

Power Station C

Fan Scope Of Work

Unit 1-6

Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
0	General														
0.04	Site establishment for GO					X									
0.08	Site de-establishment for GO					X									
0.09	Open inspection doors		X	X	X	X									
0.10	Close inspection doors		X	X	X	X									
0.11	Wash the complete fan casing, concrete pedestals and fan bearing pedestals.			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
1	Fan Inspection OP														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
2	Fan Inspection IN														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
3	Fan Inspection IR														

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Unit 1-6

Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
4	Fan Inspection GO														
4.01	a) Visually inspect fan impeller for wear and erosion b) Visually inspect complete casing internally and externally for damage and erosion c) Visually inspect casing flanges for damage and wear d) Visually inspect casing flange bolts for missing and damaged bolts where bolts are visible (no stripping of cladding) e) Visually inspect coupling guard for damage f) Visually inspect shaft seal guards and bolts for damage. g) Visually inspect RVC lay shaft system for damage or broken links h) Visually inspect RVC system for wear, damage and loose links (No opening of annular plates) i) Visually inspect Dorsal Fins for damage and erosion j) Visually inspect bearings for any oil leaks k) Visually inspect lubrication system for oil leaks l) Visually inspect stay rods for damage and wear m) Visually inspect casing holding down bolts for damaged or loose bolts n) Visually inspect the suction cones for damage and erosion o) Measure suction cone penetration and clearance p) Visually inspect fan bearing pedestals for damage q) Visually inspect fan bearing holding down bolts for damage r) Visually inspect fan motor bearings for any oil leaks				X										

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
5	NDT - Inspection														
5.01	Microblast impeller clean for preparation for NDT				X	X									
5.02	Do complete impeller NDT weld inspection as per 240-89218242 Boiler Centrifugal Fan Inspection Standard				X	X									
6	Impeller Weld Repairs - ID Fans														
6.01	Inspection of Fan In-situ by Engineer to determine damage and repairs required and submit detailed report			X	X	X									
6.04	Install correct balance weights after dynamic balancing by approved method			X	X	X									
6.05	NDT the balance weights welding after waiting period to procedure			X	X	X									
6.06	Remove 100% of the impeller secondary/nose cap blade liners					X									
6.07	Refit 100% new secondary/nose cap blade liners					X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
7	Coupling - Spring														
7.01	Remove coupling guards			X	X	X									
7.02	Open and clean coupling, Inspect covers, springs and teeth. Replace springs if required. Re-grease coupling and close up coupling. Submit wear report			X	X	X									
7.05	Laser align fan impeller and motor to correct specifications and coupling gap			X	X	X									
7.06	Carry out minor repairs on coupling guard and replace missing bolts.			X	X	X									
7.07	Refit coupling guards			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
8	Lubrication System - Two Electrical Pumps														
8.08	Remove and refit flexible hoses to bearings				X	X									
8.09	Open, drain, clean and inspect tank for rust and damage. Inspect all oil pipework for leaks and repair where required. Inspect suction strainer/foot valve (Where fitted). Fit new gaskets and close tank. Refill tank via filtration unit.			X	X	X									
8.11	Remove lubrication oil filters and clean/replace filters as required. Service filter change over handles and repair oil leaks on piping and filter unit.			X	X	X									
8.12	Inspect lubrication oil pumps for leaks and repair leaks where required.			X	X	X									
8.13	Remove lubrication oil pumps and inspect couplings and bell housing/guards for damage. Repair any damage and replace coupling or bell housing if required. Refit pumps					X									
8.14	Send pumps away for overhaul					X									
8.16	Disconnect and remove oil coolers. Send coolers for inspection and pressure testing off site. Refit coolers.					X									
8.19	Flush lubrication system by bypassing bearings and using mobile filtration unit.			X	X	X									
8.20	Commission lubrication system by setting pressures and/or flow rates			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
9	Jacking Oil System														
9.05	Inspect jacking oil nozzle			X	X	X									
9.06	Refit jacking oil nozzle into bearing			X	X	X									
9.07	Remove all flexible hoses					X									
9.08	Refit all flexible hoses					X									
9.09	Commissioning of system and adjusting of pressure			X	X	X									
10	Bearings - White Metal Force Lubricated DE & NDE														
10.01	Clean bearing and working area.			X	X	X									
10.02	Remove lubrication oil piping and blank of oil lines to prevent dirt getting into the lines					X									
10.03	Remove thermocouple					X									
10.04	Open bearing top cap					X									
10.05	Remove bearing sleeve top half					X									
10.06	Jack up shaft and remove bearing bottom half					X									
10.07	Inspect bearing sleeves white metal surfaces for damage and wear.					X									
10.08	Send sleeves away for re-metal					X									
10.09	Remove fan bearing holding down bolts, Inspect bolts and re-fit bolts					X									
10.13	Inspect bearing bottom and top saddles for damage and spherical seats for wear and damage.					X									
10.14	Inspect the shaft surface finish and dimensions on the bearing landings, thrust collars and shaft seal landings					X									
10.15	Refit new/refurbished bearing sleeves by fitting the bottom half first. Apply a layer of oil on the lower sleeve.					X									
10.16	Check that the bearing lip clearances are correct and the ears are open on the thrust faces.					X									
10.17	Lower the fan shaft and allow the sleeve to settle in the spherical seat on the bottom.					X									
10.18	Fit the top half of the sleeve					X									
10.19	Fit the bearing top cap, labyrinth seals and take plastiguage readings of the bearing clearances.					X									
10.22	Check the clearances are correct to specification					X									
10.23	Re-install the thermocouple.					X									
10.24	Flush the lubrication oil piping before re-installing the piping onto the bearing.					X									
11	RVC System - Open Ring														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
11.01	Inspect pull rod clevises, operating ring rollers, operating ring, connecting links, operating levers, outer blade pins and bushes for damage and wear.			X	X	X									
11.02	Inspect RVC inner vanes and inner cones for damage and wear			X	X	X									
11.03	Inspect RVC inner pins and bushes for wear			X	X	X									
11.04	Remove all RVC connecting links, operating levers, swivel pins and pin bushes in-situ					X									
11.05	Install all RVC connecting links, operating levers, swivel pins and pin bushes in-situ					X									
11.10	Remove operating ring and guide rollers					X									
11.11	Install operating ring and guide rollers					X									
11.12	Open lay shaft bearings			X	X	X									
11.13	Inspect lay shaft bearings			X	X	X									
11.14	Clean and re-grease lay shaft bearings			X	X	X									
11.16	Close lay shaft bearings			X	X	X									
11.19	Remove RVC actuator					X									
11.20	Inspect RVC actuator plinth and holding down bolts					X									
11.21	Re-fit RVC actuator					X									
11.22	Adjust and synchronise RVC and lay shaft system			X	X	X									
11.23	Assist with RVC actuator stroking			X	X	X									
12 Shaft Seals															
12.01	Remove the shaft seal guards			X	X	X									
12.02	Remove the shaft seals			X	X	X									
12.03	Refit the shaft seals			X	X	X									
12.06	Refit the shaft seal guards			X	X	X									
14 Motor															
14.01	Remove motor					X									
14.02	Open the Motor DE Bearing. Clean out the bearing housing. Remove and inspect the bearing sleeves. Inspect and measure the oil rings and record the findings. Refit oil rings and bearing sleeves. Measure the bearing clearances and record. Close up the bearing. Fill the bearing to the correct oil level. Ensure that the oil rings turn correctly.			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
ID Fans															
14.03	Open the Motor NDE Bearing. Clean out the bearing housing. Remove and inspect the bearing sleeves. Inspect and measure the oil rings and record the findings. Refit oil rings and bearing sleeves. Measure the bearing clearances and record. Close up the bearing. Fill the bearing to the correct oil level. Ensure that the oil rings turn correctly.			X	X	X									
14.04	Inspect motor base mounting pads for flatness when motor has been removed					X									
14.05	Clean base and refit motor					X									
14.06	Remove the motor holding down bolts and inspect them. Re-fit the motor holding down bolts and tighten to correct torque			X	X	X									
15	Casing - ID Fan														
15.02	Carry out minor repairs to casing doors and fit new gaskets, Replace bolts and clamps that are damaged where required			X	X	X									
15.04	Carry out 100% casing thickness testing					X									
15.05	Remove 100% of the casing liners					X									
15.06	Refit 100% of the casing liners with new liners					X									
16	General														
17	Commissioning														
17.01	Test run fan		X	X	X	X									
17.02	Dynamically balance fan		X	X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
1	Fan Inspection OP														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
2	Fan Inspection IN														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
3	Fan Inspection IR														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
4	Fan Inspection GO														
4.01	a) Visually inspect fan impeller for wear and erosion b) Visually inspect complete casing internally and externally for damage and erosion c) Visually inspect casing flanges for damage and wear d) Visually inspect casing flange bolts for missing and damaged bolts where bolts are visible (no stripping of cladding) e) Visually inspect coupling guard for damage f) Visually inspect shaft seal guards and bolts for damage. g) Visually inspect RVC lay shaft system for damage or broken links h) Visually inspect RVC system for wear, damage and loose links (No opening of annular plates) i) Visually inspect Dorsal Fins for damage and erosion j) Visually inspect bearings for any oil leaks k) Visually inspect lubrication system for oil leaks l) Visually inspect stay rods for damage and wear m) Visually inspect casing holding down bolts for damaged or loose bolts n) Visually inspect the suction cones for damage and erosion o) Measure suction cone penetration and clearance p) Visually inspect fan bearing pedestals for damage q) Visually inspect fan bearing holding down bolts for damage r) Visually inspect fan motor bearings for any oil leaks				X										

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
5	NDT - Inspection														
5.01	Microblast impeller clean for preparation for NDT				X	X									
5.02	Do complete impeller NDT weld inspection as per 240-89218242 Boiler Centrifugal Fan Inspection Standard				X	X									
6	Impeller Weld Repairs														
6.01	Inspection of Fan In-situ by Engineer to determine damage and repairs required and submit detailed report			X	X	X									
6.04	Install correct balance weights after dynamic balancing by approved method			X	X	X									
6.05	NDT the balance weights welding after waiting period to procedure			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
7	Coupling - Spring														
7.01	Remove coupling guards			X	X	X									
7.02	Open and clean coupling, Inspect covers, springs and teeth. Replace springs if required. Re-grease coupling and close up coupling. Submit wear report			X	X	X									
7.05	Laser align fan impeller and motor to correct specifications and coupling gap			X	X	X									
7.06	Carry out minor repairs on coupling guard and replace missing bolts.			X	X	X									
7.07	Refit coupling guards			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
8	Lubrication System - Two Electrical Pumps														
8.08	Remove and refit flexible hoses to bearings				X	X									
8.09	Open, drain, clean and inspect tank for rust and damage. Inspect all oil pipework for leaks and repair where required. Inspect suction strainer/foot valve (Where fitted). Fit new gaskets and close tank. Refill tank via filtration unit.			X	X	X									
8.11	Remove lubrication oil filters and clean/replace filters as required. Service filter change over handles and repair oil leaks on piping and filter unit.			X	X	X									
8.12	Inspect lubrication oil pumps for leaks and repair leaks where required.			X	X	X									
8.13	Remove lubrication oil pumps and inspect couplings and bell housing/guards for damage. Repair any damage and replace coupling or bell housing if required. Refit pumps					X									
8.14	Send pumps away for overhaul					X									
8.16	Disconnect and remove oil coolers. Send coolers for inspection and pressure testing off site. Refit coolers.					X									
8.19	Flush lubrication system by bypassing bearings and using mobile filtration unit.			X	X	X									
8.20	Commission lubrication system by setting pressures and/or flow rates			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
9	Jacking Oil System														
9.05	Inspect jacking oil nozzle			X	X	X									
9.06	Refit jacking oil nozzle into bearing			X	X	X									
9.07	Remove all flexible hoses					X									
9.08	Refit all flexible hoses					X									
9.09	Commissioning of system and adjusting of pressure			X	X	X									
10	Bearings - White Metal Force Lubricated DE & NDE														
10.01	Clean bearing and working area.			X	X	X									
10.02	Remove lubrication oil piping and blank of oil lines to prevent dirt getting into the lines					X									
10.03	Remove thermocouple					X									
10.04	Open bearing top cap					X									
10.05	Remove bearing sleeve top half					X									
10.06	Jack up shaft and remove bearing bottom half					X									
10.07	Inspect bearing sleeves white metal surfaces for damage and wear.					X									
10.08	Send sleeves away for re-metal					X									
10.09	Remove fan bearing holding down bolts, Inspect bolts and re-fit bolts					X									
10.13	Inspect bearing bottom and top saddles for damage and spherical seats for wear and damage.					X									
10.14	Inspect the shaft surface finish and dimensions on the bearing landings, thrust collars and shaft seal landings					X									
10.15	Refit new/refurbished bearing sleeves by fitting the bottom half first. Apply a layer of oil on the lower sleeve.					X									
10.16	Check that the bearing lip clearances are correct and the ears are open on the thrust faces.					X									
10.17	Lower the fan shaft and allow the sleeve to settle in the spherical seat on the bottom.					X									
10.18	Fit the top half of the sleeve					X									
10.19	Fit the bearing top cap, labyrinth seals and take plastiguage readings of the bearing clearances.					X									
10.22	Check the clearances are correct to specification					X									
10.23	Re-install the thermocouple.					X									
10.24	Flush the lubrication oil piping before re-installing the piping onto the bearing.					X									
11	RVC System - Open Ring														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
11.01	Inspect pull rod clevises, operating ring rollers, operating ring, connecting links, operating levers, outer blade pins and bushes for damage and wear.			X	X	X									
11.02	Inspect RVC inner vanes and inner cones for damage and wear			X	X	X									
11.03	Inspect RVC inner pins and bushes for wear			X	X	X									
11.04	Remove all RVC connecting links, operating levers, swivel pins and pin bushes in-situ					X									
11.05	Install all RVC connecting links, operating levers, swivel pins and pin bushes in-situ					X									
11.10	Remove operating ring and guide rollers					X									
11.11	Install operating ring and guide rollers					X									
11.12	Open lay shaft bearings			X	X	X									
11.13	Inspect lay shaft bearings			X	X	X									
11.14	Clean and re-grease lay shaft bearings			X	X	X									
11.16	Close lay shaft bearings			X	X	X									
11.19	Remove RVC actuator					X									
11.20	Inspect RVC actuator plinth and holding down bolts					X									
11.21	Re-fit RVC actuator					X									
11.22	Adjust and synchronise RVC and lay shaft system			X	X	X									
11.23	Assist with RVC actuator stroking			X	X	X									
12	Shaft Seals														
12.01	Remove the shaft seal guards			X	X	X									
12.02	Remove the shaft seals			X	X	X									
12.03	Refit the shaft seals			X	X	X									
12.06	Refit the shaft seal guards			X	X	X									
14	Motor														
14.01	Remove motor					X									
14.02	Open the Motor DE Bearing. Clean out the bearing housing. Remove and inspect the bearing sleeves. Inspect and measure the oil rings and record the findings. Refit oil rings and bearing sleeves. Measure the bearing clearances and record. Close up the bearing. Fill the bearing to the correct oil level. Ensure that the oil rings turn correctly.			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
FD Fans															
14.03	Open the Motor NDE Bearing. Clean out the bearing housing. Remove and inspect the bearing sleeves. Inspect and measure the oil rings and record the findings. Refit oil rings and bearing sleeves. Measure the bearing clearances and record. Close up the bearing. Fill the bearing to the correct oil level. Ensure that the oil rings turn correctly.			X	X	X									
14.04	Inspect motor base mounting pads for flatness when motor has been removed					X									
14.05	Clean base and refit motor					X									
14.06	Remove the motor holding down bolts and inspect them. Re-fit the motor holding down bolts and tighten to correct torque			X	X	X									
15	Casing														
15.02	Carry out minor repairs to casing doors and fit new gaskets, Replace bolts and clamps that are damaged where required			X	X	X									
16	General														
17	Commissioning														
17.01	Test run fan		X	X	X	X									
17.02	Dynamically balance fan		X	X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
1	Fan Inspection OP														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
2	Fan Inspection IN														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
3	Fan Inspection IR														

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
4	Fan Inspection GO														
4.01	a) Visually inspect fan impeller for wear and erosion b) Visually inspect complete casing internally and externally for damage and erosion c) Visually inspect casing flanges for damage and wear d) Visually inspect casing flange bolts for missing and damaged bolts where bolts are visible (no stripping of cladding) e) Visually inspect coupling guard for damage f) Visually inspect shaft seal guards and bolts for damage. g) Visually inspect RVC lay shaft system for damage or broken links h) Visually inspect RVC system for wear, damage and loose links (No opening of annular plates) i) Visually inspect Dorsal Fins for damage and erosion j) Visually inspect bearings for any oil leaks k) Visually inspect lubrication system for oil leaks l) Visually inspect stay rods for damage and wear m) Visually inspect casing holding down bolts for damaged or loose bolts n) Visually inspect the suction cones for damage and erosion o) Measure suction cone penetration and clearance p) Visually inspect fan bearing pedestals for damage q) Visually inspect fan bearing holding down bolts for damage r) Visually inspect fan motor bearings for any oil leaks				X										

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
5	NDT - Inspection														
5.01	Microblast impeller clean for preparation for NDT				X	X									
5.02	Do complete impeller NDT weld inspection as per 240-89218242 Boiler Centrifugal Fan Inspection Standard				X	X									
6	Impeller Weld Repairs														
6.01	Inspection of Fan In-situ by Engineer to determine damage and repairs required and submit detailed report			X	X	X									
6.04	Install correct balance weights after dynamic balancing by approved method			X	X	X									
6.05	NDT the balance weights welding after waiting period to procedure			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
7	Coupling - Spring														
7.01	Remove coupling guards			X	X	X									
7.02	Open and clean coupling, Inspect covers, springs and teeth. Replace springs if required. Re-grease coupling and close up coupling. Submit wear report			X	X	X									
7.05	Laser align fan impeller and motor to correct specifications and coupling gap			X	X	X									
7.06	Carry out minor repairs on coupling guard and replace missing bolts.			X	X	X									
7.07	Refit coupling guards			X	X	X									

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Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
8	Lubrication System - Two Electrical Pumps														
8.08	Remove and refit flexible hoses to bearings				X	X									
8.09	Open, drain, clean and inspect tank for rust and damage. Inspect all oil pipework for leaks and repair where required. Inspect suction strainer/foot valve (Where fitted). Fit new gaskets and close tank. Refill tank via filtration unit.			X	X	X									
8.11	Remove lubrication oil filters and clean/replace filters as required. Service filter change over handles and repair oil leaks on piping and filter unit.			X	X	X									
8.12	Inspect lubrication oil pumps for leaks and repair leaks where required.			X	X	X									
8.13	Remove lubrication oil pumps and inspect couplings and bell housing/guards for damage. Repair any damage and replace coupling or bell housing if required. Refit pumps					X									
8.14	Send pumps away for overhaul					X									
8.16	Disconnect and remove oil coolers. Send coolers for inspection and pressure testing off site. Refit coolers.					X									
8.19	Flush lubrication system by bypassing bearings and using mobile filtration unit.			X	X	X									
8.20	Commission lubrication system by setting pressures and/or flow rates			X	X	X									
10	Bearings - White Metal Force Lubricated DE & NDE														
10.01	Clean bearing and working area.			X	X	X									
10.02	Remove lubrication oil piping and blank of oil lines to prevent dirt getting into the lines					X									
10.03	Remove thermocouple					X									
10.04	Open bearing top cap					X									
10.05	Remove bearing sleeve top half					X									
10.06	Jack up shaft and remove bearing bottom half					X									
10.07	Inspect bearing sleeves white metal surfaces for damage and wear.					X									
10.08	Send sleeves away for re-metal					X									
10.09	Remove fan bearing holding down bolts, Inspect bolts and re-fit bolts					X									
10.13	Inspect bearing bottom and top saddles for damage and spherical seats for wear and damage.					X									

Power Station C

Fan Scope Of Work

Unit 1-6

Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
10.14	Inspect the shaft surface finish and dimensions on the bearing landings, thrust collars and shaft seal landings					X									
10.15	Refit new/refurbished bearing sleeves by fitting the bottom half first. Apply a layer of oil on the lower sleeve.					X									
10.16	Check that the bearing lip clearances are correct and the ears are open on the thrust faces.					X									
10.17	Lower the fan shaft and allow the sleeve to settle in the spherical seat on the bottom.					X									
10.18	Fit the top half of the sleeve					X									
10.19	Fit the bearing top cap, labyrinth seals and take plastiguage readings of the bearing clearances.					X									
10.22	Check the clearances are correct to specification					X									
10.23	Re-install the thermocouple.					X									
10.24	Flush the lubrication oil piping before re-installing the piping onto the bearing.					X									
11	RVC System - Open Ring														
11.01	Inspect pull rod clevises, operating ring rollers, operating ring, connecting links, operating levers, outer blade pins and bushes for damage and wear.			X	X	X									
11.02	Inspect RVC inner vanes and inner cones for damage and wear			X	X	X									
11.03	Inspect RVC inner pins and bushes for wear			X	X	X									
11.04	Remove all RVC connecting links, operating levers, swivel pins and pin bushes in-situ					X									
11.05	Install all RVC connecting links, operating levers, swivel pins and pin bushes in-situ					X									
11.10	Remove operating ring and guide rollers					X									
11.11	Install operating ring and guide rollers					X									
11.12	Open lay shaft bearings			X	X	X									
11.13	Inspect lay shaft bearings			X	X	X									
11.14	Clean and re-grease lay shaft bearings			X	X	X									
11.16	Close lay shaft bearings			X	X	X									
11.19	Remove RVC actuator					X									
11.20	Inspect RVC actuator plinth and holding down bolts					X									
11.21	Re-fit RVC actuator					X									
11.22	Adjust and synchronise RVC and lay shaft system			X	X	X									
11.23	Assist with RVC actuator stroking			X	X	X									
12	Shaft Seals														

Power Station C

Fan Scope Of Work

Unit 1-6

Item No	Description	Spares and Consumables Required	OP	IN	IR	GO	Dur/ Fan (Hrs)	Dur/ Unit (Hrs)	SE	A	W	S/S	L	Price/ Fan	Price/ Unit
PA Fans															
12.01	Remove the shaft seal guards			X	X	X									
12.02	Remove the shaft seals			X	X	X									
12.03	Refit the shaft seals			X	X	X									
12.06	Refit the shaft seal guards			X	X	X									
14	Motor														
14.01	Remove motor					X									
14.02	Open the Motor DE Bearing. Clean out the bearing housing. Remove and inspect the bearing sleeves. Inspect and measure the oil rings and record the findings. Refit oil rings and bearing sleeves. Measure the bearing clearances and record. Close up the bearing. Fill the bearing to the correct oil level. Ensure that the oil rings turn correctly.			X	X	X									
14.03	Open the Motor NDE Bearing. Clean out the bearing housing. Remove and inspect the bearing sleeves. Inspect and measure the oil rings and record the findings. Refit oil rings and bearing sleeves. Measure the bearing clearances and record. Close up the bearing. Fill the bearing to the correct oil level. Ensure that the oil rings turn correctly.			X	X	X									
14.04	Inspect motor base mounting pads for flatness when motor has been removed					X									
14.05	Clean base and refit motor					X									
14.06	Remove the motor holding down bolts and inspect them. Re-fit the motor holding down bolts and tighten to correct torque			X	X	X									
15	Casing														
15.02	Carry out minor repairs to casing doors and fit new gaskets. Replace bolts and clamps that are damaged where required			X	X	X									
16	General														
17	Commissioning														
17.01	Test run fan		X	X	X	X									
17.02	Dynamically balance fan		X	X	X	X									