



BMAA TECHNICAL INFORMATION LEAFLET (TIL)

TIL 069 ISSUE 3

SERIES MAJOR MODIFICATIONS

1. Introduction

BMAA major modifications that have been both well defined by the original applicant and for which quality control procedures have been put in place are defined as 'series' modifications. Subsequent applicants apply for these in the same way as for 'one-off' BMAA modifications (using form BMAA/AW/002a), but do not need to provide a technical justification.

Notes:

- Series modifications must be **identical** to the first approval; if there is any change or non-compliance with respect to the original MAAN then a new approval is required.
- Note that BMAA 'series' major modifications may **not** be applied for with a Permit revalidation application. This is because a Flight Release Certificate has to be issued and then signed by a BMAA Inspector.
- BMAA 'series' major modifications are now charged at a reduced rate (compared to 'one-off' modifications).

A list of existing BMAA 'series' modifications can be found below.

2. Existing BMAA Series Major Modifications

The table below contains a list of issued BMAA 'Series' Major Modifications (up to **January 2021 / MAAN 2864**). The 'Type(s)' and 'Brief description' are indicative only; the BMAA Technical Office should be consulted prior to applying for the modification to confirm the details of the modification.

MAAN	Issue	Type(s)	Brief description
1001	1	Pathfinder	Intro of 2.3:1 and 2.86:1 reduction drive ratios
1002	2	130SX/Halfpint E	Rotax 337 and Newton 2-blade, 54" x 42.5" prop
1061	2	Hornet Duel Trainer Raven	45 litre plastic fuel tank
1066	1	Goldwing	Intro Nicklow 2.86:1 reduction and Romain 2-blade 58" x 34" prop
1069	2	Goldwing	Installation of Konig SC430 radial engine with Catto 56"X 28" prop
1076	1	Raven-X	3-blade Ivoprop, 62"x 9deg to Rotax 447.
1090	2	Mainair Gemini Flash	Fitment of Ivoprop 3 blade 62" propeller to Rotax 462
1112	1	Dual Striker Triflyer	Installation of Rotax 447 engine
1118	1	Medway Halfpint	Installation of Rotax 377 engine & Newton 54" X 42.5" propeller
1119	1	Aerial Arts Chaser	Fitment of GSC 60" x 38" propeller to Rotax 377
1127	1	Pegasus Flash	462 HP Liquid Cooled Rotax engine with Newton 62x44 prop.
1129	1	Thruster TST	Fitment of Cyclone 64" x 42" propeller to Rotax 503 engine
1131	1	Raven-X	Installation of In-flight adjustable Ivoprop propeller
1134	1	Spectrum	Installation of 3-blade, 64" Catto propeller type 64/T/503/258
1136	1	Spectrum	Installation of 3 blade, 62" Ivoprop GA propeller.
1141	1	Dual Striker Triflyer	Installation of Newton 59" x 38" propeller.
1143	1	Puma Sprint	Installation of Newton 62" x 36" propeller.
1145	1	Demon Skytrike 250	Intro 2.33:1 Reduction Gear
1150	1	Puma Sprint	Installation of Newton 62" x 36" propeller
1152	1	Pegasus XL-Q	Fitment of Romain 62" x 38" propeller
1154	1	Phantom	Additional power unit
1158	1	Spectrum	GSC 60" 3-bladed prop
1159	1	Spectrum	Rotax 503-2V and Arplast 3-blade prop
1163	3	Cyclone AX3	E-type gearbox, electric starter and 3-blade, 68" x 55" GSC prop
1172	1	Chaser S447	Arplast 145 DAM 4875/3 propeller.
1173	1	Pegasus Flash	Fit 3-blade, 58" Catto propeller
1174	1	Hornet Raven	Fitment of Arplast 162 cm propeller.
1176	3	Pegasus XL-R	Fitment of Ivoprop 62", 3 blade Ground Adjustable propeller
1178	1	Raven-X	Fitment of Ivoprop 60" 3 blade Ground Adjustable propeller
1193	5	Shadow	Slipper tank
1210	1	Gemini Flash 2a	Arplast 152 propeller & Rotax 503
1211	1	Hybred 44 XLR	2 blade 62" Ivoprop on Rotax 447
1216	1	Quicksilver MX II	Newton 51.5" x 31" propeller

MAAN	Issue	Type(s)	Brief description
1225	1	Pegasus XL-R	2 blade 62" Ivoprop on Rotax 447
1226	1	Thruster TST	Arplast Type 165 3-blade propeller
1227	1	Raven-X	62" 3-blade warp-drive propeller
1236	2	Gemini Flash 2a	62" 3-blade Ivoprop on Rotax 503-1V
1237	2	Gemini Flash 2a	62" 3-blade Ivoprop on Rotax 462
1252	1	Snowbird Mk IV	62" 3-blade Ivoprop
1253	2	Thruster TST	Rotax 532 engine
1262	1	CFM Shadow CD	Rotax 462 engine and 3-blade 52" Ivoprop propeller.
1266	2	Gemini Flash 2	62" 3-blade warp-drive propeller
1270	2	CFM Shadow CD	Fitment of Arplast 3 blade 152cm propeller to Rotax 503-2V engine
1272	1	Thruster T300	Newton 65" x 38" propeller (Rotax 503-1V engine)
1274	2	Puma Sprint	Newton 60" x 34" propeller to Fuji engine with 2.66:1 reduction
1275	1	Mainair Gemini Flash	Fitment of Ivoprop 3 blade 62" propeller to Rotax 503-1v
1279	1	Hybred 44 XLR	62" 3-blade Ivoprop to Rotax 447
1280	3	Pegasus XL-Q	Fitment of 3 blade 64" Ivoprop to Rotax 462
1281	1	Pegasus Flash 2	Fitment of 3 blade 62" Ivoprop to Rotax 462
1287	1	Pegasus Flash	46 litre polythene tank.
1292	1	Pegasus Flash 2	Warp drive 62" 3-blade propeller
1294	1	Aerial Arts Alpha	Fitment of Romain 2-blade E21558" x 32" propeller to Rotax 277
1297	1	Hybred 44 XLR	62" 3-blade Ivoprop to Rotax 503
1303	1	Hornet Dual Raven	62" 3-blade warp-drive propeller
1315	1	Gemini Flash 2	Fitment of Ivoprop 3 blade 62" propeller to Rotax 503-1v
1316	2	Gemini Flash 2	Fitment of Ivoprop 3 blade 62" propeller to Rotax 462
1324	1	Pegasus XL-Q	Fitment of Ivoprop 3 blade 62" propeller to Rotax 462
1327	1	Chaser S	Rotax 462 engine
1335	1	Mainair Gemini Flash	Fitment of 3 blade 60" Ivoprop to Rotax 447 engine
1338	1	Mainair Scorcher	Arplast DAM 4875/3 propeller.
1339	1	Gemini Flash 2a	Fitment of Ivoprop 3 blade 62" propeller to Rotax 503-2v
1340	4	Shadow CD	Fitment of Wing Fold, Baggage lockers and Cockpit windows
1341	1	Mainair Mercury	Fitment of Ivoprop 3 blade 62" propeller to Rotax 503-1v
1346	1	Pegasus Flash	47 litre aluminium fuel tank
1357	1	Pegasus Quasar 1	Fitment of Ivoprop 3 blade 62" propeller to Rotax 503-1v
1360	2	Hornet Dual Raven	Fit 62", 3-blade Ivoprop to Rotax 462
1371	1	Mainair Mercury	Fit 62", 3-blade Ivoprop to Rotax 582/40
1372	1	Thruster	Fit Newton 64" x 42" prop to Rotax 503
1400	1	Mainair Rapier	Fit Ivoprop 62" 3-blade, grd. Adl.prop to Rotax 462 (high power)
1401	1	Mainair Flash 2a	Fit GSC 60", 3-blade grd adj. Prop to Rotax 503-1V
1405	1	Pegasus XL-Q	3 blade Ivoprop on Rotax 447
1406	1	Pegasus XL-R	Fitment of 62", 3-blade, grd adj Ivoprop to Rotax 462 engine (low power)
1410	2	Thruster TST	No feet operation of flying controls
1413	1	Mainair Flash 2	Fitment of Mainair 62", 3-blade, ground adjustable propeller
1416	1	Shadow	Fit "Crosby" footwell
1426	1	MW5(K) & MW5B	Increase in max take-off weight from 260kg to 275kg
1429	1	Pegasus XL-Q	BRS Emergency Parachute System
1432	1	Mainair Gemini Flash 2a	Fitment of Newton 62" x 40" propeller to Rotax 503-1V
1434	1	Raven-X	Fitment of Rotax 503 DCDI or DCSI engine & 3 blade 62" Ivoprop
1441	1	Thruster T600T	Disabled modification
1445	2	Pegasus XL-R	Rotax 503-1V engine and Mainair 59" x 40" propeller
1446	1	Medway Hybred 44XLR	60" 3 blade Ivoprop propeller
1450	1	Mainair Gemini, Mercury a/c	Fitment of BRS Canister Emergency Parachute System
1454	1	Thruster TST Mk1	Replace of original tailwheel with Lang model D-501-A tailwheel
1455	1	Quicksilver MXL II	Ivoprop 64" 3-bladed GA propeller, and expansion of CG limits.
1457	1	CFM Shadow CD	Fitment of 3 blade 52" x 17° Ivoprop to Rotax 503-2V engine
1458	2	Gemini Flash 1	Fitment of 62" 3 blade Ivoprop to Rotax 462 engine
1463	1	Pegasus XL-Q	Rotax 503-2V and 3 blade Ivoprop
1465	1	Mainair Rapier	Fitment of 62" 3 blade Ivoprop to Rotax 503-2V
1471	1	Shadow DD	3 blade 52" Ivoprop
1472	1	Chaser S447	60" 3-blade Ivoprop.
1474	2	Pegasus XL-R	Fitment of modified engine mounts, Rotax 503, 62" 3 blade Ivoprop
1491	1	MW5(K)	Alternative engine mounts
1494	1	Aviasud Mistral	Twin Chaser-S fuel tanks, replacing original single tank.
1495	1	Thruster T600N	Brolga 68" Propeller, 582 engine, B-type gearbox.
1508	1	Hornet R-ZA	62" 3-blade Ivoprop propeller on Rotax 462 engine
1509	1	Cyclone AX3	Fitment of AX2000 fuel system
1526	1	Cyclone AX3	Fitment of 64" 2 blade Ivoprop propeller
1532	1	Pegasus Trikes	Second foot throttle for instructors
1536	1	X'Air	Simoni Victor 2 engine - initial assessment and approval for X'Air Mk.1 aircraft

MAAN	Issue	Type(s)	Brief description
1540	1	Hybred 44XL	Fitment of 60" 3 blade Ivoprop
1548	1	Aviasud Mistral	Replacement of Rotax 532 engine with Rotax 582/48-2V
1551	1	Gemini Trikes	Second foot throttle for instructors
1562	1	HM1000 Balerit	Increase in max take-off weight from 390 to 406 kg.
1565	1	Snowbird Mk IV	Rotax 582/48-2V engine and 2 blade Warp Drive prop
1579	1	Hunt Avon Trikes	Rear Seat Upper Torso Restraint
1581	1	Chaser S	503 engine, Arplast propeller
1611	1	Powerchute Kestrel	Aerochute 34m ² canopy
1622	1	Huntwing Avon	Installation of E-type gearbox and Arplast Ecoprop propeller
1631	1	Cyclone AX3	Modification to fuel system
1634	2	Pegasus XL-R	62" 3 blade Ivoprop on 462 high power engine.
1641	1	Raven-X	Installation of 2Si engine
1652	2	Mainair Gemini Flash 2a	E-type gearbox at 2.62:1 and electric starter with existing Mainair 65 litre tank and battery box
1659	1	Shadow CD	Replacement of aileron pushrod
1665	2	Pegasus Flash 2	Pegasus 47 litre alloy tank and increase in MTOW to 365kg (361kg at issue 2)
1666	1	Chaser S447	Twin carb 447 (additional to MAAN 1172)
1670	1	Mainair Rapier	Electric variable hangpoint
1672	1	Sky Ranger	Combined mod: increase in seat load, front baggage compartment, single piece door, modified ventral fin.
1691	1	Kiss 400	GRP luggage compartment
1692	2	Cyclone AX3	Fitment of 62" 3 blade Ivoprop propeller
1715	2	Pegasus XL-R	Installation of 3 blade 60" Ivoprop on 503 engine
1723	1	Cyclone AX3	Installation of 3 blade Arplast prop on 503 engine
1726	1	Pegasus Quasar IITC	Installation of high-power exhaust
1736	2	Snowbird Mk IV	Installation of Rotax 582 engine with Newton propeller
1745	3	Sky Ranger	60l fuel tank and wing fold mods
1747	1	Sky Ranger	Disabled hand rudder control
1752	3	Mainair Blade 912 & 912S	Electric variable hangpoint
1755	1	Shadow C & CD	Tailboom insert
1762	2	CFM Shadow	Crosbie Shadow Undercarriage
1769	2	Raven-X	Fitment of Rotax 503 DCDI or DCSI engine & 3 blade 60" Ivoprop
1773	1	CFM Shadow	Cook Shadow Undercarriage
1775	1	CFM Shadow	CFM E-series undercarriage on Shadow C series
1779	1	Chaser S447	Various mods: wheel spats, rear suspension, exhaust clamps
1789	1	X'Air Mk.1	Baggage compartment
1905	1	Mainair Blade	Electric variable hangpoint
1923	1	Thruster T300	No feet operation of flying controls
1930	1	Raven-X	Installation of 2 blade 30" Ivoprop on 447
1934	1	Mainair Scorcher	3-blade 60" Ivoprop on 447 engine
1949	1	Quantum 15	Fitment of 3 blade 166cm diameter Ecoprop
1956	1	Thruster TST	T600 rear fuselage support tubes
1981	2	Cyclone AX3	Fitment of 3.47:1 E-type gearbox and 3 blade 166cm diameter Arplast Ecoprop.
2054	1	Thruster T600N 450	Fitment of 3-blade 170cm diameter Arplast Ecoprop
2072	1	Pegasus XL-R	46 litre aluminium tank installation
2101	3	Shadow	Crosbie plastic tailplane spar bearing plates
2136	1	Mainair Blade	Touring screen
2175	1	Pegasus Quantum-15	Touring screen
2206	2	Quik	Modified nose-gear spring rate
2239	3	Sky Ranger	Sky Ranger 472.5kg
2261	1	Flight Design CT2K/CTSW	After-market BRS attachment bridle
2265	1	Ikarus C42	Replacement parts
2271	2	Medaway SLA	Rockwood propeller
2375	2	Shadow	Aluminium fuel tank - Replacement JEDI part
2394	2	Pegasus Quantum 15-582	Sigmax exhaust and bar heaters
2453	2	Eurostar EV97	U/C support crack repair
2500	3	SkyRanger	Single Engine Mount Bolt
2523	2	Aerochute	Wide lift plate and/or large round propeller hoop
2534	2	Eurostar EV97	U/C support crack repair
2540	1	Eurostar EV97	GoPro Camera on Inspection Hatch
2568	1	Dynamic WT9-UK	Aerospool fitment of YLAC Mod 37 (parachute system)
2726	1	XAir	Replacement Skins
2756	3	Eurostar EV-97	CKT Exhaust
2864	1	Pegasus Quantum 15-582	Warp Drive on Rotax 582
2906	1	Ikarus C42	MTOW increase to 472.5Kg without BRS

MAAN	Issue	Type(s)	Brief description
2911	2	Eurofox 2K & 3K	560/525/499kg Weight Increase on EuroFOX 2K and 3K
2926	1	Dynamic WT9 UK	MTOW increase to 472.5Kg without BRS
2932	2	SkyRanger Swift/Nynja	HB SkyRanger Swift/Nynja aircraft to increase their AUV to 500kg or 600kg.
2946	3	SLA 80 Executive	installation of an E-Prop on an SLA 80 Executive.
2959	2	Flight Design CTSW	E-Props on Flight Design CTSW with Rotax 912ULS.
2960	7	Flight Design CTLS UK	transfer of Flight Design CTLS UK CAA Part 21 fixed-wing landplane to BMAA non-Part 21 microlight classification
2962	1	Skyranger Nynja & Swift	MTOW increase to 472.5kg Skyranger Nynja & Swift. Without BRS
3001	2	EV-97 Eurostar SL	Removal of wing vortex generators on EV-97 Eurostar SL Microlight
3043	1	Flylight Skyranger 600kg AUV	Wing Tanks & 20kg Luggage Box. Incorporation of Flylight Airports Ltd. Modification MRF 042
3063	1	Pipistrel Alpha BCAR-S 164 & 164A with Rotax 912UL.	E-props on Pipistrel Alpha BCAR-S 164 & 164A with Rotax 912UL.