


ROTAX
**FLUGMOTOR
AIRCRAFT ENGINE**
618 UL - D.C.D.I.
BESCHREIBUNG / DESCRIPTION

2-Zyl. 2-Takt drehschiebergesteuerter flüssiggekühlter Motor mit RAVE (einstellbarer Auslaßsteuerung), elektronischer Doppelzündung, integrierter Wasserpumpe und Thermostat, Auspuffanlage, Vergaser, Getriebe E mit integriertem Elektrostarter, Ansaugeräuschkämpfer, Frischölschmierung

2-cyl. 2-stroke liquid cooled engine with rotary valve inlet, with RAVE (adjustable variable exhaust), electronic dual ignition, integrated water pump and thermostat, exhaust system, carburetors, gearbox E with integrated electric starter, intake silencer, fresh oil lubrication

AUSFÜHRUNG Version	LEISTUNG Performance			DREHMOMENT Torque			max. Drehzahl R.P.M.
	kW	hp	1/min	Nm	ft. lbf.	1/min	1/min
618 UL-2V	55	73,8	6750	80	59	6500	7000

BOHRUNG Bore		HUB Stroke		HUBRAUM Displacement		VERDICHTUNG Compression Ratio	
76 mm	2,99 in	68 mm	2,68 in	617 cm ³	37,65 cu in	th: 11,5	ef: 5,95

TREIBSTOFF Fuel	Super 2-Takt-Motoröl Super 2-stroke motoroil	MISCHVERHÄLTNIS Mixing ratio
MON 85 RON 95*	API-TC - Klassifikation API-TC - Classification	1:50 - 1:100
* verbleit oder unverbleit		* leaded or unleaded

ZÜNDANLAGE Ignition unit	VORZÜNDUNG Ignition timing	ZÜNDKERZE Spark plug
DUCATI Doppel CDI	15° v. OT	ROTAX PART No 897 055

GENERATORLEISTUNG Generator performance	DREHZAHL R.P.M.	SPANNUNG Voltage
200 W DC	6000 1/min	13,5 V

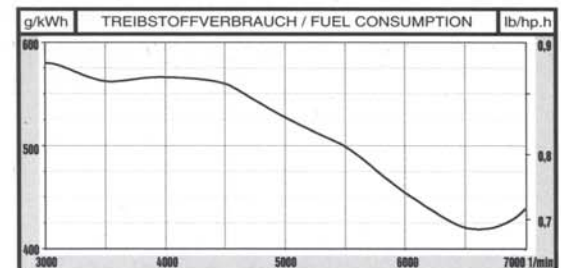
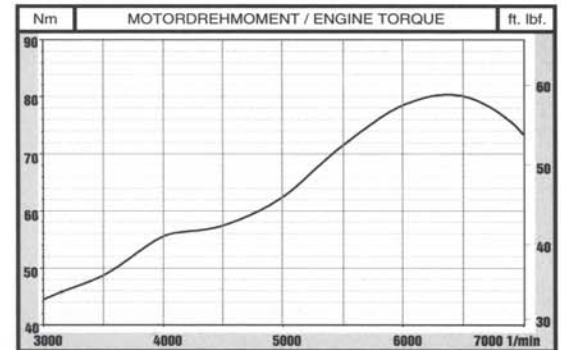
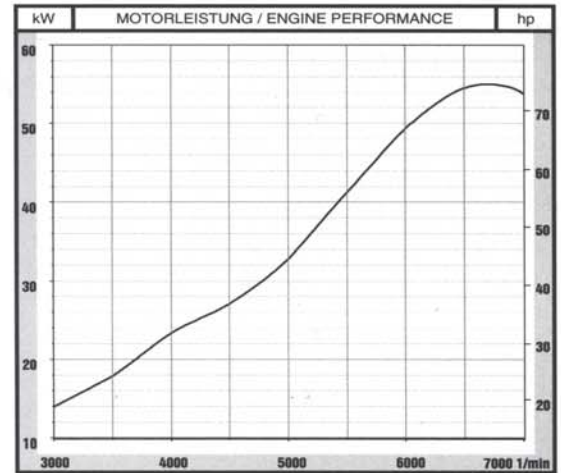
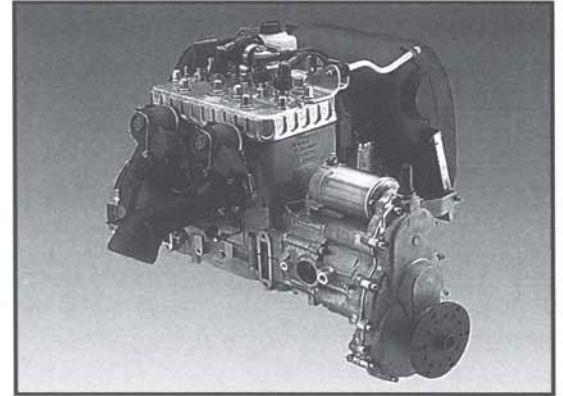
LIEFERUMFANG Standard	GEWICHT / WEIGHT	
	kg	lb
Motor /engine	31,0	68,3
2 Vergaser / 2 carburetors	1,8	4,0
Ansaugeräuschkämpfer / intake silencer	1,9	4,2
Getriebe "E" / gearbox "E" / i = 2,62/3,0/3,47/4,0	11,2	24,7
Auspuffsystem / exhaust system	6,9	15,2
Getriebe "C" / gearbox "C" / i = 2,62/3,0/3,47/4,0	8,0	17,6
Lichtgenerator / generator 230 W DC	1,1	2,4
Elektrostarter / electric starter	3,5	7,7
Kühler / radiator 995 697	1,0	2,2
2 Kühler groß / 2 radiators big	2,2	4,9
Ausgleichsgefäß / expansion tank 922 317	0,3	0,7
Überlaufgefäß / overflow-bottle 922 325	0,2	0,4
Ölbehälter / oil tank 2,4 l	0,6	1,3
Nachdämpfer / after muffler	1,6	3,5
Anzeigegerät / instrument FLYdat	0,5	1,1
Auslesegerät / recall instrument RDAT	1,0	2,2

WARNUNG / WARNING

Dieser Flugmotor entspricht nicht den Sicherheitsbestimmungen für zertifizierte Flugmotoren. Dieser Motor darf nur in nicht-zertifizierten Experimental- und Ultraleicht-Flugzeugen verwendet werden und nur in solchen Fällen, in denen ein Motorschaden die Sicherheit nicht beeinträchtigt. Vor Inbetriebnahme des Motors ist das Handbuch zu lesen. Informationen erhalten Sie beim zuständigen, autorisierten Rotax-Vertriebspartner.

This aircraft engine does not comply with federal safety regulations for standard aircraft. This engine is for use in experimental and ultralight uncertified aircraft only and only in circumstances in which an engine failure will not compromise safety. Before operating the engine read operator's manual. Information is available from your local authorized Rotax distributor.

BOMBARDIER-ROTAX GESELLSCHAFT MBH MOTORENFABRIK
A-4623 Gunskirchen Tel. +43-(0)-7246-271-0* Fax: +43-(0)-7246-370 Telex: 25546 brkg



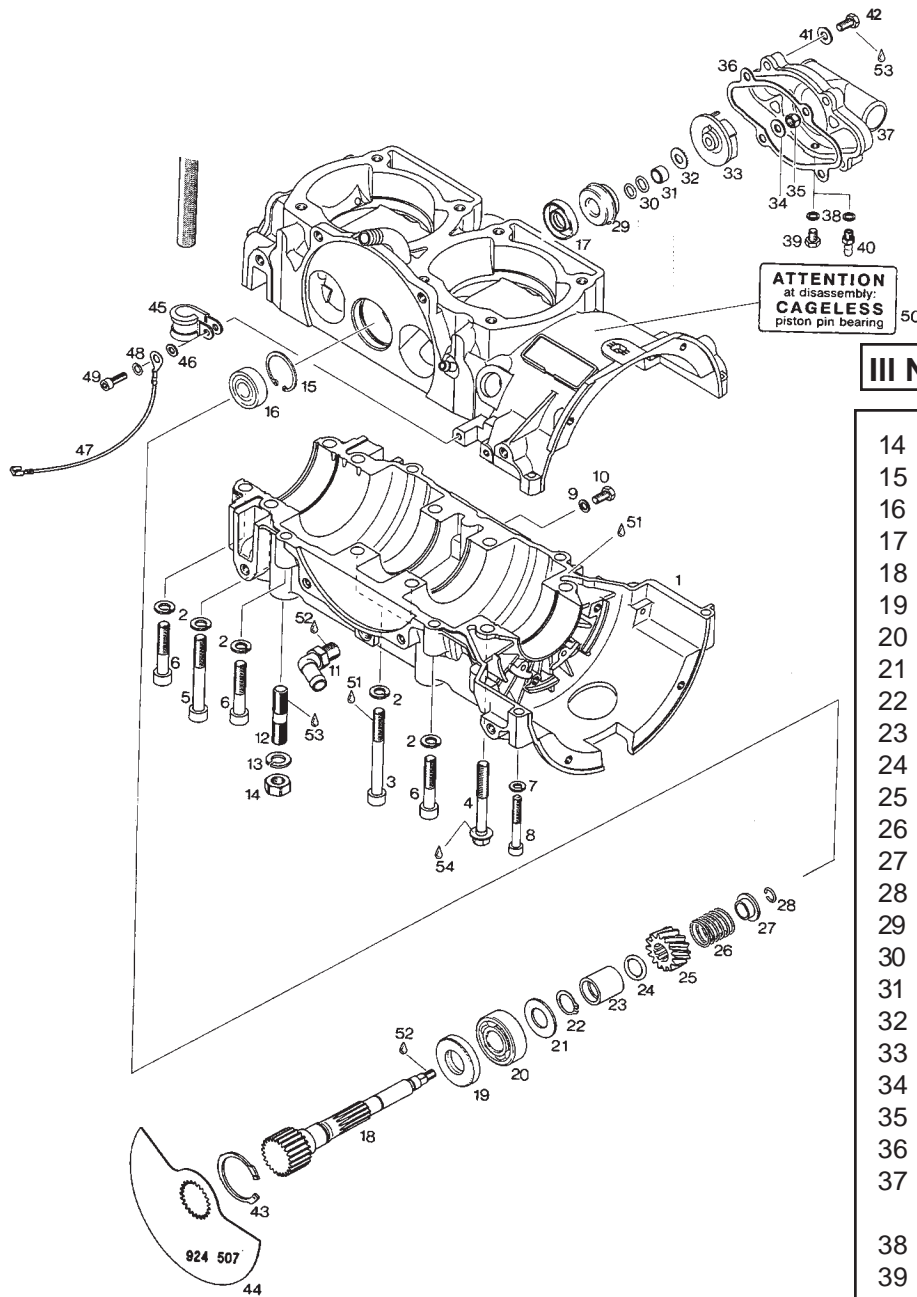
LOCKWOOD AVIATION SUPPLY
1 LOCKWOOD LANE
SEBRING, FL 33870
PHONE:863-655-5100
FAX:863-655-6225

RTX

CRANKCASE, ROTARY VALVE SHAFT WATER PUMP

618UL

RTX



Ill No	Part#	Description	Qty
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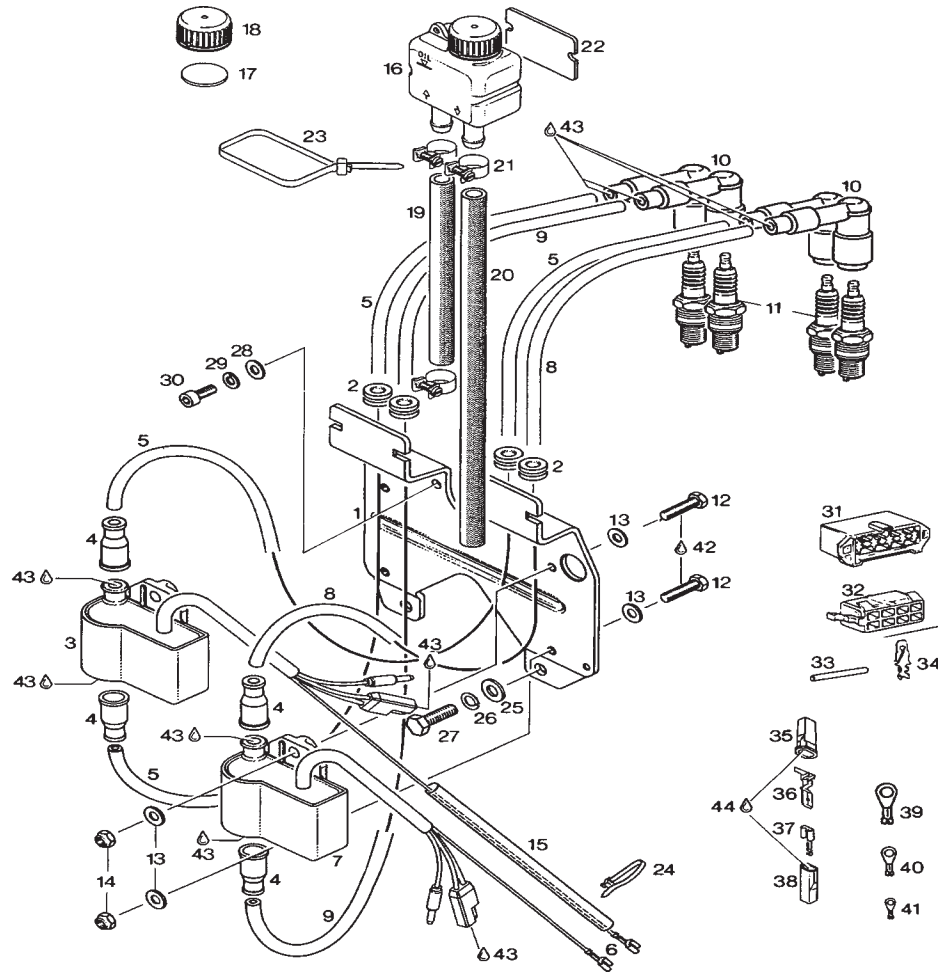
14	242 091	Hex nut M10, 38NM	4
15	845 150	Retaining ring 30x1.2	1
16	932 330	Ball bearing 16101-Z,12-30-8	1
17	850 975	Oil seal A 12x30x7 NBR	1
18	837 245	Rotary valve shaft	1
19	930 580	Oil seal 20x40x7	1
20	932 032	Ball bearing 6203 TVH C3	1
21	227 439	Shim 17.2/32.5/1.5	1
22	845 450	Retaining ring 17x1	1
23	847 282	Spacer	1
24	831 500	O ring 14-3	1
25	935 735	Rotary valve gear 14T	1
26	938 810	Compression spring, 25.1mm	1
27	827 430	Spring holding cup	1
28	845 160	Circlip 12	1
29	850 940	Rotary seal	1
30	430 800	O ring 8x2	2
31	847 810	Rotary seal sleeve	1
32	227 155	Friction washer	1
33	922 036	Impeller	1
34	244 211	Washer 6.4	1
35	842 042	Lock nut M6, 7NM	1
36	831 615	Gasket	1
37	922 501	Water pump housing, mount venting screw down	1
38	830 890	Gasket ring 6.2/8.9/1	2
39	841 580	Hex screw M6x8	2
40	940 558	Hose nipple M6, for bleeding air out when engine is inverted	1
41	244 211	Washer 6.4	4
42	240 036	Hex screw M6x25, 8NM	4
43	845 260	Snap ring 40x1.75	1
44	924 507	Rotary valve, 151 degree	1
45	851 250	Cable clamp 15/M5	1
46	827 800	Washer A5.5	1
47	865 993	Mass cable assy	1
48	945 750	Lock washer, A5	1
49	840 511	Allen screw M5x6	1
50	897 280	Cageless bearing label	1
51	899784	Loctite 574, orange	As Rqd
52	LT680	Loctite 680, green	As Rqd
53	LT222	Loctite 222, violet	As Rqd
54		BP Energrease	As Rqd

Ill No.	Part#	Description	Qty
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1	886 406	Crankcase assy	1
2	945 752	Lock washer A8	2
3	841 831	Allen screw M8x75, 24NM	4
4	841 306	collar hex screw M8x65,24NM	2
5	841 841	Allen screw M8x65,24NM	2
6	841 561	Allen screw M8x45, 24NM	6
7	945 751	Lock washer A6	2
8	241 821	Allen screw M6x45, 10NM	2
9	230 415	Gasket ring 6x10	1
10	240 771	Hex screw M6x10, 8NM	1
11	922 245	Angular tube 1-4-18npt	1
12	940 190	Stud M10x29/20, 12NM	4
13	945 753	Lock washer A10	4

OIL TANK, IGNITION COILS SUPPORTING PLATE

RTX



Ill No.	Part#	Description	Qty
1	951 617	Supporting plate	1
2	960 445	Grommet	4
3	966 462	Electronic box, circuit 1,pto side	1
4	960 550	Protection cap	4
5	965 158	Ignition circuit 1, 360mm	2
6	864 011	Faston connector, 6.3x.8	2
7	966 462	Electronic box, circuit 2,mag side	1
8	965 153	Ignition circuit 2, 440mm	1
9	965 153	Ignition circuit 2, 180mm	1
10	866 705	Spark plug connector,magenta	4
11	B8ES	Spark plug, 14mm, 27NM COLD	4
12	240 036	Hex screw M6x25, 5NM	4
13	244 211	Washer 6.4	8
14	842 042	Lock nut M6, 8NM	4
15	960 187	Protection hose, 170mm	1
16-18	956 240	Oil tank assy	1
17	850 350	Rubber gasket 26.5mm	1
18	956 250	Oil tank cap	1
19	956 234	11x18mm oil line, 155mm	1
20	956 235	11x18mm oil line, 360mm	1
21	951 260	Clamp 14	4
22	860 425	Rubber spacer	1
23	951 500	Clamp 100mm	1

Ill No.	Part#	Description	Qty
24	866 710	Clamp 20mm	2
25	250 311	Washer 8.4	2
26	945 752	Lock washer A8	2
27	240 276	Hex screw M8x25	2
28	244 211	Washer 6.4	2
29	945 751	Lock washer A6	2
30	241 236	Allen screw M6x16	2
31	866 025	Connector housing	1
32	866 010	Connector housing	1
33	860 621	Shrink hose, 40mm	As Rqd
34	866 305	Faston connector 6.3x.8	5
35	960 970	Connector sheath, yellow	As Rqd
36	866 300	Faston connector 6.3x.8	As Rqd
37	864 011	Faston connector 6.3x.8	As Rqd
38	960 719	Connector sheath	As Rqd
39	964 055	Cable terminal M5	As Rqd
40	965 700	Cable shoe M4	As Rqd
41	965 706	Cable shoe M3	As Rqd
42	LT680	Loctite 680, green	As Rqd
43	PSLG	Lithium based grease	As Rqd
44	297 386	Silastic 732 RTV	As Rqd

Lockwood Aviation Supply www.lockwood-aviation.com

e-mail: info@lockwood.aero

Order Line 1-800-LA-ROTAX

Info Line 1-863-655-5100

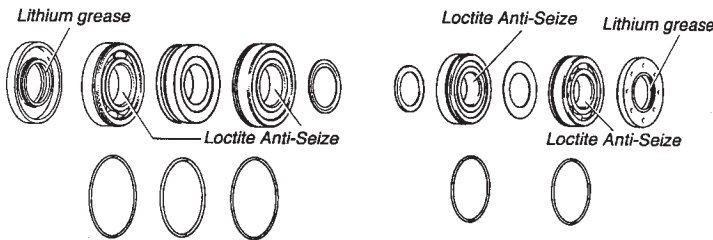
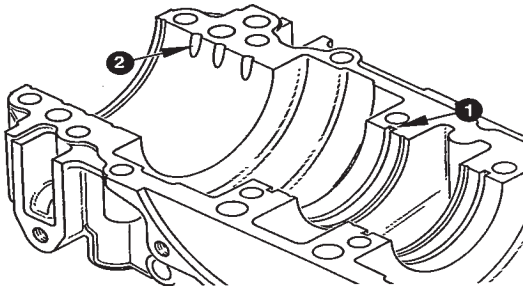
Fax Line 1-863-655-6225

CRANKSHAFT, PISTONS

INSTALLATION OF CRANKSHAFT:

Always pay attention to cleanliness. Small amounts of foreign matter in the oil circuit could cause severe damage or reduce the lifespan of the engine essentially. Lubricate all bearings and moving parts in the course of assembly. All o-rings, oil seals and gaskets must be renewed at re-assembly.

The axial position of the crankshaft is predetermined by the two ball bearings at the crankshaft center with one each locating ring engaging in the #1 groove of the crankcase. Fitting and completing of crankshaft assembly generally in reverse sequence to disassembly. Clean and degrease all bearing seats. The ball bearings are furnished with an o ring on the circumference, to avoid possible rotation of the outer race in the crankcase. To prevent squeezing of the o-rings when joining the crankcase halves, clearances (#2) are provided on jointing face of crankcase. Place bearings on crankshaft with the o rings located in clearances. Warm up ball bearings to 70-80C (160-180F). Properly pre-heated bearings can be fitted easily onto journals of crankshaft. See following chart for proper lubricants/adhesives and where they are applied.



Fit O-rings on ball bearings and slide greased oil seal on crankshaft ends.

ASSEMBLY OF CRANKCASE:

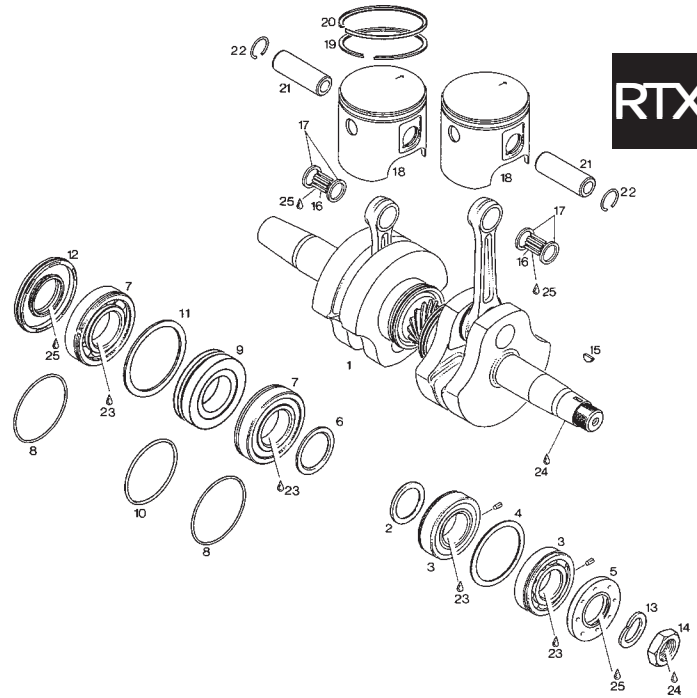
Take apart crankcase again, still assembled for taking readings of dimensions. Pre-heat crankcase to 70-80C (160-175F). Press bearing for rotary valve shaft on waterpump side into position, using punch #876-500 and secure bearing with retaining ring 32x1.2. Closed side of ball bearing to pint towards inside. This retaining ring is used on 532's starting with #3877848, 582's from 3957335 and all 618's. To facilitate assembly, support upper half of crankcase on cylinders with the sleeve spigots projecting into crankcase half. Place crankshaft with conrods down into crankcase. Push oil seals at crankshaft centre outwards onto ball bearings. Ensure that the retaining bead comes to rest in the assigned groove in the crankcase. Push outer oil seals also against ball bearings.

The retaining bead of the oil seal on PTO side has to fit into the provided groove in the crankcase. Join crankcase halves as previously stated above. Tightening torque for case screws is: M6 - 10NM (90 in lb), M8 - 24NM (210 in lb.)

Check crankshaft for proper alignment before assembling crankcase.

Prior to tightening of crankcase screws, align the two halves on the face at PTO side, utilizing a straightedge or by running a finger across the joint.

If need be, align by using a rubber mallet. Finally, lift crankcase assembly from support, turn upright and relieve stress in the bearings by a light blow with a rubber mallet. Crankshaft must turn freely now. Check with a few rotations cranking on on connecting rods. If crankshaft won't turn freely, disassemble crankcase again and rectify. Once crankcase is assembled, secure connecting rods to prevent damage to sealing surfaces. Lubricate all bearings of crank and the spiral gear drive of the rotary valve shaft sufficiently with 2-stroke oil. Apply to oil ducts in crankcase as well.

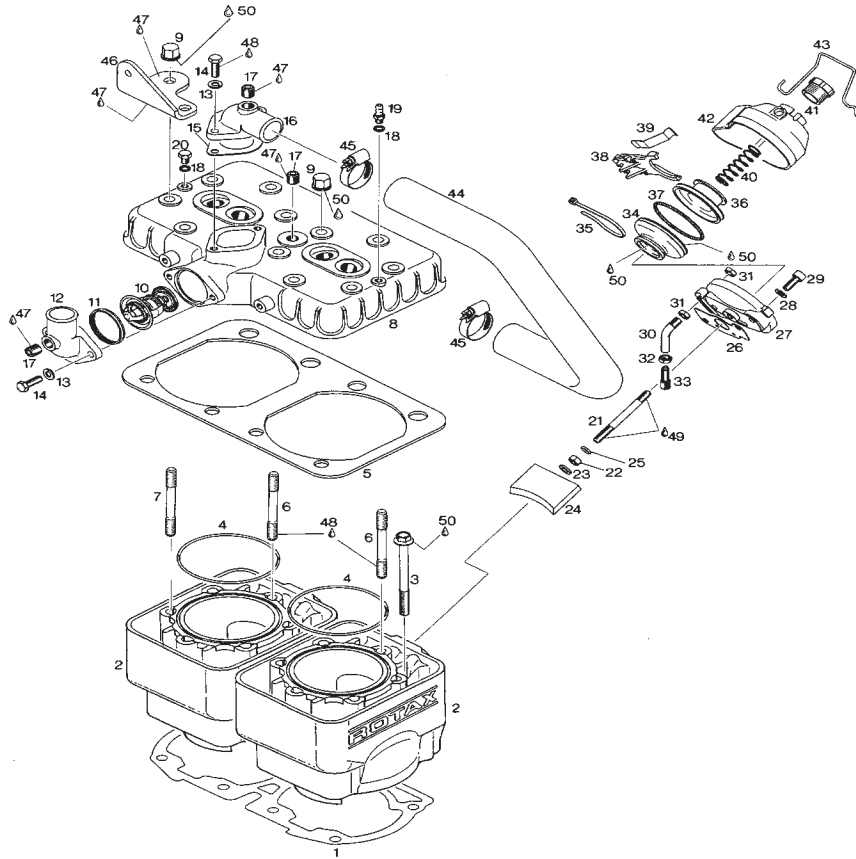


RTX

Ill No.	Part#	Description	Qty
1-12	886 631	Crankshaft assy, 68mm stroke	1
1	886 630	Crankshaft	1
2	827 445	Distance ring 31/42/1.5	1
3	932 589	Ball bearing 6206TVH30-62-16	2
4	827 050	Retaining disk	1
5	830 748	Oil seal 30x62x7/7.5	1
6	827 765	Distance ring 35.5/47/1.5	1
7	832 231	Ball bearing 6207NTNHC3	2
8	250 165	O ring 64-2	2
9	830 294	Labyrinth sleeve	1
10	830 370	O ring 63-2.5	1
11	927 710	Retaining disk	1
12	831 950	Oil seal 35x72x7/8.5	1
13	945 759	Lock washer 22	1
14	842 230	Hex nut M22x1.5	1
15	246 015	Woodruff key 3x5	1
16-17	832 320	Cageless bearing	2
17	827 465	Thrust washer 18/21.7/2.5	4
18-20	888 590	Piston w/rings, 75.94/95mm	2
	887 591	Piston w/rings, 76.19/20mm	2
	887 592	Piston w/rings, 76.44/45mm	2
19	215 200	Rectangular ring, 76mm	2
	215 201	Rectangular ring, 76.25mm	2
	215 202	Rectangular ring, 76.5mm	2
20	915 820	Semi trapez ring, 76mm	2
	915 821	Semi trapez ring, 76.25mm	2
	915 822	Semi trapez ring, 76.5mm	2
21	916 137	Piston pin 18x10x53.7	2
22	945 735	Circlip 18	4
23	PSAS	Anti seize	As Rqd
24	LT222	Loctite 222, violet	As Rqd
25	PSLG	Lithium based grease	As Rqd

CYLINDERS, HEAD

RTX



Ill No.	Part#	Description	Qty
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1	931 181	Dual base gasket	1
2	913 400	Cylinder w/sleeve, 76.0/01	1
3	440 366	Collar hex screw M8x90, 24NM	8
4	850 540	O ring 83-2	2
5	850 560	Rubber gasket	1
6	841 881	Stud M8x75, 7NM	2
7	240 490	Stud M8x84, 7NM	10
8	913 840	Cylinder head, 11.5 comp ratio	1
9	842 471	Cap nut M8, 22NM	12
10-11	922 511	Thermostat w/gasket	1
10	922 512	Thermostat 55 degree	1
11	931 270	Thermostat gasket	1
12	922 060	Bent outlet socket	1
13	945 751	Lock washer A6	4
14	940 561	Hex screw M6x20, 10NM	4
15	850 338	Gasket	1
16	922 061	Bent outlet socket	1
17	240 480	Plug screw 1/8-27npt, 6NM	3
18	830 890	Gasket ring 6.2/8.9/1	2
19	940 558	Hose nipple, M6, 8NM	1
20	841 580	Hex screw M6x8, 8NM	1
21	253 242	Valve rod, 1.5NM	2
22	242 031	Hex nut BM6, 10NM	2
23	244 211	Washer 6.4	2
24	854 058	Exhaust valve	2
25	230 260	O ring 6x3	2
26	230 255	Exhaust valve gasket	2

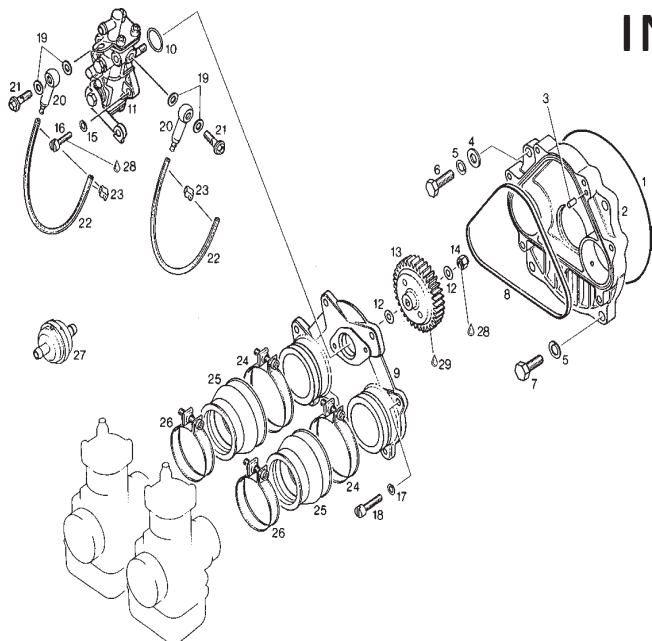
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27	253 367	Valve rod housing	2
28	845 020	Spring washer B6	4
29	241 236	Allen screw M6x16, 10NM	4
30	268 935	Pipe bend	2
31	942 810	Hex nut M7x.75	2
32	942 541	Hex nut M6x.75	2
33	241 440	Adjustment screw M6x.75	2
34	260 723	Bellows	2
35	866 710	clamp 20mm	2
36	253 255	Exhaust valve piston	2
37	239 040	Hose spring 134-2.3-.4-.0	2
38	248 245	Valve lever	2
39	239 995	Spring	2
40	239 946	Compression spring 42mm	2
41	241 220	Adjustment screw	2
42	210 335	Valve cotter	2
43	239 035	Spring clip	2
44	922 520	Molded hose 25/180 degree	1
45	951 880	Clamp 20-32	2
46	851 129	Intake silencer bracket	1
47	297 386	Silastic 732 RTV	As Rqd
48	LT222	Loctite 222, violet	As Rqd
49	LT680	Loctite 680, green	As Rqd
50		BP Energrease	As Rqd

NOTE: It is recommended to clean rave valves every 50 hours and hook up as to cycle every flight. If valves do stick, engine power drops to that of a 582

ROTARY VALVE COVER, OIL INJECTION INTAKE

618UL

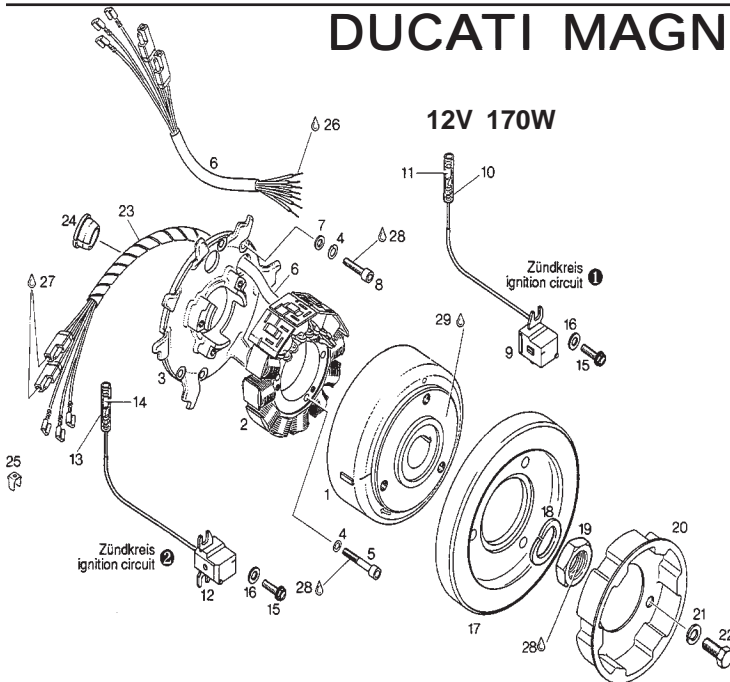


Ill No	Part#	Description	Qty
6	240 276	Hex screw M8x25, 20NM	2
7	940 591	Hex screw M8x20, 20NM	2
8	831 700	Rubber ring, 126x1.5x3.5	1
9	910 320	Pump mounting flange	1
10	230 370	O ring 18-1.3	1
11	995 527	Oil pump assy	1
12	927 945	Wahsher 6.2/12/1	2
13	935 940	Oil pump gear 44T	1
14	842 042	Lock nut M6, 5NM	1
15	945 750	Lock washer A5	2
16	240 761	Slotted head screw M5x16, 5NM	2
17	945 751	Lock washer A6	7
18	940 561	Hex screw M6x20, 10NM	7
19	227 500	Gasket ring 6.2/12/1	4
20	956 010	Check valve assy	2
21	241 830	Banjo bolt M6x16, 8NM	2
22	960 567	Oil line, 230mm. use 414413800	2
23	853 840	Clamp 3-5mm	4
24	851 065	Clamp 62mm	2
25	867 696	Carb socket	2
26	951 400	Hose clamp, 53mm	2
27	FF0-125	Oil filter	1
28	LT222	Loctite 222, violet	As Rqd
29	897 330	Lithium based grease	As Rqd

RTX

Ill No.	Part#	Description	Qty
1	831 360	O ring 132-1.7	1
2	910 316	Rotary valve cover assy	1
3	929 650	Drive pin 5x10	1
4	250 311	Washer 8.4	2
5	945 752	Lock washer A8	4

DUCATI MAGNETO GENERATOR

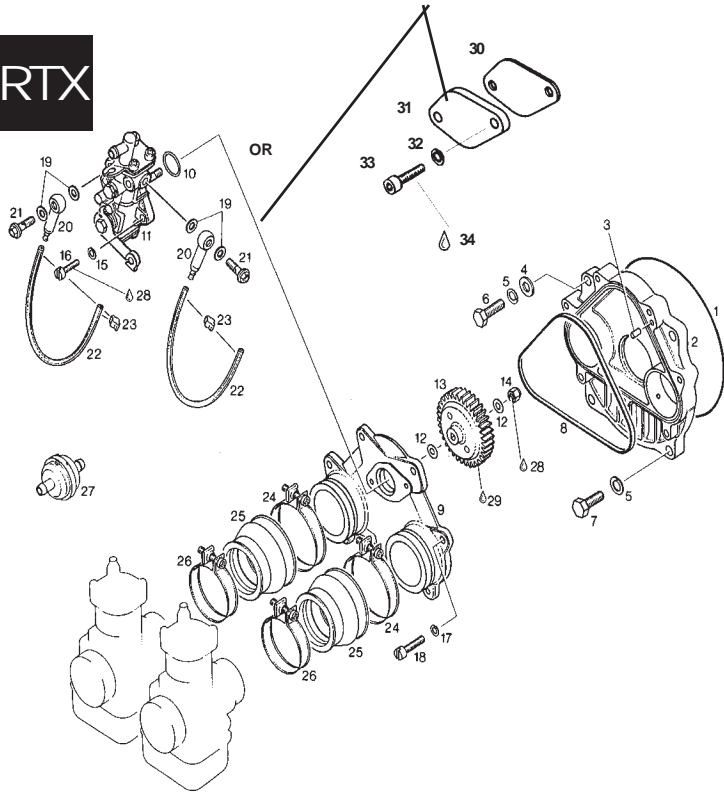


Ill No	Part#	Description	Qty
5	940 880	Allen screw M5x30, 6NM	3
6	965 462	Harness assy, 12W150	1
7	927 571	Washer 5.3	2
8	840 515	Allen screw M5x18, 6NM	2
9-11	965 769	Trigger coil, circuit 1	1
10	964 072	Insulation sheath	1
11	964 067	Faston connector 3.96	1
12-14	965 761	Trigger coil, circuit 2	1
13	964 072	Insulation sheath	1
14	964 067	Faston connector 3.96	1
15	941 925	Taptite screw M5x16, 6NM	4
16	827 800	Washer, A5.5	4
17	965 497	Liquid damper assy, 4015239+	1
18	945 759	Lock washer 22	1
19	842 230	Hex nut M22x1.5, 95NM	1
20	852 422	Starting pulley, to 4015238	1
	852 410	Starting pulley, 4015239+	1
21	945 752	Lock washer A8	3
22	940 580	Hex screw M8x16, to 4015238	3
	940 591	Hex screw M8x20, 4015239+	3
23	966 062	Spiral hose 70mm	1
24	960 288	Cable grommet 20.4/11	1
25	866 910	Faston connector 6.3x.8	1
26		Insulating varnish	As Rqd
27	897 330	Lithium based grease	As Rqd
28	LT222	Loctite 222, violet	As Rqd
29	LT680	Loctite 680, green	As Rqd

Ill No.	Part#	Description	Qty
1-2	996 832	Magneto generator 12W150	1
1	996 820	Magneto flywheel, to 4084218	1
	996 826	Magneto flywheel, 4084219+	1
2	996 848	Coil kit, 12W150	1
2-5	996 840	Stator plate assy	1
3	966 207	Stator plate	1
4	945 750	Lock washer A5	5

ROTARY VALVE COVER INTAKE FLANGES

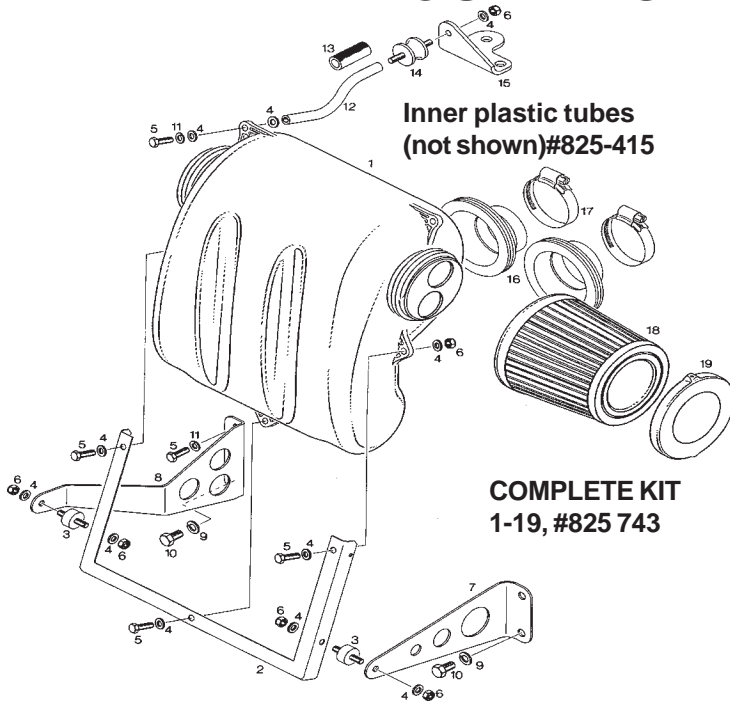
RTX



**NOTE: Oil injection line available in 4' lengths,
#414413800, \$14.95/ft.**

Ill No.	Part#	Description	Qty
1	831 360	O ring 132-1.7	1
2	910 318	Rotary valve cover assy	1
3	929 650	Drive pin 5x10	1
4	250 311	Washer 8.4	2
5	945 752	Lock washer A8	4
6	240 276	Hex screw M8x25, 20NM	2
7	940 591	Hex screw M8x20, 20NM	2
8	831 700	Rubber ring 126x1.5x3.5	1
9	910 320	Pump mounting flange	1
10	230 370	O ring 18-1.3	1
11	995 527	Oil pump assy	1
12	927 945	Washer 6.2/12/1	2
13	935 940	Oil pump gear 44T	1
14	842 042	Lock nut M6, 5NM	1
15	945 750	Lock washer A5	2
16	240 761	Slotted head screw M5x16,5NM	2
17	945 751	Lock washer A6	7
18	940 561	Hex screw M6x20, 10NM	7
19	227 500	Gasket ring 6.2/12/1	4
20	956 010	Check valve assy	2
21	241 830	Banjo bolt M6x16, 8NM	2
22	960 567	Oil line 230mm	2
23	853 840	Clamp 3-5mm	4
24	851 065	Clamp 62	2
25	867 696	Carb socket	2
26	951 400	Clamp 53mm	2
27	414 5365	Oil filter	1
28	LT222	Loctite 222, violet	As Rqd
29	PSLG	Lithium based grease	As Rqd
Following items are only used if oil injection pump is removed			
30	931 565	Block off plate gasket	1
31	810 825	Block off plate	1
32	945 750	Lockwasher A5	1
33	940 561	Hex screw M6x20, 582 99	2
	240 761	Slotted head screw M5x16, 582 90	2
34	LT222	Loctite 222, violet	As Rqd

DUAL INTAKE SILENCER WITH MOUNTING FRAME & HARDWARE



Ill No.	Part#	Description	Qty
1-6	825 740	Intake silencer w/frame	1
1	825 656	Intake silencer assy	1
2	953 150	Frame	1
3	860 700	Rubber 20x10x6	2
4	244 213	Washer 6.4	13
5	940 563	Hex screw M6x20	5
6	842 042	Lock nut M6	8
7	953 165	Intake silencer bracket MS	1
8	953 160	Intake solencer bracket AS	1
9	845 382	Lock washer A8	3
10	940 583	Hex scre M8x16	3
11	845 381	Lock washer A6	2
12	847 607	Distance bar	1
13	956 236	Protection hose	1
14	260 657	Rubber buffer, 25x20xM6	1
15	851 129	Intake silencer bracket	1
16	825 662	Silencer socket	2
17	851 790	Clamp 50-70	2
18	CM0300	Air cleaner	1
19	825 520	Air cleaner cap	1