



AVA HVAC PRODUCTS LLC

Woods Fan • Howden • American Fan • Parts Request for Quotation

ORDER FORM

500 Westover Drive #13454

Sanford, NC 27330

Phone: 781-389-5425

bmackay@avahvacproducts.com

avahvacproducts.com

PARTS REQUEST — WOODS / HOWDEN / AMERICAN FAN

Complete this page and the parts list on page 2, then return both pages to AVA HVAC Products.

FAN INFORMATION (from the fan nameplate)

Fan Brand (Woods / Howden / American Fan):

Fan Size Prefix (e.g. 125, 140):

Blade Series (e.g. HG, JG, KG):

Full Model No. (as stamped):

Serial No. / Code No.:

Unit / Tag No. (e.g. AHU #):

Operating Speed (RPM):

Motor HP:

Note: Woods / Howden / American Fan model numbers begin with a 2–3 digit size, followed by a series code (e.g. 125JG, 140KG). Nameplate formats vary by fan — list the serial or code number exactly as stamped.

APPLICATION & REQUEST DETAILS (required for factory quotation)

Installation type: ☐ Commercial Building ☐ Other:

Priority: ☐ Standard – Stock ☐ Planned Outage ☐ Current Outage ☐ Unplanned – Breakdown

Rotor Design:

☐ Fixed Rotor (Woods Standard) ☐ Controllable Pitch (CP) Rotor w/ Adjusting Mechanism

Note: CP Rotor includes the adjusting mechanism.

Fan operated on a VFD (Variable Frequency Drive)? ☐ Yes ☐ No ☐ Unknown

END USER / INSTALLATION SITE — address where the fan is PHYSICALLY located

Building Name:

Company:

Street Address:

City:

State:

Zip:

Contact Name:

Phone:

REQUESTED BY

Name:

Company:

Email:

Phone:

Date:

Date Parts Needed:

IMPORTANT — BEFORE YOU SEND THIS FORM

- ✓ ATTACH A CLEAR PHOTO OF THE FAN NAMEPLATE (PDF or JPEG). Required to match your fan.
- ✓ VERIFY THE END USER ADDRESS ABOVE IS WHERE THE FAN IS PHYSICALLY INSTALLED — not a billing or office address. We use this location to match the fan against our records.

Return this form + nameplate photo to: bmackay@avahvacproducts.com • 781-389-5425



AVA HVAC PRODUCTS LLC

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MAINTENANCE & PARTS LIST

500 Westover Drive #13454
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RECOMMENDED MAINTENANCE SCHEDULE — WOODS VAROFOIL / MK3

Per Woods Air Movement servicing guidance for MK3 Varofoil impellers with cast aluminum hubs.

2 YEARS after start-up, then YEARLY	Check the actuation for smoothness by applying and removing 15 psi control pressure. If the impeller does not operate over the full pitch angle range, or sudden movements are visible, the impeller requires servicing.
5 YEARS	Lubricate the wing bearings. Replace any parts which are worn, or as a preventative measure as desired.
YEARLY thereafter	Check the smoothness of actuation only (15 psi control pressure test as above).
10 YEARS	Replace the wing bearings.

Note: The impeller will fail to minimum pitch only if the motor is running and the control air is removed or set to zero. If the cable is broken or the spring is lost, the unit will climb to maximum pitch unless control air is removed.

Motors: Always follow the motor manufacturer's instructions when creating your maintenance schedule for motors.
Always follow the Woods Air Movement Service Manual when creating your maintenance schedule.

OTHER PARTS NEEDED (blades, hub inserts, bushings, washers, etc. — write in below)

DESCRIPTION	QTY	DESCRIPTION	QTY
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PARTS LIST — 40A HUB — VAROFOIL MK3 IMPELLER

500 Westover Drive #13454

Sanford, NC 27330

Phone: 781-389-5425

bmackay@avahvacproducts.com

avahvacproducts.com

40A HUB — VAROFOIL MK3 IMPELLER

Fan sizes 63–100 (630–1000mm duct dia.) • Reference drawing on the following pages — mark item numbers if known.

MAIN IMPELLER COMPONENTS (item numbers per drawing 176300 / 177724)

ITEM	DESCRIPTION	PART NO.	QTY
1	Hub (state motor frame & blade count from nameplate)	403427–403435	
2	Blade Carrier Assembly	410733 / 403451	
3	Blade (state size code, e.g. 63KG, 71KG, 80KG, 90JG, 100JG)	see schedule	
11	Actuator	407991	
17	Reaction Plate	403459	
19	Gasket — Inner	403468	
20	Diaphragm — Flexible / Fabricated	403464	
20	Diaphragm — Moulded	409843	
21	Gasket — Outer	403461	
24	Housing Diaphragm	403467	
27	End Cover	403469	
29	Rotary Union	404764	

RECOMMENDED SPARES / WEAR ITEMS

DESCRIPTION	PART NO.	QTY
Blade Thrust Bearing <i>per blade</i>	403448	
Pilot Positioner (Johnson D-9502)	79984	
Pilot Positioner Spring	403101	
Operating Cable (state duct dia.)	405033–407456	
Flexible Tubing 6mm <i>per meter</i>	—	
Nylon Cam Rollers <i>per blade</i>	401304	
Nylon Cable Pulley	403098	
Blade Securing Nut (M12 / M14)	406033 / 403456	
Set of Balance Weights	—	
Wing Bearing Grease <i>per tube</i>	WC35408	
Loctite Screwlock #242	37922	

Part numbers per Woods/American Fan drawing 176300 / 177724. All P/Ns verified against your fan serial number at time of factory quotation.



AVA HVAC PRODUCTS LLC

Woods Fan • Howden • American Fan • Parts Request for Quotation

PARTS LIST — 56A HUB — VAROFOIL MK3 IMPELLER

500 Westover Drive #13454

Sanford, NC 27330

Phone: 781-389-5425

bmackay@avahvacproducts.com

avahvacproducts.com

56A HUB — VAROFOIL MK3 IMPELLER

Fan sizes 90–160 (900–1600mm duct dia.) • 9 / 6 / 3-blade hub • Reference drawing on the following pages.

MAIN IMPELLER COMPONENTS (item numbers per drawing 176544 / 181095)

ITEM	DESCRIPTION	PART NO.	QTY
1	Hub — 9 blade / 6 blade / 3 blade	403631 / 403632 / 403737	
2	Hub Adapter (state shaft bore: 42–70mm)	403635–403639	
9	Blade Carrier Assembly	407557	
10	Blade 90KG	403642	
10	Blade 100KG	403643	
10	Blade 112KG	403644	
10	Blade 125JG	403645	
10	Blade 140JG	403646	
10	Blade 160JG	403647	
12	Blade Securing Nut Binx (M20 / M24)	76589 / 408398	
16	Actuator	403649	
22	Reaction Plate	403653	
26	Diaphragm — Flexible (moulded: 406137)	403656	
29	Housing Diaphragm	407643	
32	Rotary Union (1115-000-001)	54749	
33	End Cover	403659	

RECOMMENDED SPARES / WEAR ITEMS

DESCRIPTION	PART NO.	QTY
Blade Thrust Bearing <i>per blade</i>	406138	
Pilot Positioner (Johnson D-9502)	79984	
Pilot Positioner Spring	403101	
Operating Cable 900–1120 / 1250–1400 / 1600–1800	403088 / 403089 / 403090	
Flexible Air Pipe	403075	
Flexible Tubing 6mm <i>per meter</i>	87639	
Reaction Plate Screws (M8x16 BHC) <i>set of 6</i>	407561	
Liner — Actuator (16 1/8")	403650	
Liner — Diaphragm Housing (4 1/2")	403399	
Set of Balance Weights	AS15558	
Nylon Cam Rollers <i>per blade</i>	80444	
Nylon Cable Pulley	403098	
Wing Bearing Grease <i>per tube</i>	WC35408	
Loctite Screwlock #242	37922	

Part numbers per Woods/American Fan drawing 176544 / 181095. All P/Ns verified against your fan serial number at time of factory quotation.



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PARTS LIST — 71A HUB — VAROFOIL MK3 IMPELLER

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Phone: 781-389-5425

bmackay@avahvacproducts.com

avahvacproducts.com

71A HUB — VAROFOIL MK3 IMPELLER

Fan sizes 100–280 (1000–2800mm duct dia.) • 16 / 12 / 8-blade hub • Reference drawing on the following pages.

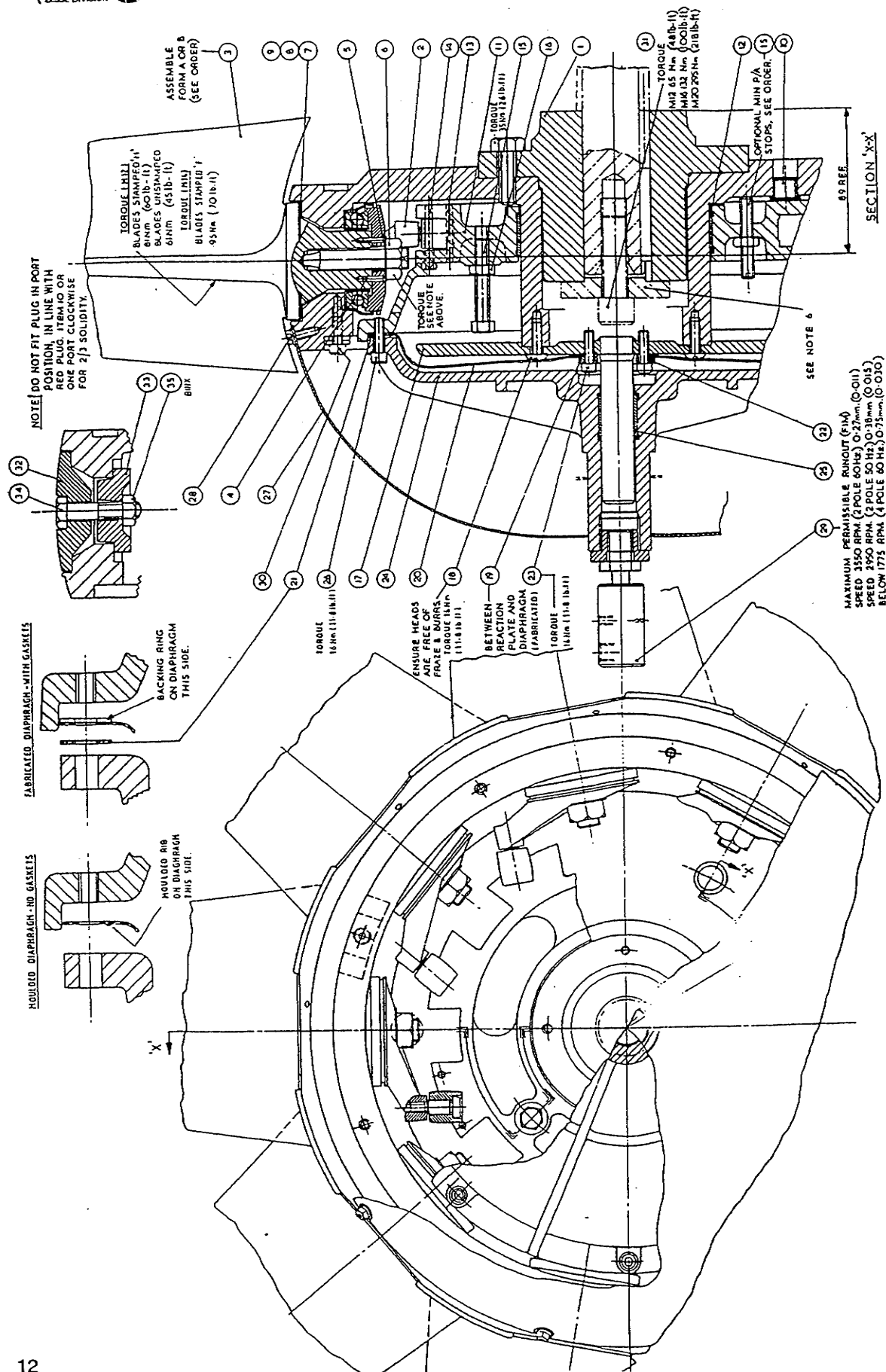
MAIN IMPELLER COMPONENTS (item numbers per drawing 176426 / 175729)

ITEM	DESCRIPTION	PART NO.	QTY
1	Hub — 16 blade / 12 blade / 8 blade	403370 / 403371 / 403372	
2	Hub Adaptor (state shaft bore: 48–85mm)	403380–405791	
9	Blade Carrier Assembly	407557	
10	Blade 100HG	403395	
10	Blade 112HG	403396	
10	Blade 125KG	403397	
10	Blade 140KG	see schedule	
10	Blade 160KG / 180JG / 200JG	87290 / 87289 / 87288	
10	Blade 224JG / 250JG / 280JG	87287 / 87286 / 87285	
12	Blade Securing Nut Binx (M20 / M24)	76589 / 408398	
16	Actuator	403374	
22	Reaction Plate	403386	
26	Diaphragm — Flexible (fabricated: 403407)	405061	
29	Housing Diaphragm	403376	
32	Rotary Union (1115-000-001)	54749	
33	End Cover	403409	

RECOMMENDED SPARES / WEAR ITEMS

DESCRIPTION	PART NO.	QTY
Blade Thrust Bearing <i>per blade</i>	406138	
Pilot Positioner (Johnson Y-9502)	79984	
Pilot Positioner Spring	403101	
Operating Cable 1000–1120 / 1250–1400 / 1600–1800	403088 / 403089 / 403090	
Operating Cable 2000–2240 / 2000–2800	403091 / 403092	
Flexible Air Pipe	403075	
Flexible Tubing 6mm <i>per meter</i>	87639	
Reaction Plate Screws (M8x16 BHC) <i>set of 6</i>	407561	
Liner — Actuator (19 15/16")	403400	
Liner — Diaphragm Housing (4 1/2")	403399	
Set of Balance Weights	AS15558	
Nylon Cam Rollers <i>per blade</i>	80444	
Nylon Cable Pulley	403098	
Wing Bearing Grease <i>per tube</i>	WC35408	
Loctite Screwlock #242	37922	

Part numbers per Woods/American Fan drawing 176426 / 175729. All P/Ns verified against your fan serial number at time of factory quotation.



Sig.		Date	Mod. C	Mod. D	Mod. E	Mod. F	Mod. G	Mod. H
Drawn	S.W.	11.9.81	Redrawn to design mod- ifications	See sheet 2	See sheet 2	Torque for "H", Stamped Blades Added	M14 Blades etc. added	Item 35 was Full Nut P.N. 89344
Checked	MB	13.11.82						
Traced								
Checked			S.W. 11.9.81	C.R.W. 7.9.82	C.R.W. 14.5.84	C.R.W. 15.10.85	C.R.W. 31.3.87	C.R.W. 10.10.88

Assembly Notes

1. Take hub item 1 & fit blade carrier assemblies item 2 & red plug item 10.
2. To Blade item 3 fit pins item 4 & fit into hub, through blade carrier with sufficient shim washers items 7, 8 & 9 so that free end play does not exceed 0.25mm. Retain in position with nut item 6 & washer item 5 after aligning blade carrier & blade. (pitch angle set later.) Ensure nut has correct thread.
3. To actuator item 11 fit bearing liner item 12 & pin item 13 in flange hole. Align all cam followers, fit the actuator to hub rotating actuator to retain all Cams. Fit screw item 14 into actuator. Fit "stop" screws item 15 into actuator with nuts item 16. Set pitch angle by adjusting "stop" screws & lock in position with nuts.
4. Fit reaction plate item 17 hub securing in position with screws item 18.
5. (See General Note 4.) Fit gasket inner item 19 on to reaction plate, then position flexible diaphragm item 20, gasket outer item 21 & clamp ring item 22 against reaction plate & retain in position with screws item 23. Take housing diaphragm item 24 fit bearing liner item 25 & then fit housing to actuator, ensuring flexible diaphragm is in position, secure housing to actuator with screws item 26.
6. Balance Impeller, then fit to motor retaining in position with clamp washer P.N. 403732-35 & screw P.N. 72295 for D132 motor, 71724 for D160/180 motors & 71725 for D200 motors (called for on motor duct assy.) Now see note 10.
7. Fit rotary union item 29 to housing diaphragm.
8. Use "Locliffe" screwlock P.N. 37922 on the following items before assembly.
9. Lubricate lightly both sliding bearing surfaces with shell alvania grease R.A. P.N. 35407.
10. On final assembly of diaphragm to fan make airtight seals using 2mm Dia. beading of compound P.N. 88562 around edges of diaphragm and fixing holes before fitting housing. Not required with moulded diaphragms.

ITEM	DESCRIPTION	DRG/P.N.	QTY.	REMARKS
22	Clamp ring	403465	1	
23	Screw Skt. Cap M6 x 20LG	71726	4	
24	Housing Diaphragm	403467	1	
26	Screw Skt. Cap M6 x 20LG	71726	8	
27	End Cover	403469	1	
28	Screw Tapille Hex HD M5 x 12LG	401829	9	
29	Rotary Union	404764	1	
30	Balancing kit	AS15854	1	To spec. 93
31	Impeller fixing	—	1	See note 6
32	Plug-Hub Port	406224	3	Fit when reqd. see schedule
33	Washer Hub Port	406225	3	Fit when reqd. see schedule
34	Bolt M10x 45LG	74812	3	Fit when reqd. see schedule
35	Nut M10 Blnx	89095	3	Fit when reqd. see schedule

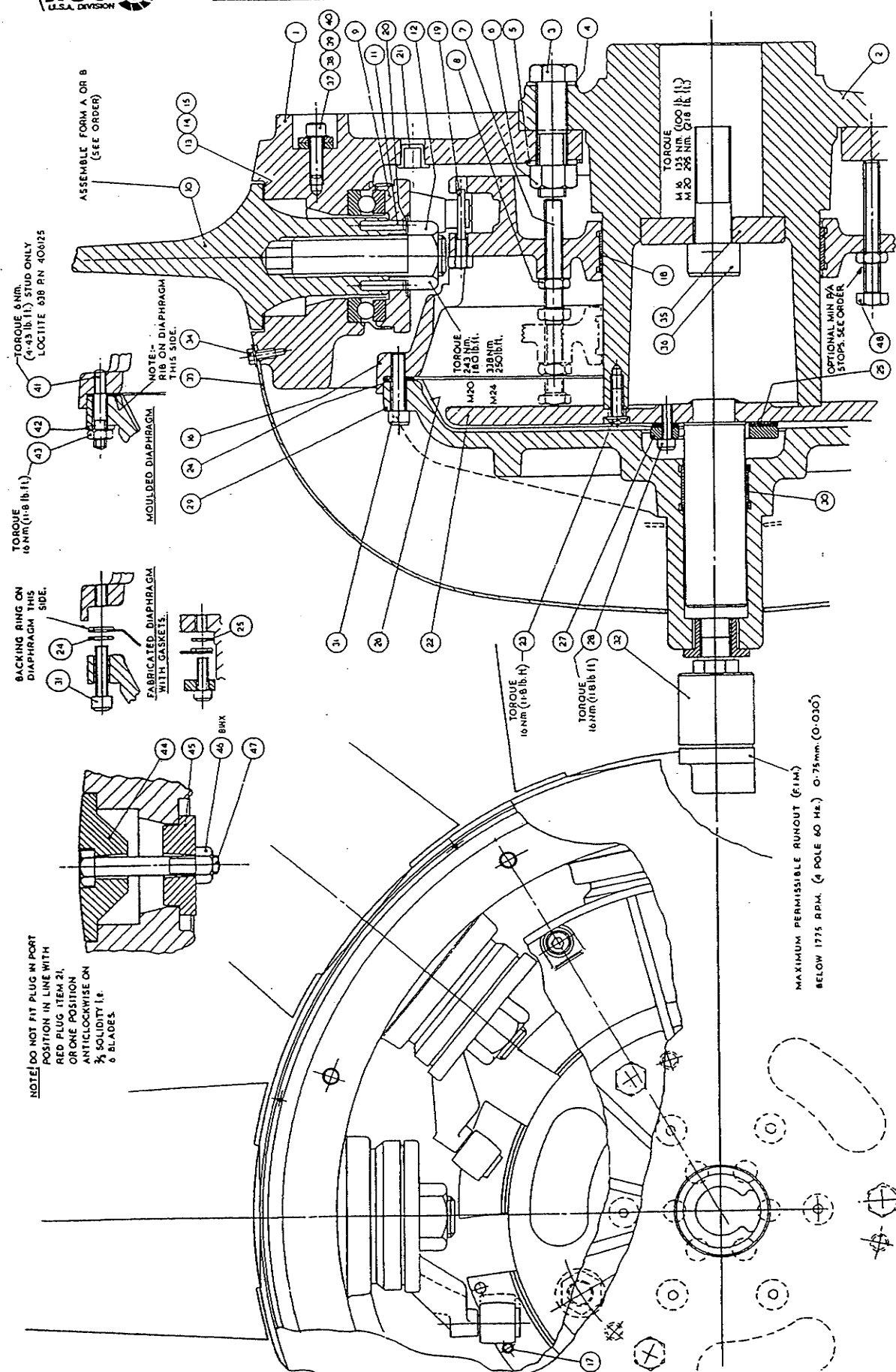
General Notes

1. Hub ports to be marked in numerical order. All blades & blade carriers to be marked with corresponding numbers to hub port.
2. Alignment marks to be stamped on actuator, reaction plate & diaphragm housing.
3. Item quantities listed are for full solidity fans, marked thus *
4. Inner & outer gaskets are not used with moulded diaphragms (item 20).

Item	14	23	26	30	31	34
Part No.	403475	71726	71726	See list	See Note 6	74812

ITEM	DESCRIPTION	DRG/P.N.	QTY.	REMARKS
1	Hub	403427	1	D132 Motor 9 blades
		403428		D160 Motor 9 blades
		403429		D180 Motor 9 blades
		403430		D200 Motor 9 blades
		403432		D132 Motor 6 Blades
		403433		D160 Motor 6 Blades
		403434		D180 Motor 6 Blades
		403435		D200 Motor 6 Blades
		M14 x 2		
		M12 x 1.75		
2	Blade carrier Assy.	410733	9*	Sub assembly. 0 Deg.
3	Blade	410766	9*	63Kg 2 Pole
		410768	405053	71Kg 2 Pole
		410770	405054	80Kg 2 Pole
		410767	403443	63Kg 4 Pole
		410769	403444	71Kg 4 Pole
		410771	403445	80Kg 4 Pole
		410772	403755	90Jg 4 Pole
		410773	403488	100Jg 4 Pole
4	Pin Tension	403452	18*	spiral ø 3 x 12 LG
5	Washer shim	410729	55038	9* 0.635mm (0.025") thick
6	Nut Hex. (metric)	410730	406033	9* Blnx.
7	Washer shim .190 Thk.	88661	9*	Mellnex
8	Washer Shim .508 Thk.	79204	9*	Nylatron G.S.
9	Washer Shim .635 Thk.	79205	9*	Nylatron G.S.
10	Plug Red	404762	1	R Moss Ltd. Type A 1012
11	Actuator	407991	1	with min. stop holes
12	Linear Actuator	403468	1	
13	Pin Spring Tension	403457	1	ø 4 x 36 LG
14	Screw Actuator	403475	1	
15	Screw. Hex. HD M8 x 50LG	400495	3	Min stops 404781 Qty.3
16	Nut Full M8	89088	6	
17	Plate reaction	403459	1	
18	Screw pan slot M6 x 20LG	83930	4	
19	Gasket Inner	403460	1	not used with moulded diaph.
20	Diaphragm Flex./Fabricated	403464	1	moulded 409843
21	Gasket outer	403461	1	not used with moulded diaph.

Sig.	Date	Mod. C	Mod. D	Mod. E	Mod. F	Mod. G	Mod. H
Drawn	S.W.	11.9.81	Item 15 was P.N. 404781	Min. stops added	See sheet 1	See sheet 1	See sheet 1
Checked			M3 x 50 Grub screw "W" point				
Traced	MB	13.11.82					
Checked			S.W. 11.9.81	C.R.W. 7.9.82	C.R.W. 14.6.84	C.R.W. 31.3.87	C.R.W. 10.10.88



	Sig.	Date	Mod. A	Mod. B	Mod. C	Mod. D	Mod. E	Mod. F	Mod. G	Mod. H
Drawn	WJR	1.10.75	Corrected picto- rally 8 blades	Revised in P/A stops	Revised counter-	Item 23 was torque was	M2x Blade fixing	Torque figures & Locite added for moulded	Item 48 was nut	
Checked			from 10. See sheet 2	compo- nents.	sunk. Screw P.N. 405542	178 Nm.	added. diaphragm fixing seat compound was P.N. 409714		P/N 89072	
Traced	MP	23.9.81							CRAW 142.66	
Checked			W/JF 23.10.78	DIN 10.6.81	CRAW 2.7.81	EQA 8.7.83	CRAW 14.8.84	CRAW 14.2.86	CRAW 7.10.86	

ITEM	DESCRIPTION	DWG/P.N.	QTY.	REMARKS
1	Hub 9 Blade	403831	1	
	Hub 6 Blade	403632		Not Req'd. when plugs used
	Hub 3 Blade	403737		Not Req'd. when plugs used
2	Hub Adapter 70 Bore	403635	1	D250 Pad Mtd.
	Hub Adapter 60 bore	403636		D225 Pad Mtd.
	Hub Adapter 55 Bore	403637		D200 pad Mtd.
	Hub Adapter 48 Bore	403638		D180 Pad Mtd.
	Hub Adapter 42 Bore	403639		D160 Pad Mtd.
3	Bolt M16x 70 Hex Hd.	89381	6	
4	Washer M16 plain	89098	6	
5	Washer M16 s/proof	55880	6	
6	Nut M16 Full	55917	6	
7	Screw P.A. Adjustment	405792	3	M10 x 65
8	Nut M10 Full	89344	3	Min P/A Stops Qty. 6
9	Blade Carrier Assy.	M20 407557	refer table	M24 408416 5 Deg.
10	Blade 90 KG	M20 403642	refer table	M24 408402
	Blade 100 KG	M20 403643	refer table	M24 408403
	Blade 112 KG	M20 403644	refer table	M24 408404
	Blade 125 JG	M20 403645	refer table	M24 408405
	Blade 140 JG	M20 403646	refer table	M24 408406
	Blade 160 JG	M20 403647	refer table	M24 408407
11	Pin Spring Tension 0.6 x 24	404124	refer table	Blade Location
12	Nut Blinx	M20 76589	refer table	M24 408398
13	Shlm Washer .190 Thk.	88688	refer table	Mellinex
14	Shlm Washer .508 Thk.	79211	refer table	Nylatron G.S.
15	Shlm Washer .635 Thk.	79212	refer table	Nylatron G.S.
16	Actuator	403649	1	Min P.A stops 407992
17	Pin Spring Tension 0.6 x 40	78111	1	
18	Liner Actuator	403650	1	
19	Screw Cam Location	403401	1	
20	Washer Shlm	M20 631878	refer table	M24 55037
21	Plug Red Polythene	404782	1	
22	Reaction Plate	403653	1	
23	Screw M8 x 16 Button Hd. Skt	407561	6	
24	Gasket Outer	403654	1	Not required with molded
25	Gasket Inner	403403	1	diaphragm.
26	Flexible Diaph. Fabricated	403656	1	Molded 406137
27	Clamp Ring	403408	1	
28	Screw M6 x 20 Cap Hd.	71726	6	
29	Housing Diaphragm	407643	1	
30	Liner Housing	403399	1	
31	Screw M8 x 35 Cap. Hd.	76198	12	Used with Fabricated diaph.
32	Rotary Union	54749	1	
33	End Cover	403659	1	
34	Screw M5 x 12 Tapite	401829	9	
35	Clamp Washer 21 Bore	403660	1	D250-D200 Motor
	Clamp Washer 17 Bore	403661	1	D180-D160 Motor
36	Screw M20 x 70 Cap Hd.	77704	1	D250-D200 Motor
	Screw M16 x 50 Cap. Hd.	71724	1	D180-D160 Motor
37	Screw M8 cap. Hd.	71723, 71406 72561, 74048	-	As Required
38	Balance Weight	401138-41	-	As Required
39	Washer M8 Plain	89079	-	As Required
40	Washer Shlm	631233	-	As Required

ITEM	DESCRIPTION	DWG/P.N.	QTY.	REMARKS
35	Clamp Washer 21 Bore	403660	1	D250-D200 Motor
	Clamp Washer 17 Bore	403661	1	D180-D160 Motor
36	Screw M20 x 70 Cap Hd.	77704	1	D250-D200 Motor
	Screw M16 x 50 Cap. Hd.	71724	1	D180-D160 Motor
37	Screw M8 cap. Hd.	71723, 71406 72561, 74048	-	As Required
38	Balance Weight	401138-41	-	As Required
39	Washer M8 Plain	89079	-	As Required
40	Washer Shlm	631233	-	As Required
41	Stud M8 x 48 Lg.	405789	12	Use with molded diaph.
42	Washer M8 Plain	89079	12	
43	Nut M8 Full	89088	12	
44	Plug Hub Port	406226	refer table	Use If on Assy. Schedule
45	Washer Hub Port	406227		
46	Nut M12 Blinx	89068		
47	Bolt M12 x 75	89313		
48	Screw M10 x 80	408251	3	Min P/A Stops
49	Screw M10 x 100	409630	3	Alternative If Required

Assembly Notes

- Take hub 1 and fit hub adaptor 2 retaining in position with screws 3 washers 4 & 5 and nuts 6 then fit plug 21.
- Fit blade carrier assembly 9 into hub. Take blade 10 and fit pins 11 then fit blades in hub to blade carrier assemblies retaining in position with washers 20 & nuts 12 after ensuring that free end play does not exceed 0.25 by fitting shim washers 13, 14, & 15 as required.
- Take actuator 16, fit pin 17 and bearing liner 18 align all cam followers, then fit actuator to hub, rotating same to retain all cams. Fit screw 19.
- Fit screw 7 and nut 8 to actuator and adjust maximum pitch angle.
- Fit reaction plate 22 to hub retaining in position with screws 23.
- Fit studs 41 to actuator.
Flexible diaphragm 26 and clamp ring 27 against reaction plate and retain in position with screws 28. Take housing diaphragm 29, fit bearing liner 30, then fit housing to actuator with washers 42 & nuts 43. Fit rotary union 32 to housing.
- Fit end cover 33 to hub with screws 34, then balance impeller using 37, 38, 39, & 40 spec. 93
- After balancing, fit impeller to motor retaining with clamp washer 35 and screw 36.
- On final assembly of diaphragm to fan make air tight seals using 2.0 mm dia. beading of compound P.N. 88562 around edges of diaphragm and fixing holes before fitting housing. Not required with moulded diaphragm.

Sig.	Date	Mod. A	Mod. B	Mod. C	Mod. D	Mod. E	Mod. F	Mod. G	Mod. H
Drawn	WJF	1.10.79	Blade Solidities were 10 & 6, Now 9 & 6.3.	See Shl.	See Shl.	See Shl.	See Shl.	See Shl.	See Shl.
Checked			Blade Solidity added. 3						
Traced	MP	3.11.81	Blade Hub PN Added						
Checked			Item 34 Qty was 10						
			WJF 23.10.79	DN 19.6.81	CRW 27.81	CRW 14.1.82	EOA 8.7.83	CRW 14.8.84	CRW 14.2.86
									CRW 7.10.88

RECOMMENDED SPARE PARTS

ITEM DESCRIPTION	P.N.	QTY.
Blade Thrust Bearing	406138	per blades
Rotary Union (1115-000-001)	54749	1
Pilot Positioner	79984	1
Pilot Positioner Spring	403101	1
Diaphragm (molded)	406137	1
Diaphragm (flexible)	403656	1
Flexible air pipe	403075	1
Flexible tubing (6mm)	87639	per meter
Operating Cable	900-1120	403088
	1250-1400	403089
	1800-1800	403090
Reaction Plate Screws (m8x16 BHC)	407561	6
Blade Securing Nut (M20)	76589	per blades
Blade Securing Nut (M24)	408398	per blades
Set of Balance Weights	AS15558	1
Liner - Actuator (16 1/8")	403650	1
Liner - Diaphragm HSG (4 1/2")	403399	1
Blue Liner Material (bulk)	76097	per foot
Nylon Cam Rollers	80444	per blades
Nylon Cable Pulley	403098	1
Wing Bearing Grease	WC35408	per tube
Loctite Screwlok (#242- .34oz.)	37922	1

General Notes

- Hub ports to be marked in numerical order. All blades and blade carrier assemblies to be marked with corresponding numbers to hub ports.
- Alignment marks to be stamped on hub, end cover, reaction plate, actuator and diaphragm housing.
- Add "Loctite" screwlock to the following items before fitting to assembly. P.N. 37922 (Loctite 221).

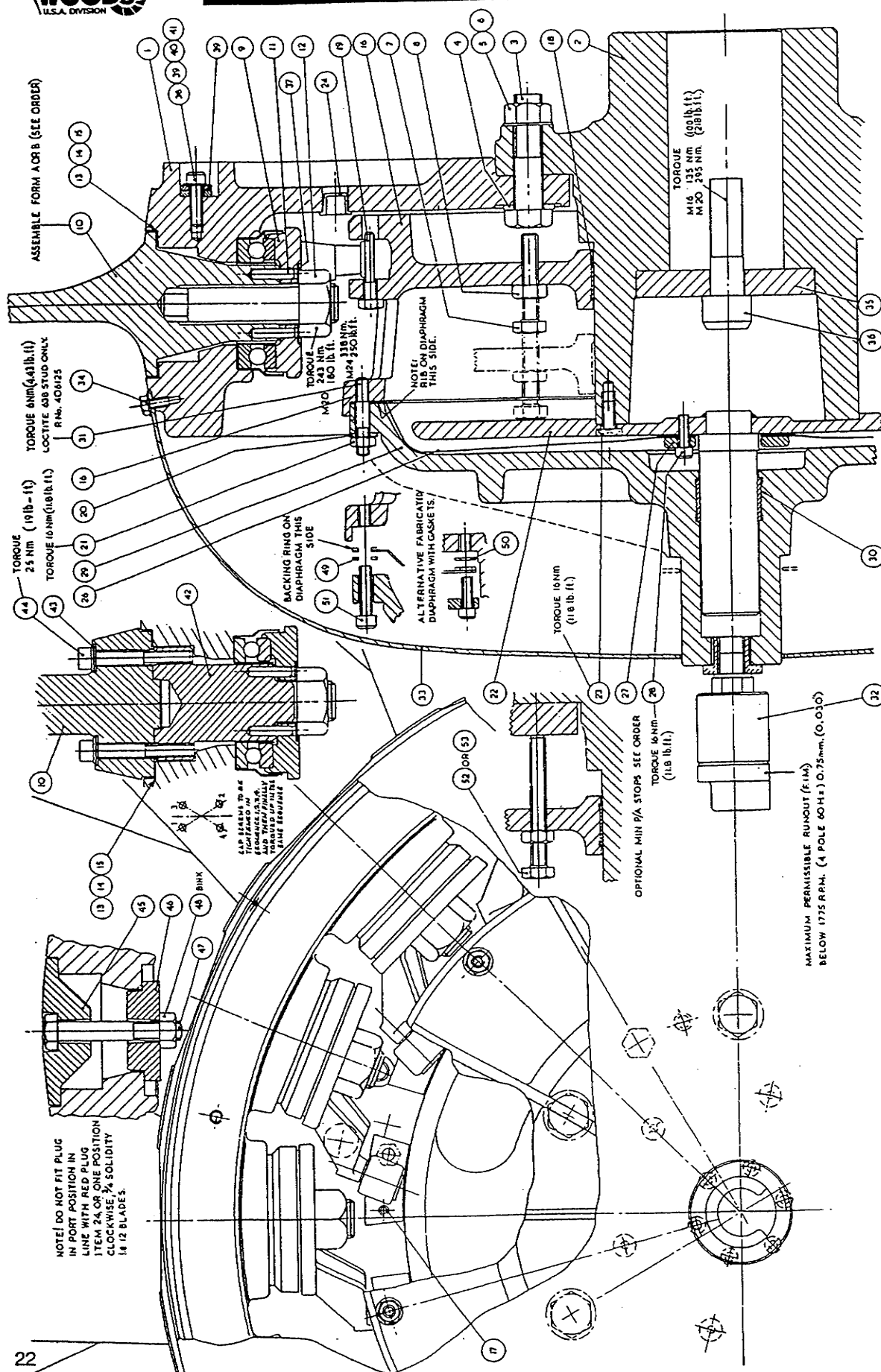
Item	19	28	31	36	37	47	41	23	43
Part No.	403401	71726	72561	77704 71724	See List	89313	405789	407561	89088

- Majority of fans will require shlms (Part No. 79212) Item 15 only. However items 13 & 14 may be used as required.
- Lubricate lightly both sliding bearing surfaces with shell alvania grease R.A. P.N. 35407.

Blade Solidity	Carrier Item 9	Blade Item 10	Pin Item	Nut Item	Shlm Washers Item	Washer Item	Items 44-47
Full	9	9	18	9	9	9	NIL
2/3	6	6	12	6	6	6	3
1/3	3	3	6	3	3	3	6



DRAWING NO. 176426 — SHEET 1 OF 2
GENERAL ARRANGEMENT 71A VAROFOIL MK3 IMPELLER

[illegible]

ITEM	DESCRIPTION	DRG/P.N.	QTY.	REMARKS
1	Hub 16 blade	403370	1	
	12 blade	403371		Not Req'd. when plugs used
	8 blade	403372		Not Req'd. when plugs used
2	Hub Adaptor 85 bore	403380	1	D 315D Fig. Mtd.
	80 bore	403381		D 280D Fig. Mtd.
	70 bore	403382		D 250D Fig. Mtd.
	60 bore	403383		D 225D Fig. Mtd.
	55 bore	403384		D 200D Fig. Mtd.
	48 bore	405791		D 180D Fig. Mtd.
3	Bolt M16 x 70 Hex Hd.	89361	6	
4	Washer M16 Plain	89098	6	
5	Washer M16 S/P	55880	6	
6	Nut M16 Full	55917	6	
7	Screw P.A. Adjustment	405792	3	M10 x 65 Hex Hd.
8	Nut M10 Full	89344	3	Min. P/A Stops Qty. 6
9	Blade Carrier Assy.	M20 407557	refer table	M24 408416 5 Dag.
10	Blade 100 Hg	M20 403395	refer table	M24 408408
	112 Hg	M20 403396	refer table	M24 408409
	125Kg	M20 403397	refer table	M24 408410
	140 Kg	M20 403398	refer table	M24 408411
	160 Kg	87290	refer table	
	180 Jg	87289	refer table	
	200 Jg	87288	refer table	
	224 Jg	87287	refer table	
	250 Jg	87286	refer table	
	280 Jg	87285	refer table	
11	Pin spring tension ø 6 x 24	404124	refer table	Blade location
12	Nut Blinx	M20 76589	refer table	M24 408398
13	Shlm Washer .190 Thk.	88686	refer table	Mellinex
14	Shlm Washer .508 Thk.	79211	refer table	Nylatron G.S.
15	Shlm Washer .635 Thk.	79212	refer table	Nylatron G.S.
16	Actuator	403374	1	Min P/A stops 407993
17	Pin Spring Tension ø 6 x 40	78111	1	
18	Liner Actuator	403400	1	
19	Screw Cam location	403401	1	
20	Washer Normal Heavy	89079	12	M8
21	Nut M8 Full	89088	12	
22	Reaction Plate	403386	1	
23	Screw M8 x 16 Button Skl. Hd.	407561	6	
24	Plug Red Polythene	404762	1	
25				
26	Flexible Diaphragm	405061	1	403407 Fabricated
27	Clamp Ring	403408	1	
28	Screw M8 x 20 Cap Hd.	71726	6	
29	Housing Diaphragm	403376	1	
30	Liner Housing	403399	1	
31	Stud M8 X 46	405789	12	
32	Rotary Union	54749	1	
33	End Cover	403409	1	
34	Screw M8 x 16 Taptille	401828	8	Washer Integral w/head
35	Clamp Washer	403410	1	55mm bore to 85mm bore
	Clamp Washer	405873	1	48mm bore
36	Screw M20 x 70 Cap Hd.	77704	1	55mm bore to 85mm bore
	Screw M16 x 50 Cap.Hd.	71724	1	48mm bore

ITEM	DESCRIPTION	DRG/P.N.	QTY.	REMARKS
37	Washer Shlm	M20 631878	refer table	M24 55037
38	Screw M8 Cap Hd.	71723, 71408 72581, 74088	-	As Required
39	Balance Weight	401138-41	-	As Required
40	Washer M8 Plain	89079	-	As Required
41	Washer Shlm	631233	-	As Required
42	Adaptor Blade	M20 405838	refer table	M24 408448
43	Washer M8 special	411102	refer table	160 Kg-280Jg Blade Fixing
44	Screw M8 x 60 Socket Cap Hd.	78132	refer table	160 Kg-280Jg Blade Fixing
45	Plug Hub port	406226	refer table	Use if on assy. schedule
46	Washer Hub Port	406227	refer table	
47	Bolt M12 x 75 Lg	89313	refer table	
48	Nut M12 Blinx	89068	refer table	
49	Gasket Outer	403402	1	Use with Fabricated diaph.
50	Gasket Inner	403403	1	
51	Screw M8 x 35 Lg.	76198	12	
52	Screw M10 x 80 Lg.	408251	3	Min. P/A stops
53	Screw M10 x 100 Lg.	409630	3	Alternative if required

Assembly Notes

- Take hub 1 and fit plug 24 then fit hub adaptor 2 retaining in position with screws 3 washers 4 & 5 and nuts 6.
- Fit blade carrier assembly 9 into hub. Take blade 10 and fit pins 11 then fit blade in hub to blade carrier assemblies* retaining in position with washers 37 and nut 12 ensuring that free end play does not exceed 0.25 by fitting shlm washers 13, 14, & 15 as required.
- Take actuator 16 fit pin 17 and bearing liner 18. Align all cam followers, then fit actuator, rotating at the same time to retain all cam followers. Check alignment with drawing then fit screw 19.
- Fit screws 7 and nuts 8 to actuator and adjust for maximum pitch angle.
- Fit reaction plate 22 to hub, retaining in position with screws 23.
- Fit studs 31 to actuator, fit flexible diaphragm 26 and clamp ring 27 against reaction plate and retain in position with screws 28. Take housing diaphragm 29. Fit liner 30 then fit housing to actuator with washers 20 and nuts 21. Fit rotary union 32 to housing.
- Fit end cover 33 to hub with screws 34, then balance Impeller using 38, 39, 40, 41. Max. 4 weights per screw. Balance spec. 93.
- After balancing fit Impeller to motor, retaining with clamp washer 35 and screw 36.
- On final assembly of diaphragm to fan make air tight seals using 2.0mm Dia. beading of compound PN 86562 around edges of diaphragm and fixing holes before fitting housing. Not required with molded diaphragm.

Blade Solidity	Carrier Item 9	Blade Item 10	Pin Item 11	Nut Item 12	Shlm Washers Item 13	Shlm Washers Item 14	Shlm Washers Item 15	Washer Item 37	Items 45-48
Full	16	16	32	16	As Req'd.	As Req'd.	16	16	Nil
3/4	12	12	24	12	*	*	12	12	4
1/2	8	8	16	8	*	*	8	8	8

Sig.	Date	Mod. A	Mod. B	Mod. C	Mod. D	Mod. E	Mod. F	Mod. G	Mod. H	Mod. J	Mod. K	Mod. L	Mod. M
Drawn	DN	10.6.81	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1	See Shl. 1
Checked													
Traced	MP	7.9.81											
Checked			WJF 24.9.79	POJ 7.2.80	CRW 4.2.81	CRW 15.7.81	CRW 14.1.83	EDA 8.7.83	EDA 22.7.83	CRW 14.6.84	CRW 13.2.85	PJY 19.2.86	PY 27.8.88

RECOMMENDED SPARE PARTS

ITEM DESCRIPTION	P.N.	QTY.
Blade Thrust Bearing	406138	per blades
Rotary Union (1115-000-001)	54749	1
Pilot Positioner	79984	1
Pilot Positioner Spring	403101	1
Diaphragm (molded)	405061	1
Diaphragm (flexible)	403407	1
Flexible air pipe	403075	1
Flexible tubing (6mm)	87639	per meter
Operating Cable	1000-1120	403088 1
	1250-1400	403089 1
	1600-1800	403090 1
	2000-2240	403091 1
	2500-2800	403092 1
Reaction Plate Screws (m8x16 BHC)	407561	6
Blade Securing Nut (M20)	76589	per blades
Blade Securing Nut (M24)	408398	per blades
Set of Balance Weights	AS15558	1
Liner - Actuator (19 15/16")	403400	1
Liner - Diaphragm HSG (4 1/2")	403399	1
Blue Liner Material (bulk)	76097	per foot
Nylon Cam Rollers	80444	per blades
Nylon Cable Pulley	403098	1
Wing Bearing Grease	WC35408	per tube
Loctite Screwlok (#242-.34oz.)	37922	1

General Notes

- Hub ports to be marked in numerical order. All blades and blade carrier assemblies to be marked with corresponding numbers to hub ports.
- Alignment marks to be stamped on hub, end cover, reaction plate, actuator and diaphragm housing. Lubricate lightly both sliding bearing surfaces with shell alvania grease R.A. PN 35407.
- Add Loctite screwlok to the following items before assembly. PN 37922. (Loctite 221)

Item	19	28	31	36	38	44	47	21	23
Part No.	403401	71726	405789	77704	See list	78132	89313	89088	407561

- Majority of fans will require shims. (Part No. 79212) item 15 only. However items 13 & 14 may be used as required.

*alternatively - take blade 10 & fit into blade adaptor 42 using washers 43 & screws 44. Fit pins 11 and fit blade adaptor to blade carrier assemblies.

