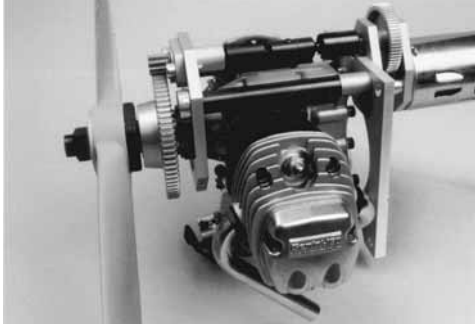


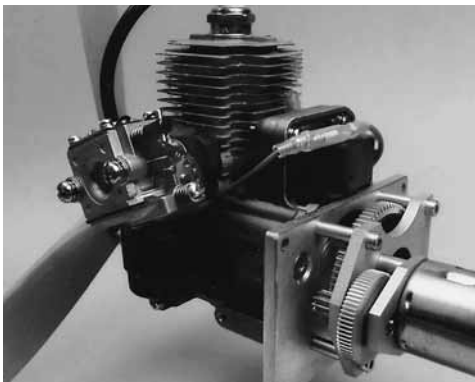
Electronic on-board starter for all common 7.5- 80cc heater plug and gasoline engines.

With the "FEMA electronic on-board starting system" a dream has come true for many innovative model makers. With the "FEMA on-board starter", internal combustion engines can be started by radio control - this is easy and safe and it is possible to start the engine on ground as well as in the air. For individual use there are two different variations of on-board starting systems:



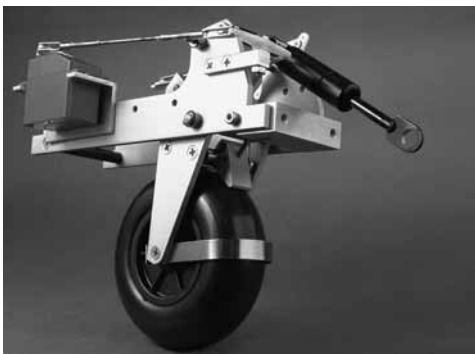
Universal on-board starting system

At this variation only the starting device is attached directly to the internal combustion engine. The starter engine is placed separately from the internal combustion engine inside the fuselage, according to the main stress or to space requirements. A propeller shaft that is variable in length transmits the power from the starter engine to the starting device at the internal combustion engine.



Compact on-board starting systems

Different from the universal on-board starting system, the starting device and the starter engine of the compact on-board starter are attached directly to the internal combustion engine. Thus the internal combustion engine and the on-board starter form a compact unit. According to the available space it has to be decided individually for every model which one of the two variations can be used.



Retractable undercarriages

A retractable undercarriage is essential for scale and semi-scale models. The "FEMA retractable undercarriages" are being used successfully for years and have demonstrated their ability in flight practice. Mr Gardemin wrote in his test report about retractable undercarriages:

»FEMA retractable undercarriages are without any technical paraphernalia but they are designed 100% functional and sturdy.«

We still feel obliged to this statement, now and in future.

Although we delivery our undercarriages with wheel brake and in spring-loaded installation.



Universal balancing machine for propellers

The FEMA-balancing machine is world-wide the only one that lets you balance-out the propellers lengthways and sideways to the rotor blades. Due to the simple handling and to the high-precision display, every model maker can now balance-out exactly the propellers on his own.

Blade rotor heads for all common rotor blades.

This method balances-out the blades in exactly that position they have in flight. This device is also suitable for three- and multiple-rotor blades as well as for tail rotor blades.

Stock number	Item	Price in EURO/piece
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Balancing machine · blade rotor head

9270	Universal balancing machine for propellers of a diameter of 12" (300mm) to 40" (1000mm) and borings of 8.0/10.0/12.0 and 20 mm in diameter. The maximum hub thickness of the propeller is 48mm.	38,50
9280A	Blade rotor heads for all common rotor blades with a fastening boring of 3, 4, 5, 6 mm	48,50

Compact on board starting systems for helicopter-/car-engines

9400A	Compact on board starter for Zenoah G 230/260 RC..... Suitable for all helicopters of the brand »VARIO« and »Aero-Tec«	295,00
9420A	Compact on board starter for Zenoah G 231 PUH/ZG-23/26 SLH	229,00
	Suitable for all helicopters of the brand »Robbe«	

Universal on-board starting systems for aviation engines

9500	Basic kit for 8.5-13.5cc engines* (adapter necessary)	172,50
9512	Basic kit for 15-30cc engines* (adapter necessary)	182,00
9513A	Complete kit for Super-Tigre S-20/25/30cc, G-3250.....	182,00
9514	Complete kit for OS-Max BGX-1, OS.Max 160 FX, Moki25, Magnum XL 180AR, Laser 200	199,50
	MVVS-35 (Glow)	
9516	Complete kit for MVVS-26 (Petrol engine)	199,50
9517	Complete kit for MVVS-35 (Petrol engine)	218,00
9519*	Complete kit for Titan ZG 23/26 SL, (Zenoah G230/260 PU)	182,00
9520*	Complete kit for Titan ZG 38 (Zenoah G-380 PU)	182,00
9524*	Complete kit for Titan ZG 62 (Zenoah G-620 PU), with back-kick damper	218,50
9525*	Complete kit for Titan ZG -45 (Zenoah G-450 PU), with back-kick damper	218,50

Compact on-board starting systems for aviation engines

9710A	Compact universal on-board starter for OS-Max FT120/160 (replaces Stock No 9518A).....	199,00
9711	Compact universal on-board starter for OS-Max FF 320 (Pegasus).....	222,50
9712	Compact universal on-board for OS-Max FT 240/300	235,00
9713	Compact on-board starter for Zenoah G 230/260 PU / ZG-23/26 SL	172,00
9714	Compact on-board starter for Zenoah G 380 PU / ZG-38 SL.....	182,00
9715	Compact on-board starter for Zenoah G 200 PU / ZG-20 SL.....	182,00
9720	Compact on-board starter for Magnum XL 160 FT	222,50
9724	Compact on-board starter for Zenoah G 620 PU / ZG-62 SL, without electronic 9724/10.....	224,50
9725	Compact on-board starter for Zenoah G 450 PU / ZG-45 SL, without electronic 9724/10	224,50
9730	Compact on-board starter for Zenoah G 800 PU / ZG -80 SL, without electronic 9724/10.....	278,00
9724/10	Electronics to the ignition time adjustment for zenoah/titanium ZG-45, 62 and 74/80, with magneto ignition	32,50

Compact on-board starting systems for naval aviation engines

9613	Compact on-board starter for Titan ZG-23/26 SLM (Zenoah G-230/260 PUM)	182,00
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Adapters for 7,5-30cc aviation and naval aviation engines

9532	OS-Max -FS60/61, 70, 80, 90/91 (4-stroke engine), OS Max 61/90 FX (2-stroke engine).....	20,00
9537	Saito FA 40, FA 45, FA 50, FA 65, FA 80 (4-stroke engine).....	20,00
9539	Enya 60-4C, 80-4C (4-stroke engine)	25,50
9540	OS-Max-FS120 (4-stroke engine), OS-Max-90/91, 104RX, 140 RX (2-stroke engine)	20,00
	Magnum XL-70AR, XL-80AR, XL-90/91AR, XL-120AR, XL-180AR (4-stroke engine)	
9541	Webra-Speed 91, 120Aero (2-stroke engine),Saito FA 90/91, 100, 120, 150, 180	20,00
	(4-stroke engine)	

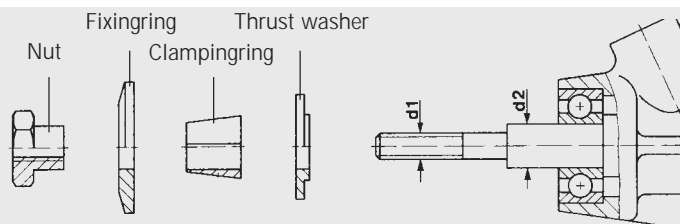
The engines: Magnum, ASP and SC are identical.

*The on-board starters are available furthermore.

Stock number	Item	Price in EURO/piece
9543	OS-Max FS 40, FS 48, FS 52 (4-stroke engine), Laser-70 (2-stroke engine)	20,00
9545	Enya 46-4C, 53-4C (4-stroke engine)	25,50
9546	Enya 90-4C (4-stroke engine)	25,50
9548	Magnum XL108A, XL120A, OS-Max 108 FSR (2-stroke engine)	20,00
9549	Enya 120-4C (4-stroke engine)	25,50
9550	MVVS-26 (Glow)	20,00

Technical information on-board starter

In addition to the basic kit, an adapter is necessary for each engine type, Adapters can be combined individually for internal combustion engines that are not listed above, Please state with your order thread = **d1** and diameter = **d2**



Accessories for on-board starters

9585	Back-kickdamper, suitable for all universal on-board starters	24,50
9593B	Electronic current regulator for 1-2 heater plugs, 10A, weight 45 g	76,50
9598	Top performance fat for free wheeling	6,50

Retractable undercarriages

for wheel diameter 165, 152 and 140mm, for models to a scale of 2,0 to 2,8 - model weight 12-25kg

9800A	assembled completely without wheel and bow	130,00
9801A	assembled completely with VG-wheel 140mm diameter and bow	164,50
9802A	assembled completely with VG-wheel 152mm diameter and bow	167,00
9803A	assembled completely with VG-wheel 165mm diameter and bow	169,50
9800/10	wheel brake for wheel diameter of 140mm	24,50
9800/11	wheel brake for wheel diameter of 152mm	24,50
9800/12	wheel brake for wheel diameter of 165mm	24,50
9800/15	additional kit for spring-loaded mounting without gas pressure spring	39,50

for wheel diameter 127 and 112mm, for models to a scale of 2,5 to 3,2 - model weight 8-16kg

9810A	assembled completely without wheel and bow	95,50
9813A	assembled completely with VG-wheel -112 mm diameter and bow	125,50
9814A	assembled completely with VG-wheel -127 mm diameter and bow	128,50
9810/10	wheel brake for wheel diameter of 112 mm	19,50
9810/11	wheel brake for wheel diameter of 127 mm	19,50
9810/15	additional kit for spring-loaded mounting without gas pressure spring	34,50

for wheel diameter 100 and 90mm, for models to a scale of 3,3 to 3,7 - model weight 5-10kg

9820A	assembled completely without wheel and bow	79,50
9823A	assembled completely with VG-wheel -90 mm diameter and bow	109,50
9824A	assembled completely with VG-wheel -100 mm diameter and bow	111,00
9820/10	wheel brake for wheel diameter of 90 mm	19,50
9820/11	wheel brake for wheel diameter of 100 mm	19,50
9820/15	additional kit for spring-loaded mounting without gas pressure spring	34,50

for wheel diameter 82 and 70mm, for models to a scale of 3,8 to 4,3 - model weight 3-7kg

9830A	assembled completely without VG-wheel and bow	72,00
9833A	assembled completely with PVC-wheel 70mm diameter and bow	83,50
9834A	assembled completely with PVC-wheel 82mm diameter and bow	84,50
9830/10	wheel brake for wheel diameter of 70 mm	19,50
9830/11	wheel brake for wheel diameter of 82 mm	19,50
9830/15	additional kit for spring-loaded mounting without gas pressure spring	34,50

stock no.	item	price in EURO
accessories for compact airborne starter (helicopter/car)		
9400/07	small parts kit	6,50 €
9400/08	fan wheel with reconditioning	62,50 €
9400/10	coupling	52,50 €
9400/11	thrust washer	5,80 €
9400/12	free wheeling gear 76 teeth, m=0,8 mm, HFL 1226	62,50 €
9400/15	engine holder plate	18,50 €
9400/16	gearbox support with bevel 10 teeth, m=0,8 mm and al-gear 76 teeth, m=0,5 mm	68,50 €
accessories for airborne starter		
9500/01	support, 2 units	19,00 €
9500/02	plate for bevel bearing	20,00 €
9500/03	bearing	12,50 €
9500/05	free wheeling gear 60 teeth, m=0,8 mm, HF 1616	36,50 €
9500/06	bevel, 10 teeth, m=0,8 mm	14,00 €
9500/07	coupling, SW 25 mm	36,50 €
9512/01	support, 2 units	19,00 €
9512/02	plate for bevel bearing	20,00 €
9512/05	free wheeling gear 76 teeth, m=0,8 mm, HF 1616	43,00 €
9514/01	plate for bevel bearing	28,00 €
9515/04	free wheeling gear 76 teeth, m=0,8 mm, HF 1616	43,00 €
9515/07	cardan shaft, 5/6 mm	24,50 €
9515/08	coupling, Ø 25 mm	34,50 €
9518/03	plate for bevel bearing	22,50 €
9518/05	bolt 58/61,5 mm, 2 units	15,75 €
9518/07	coupling, SW 32 mm	39,50 €
9519/01	engine support plate	28,50 €
9519/02	extension nut M8x1	8,50 €
9520/01	engine support plate	28,50 €
9520/02	nut M8x1 left	4,00 €
9524/01	engine support plate	32,50 €
9524/03	nut M10x1	6,50 €
9524/04	free wheeling gear 76 teeth, m=0,8 mm, HF 2016	46,50 €
9524/06	coupling	37,50 €
9524/07	cardan shaft, 6/6 mm	24,50 €
9525/01	engine support plate	32,50 €
9525/02	extension nut M8x1	8,50 €
9525/06	coupling	37,50 €
accessories for compact airborne starter		
9710/01	engine support plate (replaces the engine support plate for OS-Max No.1060)	36,50 €
9711/01	plate for bevel bearing	25,75 €
9712/02	plate for bevel bearing	37,50 €
9712/03	bearing, 2 units	65,50 €
9712/04	free wheeling gear, 92 teeth, m=0,8 mm, HF 2016	52,50 €
9712/05	carrier for electric motor	8,50 €
9712/07	coupling, SW 38 mm	45,50 €
9713/02	holder plate with bearing, bevel 10 teeth, m=0,8 mm and al-gear 66 teeth, m=0,5 mm	62,50 €
9713/04	carrier for electric motor	12,50 €
9714/02	holder plate with bearing, bevel 10 teeth, m=0,8 mm and al-gear 66 teeth, m=0,5 mm	62,50 €
9714/04	carrier for electric motor	12,50 €
9715/02	holder plate with bearing, bevel 10 teeth, m=0,8 mm and al-gear 76 teeth, m=0,5 mm	62,50 €
9715/04	carrier for electric motor	12,50 €
9720/05	al-bolt, 2 units	15,75 €
accessories for compact airborne starter		
9724/01	engine support plate	32,50 €
9724/02	engine support plate "hydro mount system pitts", with all drills	42,50 €
9724/03	nut M10x1	7,50 €

stock no.	item	price in EURO
9724/04	plate for bevel bearing	28,50 €
9724/05	bevel bearing	16,50 €
9724/06	coupling	48,50 €
9724/07	carrier for electric motor	18,50 €
9724/09	al-gear with 90teeth, m=0,5mm	32,50 €
9724/10	electronic	34,50 €
9725/03	nut M8x1	7,50 €
9725/06	coupling	48,50 €
9730/01	engine support	82,50 €
9730/03	nut M10x1	12,50 €
9730/04	plate for bevel bearing	52,00 €
9730/06	coupling	62,50 €
Accessories for adapter kits		
9530/01	nut M6x22 mm	4,75 €
9530/02	nut M7x22 mm	4,75 €
9530/03	nut M8x22 mm	4,75 €
9530/04	nut 1/4" UNF-28x22 mm	4,75 €
9530/05	nut 5/16" UNF-24x22 mm	4,75 €
9530/06	nut M7x28 mm	4,75 €
9530/07	nut 3/8" UNF-24x22 mm	5,80 €
9530/11	holder disc 24 mm for engines til 13,5 ccm	3,75 €
9530/12	holder disc 30 mm for engines from 15 ccm	4,75 €
9530/21	clamping ring, 7 mm drill-hole	4,75 €
9530/22	clamping ring, 8 mm drill-hole	4,75 €
9530/23	clamping ring, 9,5 mm drill-hole	4,75 €
9530/24	clamping ring, 10 mm drill-hole	4,75 €
9530/25	clamping ring, 8/6,3 mm drill-hole	4,75 €
9530/26	clamping ring, 12 mm drill-hole	5,80 €
9530/31	thrust washer, 7 mm drill-hole	4,00 €
9530/32	thrust washer, 8 mm drill-hole	4,00 €
9530/33	thrust washer, 9,5 mm drill-hole	4,00 €
9530/34	thrust washer, 10 mm drill-hole	4,00 €
9530/35	thrust washer, 12 mm drill-hole	5,80 €
Electric components		
9560/04	micro switch, 16 A	4,00 €
9560/05	micro switch combination with 2 micro switch, 16A	18,00 €
9560/06	set of cabels with plugs	6,50 €
9560/07	board switch, 16 A	4,00 €
Starter motors and accessories		
9570/01	starter motor Speed 500 with gearbox, i=5,5	56,00 €
9570/02	gearbox single, i=5,5	36,00 €
9570/03	bevel, 12 teeth, m=0,5 mm, sutible to all gearboxes	5,50 €
9570/04	al-gear with output shaft, 66 teeth, m=0,5 mm	13,60 €
9570/05	starter motor Speed 500 with bevel, 12 teeth, m=0,5 mm	24,50 €
9570/06	half-shells for Speed 500 and Speed 600	4,50 €
9572/01	starter motor speed 600 with gearbox, i=6,33	62,00 €
9572/02	gearbox single, i=6,33	42,00 €
9572/04	al-gear with output shaft, 76 teeth, m=0,5 mm	18,50 €
9575/03	starter engine with bevel, 12 teeth, m=0,5 mm	26,50 €
9580/01	starter motor speed 480 with gearbox, i=6,33	56,00 €
9580/02	gearbox single, i=6,33	36,00 €
9580/04	al-gear with output shaft, 76 teeth, m=0,5 mm	18,50 €
9580/05	starter motor speed 480 with bevel, 12 teeth, m=0,5 mm	28,50 €

The prices contain the legal tax of the Federal Republic of Germany