SHADOW D - SERIES

CONSTRUCTION MANUAL

PARTS LIST

SERIES D-D

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WARNING

CFM METAL-FAX LIMITED will not comment on, nor provide any form of analysis on modifications undertaken by the builder. Any deviation from the plans or structural components is considered your sole responsibility; they could invalidate the 'Type Certification' for the aircraft.

The EMPTY WEIGHT of the aircraft is critical. You are advised that any alterations are likely to add weight. In such a case it will not be possible to obtain a 'Permit-to-'Fly' in respect of your machine as it will not comply with the categorisation requirements for a Microlight.

These remarks apply to all stages of construction.

CFM METAL-FAX welcomes any constructive comments or feed back that will be useful for the future.

26th APRIL, 1996 C/RM - DD

'PERMIT-TO-FLY' REQUIREMENTS

Under the current CAA regulations only the following Organisations/Personnel are authorised to carry out the required stage build and final inspections which lead to the recommendation for a 'Permit to Fly for Test Purposes' and hence to a 'Permit to Fly' after successful test flights.

It is essential that you join an appropriate organisation to establish an early liaison with your Inspector. His/Her advice and guidance will be of great benefit to you - if in doubt ASK.

The Popular Flying Association - their Inspectorate can effect stage build inspections, final inspections and recommendation for both a 'Permit to Fly for Test Purposes' and the actual 'Permit to Fly'.

CFM METAL-FAX - Company approved inspectors - names may be obtained from CFM METAL-FAX.

The British Microlight Aircraft Association - This organisation reduces the cost of application for a 'Permit to Fly for Test Purposes', provides insurance cover and will keep you in touch with the microlight world. They can also recommend 'Renewals' of Permit-to-Fly.

The minimum checks are listed below. The issue of the various 'Permits' will depend on these being properly documented - the onus is on you°

Prior to the commencement of each stage your Inspector should be consulted to ensure that the procedures/techniques involved are fully understood and a decision arrived at as to what degree of monitering will be required and when actual inspection will be effected.

* MANDATORY INSPECTIONS BY AN APPROVED INSPECTOR:

FUSELAGE - to include undercarriage and noseleg assembly but NOT fitted.
- when completed but BEFORE the fitting of side panniers or nose cone.

WINGS, CENTRE SECTION AND BOOM - when completed but BEFORE any part is covered.

TAILPLANE, ELEVATOR AND RUDDER - when completed but BEFORE any part is covered.

ENGINE - when installed.

COMPLETE AIRCRAFT - fully assembled, covered and rigged for flight.

* Form CFM 8 to be completed prior to the application for a 'Permit to Fly for Test Purposes' (can be obtained and effected through CFM METAL-FAX LTD.). The aircraft is then test flown by a pilot 'approved' by CFM METAL-FAX LTD.

* Form CFM 9 to be completed and 'Permit to Fly' applied for (can be obtained and effected through CFM METAL-FAX LTD.).
(You can register the aircraft with the CAA and receive a registration mark for the aircraft as soon as you purchase the kit).

SECTION INSPECTION RECORD

SECTION	WHEN TO BE INSPECTED	DATE	SIGNATURE
THREE (MONOCOQUE)	Completion to page 3-39 Before any painting		
FOUR (WINGS)	Completion to page 4-26 Before any painting/covering		
FIVE (TAIL)	Completion to page 5-19 Before any painting/covering		
EIGHT (POWERPLANT)	Completion to page 8-11) (dual ignition engines)		

REMARKS:

INTRODUCTION

You are advised to familiarise yourself with the contents of your kit.

This manual provides an ITEMS PARTS LIST, BOLTS LIST and PROCESS SHEETS for bonding, covering, fibreglassing and the use of Loctite. Following this are the detailed build instructions.

Please pay particular attention to the PROCESS SHEETS - the ambient conditions of temperature and humidity are very important in the use of the relevant materials. Epoxies and other related products can be a health hazard; take care and follow ALL precautions directed, either in this manual or with the products.

DO NOT overtighten nuts or bolts so that any tube or Fibrelam material is compressed. They should be snug but not overtightened. In almost all cases the bolts are in shear, the exceptions being those used on the LORD MOUNTS (CM 85), THRUST BAR (E111), ENGINE BEARER (E101) and ENGINE STRUT (E102). These are torqued to approximately 100 inch/lbs.

Each FIGURE No. is accompanied by a PARTS LIST for ease of recognition and all are inter-referenced to facilitate checking. Special notes and explanations accompany each Figure No. where necessary - these MUST be studied before starting.

All 'Critical' items have been jig produced to ensure accuracy. The Main Spar and complete 'D' Section have also been produced in the Factory to ensure that the correct assembly environment has been maintained and specific alignments checked.

There is NO requirement for jigs, special tools or equipment and there is no machining, forming, welding or bending to be effected.

The kit does NOT contain paints.

Flight and Engine Instruments are NOT included in the kit.

It is estimated that it will require some 300 - 400 hours of work to complete the kit - depending on your experience.

All measurements are in millimetres.

ITEMS REQUIRED BUT NOT PROVIDED IN THE KIT

ITEM	QTY.	PURPOSE	SUPPLIER
PAINT		Finishing	ICI PAINTS
Polyester Filler	500g		- general
Spray Filler	P62 kit		LESANOL
	1 ltr.	inside hull	ICI Spectrum 2K
	3 ltr.	outside aircraft	ICI Spectrum 2K
Thinners	3 ltr.		ICI P850-1332
ACETONE	5 ltr..	Degreaser - bonding	Chemical Firms
RED HERMETITE	1 tube	Fuel Tank fittings	- general
LOCTITE 242e	1 bottle	NUT locking	- general
LOCTITE 601	1 bottle	RETAINER	- general
CUSHIONS	2	Monocoque seats.	
FLIGHT & ENGINE INSTRUMENTS	U.K. Statutory : Air Speed Indicator; Altimeter; Fuel Gauge; Tachometer; CHT or EGT Gauge. Available from CFM Metal-Fax Ltd.		

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
F102-1	SIDE HULL - PORT	F	1
F102-2	SIDE HULL - STARBOARD	F	1
F103-2	GUSSET FRONT SEAT LH	F	1
F103-3	GUSSET FRONT SEAT RH	F	1
F104-2	GUSSET REAR SEAT	F	1
F104-3	GUSSET REAR SEAT	F	1
F105	WEB	F	2
F106	GUSSET	F	2
F112	DRAG STRUT U/C	F	2
F113	TUBE AILERON	F	1
F115	CONNECT TUBE AILERON	F	1
F117	PULLEY	F	4
F118	BRACKET - PULLEY	F	4LH 4RH
F119	STRAP FUEL TANK	F	1
F120B	STRAP FUEL TANK	F	1
F121	BRACKET JACKSHAFT	F	1
F122	BRACKET FLAP AILERON	F	1
F123	LEVER FLAP	F	1
F124	BRACKET FLAP DETENT	F	1
F125	DETENT FLAP	F	1
F126	FLAP LEVER CHANNEL	F	1
F127	FITTING DRAG STRUT	F	2
F134	LEG NOSE WHEEL W/ASSY.	F	1
F135	LEG NOSE WHEEL S/ASSY.	F	1
F136	TRAILING LINK	F	2
F139B	SPACER	F	2
F140B	SPACER	F	2
F141	FRONT HANGER TUBE	F	2
F142	REAR HANGER TUBE	F	2
F143	HANGER DIAGONAL TUBE	F	2
F144	SPACER STUD	F	1

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
F145	BRACKET FUEL TANK	F	1LH 1RH
F146	RUDDER PEDAL	F	2LH 2RH
F148	SUPPORT NOSE LEG	F	1
F150	BELLCRANK RUDDER	F	1
F153	BRACKET HANGER TUBE	F	2
F155	BACKING PLATE	F	2
F156	U BOLT U/C	F	2
F157	BACKING PLATE U/C	F	2
F159	SPACER NOSE WHEEL	F	1
F160	BACKING PLATE	F	1
F163	HINGE RUDDER PEDAL	F	4
F164	BACKING PLATE	F	8
F165	TORQUE TUBE LEVER W/ASSY.	F	1
F167	GUSSET HULL	F	2
F168	GUSSET TORQUE TUBE	F	4
F169	HANDLE	F	6
F170	HANDLE	F	2LH 2RH
F171	HANDLE	F	2
F172	CATCH PLATE	F	6
F173	BRAKE PEDALS	F	1LH 1RH
F174	PYLON SIDES	F	2
F175	GUSSET	F	1
F176	GUSSET	F	1
F177	GUSSET	F	1
F178	GUSSET	F	1
F179	RUDDER TELEFLEX BRACKET	W	1
F181	BRACKET FLAP LEVER	F	1
F182	TUBE JACKSHAFT	F	1
F183	HORN JACKSHAFT	F	1
F184	HORN JACKSHAFT	F	1
F190	TUBE	F	2
F191	HANDLE	F	2
F194	U/C S/ASSY.	F	1
F197	ELEVATOR TELEFLEX BRACKET	W	1
F199	PULTRUSION ROD	F	4

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
F200	AXLE S/WELD ASSY.	F	1LH 1RH
F201B	THROTTLE PIVOT PLUG	F	2
F202	NYLON WEAR PAD	F	1
F203	BEARING NOSE WHEEL	F	1
F204	FUEL FILTER	F	1
F205	FUEL TANK OUTLET	F	1
F206	FUEL TANK SIDE PORT	F	1
F207	FUEL TANK SIDE STARBOARD	F	1
F208	FUEL TANK TOP	F	1
F209	FUEL TANK BOTTOM	F	1
F210	FUEL TANK FRONT	F	1
F211	FUEL TANK BACK	F	1
F212	BRACKET SAIL ATTACH	F	1
F214	REAR SEAT BELT ATTACH	F	2
F216	BACKING PLATE	F	2
F217	BACKING PLATE	F	2
F218	TAILPLANE BACKING PLATE	T	2
F219	TAILPLANE BACKING PLATE	T	2
F220	BOOM KEY/STOP	W	2
F221	INTENTIONALLY LEFT BLANK		
F224	SPACER	F	6
F225	TANG RUDDER PEDAL	F	4
F226	TUBE AILERON	F	1
F227	INSERT DRAG STRUT	F	2
F228	FUEL VALVE TORQUE TUBE	F	1
F229B	FUEL LEVER ARM	F	1
F230	FUEL LEVER ARM	F	1
F233	CANOPY HOOP FRONT	F	2
F234	GUSSET CANOPY FRONT	F	2
F235	GUSSET CANOPY FRONT	F	2
F236	HINGE (FRONT CANOPY)	F	1
F240	CANOPY TUBE (REAR)	F	2
F241	CANOPY GUSSET (REAR)	F	2
F242	GUSSET CANOPY (REAR)	F	2
F243	HINGE (REAR CANOPY)	F	2
F244	SCREEN (REAR CANOPY)	F	2

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
F246	PANNIERS	F	2
F247	POD	F	1
F248	PANNIER SUPPORTS	F	8
F249	SHROUD	F	1
F251	LEVER GUIDE	F	1
F252	BEARING (JACKSHAFT)	F	2
F253	NOSE WHEEL SUPPORT	F	1
F254	NOSE WHEEL SUPPORT	F	1
F256	BEARING TORQUE TUBE	F	3
F258	PITOT TUBE	F	2
F260	BEARING HOUSING (JACKSHAFT)	F	1
F261	PITOT TUBE CONNECTOR	F	1
F262	BOOM SUPPORT REAR	W	1
F263	PLATE - BOOM SUPPORT	W	1
F264	SPACER ELEVATOR/TELEFLEX BRACKET	F	2
F265	SENDER MOUNTING PLATE	F	1
F266	FUEL TANK SPOUT	F	1
F267	FAIRING - PYLON FRONT	F	1
F268B	SHIM	F	2
F269	FUEL VENT PLATE	F	1
F270	BRACKET FUEL TANK SUPPORT	F	2
F271	PLATE FLAP TENSION SPRING	F	1
F277	SERIAL NUMBER PLATE	F	1
F279-1	CONTROLSTICK STOP	F	1
F279-2	CONTROLSTICK STOP	F	1
F280	GLASS ANGLE	F	4
F281	GLASS ANGLE	F	2
F282B	FUEL VALVE MTG. PLATE	F	1
F284B	VALVE TORQUE TUBE SUPPORT	F	1
F285	FUEL DRAIN PLATE	F	1
F287	BRACKET CONTROL STICK	F	2
F288	CONNECT TUBE THROTTLE	F	1
F289	FLOOR WELL	F	1
F290	CONTROL STICK	F	2
F291	PULLEY	F	2
F293	CONNECT TUBE STICK	F	1

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
F294	SPACER PULLEY	F	4
F295	SPACER PULLEY	F	2
F298	SPACER CONNECT TUBE	F	2
F305	SPACER WHEEL BEARING	F	2
F306	SPACER BRAKE	F	2
F310	HUB WHEEL DRUM	F	2
F311	BUSH BRAKE LEVER	F	2
F312	BRAKE PIVOT	F	2
F313	WASHER AXLE	F	2
F315	BRACKET RUDDER CABLE	T	2
F317	PULLEY BLOCK ASSEMBLY	F	1
F318	SPACER RUDDER PEDAL	F	2
F319	CHANNEL CABLE	F	2
F320	GLASS ANGLE	F	2
F321	GLASS ANGLE	F	1LH 1RH
F322	GLASS ANGLE	F	2
F323	WASHER AXLE	F	2
F327	SPACER U/C	F	4
F328	SPACER BELLCRANK	F & W	3
F329	BEARING BELLCRANK	F & W	3
F348	PLATE - IGNITION SWITCH	E	1
F331	STYROFOAM PACKER	F	1
F332	INLINE ADJUSTER PLATE	F	2
F359	FLOOR HULL	F	1
F360	FRONT SEAT	F	1
F361	REAR SEAT	F	1
F362	INSTRUMENT PANEL	F	1
F363	BACKING PLATE U/C	F	2
F364	CANOPY HOOP FRONT	F	1
F365	CANOPY HOOP FRONT	F	1
F366	CANOPY SIDE (REAR)	F	4
F367	SHROUD HOOP	F	1
F368	SPACER - HANGER TUBES	F	4
F369	SPACER - HANGER TUBES	F	4
F371	SPACER - FLAP LEVER PIVOT	F	1
F373	BOOM TUBE	W	1
F374	CLEVIS - TELEFLEX	F	1

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
SF103	SCREEN	F	1
SF115	BRACKET - STARTER CORD	F	1
T102	HORN ELEVATOR	T	1
T103	GUSSET ELEVATOR/RUDDER HORN	T	2LH 2RH
T104	CONTROL STOP RUDDER	T	1
T105	HINGE RUDDER	T	2 PAIRS
T107	SUPPORT RUDDER STOP	T	2
T108	TAIL FIXING PINS	T	3
T109	PAD ELEVATOR STOP	W	2
T110	HORN RUDDER	T	1
T111	L.E. TUBE TAILPLANE PORT	T	1
T112	L.E. TUBE TAILPLANE STARBOARD	T	1
T113	T.E. TUBE TAILPLANE PORT	T	1
T114	T.E. TUBE TAILPLANE STARBOARD	T	1
T115	CHANNEL TAILPLANE	T	2
T117	FIN TAILPLANE	T	2
T118	RIB TAILPLANE	T	2
T119	SLEEVE TAILPLANE PORT	T	1
T120	SLEEVE TAILPLANE PORT	T	1
T121	SPACER TAILPLANE STARBOARD	T	1
T122	SLEEVE TAILPLANE STARBOARD	T	1
T123	GUSSET TAILPLANE	T	2LH 2RH
T124	GUSSET TAILPLANE	T	2LH 2RH
T126	GUSSET TAILPLANE	T	2LH 2RH
T127	GUSSET TAILPLANE	T	4
T128	GUSSET TAILPLANE	T	4
T129	INSERT TAILPLANE	T	1
T133	L.E. TUBE ELEVATOR	T	1
T134	T.E. TUBE ELEVATOR	T	1
T135	CHANNEL ELEVATOR	T	1
T136	RIB ELEVATOR	T	2
T137	RIB ELEVATOR	T	2
T138	RIB ELEVATOR	T	4
T139	RIB ELEVATOR	T	2
T140	GUSSET ELEVATOR	T	8
T141	GUSSET ELEVATOR	T	4
T142	GUSSET ELEVATOR	T	2

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
T143	GUSSET ELEVATOR	T	4
T144	GUSSET ELEVATOR	T	4
T146	L.E. TUBE FIN	T	1
T147	T.E. TUBE FIN	T	1
T148	RIB FIN	T	4
T149	GUSSET FIN	T	4
T150	GUSSET FIN	T	4
T151	TAILSKID INSERT	T	1
T152	TAILSKID	T	1
T153	TAILSKID	T	1
T154	L.E. TUBE RUDDER	T	1
T155	T.E. TUBE RUDDER	T	1
T156	CHANNEL RUDDER	T	1
T157	RIB RUDDER	T	1
T158	RIB RUDDER	T	1
T159	RIB RUDDER	T	1
T160	RIB RUDDER	T	1
T161	GUSSET RUDDER	T	2
T162	GUSSET RUDDER	T	2
T163	GUSSET RUDDER	T	2
T164	GUSSET RUDDER	T	2
T165	GUSSET RUDDER	T	2
T167	INSERT TAILPLANE STARBOARD	T	1
T168	BRACKET FIN SUPPORT	T	1
T170	PUSH/PULL TUBE	T	1
T171	HINGE	T	1
T172	TRIM TAB	T	1
T173	HORN	T	1
T175	CLEVIS	T	2
T177	SERVO MOUNT	T	1
T178	BRACKET CONNECTOR	T	1

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
W100	WING S/ASSY. CENTRE	W	1
W106	WING PIN	W	4
W107	PIN EXTRACTOR	W	1
W121	HINGE BRACKET AILERON	W	6
W125	TORQUE PLATE WING	W	4
W131	HINGE BRACKET AILERON	W	4
W132	HINGE BRACKET FLAP & AILERON	W	10 PAIR
W133	HINGE BRACKET FLAP	W	1LH 1RH
W135	HINGE BRACKET FLAP	W	4
W138	HORN FLAP	W	2
W144	TORQUE TUBE FLAP	W	1
W146	CONNECT ROD FLAP	W	2
W149	HORN FLAP W/ASSY.	W	3
W151	BRACKET WING BELLCRANK	W	2
W152	TUBE AILERON	W	2
W153	TUBE AILERON	W	2
W154	INSERT AILERON TUBE	F & W	10
W161	BELLCRANK BRACKET SUPPORT	W	1LH 1RH
W165	HINGE BRACKET FLAP	W	2
W173	AILERON/FLAP GUSSET	W	4
W174	AILERON/FLAP GUSSET	W	4
W175	AILERON/FLAP GUSSET	W	4
W176	AILERON/FLAP GUSSET	W	4
W177	FLAP L.E.	W	2
W178	FLAP T.E.	W	2
W179	RIB FLAP	W	8
W180	RIB FLAP	W	2
W181	RIB FLAP	W	4
W182	BEARING PUSH/PULL TUBE	W	2

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
W183	HINGE BRACKET AILERON	W	1LH 1RH
W185	DRAG PLATE WING	W	2
W188	FLAP STOP PAD	W	2
W189	INSERT AILERON TUBE	W	2
W191	RIB CAP CENTRE WING	W	4
W192	TORQUE PIN WING	W	2
W193	FLAP TELEFLEX BRACKET	W	1
W195	CENTRE WING TRAILING RIB	W	4
W196	TRAILING EDGE CENTRE WING	W	1
W197	COMPRESSION STRUT CENTRE WING	W	3
W199	REAR RIBS WING	W	12
W200	REAR SPAR WING	W	2
W201	DRAG SPAR WING	W	2
W202	SPACER REAR SPAR	W	2
W203	WING TIP	W	1LH 1RH
W205	PANEL BOOM CENTRE WING	W	1
W206	PANEL PYLON CENTRE WING	W	3
W208	PLATE AILERON CONTROL STOP	W	4
W213	COVER CENTRE WING	W	1
W218	BELLCRANK	W	2
W220	BRACKET AILERON HINGE	W	3LH 3RH
W221	HORN AILERON	W	2
W222	GUSSET AILERON	W	6
W223	RIB AILERON	W	5LH 5RH
W224	GUSSET AILERON	W	2
W225	GUSSET AILERON	W	2
W226	GUSSET AILERON	W	6
W227	GUSSET AILERON	W	1LH 1RH
W228	GUSSET AILERON	W	3LH 3RH
W229	GUSSET AILERON	W	1LH 1RH

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
W233	STRUT - STREAMLINE	W	2
W234	JURY STRUT	W	2
W235	TENSION BAR	W	1
W236	TENSION BAR PLATE	W	4
W237	TENSION BAR PLATE	W	2
W242	WING S/ASSY. OUTER	W	1LH 1RH
SW117	JAW STRUT	W	2
SW118	PIVOT STRUT	W	2
SW125	L/E AILERON	W	2
SW126	T/E AILERON	W	2
SW140	BRACKET - JURY STRUT	W	4
SW143	SPINE AILERON	W	8
SW146	MASS BALANCE	W	2

PARTS LIST

PART No.	PART DESCRIPTION	SECTION	QUANTITY
E100	SPACER	E	2
E101	BEARER	E	1LH 1RH
E102	STRUT	E	1LH 1RH
E108	REAR ENGINE PLATE	E	1
E110	THRUST BAR	E	1
E111	THRUST BAR	E	1
SE101	ANTI TORQUE TUBE	E	1
SE102	FRONT ENGINE PLATE	E	1
SE104	EXHAUST BRACKET - 582	E	1

COMMERCIAL ITEMS

CM No.	COMMERCIAL ITEMS LIST	F/LAGE	WING	TAIL	ENGINE
CM 1	INSERT No. 01-20-10081	29		4	
CM 2	INSERT No. 01-20-10089	29		4	
CM 3	1/4" DIA. NYLON WASHER	10			
CM 4	3/16" DIA. PENNY WASHER	9	2		
CM 5	1/4" DIA. PENNY WASHER - LARGE				10
CM 6	1" SADDLE	2		12	
CM 7	1 1/4" DIA. SADDLE	8			
CM 8	1 3/4" DIA. SADDLE	2			
CM 9	1/8" DIA. POP RIVET - SHORT	220	450	139	
CM 10	1/8" DIA. POP RIVET COUNTERSUNK			2	
CM 11	1/8" DIA. POP RIVET - MEDIUM	100	200	24	
CM 12	3/16" DIA. POP RIVET - TSP D 612	8	20	1	30
CM 13	1/4" DIA. PENNY WASHER - SMALL	12	6		
CM 14	SEAT BELTS	2			
CM 15	EYEBOLT - AN42 14A			4	
CM 16	CLEVIS PIN 3/16" DIA. x 5/8" LONG	1	4	5	
CM 17	END CAP - 1 1/4"			1	
CM 18	1/4" DIA. x 5/8" LONG CLEVIS PIN		3		
CM 19	1mm DIA. GAL. STEEL CABLE	9m			
CM 20	2mm FLEXIBLE CABLE	11m		0.7m	
CM 21	FUEL CLIPS (4) SIZE 'C' - (10) SIZE 'D'	2			12
CM 22	3mm FLEXIBLE CABLE STROP	1			
CM 23	5mm DIA. NON-FLEX. CABLE & SWAGE	1			
CM 24	1/8" DIA. POP RIVET - LONG	7		2	
CM 25	1mm SOLDER NIPPLE	8			
CM 26	2mm NICOPRESS SLEEVE	14		2	
CM 27	COTTER PIN 3/32" DIA. x 3/4" LONG	2			
CM 29	2mm THIMBLE	10		2	
CM 30	1/16" DIA. x 1/2" LONG COTTER PIN	7	3		
CM 31	PRIMER BULB				1
CM 32	SHACKLE RWO R6230	2		1	
CM 33	SHACKLE RWO R2820	2			
CM 34	5/8" BORE NYLON HEADED BEARING		2		

COMMERCIAL ITEMS

CM No.	COMMERCIAL ITEMS LIST	F/LAGE	WING	TAIL	ENGINE
CM 35	HINGE ELEVATOR - RWD R636/2			4	
CM 36	1" BORE HEADED NYLON BEARING		8		
CM 37	INTENTIONALLY LEFT BLANK				
CM 38	7/8" BORE PLAIN NYLON BEARING	1			
CM 39	NYLON TUBE CONNECT INSERT/SADDLE	2			
CM 40	END CAPS - 1" TUBE	4			
CM 42	ROD END RM 3U		2		
CM 43	ROD END RM 4U	2	4		
CM 44	FORK AN161-32S		4		
CM 45	SAFETY RING			1	
CM 46	TELEFLEX 217225/1.5	1			
CM 47	TELEFLEX 217225/3.5	1			
CM 49	CLEVIS 202942	4			
CM 50	CABLE CLAMP 201039	2	2		
CM 51	SHIM 201040	3	2		
CM 52	ARMOURED OUTER CABLE 2mm INSIDE	9.5m			
CM 53	CABLE IN LINE ADJUSTER	2			
CM 54	FUEL TAP ASSY.	1			
CM 55	1/4" BSP - 1/4" HOSE END FITTING	1			
CM 56	1/8" BSP - 3/16" HOSE END FITTING	1			
CM 57	1/4" BORE TUBE + SPRING (FUEL LINE)				1.8m
CM 58	1/4" O/D BORE NYLON TUBE - VENT				4m
CM 59	NEOPRENE STRIP 1/4" X 1" WIDE				0.8m
CM 60	IN LINE FILTER				1
CM 61	WEBBING AILERON STOP		2		
CM 62	KNOB	1			
CM 63	CHOKE LEVER	1			
CM 64	SAFETY PIN - LARGE		4		
CM 65	DRACON CORD	1m			
CM 66	SAFETY PIN CLIPS		8	8	
CM 67	GRIPS, CONTROL STICK/FLAP LEVER	3			
CM 68	TENSION SPRING	1			

CM No.	COMMERCIAL ITEMS LIST	F/LAGE	WING	TAIL	ENGINE
CM 69	10" DIA. WHEEL ASSY.	1			
CM 72	COTTER PIN 1/16" DIA. x 1" LONG	2			
CM 73	FUEL SENDER	1			
CM 74	RWO R1800 PULLEY	1			
CM 75	CFM & SHADOW LOGO	2			
CM 76	BUNGEE CORD 3/8" DIA.	1m			
CM 78	CAP FUEL TANK				1
CM 79	T-PIECE	1			
CM 80	EXHAUST/MANIFOLD SILENCER				1
CM 82	SHOCK MOUNT				1
CM 83	ZIPS		4		
CM 84	CURTIS DRAIN VALVE				1
CM 85	LORD MOUNTS 150P-30				6
CM 86	PULLEY RWO R1700	2			
CM 87	TYRE/TUBE 350 x 6	2			
CM 88	6" DIA, WHEELS - HALVES, NYLITE	2			
CM 89	POLYESTER FABRIC FT-75		37m		
CM 90	CALIPER - BRAKE	2			
CM 91	BID GLASS FIBRE TAPE 150mm WIDE		40m		
CM 92	PLACARDS	1			
CM 93	BRAKE CABLES	2			
CM 94	CABLE SPLITTER				1
CM 95	IGNITION SWITCH	2			
CM 96	TEN STRAND WIRE LOOM (+ 1 GREEN - dual)	3m			
CM 97	UND GLASS FIBRE 25mm WIDE		13.5m		
CM 98	BID GLASS FIBRE 1m WIDE		13m		
CM 99	REDUX EPOXY FILLER 250gm + 100gm	1			
CM 100	ACCOMET 'C' ALUMINUM ETCH	1			
CM 101	SAMPLES - GLASSING/ACCOMET 'C'/BONDS				
CM 102	EXTENSION NUT				1
CM 104	POP RIVET 3/16" DIA.	8			
CM 105	LORD MOUNT 150PD-18				2
CM 106	PLACARDS: 'NOSE UP' (2)/'NOSE DOWN' (2)			1	

COMMERCIAL ITEMS

CM No.	COMMERCIAL ITEMS LIST	F/LAGE	WING	TAIL	ENGINE
CM 107	FUSEHOLDER			1	
CM 108	SERVO MOTOR S4			1	
CM 109	ROCKER SWITCH			1	
CM 110	INDICATOR 3 POSN.			1	
CM 111	WIRING 6 CORE 7./0.2			10m	
CM 112	6 WAY CABLE SHELL			1	
CM 113	6 WAY CHASSIS SHELL			1	
CM 114	20/ SOCKETS			5	
CM 115	20/ PINS			5	
CM 116	TIE RAP - SMALL			6	
CM 117	TIE RAP - LARGE			3	
CM 118	TIE RAP - MOUNTS			2	
CM 119	CLEVIS PINS MS20392-IC9			2	
CM 120	SPIRO WRAP			180mm	
CM 123	CABLE END - MORSE 1/4				9
CM 131	BLACK HEAT SHRINK TUBE			65mm	
CM 133	3 BLADE 52" x 55" PITCH PROPELLER				1
CM 135	PROPELLER BLADE 52" DIA. x 55" PITCH - PART OF CM 133				3
CM 136	PROPELLER SHELL ENDS - PART OF CM 133				6
CM 137	PROPELLER HUB PLATE - PART OF CM 133				2
CM 153	TELEFLEX 1/4 MULTI-STRAND/5.5	1			
CM 154	CLAMP - MORSE 201041 (1/4" TELEFLEX)	2			
CM 155	ROD END F347-14	1			
CM 165	ROTAX ENGINE 582 UL				1

BOLT LIST

ITEM	BOLT SIZE	USED ON	F/LAGE	WING	TAIL	ENGINE
3A	AN3-4A	ELEVATOR TELEFLEX BRACKET/BOOM	2			
		RUDDER TELEFLEX CLAMP/BOOM BRACKET		2		
		BRACKET AILERON HINGE		12		
3B	AN3-5A	FUEL TANK STRAP				2
		ELEVATOR TELEFLEX CLAMP/BOOM BRKT.		2		
		RUDDER PEDALS TANG	4			
		FLAP TELEFLEX CLAMP	4			
		RUDDER PEDAL TO HINGE	4			
3C	AN3-6A	BRAKE LEVER	2			
3D	AN3-7A	STARTER PULLEY	2			
		FUEL TANK FEET	2			
		AILERON HORN TO ROD END		2		
		SECOND STICK TO CONNECT TUBE	1			
		FLAP BRACKET TO SEAT BACK	2			
		FLAP TELEFLEX BRKT. TO SEAT BACK	1			
		JURY STRUT		2		
3E	AN3-10A	DRAG STRUT BRKT. TO HULL	4			
		RUDDER PEDAL TO HINGE	4			
		RUDDER HINGES TO HULL FLOOR	8			
		RUDDER TELEFLEX CLAMP TO BACK SEAT	2			
		RECTIFIER BOX	2			
3G	AN3-12A	CONTROL STICK PIVOT ASSY.	4			
		ELEVATOR TELEFLEX CLAMP TO HULL	2			
		TENSION BAR	4			
3H	AN3-13A	JACKSHAFT HORNS	2			
		CHOKE ATTACH	1			
		ROD END TO CONTROLSTICK	1			
3J	AN3 -14A	HINGE ELEVATOR			4	
		DRAG STRUT REAR	2			
		FLAP HORNS		3		
		FLAP LEVER	1			
3K	AN3-15A	DRAG STRUT FRONT	2			
		THROTTLE CONNECT TUBE	2			
3L	AN3-16A	CONTROL STICK - PIVOT	2			
		FIN ATTACH.			4	
3M	AN3-17A	THROTTLE PIVOT	2			

BOLT LIST

ITEM	BOLT SIZE	USED ON	F/LAGE	WING	TAIL	ENGINE
3P	AN3-22A	NOSEWHEEL ATTACHMENT	1			
		REAR HANGER TUBES TOP	2			
4A	AN4-5A	HANGER TUBE BRKT. TO BOOM	4			
		FRONT SPAR BRKT. TO BOOM		4		
4B	AN4-6A	ENGINE STRUTS TOP				2
		RUDDER PULLIES	2			
		FRONT HANGER TUBES TOP	2			
		PULLEY BLOCK	2			
		WHEEL HUBS	8			
		THRUST BAR				2
4C	AN4-10A	WING BELLCRANK		4		
		PUSH/PULL TORQUE TUBE JACKSHAFT	2			
		UNDERCARRIAGE TENSION WIRE	2			
		PULLEY DUAL	2			
		SEAT BELTS	4			
4D	AN4-11A	EXHAUST BRACKET				1
4E	AN4-12A	WING BELLCRANK PIVOT		2		
4F	AN4-14A	BELLCRANK RUDDER	1			
4G	AN4-15A	JAWSTRUT STRUT TUBE		2		
4H	AN4-16A	LORD MOUNTS				6
4J	AN4-17A	ENGINE BEARERS TO HANGER TUBES	2			
		DIAGONAL TUBE STARBOARD	1			
4K	AN4-20A	FRONT HANGER TUBES - BOTTOM	2			
		FUEL PUMP				2
4L	AN4-22A	FRONT & REAR HANGER TUBES	4			
4M	AN4-43A	NOSEWHEEL	1			
4N	AN4-26A	DIAGONAL TUBE - PORT	1			
4U	AN4-23A	SEAT BELTS REAR	2			
4X	AN4-64A	HANGER TUBES/BOOM	1			
4Y	AN4-21A	REAR HANGER TUBES - BOTTOM	2			
5B	AN5-27A	STRUT TOP		2		
5C	AN5-43A	NOSEWHEEL	2			

BOLT LIST

ITEM	SIZE	USED ON	F/LAGE	WING	TAIL	ENGINE
5K	AN5-13A	STRUT BOTTOM		2		
5L	AN5-35A	PROPELLER				6
		NON-AN BOLTS				
4S	1/4" UNC	THROTTLE TUBE ASSEMBLY	2			
5H	M8 x 35 lg.	EXHAUST BRACKET - ENGINE				1
5J	M8 x 16 lg.	EXHAUST BRACKET - ENGINE				2
		WASHERS				
3T	3/16"	PLAIN WASHER AS REQUIRED	68	12		4
4Q	1/4"	PLAIN WASHER AS REQUIRED	60	10		7
5G	5/16"	PLAIN WASHER AS REQUIRED	3	12		
		NUTS				
3R	3/16" UNF	ANCHOR NUT - TAILPLANE			12	
3S	3/16" UNF	HEX NUT - NYLOC	77	18	4	
3U	3/16" UNF	CASTELLATED NUT	4			
3W	3/16" UNF	HEX NUT - PLAIN	1			
4P	1/4" UNF	HEX NUT - NYLOC	64	12		7
4R	1/4" UNF	CASTELLATED NUT	1			
4T	1/4" UNC	HEX NUT - NYLOC	6			
4W	1/4" UNF	HEX NUT - PLAIN	1			
5D	3/8" UNF	CASTELLATED NUT	2			
5E	5/16" UNF	HEX NUT - NYLOC	2	2		20
5F	5/16" UNF	HEX NUT - PLAIN		2		