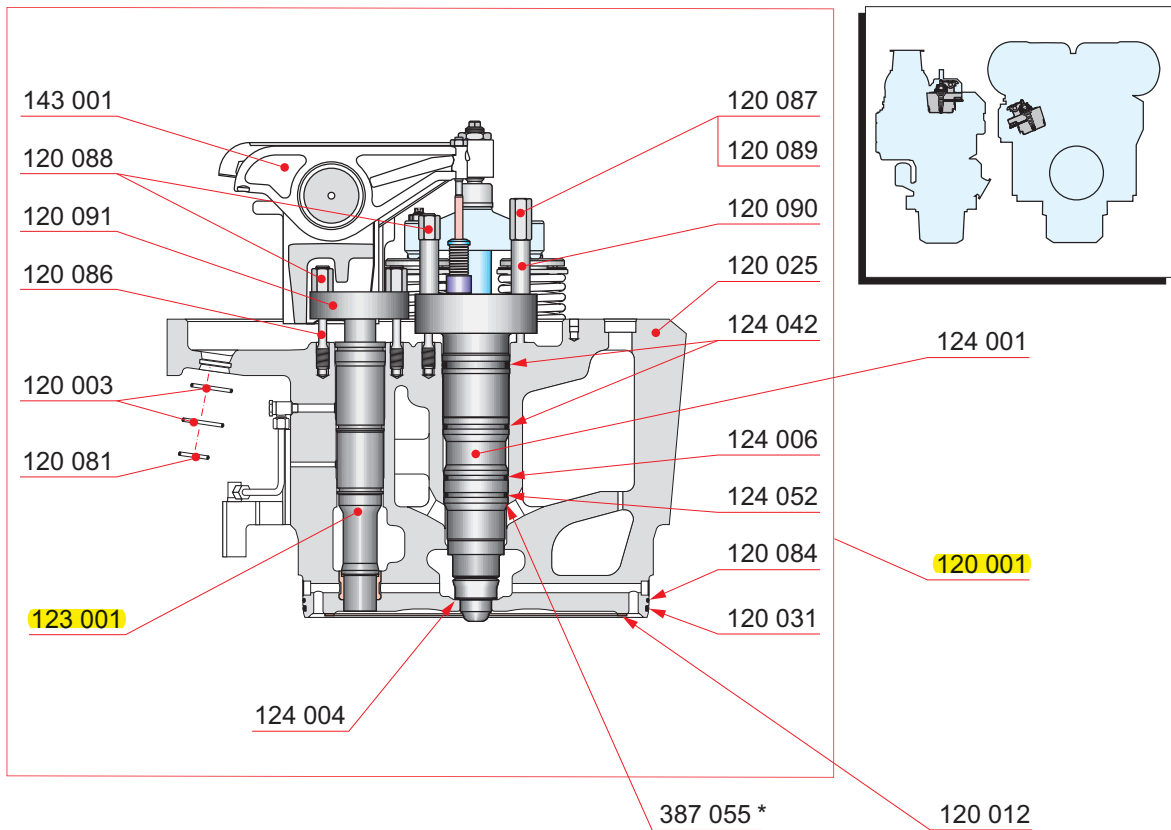
NOTE! (2) Without valves

Cylinder head



Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 007	Yoke pin	2	-
120 013	Valve guide	4	-
120 014	Sealing push-in cap	5	-
120 017	O-ring	2	-
120 021	Seat ring for inlet valve	2	-
120 022	Seat ring for outlet valve	2	-
120 049	Sleeve	1	-
120 050	Sealing push-in cap	13	-
120 051	Plug	2	-
120 052	Sealing ring	2	-
120 053	Sealing push-in cap	8	-
121 001	Exhaust valve, compl.	2	-
121 007	Inlet valve, compl.	2	-

Cylinder head with starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 001	Cylinder head	1	-	NOTE!	(4) See section 124-		
120 003	O-ring	2	-	NOTE!	*) Prechamber O-rings to be slightly lubricated.		
120 025	Cylinder head (1)	1	319				
120 031	O-ring	1	-				
120 081	O-ring	1	-				
120 084	O-ring	1	-				
120 086	Screw	2	0.2				
120 087	Screw	2	0.2				
120 088	Nut	3	-				
120 089	Nut	1	0.1				
120 090	Sleeve	2	0.2				
120 091	Yoke	1	1.5				
123 001	Starting valve (2)	1	6.4				
124 004	Gasket	1	-				
124 006	O-ring	1	-				
124 042	O-ring	2	-				
124 052	O-ring	1	-				
143 001	Rocker arms with bracket (3)	1	46.5				
120 012	Gasket	1	0.2				
124 001	Prechamber (4)	1	-				
387 055	Contact lubrication *	1	-				

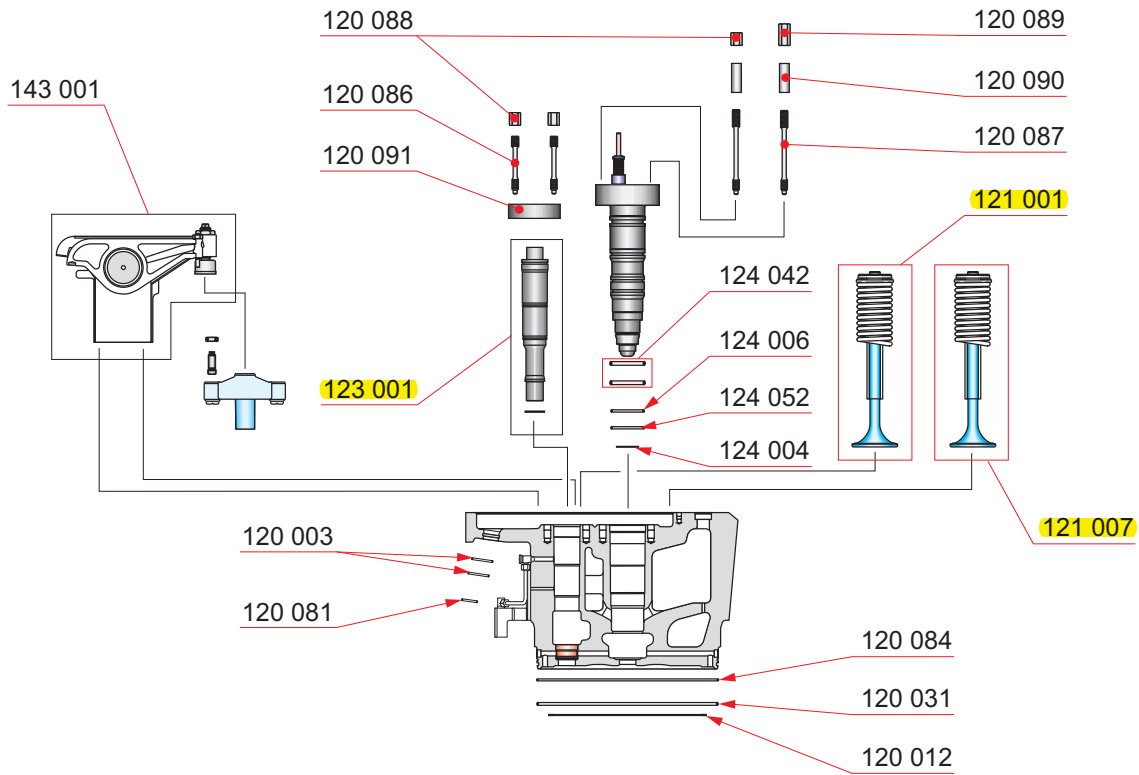
NOTE! (1) See section 120-

NOTE! (2) See section 123-

NOTE! (3) See section 143-

APPENDIX A

Cylinder head with starting valve



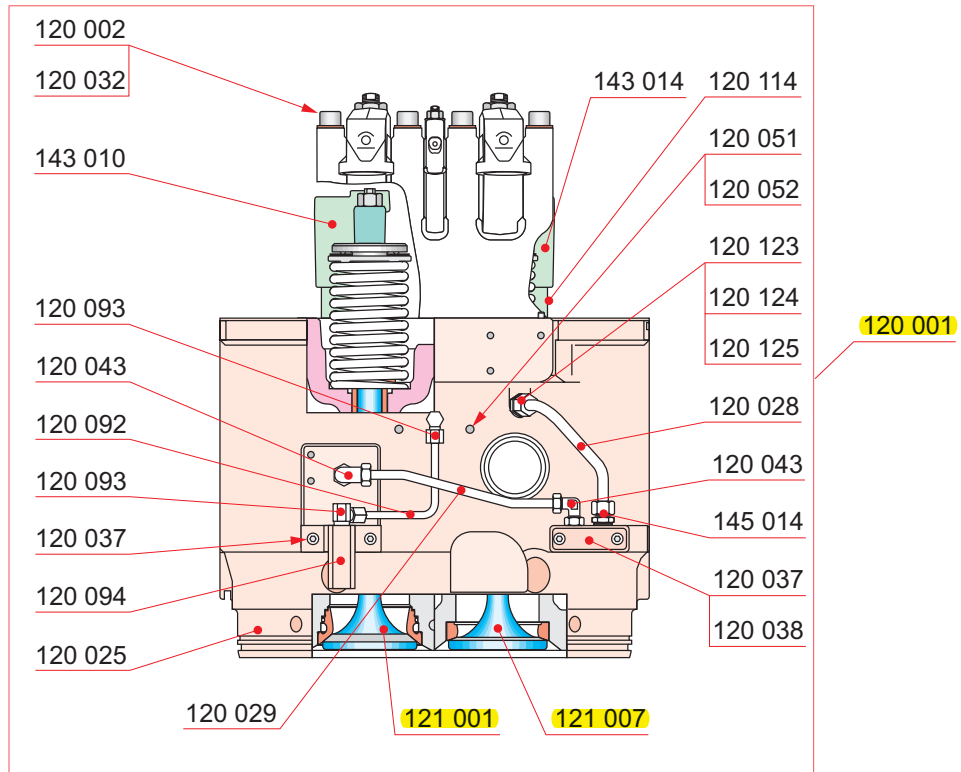
Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 003	O-ring	2	-	NOTE!	(5) See section 121-		
120 012	Gasket	1	0.2				
120 031	O-ring	1	-				
120 081	O-ring	1	-				
120 084	O-ring	1	-				
120 086	Screw	2	0.2				
120 087	Screw	2	0.2				
120 088	Nut	3	-				
120 089	Nut	1	0.1				
120 090	Sleeve	2	0.2				
120 091	Yoke	1	1.5				
121 001	Exhaust valve, compl. (5)	2	-				
121 007	Inlet valve, compl. (5)	2	-				
123 001	Starting valve (2)	1	6.4				
124 004	Gasket	1	-				
124 006	O-ring	1	-				
124 042	O-ring	2	-				
124 052	O-ring	1	-				
143 001	Rocker arms with bracket (3)	1	46.5				

NOTE! (2) See section 123-

NOTE! (3) See section 143-

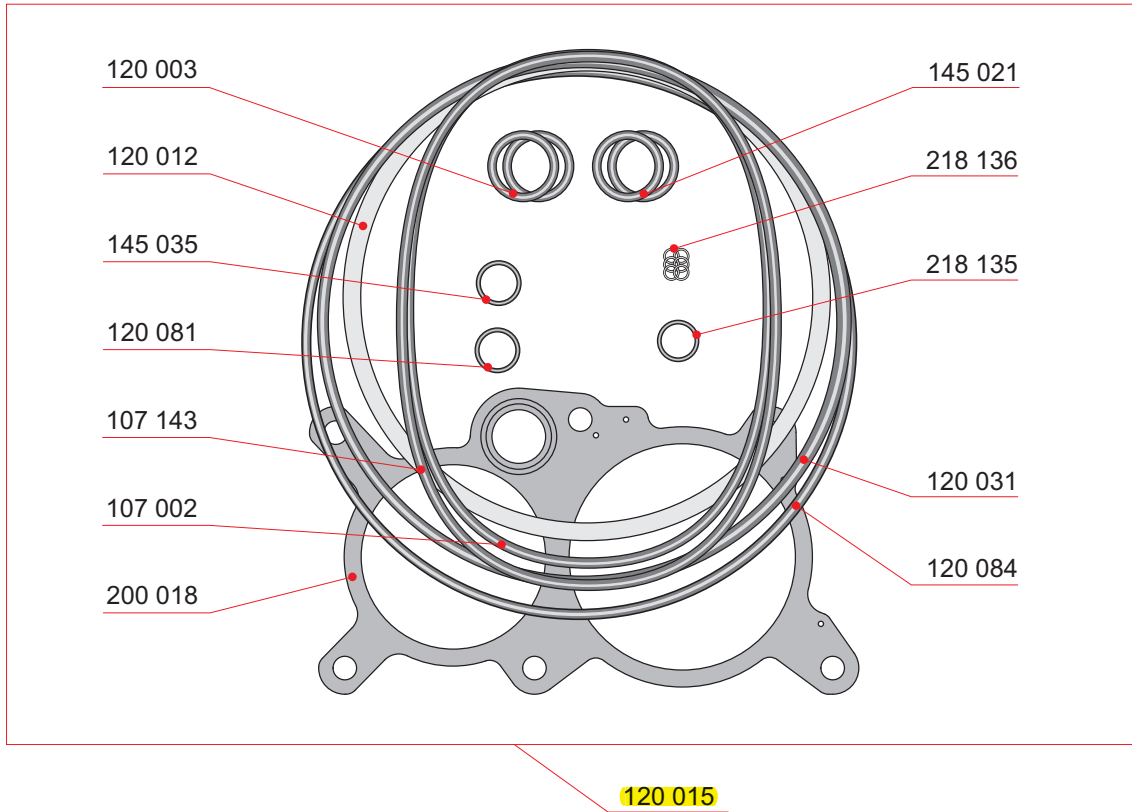
APPENDIX A

Cylinder head with starting valve



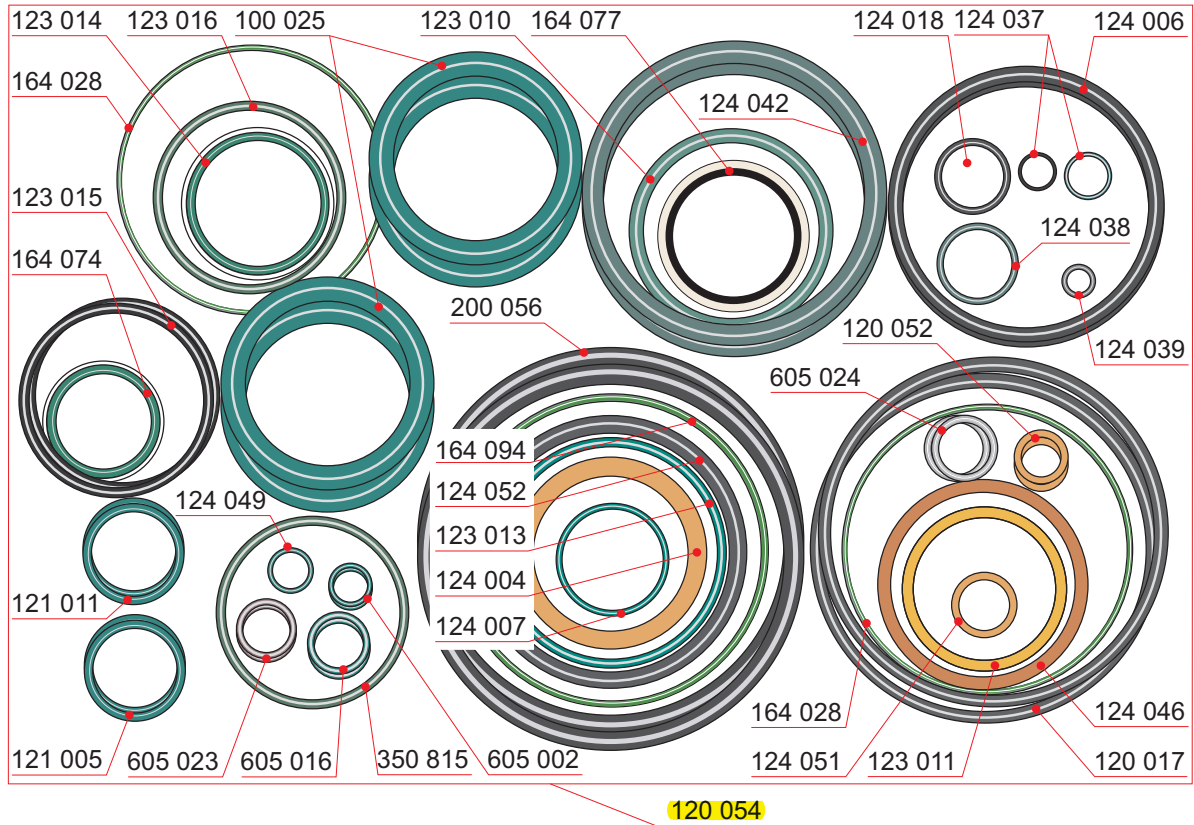
Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 001	Cylinder head	1	-	145 014	Pipe union	1	-
120 002	Screw	6	0.3				
120 025	Cylinder head (1)	1	319	NOTE!	(1) See section 120-		
120 028	Pipe	1	-	NOTE!	(3) See section 143-		
120 029	Pipe	1	0.1	NOTE!	(5) See section 121-		
120 032	Washer	6	-				
120 037	Screw	4	-				
120 038	Connection piece	1	0.6				
120 043	Pipe union	2	0.2				
605 002	O-ring	1	-				
605 023	O-ring	1	-				
605 024	Retaining ring	1	-				
120 051	Plug	2	-				
120 052	Sealing ring	2	-				
120 092	Pipe	1	0.5				
120 093	Pipe union	2	-				
120 094	Connection piece	1	1.6				
120 114	Pin	2	-				
120 123	Nut	1	-				
120 124	Cutting ring	1	-				
120 125	Pipe union	1	-				
121 001	Exhaust valve, compl. (5)	2	-				
121 007	Inlet valve, compl. (5)	2	-				
143 010	Yoke for exhaust valve, compl. (3)	1	2.8				
143 014	Yoke for inlet valve, compl. (3)	1	2.8				

Cylinder head with starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 015	Sealing set for cylinder head replacement	1	0.6
107 002	Hose gasket	1	-
107 143	Hose gasket	1	-
120 003	O-ring	2	-
120 012	Gasket	1	0.2
120 031	O-ring	1	-
120 081	O-ring	1	-
120 084	O-ring	1	-
145 021	O-ring	2	-
145 035	O-ring	1	-
200 018	Gasket	1	0.3
218 135	O-ring	1	0.2
218 136	O-ring	6	-

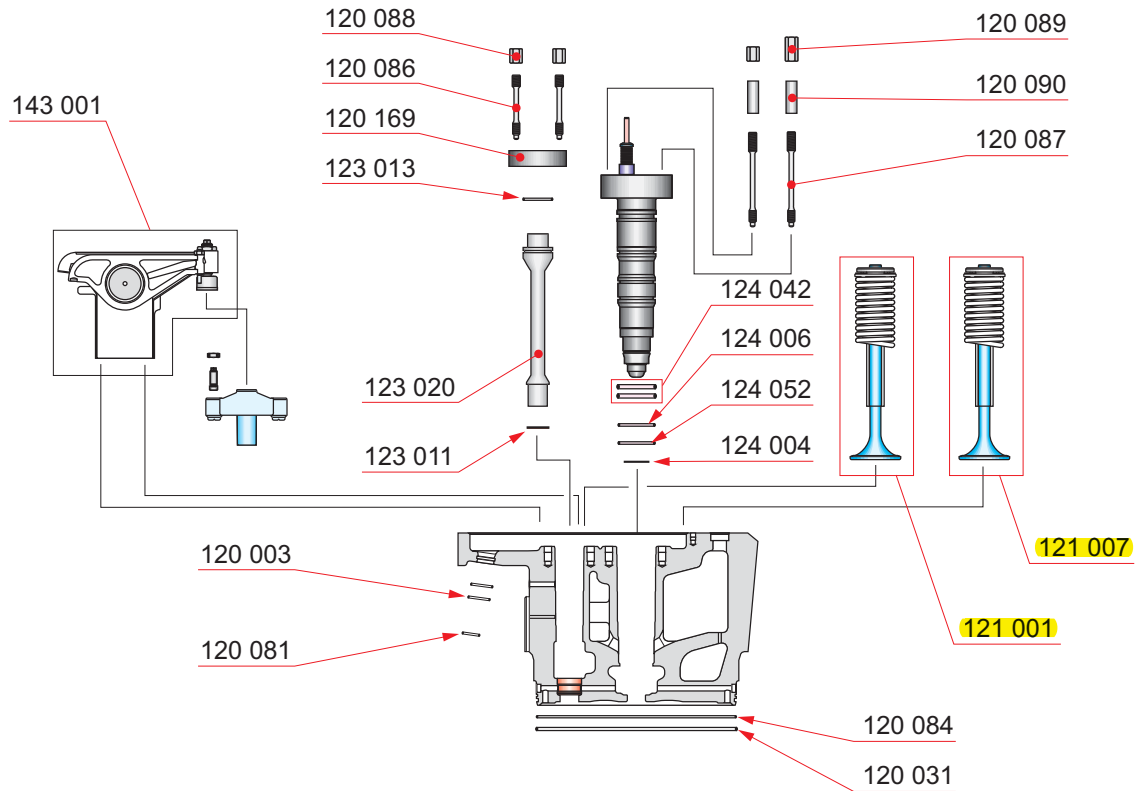
Cylinder head with starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 054	Sealing set for cylinder head overhaul	1	0.4	164 074	O-ring	2	-
100 025	O-ring	4	-	164 077	O-ring	1	-
120 017	O-ring	2	-	164 094	O-ring (1)	1	-
120 052	Sealing ring	2	-	200 056	O-ring	2	-
121 005	O-ring	2	-	350 815	O-ring	1	-
121 011	O-ring	2	-	605 002	O-ring	2	-
123 010	O-ring	1	-	605 016	Sealing ring	2	-
123 011	Sealing ring	1	-	605 023	O-ring	2	-
123 013	O-ring	1	-	605 024	Retaining ring	2	-
123 014	O-ring (1)	1	-				
123 015	O-ring	1	-	NOTE!	(1) Not used in all installations.		
123 016	O-ring	1	-	NOTE!	(2) Choose right O-rings according to your prechamber valve type.		
124 004	Gasket (3)	2	-	NOTE!	(3) The brighter bronze coloured prechamber gasket is of harder material, see service bulletin 3412Q062 for more information.		
124 006	O-ring (2)	2	-	NOTE!	(4) Choose right O-ring according to your prechamber valve type.		
124 018	O-ring	1	-	NOTE!	(5) Select o-ring with the same size that is replaced.		
124 037	Sealing ring	1	-				
124 038	O-ring (1)	1	-				
124 039	O-ring (4)	1	-				
124 042	O-ring (2)	2	-				
124 046	Sealing ring (1)	1	-				
124 049	O-ring (4)	1	0.2				
124 052	O-ring (2)	1	-				
164 028	O-ring (5)	1	-				
164 028	O-ring (5)	1	-				
124 007	O-ring	1	-				
124 051	Seal ring (1)	1	-				

APPENDIX A

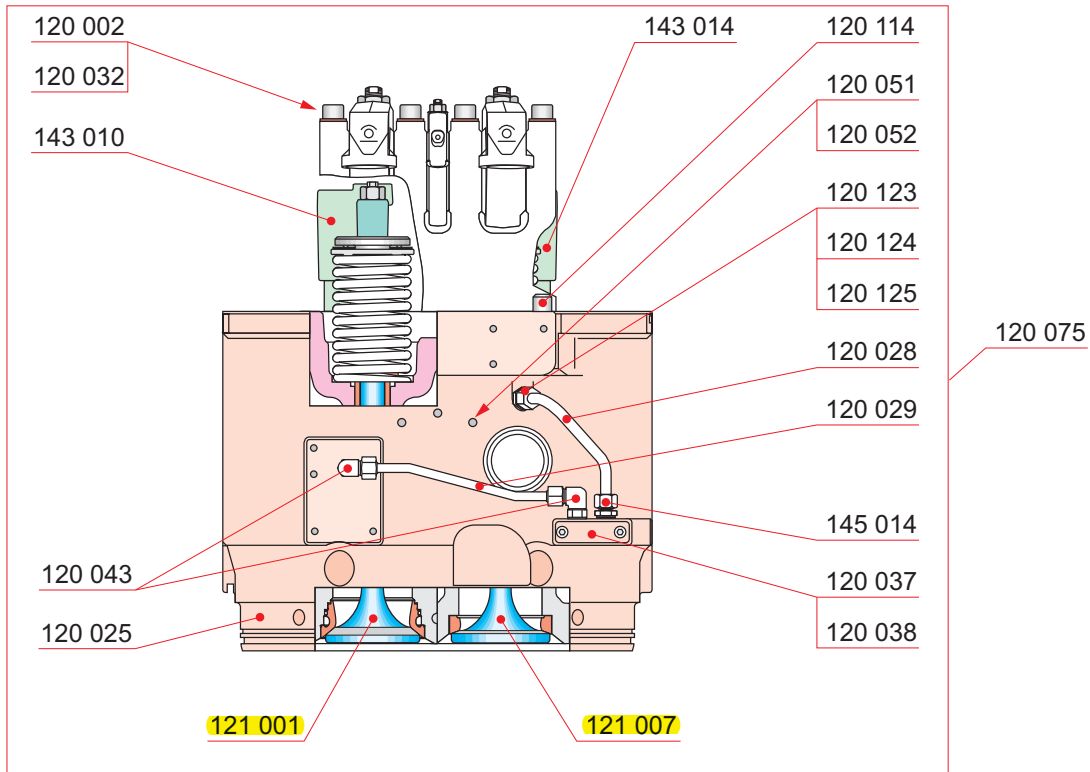
Cylinder head without starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 003	O-ring	2	-	NOTE!	(5) See section 121-		
120 031	O-ring	1	-				
120 081	O-ring	1	-				
120 084	O-ring	1	-				
120 086	Screw	2	-				
120 087	Screw	2	-				
120 088	Nut	3	-				
120 089	Nut	1	-				
120 090	Sleeve	2	-				
120 091	Yoke	1	-				
121 001	Exhaust valve, compl. (5)	2	-				
121 007	Inlet valve, compl. (5)	2	-				
123 011	Sealing ring	1	-				
123 013	O-ring	1	-				
123 020	Dummy	1	-				
124 004	Gasket	1	-				
124 006	O-ring	1	-				
124 042	O-ring	2	-				
124 052	O-ring	1	-				
143 001	Rocker arms with bracket (3)	1	-				

NOTE! (3) See section 143-

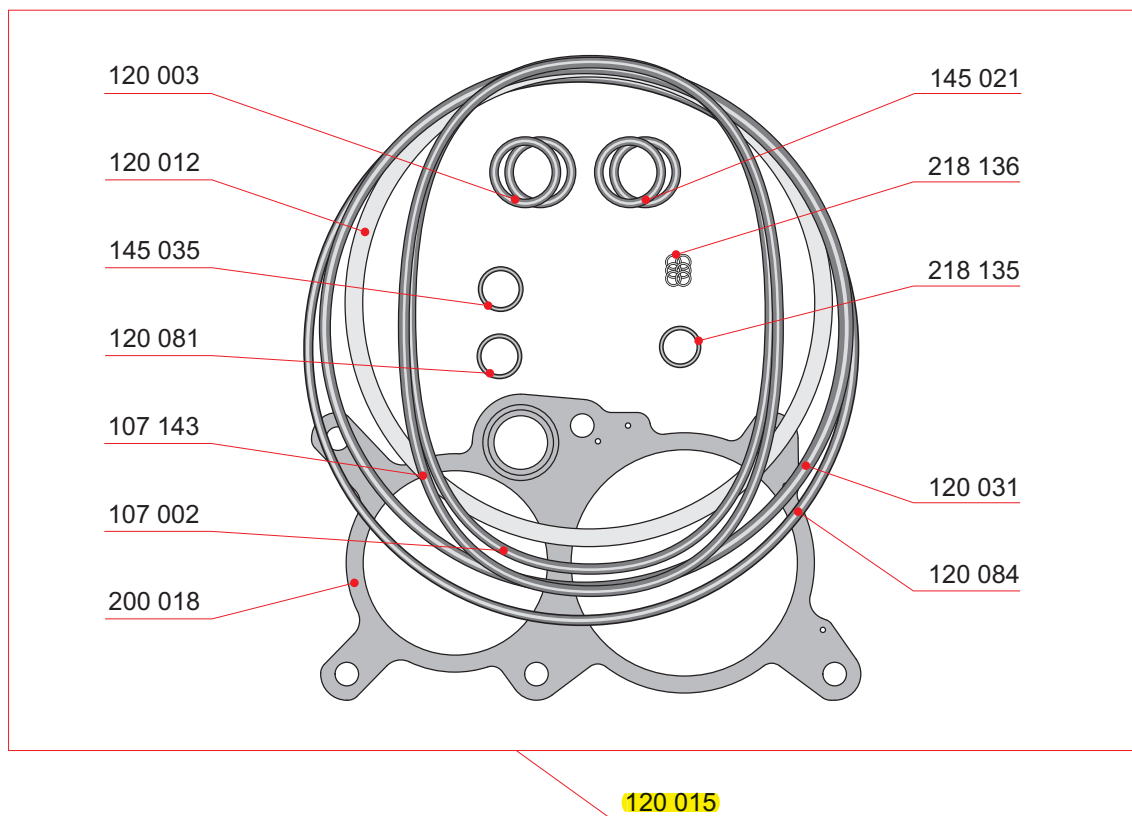
Cylinder head without starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 075	Cylinder head	1	-	NOTE!	(3) See section 143-		
120 002	Screw	6	-	NOTE!	(5) See section 121-		
120 025	Cylinder head (1)	1	-				
120 028	Pipe	1	-				
120 029	Pipe	1	-				
120 032	Washer	6	-				
120 037	Screw	2	-				
120 038	Connection piece	1	-				
120 043	Pipe union	2	-				
605 002	O-ring	1	-				
605 023	O-ring	1	-				
605 024	Retaining ring	1	-				
120 051	Plug	2	-				
120 052	Sealing ring	2	-				
120 114	Pin	2	-				
120 123	Nut	1	-				
120 124	Cutting ring	1	-				
120 125	Pipe union	1	-				
121 001	Exhaust valve, compl. (5)	2	-				
121 007	Inlet valve, compl. (5)	2	-				
143 010	Yoke for exhaust valve, compl. (3)	1	-				
143 014	Yoke for inlet valve, compl. (3)	1	-				
145 014	Pipe union	1	-				

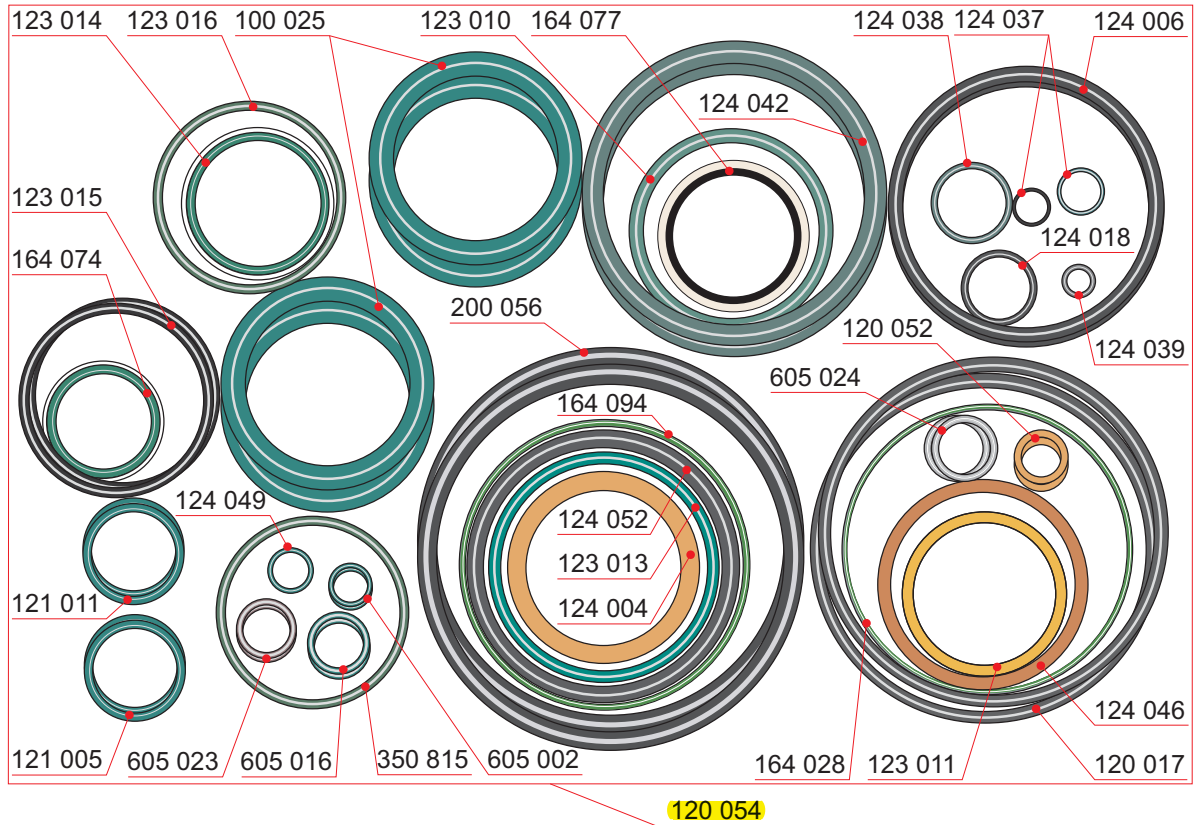
NOTE! (1) See section 120-

Cylinder head without starting valve



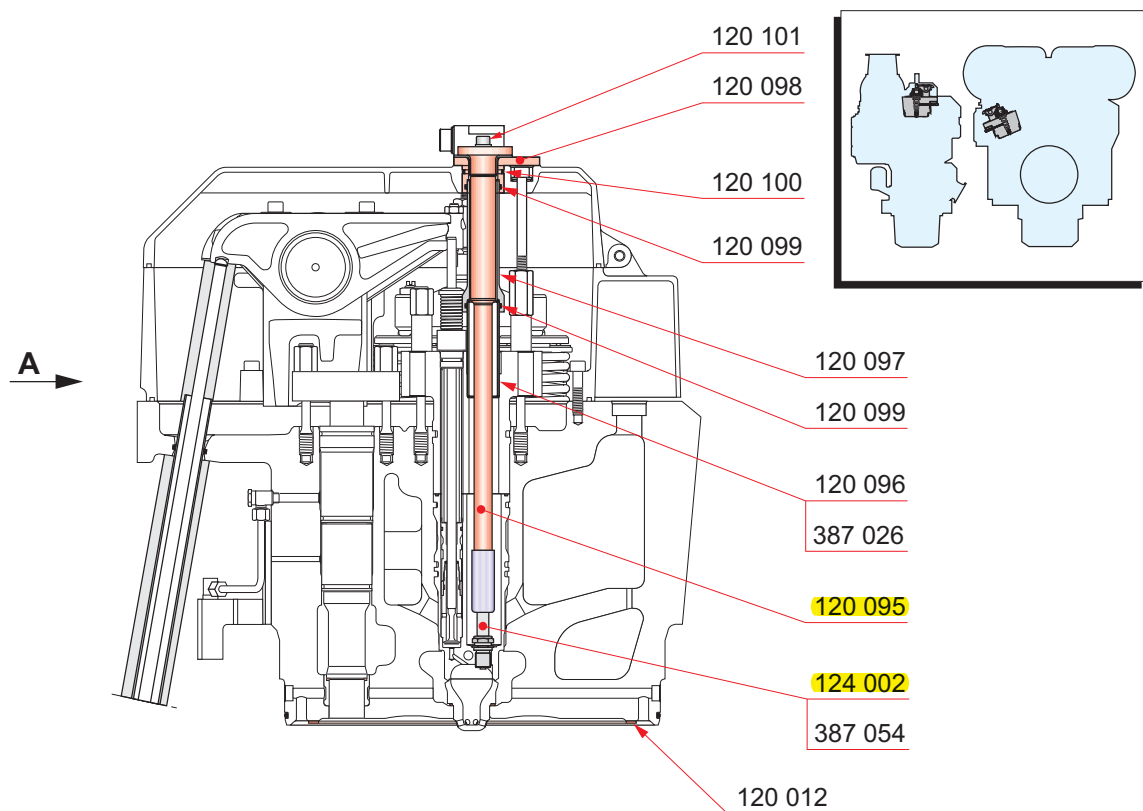
Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 015	Sealing set for cylinder head replacement	1	-
107 002	Hose gasket	1	-
107 143	Hose gasket	1	-
120 003	O-ring	2	-
120 012	Gasket	1	-
120 031	O-ring	1	-
120 081	O-ring	1	-
120 084	O-ring	1	-
145 021	O-ring	2	-
145 035	O-ring	1	-
200 018	Gasket	1	-
218 135	O-ring	1	-
218 136	O-ring	6	-

Cylinder head without starting valve



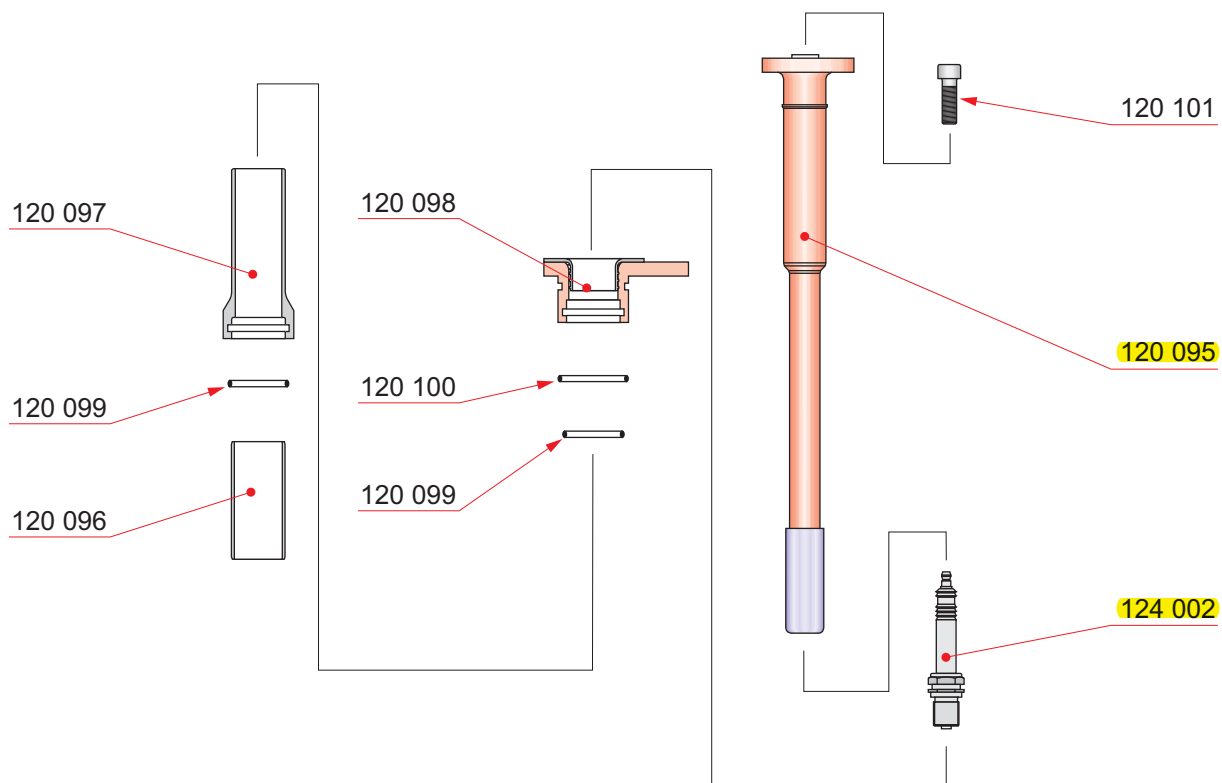
Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 054	Sealing set for cylinder head overhaul	1	-	200 056	O-ring	2	-
100 025	O-ring	4	-	350 815	O-ring	1	-
120 017	O-ring	2	-	605 002	O-ring	2	-
120 052	Sealing ring	2	-	605 016	Sealing ring	2	-
121 005	O-ring	2	-	605 023	O-ring	2	-
121 011	O-ring	2	-	605 024	Retaining ring	2	-
123 010	O-ring	1	-	NOTE!	(1) Not used in all installations.		
123 011	Sealing ring	1	-	NOTE!	(2) Choose right O-rings according to your prechamber valve type.		
123 013	O-ring	1	-	NOTE!	* Choose right O-ring according to your prechamber valve type.		
123 014	O-ring (1)	1	-				
123 015	O-ring	1	-				
123 016	O-ring	1	-				
124 004	Gasket	2	-				
124 006	O-ring (2)	2	-				
124 018	O-ring	1	-				
124 037	Sealing ring	1	-				
124 038	O-ring	1	-				
124 039	O-ring *	1	-				
124 042	O-ring (2)	2	-				
124 046	Sealing ring (1)	1	-				
124 049	O-ring *	1	-				
124 052	O-ring (2)	1	-				
164 028	O-ring	1	-				
164 074	O-ring	2	-				
164 077	O-ring	1	-				
164 094	O-ring (1)	1	-				

Cylinder head equipment



Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 012	Gasket	1	-
120 095	Ignition coil	1	-
120 096	Pipe	1	-
120 097	Sealing bush	1	-
120 098	Flange	1	-
120 099	O-ring	2	-
120 100	O-ring	1	-
120 101	Screw	2	-
124 002	Spark plug	1	-
387 026	Glue compound	1	-
387 054	Contact lubrication	1	-

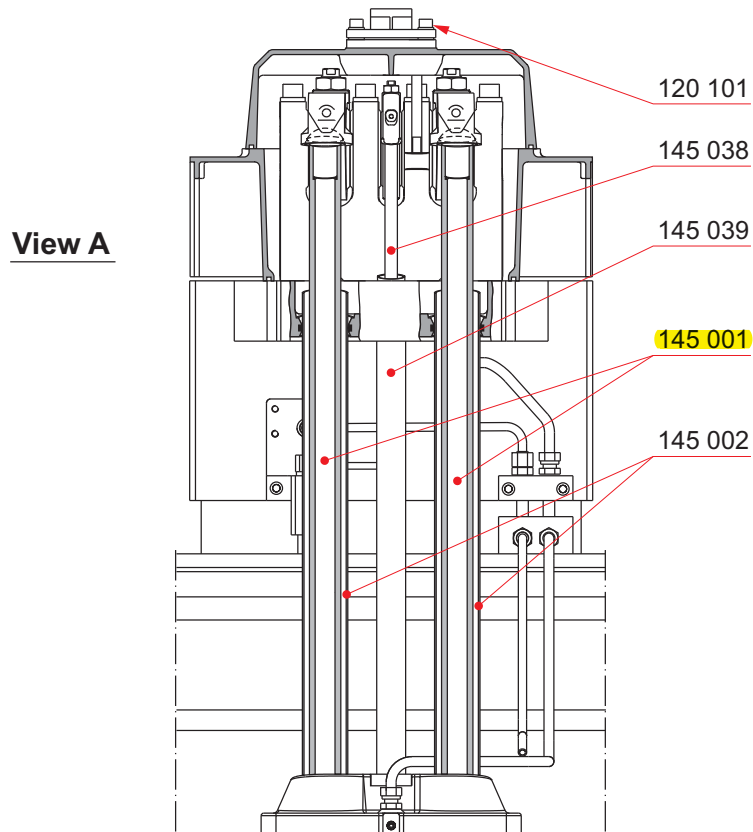
Cylinder head equipment



Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 095	Ignition coil	1	-
120 096	Pipe	1	-
120 097	Sealing bush	1	-
120 098	Flange	1	-
120 099	O-ring	2	-
120 100	O-ring	1	-
120 101	Screw	2	-
124 002	Spark plug	1	-

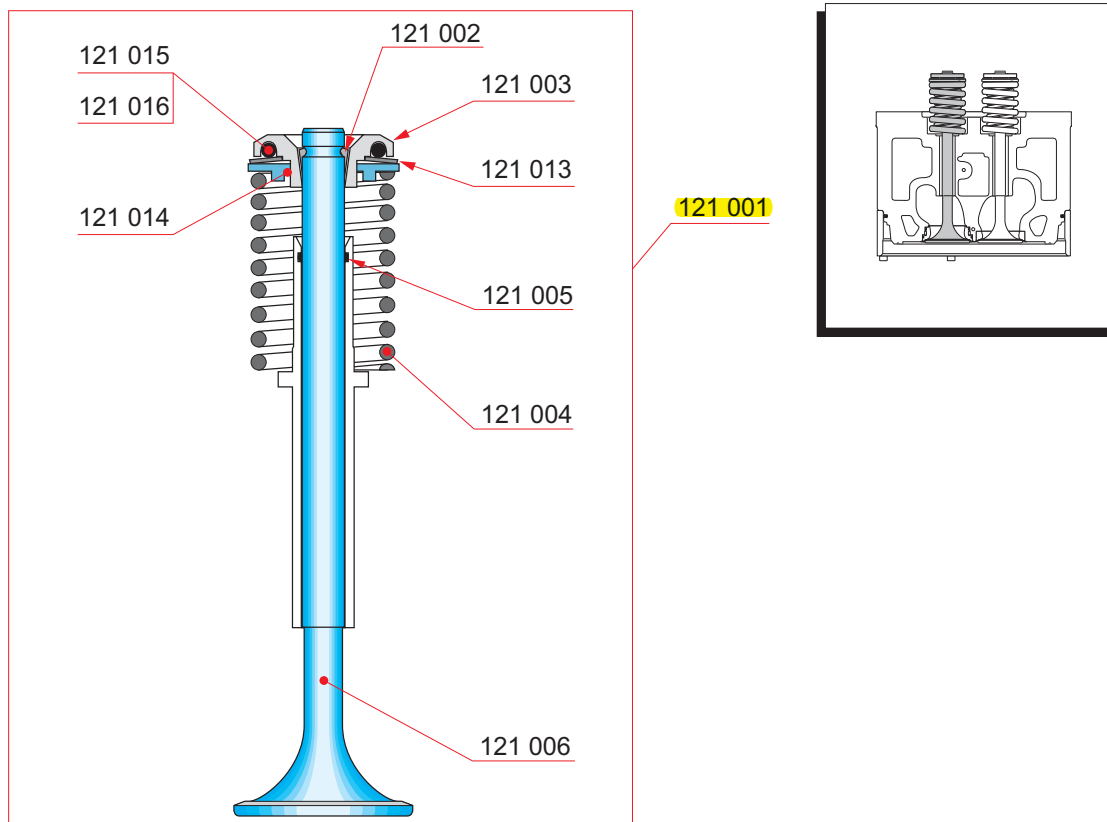
APPENDIX A

Cylinder head equipment



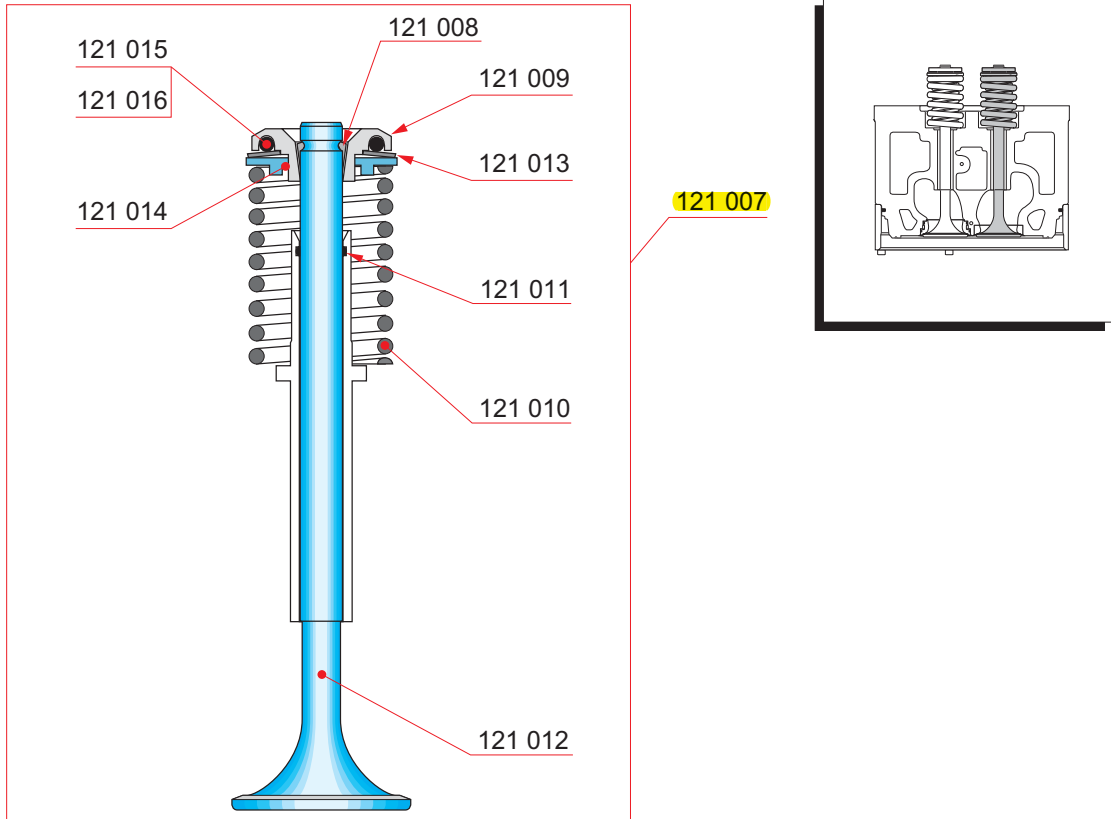
Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 101	Screw	2	-
145 001	Push rod	2	-
145 002	Protecting pipe	2	-
145 038	Push rod	1	-
145 039	Protecting pipe	1	-

Exhaust valve assembly



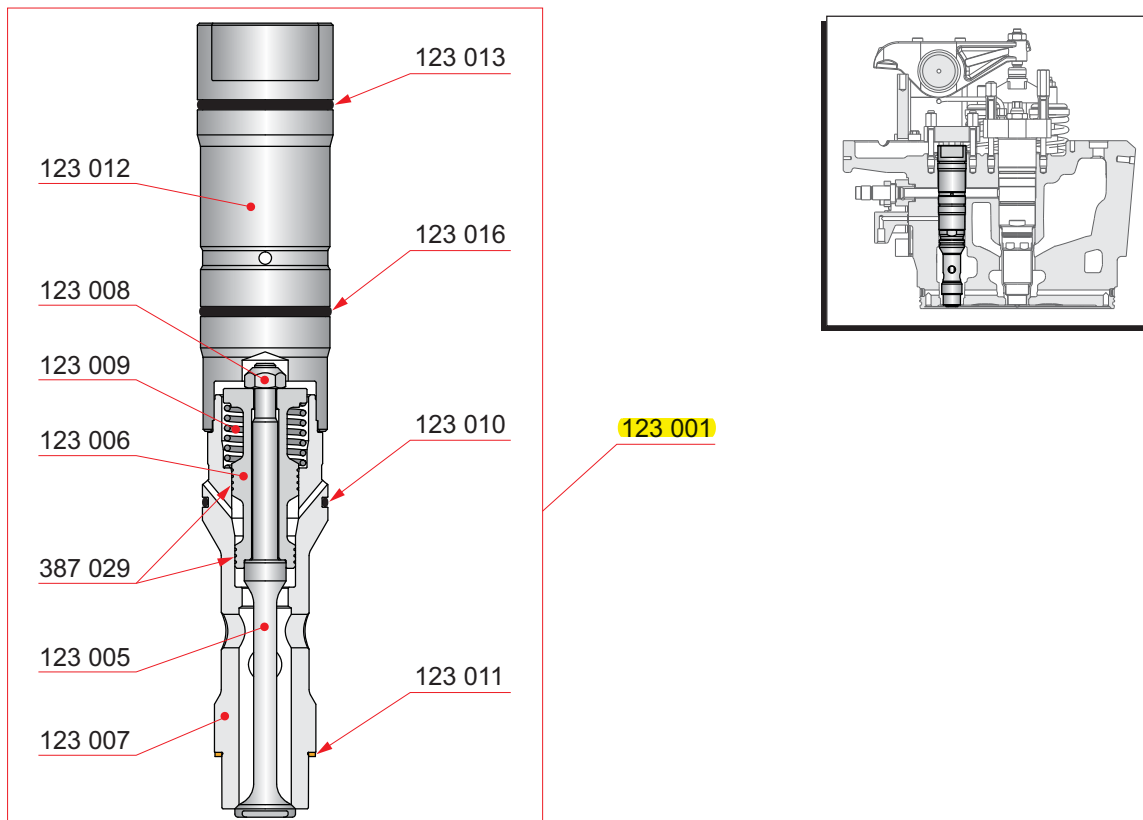
Part No.	Description	Qty [Pcs]	Wt. [Kg]
121 001	Exhaust valve, compl.	1	5.3
121 002	Valve cotter pair	1	-
121 003	Rotocap	1	0.7
121 013	Spring plate	1	-
121 014	Retainer ring	1	-
121 015	Spring	7	-
121 016	Ball	7	-
121 004	Spring	1	1.5
121 005	O-ring	1	-
121 006	Exhaust valve	1	2.9

Inlet valve assembly



Part No.	Description	Qty [Pcs]	Wt. [Kg]
121 007	Inlet valve, compl.	1	-
121 008	Valve cotter pair	1	-
121 009	Rotocap	1	0.7
121 013	Spring plate	1	-
121 014	Retainer ring	1	-
121 015	Spring	7	-
121 016	Ball	7	-
121 010	Spring	1	1.5
121 011	O-ring	1	-
121 012	Inlet valve	1	3.1

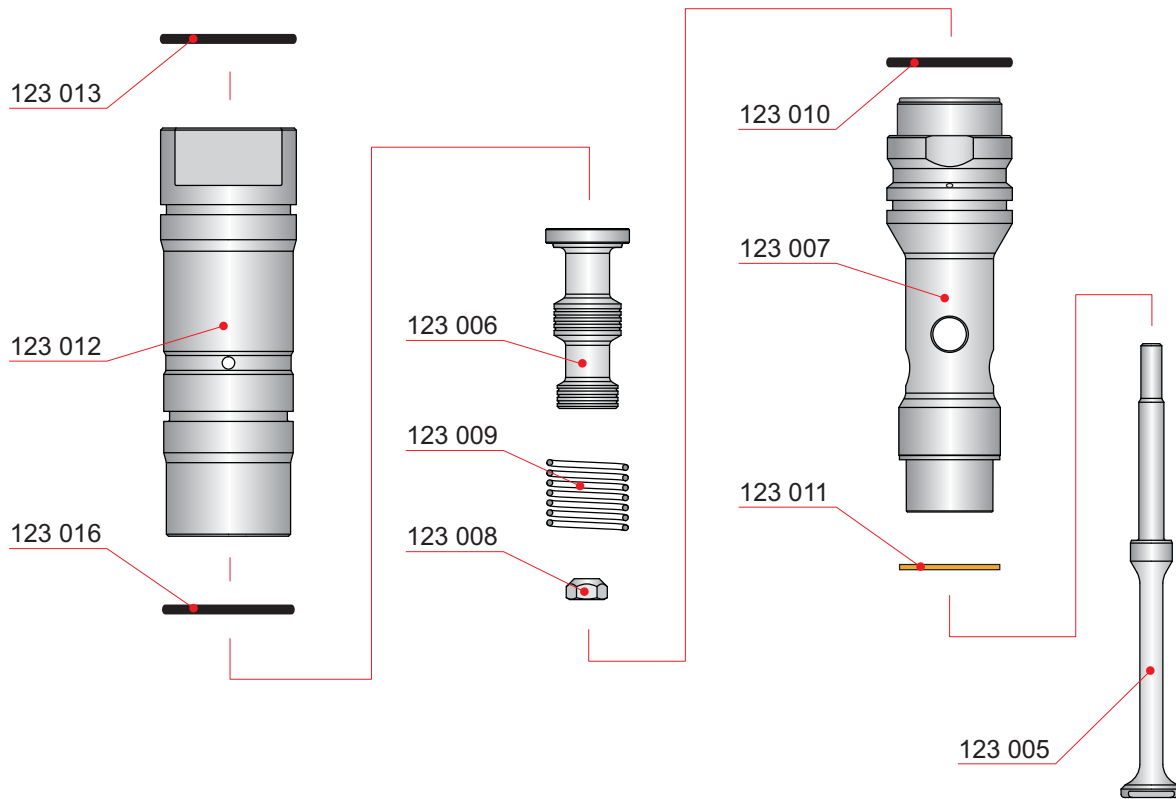
Starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
123 001	Starting valve	1	-
123 005	Spindle	1	-
123 006	Piston	1	-
123 007	Housing	1	-
123 008	Nut	1	-
123 009	Spring	1	-
123 010	O-ring	1	-
123 011	Sealing ring	1	-
123 012	End piece	1	-
123 013	O-ring	1	-
123 016	O-ring	1	-
387 029	Assembly compound	1	-

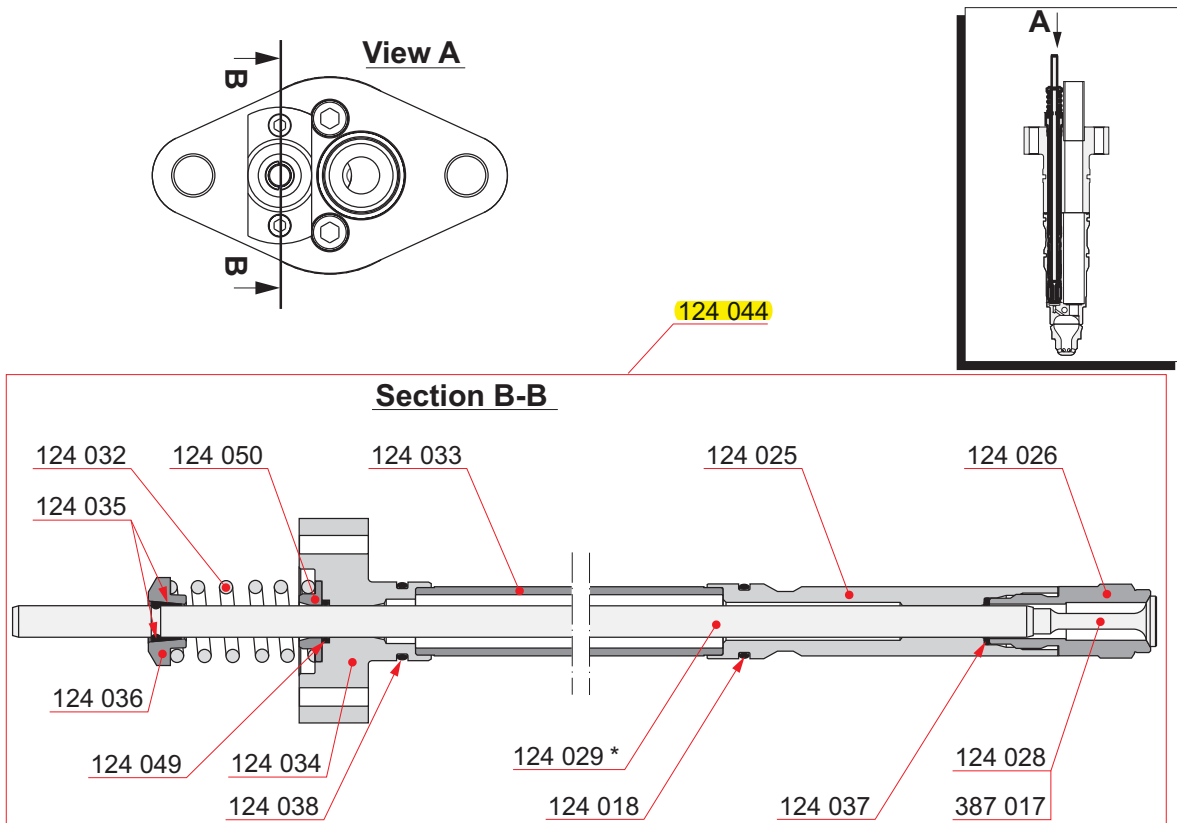
APPENDIX A

Starting valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
123 001	Starting valve	1	-
123 005	Spindle	1	-
123 006	Piston	1	-
123 007	Housing	1	-
123 008	Nut	1	-
123 009	Spring	1	-
123 010	O-ring	1	-
123 011	Sealing ring	1	-
123 012	End piece	1	-
123 013	O-ring	1	-
123 016	O-ring	1	-

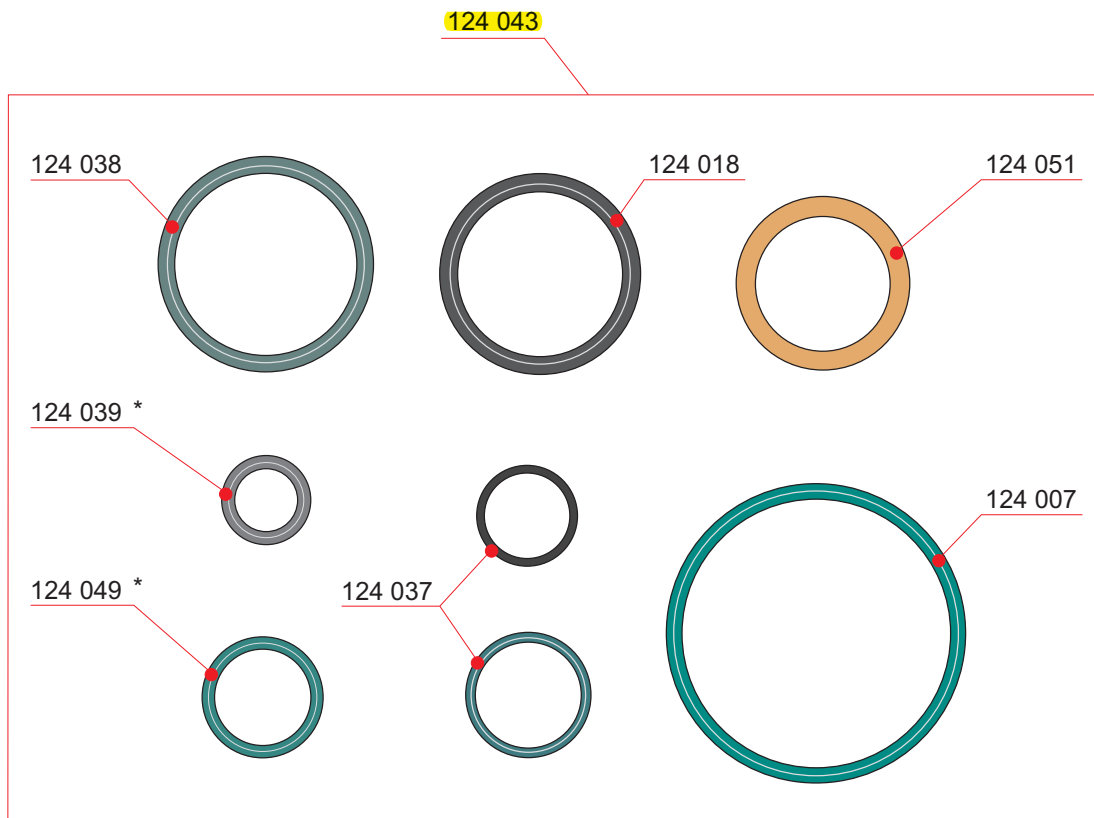
Prechamber control valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
124 044	Prechamber control valve	1	-
124 018	O-ring	1	-
124 025	Valve guide	1	0.2
124 026	Valve seat	1	-
124 028	Valve	1	-
124 029	Rod *	1	0.1
124 032	Spring	1	-
124 033	Extension	1	0.2
124 034	Yoke	1	0.3
124 035	Valve cotter pair	1	-
124 036	Spring retainer	1	-
124 037	Sealing ring	1	-
124 038	O-ring	1	-
124 049	O-ring	1	0.2
124 050	Spring guide	1	-
387 017	Glue compound	1	-

NOTE! *) To be lubricated with engine oil before mounting.

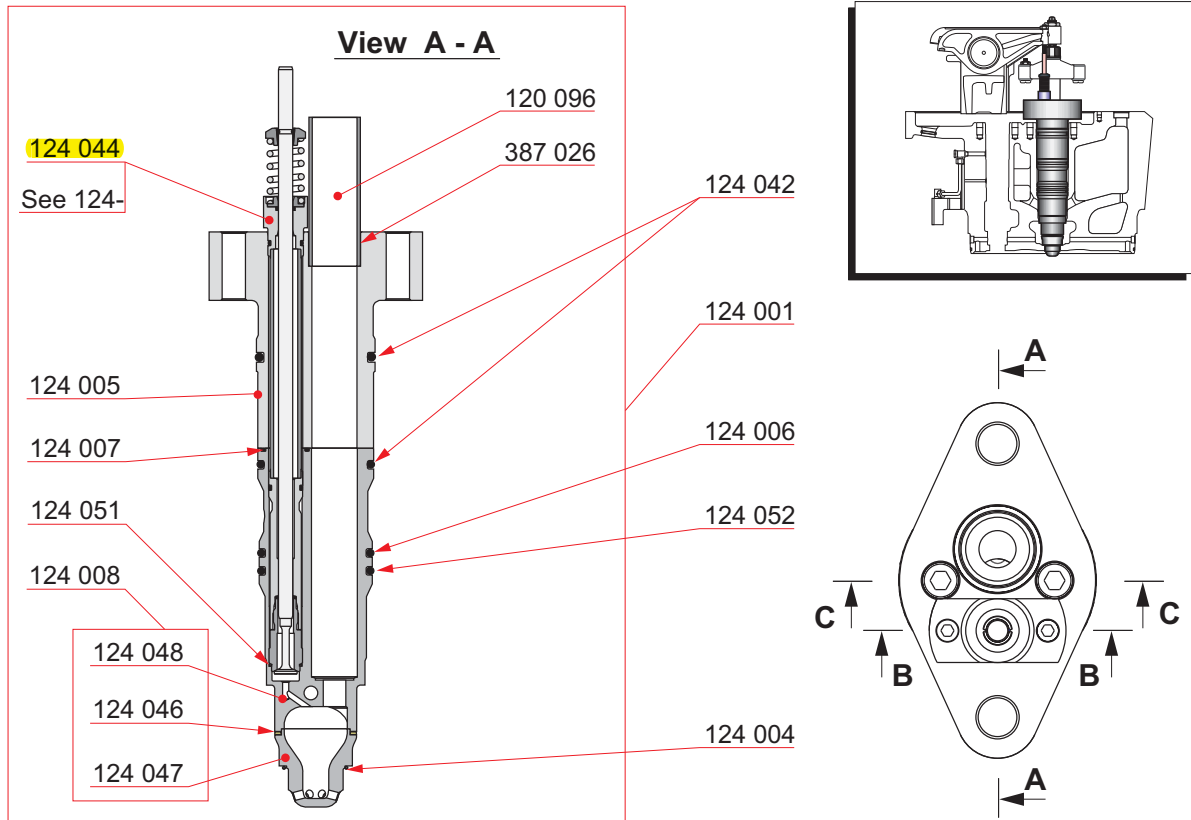
Prechamber control valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
124 043	Sealing set	1	-
124 007	O-ring	1	-
124 018	O-ring	1	-
124 037	Sealing ring	1	-
124 038	O-ring (1)	1	-
124 039	O-ring *	1	-
124 049	O-ring *	1	0.2
124 051	Seal ring (1)	1	-

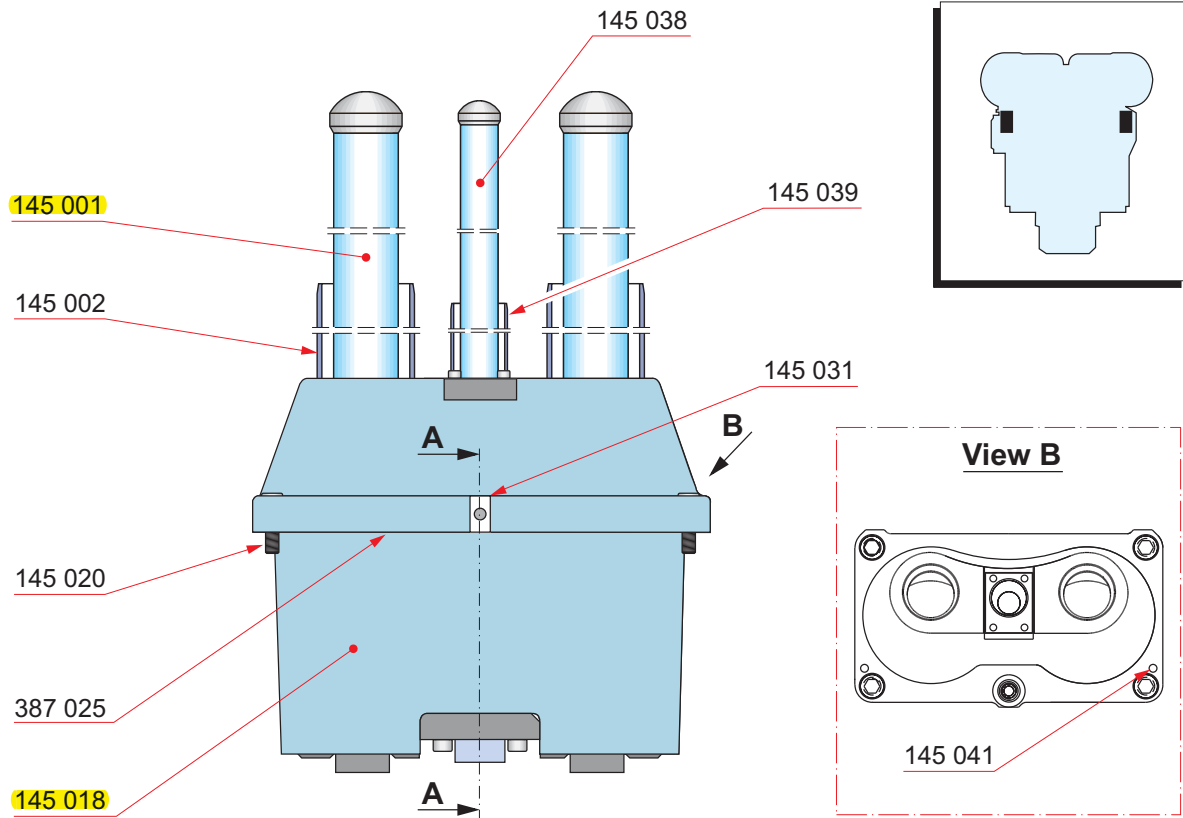
NOTE! (1) Not used in all installations.
 NOTE! * Choose right O-ring according to your prechamber valve type.

Prechamber



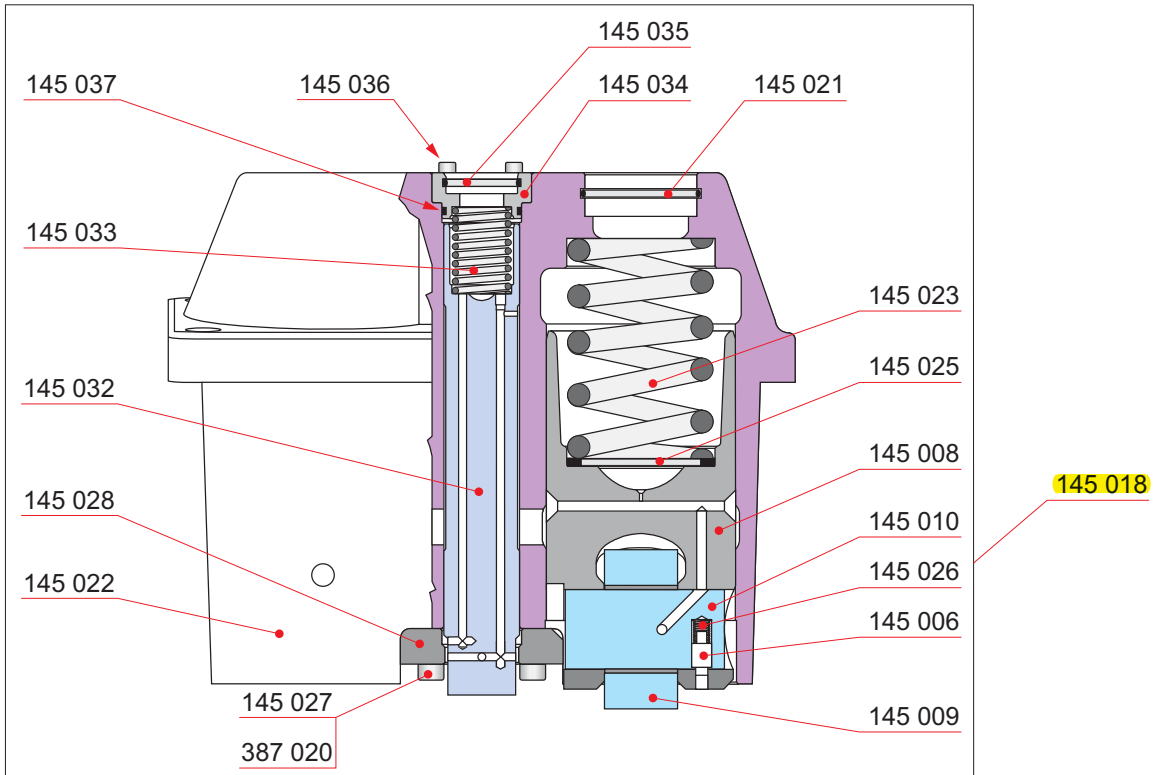
Part No.	Description	Qty [Pcs]	Wt. [Kg]
124 001	Prechamber	1	-
120 096	Pipe	1	-
124 005	Yoke	1	-
124 007	O-ring	1	-
124 008	Prechamber	1	-
124 046	Sealing ring	1	-
124 047	Prechamber, lower part	1	-
124 048	Prechamber, upper part	1	-
124 044	Prechamber control valve	1	-
124 004	Gasket	1	-
124 006	O-ring	1	-
124 042	O-ring	2	-
124 051	Seal ring	1	-
124 052	O-ring	1	-
387 026	Glue compound	1	-

Valve tappet with guide block



Part No.	Description	Qty [Pcs]	Wt. [Kg]
145 001	Push rod	2	-
145 002	Protecting pipe	2	-
145 018	Valve tappet	1	-
145 020	Screw	4	-
145 031	O-ring	1	-
145 038	Push rod	1	-
145 039	Protecting pipe	1	-
145 041	Spring pin	2	-
387 025	Glue compound	1	-

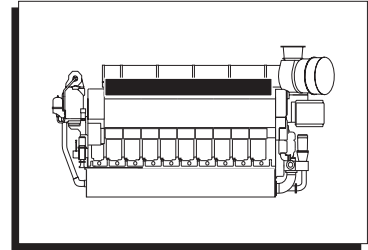
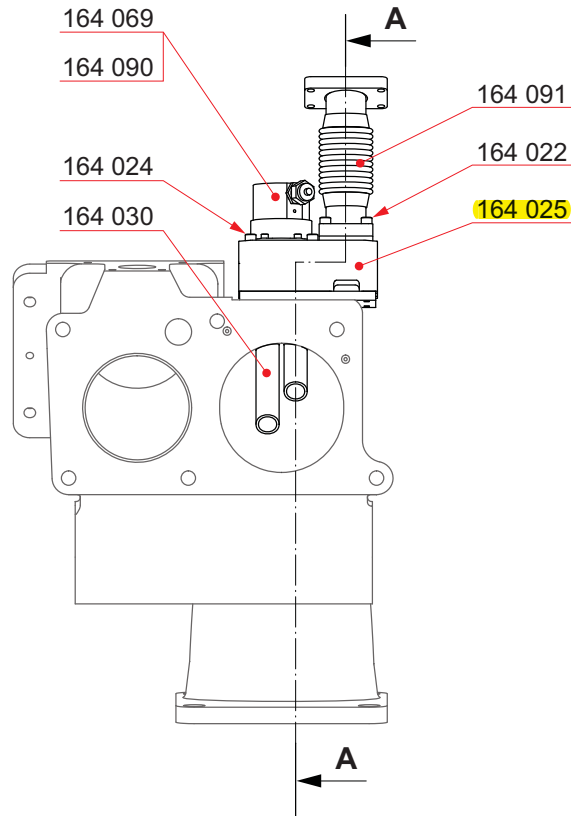
Valve tappet with guide block



Part No.	Description	Qty [Pcs]	Wt. [Kg]
145 018	Valve tappet	1	-
145 006	Pin	2	-
145 008	Valve tappet	2	-
145 009	Tappet roller (1)	2	-
145 010	Roller pin	2	-
145 021	O-ring	2	-
145 022	Housing	1	-
145 023	Spring	2	-
145 025	Washer	2	-
145 026	Spring	2	-
145 027	Screw	4	-
145 028	Guiding plate	1	-
145 032	Valve tappet	1	-
145 033	Spring	1	-
145 034	Cover	1	-
145 035	O-ring	1	-
145 036	Screw	4	-
145 037	O-ring	1	-
387 020	Glue compound	1	-

NOTE! (1) Bearing bush included.

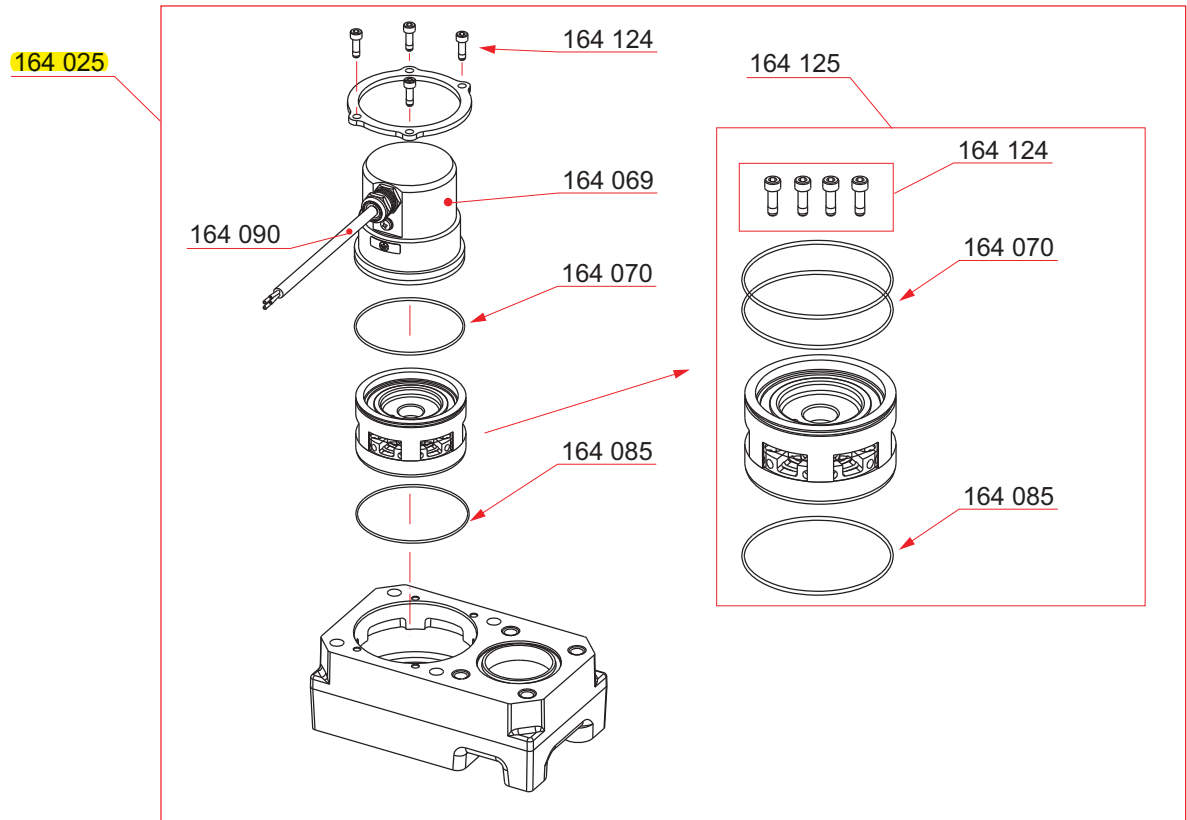
Main gas admission valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
164 022	Screw	4	-
164 024	Screw	4	-
164 025	Main gas valve	1	3.8
164 069	Coil	1	1.7
164 090	Cable (1)	1	-
164 030	Pipe	1	1.8
164 091	Bellows	1	3.0

NOTE! (1) L= 3700 mm

Main gas admission valve



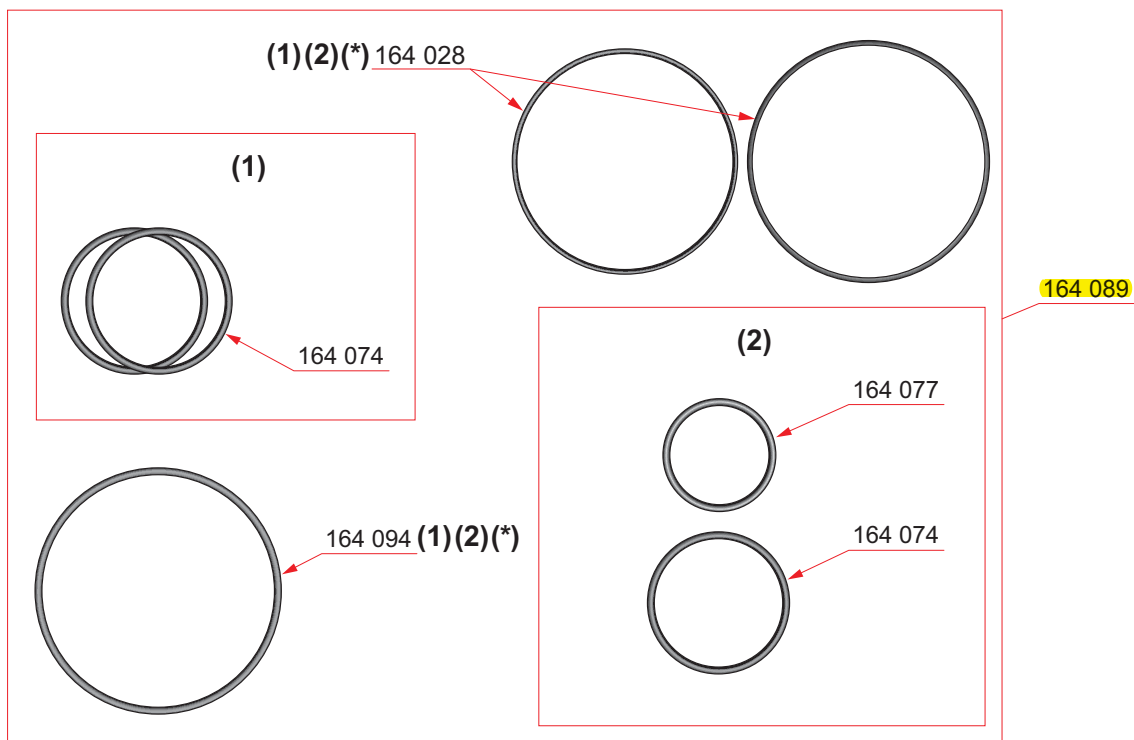
Part No.	Description	Qty [Pcs]	Wt. [Kg]
164 025	Main gas valve	1	3.8
164 069	Coil	1	1.7
164 090	Cable (1)	1	-
164 125	Cartridge set	1	3.7
164 070	O-ring (2) *)	2	-
164 085	O-ring (2)	1	-
164 124	Screw set	1	0.1

NOTE! (1) L= 3700 mm

NOTE! (2) Components are not available as single parts

NOTE! *) Amount depends on installation.

Main gas admission valve



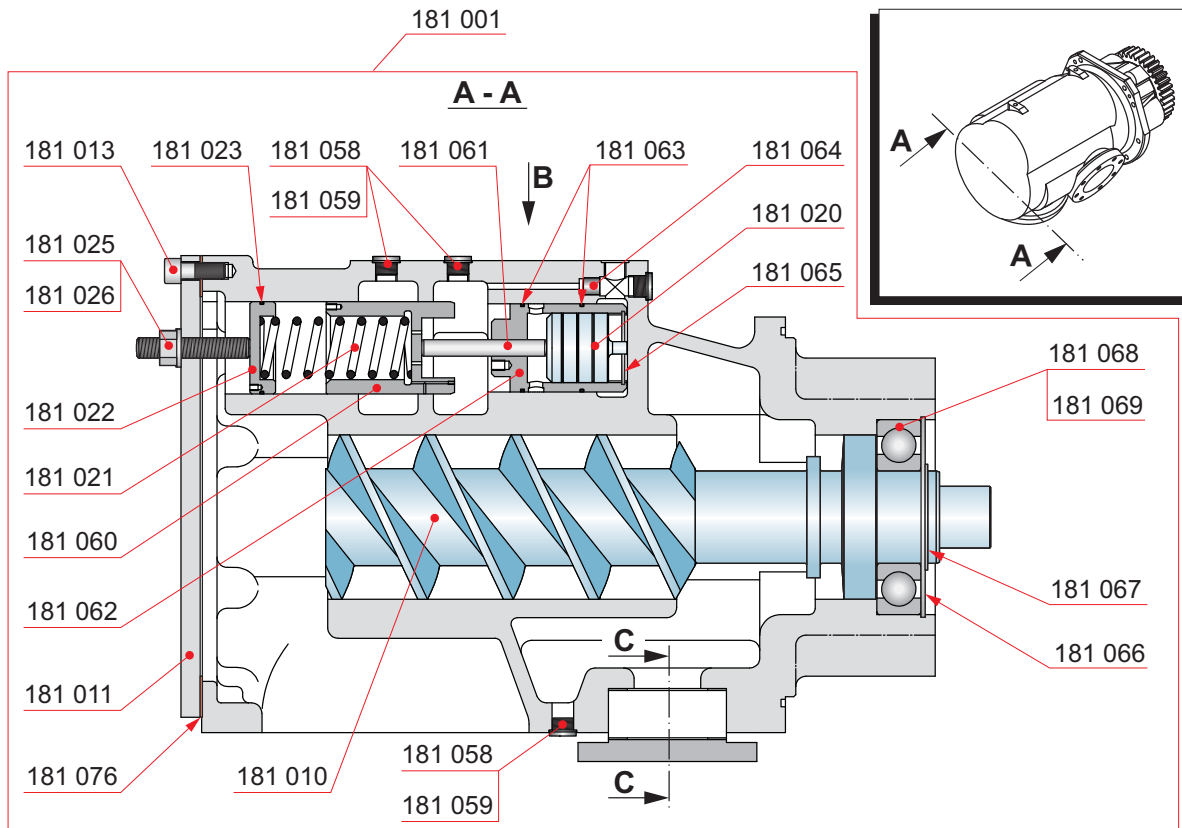
Part No.	Description	Qty [Pcs]	Wt. [Kg]
164 089	Spare part set	1	0.1
164 028	O-ring *	1	-
164 028	O-ring *	1	-
164 074	O-ring (1)	2	-
164 074	O-ring (2)	1	-
164 077	O-ring (2)	1	-
164 094	O-ring *	1	-

NOTE! (1) Used for Wärtsilä engines.

NOTE! (2) Used for Vasa engines.

NOTE! *) Select o-ring with the same size that is replaced.

Lubricating oil pump



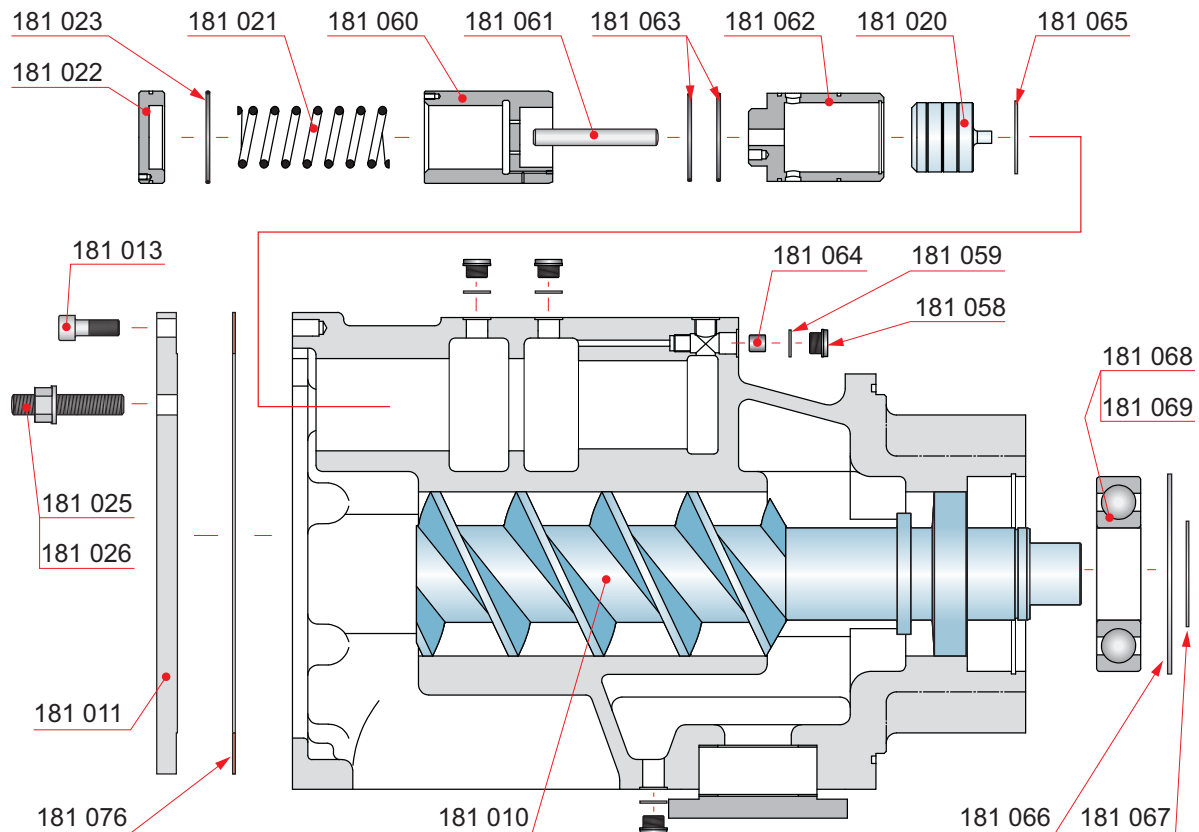
Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
181 001	Lubricating oil pump	1	-	NOTE!	(3) Included in Spindle set 181 079		
181 010	Drive shaft (3)	1	80.0				
181 011	Cover	1	-				
181 013	Screw	9	-				
181 020	Piston (2)	1	-				
181 021	Compression spring (2)	1	-				
181 022	Spring holder (2)	1	-				
181 023	O-ring (2)	1	-				
181 025	Screw (2)	1	-				
181 026	Nut (2)	1	-				
181 058	Screw (1) (2)	7	-				
181 059	Sealing ring (1) (2)	7	-				
181 060	Valve cone (2)	1	-				
181 061	Cylindrical pin (2)	1	-				
181 062	Valve sleeve (2)	1	-				
181 063	O-ring (2)	2	-				
181 064	Non-return valve (2)	1	-				
181 065	Circlip (2)	1	-				
181 066	Circlip (1)	1	0.2				
181 067	Circlip (1)	1	-				
181 068	Spacer ring	1	-				
181 069	Ball bearing (1)	1	5.0				
181 076	Gasket (2)	1	-				

NOTE! (1) Included in Service kit 181 077

NOTE! (2) Included in Valve kit 181 078

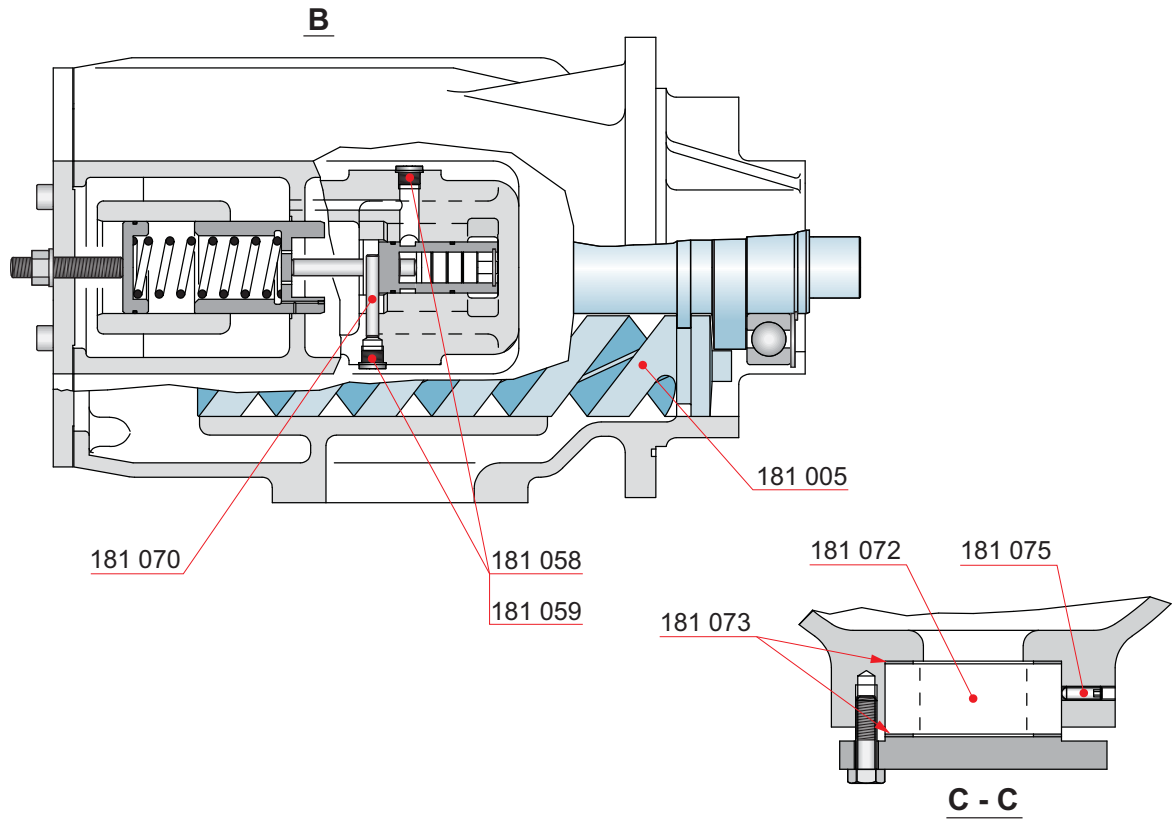
APPENDIX A

Lubricating oil pump



Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
181 010	Drive shaft (3)	1	80.0	NOTE!	(1) Included in Service kit 181 077		
181 011	Cover	1	-	NOTE!	(2) Included in Valve kit 181 078		
181 013	Screw	9	-	NOTE!	(3) Included in Spindle set 181 079		
181 020	Piston (2)	1	-				
181 021	Compression spring (2)	1	-				
181 022	Spring holder (2)	1	-				
181 023	O-ring (2)	1	-				
181 025	Screw (2)	1	-				
181 026	Nut (2)	1	-				
181 058	Screw (1) (2)	7	-				
181 059	Sealing ring (1) (2)	7	-				
181 060	Valve cone (2)	1	-				
181 061	Cylindrical pin (2)	1	-				
181 062	Valve sleeve (2)	1	-				
181 063	O-ring (2)	2	-				
181 064	Non-return valve (2)	1	-				
181 065	Circlip (2)	1	-				
181 066	Circlip (1)	1	0.2				
181 067	Circlip (1)	1	-				
181 068	Spacer ring	1	-				
181 069	Ball bearing (1)	1	5.0				
181 076	Gasket (2)	1	-				

Lubricating oil pump



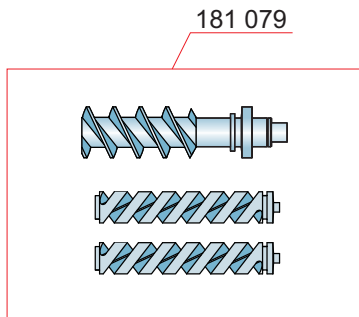
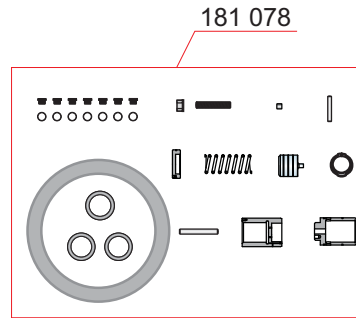
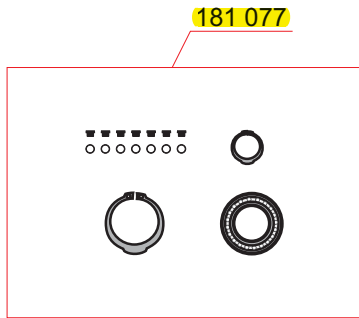
Part No.	Description	Qty [Pcs]	Wt. [Kg]
181 005	Drive shaft (3)	2	30.0
181 058	Screw (1) (2)	7	-
181 059	Sealing ring (1) (2)	7	-
181 070	Threaded pin (2)	1	-
181 072	Non-return valve	1	0.5
181 073	Gasket	2	-
181 075	Threaded pin	1	-

NOTE! (1) Included in Service kit 181 077

NOTE! (2) Included in Valve kit 181 078

NOTE! (3) Included in Spindle set 181 079

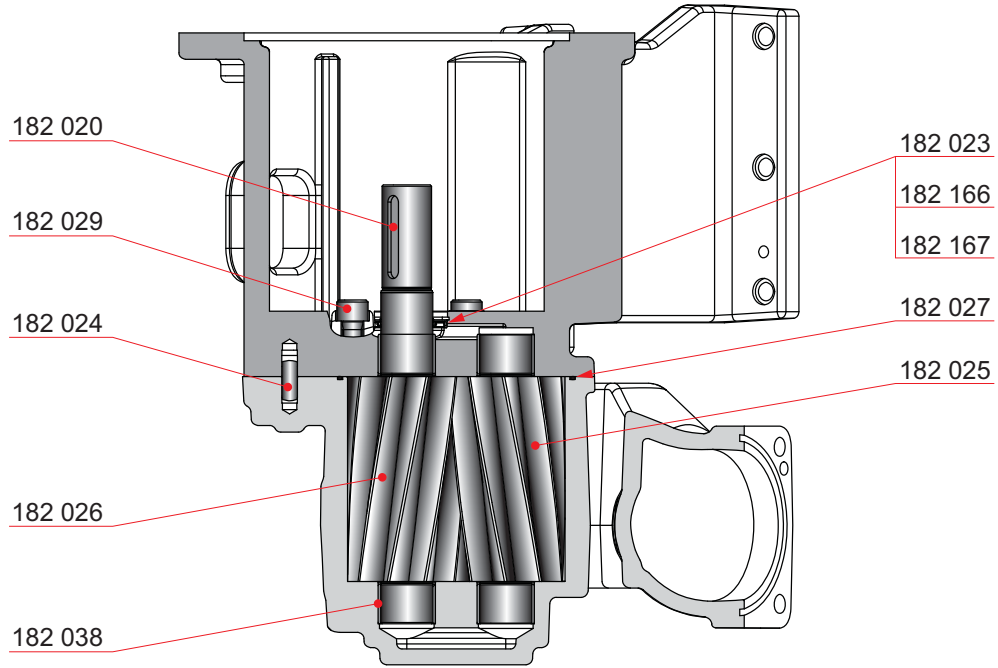
Lubricating oil pump



Part No.	Description	Qty [Pcs]	Wt. [Kg]
181 077	Service kit	1	-
181 078	Valve kit	1	-
181 079	Spindle set	1	140

Prelubricating oil pump

Section B - B

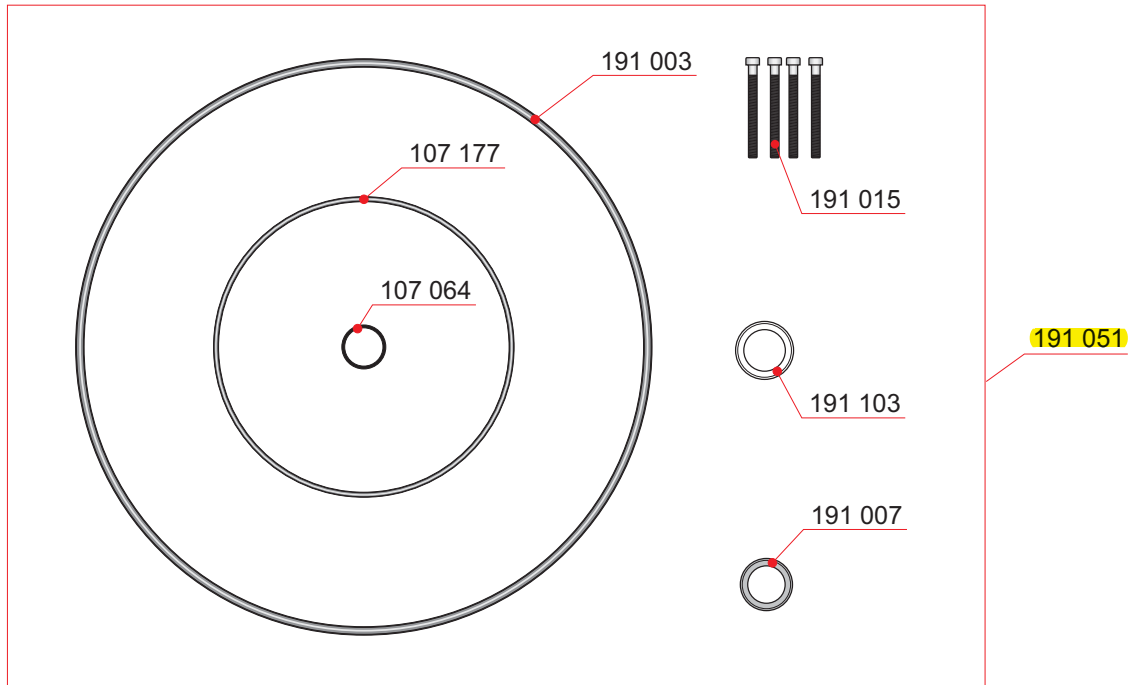


Part No.	Description	Qty [Pcs]	Wt. [Kg]
182 020	Key	1	-
182 023	Seal (2)	1	-
182 024	Pin	2	-
182 025	Gear shaft	1	5.6
182 026	Drive gear shaft	1	6.5
182 027	O-ring (2)	1	-
182 029	Screw	4	0.3
182 038	Bearing bush	4	-
182 062	Sealing set (1)	1	-
182 166	Retainer ring	1	-
182 167	Shim ring	1	-

NOTE! (1) Sealing set includes items marked
(2)

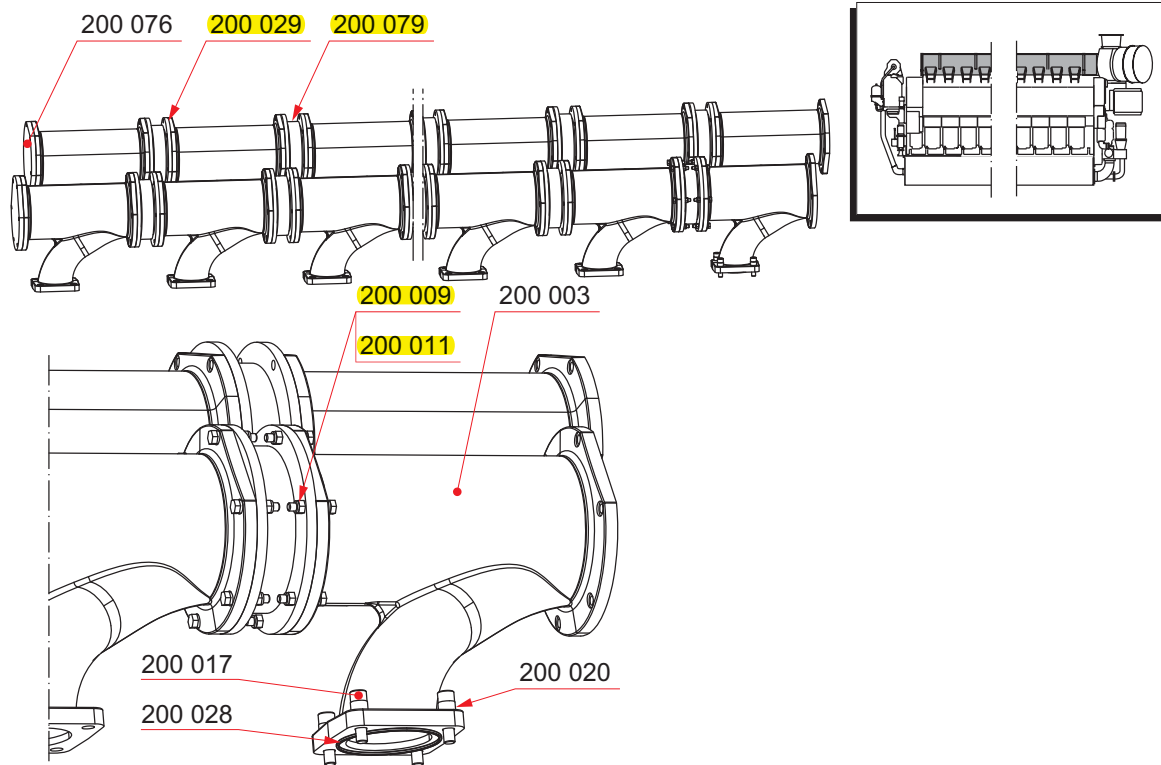
APPENDIX A

Water pump



Part No.	Description	Qty [Pcs]	Wt. [Kg]
191 051	Sealing set	1	0.4
107 064	O-ring	1	-
107 177	O-ring	1	-
191 003	O-ring	1	-
191 007	Shaft seal	1	0.1
191 015	Screw	4	-
191 103	Shaft seal	1	-

Exhaust system



Part No.	Description	Qty [Pcs]	Wt. [Kg]
200 003	Exhaust pipe	*	-
200 009	Screw	*	-
200 011	Nut	*	-
200 017	Screw	*	-
200 020	Distance piece	*	-
200 028	Sealing ring	*	-
200 029	Gasket	*	-
200 076	End flange	2	-
200 079	Bellows	*	-

NOTE! * See page 2

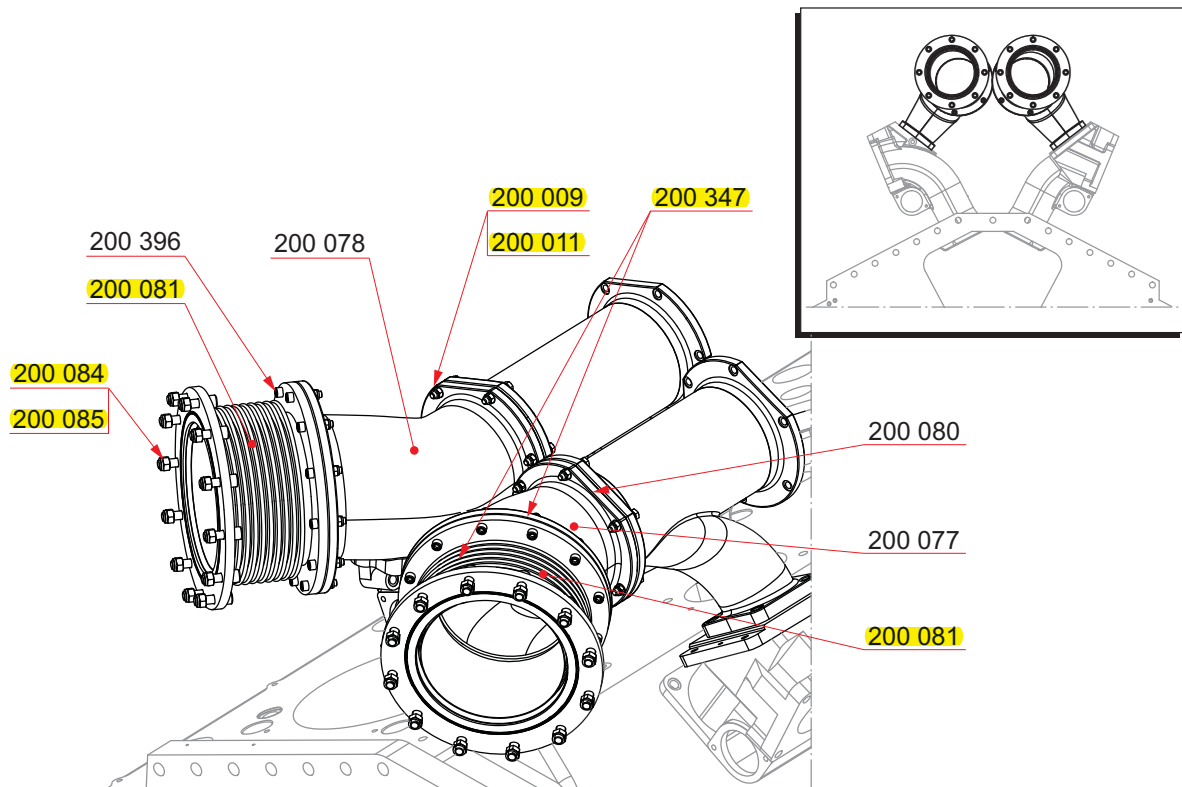
APPENDIX A

Exhaust system

Quantity according to number of cylinders

Part No. and Description	Quantity in pieces			
	12V	16V	18V	20V
200 003 Exhaust pipe	10	16	18	20
200 009 Screw	120	180	204	228
200 011 Nut	120	180	204	228
200 017 Screw	40	64	72	80
200 020 Distance piece	40	64	72	80
200 028 Sealing ring	10	16	18	20
200 029 Gasket	20	30	34	38
200 079 Bellows	10	14	16	16

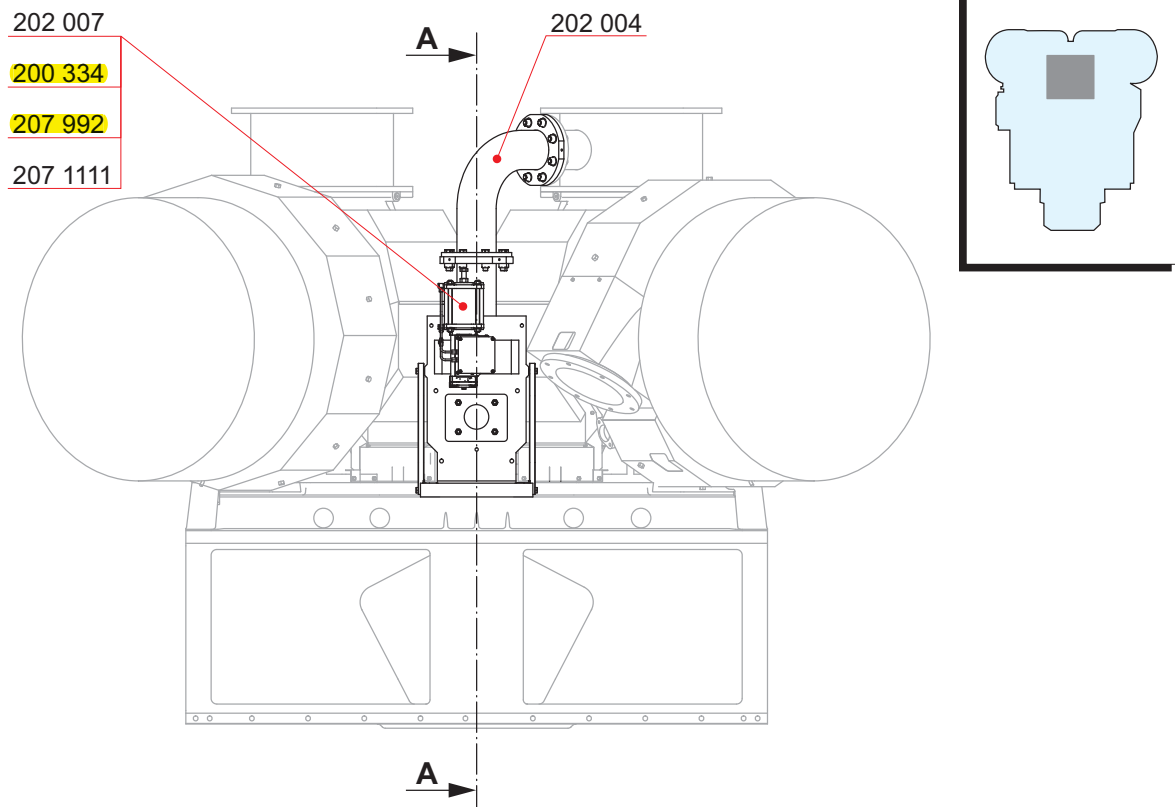
Connection piece for exhaust gas



Part No.	Description	Qty [Pcs]	Wt. [Kg]
200 009	Screw	12	-
200 011	Nut	36	-
200 077	Connection piece	1	-
200 078	Connection piece	1	-
200 080	Sealing ring	2	-
200 081	Bellows	2	-
200 084	Screw	24	-
200 085	Nut	24	-
200 347	Sealing ring	4	-
200 396	Screw	24	-

APPENDIX A

Wastegate system



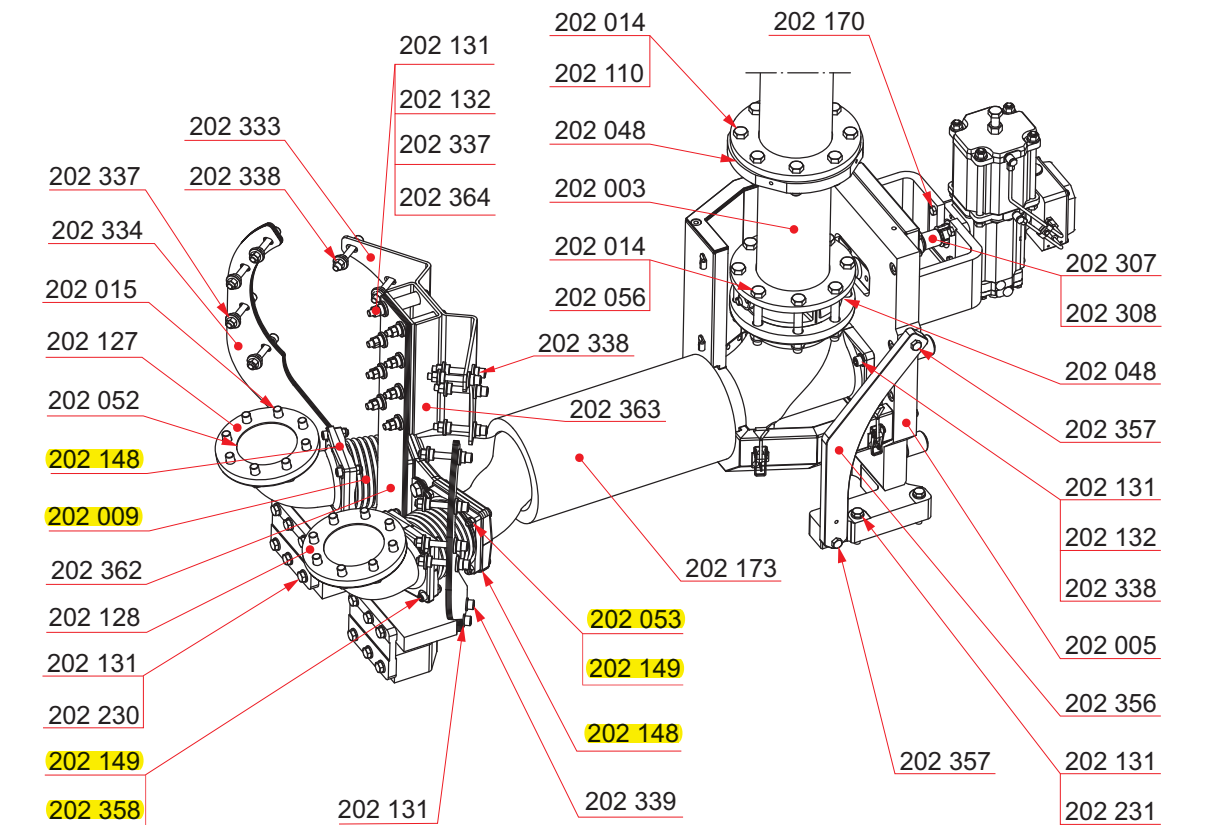
Part No.	Description	Qty [Pcs]	Wt. [Kg]
202 004	Pipe (1)	1	-
202 007	Valve (2)	1	19.6
200 334	Positioner	1	1.5
207 992	Butterfly valve	1	9.0
207 1111	Actuator	1	10.6

NOTE! (1) See section 202-

NOTE! (2) See section 207-

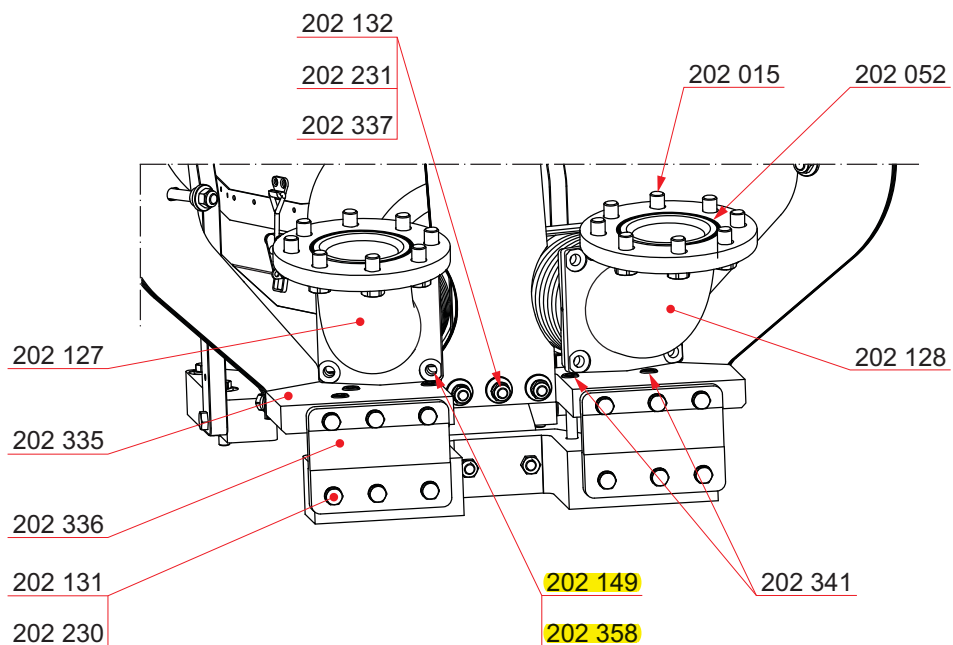
APPENDIX A

Wastegate system



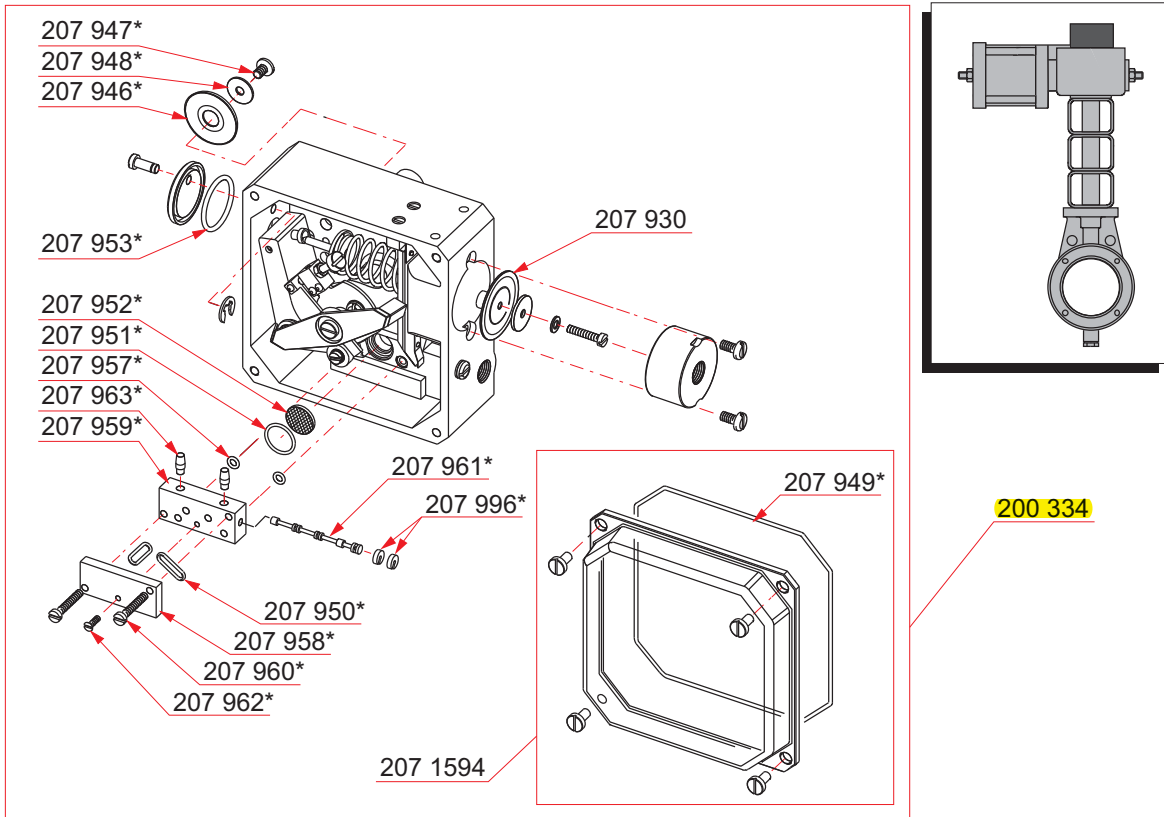
Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
202 003	Pipe	1	13.7	202 334	Support	10	0.7
202 005	Bracket	1	116	202 337	Distance sleeve	43	-
202 009	Bellows	2	2.6	202 338	Screw	20	-
202 014	Nut	16	-	202 339	Screw	4	-
202 015	Screw	18	-	202 356	Support arm	2	4.3
202 048	Sealing ring	3	-	202 357	Screw	4	-
202 052	Sealing ring	2	-	202 358	Screw	8	-
202 053	Screw	8	-	202 362	Support	5	1.0
202 056	Screw	8	0.2	202 363	Support	1	5.2
202 110	Screw	8	0.1	202 364	Screw	8	0.1
202 127	Pipe	1	10.4				
202 128	Pipe	1	10.4				
202 131	Washer	44	-				
202 132	Nut	33	-				
202 148	Sealing ring	4	-				
202 149	Nut	16	-				
202 170	Screw	4	-				
202 173	Exhaust pipe	1	56.8				
202 230	Screw	12	-				
202 231	Screw	9	-				
202 307	Distance piece	1	0.8				
202 308	Key	1	-				
202 333	Support	1	5.0				

Wastegate system



Part No.	Description	Qty [Pcs]	Wt. [Kg]
202 015	Screw	18	-
202 052	Sealing ring	2	-
202 127	Pipe	1	10.4
202 128	Pipe	1	10.4
202 131	Washer	44	-
202 132	Nut	33	-
202 149	Nut	16	-
202 230	Screw	12	-
202 231	Screw	9	-
202 335	Bracket	1	17.0
202 336	Support	2	2.2
202 337	Distance sleeve	43	-
202 341	Screw	4	0.1
202 358	Screw	8	-

Positioner for butterfly valve

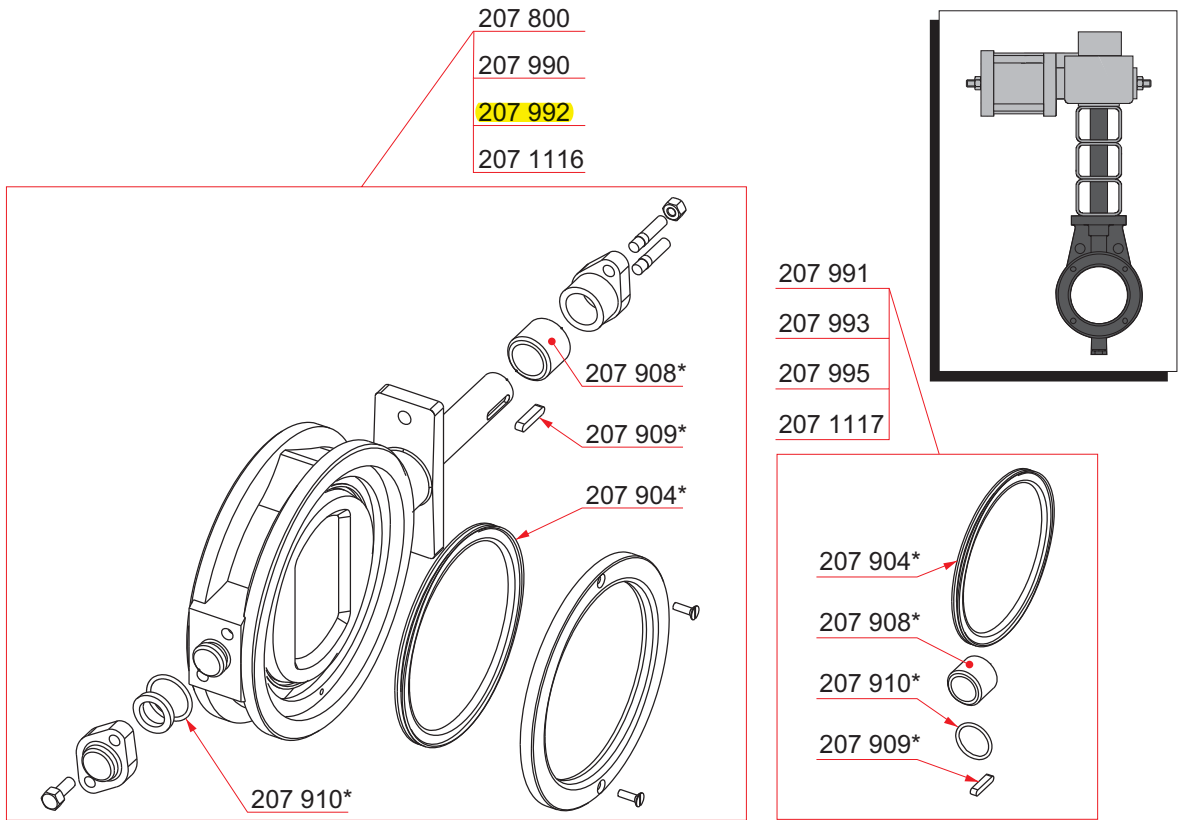


Part No.	Description	Qty [Pcs]	Wt. [Kg]
200 334	Positioner	1	-
207 930	Diaphragm	1	-
207 946	Diaphragm *	1	-
207 947	Screw *	1	-
207 948	Washer *	1	-
207 950	O-ring *	2	-
207 951	O-ring *	1	-
207 952	Filter *	1	-
207 953	O-ring *	1	-
207 957	O-ring *	2	-
207 958	Plate *	1	-
207 959	Housing *	1	-
207 960	Screw *	2	-
207 961	Spool assembly *	1	-
207 962	Screw *	1	-
207 963	Silencer *	2	-
207 996	Clip *	2	-
207 1594	Cover	1	-
207 949	O-ring *	1	-

NOTE! *) Components are not available as single parts.

APPENDIX A

Butterfly valve



Part No.	Description	Qty [Pcs]	Wt. [Kg]
207 800	Butterfly valve (1)	1	-
207 990	Butterfly valve (1)	1	-
207 992	Butterfly valve (1)	1	-
207 1116	Butterfly valve (1)	1	-
207 904	Seat *)	1	-
207 908	Stuffing box *)	1	-
207 909	Key *)	1	-
207 910	Gasket *)	1	-
207 991	Sealing set (1)	1	-
207 993	Sealing set (1)	1	-
207 995	Sealing set (1)	1	-
207 1117	Sealing set (1)	1	-
207 904	Seat *)	1	-
207 908	Stuffing box *)	1	-
207 909	Key *)	1	-
207 910	Gasket *)	1	-

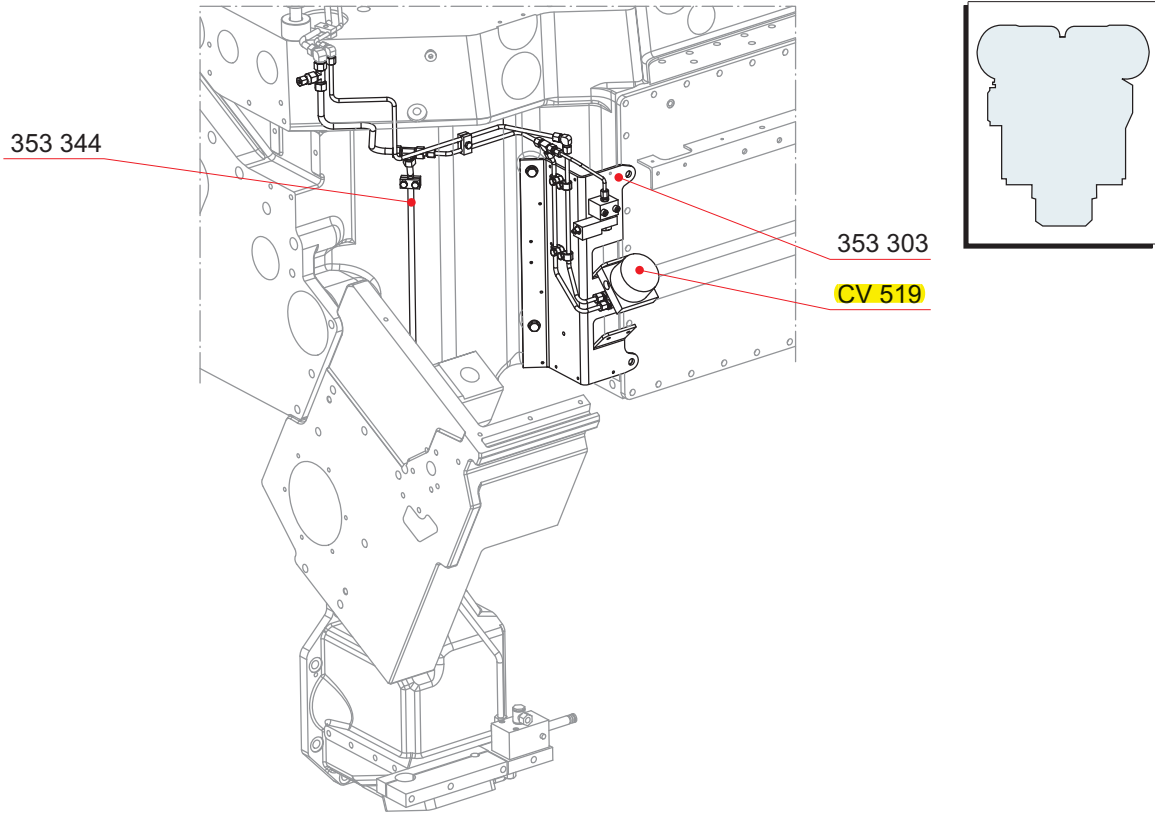
NOTE! (1) See page 2.

NOTE! *) Components are not available as single parts. When ordering spare parts give butterfly valve type number.

Butterfly valve

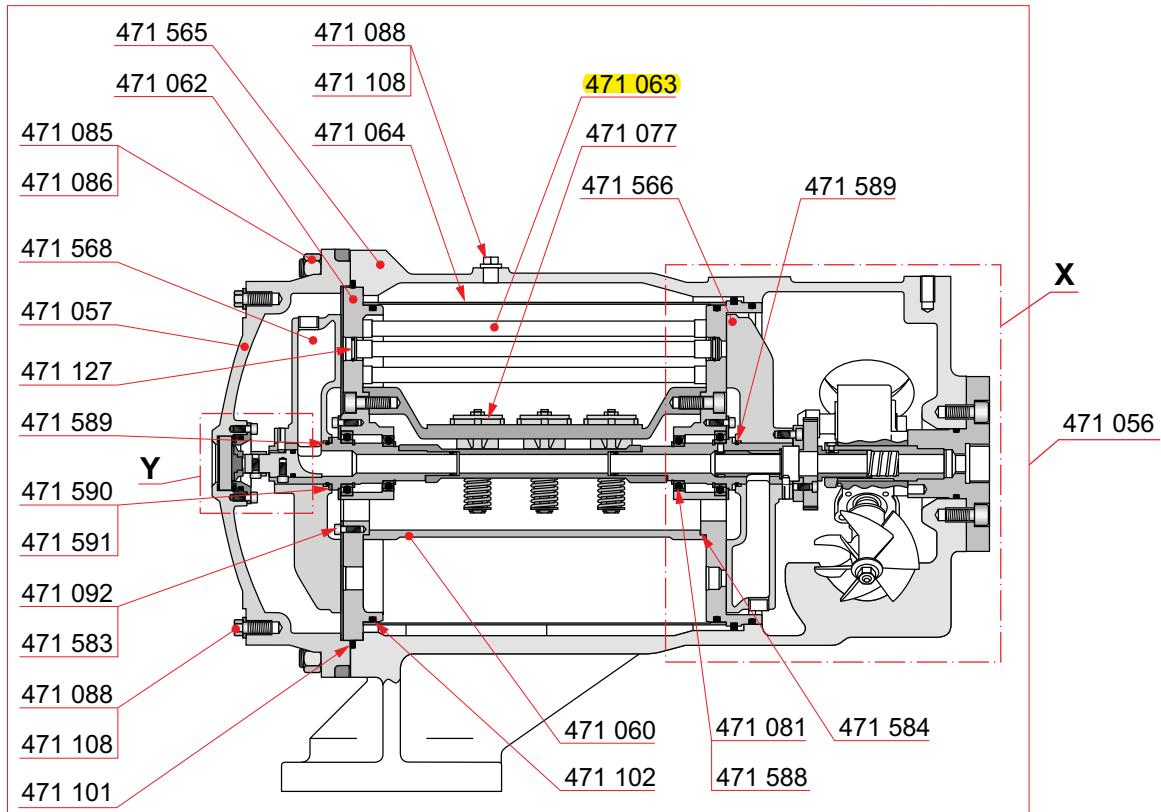
Type	Code	Code for sealing set
DN 80	207 1116	207 1117
DN 100	207 990	207 991
DN 125	207 992	207 993
DN 150	207 800	207 995

Air pipes for waste gate



Part No.	Description	Qty [Pcs]	Wt. [Kg]
353 303	Supporting plate	1	-
353 344	Pipe	1	-
CV519	I/P converter	1	-

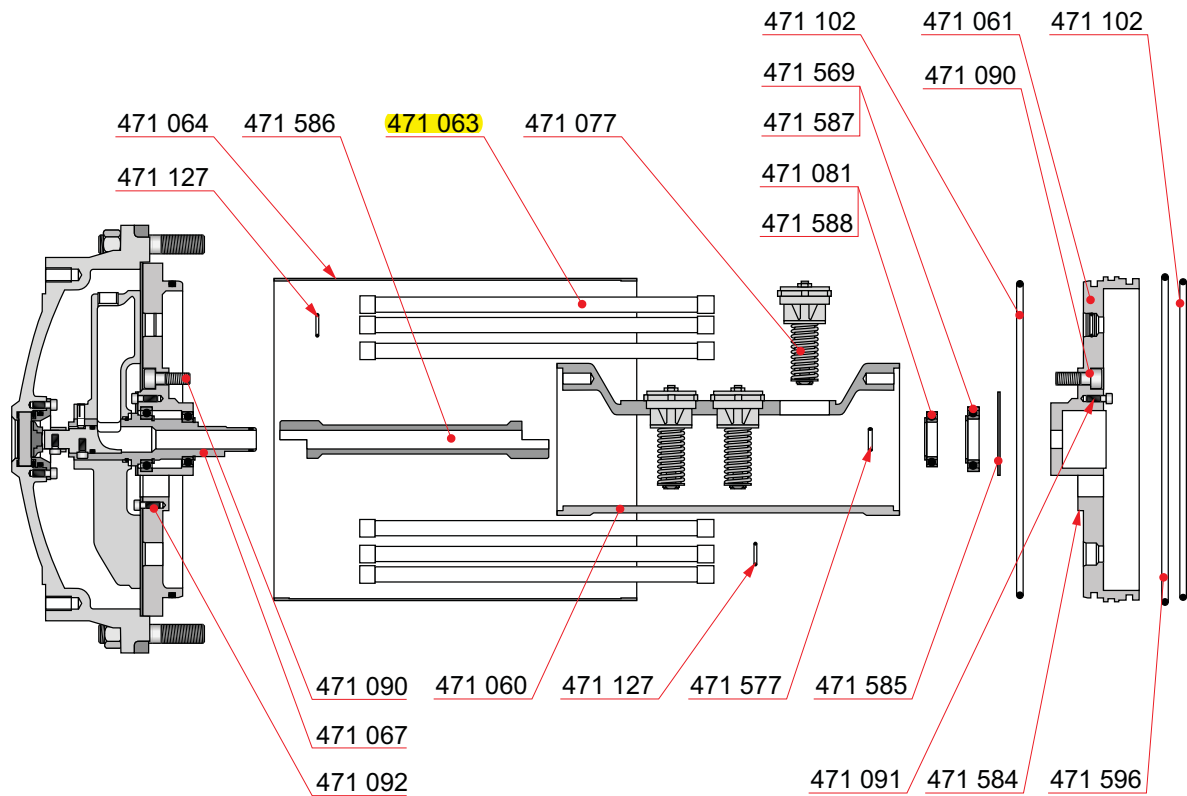
Lubricating oil filter



Part No.	Description	Qty [Pcs]	Wt. [Kg]
471 056	Lubricating oil filter	1	-
471 057	Cover	1	11.0
471 060	Tube stack	1	1.5
471 062	Plate	1	1.0
471 063	Filter cartridge	78	-
471 064	Filter cartridge	1	1.0
471 077	Valve	6	0.1
471 081	Ball bearing	2	-
471 085	Screw	8	-
471 086	Nut	8	-
471 088	Screw	3	-
471 092	Screw	3	-
471 101	O-ring	1	-
471 102	O-ring	3	-
471 108	Gasket	3	-
471 127	Cord ring	156	-
471 565	Housing	1	11.0
471 566	Distributor	1	0.6
471 568	Distributor	1	0.6
471 583	Pin	1	-
471 584	Pin	2	-
471 588	Locking ring	2	-
471 589	O-ring	2	-
471 590	Washer	2	-
471 591	Support disc	2	-
471 603	Candles tool kit	1	-

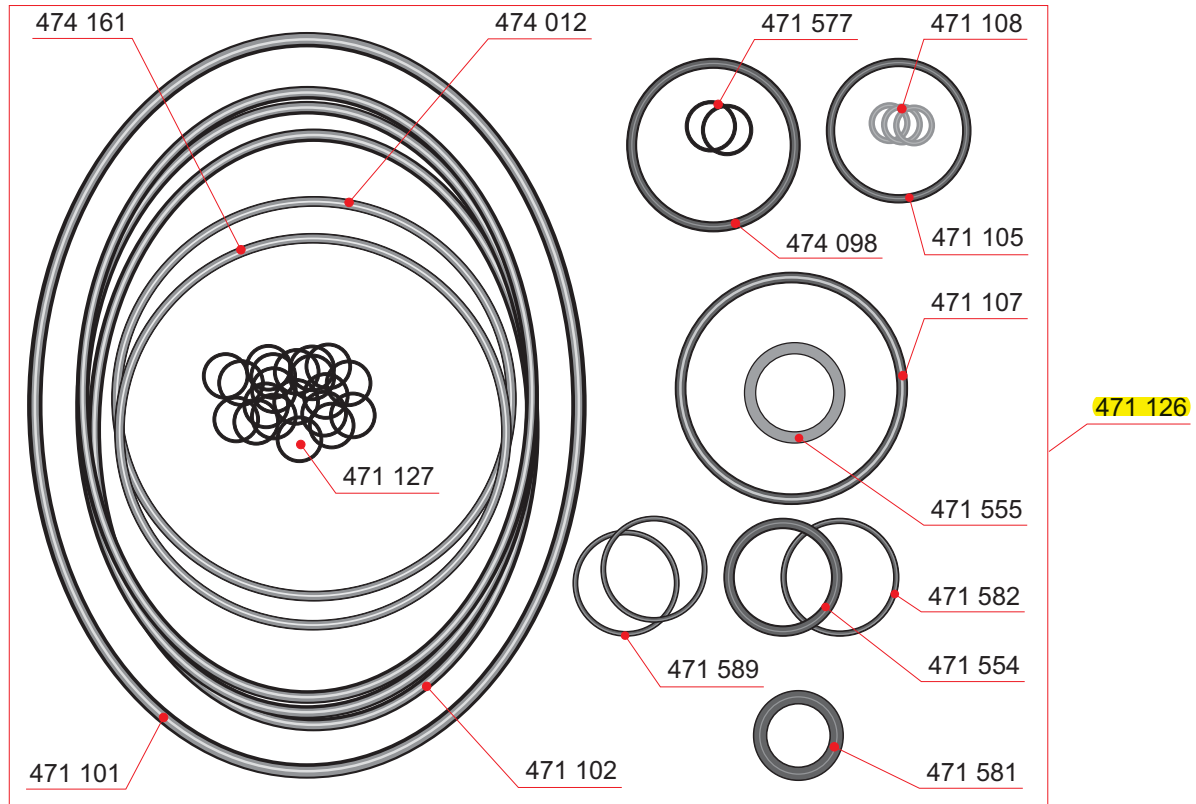
APPENDIX A

Lubricating oil filter



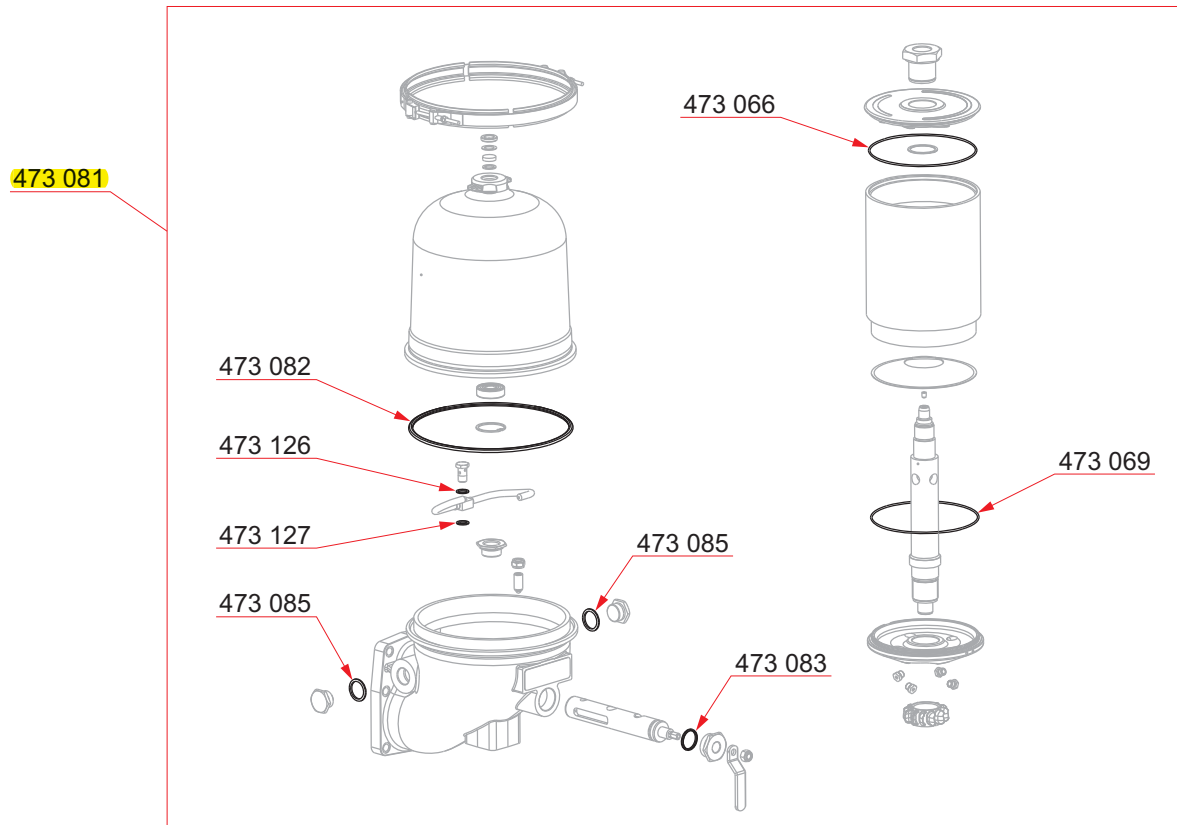
Part No.	Description	Qty [Pcs]	Wt. [Kg]
471 060	Tube stack	1	1.5
471 061	Plate	1	1.0
471 063	Filter cartridge	78	-
471 064	Filter cartridge	1	1.0
471 067	Shaft	2	1.0
471 077	Valve	6	0.1
471 081	Ball bearing	2	-
471 090	Screw	6	-
471 091	Screw	6	-
471 092	Screw	3	-
471 102	O-ring	3	-
471 127	Cord ring	156	-
471 569	Ball bearing	2	0.1
471 577	O-ring	2	-
471 584	Pin	2	-
471 585	Bracket	2	-
471 586	Pipe	1	1.1
471 587	Locking ring	2	-
471 588	Locking ring	2	-
471 596	Guide ring	1	-

Lubricating oil filter



Part No.	Description	Qty [Pcs]	Wt. [Kg]
471 126	Sealing set	1	1.5
471 101	O-ring	1	-
471 102	O-ring	3	-
471 105	O-ring	1	-
471 107	O-ring	1	-
471 108	Gasket	3	-
471 127	Cord ring	156	-
471 554	O-ring	1	-
471 555	Gasket	1	-
471 577	O-ring	2	-
471 581	O-ring	1	-
471 582	O-ring	1	-
471 589	O-ring	2	-
474 012	O-ring	1	-
474 098	O-ring	1	-
474 161	O-ring	1	-

Centrifugal filter

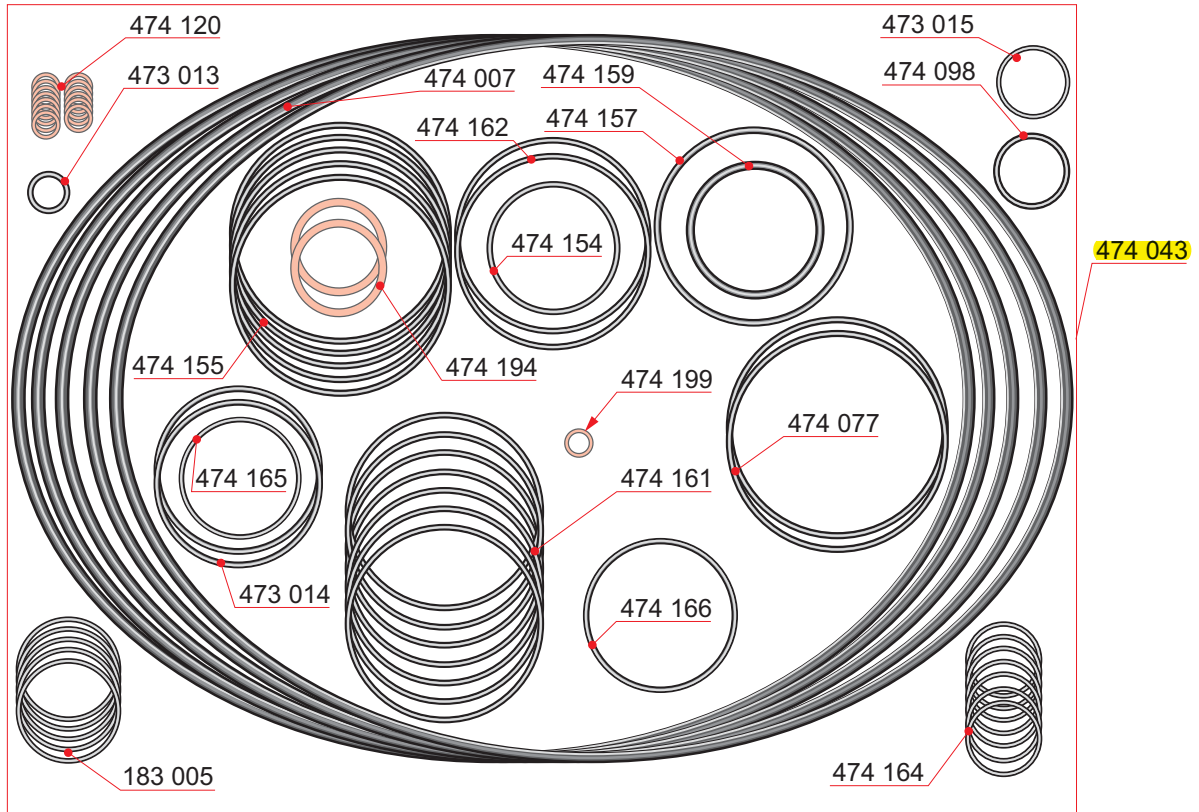


Part No.	Description	Qty [Pcs]	Wt. [Kg]
473 081	Sealing set	1	-
473 066	O-ring (1)	1	-
473 069	O-ring (1)	1	-
473 082	O-ring (1)	1	-
473 083	O-ring (1)	1	-
473 085	Sealing ring (1)	2	-
473 126	Sealing ring (1)	1	-
473 127	Sealing ring (1)	1	-

NOTE! (1) Parts included in set are not delivered separately.

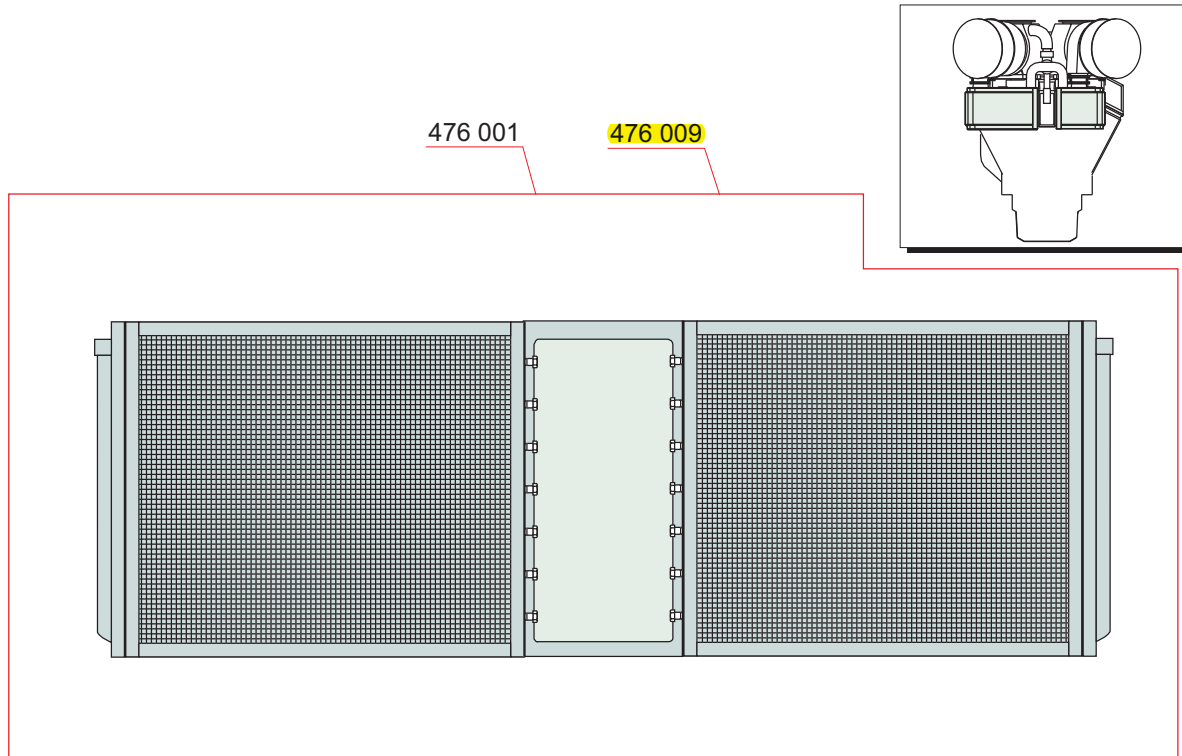
APPENDIX A

Lube oil module



Part No.	Description	Qty [Pcs]	Wt. [Kg]
474 043	Sealing set	1	1.0
183 005	O-ring	5	-
473 013	O-ring	1	-
473 014	O-ring	2	-
473 015	O-ring	1	-
474 007	Gasket	5	0.1
474 077	O-ring	2	-
474 098	O-ring	1	-
474 120	Sealing ring	13	-
474 154	O-ring	1	-
474 155	O-ring	5	-
474 157	O-ring	1	-
474 159	O-ring	1	-
474 161	O-ring	7	-
474 162	O-ring	2	-
474 164	O-ring	6	-
474 165	O-ring	1	-
474 166	O-ring	1	0.1
474 194	Sealing ring	2	-
474 199	Sealing ring	1	-

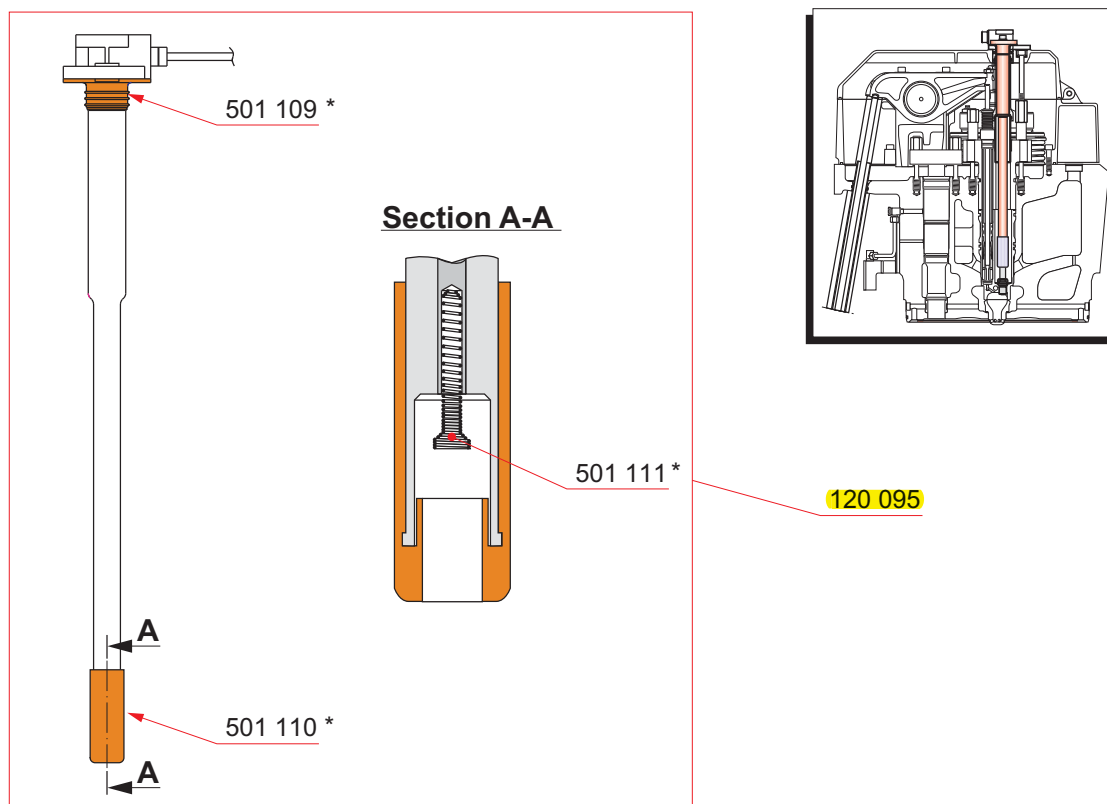
Charge air cooler



Part No.	Description	Qty [Pcs]	Wt. [Kg]
476 001	Charge air cooler	1	-
476 009	Sealing set (1)	1	-

NOTE! (1) When ordering, please state the serial number and the manufacturer of the air cooler.

Spare part kit for ignition coil

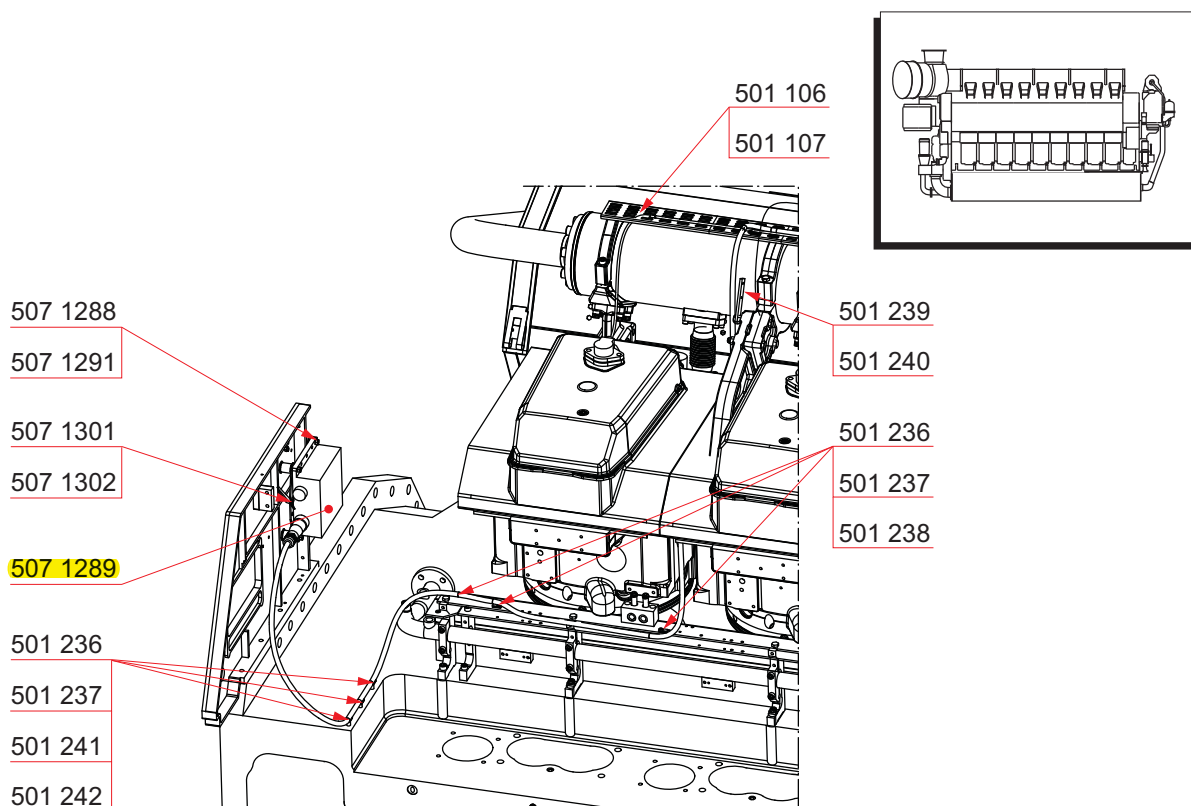


Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 095	Ignition coil	1	-
501 109	Grommet *	1	-
501 110	Boot *	1	-
501 111	Spring *	1	-

NOTE! *) Components are not available as single parts.

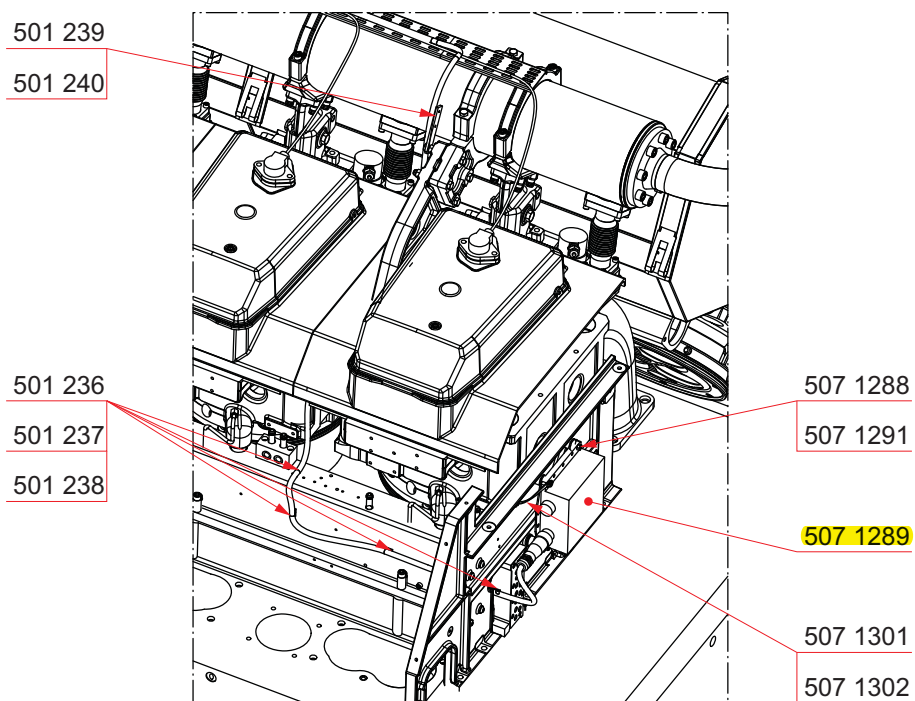
NOTE! *) See page 2.

Electrical equipment for ignition system



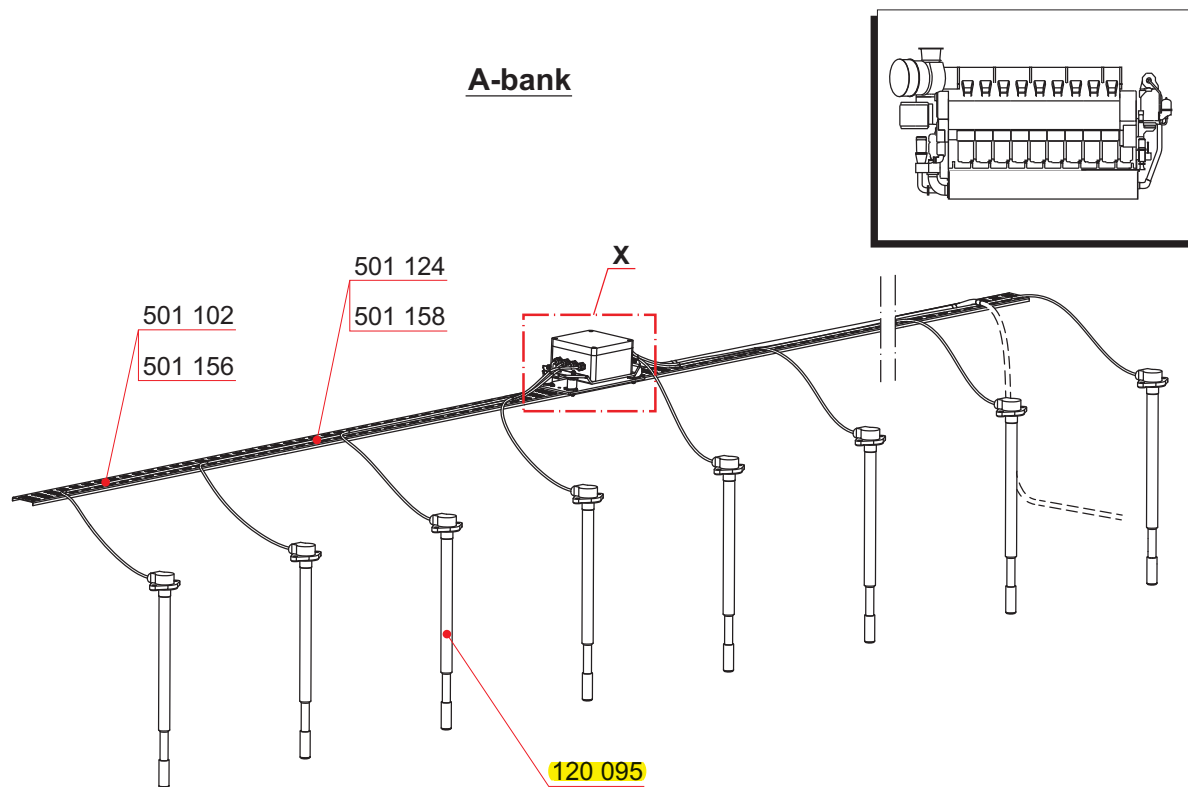
Part No.	Description	Qty [Pcs]	Wt. [Kg]
501 106	Screw	20	-
501 107	Washer	20	-
501 236	Steel strip	10	-
501 237	Cable clamp	10	-
501 238	Screw	7	-
501 239	Pipe clamp	2	0.1
501 240	Nut	2	-
501 241	Screw	3	-
501 242	Distance sleeve	3	-
507 1288	Damper	8	-
507 1289	Ignition module	2	3.5
507 1291	Nut	8	-
507 1301	Cable set	2	-
507 1302	Screw	2	-

Electrical equipment for ignition system



Part No.	Description	Qty [Pcs]	Wt. [Kg]
501 236	Steel strip	10	-
501 237	Cable clamp	10	-
501 238	Screw	7	-
501 239	Pipe clamp	2	0.1
501 240	Nut	2	-
507 1288	Damper	8	-
507 1289	Ignition module	2	3.5
507 1291	Nut	8	-
507 1301	Cable set	2	-
507 1302	Screw	2	-

Electrical equipment for ignition system



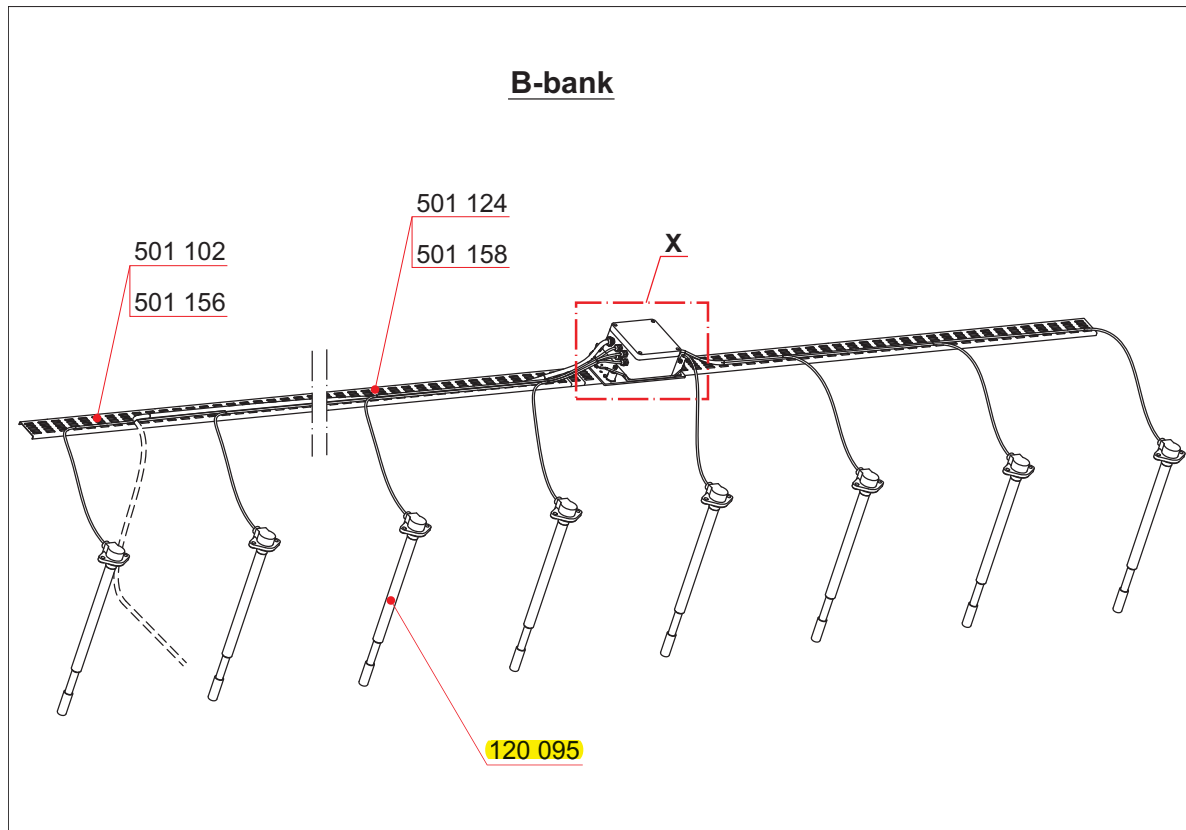
Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 095	Ignition coil (1)	*	-
501 102	Cable tray **	1	-
501 124	Clamp	*	-
501 156	Steel strip	*	-
501 158	Screw	*	-

NOTE! (1) See 120-

NOTE! *) See page 4.

NOTE! **) Length needed when ordering

Electrical equipment for ignition system



Part No.	Description	Qty [Pcs]	Wt. [Kg]
120 095	Ignition coil (1)	*	-
501 102	Cable tray **	1	-
501 124	Clamp	*	-
501 156	Steel strip	*	-
501 158	Screw	*	-

NOTE! (1) See 120-

NOTE! *) See page 4.

NOTE! **) Length needed when ordering

APPENDIX A

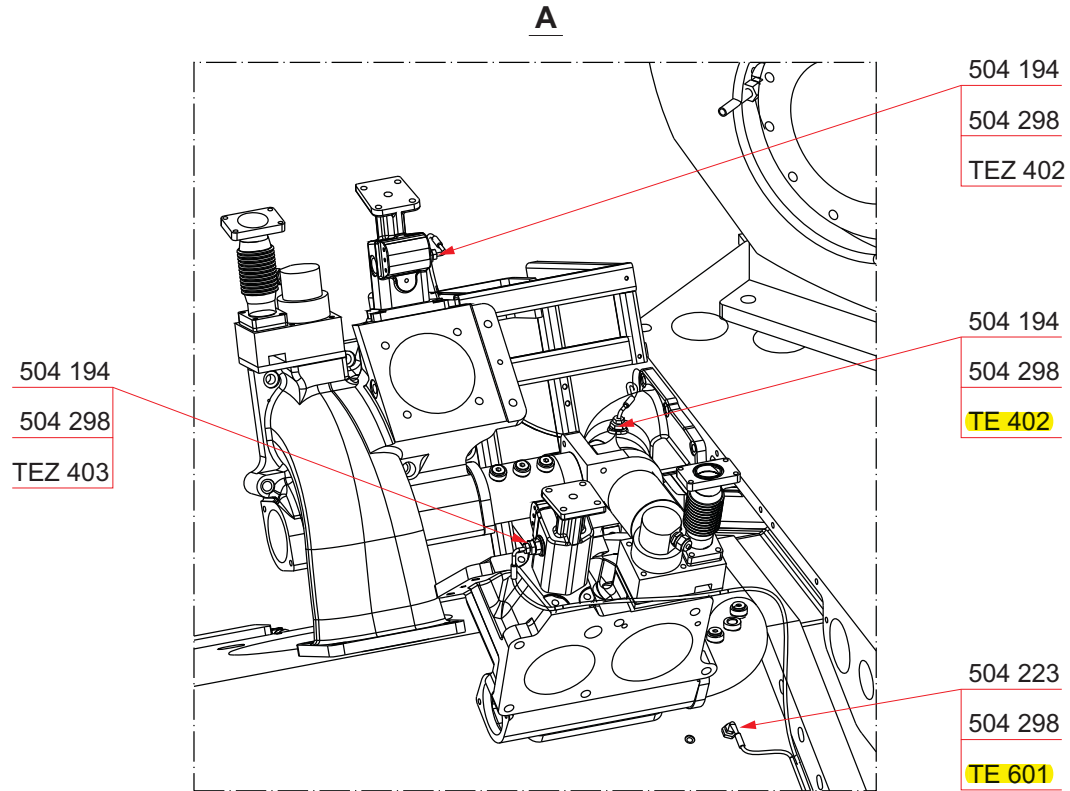
Electrical equipment for ignition system

Quantity according to number of cylinders

Part No. and Description	Quantity in pieces	
	16V	20V
120 095 Ignition coil	8	10
501 124 Clamp	2	4
501 156 Steel strip	15	20
501 158 Screw	4	8

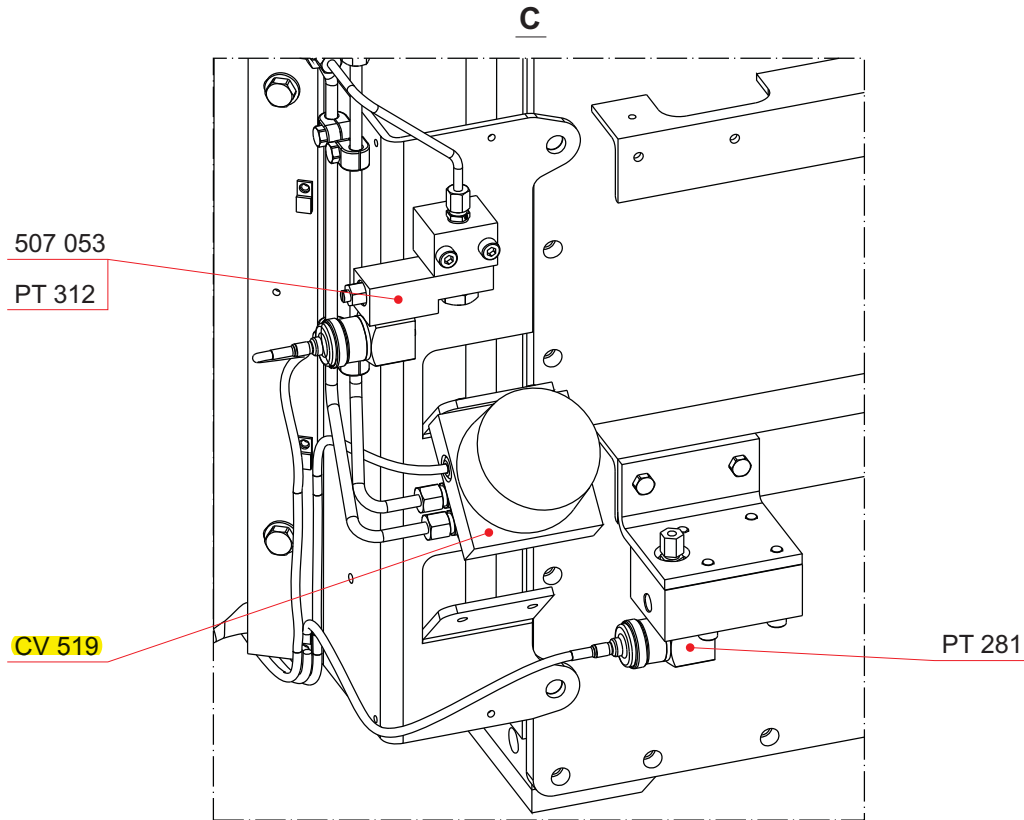
APPENDIX A

Electrical equipment at free end



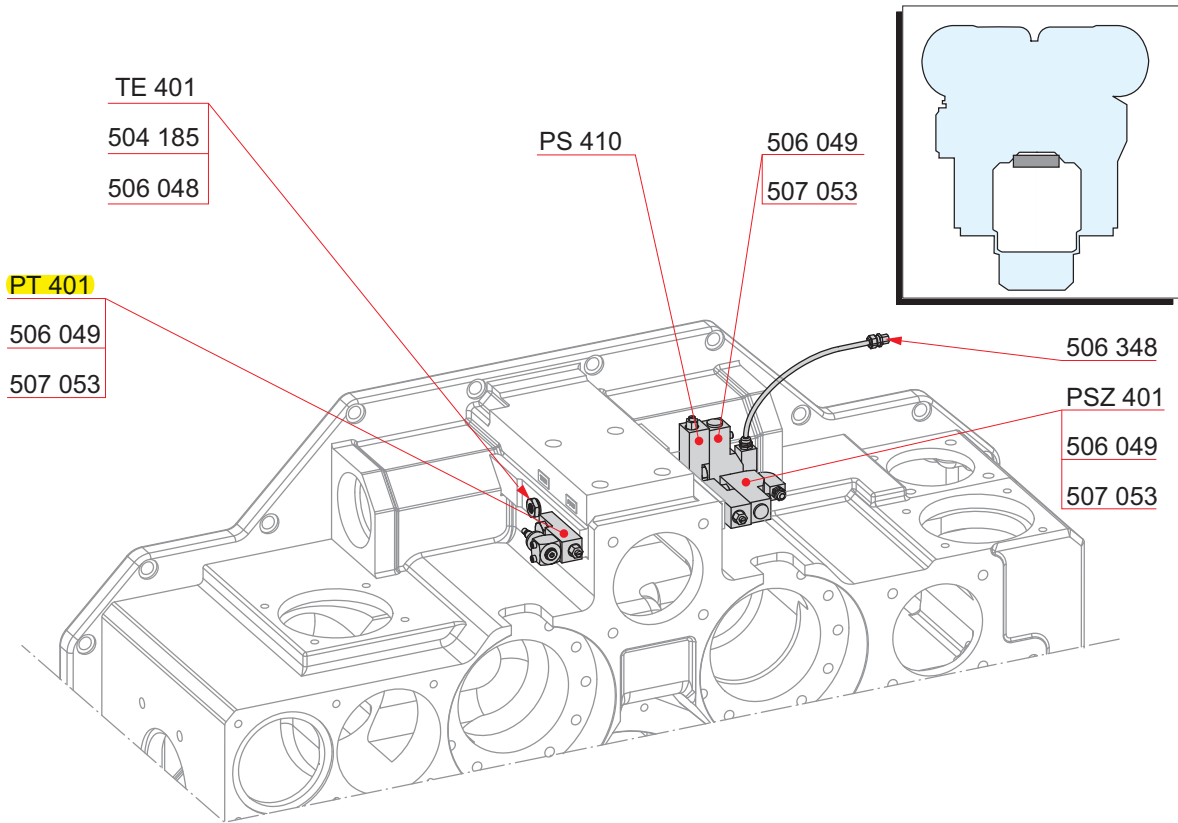
Part No.	Description	Qty [Pcs]	Wt. [Kg]
504 194	Protecting well	5	0.2
504 223	Protecting well	2	0.3
504 298	Sealing ring	9	-
TE402	Temperature sensor, HT water, after engine	1	-
TE601	Charge air temperature, inlet	1	-
TEZ402	Temperature sensor, HT-water outlet	1	-
TEZ403	Temperature sensor, HT-water outlet	1	-

Electrical equipment at free end



Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 053	Pressure gauge valve	2	0.6
CV519	I/P converter	1	-
PT281	Pressure transmitter	1	-
PT312	Pressure sensor	1	-

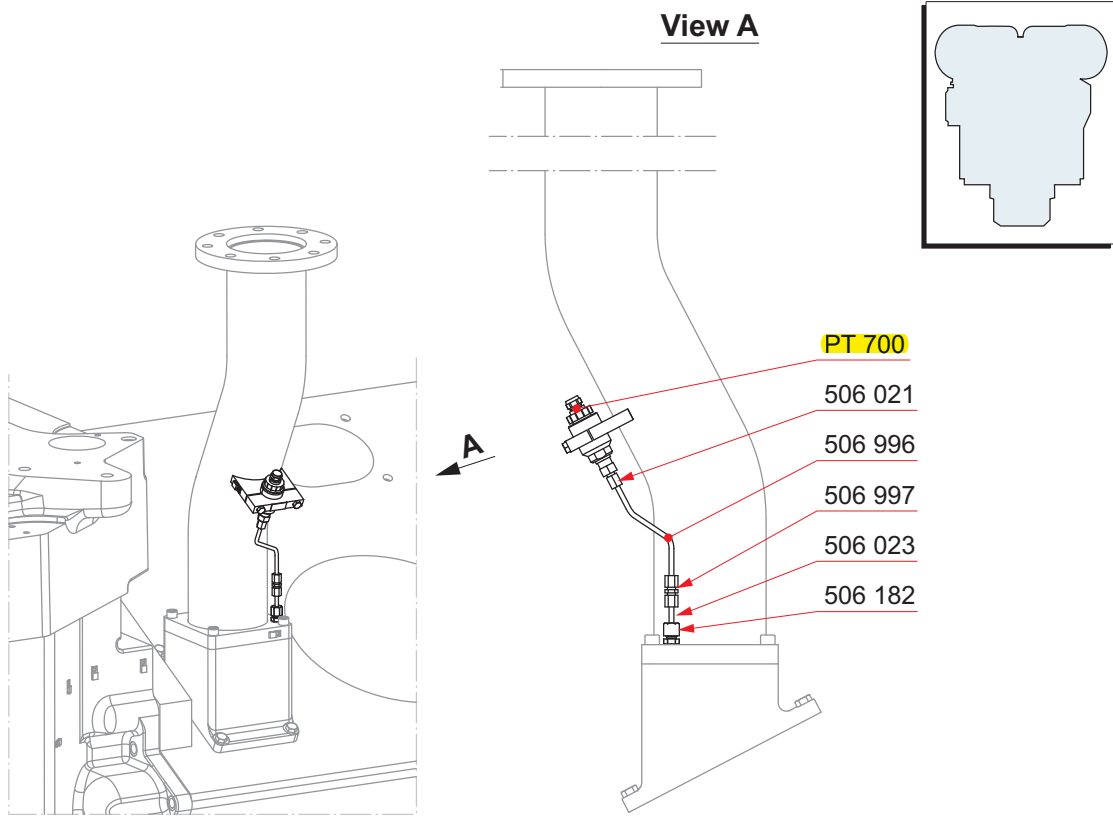
Sensors on pump cover



Part No.	Description	Qty [Pcs]	Wt. [Kg]
504 185	Protection well	1	-
506 048	Sealing ring	1	-
506 049	Screw *)	4	-
506 348	Cable gland *)	1	-
507 053	Pressure gauge valve *)	2	-
PS410	Pressure sensor *)	1	-
PSZ401	Pressure sensor *)	1	-
PT401	Pressure sensor	1	-
TE401	Temperature sensor, HT water, before engine *)	1	-

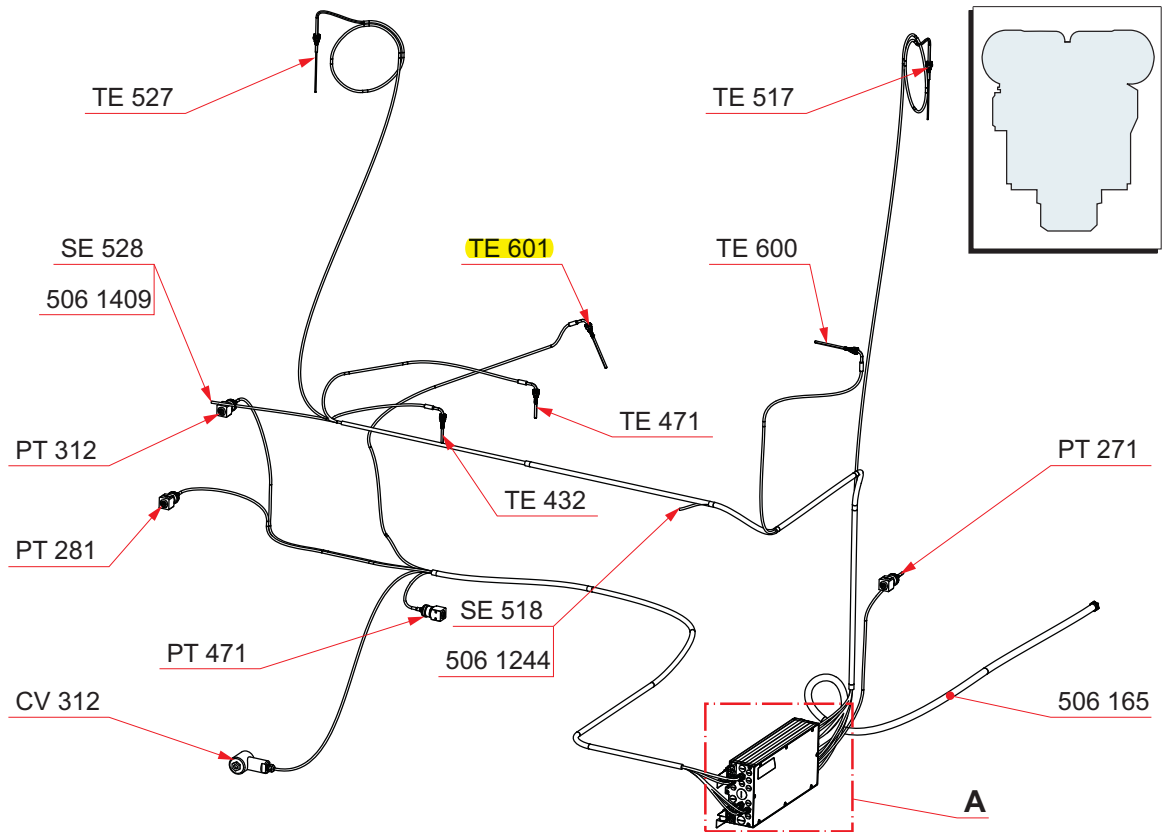
NOTE! *) Amount depends on installation.

Sensor for crankcase pressure



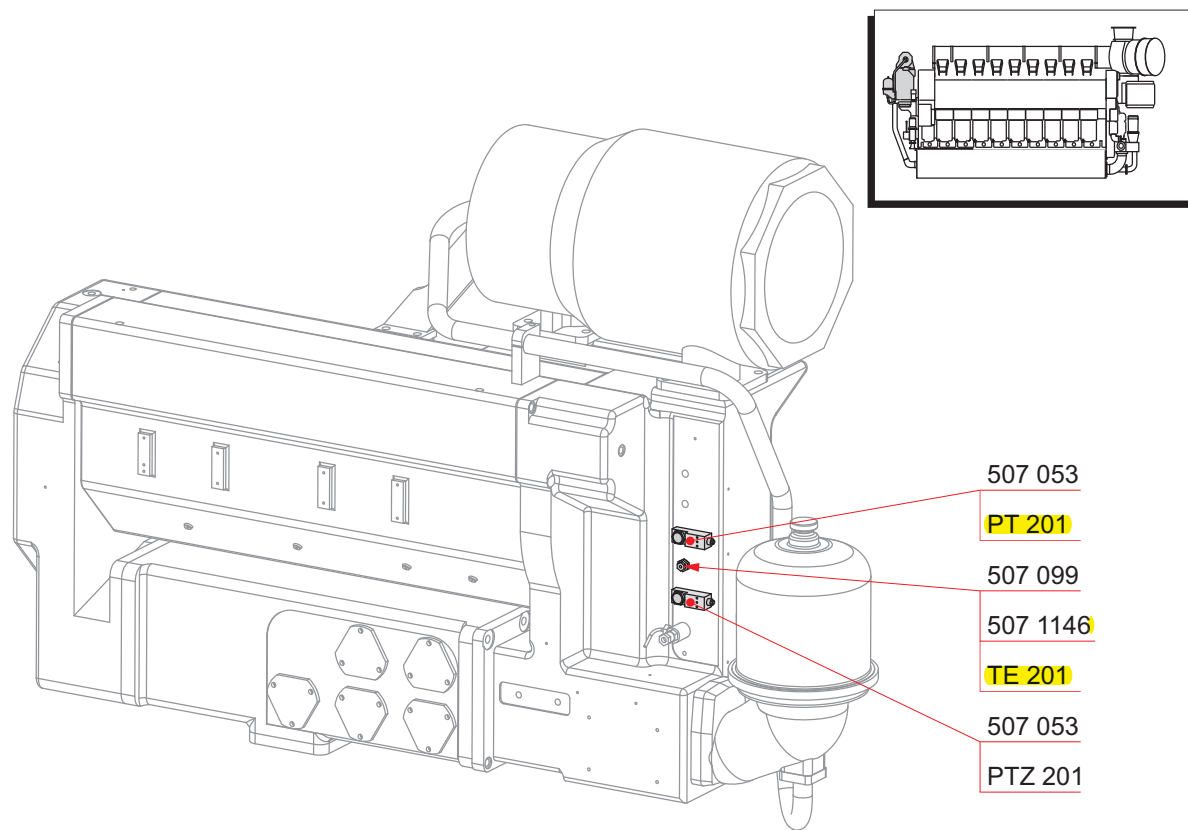
Part No.	Description	Qty [Pcs]	Wt. [Kg]
506 021	Pipe union	1	-
506 023	Pipe	1	-
506 182	Pipe union	1	-
506 996	Pipe	1	-
506 997	Pipe union	1	-
PT700	Pressure sensor	1	-

Electrical equipment in free end



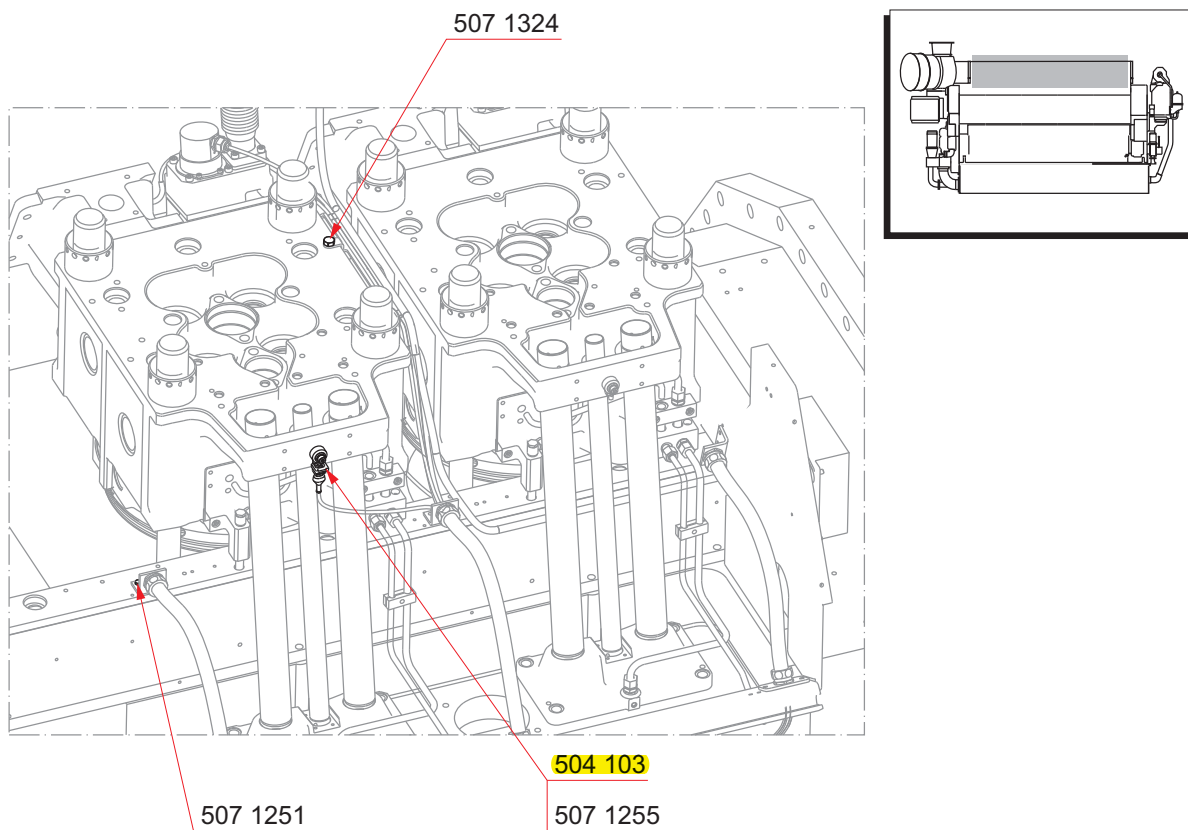
Part No.	Description	Qty [Pcs]	Wt. [Kg]
506 165	Cable	3	0.2
506 1244	Cable	1	0.7
506 1409	Cable set	1	1.3
CV312	Solenoid valve	1	0.6
PT271	Pressure sensor	1	0.8
PT281	Pressure transmitter	1	0.8
PT312	Pressure sensor	1	0.8
PT471	Pressure sensor	1	0.8
SE518	Speed pick-up	1	-
SE528	Speed pick-up	1	-
TE432	Temp.transmitter, HT water, after TC	1	0.6
TE471	LT water temperature, before charge air cooler	1	0.6
TE517	Temperature sensor	1	1.5
TE527	Temperature sensor	1	1.5
TE600	Temperature sensor	1	0.6
TE601	Charge air temperature, inlet	1	0.6

Electrical equipment, lube oil module



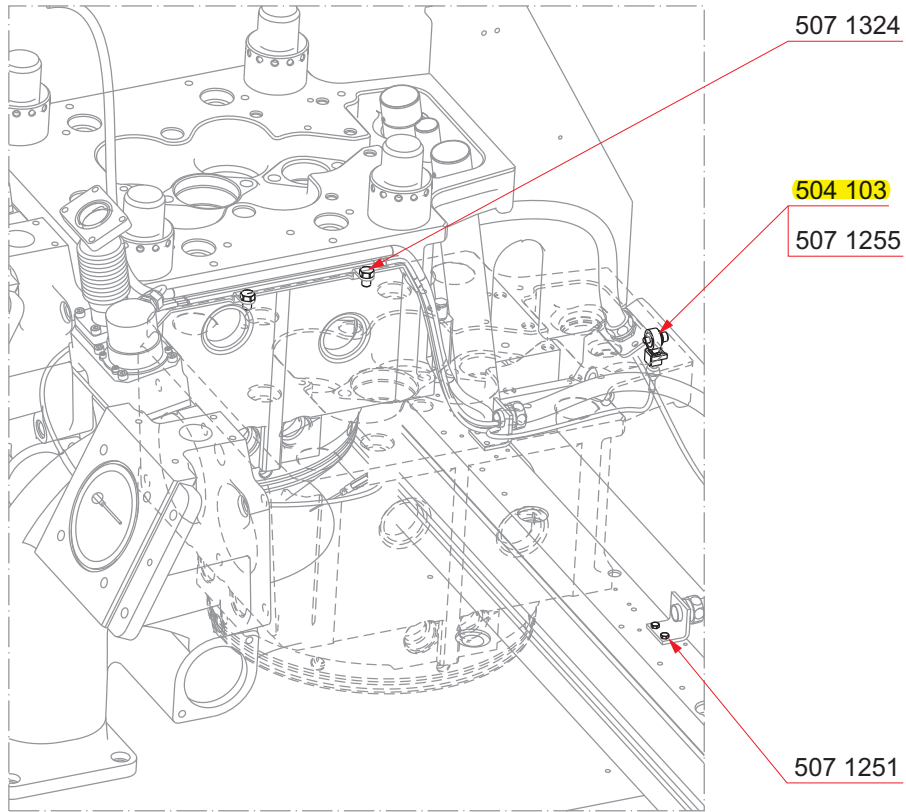
Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 053	Pressure gauge valve	3	-
507 099	Sealing ring	1	-
507 1146	Protecting cap	1	-
PT201	Pressure sensor	1	-
PTZ201	Pressure sensor	1	-
TE201	Temperature sensor	1	-

Electrical equipment for cylinder



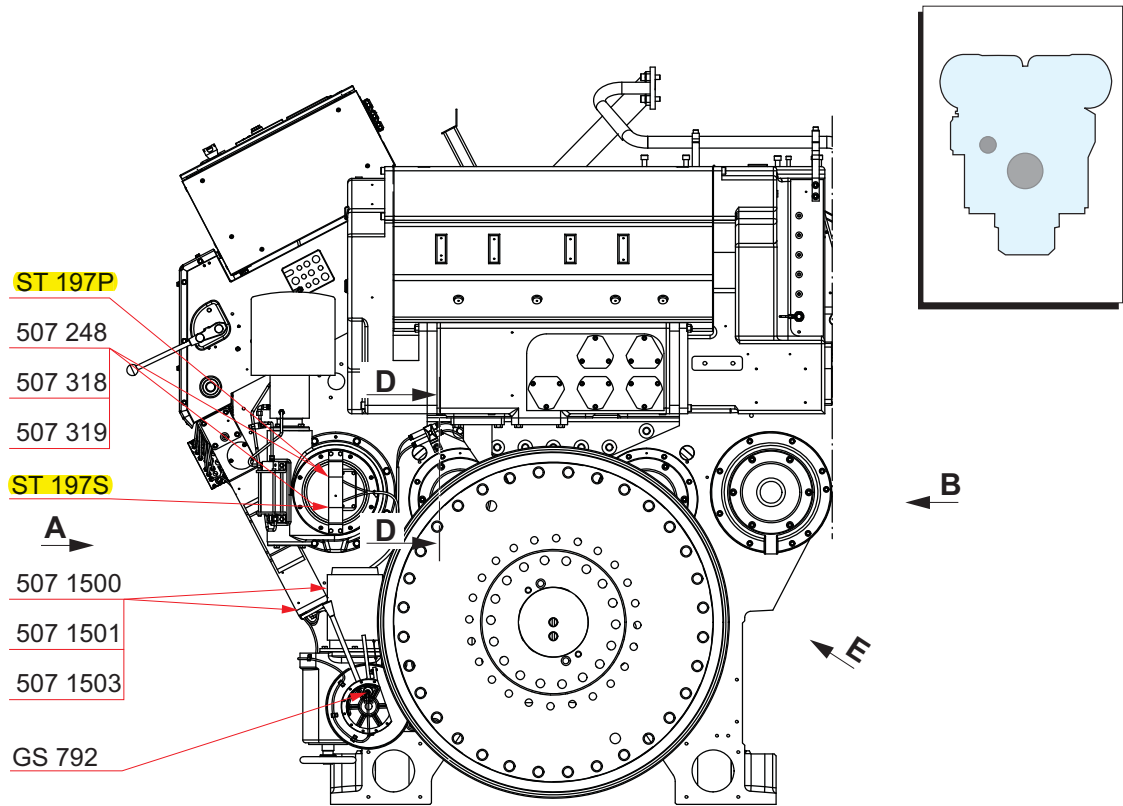
Part No.	Description	Qty [Pcs]	Wt. [Kg]
504 103	Knock sensor	1	-
507 1251	Screw	2	-
507 1255	Screw	1	-
507 1324	Screw	2	-

Electrical equipment for cylinder



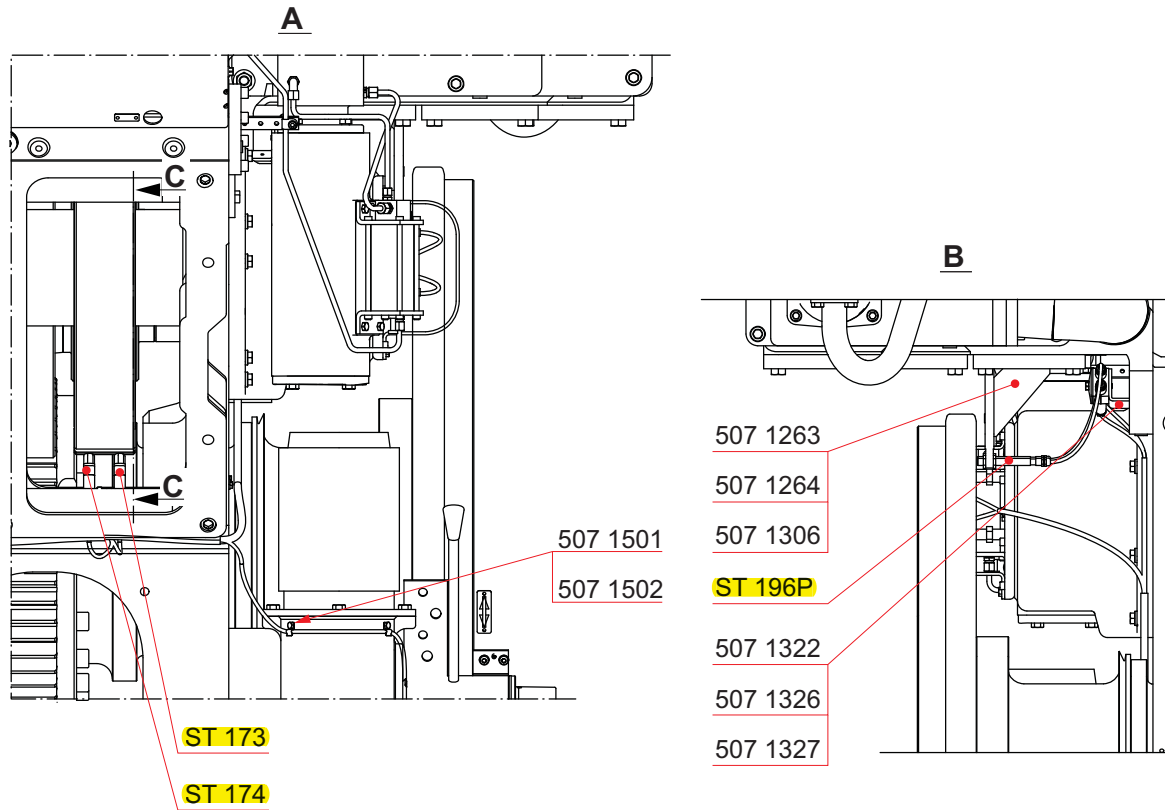
Part No.	Description	Qty [Pcs]	Wt. [Kg]
504 103	Knock sensor	1	-
507 1251	Screw	2	-
507 1255	Screw	1	-
507 1324	Screw	2	-

Electrical equipment



Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 248	Screw	2	-
507 318	Lead-through piece	4	0.1
507 319	O-ring	4	-
507 1500	Cable clamp	9	-
507 1501	Screw	15	-
507 1503	Steel strip	9	-
GS792	Limit switch	1	0.5
ST197P	Limit switch	1	0.5
ST197S	Limit switch	1	0.5

Electrical equipment

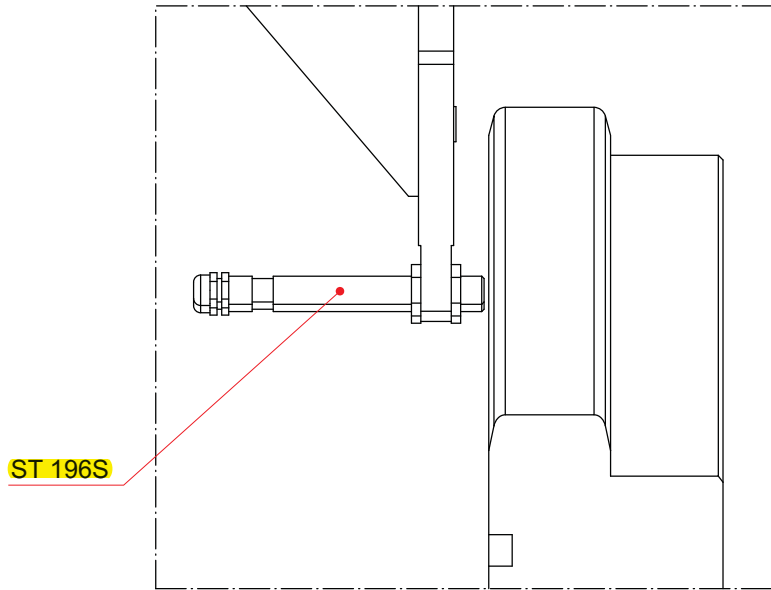


Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 1263	Support *)	1	8.8
507 1264	Screw *)	4	-
507 1306	O-ring *)	1	-
507 1322	Screw *)	1	-
507 1326	Cable clamp *)	1	0.2
507 1327	Washer *)	1	-
507 1501	Screw	15	-
507 1502	Fastener	6	-
ST196P	Speed sensor	1	0.6
ST173	Speed pick-up	1	0.5
ST174	Speed pick-up	1	0.5

NOTE! *) Not used in all installations.

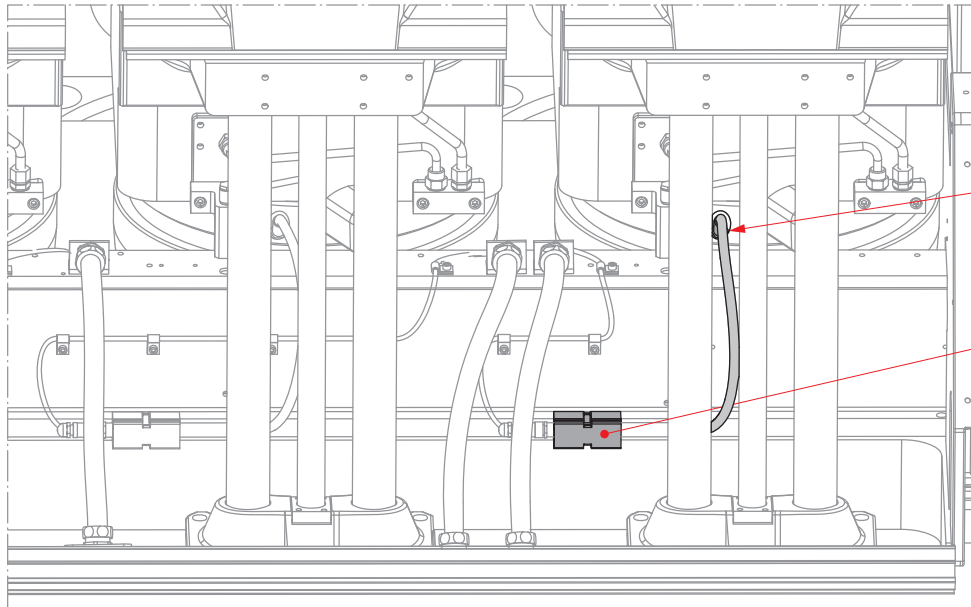
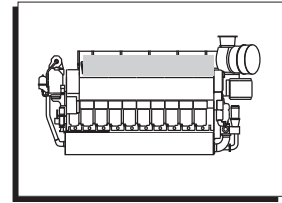
Electrical equipment

D - D



Part No.	Description	Qty [Pcs]	Wt. [Kg]
ST196S	Speed sensor	1	0.6

Electrical equipment for cylinder



516 541

507 1355

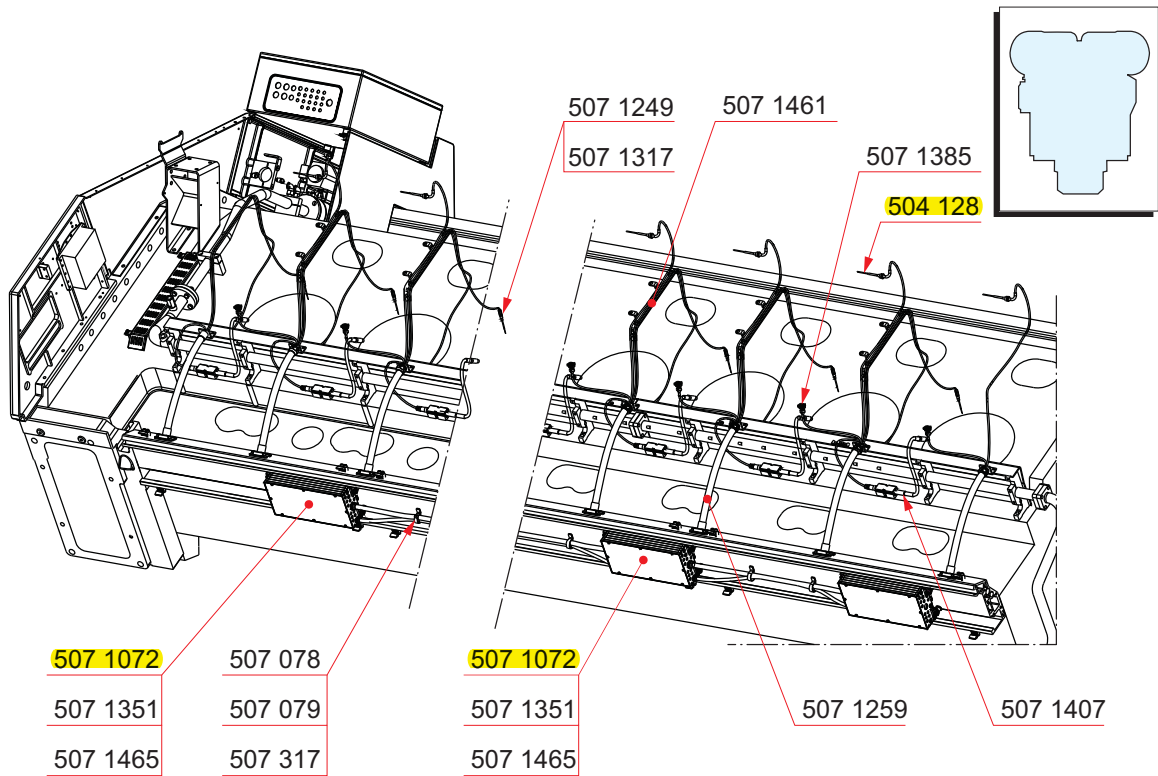
507 1356

507 1357

507 1358

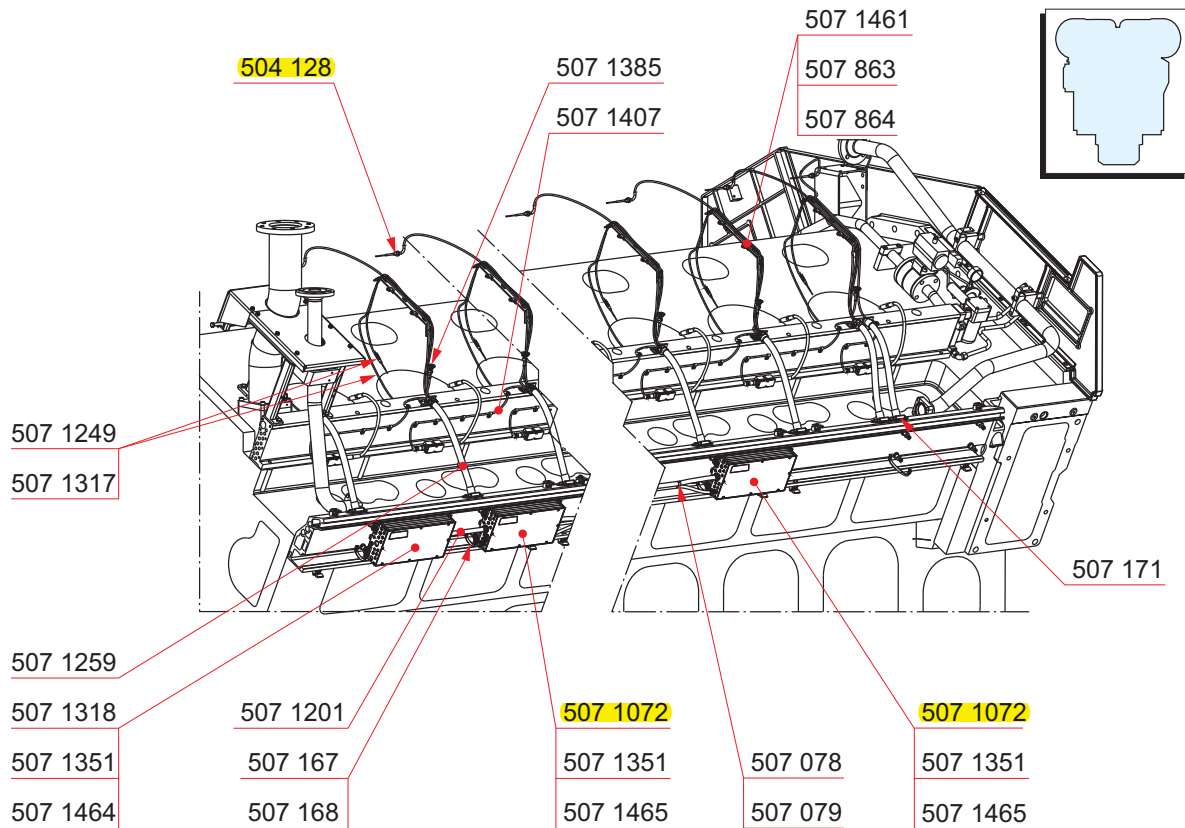
Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 1355	Holder	1	-
507 1356	Cover	1	-
507 1357	Screw	2	-
507 1358	Steel strip	1	-
516 541	Pressure transducer	1	-

Electrical equipment, B bank



Part No.	Description	Qty [Pcs]	Wt. [Kg]
504 128	Temperature sensor	10	-
507 078	Clamp	23	-
507 079	Screw	23	-
507 317	Steel strip	23	-
507 1072	Control unit CCM	4	-
507 1249	Thermoelement	20	-
507 1259	Metal hose	11	-
507 1317	Adapter	20	-
507 1351	Corrosion protection	4	-
507 1385	Cable set	10	-
507 1407	Cable set	10	-
507 1461	Cable rail	9	-
507 1465	Connector set for CCM	4	-

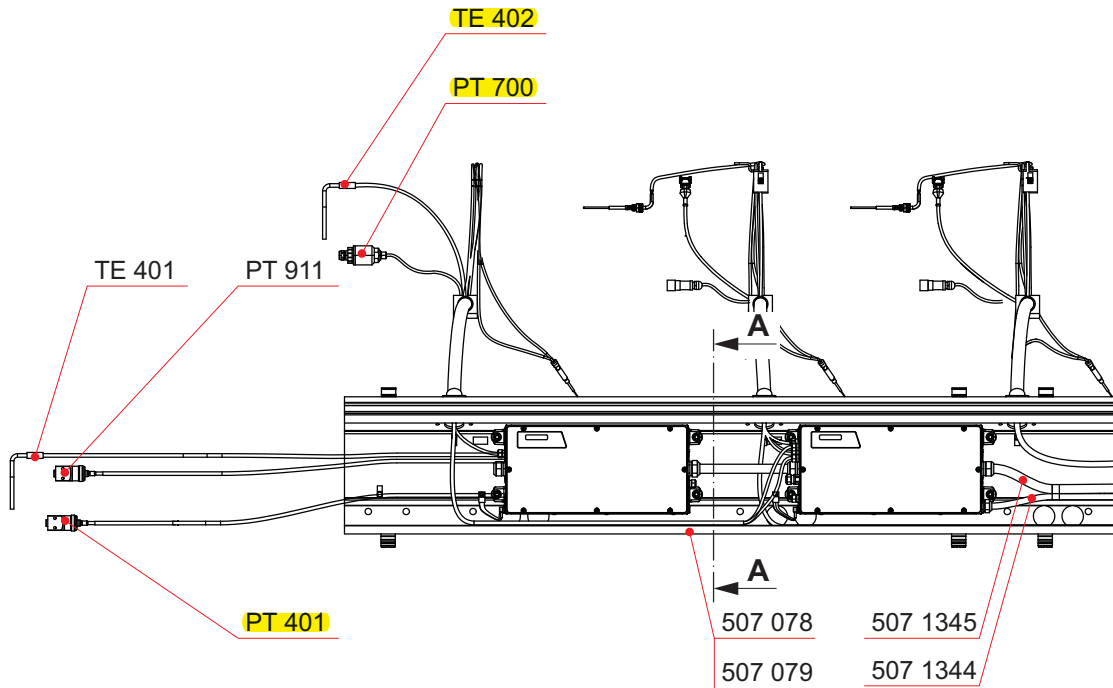
Electrical equipment, A bank



Part No.	Description	Qty [Pcs]	Wt. [Kg]
504 128	Temperature sensor	10	-
507 078	Clamp	20	-
507 079	Screw	20	-
507 167	Cable set	6	-
507 168	Screw	11	-
507 171	Screw	22	-
507 1072	Control unit CCM	4	-
507 1201	Cable (1)	1	-
507 1249	Thermoelement	20	-
507 1259	Metal hose	11	-
507 1317	Adapter	20	-
507 1318	Electronic unit IOM	1	-
507 1351	Corrosion protection	5	-
507 1385	Cable set	10	-
507 1407	Cable set	10	-
507 1461	Cable rail	9	-
507 863	Cable clamp	5	-
507 864	Screw	5	-
507 1464	Connector set for IOM	1	-
507 1465	Connector set for CCM	4	-

NOTE! (1) L= 2000 mm

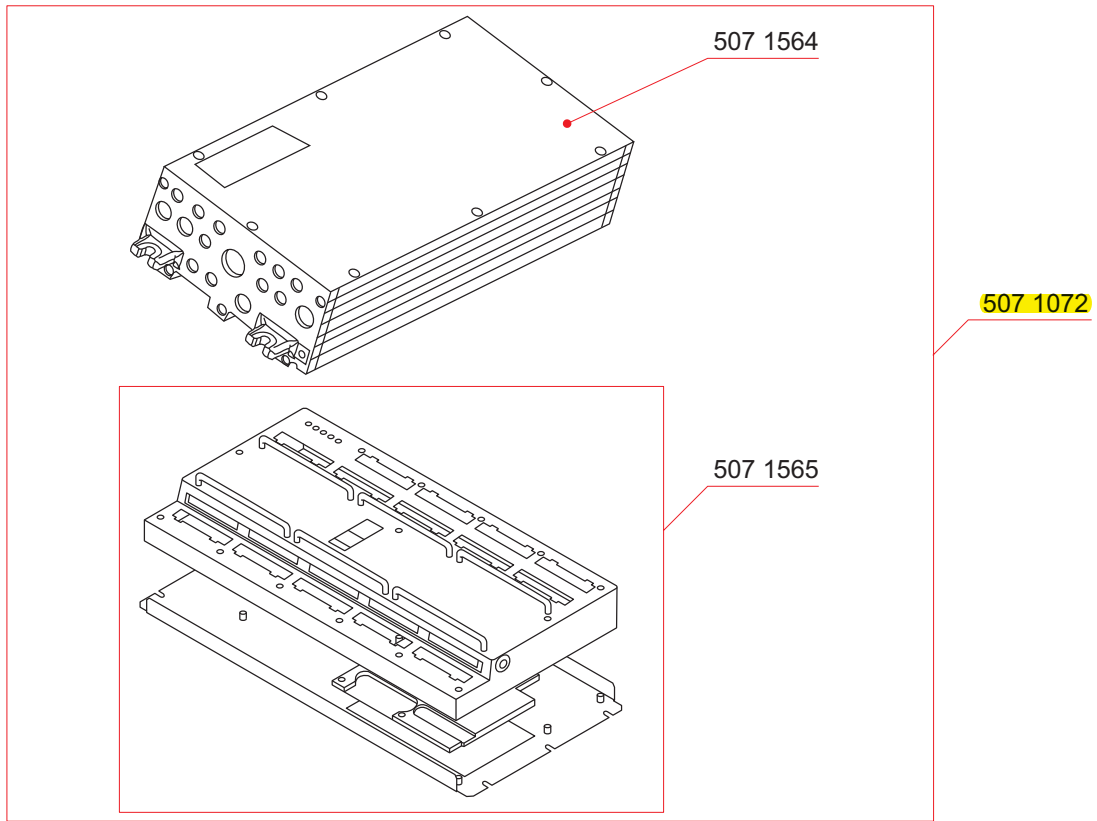
Electrical equipment, A bank



Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 078	Clamp	20	-
507 079	Screw	20	-
507 1344	Cable (1)	1	-
507 1345	Cable (1)	1	-
PT401	Pressure sensor	1	-
PT700	Pressure sensor	1	-
PT911	Pressure sensor	1	-
TE401	Temperature sensor, HT water, before engine	1	-
TE402	Temperature sensor, HT water, after engine	1	-

NOTE! (1) L= 7000 mm

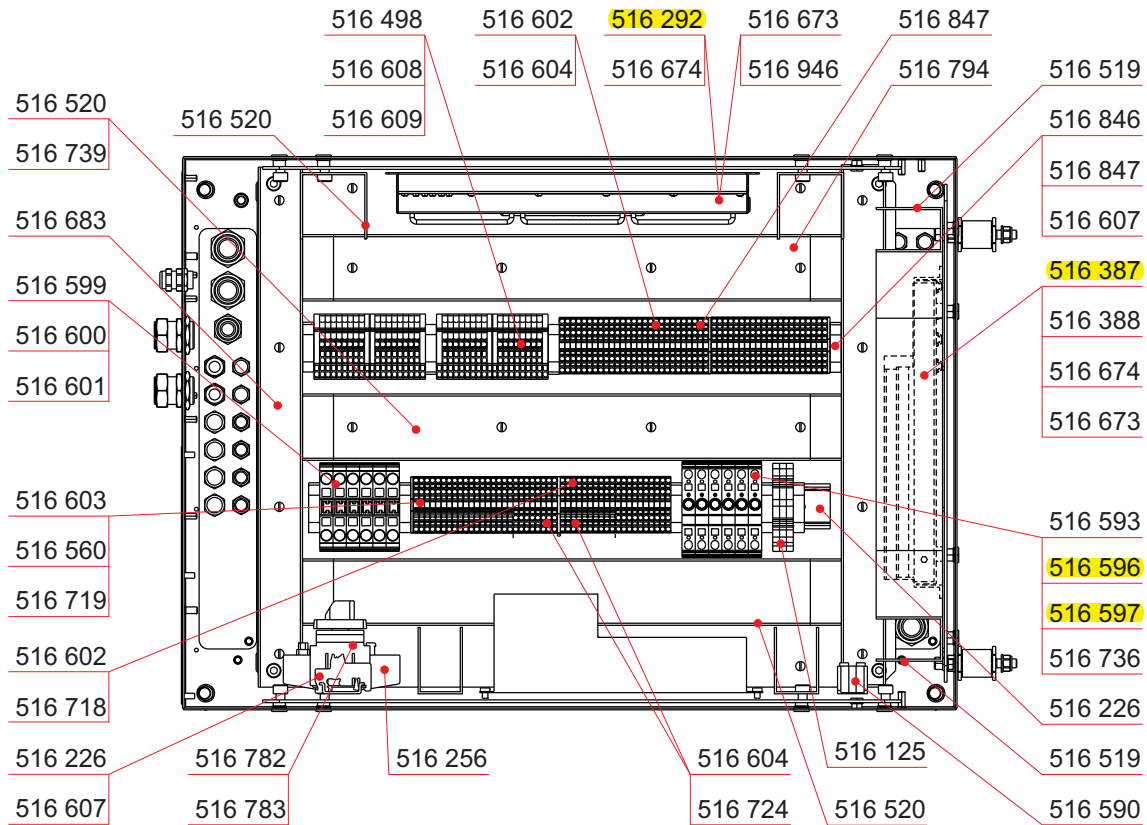
Cylinder control module



Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 1072	Control unit CCM	1	-
507 1564	Box	1	-
507 1565	Electronic unit	1	-

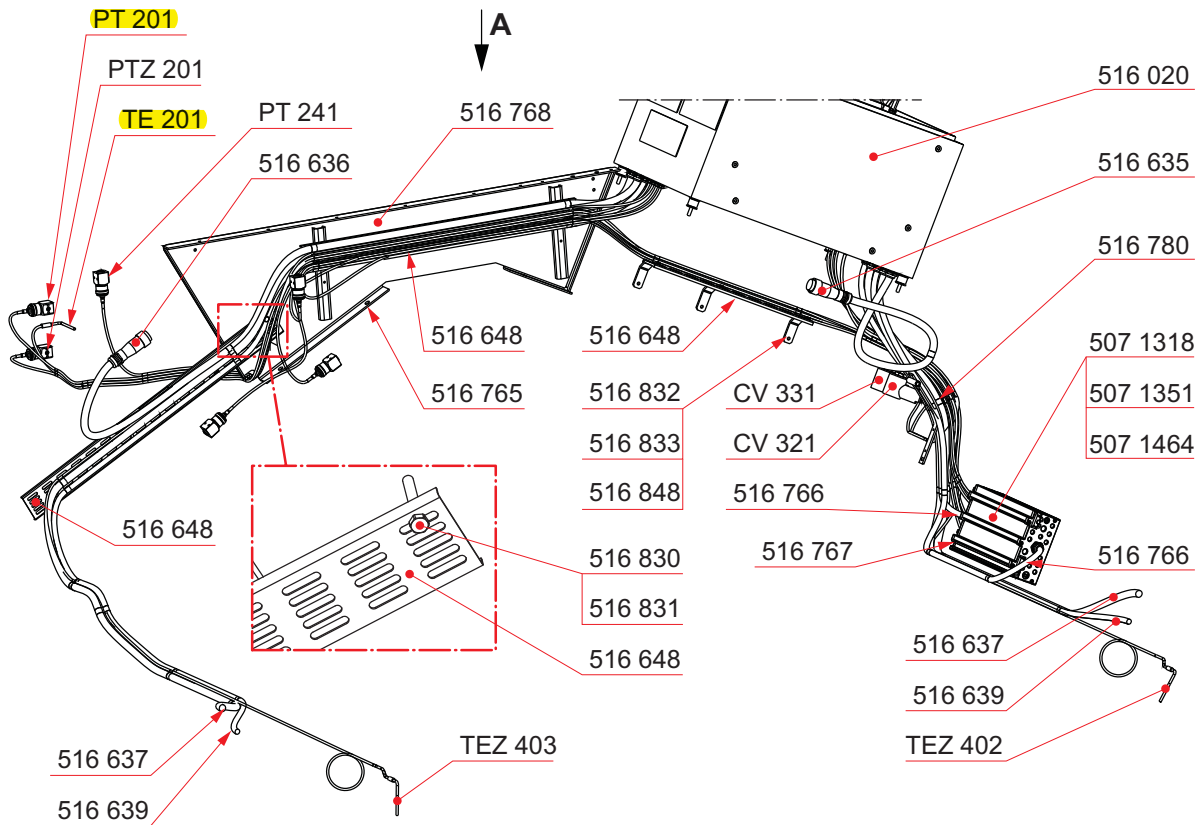
APPENDIX A

Electrical equipment



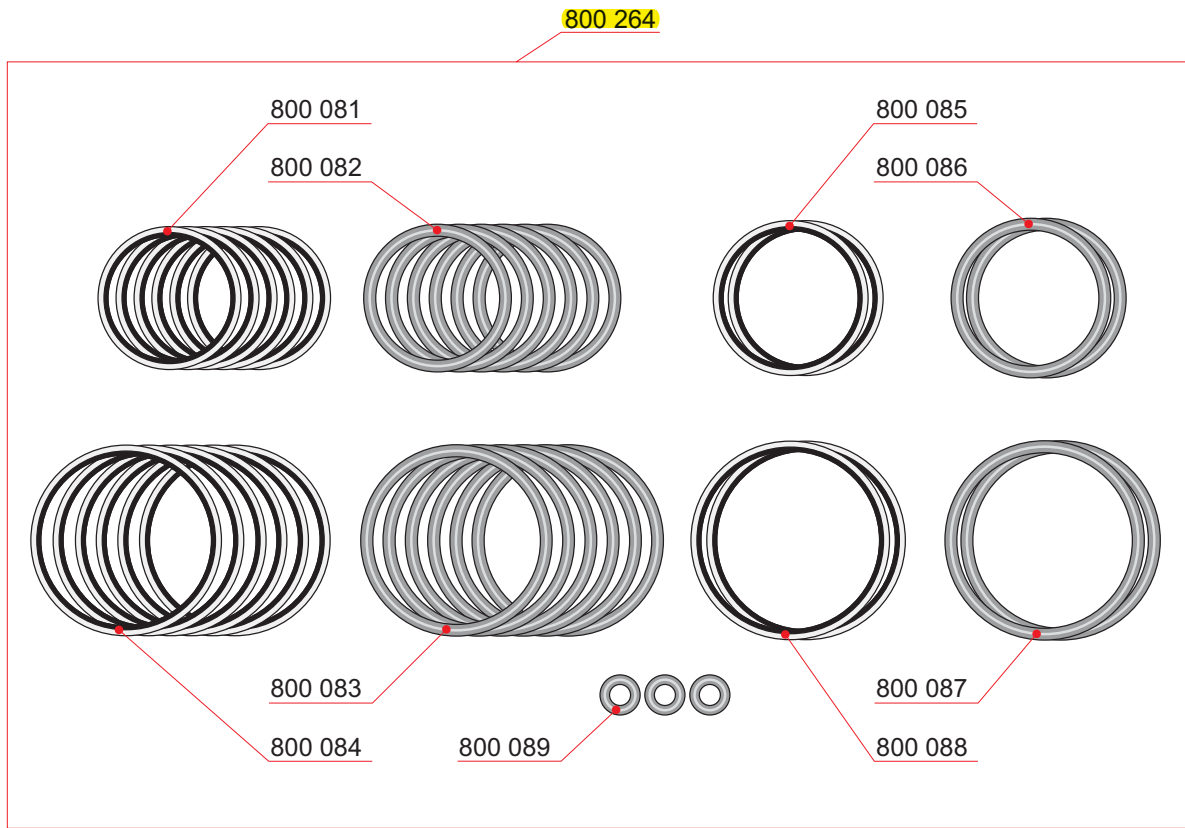
Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
516 125	Relay	3	-	516 609	Ground receptacle	8	-
516 226	Terminal strip rail	1	-	516 673	Resistor 22 kR	4	-
516 256	Electronic unit	1	-	516 674	Resistor 120 R	2	-
516 292	Control unit	1	-	516 683	Holder for tie wrap	20	-
516 387	Engine safety module	1	-	516 718	Terminal strip	10	-
516 388	Connector	1	-	516 719	Terminal strip	18	-
516 498	Plug 8-pin	8	-	516 724	Jumper	2	-
516 519	Cable tray *	1	-	516 736	Fixed bridge	1	-
516 520	Cable tray *	1	-	516 739	Cable *	1	-
516 560	Terminal strip	8	-	516 782	Switch	1	-
516 590	Diode	2	-	516 783	Terminal	1	-
516 593	Fuse terminal	6	-	516 794	Cable *	1	-
516 596	Fuse 1A	4	-	516 846	Terminal strip	7	-
516 597	Fuse 4A	2	-	516 847	Terminal strip	7	-
516 599	Terminal strip	2	-	516 946	Connector	1	-
516 600	Terminal strip	2	-				
516 601	Terminal strip	2	-	NOTE!	*) Length needed when ordering.		
516 602	Terminal strip	58	-				
516 603	Terminal strip	2	-				
516 604	End plate	4	-				
516 607	End clamp	12	-				
516 608	Receptacle, DIN-rail mounting	32	-				

Electrical equipment



Part No.	Description	Qty [Pcs]	Wt. [Kg]	Part No.	Description	Qty [Pcs]	Wt. [Kg]
507 1318	Electronic unit	1	-	PT241	Lube oil pressure, filter inlet	1	-
507 1351	Corrosion protection	1	-	PTZ201	Pressure sensor	1	-
507 1464	Connector set for IOM	1	-	TE201	Temperature sensor	1	-
516 020	Connecting box (*)	1	-	TEZ402	Temperature sensor, HT-water outlet	1	-
516 635	Cable set	1	-	TEZ403	Temperature sensor, HT-water outlet	1	-
516 636	Cable set	1	-	NOTE!	(1) L = 11.5 m		
516 637	Cable (1)	1	-	NOTE!	(2) L = 7000 mm		
516 639	Cable (1)	1	-	NOTE!	(4) L = 2160 mm		
516 648	Cable tray (4)	1	-	NOTE!	(5) L = 3100 mm		
516 765	Screw	3	-	NOTE!	(6) L = 30 mm		
516 766	Cable (2)	1	-	NOTE!	*) See 516-		
516 767	Cable (5)	1	-				
516 768	Cover	1	-				
516 780	Cable rail	1	-				
516 830	Pipe (6)	1	-				
516 831	Screw	1	-				
516 832	Screw	6	-				
516 833	Pipe clamp	3	-				
516 848	Washer	6	-				
CV321	Solenoid valve	1	-				
CV331	Solenoid valve	1	-				
PT201	Pressure sensor	1	-				

Hydraulic tightening tools



Part No.	Description	Qty [Pcs]	Wt. [Kg]
800 264	Sealing set for hydraulic tightening tool	1	-
800 081	Support ring	6	-
800 082	O-ring	6	-
800 083	O-ring	6	-
800 084	Support ring	6	-
800 085	Support ring	2	-
800 086	O-ring	2	-
800 087	O-ring	2	-
800 088	Support ring	2	-
800 089	O-ring	3	-