

JAPAN INTERNATIONAL COOPERATION AGENCY

P.O. Box 216, Mitsui Bldg., Shinjuku-ku, Tokyo, Japan.

( 1 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
	<u>TECHNICAL EQUIPMENT OF J.I.C.A.</u>				
	<u>MATERIALS FOR JAPAN-SAUDI ARABIA</u>				
	<u>RESEARCH PROJECT OF SEA WATER</u>				
	<u>DESALINATION</u>				
C/NO.M-1 (CRATE)			(Kgs)	(Kgs)	(M <sup>3</sup> )
<u>ITEM NO.</u> E-001	SK-001 Evaporator Unit 7600x4500x3800	1 pc	17,000	23,200	162.697
C/NO.M-2 (CASE)					
<u>ITEM NO.</u> B-001	SM-001 Boiler Unit 1700x3300x2400	1 pc	2,000	3,000	18.870 (18.296)
C/NO.M-3 (CASE)					
<u>ITEM NO.</u> B-001	SM-002 Oil Boost Pump Set 900x1390x580	1 pc	240	550	3.844
"	-003 Chimney 6300x1000	6 pcs			
"	-004 Chimney Top 6545x525	1 pc			
"	-005 Softner Resin 210x260x400 210x260x400 10L	1 pc			
"	-006 Swing Check Valve 3/4B R-125 70x45	1 pc			
"	-007 Lift Check Valve 3/4B F-150 65x35	1 pc			
"	-008 Feed Water Pump KMB15060 200V 1.5KW 245x360x200	1 pc			
"	-009 Ignition Transformer G-7023-YC 87x155x95	1 pc			
"	-010 Damper Control Motor LK 230 100x100x150	1 pc			

- to be continued -

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( 2 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
ITEM NO.			(Kgs)	(Kgs)	(M <sup>3</sup> )
B-001	SM-011 Flame Eye P930-05 55x44	1 pc			
"	-012 Mechanical Sheel KMB15060 445x25	1 pc			
"	-013 Oil Pump E6MA-100-4 100x122x170	1 pc			
"	-014 Pressure Switch FNS-C110N 1/4F PT 49x80x103	1 pc			
"	-015 Steam Pressure Gauge 3/8B DU 100 0 - 20K	1 pc			
"	-016 Oil Solenoid Valve 122K 63 75x51x80	1 pc			
"	-017 Fuse UC1 5A 15x50L	10 pcs			
"	-018 Level Gauge Glass Gasket 17x34x280	2 pcs			
"	-019 Nozzle 6.0G 60° PL 34x16	4 pcs			
"	-020 Nozzle 4.5G 60° PL 34x16	2 pcs			
"	-021 Ignition Rod ER-B010 120L	1 pc			
"	-022 Oil Thermometer 1/4 PT 1/4	1 pc			
"	-023 Oil Pressure Gauge 1/4B 60 0-30K	1 pc			
"	-024 Thermostat 17101 19x43x22	1 pc			
"	-025 Oil Heater Thermo TO-101B 37x45x63	1 pc			
"	-026 Float Lees Switch 61-F-GP-B 38x50x84	1 pc			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> B-001	SM-027 Electromagnetic Contactor Oil Heater S-K20 68x78x90	1 pc			
"	-029 Electrode E3 $\phi$ 6x323L	2 pcs			
"	-30 Auxiliary Relay AP3125 21x24x34	1 pc			
"	-031 Timer Relay AD-1175 22x28x55	1 pc			
"	-032 Timer Relay 200-M-20 (30)-4BFP1 33x85x35	1 pc			
"	-033 Electromagnetic Contactor (Feed Water Pump) MSO-A10RM 6.5A 70x54x100	1 pc			
"	-034 Electromagnetic Contactor (Burnermotor) MSO-K20SR 15A 90x71x120	1 pc			
"	-035 Electromagnetic Contactor (Oil Pump) MSO-A10RM 2.1A 70x54x100	1 pc			
"	-036 Power Switch ASN-320 36x40x76	1 pc			
"	-037 Control Switch ASN-201S 36x40x99	1 pc			
"	-038 Power Lamp AH30-ZMWM $\phi$ 40x54L	1 pc			
"	-039 Burner Alarm Lamp AH30-ZMRM $\phi$ 41x54L	1 pc			
"	-040 Burner Lamp AH30-ZMGM $\phi$ 41x54L	1 pc			
"	-041 Samson Controller SC-G200 138x185x69	1 pc			
"	-042 Electrode Holder BS-1 L=100	2 pcs.			

- to be continued -

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( 4 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
<u>ITEM NO.</u> B-001	SK-043 Electroce E1 $\phi$ 6x103L	2 pcs	(Kgs)	(Kgs)	(M <sup>3</sup> )
"	-044 Electrode E2 $\phi$ 6x173L	2 pcs			
"	-045 Adiabatic Material 650x400x10	1 pc			
"	-046 Tool Box 360x200x75	1 pc			
"	-047 Anchor Bolts and Nuts (Boiler Unit Base) M20x250L L-Type	6 sets			
"	-048 Anchor Bolts & Nuts (Oil Boost Pump Set) M10x125L L-Type	4 sets			
"	-049 Wire (for Oil Boost pump Set) $\phi$ 460x100	1 pc			
"	-050 Water Hardness Check Reagent 95x $\phi$ 23 / 57x $\phi$ 70	1 set			
"	-051 Hose Pump 290x $\phi$ 45	1 pc			
C/NO.M-4 (CASE)					
<u>ITEM NO.</u> B-001	SM-028 Samclean K100 350x260x310	24 pcs	480	610	1.280
C/NO.M-5 (CASE)					
<u>ITEM NO.</u> P-001	HM-01 Pump & Motor & Base 1007x790x380	1 set	460	620	2.228
"	-02 Spare Parts (for trial run) Gland Packing 47.5x $\phi$ 65	2 sets			
"	-03 Spare Parts (for a year) Gland Packing 47.5x $\phi$ 65	2 sets			

- to be continued -

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( 5 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
ITEM NO.			(Kgs)	(Kgs)	(M3)
P-001	HM-04 Spare Parts (for a year) Gasket (for Casing) ø218xø209x1t	2 pcs			
"	-05 Spare Parts (for fear) Gasket (for Sleeve) ø34xø24x0.8t	2 pcs			
P-002	HM-11 Pump & Motor & Base 951x790x405	1 set			
"	-12 Spare Parts (for trial run) Gland Packing 47.5xø65	2 sets			
"	-13 Spare Parts (for a year) Gland Packing 47.5xø65	2 sets			
"	-14 Spare Parts (for a year) Gasket (for Casing) ø273xø264x1.0t	2 pcs			
"	-15 Spare Parts (for a year) Gasket (for Sleeve) ø34xø24x0.8t	2 pcs			
P-003	HM-21 Pump & Motor & Base 1007x790x380	1 set			
"	-22 Spare Parts (for trial run) Gland Packing 47.5xø65	2 sets			
"	-23 Spare Parts (for a year) Gland Packing 47.5xø65	2 sets			
"	-24 Spare Parts (for a year) Gasket (for Casing) ø218xø209x1.0t	2 pcs			
"	-25 Spare Parts (for a year) Gasket (for Sleeve) ø34xø24x0.8t	2 pcs			

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( 6 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
C/NO.M-6 (CASE) <u>ITEM NO.</u> P-010	SK-002 Compressor Unit 3000x1900x900	1 pc	900 (Kgs)	1,350 (Kgs)	8.272 (M <sup>3</sup> )
C/NO.M-7 (SKID) <u>ITEM NO.</u> V-002	SK-014 Deaerator 6340L	1 pc	1,700	1,790	6.873 (6.359)
C/NO.M-8 (SKID) <u>ITEM NO.</u> V-001	SK-015 Decarbonator 3900L	1 pc	600	660	2.719 (2.480)
C/NO.M-9 (SKID) <u>ITEM NO.</u> T-007	SK-017 Oil Tank 3490x $\phi$ 2340	1 pc	2,400	2,560	24.121 (23.373)
C/NO.M-10 (SKID) <u>ITEM NO.</u> T-008	SK-018 Water Tank 2506x $\phi$ 1640	1 pc	1,100	1,180	9.580 (9.307)
C/NO.M-11 (CASE)	SK-034 Gasket for Water Tank Asbestos	3 pcs	1,200	1,320	1.728
	-035 Gasket for Water Tank (Level Gauge) $\phi$ 100x $\phi$ 28x1.5 Asbestos	2 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
<u>ITEM NO.</u> M20-100	Bolt & Nuts for: SK-036 Vapor Inlet of Deaerator M20x100 SS41+Galvanize	8 sets			
-145	-037 Vent Line Valve (BW-412, BW-413) M20x145 SS41+Galvanize	16 sets			
-90	-038 Vent Line of Deaerator M20x90 SS41+Galvanize	8 sets			
-95	-039 Vent Line of Deaerator Inlet of E-001 M20x95 SS41+Galvanize	8 sets			
M16-65	SK-053 Service Water Line M16x65 SS41+Galvanize	8 sets			
M16-80	-054 Water Tank (T-006) Over Flow Line M16x80 SS41+Galvanize	4 sets			
M16-70	-055 Flash Tank Level Controller M16x70 SS41+Galvanize	16 sets			
M16-75	-056 Decarbonator Level Controller M16x75 SS41+Galvanize	16 sets			
M16-75	-057 Deaerator Level Controller M16x75 SS41+Galvanize	16 sets			
M16 .0	-058 Brine Heater Level Controller M16x70 SS41+Galvanize	8 sets			
M16-70	-059 Evaporator Level Controller M16x70 SS41+Galvanize	8 sets			
M20-145	-060 Spare M20x145 SS41+Galvanize	8 sets			
M16-80	-061 Spare M16x80 SNB7, S45C Galvanize	4 sets			
M16-70	-062 Spare M16x70 SS41+Galvanize	8 sets			
M12-60	-063 Spare M12x60 SS41+Galvanize	8 sets			

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( 8 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
ITEM NO.			(Kgs)	(Kgs)	(M <sup>3</sup> )
M16-75	SK-064 Spare M16x75 SS41+Galvanize	4 sets			
M16-140	-065 Spare M16x140 SS41+Galvanize	4 sets			
M12-120	-066 Spare M12x120 SS41-Galvanize	4 sets			
M16-65	-067 Make Up Line 80A Decarbonator Inlet M16x65 SS41+Galvanize	24 sets			
M16-130	SK-040 Sea Water Line BV-101 M16x130 SS41+Galvanize	8 sets			
M16-80	-041 MP-Steam Line M16x80 SNB7, S45C Galvanize	12 sets			
M12-65	-042 20A MP-Drain Trap Line M12x65 SNB7, S45C Galvanize	24 sets			
M16-65	-043 Oil Booster Pump Outlet Line M16x65 SS41+Galvanize	12 sets			
M16-70	-044 Oil Booster Pump Inlet Line M16x70 SS41+Galvanize	12 sets			
M12-60	-045 Distillate Line T-006 Inlet M12x60 SS41+Galvanize	12 sets			
M16-70	-046 Boiler Inlet T-006 Outlet M16x70 SS41+Galvanize	8 sets			
M12-60	-047 T-006 Outlet Drain M12x60 SS41+Galvanize	4 sets			
M16-70	-048 Blow Line of Boiler M16x70 SS41+Galvanize	4 sets			

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( 9 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
ITEM NO.			(Kgs)	(Kgs)	(M3)
M12-60	SK-049 Blow Line of Boiler M12x60 SS41+Galvanize	4 sets			
M16-65	-050 Blow Line of Boiler M16x65 SS41+Galvanize	4 sets			
M16-80	-051 Safety Valve M16x80 SNB7, S45C Galvanize	4 sets			
M12-55	-052 Instrument Air Line M12x55 SS41+Galvanize	4 sets			
M16-60	-068 Make Up Line 50A Decarbonator Inlet M16x60 SS41+Galvanize	32 sets			
M16-65	-069 Make Up Line 65A Decarbonator Inlet M16x65 SS41+Galvanize	4 sets			
M16-65	-070 Sea Water Line 100A-SW-002-CL2 M16x65 SS41+Galvanize	8 sets			
M16-65	-071 Over Flow Line of Decarbonator M16x65 SS41+Galvanize	8 sets			
M12-45	-072 Distillate Line XV-402 Discharge M12x45 SS41+Galvanize	4 sets			
M16-55	-073 Evaporator Drain Line 50A-PD-003-CG3 (2/2) M16x55 SS41+Galvanize	4 sets			
M12-45	-074 Pump Drain Line 20A-PD-001-CG3 (2/2) M12x45 SS41+Galvanize	4 sets			
M12-45	-075 Ball Cleaning Line Drain 25A-BR-006 & 007-CN1 M12x45 SS41+Galvanize	8 sets			

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( 10 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
ITEM NO.			(Kgs)	(Kgs)	(M <sup>3</sup> )
M16-50	SK-076 Acid Cleaning Line Drain 40A-AC-003-CL3 M16x50 SS41+Galvanize	4 sets			
M12-45	-077 Drain Trap Drain 25A-MP-003-CG4 M12x45 SS41+Galvanize	8 sets			
M16-50	-078 Make Up Pump Outlet Line Drain 50A-SW-008-CN1 M16x50 SS41+Galvanize	4 sets			
M12-45	-079 Distillate Flash Tank Inlet Drain 25A-PW-003-CS2 M12x45 SS41+Galvanize	4 sets			
M12-45	SK-080 Distillate Pump Suction Drain 25A-PW-001-CS2 M12x45 SS41+Galvanize	4 sets			
M16-50	-081 Make Up Line Drain 65A-SW-006-CN1 M16x50 SS41+Galvanize	4 sets			
M16-50	-082 T-002 Drian M16x50 SS41+Galvanize	4 sets			
M12-55	-083 T-001, 005, 003 Drain M12x45 SS41+Galvanize	12 sets			
M16-50	-084 Acid Cleaning Line Drain 40A-AC-003-CL3 M16x50 SS41+Galvanize	4 sets			
M16-50	-085 T-004 Drain Line M16x50 SS41+Galvanize	4 sets			
M16-55	-096 T-004 Drain Line M16x55 SS41+Galvanize	4 sets			
M12-45	-087 Ball Cleaning Collector Vent Line M12x45 SS41+Galvanize	4 sets			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
ITEM NO.			(Kgs)	(Kgs)	(M <sup>3</sup> )
M16-50	SK-088 Sea Water Line Drain M16x50 SS41+Galvanize	4 sets			
M16-65	-089 Make Up Line 65A Deaerator Inlet M16x65 SS41+Galvanize	20 sets			
M16-60	-090 Make Up Line 50A Deaerator Inlet M16x60 SS41+Galvanize	8 sets			
M16-50	-091 Make Up Line 25A Deaerator Inlet M16x50 SS41+Galvanize	8 sets			
M16-65	-092 Make Up Line 65A Deaerator Outlet M16x65 SS41+Galvanize	4 sets			
M16-60	-093 Blow Down Line P-001 Outlet M16x60 SS41+Galvanize	4 sets			
M16-60	-094 Ejector Condenser Outlet Sea Water M16x60 SS41+Galvanize	4 sets			
M8-35	-095 Decarbonator, Blower M8x35 SS41+Galvanize	10 sets			
M16-65	-096 Spare M16x65 SS41+Galvanize	8 sets			
M12-45	-097 Spare M12x45 SS41+Galvanize	8 sets			
M16-55	-098 Spare M16x55 SS41+Galvanize	8 sets			
M16-50	-099 Piping Support (PS-228) M16x50 SS41+Galvanize	8 sets			

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( 12 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
ITEM NO. B3/4-U-Bolt	U-Bolt & Nuts for: SK-100 Piping $\phi$ 10x75x40 SS41+Galvanize	6 sets			
B2-U-Bolt	-101 Piping $\phi$ 10x107.5x75 SS41+Galvanize	4 sets			
B1-1/4- U-Bolt	-102 Piping $\phi$ 10x90x55 SS41+Galvanize	2 sets			
B1-U-Bolt	-103 Piping $\phi$ 10x82.5x45 SS41+Galvanize	3 sets			
B1-1/2- U-Bolt	-104 Piping $\phi$ 10x95x60 SS41+Galvanize	2 sets			
B1/2-U-Bolt	-105 Piping $\phi$ 10x67.5x35 SS41+Galvanize	18 sets			
M20-400 -Anc	-106 Skid of Desalination M20x400 SS41	14 sets			
M20-315 -Anc	-107 Oil Tank M20x315 SS41	4 sets			
M20-315 -Anc	-108 Water Tank M20x315 SS41	4 sets			
M16-315 -Anc	-109 Piping M16x315 SS41	8 sets			
M12-200 -Anc	-110 Piping M12x200 SS41	40 sets			
	<u>Gasket for:</u>				
	MS-001 Over Flow of Decarbonator $\phi$ 185x $\phi$ 90x1.5 EPT	2 pcs			
	-002 Distillate Line XV-402 Pump $\phi$ 100x $\phi$ 28x1.5 EPT	1 pc			
	-003 Evaporator Drain Line $\phi$ 155x $\phi$ 61x1.5 V#1500	1 pc			

- to be continued -

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( 13 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
	Gasket for:		(Kgs)	(Kgs)	(M <sup>3</sup> )
MS-004	Pump Drain Line 20A-PD-001-CG3 φ100xφ28x1.5 V#1500	1 pc			
-005	Ball Cleaning Line Drain 25A-BR-006 & 7-CN1 φ95xφ22x1.5 V#1500	2 pcs			
-006	Acid Cleaning Line Drain 40A-AC-003-CL3 φ125xφ34x1.5 EPT	1 pc			
-007	Drain Trap Drain 25A-MP-003-CG4 φ100xφ28x1.5 V#1500	2 pcs			
-008	Make Up Pump Outlet Line Drain 50A-PW-003-CS2 φ125xφ34x1.5 EPT	1 pc			
-009	Distillate Flash Tank Inlet Drian 25A-PW-003-CS2 φ95xφ22x1.5 EPT	1 pc			
-010	Distillate Pump Suction Drain 25A-PW-001-CS2 φ100xφ28x1.5 EPT	1 pc			
-011	Make Up Line Drian 65A-SW-006-CN1 φ125xφ34x1.5 EPT	1 pc			
-012	T-002 Drain φ125xφ34x1.5 EPT	1 pc			
-013	T-001, 005, 003 Drain φ100xφ28x1.5 EPT	3 pcs			
-014	Acid Cleaning Line Drain 40A-AC-003-CL3 φ125xφ34x1.5 EPT	1 pc			

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( 14 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M3)
			net (Kgs)	gross (Kgs)	
	Gasket for:				
MS-015	T-004 Drain φ155xφ61x1.5 EPT	1 pc			
-016	T-004 Drain φ125xφ34x1.5 EPT	1 pc			
-017	Ball Cleaning Collector Vent φ95xφ22x1.5 V#1500AC	1 pc			
-018	Sea Water Line Drain 100A-SW-001-CL2 φ125xφ34x1.5 EPT	1 pc			
-019	Vent Line of Flash Tank φ250xφ141x1.5 V#1500AC	7 pcs			
-020	Vent Line of Deaerator φ250xφ141x1.5 V#1500AC	4 pcs			
-021	Sea Water Line BV-101 φ210xφ115x1.5 EPT	2 pcs			
-022	Make Up Line 80A Decarbonator Inlet φ185xφ90x1.5 EPT	3 pcs			
-023	Make Up Line 50A Decarbonator Inlet φ155xφ61x1.5 EPT	8 pcs			
-024	Make Up Line 65A Decarbonator Inlet φ175xφ77x1.5 EPT	1 pc			
-025	Sea Water Line 100A 100A-SW-002-CL2 φ210xφ115x1.5 EPT	1 pc			
-026	Make Up Line Deaerator Inlet φ175xφ77x1.5 EPT	5 pcs			
-027	Make Up Line Deaerator Inlet φ155xφ61x1.5 EPT	2 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
	<u>Gasket for:</u>		(Kgs)	(Kgs)	(M <sup>3</sup> )
MS-028	Make Up Line Deaerator Inlet φ125xφ34x1.5 EPT	2 pcs			
-029	Make Up Line Deaerator Outlet φ175xφ77x1.5 EPT	1 pc			
-030	Blow Down Line P-001 Outlet φ155xφ61x1.5 EPT	1 pc			
-031	Ejector Condenser Outlet Sea Water φ140xφ49x1.5 EPT	1 pc			
-032	Oil Booster Pump Outlet Line φ125xφ34x1.5 V#1500	3 pcs			
-033	Oil Booster Pump Inlet Line φ155xφ61x1.5 V#1500	2 pcs			
-034	Oil Booster Pump Inlet Line φ140xφ49x1.5 V#1500	1 pc			
-035	Distillate Line T-006 Inlet φ100xφ28x1.5 EPT	3 pcs			
-036	T-006 Outlet Boiler Inlet φ155xφ61x1.5 EPT	1 pc			
-037	T-006 Outlet Boiler Inlet φ140xφ49x1.5 EPT	1 pc			
-038	T-006 Outlet Boiler Inlet φ100xφ28x1.5 EPT	1 pc			
-039	Blow Line of Boiler φ135xφ43x1.5 V#1500	1 pc			

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( 16 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	<u>Gasket for:</u>				
MS-040	Blow Line of Boiler φ125xφ34x1.5 V#1500	1 pc			
-041	Blow Line of Boiler φ100xφ28x1.5 V#1500	1 pc			
-042	Safety Valve φ140xφ49x1.5 V#1500	1 pc			
-043	Instrument Air Line φ95xφ22x1.5 V#1500	1 pc			
-044	Service Water Line φ125xφ34x1.5 V#1500	2 pcs			
-045	Water Tank Over Flow Line φ155xφ61x1.5 V#1500	2 pcs			
-046	Decarbonator Level Controller φ140xφ49x1.5 EPT	4 pcs			
-047	Flash Tank Level Controller φ140xφ49x1.5 EPT	2 pcs			
-048	Decarbonator Blower φ290xφ216x1.5 V#1500AC	2 pcs			
-049	Decarbonator Level Controller φ140xφ49x1.5 EPT	2 pcs			
-050	Brine Heater Level Controller φ140xφ49x1.5 V#1500	2 pcs			
-051	Evaporator Level Controller φ140xφ49x1.5 EPT	2 pcs			
-060	Spare φ185xφ90x1.5 EPT	1 pc			
-061	Spare φ100xφ28x1.5 EPT	3 pcs			
-062	Spare φ95xφ22x1.5 EPT	3 pcs			
-063	Spare φ135xφ43x1.5 EPT	3 pcs			
-064	Spare φ140xφ49x1.5 EPT	3 pcs			
-065	Spare φ155xφ61x1.5 EPT				

- to be continued -



C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	<u>Gasket for:</u>				
MS-066	Spare $\phi 175 \times \phi 77 \times 1.5$ EPT	3 pcs			
-067	Spare $\phi 210 \times \phi 115 \times 1.5$ EPT	3 pcs			
-068	Spare $\phi 125 \times \phi 35 \times 1.5$ EPT	3 pcs			
-069	Spare $\phi 95 \times \phi 22 \times 1.5$ V#1500	2 pcs			
-070	Spare $\phi 100 \times \phi 28 \times 1.5$ V#1500	2 pcs			
-071	Spare $\phi 125 \times \phi 35 \times 1.5$ V#1500	2 pcs			
-072	Spare $\phi 140 \times \phi 49 \times 1.5$ V#1500	2 pcs			
-073	Spare $\phi 155 \times \phi 61 \times 1.5$ V#1500	2 pcs			
-074	Spare $\phi 135 \times \phi 43 \times 1.5$ V#1500	2 pcs			
-075	Spare $\phi 125 \times \phi 34 \times 1.5$ V#1500AC	2 pcs			
-076	Spare $\phi 140 \times \phi 49 \times 1.5$ V#1500AC	2 pcs			
-077	Spare $\phi 250 \times \phi 140 \times 1.5$ V#1500AC	2 pcs			
-078	Spare $\phi 155 \times \phi 61 \times 1.5$ V#1500AC	2 pcs			
-052	MP-Steam Line 50A $\phi 104$	1 pc			
-053	" 40A $\phi 89$	1 pc			
-054	" 20A $\phi 62$	6 pcs			
-055	" 32A $\phi 84$	1 pc			
-056	Spare 50A $\phi 104$	1 pc			
-057	Spare 40A $\phi 89$	1 pc			
-058	Spare 32A $\phi 84$	1 pc			
-059	Spare 20A $\phi 62$	2 pcs			
-079	Spare 25A $\phi 74$	2 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	<u>Gasket for:</u>				
MS-080	Spare 25A $\phi$ 74	3 pcs			
-081	Spare 20A $\phi$ 63	3 pcs			
	<u>Gasket for: (Spare)</u>				
DI-004	Vent Line $\phi$ 250x $\phi$ 141x1.5 V#1500 AC	8 pcs			
-005	Make-Up Line $\phi$ 155x $\phi$ 61x1.5 EPT	10 pcs			
-006	Make-Up Line $\phi$ 175x $\phi$ 77x1.5 EPT	5 pcs			
-007	Make-Up Line $\phi$ 185x $\phi$ 90x1.5 EPT	2 pcs			
-008	Piping $\phi$ 210x $\phi$ 116xk.5 EPT	2 pcs			
-009	Piping $\phi$ 100x $\phi$ 28x1.5 EPT & Asbestos	5 pcs			
-010	Piping $\phi$ 125x $\phi$ 34x1.5 Asbestos	5 pcs 2 pcs			
-011	Piping $\phi$ 140x $\phi$ 49x1.5 EPT Asbestos	3 pcs 1 pc			
-012	Piping $\phi$ 95x $\phi$ 22x1.5 EPT Asbestos	2 pcs 1 pc			
-013	Piping $\phi$ 135x $\phi$ 43x1.5 Asbestos	1 pc			
-014	Piping $\phi$ 155x $\phi$ 61x1.5 Asbestos	2 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	<u>Bolt &amp; Nut for:</u> (Spare)				
M16-65	SK-111 Evaporator (Sight Glass) M16x65 SS41	10 sets			
M20-60	-112 " (Man Hole) M20x60 SS41+Galvanize	6 sets			
M16-60	-113 " (St'g No.1-4 Water Box) M16x60 SS316	6 sets			
M20-65	-114 " (St'g No.5,6 Water Box) M20x65 SUS316	4 sets			
M20-125	-115 " (St'g No.1-4 Water Box) M20x125 SS41+Galvanize	6 sets			
M22-125	-116 " (St'g No.5, 6 Water Box) M22x125 SS41+Galvanize	4 sets			
M20-125	-117 " (St'g No.1-4 Water Box) M20x125 SS41+Galvanize	2 sets			
M22-125	-118 " (St'g No.5, 6 M22x125 SS41+Galvanize	2 sets			
	<u>Bolt for:</u> (Spare)				
M12-26-Cu	SK-119 Evaporator (Brine Baffle) M12x26 90/10 Cu-Ni	5 pcs			
M12-18-Cu	-120 " (Demister) M12x18 90/10 Cu-Ni	3 pcs			
M10-27-Cu	-121 " (Air Vent) M10x27 90/10 Cu-Ni	2 pcs			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
	<u>Bolt &amp; Nut for:</u> (Spare)		(Kgs)	(Kgs)	(M <sup>3</sup> )
M12-35	SK-122 Evaporator (St'g No.1-5 Brine Orifice) M12x35	2 sets			
M16-40	-123 Evaporator (St'g No.6 Brine Orifice) M16x40	2 sets			
	<u>Gasket for:</u> (Spare)				
	SK-124 Evaporator (St'g No.1-4 Water Box) ø526xø408x3	4 pcs			
	-125 Evaporator (St'g No.1-4 Water Box) ø365xø262x3	4 pcs			
	-126 Evaporator (St'g No.5, 6 Water Box) ø686xø558x3	2 pcs			
	-127 Evaporator (St'g No.5, 6 Water Box) ø526xø416x3	2 pcs			
	<u>Gasket for:</u>				
	SK-128 Evaporator (Sight Glass) ø145xø114x3 EPT	6 pcs			
	-129 Evaporator (St'g No.1-4 Water Box) ø526xø408x3	4 pcs			
	-130 Evaporator (St'g No.5, 6 Water Box) ø686xø558x3	2 pcs			
	-131 Gasket for Evaporator (Man Hole) ø525xø405x3	6 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
	<u>Bolt &amp; Nut for:</u> (Spare)		(Kgs)	(Kgs)	(M <sup>3</sup> )
M16-70	SK-132 Brine Heater (Water Box) M16x70 SS41+Galvanize	2 sets			
M16-105	-133 Brine Heater (Water Box) M16x105 SS41+Galvanize	2 sets			
M8-40-SUS	-134 Brine Heater (Protecting Plate) M8x40 SUS316	5 sets			
M10-25-SUS	-135 Brine Heater (Protecting Plate) M10x25 SUS316	2 sets			
M10-45-SUS	-136 Brine Heater (Protecting Plate) M10x45 SUS316	2 sets			
M16-95	-137 Ejector Condenser (Water Box) M16x95 SUS304	2 sets			
M16-105	-138 Brine Heater (Water Box) M16x105 SS41+Galvanize	2 sets			
	-139 Plain Washer for Brine Heater (Protecting Plate) (Spare) φ21xφ11x2 SUS304	3 pcs			
	-140 Spring Washer for Brine Heater (Protecting Plate) (Spare) φ18.4xφ14.2x2.5 SUS304	3 pcs			
	-141 Spring Washer for Brine Heater (Protecting Plate) φ15.4xφ8.2x2 SUS304	5 pcs			
	-142 Plain Washer for Brine Heater (Protecting Plate) φ17xφ9x1.6 SUS304	5 pcs			
	<u>Gasket for:</u> (Spare)				
	SK-143 Brine Heater (Water Box) φ420xφ300x10	1 pc			
	-144 Brine Heater (Water Box) φ420xφ300x17	1 pc			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	Gasket for: (Spare)				
	SK-145 Brine Heater (Water Box) φ420xφ300x17	1 pc			
	SK-146 Gasket for Ejector Condenser (Water Box) φ310xφ216x3	1 pc			
	SK-147 Gasket for Ejector Condenser φ310xφ216x22	1 pc			
	Bolt & Nut for: (Spare)				
M16-65-SUS	SK-148 Decarbonator (Nozzle) M16x65 SUS316	2 sets			
M16-65-SUS	-149 Deaerator (Nozzle) M16x65 SUS316	2 sets			
M20-70	-150 Deaerator (Man Hole) M20x70 SS41+Galvanize	2 sets			
M22-80	-151 Deaerator, Decarbonator (250A Flange) M22x80 SS41+Galvanize	6 sets			
	Gasket for: (Spare)				
	SK-152 Flash Tank (Shell Flange) φ570xφ450x3 Neoprene	1 pc			
	-153 Decarbonator (Shell Flange) φ605xφ457x3	1 pc			
	-154 Decarbonator (250A Flange) φ400xφ268x3	1 pc			
	-155 Decarbonator (300A Flange) φ445xφ318x3	1 pc			
	-156 Deaerator (Shell Flange) φ770xφ600x3	1 pc			
	-157 Deaerator (250A Flange) φ400xφ267x3	1 pc			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measurement (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	<u>Gasket for:</u> (Spare)				
	SK-158 Decarbonator (Nozzle) ø155xø61x1.5	1 pc			
	-159 Deaerator (Nozzle) ø155xø61x1.5	1 pc			
	-160 Deaerator (125A Flange) ø250xø140x1.5	1 pc			
	-161 Deaerator (Man Hole) ø570xø457x3	1 pc			
	<u>Bolt &amp; Nut for:</u> (Spare)				
M20-85	SK-162 Ball Cleaning Collector M20x85 SS41+Galvanize	2 sets			
M20-95	-163 Ball Cleaning Collector M20x85 SS41+Galvanize	2 sets			
M16-70	-164 Ball Cleaning Stringer M16x70 SS41	2 sets			
	<u>Gasket for:</u> (Spare)				
150A	SK-165 Ball Cleaning Collector ø280xø165x3	1 pc			
150A	-166 Ball Cleaning Collector ø280xø165x3 EPT	2 pcs			
100A	-167 Ball Cleaning Strainer ø210xø114x1	1 pc			
100A	-168 Ball Cleaning Strainer ø210xø61x1	1 pc			

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C/Nos.	Description of Goods	Quantity	Weight		Measurement
			net	gross	
	<u>Orifice for:</u>		(Kgs)	(Kgs)	(M <sup>3</sup> )
OR-001	SK-301 Vent Line (to last st'g from Deaerator) ø185x6t	1 pc			
"	-302 Decarbonator Over Flow Line ø130xø40x6t	1 pc			
"	-303 Vent Line (to last st'g from Deaerator) ø185x6t	1 pc			
	<u>Bolt &amp; Nut for:</u>				
	Construction on theSkid				
M20-190	SK-008 Deaerator M20x190 SS41	4 sets			
M16-60	-009 Decarbonator M20x60 SS41	8 sets			
M20-90	-010 Lifting Device M20x90 SS41	40 sets			
M16-35	-011 Ladder M16x35 SS41	8 sets			
M16-35	-012 Platform ofDeaerator M16x35 SS41	20 sets			
M16-40	-013 Stair Way M16x40 SS41	4 sets			
	<u>Bolt &amp; Nut for:</u>				
M16-55	SK-027 Oil Tank for Air Vent Oil Inlet Drain Heater M16x55 SS41	28 sets			
M16-55	-028 Water Tank for Air Vent Over Flow & Drain M16x55 SS41	16 sets			
M12-45	-029 Water Tank for Level Gauge M12x45 SS41	8 sets			

- to be continued -



C/Nos.	Description of Goods	Quantity	Weight		Measure- ment  (M <sup>3</sup> )
			net  (Kgs)	gross  (Kgs)	
B1-1/2- U-Bolt	<u>Bolt &amp; Nut for:</u>				
	SK-030 Oil Tank for 40A 95x60xφ10 SS41	2 sets			
	-031 Oil Tank for 50A 107.5x75xφ10 SS41	2 sets			
	<u>Gasket for: (Spare)</u>				
	SK-032 Oil Tank (for Man Hole) φ605xφ450x3 Asbestos	1 pc ø			
	-033 Oil Tank (for Man Hole) φ540xφ400x3 Asbestos	1 pc			
T-006	SK-024 Flange for Water Tank φ155xφ120x16 JIS 10K 50A	1 pc			
	-025 Gasket for Oil Tank for Air Vent Oil Inlet Drain φ155xφ61x1.5 Asbestos 50A	5 pcs			
	-026 Gasket for Oil Tank for Heater Conn. φ200xφ114x1.5 100A Asbestos	1 pc			
T-007	SK-169 Guide Pipe for Oil Tank 300x40A SGP+Galvanize	2 pcs			
"	-171 Union for Oil Tank SS41+Galvanize 40A	1 pc			
"	-20 Piping for Oil Tank 200x100x155φ	1 pc			
SP-001	SK-016 Spray Nozzle for Deaerator & Decarbonator 210x205 for 8T/H FRP	2 pcs			
M20-65	DI-001 Bolt & Nut for Vent Line (including spare) M20x65 (125A)	25 sets			

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C/Nos.	Description of Goods	Quantity	Weight		Measurement
			net	gross	
	<u>Gasket for:</u> (Spare)		(Kgs)	(Kgs)	(M3)
M20-70	DI-002 Bolt & Nut for Vent Line (including spare) M20x70 (125A)	10 sets			
M20-140	-003 Bolt & Nuts for Spare M20x140	15 sets			
C/NO.M-12 (CASE)					
<u>ITEM NO.</u> SK-201	E-1301 MSF Control Panel 2000x1400x1200	1 pc	1,800	2,250	7.089 (6.855)
-202	E-1302 MSF Motor Control Center 2000x700x400	1 pc			
-203	E-1305 Fuse Element Cellolite Type NC-1 1A	6 pcs			
-204	E-1306 Fuse Element Cellolite Type NC-1 5A	1 pc			
-205	E-1307 Fuse Case Cellolite Type NC-1 AC500V 30A	1 pc			
-206	E-1308 Lamp E-12 18V 2W	20 pcs			
-207	E-1309 Indicating Lamp AL48-1122 AC110V	2 pcs			
-208	E-1310 Push Button Switch ABN-120-Y Yellow "1a"	1 pc			
-209	E-1311 Push Button Switch ABN-101-B	1 pc			
	ABN-101-G	1 pc			
	ABN-110-R	1 pc			
-210	E-1312 Snap Switch WD1211 15A 250V	2 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
SK-211	E-1313 Select Switch ASN15S	1 pc			
-212	E-1314 Aux. Relay MK3P Coil AC110V Coil DC24V	9 pcs 1 pc			
-213	E-1315 Fuse Holder F4000 250V 10A	3 pcs			
-214	E-1316 Fuse F-716i AC125V 1A	10 pcs			
-215	E-1317 Fuse Element Cellolite Type NC-1 10A	1 pc			
-216	E-1318 Indicating Lamp SL48-2122 AC110V Green, Red	2 pcs			
-217	E-1319 Cable CVV2 <sup>□</sup> 30 (8m)	1 pc			
-218	E-1320 Cable CVV8 <sup>□</sup> 2 (8m)	1 pc			
-300	E-1303 Anchor Bolt M12x150	10 pcs			
-301	E-1304 Accessory for Recorder	8 pcs			
C/NO.M-13 (CASE)					
ITEM NO. SK-001	E-1001 Cable CV 600V 38 <sup>□</sup>	40 M	960	1,180	3.038
-002	-1002 Cable CV 600V 14 <sup>□</sup>	60 M			
-003	-1003 " " " 5.5 <sup>□</sup>	60 M			
-004	-1004 " " " 3.5 <sup>□</sup>	200 M			
-005	-1005 " " " 2 <sup>□</sup>	70 M			
-006	-1006 Cable CVV 600V 2 <sup>□</sup>	150 M			
-007	-1007 Cable CVV-S 600V 2 <sup>□</sup>	200 M			
-008	-1008 Cable " " 2 <sup>□</sup>	700 M			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
<u>ITEM NO.</u> SK-009	E-1009 Cable CVV-S 60V 2	120 M			
-010	-1010 Cable IV 3.5	100 M			
-011	-1011 Terminal Lug 38-10	10 pcs			
-012	-1012 Terminal Lug 14-8	10 pcs			
-013	-1013 Terminal Lug 5.5-6	20 pcs			
-014	-1014 " " 5.5-5	100 pcs			
-015	-1015 " " 2-4	220 pcs			
-016	-1016 Cable Tag	400 pcs			
-022	-1022 Normal Bend 54A	12 pcs			
-023	-1023 Normal Bend 42A	3 pcs			
-024	-1024 " " 36A	3 pcs			
-025	-1025 Coupling 54A	10 pcs			
-026	-1026 " 42A	5 pcs			
-027	-1027 " 36A	5 pcs			
-028	-1028 " 28A	30 pcs			
-029	-1029 " 22A	22 pcs			
-030	-1030 Bushing 54A	15 pcs			
-031	-1031 " 42A	10 pcs			
-032	-1032 " 36A	10 pcs			
-033	-1033 " 28A	35 pcs			
-034	-1034 " 22A	20 pcs			
-035	-1035 Lock Nut 54A	25 pcs			
-036	-1036 " 42A	20 pcs			
-037	-1037 " 36A	20 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
SK-038	E-1038 Lock Nut 28A	40 pcs			
-039	-1039 " 22A	40 pcs			
-040	-1040 Flexible Tube 36Ax1000L	1 pc			
-041	-1041 " 28Ax700L	5 pcs			
-042	-1042 " 22Ax500L	10 pcs			
-043	-1043 " 16Ax500L	37 pcs			
-044	-1044 Pull Box 400x300x100 Hot Dep Galvanize	1 pc			
-045	-1045 Pull Box 300x300x100 Hot Dip Galvanize	2 pcs			
-046	-1046 Vinyl Tape	40 pcs			
-047	-1047 U-Type Bolt & Nuts 54A SUS304	40 sets			
-048	-1048 U-Type Bolt & Nuts 42A SUS304	12 sets			
-049	-1049 U-Type Bolt & Nuts 36A SUS304	12 sets			
-050	-1050 U-Type Bolt & Nuts 28A SUS304	30 sets			
-051	-1051 U-Type Bolt & Nuts 22A SUS304	100 sets			
-053	-1053 Welding Rod B10	20 kgs			
-054	-1054 Roval	3 kgs			
-055	-1055 Union Coupling 54A	12 pcs			
-056	-1056 " 42A	3 pcs			
-057	-1057 " 36A	3 pcs			

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( 30 )K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
SK-058	E-1058 Union Coupling 28A	6 pcs			
-059	-1059 " 22A	8 pcs			
-060	-1060 Tee Universal 54A	4 pcs			
-061	-1061 " 42A	2 pcs			
-062	-1062 " 36A	6 pcs			
-063	-1063 " 28A	10 pcs			
-064	-1064 Flow Universal 54A	8 pcs			
-065	-1065 " 42A	3 pcs			
-066	-1066 Elbow Universal 36A	6 pcs			
-067	-1067 " 28A	10 pcs			
-068	-1068 " 22A	16 pcs			
-069	-1069 Bolt & Nuts M8x15 SUS304	20 sets			
-070	-1070 " M8x20 SUS304	60 sets			
-071	-1071 Wire Marker A - Z 2 <sup>□</sup>	24 pcs			
-072	-1072 " 0 - 9 2 <sup>□</sup>	10 pcs			
-073	-1073 Vinyl Cap 30 <sup>□</sup>	12 pcs			
-074	-1074 " 14 <sup>□</sup>	12 pcs			
-075	-1075 " 5.5 <sup>□</sup>	20 pcs			
-076	-1076 " 3.5 <sup>□</sup>	64 pcs			
-077	-1077 " 2 <sup>□</sup>	440 pcs			
-078	-1078 Adapter 2x1-1/4	4 pcs			
-079	-1079 " 1-1/2x1	2 pcs			
-080	-1080 " 1-1/4x1	12 pcs			
-081	-1081 " 1-1/4x3/4	18 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
SK-082	E-1082 Adapter 1x3/4	16 pcs			
-085	-1085 Flange SUS316 JIS10K FF1"x1/2 (RF)	2 pcs			
-086	-1086 Flange SUS316 JIS10K 1/2 (RF)	6 pcs			
-087	-1087 Male Connector	46 pcs			
-088	-1088 Female Connector	10 pcs			
-089	-1089 Union Tee	5 pcs			
-090	-1090 U-Type Bolt & Nuts 3/8 SUS304	10 pcs			
-091	-1091 U-Type Bolt & Nuts 1/2 SUS304	50 sets			
-092	-1092 Socket 1/2PF SUS316	5 pcs			
-093	-1093 Valve JIS10K 1/2PF SUS316	12 pcs			
-096	-1096 Socket 1/2 FCMB-W	5 pcs			
-097	-1097 Elbow 1/2 FCMB-W	35 pcs			
-098	-1098 Tee 1/2 FCMB-W	16 pcs			
-099	-1099 Union 1/2 FCMB-W	6 pcs			
-100	-1100 Reducer 1/2x1/4 FCMB-W	14 pcs			
-101	-1101 Control Copper Tube 6/4x1 <sup>c</sup>	50 M			
-102	-1102 Half Union 6/4 x 1/4PT	22 pcs			
-103	-1103 Vinyl Cap ø6	25 pcs			
-104	-1104 Seal Tape 5M	10 pcs			
-105	-1105 Vinyl Bar 1M	10 pcs			

- to be continued -

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( 32 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
SK-106	E-1106 Plug 1/2 FCMB-W	6 pcs			
-107	-1107 Nipple 1/2 FCMB-W	40 pcs			
-108	-1108 Nipple 1/4 FCMB-W	15 pcs			
C/NO.M-14 (CRATE)					
ITEM NO. SM-017					
	E-1017 Conduit Pipe 54A	16 pcs	2,400	2,650	3.951
-018	-1018 " 42A	6 pcs			
-019	-1019 " 36A	6 pcs			
-020	-1020 " 28A	25 pcs			
-021	-1021 " 22A	38 pcs			
-052	-1052 Steel Angle 5x40x5500L Hot Dep Galvanize	20 pcs			
-094	-1094 Stanchion 2Bx1500L Galvanize	12 pcs			
-095	-1095 Pipe 1/2x5500L SGP-W	5 pcs			
C/NO.M-15 (CASE)					
	INS-1 MG Pipe Cover 15Ax25tx1000	8 pcs	460	1,100	11.979
	-2 " 20Ax25tx1000	27 pcs			
	-3 " 25Ax25tx1000	71 pcs			
	-4 " 32Ax25tx1000	4 pcs			
	-5 " 40Ax25tx1000	23 pcs			
	-6 " 50Ax25tx1000	47 pcs			
	-7 " 100Ax25tx1000	3 pcs			
	-8 " 150Ax50tx1000	2 pcs			
- to be continued -					



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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	INS-9 MG Pipe Cover 200Ax25tx1000	3 pcs			
	-10 " 300Ax50tx1000	3 pcs			
	-11 MG Wired Blanket #1 500x25tx5000	3 pcs			
	-12 MG Wired Blanket #1 500x50tx4000	24 pcs			
	-13 MG Felt #1 605x25tx910	63 Sh.			
	-14 " 605x50tx910	8 Sh.			
	-31 MG Lath Board #1 605x50tx910	46 Sh.			
C/NO.M-16 (SKID) <u>ITEM NO.</u> LI-001	SK-003 Lifting Device for Water Box	1 pc	450	490	16.928 (15.750)
C/NO.M-17 (SKID) <u>ITEM NO.</u> LI-002	SK-005 Stair Way 2125x760	1 pc	220	250	3.513 (3.235)
C/NO.M-18 (SMID) <u>ITEM NO.</u> LI-003	SK-006 Ladder 4100x750	1 pc	120	150	1.886 (1.679)
C/NO.M-19 (SKID) <u>ITEM NO.</u> LI-004	SK-007 Platform for Deaerator 1810x30	1 pc	150	200	7.013

- to be continued -

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( 34 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
C/NO.M-20 (CRATE)					
<u>ITEM NO.</u> ST-50A	SK-304 Prefab Piping of Steam Line 50A-MP-001-CG4 Carbon Steel 111x76	1 pc	2,300	2,630	6.231 (5.778)
"	-305 " " 5109x350	1 pc			
"	-306 " " 720x76	1 pc			
"	-307 " " 1704x116	1 pc			
ST-20A	-308 Prefab Piping of Steam Line Carbon Steel 161	1 pc			
"	-309 " " 141x38	1 pc			
"	-310 " " 211x82x38	1 pc			
"	-311 " " 132x161	1 pc			
"	-312 " " 100x38	1 pc			
"	-313 " " 393	1 pc			
"	-314 Prehab Piping of Steam Line 161x38	1 pc			
"	-315 " " 200x63.6	1 pc			
"	-316 " " 161x464	1 pc			

- to be continued -

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( 35 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> OIL-25A	SK-317 Prefab Piping of Oil Line 25A-FO-001-CG3 Carbon Steel 562x202x99	1 pc			
"	-318 " " " " " " " " " " 1762x38	1 pc			
"	-319 " " " " " " " " " " 850x38	1 pc			
"	-320 " " " " " " " " " " 1812x38 (with Blind Flange)	1 pc			
"	-321 " " " " " " " " " " 2862x712	1 pc			
"	-322 " " " " " " " " " " 1680x199x38	1 pc			
OIL-50A	-323 " " " " " " " " " " 789	1 pc			
"	-324 Prefab Piping of Oil Line Carbon Steel 150	1 pc			
PW-20A	SK-325 Prefab Piping of Product Water Line 20A-PW-002-CS2 SUS316 149x38	1 pc			
"	-326 " " " " " " " " " " 479x38	1 pc			
"	-327 " " " " " " " " " " 1584x150x38	1 pc			
"	-328 " " " " " " " " " " 3528	1 pc			
"	-329 " " " " " " " " " " 534x99	1 pc			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
ITEM NO. WT-50A	SK-330 Prefab Piping of Water Tank Outlet Line SUS316 403x149	1 pc			
"	-331 " " 1318x76	1 pc			
"	-332 " " 2013x76	1 pc			
"	-333 " " 430x255	1 pc			
"	-334 " " 222x99	1 pc			
BD-32A	SK-335 Prefab Piping of Boiler Drain Line STPG38 1214	1 pc			
"	-336 " " 308x47.6	1 pc			
BD-20A	-337 " " 1236	1 pc			
"	-338 " " 330x38	1 pc			
BD-25A	SK-339 Prefab Piping of Boiler Drain Line Carbon Steel 1326	1 pc			
"	-340 " " 395x38	1 pc			
SV-40A	SK-341 Safety Valve Outlet Piping Carbon Steel 1073	1 pc			
"	-341A " " 150	1 pc			
P-25A	SK-352 Pipe 25A 3m SGP+Galvanize	1 pc			
-15A	-353 Pipe 15A Total 40m SGP+Galvanize	8 pcs			

- to be continued -



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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
SK-382-2	Ball Cleaning Line Drain 25A-BR-006-CN1 STPG38 461x199 15A	1 pc			
-383-2	Acid Cleaning Line Drian 40A-AC-003-CL3 STPG38 722x467 25A	1 pc			
-384-2	Drain Trap Drain 25A-MP-003-CG4 (1/2) STPG38 500x280 20A	1 pc			
-385	Drain Trap Drain 25A-MP-003-CG4 (1/2) STPG38 330x290 20A	1 pc			
-386	Make-Up Pump Outlet Line Drain STPG38 522x467 25A	1 pc			
-387	Distillate Flash Tank Inlet Drain 25A-PW-003-CS2 STPG38 867x511 15A	1 pc			
-388	Distillate Pump Suction Drain 25A-PW-001-CS2 STPG38 564x99 20A	1 pc			
-389-1	T-002 Drain SUS316 655 25A	1 pc			
-389-2	Make-Up Line Drain 65A-SW-006-CN1 STPG38 438x99 25A	1 pc			
-389-3	T-001 Drain STPG38 687x212x150 20A	1 pc			
-390	T-005 Drain STPG38 987 20A	1 pc			
-391	T-003 Drain STPG38 987 20A	1 pc			
-393	T-004 Drian Line STPG38 2170x675 50A	1 pc			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
SK-394	Ball Cleaning Collector Vent Line STPG38 1611x200 15A	1 pc			
-395	Sea Water Line Drain 100A-SW-001-CL2 STPG38 570x457 25A	1 pc			
-396	Blow Down Line P-001 Outlet 50A-BR-002-CN1 90/10 Cu-Ni 749x530 50A	1 pc			
-397	Ejector Condenser Outlet Sea Water 90/10 Cu-Ni 1100x600 40A	1 pc			
-398	Make-Up Line 65A-SW-006-CN1 90/10 Cu-Ni 756x618 50A	1 pc			
-399	" 1353x281x375	1 pc			
-400	" 3737x163	1 pc			
-401	" 580x299x340	1 pc			
-402	Make-Up Line on the Skid 50A-SW-005-CL (1/2) STPG38+Rubber Lining 150 80A/50A	1 pc			
-403	" " 260x130 50A	1 pc			
-404	" " 140x140 50A	1 pc			
-405	" " 140x140 50A	1 pc			
-406	" " 260x130 50A	1 pc			
-407	" " 150 65A/50A	1 pc			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment  (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	SK-408-1 Sea Water Line on the Skid 100A-SW-002-CL2 (2/2) STPG38+Rubber Linigg 449	1 pc			
	-408-2 " " " " 557x300	1 pc			
	DI-318 Pipe 90/10 Cu-Ni 5m 15A 2.6m	2 pcs 1 pc			
	-319 Pipe 4.58m 20A	1 pc			
	-320 Pipe 5m 25A 2.27m	3 pcs 1 pc			
	-321 Pipe 1.13m 125A SUS316	1 pc			
	-322 Pipe 0.78m 65A 90/10 Cu-Ni	1 pc			
	-323 Pipe 3m 50A	1 pc			
	-323-1 Pipe 1.62m 40A	1 pc			
T-006	SK-023 Piping for Water Tank 2050x425/250	1 pc			
T-007	SK-172 Guide Pipe for Oil Tank 2000x40A SPG+Galv.	1 pc			
L-50x50x6	SK-429 Angle for Piping Support SS41 5000L	2 pcs			
L-150x75 x6.5/10	-430 Channel for Piping Support SS41 3000L	1 pc			
L-100x50 x5/7.5	-431 Channel for Piping Support SS41 3000L	1 pc			
L-75x75x6	-432 Angle for Piping Support SS41 3000L	1 pc			
	SK-435 Pipe SUS316 20A Sch40 5m	3 pcs			

- to be continued -



C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
T-007	DI-356 Pipe Stainless Steel 1m 25A	1 pc			
	SK-019 Piping for Oil Tank 1850x150/150	1 pc			
	SK-363-1 Evaporator Drain Line 50A-PD-003-CG3 (2/2) 480x76 50A	1 pc			
C/NO.M-21 (CASE)					
ITEM NO. SK-219	MSF-20 T/D DOT-201 Control Unit 320x120x240 DOT-301	2 pcs	230	610	5.336
-220	" Holder 100x100x145/ø89	2 pcs			
-221	" Sensor ø40x214x+10M	2 pcs			
-222	" Hood 350x175	2 pcs			
-223	" U-Volt & Nuts	8 sets			
-224	" Fixture 10cm	4 pcs			
-225	" Flow Meter 320xø95	2 pcs			
-226	" Fuse 30xø6	2 pcs			
-227	TI-103,104,105,106 TI-394,305,306,307 Thermo Meter 0-100°C L=150 SUS316	8 pcs			
-228	TI-503,504,505,506 Thermo Meter 0-100°C L=200 SUS316	4 pcs			
-229	TI-308,309 Thermo Meter 0-150°C L=150 SUS316	2 pcs			
-230	TI-501,502 Thermo Meter 0-150°C L=200 SUS316	2 pcs			

- to be continued -

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( 42 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> SK-231	TI-601 Thermo Meter 0-300°C L=200 SUS304	1 pc			
-232	TE-101,102,201 301,302,303 Resistance Bulb L=400/ SUS316	6 pcs			
-233	TE-602 Resistance Bulb L=350/ =150 SUS304	1 pc			
-234	PT-506 Pressure Transmitter 210x108/φ78 Type: FBC10WEZ-100Y	1 pc			
-235	PT-605 Pressure Transmitter 210x108/φ78 Type: FBC20WEZ-100Y	1 pc			
-236	PT-606 Pressure Transmitter 210x108/φ78 Type: FBC10WEZ-100Y	1 pc			
-237	PT-506,605,606 Oval Flange (with Packing Bolt) 62x26/φ10 Type: FFP3AW01-Y	3 pcs			
-238	FT-101,201,301,401,601 Diff. Pressure Transmitter 108/φ78 Type: FFC34WEZ-100Y	5 pcs			
-239	FT-101,201,301,401,601 Equalizing Valve (with Packing Bolt) 242x98 Type: FFN3AWOZ-Y	5 pcs			
-240	FT-101,201,301,401,601 Oval Flange (with Packing Bolt) 62x26/φ10 Type: FFP3AW01-Y	10 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment  (M <sup>3</sup> )
			net  (Kgs)	gross  (Kgs)	
ITEM NO. SK-241	PHT-201,301 PH Sensor PH8ERG-05-TN 170x386 Cable Length 5m	2 pcs			
-242	PHT-201,301 Flow-Through Type Holder PH8HF-PP-J10 250x150	2 pcs			
-243	PHT-201,301 PH Transmitter PH8FTG-M-01 200x200x150	2 pcs			
-244	PHT-201,301 Accessory PH8AX. P*A 200x200x200	2 pcs			
-245	CT-401 S/A Cell Salinometer Transmitter 8531-1001-R41 125x370x150	1 pc			
-247	FIS-102 Flow Meter with Switch 750xφ140	1 pc			
-248	FIS-801,802 Flow Meter with Switch 400xφ100	2 pcs			
-249	FI-803,804 Flow Meter 400xφ100	2 pcs			
-250	LIC-201,401,601 Level Controller 775L	3 pcs			
-251	LT-202,507 Level Transmitter 775L	2 pcs			

- to be continued -

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( 44 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
C/NO. M-22 (CASE)			(Kgs)	(Kgs)	(M <sup>3</sup> )
<u>ITEM NO.</u> PS-225	DI-324 Piping Support on the Skid 700x286x50	1 pc	770	940	2.187
PS-226	DI-325 " " 456x50x50	1 pc			
PS-227	DI-326 " " 505x50x50	1 pc			
PS-227	DI-326 " " 600x50x50	1 pc			
PS-228	DI-327 " " 335x63x65	1 pc			
PS-109	DI-328 " " 290x200x50	1 pc			
PS-106	DI-329 " " 285x100x50	1 pc			
PS-104	DI-330 " " 140x100x50	1 pc			
PS-113	DI-331 " " 203x150x50	1 pc			
	DI-334 U Bolt for Piping on the Skid 20A 10d	2 pcs			
	DI-355 " " 15A 10d	5 pcs			
	DI-336 " " 25A 10d	3 pcs			
	DI-337 " " 80A 12d	3 pcs			
	DI-339 " " 50A 10d	3 pcs			
	DI-340 " " 125A 16d	1 pc			

- to be continued -

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( 45 )K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M3)
			net (Kgs)	gross (Kgs)	
ITEM NO. PS-01&02	SK-410 Pipe Support SS41 250x50x50	2 pcs			
PS-19	SK-411 " SS41 150x150x50	1 pc			
PS-04/06	SK-412 " SS41 150x100x50	3 pcs			
PS-03	SK-413 " SS41 150x100x50	1 pc			
PS-07/11	SK-414 " 200x100x80	5 pcs			
PS-07/11	SK-414 " 50x50x20	10 pcs			
PS-12	SK-416 " 200x100x80	1 pc			
PS-12	SK-416 " 50x50x20	2 pcs			
PS-12	SK-417 " 200x178x55	1 pc			
PS-13	SK-418 " 2150x200x200	1 pc			
PS-13	SK-418 " 200x100x80	1 pc			
PS-13	SK-418 " 50x50x20	2 pcs			
PS-14	SK-419 " 200x100x80	1 pc			
PS-14	SK-419 " 275x350x50	1 pc			
PS-14	SK-419 " 50x50x20	2 pcs			
PS-15	SK-420 " 200x100x80	1 pc			

- to be continued -

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( 46 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> PS-15	SK-420 Pipe Support 50x50x20	2 pcs			
PS-15	SK-421 " SS41 450x75x75	1 pc			
PS-16	SK-422 " " 200x100x80	2 pcs			
PS-16	SK-422 " " 50x50x20	4 pcs			
PS-16	SK-423 " " 600x75x75	1 pc			
PS-17	SK-424 " SS41 187x150x55	1 pc			
PS-18	SK-425 " SS41 420x278x55	1 pc			
PS-20	SK-426 " SS41 400x300x200	1 pc			
PS-21	SK-427 " SS41 400x300x100	1 pc			
PS-22/37	SK-428 " SS41 75x50x50	16 pcs			
LI-002	SK-004 Lifting Device for Water Box 1950L	4 pcs			
PS-07/11	SK-415 Pipe Support 200x100x50	5 pcs			
C/NO.M-23 (CASE)					
<u>ITEM NO.</u> 10K-25A	SK-342 Flange JIS 10K 25A FF SCD'D SS41+Galv.	2 pcs	350	450	1.210
10K-15A	-343 " JIS10K 15A FF SCD'D SS41+Galv.	2 pcs			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment  (M3)
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> 10K-100A	SK-344 Flange JIS 10K 100A FF.S0 SS41	1 pc			
10K-50A	-345 " JIS 10K 50A FF.S0 SS41	2 pcs			
10K-40A	-346 " JIS 10K 40A FF.S0 SS41	1 pc			
10K-32A	-347 " JIS 10K 32A FF.S0 SS41	1 pc			
10K-25A	-348 " JIS 10K 25A FF.S0 SS41	2 pcs			
10K-20A	-349 " JIS 10K 20A FF.S0 SS41	2 pcs			
10K-20A	-350 " JIS 10K 20A FF.S0 SUS 316	2 pcs			
10K-15A	-351 " JIS 10K 15A FF.S0 SUS 316	2 pcs			
25A-90°	SK-363 Elbow 25A FCMB.Galv.	6 pcs			
15A-90°	-364 " 15A "	15 pcs			
50A-90°	-365 " 50A STPT38 ø60.5x76.2	1 pc			
40A-90°	-366 " 40A STPT38 ø48.6x67.2	2 pcs			
32A-90°	-367 " 32A STPT38 ø42.7x47.6	1 pc			
25A-90°	-368 " 25A STPT38	3 pcs			
20A-90°	-369 " 20A "	3 pcs			
20A-90°	-370 " 20A SUS316	2 pcs			
15A-90°	-371 " 15A "	2 pcs			
U-15A	-372 Union 15A ø42x27x17 FCMB. Galv.	6 pcs			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
SK-409	Mixing Chamber 400 80A FRP	2 pcs			
DI-301	Flange 25A JIS 10K SO.RF SUS316	5 pcs			
-302	" 20A JIS 10K SO.KF SUS316	5 pcs			
-303	" 25A JIS 10K SO.FF & RF SS41	5 pcs			
-304	" 20A JIS 10K SO.RF SS41	3 pcs			
-305	Elbow 25A SPTP38	3 pcs			
-306	" 50A "	2 pcs			
-307	" 20A S25C	3 pcs			
-308	Pipe 80AxSch40 0.5m STPG38	1 pc			
-309	Boss 90/10 Cu-Ni 70LxPT1/2	1 pc			
-310	" 90/10 Cu-Ni PT3/4 120L 100L	1 pc 1 pc			
-311	Flange 15A KOS 10K SO.FF 90/10 Cu-Ni	14 pcs			
-312	" 90/10 Cu-Ni 20A JIS 10K SO.FF	8 pcs			
-313	" 90/10 Cu-Ni 25A JIS 10K SO.FF	8 pcs			
-314	" 50A JIS 10K SO.FF SS41+90/10 Cu-Ni DEPO	1 pc			
-315	Elbow 90/10 Cu-Ni 15A	10 pcs			
-316	" " 20A	3 pcs			
-317	" " 25A	17 pcs			

- to be continued -



C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )	
			net (Kgs)	gross (Kgs)		
200x200x16	SK-433 Plate for Spare 200x200x16t SS41	2 pcs				
	-434 Piping for Sea Water Line 300/100A Rubber Lining	1 pc				
	-448 Back Pressure Valve	1 pc				
	-449 Flange JIS 10K 50AxPT1-1/2 SUS316	1 pc				
	DI-353 Nut M8x6.5 SS41 for Stud Bolt of Insulation (Spare)	20 pcs				
	-354 Flange JIS 10K 100A FF. φ210x18	2 pcs				
	-355 Coupling 25Ax15A SUS316	1 pc				
	SK-436 Flange JIS 10K 20A FF SUS316	6 pcs				
	-437 Elbow SW 20A Sch40 SUS316	10 pcs				
	-438 Tee SW 20A Sch40 SUS316	2 pcs				
	-439 Reducer SA 25Ax15A Sch40 SUS316	1 pc				
	-440 Blind Flange JIS 10K 20A FF. SUS316	1 pc				
	-441 Tee PT1/2 x PT1/2 SUS316	4 pcs				
	-442 Nipple PT1/2 SUS316	8 pcs				
	-443 Bolt & Nut M12x45 SS41+Galv.	36 sets				
	-444 U Bolt & Nut 20A M10 SS41+Galv.	8 sets				
	-445 Gasket φ100xφ28x1.5 EPT	10 pcs				
	- to be continued -					

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
	SK-446 U Bolt & Nut 100A M12x130 SS41+Galv.	2 sets			
	-447 U Bolt & Nut 50A M10x75 SS41+Galv.	2 sets			
	-450 Socket for Spray Nozzel 28x28 SUS304	1 pc			
	-451 Spray Nozzle 28x16 SUS304	1 pc			
B-001	SK-238 LPG Regulator for Boiler Type L-20 180L	1 pc			
"	-239 Connection between LPG- Regulator and Bomb for PT3/8 Connection 55L	1 pc			
"	-240 Connection between LPG- Regulator and Bomb for NPT3/8 Connection 55L	1 pc			
"	-241 Connection between Rubber House and Boiler 80L PT1/2	1 pc			
"	-242 Rubber Hose for Boiler 4m	1 pc			
LINER-001	SK-410 Liner Plate for Desalination Skid 9tx100x300 SS41	20 pcs			
-002	-411 Liner Plate for Water Tank 9tx100x200 SS41	4 pcs			
-003	-412 Liner Plate for Oil Tank 9tx100x200 SS41	6 pcs			
-004	-413 Liner Plate for Boiler 9tx100x150 SS41	8 pcs			
-005	-414 Liner Plate for Piping 9tx50x150 SS41	50 pcs			
-006	-415 Liner Plate for Adjustment 1.2tx100x300 SS41	10 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
LINER-007	SK-416 Liner Plate for Adjustment 1.6tx100x300 SS41	10 pcs			
-008	-417 Liner Plate for Adjustment 2.0tx100x300 SS41	10 pcs			
-009	-418 Liner Plate for Pump 0.1tx300x300 Copper	1 pc			
-010	-419 Liner Plate for Pump 0.1tx300x300 SUS304	1 pc			
-011	-420 Liner Plate for Pump 0.2tx300x300 Copper	1 pc			
-012	-421 Liner Plate for Pump 0.2tx300x300 SUS304	1 pc			
-013	-422 Liner Plate for Pump 0.5tx300x300 Copper	1 pc			
-014	-423 Liner Plate for Pump 0.5tx300x300 SUS304	1 pc			
-015	-424 Liner Plate for Pump 0.05tx300x300 SUS304	1 pc			
P-001	HM-06 Coupling Bolt (including spares)	16 pcs			
-002	HM-16 "	16 pcs			
-003	HM-26 "	16 pcs			
C/NO.M-24 (CASE)	FS-001 Element fo Y-Type Strainer Spare PVC 10K 50A	1 pc	410	590	2.336
	FS-002 Gasket for Y-Type Strainer Spare PVC 10K 50A	1 pc			
	FS-003 Element for BC Duplex Strainer Spare	1 pc			
	FS-004 "O" Ring for BC Duplex Strainer Spare	1 pc			

- to be continued -

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( 52 )K

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
FS-005	Element for Y-Type Strainer Spare SCS13 10K 15A	2 pcs			
FS-006	Gasket for Y-Type Strainer Spare SCS13 10K 15A	2 pcs			
FS-007	Element for Y-Type Strainer Spare FCMB 10K 25A	2 pcs			
FS-008	Gasket for Y-Type Strainer Spare FCMB 10K 25A	2 pcs			
FS-009	Spring for Safety Valve Spare 40A 1.8 KG/cm <sup>2</sup>	1 pc			
FS-010	" " " Spare 1"x19x1" 1 KG/cm <sup>2</sup>	1 pc			
FS-011	Diaphragm Valve Spare 10K 25A FC/HRL/EPT	1 pc			
FS-012	" " " 10K 25A FC/HRL/CR	1 pc			
FS-013	" " " 10K 20A FC/HRL/CR	2 pcs			
FS-014	" " " 10K 15A FC/HRL/CR	3 pcs			
FS-015	Ball Valve Spare SCS14 10K 50A	1 pc			
FS-016	" Spare SCS14 10K 25A	4 pcs			
FS-017	" Spare SCS14 10K 30A	1 pc			
FS-018	" Spare SCS14 10K 3/4PT	2 pcs			
FS-019	" Spare SCS14 10K 1/2PT	2 pcs			
FS-020	" Spare BC6 10K 1/2PT	2 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
	FS-021 Ball Valve Spare BC6 10K 3/8PT	1 pc			
	FS-022 " Spare BC6 10K 1/4PT	1 pc			
	FS-023 Glove Valve Spare SCS14 10K 50A RF	1 pc			
	FS-024 " Spare SCS14 10K 25A RF	1 pc			
	FS-025 " Spare SCS14 10K 15A RF	1 pc			
	FS-026 " Spare SCS14 10K 1/2PT	2 pcs			
	FS-027 Gate Valve Spare FCMB 10K 25A FF	1 pc			
	FS-028 " Spare FCMB 10K 25A FF	1 pc			
	FS-029 " Spare FCMB 10K 3/4PT	1 pc			
	FS-030 Glove Valve Spare FCMB 10K 1/2PT	2 pcs			
	FS-031 Diaphragm Valve 10K 40A FF FC/CRL/CR	4 pcs			
	FS-032 " " 10K 50A FF FC/CRL/CR	1 pc			
	FS-033 Ball Valve 10K 3/4 PT SCS14	2 pcs			
SV-601 SV-901/904	FS-034 Gate Valve 10K 50A FF FCMB	5 pcs			
	FS-035 " " 10K 32A FF FMMB	1 pc			
	FS-036 " " 10K 20A FF FCMB	1 pc			

- to be continued -

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> SV-601 SV-901/904	FS-037 Globe Valve 10K 1/2PT SCS14	5 pcs			
	FS-038 Ball Valve 10K 40A FF SCS14	1 pc			
ST-601	TL-001 Steam Trap for MP Line	1 pc			
BV-101	DI-341 Butterfly Valve JIS 10K 100A FC20+NBR/SCS14	1 pc			
BA-104	DI-342 Ball Valve JIS 10K 50A RF SCS14/SUS316	1 pc			
BA-202	DI-343 " JIS 10K 50A RF SCS14/SUS316	1 pc			
BV-412	DI-344 Butterfly Valve JIS 10K 125A FC20+NBR/SCS14	1 pc			
BV-413	DI-345 " JIS 10K 125A FC20+NBR/SCS14	1 pc			
	DI-345-i Handle for Ball Valve	69 pcs			
SV-008	DI-346 Gate Valve FCMB JIS 10K PT3/4	1 pc			
	DI-347 Diaphragm Valve JIS 10K 20A FF FC20/HRL/CR	2 pcs			
	DI-348 Ball Valve JIS 10K PT1/2 SCS14/SUS316	3 pcs			
BA-203	DI-349 " JIS 10K 65A RF SCS14/SUS316	1 pc			
	DI-350 Globe Valve JIS 10K PT1/2 FCMB	1 pc			
	DI-351 Diaphragm Valve JIS 10K 25A FF FC20/HRL/CR	1 pc			
	DI-352 Globe Valve JIS 10K 20A FF FCMB	1 pc			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
C/NO.M-25 (CASE)	INS-15 Stainless Wire #18	500 MT	(Kgs) 970	(Kgs) 1,170	(M <sup>3</sup> ) 2.554
	-16 Silicon Sealant 330cc/cartridge 300x50	69 pcs			
	-17 Aluminium Pipe Cover 50Ax25x950	46 pcs			
	-18 " " " 40Ax25x950	20 pcs			
	-19 " " " 300Ax50x950	4 pcs			
	-20 " " " 15Ax25x950	9 pcs			
	-21 " " " 20Ax25x950	28 pcs			
	-22 " " " 25Ax25x950	74 pcs			
	-23 " " " 32Ax25x950	2 pcs			
	-24 " " " 100Ax25x950	3 pcs			
	-25 Aluminium Sheet 2000x1000x0.4t	32 Sh.			
	-26 Aluminium Sheet 2000x1000x0.3t	48 Sh.			
	-27 Bolt, 2-Nut & 2-Washer M8x65 SUS				
	-28 Bolt, Nut & 2-Washer M4x40 SUS	2,400 sets			
-29 Bolt, Nut & 2-Washer M4x65 SUS	730 sets				

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment  (M <sup>3</sup> )
			net  (kgs)	gross  (Kgs)	
INS-30	Tapping Screw M4x13 SUS	500 pcs			
-32	Corking Gun	1 pc			
-33	Beading Machine	1 pc			
-34	Screw Bar	2 pcs			
-35	Scriber	1 pc			
-36	Electric Power Drill 100V	1 pc			
-37	Pliers (Curbed) 60W	2 pcs			
-38	Pliers (Flat) 30W	2 pcs			
-39	Pliers (Sharp Pointed) 240L	1 pc			
-40	Wooden Clapper	1 pc			
-41	Curling Roller	1 pc			
-42	Snips (Straight edge) 330L	2 pcs			
-43	Snips (Curved edge) 270L	2 pcs			
-44	Snips (Thrust) 210L	2 pcs			
-45	Cutting Pliers	1 pc			
-46	Hand Saw	1 pc			
-47	Scissors for Cloth	2 pcs			
-48	Hand Bender for Lock Seam	1 pc			

- to be continued -



C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
C/NO.M-26 (CASE)					
<u>ITEM NO.</u> P-005	OY-01 Chemical Pump for Anti Scale Spare	1 pc	450	640	2.659
"	OY-02 Diaphragm Spare	1 pc			
"	OY-03 Valve Seat "	4 pcs			
"	OY-04 Ball Valve "	4 pcs			
"	OY-05 L-Wrench "	1 pc			
P-006	OY-10 Chemical Pump for Acid Spare	1 pc			
P-006	OY-11 Diaphragm Spare	1 pc			
P-006	OY-12 Valve Seat Spare	4 pcs			
P-006	OY-13 Ball Valve Spare	4 pcs			
P-006	OY-14 L-Wrench Spare	1 pc			
P-007	OY-20 Chemical Pump for Sodium sulphite Spare	1 pc			
P-007	OY-21 Diaphragm Spare	1 pc			
P-007	OY-22 Valve Seat Spare	4 pcs			
P-007	OY-23 Ball Valve Spare	4 pcs			
P-007	OY-24 L-Wrench Spare	1 pc			
P-009	OY-31 Chemical Pump for Anci FOAM Spare	1 pc			
P-009	OY-32 Diaphragm Spare	1 pc			
P-009	OY-33 Valve Seat Spare	4 pcs			
P-009	OY-34 Ball Valve Spare	4 pcs			
P-009	OY-35 L-Wrench Spare	1 pc			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u>					
SK-254	LI-402 Tubular Level Gauge O. B,K SUS316 H=465	1 pc			
SK-255	LI-901 Level Gauge LTC-2110	1 set			
SK-258	XV-202 Diaphragm Operated Control Valve 2-1/2B	1 pc			
SK-268	PI-101,102,201,301,303,302,401,402, 501,603,604,803,804,805,001 Pressure Gauge PT1/2	15 pcs			
	PI-801 Pressure Gauge with Diaphragm	2 pcs			
	PI-802 Seal				
SK-269	Oil Heater 110V 3KW	1 pc			
B-001	SM-052 Earth Leakage Relay EG 103A	1 pc			
"	-053 " " EG 53A	1 pc			
"	-054 " " SG 33A	1 pc			
"	-055 " " SG 33A	2 pcs			
C/NO.M-27 (CASE)					
<u>ITEM NO.</u>					
HEAT-001	SK-201 Tool Box	1 pc	80	200	1.506
HEAT-001	SK-202 Tube Expander & Handle	2 pcs			
HEAT-001	SK-203 Tube Cleaning Bar	4 sets			
HEAT-001	SK-204 Cleaning Piece	6 pcs			
HEAT-001	SK-205 Tube Cleaning Brush	20 pcs			
HEAT-001	SK-206 " "	10 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
ITEM NO. HEAT-001	SK-207 Tube Cleaning Collar & Bolt	2 sets			
HEAT-001	SK-208 " "	4 sets			
HEAT-001	SK-209 Bell Expand Tool	2 pcs			
HEAT-001	SK-210 Collapsing Tool	2 pcs			
HEAT-001	SK-211 Tube Push Out Tool	2 pcs			
HEAT-001	SK-212 Drawing Tool for Tube	1 pc			
HEAT-001	SK-213 Wood Plugs	30 pcs			
HEAT-001	SK-214 Tube Inside Cutting Tool	1 pc			
HEAT-001	SK-215 Tube End Cutting Tool	1 pc			
HEAT-001	SK-216 Packing Insert Tool SS34	1 pc			
HEAT-001	SK-217 Packing Guide Tool SS34	1 pc			
HEAT-001	SK-218 Ferrule Setting Tool	1 pc			
HEAT-001	SK-219 Packing Taking Out Tool SW2	1 pc			
CH-01	SM-001 Hand Operated Chain Hoist 1 ton	1 pc			
CH-01	SM-002 Steel Wire Rope 8d x 350L	2 pcs			
CH-01	SM-003 " 8d x 1600L	1 pc			
CH-01	SM-004 " 8d x 850 L	1 pc			
CH-01	SM-005 " 8d x 800L	2 pcs			
CH-01	SM-006 " 8d x 550L	1 pc			
CH-01	SM-007 " 8d x 1300L	1 pc			
CH-01	SM-009 Shackles BD12	1 pc			
CH-01	SM-010 " BD14	1 pc			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> CH-01	SM-011 Shackles BD8	1 pc			(M <sup>3</sup> )
CH-01	SM-012 " BD10	2 pcs			
	<u>SPARE PARTS</u>				
	SP1 Fuse Element NC-1 1A Cellolite Type	6 pcs			
	SP2 " NC-1 5A Cellolite Type	1 pc			
	SP3 Fuse Case NC-1 AC500V Cellolite Type 30A	1 pc			
	SP4 Lamp E-12 18V 2W	20 pcs			
	SP5 Indicating Lamp SL48-1122 AC110V	2 pcs			
	SP6 Push Button Switch ABN-120-Y	1 pc			
	SP7 " ABN-101-B	1 pc			
	SP7 " ABN-101-G	1 pc			
	SP7 Push Button Switch ABN-110-R	1 pc			
	SP8 Snap Switch WD1211 15A 250V	2 pcs			
	SP9 Select Switch ASN15S	1 pc			
	SP10 Aux. Relay MK3P AC110V	9 pcs			
	SP10 " DC24V	1 pc			
	SP11 Fuse Holder F-4000 250V 10A	3 pcs			
	SP12 Fuse F-7161 AC125V 1A	10 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
SP13	Fuse Element NC-1 10A Cellolite Type	1 pc			
SP14	Indicating Lamp AC110V SL49-2122 Green, Red	2 pcs			
SP15	Gauge Glass LI-081, 802 Hard Glass	2 pcs			
SP16	" LI-803, 804 Hard Glass	2 pcs			
SP17	" LI-402 Hard Glass	1 pc			
SP18	Gland Packing LI-801, 802, 803, 804, 402 VALQUA #7137	10 pcs			
SP19	DO Sensor Tip PVC	2 pcs			
SP20	Fuse Glass	4 pcs			
SP21	Seat Ring XV-101 BUNA.N	1 pc			
SP22	Gland P/K XV-201,203,301 302,601,602	8 pcs			
SP22	Gasket P/K XV-201,203,301 302,601,602	2 pcs			
SP23	Gland P/K XV-202	8 pcs			
SP23	Gasket P/K XV-202	2 pcs			
SP24	Gland P/K XV-401	8 pcs			
SP24	Gasket P/K XV-401	2 pcs			
SP25	Seat Ring XV-402	4 pcs			
SP26	Electrode K9142TN	5 pcs			
SP27	Junction K9142TH	5 pcs			
SP28	Buffer Powder K9120KA	5 pcs			
SP29	" K9120 XB	5 pcs			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment  (M3)
			net (Kgs)	gross (Kgs)	
SP30	Buffer Powder K9120XC	5 pcs			
SP31	KCL Assy K9142UT	5 pcs			
SP32	Chart	12 pcs			
SP33	6 Point Painting Pad	3 pcs			
SP34	Fuse	2 pcs			
SP35	Oil	1 pc			
SP36	Chart	12 pcs			
SP37	Recording Pen, Red	4 pcs			
SP38	" , Green	4 pcs			
SP39	" , Blue	4 pcs			
SP40	Spare Ink, Red	1 pc			
SP41	" , Green	1 pc			
SP42	" , Blue	1 pc			
SP43	Oil	1 pc			
SP44	Chart	12 pcs			
SP45	Recording Pen, Red	4 pcs			
SP46	" , Green	4 pcs			
SP47	Spare Ink, Red	1 pc			
SP48	" , Green	1 pc			
SP49	Oil	1 pc			
SP50	Chart	12 pcs			
SP51	Recording Pen, Red	4 pcs			
SP52	" , Green	4 pcs.			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
SP53	Spare Ink, Red	1 pc			
SP54	" , Green	1 pc			
SP55	Oil	1 pc			
SP56	Chart	12 pcs			
SP57	Recording Pen, Red	4 pcs			
SP58	" , Green	4 pcs			
SP59	Spare Ink, Red	1 pc			
SP60	" , Green	1 pc			
SP61	Oil	1 pc			
SP62	Chart	12 pcs			
SP63	Recording Pen, Red	4 pcs			
SP64	" , Green	4 pcs			
SP65	Spare Ink, Red	1 pc			
SP66	" , Green	1 pc			
SP67	Oil	1 pc			
SP68	Chart	12 pcs			
SP69	Recording Pen, Red	4 pcs			
SP70	" , Green	4 pcs			
SP71	" , Blue	4 pcs			
SP72	Spare Ink, Red	1 pc			
SP73	" , Green	1 pc			
SP74	" , Blue	1 pc			
SP75	Oil	1 pc			
SP76	Thermo Meter 0-150°C SUS316	1 pc			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net (Kgs)	gross (Kgs)	
	SP78 Thermo Meter 0-100°C SUS316	1 pc			(M3)
	SP79 " 0-100°C SUS316	1 pc			
	SP80 " 0-300°C SUS304	1 pc			
C/NO.M-28 (CASE)					
<u>ITEM NO.</u> FER-001	SK-220 Ferrule for Brine Heater 19x16.2 NBSB	12 pcs	260	360	1.232
"	-221 Metallic Packing for Brine Heater $\phi$ 20x4	24 pcs			
"	-222 Fiber Packing for Brine Heater $\phi$ 20x4	48 pcs			
"	-223 O-Ring for Brine Heater $\phi$ 20.96 x $\phi$ 15.6	24 pcs			
"	-224 Blind Ferrule for Brine 19xM22x1.5	12 pcs			
"	-225 Fiber Packing for Brine Heater $\phi$ 20x7	24 pcs			
V-001	SK-226 Blower for Decarbonator 300x $\phi$ 290/ $\phi$ 240	1 pc			
E-002	SK-227 Protecting Plate for Brine Heater 80x35x14 9% Ni-Fe	10 pcs			
	SK-228 Protecting Plate for Brine Heater 120x70x14 9% Ni-Fe	8 pcs			
	SK-228-1 Filling for Protecting Plate 300x $\phi$ 40 Silicon	2 pcs			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
<u>ITEM NO.</u> E-002	SK-228-2 Gun for Filling 350L	1 pc			
GLA-01	-229 Sight Glass for Evaporator ø145x12t	4 pcs			
CLA-02	-230 Sight Glass for Strainer of Ball Cleaning	2 pcs			
TUB-01	SK-231 Titanium Tube for Brine Heater TTH35W 1912x0.5t	1 pc			
"	-232 Titanium Tube for Brine Heater TTH35W 1912x0.3t	6 pcs			
"	-233 Titanium Tube for Brine Gr-12 1912x0.5t	6 pcs			
TUB-02	SK-234 Alumi-Brass Tube C6872T-0 970x1.0t	12 pcs			
"	-235 Alumi-Brass Tube C687T-0 731x1.0t	6 pcs			
"	-236 90/10 Cu-Ni Tube C7060T-0 970x1.0t	20 pcs			
"	-237 90/10 Cu-Ni Tube C8060T-0 731x1.0t	30 pcs			
	SK-243 Titanium Tube for Brine Heater TTH 35W 1912 0.5t	5 pcs			
	-244 Titanium Tube for Brine Heater TTH 35W 1912x0.45	6 pcs			
	-245 Titanium Tube for Ejector Condenser TTH 35W 1300x0.4t	2 pcs			
	-246 Heat Resistant Spong Ball 14-S201-1 ø14	500 pcs			

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C/Nos.	Description of Goods	Quantity	Weight		Measure- ment
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
	SK-247 Heat Resistant Sponge Ball 14.5-S202-1 ø14.5	500 pcs			
	-248 Ball Gauge for ø14 14x100 490(400)x490(400)x50	1 pc			
	-249 Ball Gauge for ø14.5x100 490(400)x490(400)x50	1 pc			
C/NO.M-29 (CASE)	SK-250 Paint Cyanamid Helgonqd	2 pcs	100	130	0.211
	-252 " Micas A	2 pcs			
C/NO.M-30 (CASE)	SK-253 CP Paint Middle Coat 2.5PG 5/8.5 240x240x350	1 pc	64	90	0.211
	-254 " 2.5G 8/2 240x240x350	1 pc			
	-255 " 7.5YR 7.5/5.5 240x240x350	1 pc			
	-256 " N-7 240x240x350	1 pc			
C/NO.M-31 (CASE)	SK-257 CR Paint Finish Coat N-7 240x240x350	1 pc	64	90	0.211
	-258 " 2.5PG 5/8.5 240x240x350	1 pc			
	-259 " 7.5YR 7.5/5.5 240x240x350	1 pc			
	-260 " 2.5G 8/2 240x240x350	1 pc			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measure- ment (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
C/NO.M-32 (CASE)	SK-251 Paint Thinner A 240x240x350	1 pc	30	60	0.211
	-261 Zinky 8500 Thinner 240x240x350	1 pc			
C/NO.M-33 (CASE)	SK-262 Nippe Zinky 8500 HB (Base) 240x240x350	1 pc	25	60	0.211
	-263 Nippe Zinky 8500 HB (Catalyst) 135x80x230	1 pc			
C/NO.M-34 (CASE)	E-1201 Cable CV 600V 4C-3.5sq	30 M	280	420	1.784
	E-1202 " CVV 600V 2C-2sq	30 M			
	E-1203 " CVVs 600V 2C-2sq	150 M			
	E-1204 " CVVS 600V 3C-2sq	30 M			
	E-1208 Normal Bedn G-36	5 pcs			
	E-1209 Coupling G-36	10 pcs			
	E-1210 " G-54	5 pcs			
	E-1211 Flexible Tube G-16 x 500L W.P. with Pipe-Con, Box Con.	3 pcs			
	E-1212 Bushing G-22	5 pcs			
	E-1213 " G-36	10 pcs			
	E-1214 " G-42	10 pcs			

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C/Nos.	Description of Goods	Quantity	Weight		Measurement
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
E-1215	Bushing G-54	40 pcs			
E-1216	Lock Nut G-22	5 pcs			
E-1217	" G-28	30 pcs			
E-1218	" G-36	10 pcs			
E-1219	" G-43	10 pcs			
E-1220	" G-54	60 pcs			
E-1221	Pull Box 2.35 Galv.	11 pc			
E-1222	"	2 pcs			
E-1223	"	2 pcs			
E-1224	Adaptor PF1/2 x PF3/4	45 pcs			
E-1225	" PF3/4 x PF1	15 pcs			
E-1226	" PF3/4 x PF1	5 pcs			
E-1227	" PF 1 x PF1-1/2	2 pcs			
E-1228	Circular Box G-22	5 pcs			
E-1229	" G-28	10 pcs			
E-1230	Terminal Lag 2-4d	100 pcs			
E-1231	U-Type Bolt & Nut 1" SUS304	20 pcs			
E-1232	" 1-1/4" SUS304	10 pcs			
E-1233	" 1-1/2" SUS316	10 pcs			
E-1234	" 2" SUS316	10 pcs			

- to be continued -

C/Nos.	Description of Goods	Quantity	Weight		Measurement (M <sup>3</sup> )
			net (Kgs)	gross (Kgs)	
E-1235	Bolt & Nut M8 x 15L SUS304	10 pcs			
E-1236	" M8 x 20L SUS304	20 pcs			
E-1237	" M10 x 20L SUS304	20 pcs			
E-1238	" M10 x 30L SUS304	20 pcs			
E-1239	Plug G-22	10 pcs			
E-1240	Plug G-28	10 pcs			
E-1241	Cable Band 100L	50 pcs			
E-1242	Calking	5 kgs			
E-1244	Flange 1" FF-1/2 PT	6 pcs			
E-1245	Valve SUS316 JIS 10K 1/2"-SW	2 pcs			
E-1246	Elbow SUS316 1/2" SW Sch40	5 pcs			
E-1247	Bolt SS41 M12 x 40L	14 pcs			
E-1248	" SS41 M12 x 45L	5 pcs			
E-1249	" SS41 M16 x 50L	30 pcs			
E-1250	Nut SS41 M16	30 pcs			
E-1251	" SS41 M12	20 pcs			
E-1252	Gasket 1/2" - 1.5t EPT Rubber	5 pcs			
E-1253	" 1" - 1.5t EPT Rubber	9 pcs			
E-1254	" 3/4" - 2.3t Teflon Covered Joint Sheet	2 pcs			
E-1255	Welding Rod for SUS316	5 pcs			

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C/Nos.	Description of Goods	Quantity	Weight		Measurement
			net (Kgs)	gross (Kgs)	
	E-1256 Flange for PI-805	1 pc			(M <sup>3</sup> )
	E-1258 Union with Gasket 1/2" FCMB-W	11 pcs			
	E-1259 Reducer 1/2 x 1/4 FCMB-W	4 pcs			
	E-1260 Valve BX JIS 10K 1/2PT	17 pcs			
	E-1261 Half Union 1/4PT- 6/4d B:BM Ring	18 pcs			
	E-1262 PVC Cap for Half Union 1/4 - 6/4d	15 pcs			
	E-1263 Copper Tube 6/4d - 1c -PVC	15 pcs			
	E-1264 Long Nipple SGP-W 1/2" PT-PT 100L	6 pcs			
	E-1265 Seal Tape Teflon	20 pcs			
	E-1266 U-Bolt & Nut 1/2" SUS304	20 pcs			
	E-1267 Saddle for Tube for 12/10d with Bolt & Nut	25 pcs			
	E-1268 PVC Cap for Terminal Lug for 2sq Blue	350 pcs			
	E-1269 Male Connector SUS316 1/2PT - 12/10d	10 pcs			
C/NO.M-35 (CASE)	E-1205 Conduit Pipe G-36 3660L Galva.	5 pcs	150	240	0.809
	E-1206 " G-42 3660L Galva.	3 pcs			
	E-1207 " G-54 3660L Galva.	3 pcs			

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P.O. Box 216, Mitsui Bldg., Shinjuku-ku, Tokyo, Japan.

( 71 ) K

C/Nos.	Description of Goods	Quantity	Weight		Measurement
			net	gross	
			(Kgs)	(Kgs)	(M <sup>3</sup> )
	E-1243 Tube SUS316 12/10d 4000L	10 pcs			
	E-1257 Pipe SGP-W 1/2" 5500L	2 pcs			
<u>ITEM NO.</u> SK-083	E-1083 Pipe SUS316 S/40 1/2"	10 M			
SK-084	E-1084 Tube SUS316 10 x 8	40 M			
C/NO.M-36 (CASE)	OM-1 Operation Manual VOL-I	3 sets	50	120	0.864
	OM-2 Operation Manual VOL-II	3 sets			
	OM-3 Operation Manual VOL-III	3 sets			
	OM-4 Final Drawing VOL-I	3 sets			
	OM-5 Final Drawing VOL-II	3 sets			
	OM-6 Inspection Report	3 sets			
	OM-7 Erection Manual VOL-I	3 sets			
	OM-8 Erection Manual VOL-II	3 sets			
Total :	Seventy Five(75) Packages.	15,739 pcs, 4,025.2 M, 3,949 Kgs, 4,896 sets, 500 M, 197 sh, 45 L, 45 rolls, 36 shets, 33 cans, 30 bags, 21 packs, 20 btls & 1 drum	72,249Kgs	96,926kgs	588.062 M3

APPENDIX - II

I - EQUIPMENT REQUIRING A/C STORAGE

<u>CRATE NO.</u>	<u>CRATE NO.</u>
L (A) -1	M - 31
L (A) -2	M - 32
L (A) -3	M - 33
L (A) -4	M - 36
L (A) -5	
L (A) -7	
L (A) -13	
L (A) -14	
L (A) -15	
L (A) -16	
L (A) -17	
L (B) -1	
L (B) -5	
R - 8	
R - 12	
R - 13	
R - 14	
R - 15	
M - 4	
M - 29	
M - 30	



II - EQUIPMENT TO BE KEPT UNDER SUNSHADE

CRATE NO

L (A) -6

L (A) -8 EXCEPT LA 2-1-1 A/C

L (A) -9 " LA 2-2-1 A/C

L (A) -10 " LA 3-37-1 TO 11 A/C

L (A) -11

L (A) -12

L (A) -18 EXCEPT LA 5-1-1, LA 3-2-1 A/C

L (B) -2

L (B) -3

L (B) -4 EXCEPT LB 1-2-1,-2,-3, LB 1-5-1,-2,-3,-4  
LB 1-17-1, LB1-18-1 TO 11 A/C  
LB 1-4-6,-7,-8.

L (B) -6

R - 9

M - 5

M - 21

M - 26

III - EQUIPMENT REQUIRING NO PROTECTION FROM SUN

GRATE NO.

R - 1  
R - 2  
R - 3  
R - 4 EXCEPT R.O. Module A/C  
R - 5  
R - 6  
R - 7  
R - 10

GRATE NO.

M - 20  
M - 22  
M - 23  
M - 24  
M - 25  
M - 27  
M - 28  
M - 34  
M - 35

R - 11 EXCEPT J3-01, H2-147, H2-151, PR-8 A/C

M - 1  
M - 2  
M - 3  
M - 6  
M - 7  
M - 8  
M - 9  
M - 10  
M - 11

M - 12 EXCEPT SK-201, -202 A/C

M - 13  
M - 14  
M - 15  
M - 16  
M - 17  
M - 18  
M - 19

APPENDIX - III

<u>GRATE NO.</u>	<u>REMARKS</u>
LA - 1	-
LA - 2	-
	Following Missing:
1.26.040	Ruber Tube for Vacuum (2 pcs)
.090	Fixed Apertube Assy (1 set)
.100	Oil filter for RP (2 sets)
.110	Display console (1 set)
.120	Phot CRT unit (1 set)
.160	Ruber Tube for Vacuum (2 pcs)
.200	Screw (4 pcs)
2.26.010	2CH Spectrometer Assy (1 set)
1.28.	S-6582 Motor 2 (1 pc)
1.29.	S-6583 Motor 3 (1 pc)
1.30.	S-6584 Motor 4 (1 pc)
1.33.	Filament 10 pcs/set (1 set)
1.34.	Window (1 pc)
1.35	Window (1pc)
1.36	Photomur1 (1set)
1.37	Scintillator (1set)
LA - 3	-
LA - 4	-
LA - 5	Requested JICA for identification of numbers on the boxes in this crate.
LA - 6	-
LA - 7	Following Missing:
LA 1-11-6	Fuse (3 pcs)
LA 1-11-13	Filter element (5 pcs/set (2 sets)
LA - 8	-
	Following Missing:
LA - 9	LA 2-6-2 Pilot lamp (4 pcs)
	LA 2-6-3 Fuse 10A (2 pcs)

LA - 10	Following Missing:	
	LA 3-17 Micrometer all kinds	(8 pcs)
	LA 3-18 Adjustable tap wrench set	(5 pcs)
	LA 3-19 Electric soldering iron	(5 pcs)
	LA 3-27 Wire stripper	(2 sets)
	LA 3-35-3 Hose	(2 pcs)
LA - 11	-	
LA - 12	-	
LA - 13	Following Missing:	
	LA 1-4-4 Standard sample (polystyrene)	(1 set)
LA - 14	Following Missing:	
	LA 1-2-14 Power supply unit	(1 set)
LA - 15	Following Missing:	
	LA 1-1-9 Glass nebulizer	(1 set)
	LA 1-1-10 Glass chamber	(1 set)
	LA 1-1-12 Penley lamp	(1 set)
	LA 1-1-13 Input pipe	(1 set)
LA - 16	-	
LA - 17	-	
LA - 18	-	
LB - 1	-	
LB - 2	water found in the polisher.	
	LB 1-14-1 Head to be replaced.	
LB - 3	-	
LB - 4	Following Missing:	
	LB 1-8-7 Calibration specimen SS-G	(1 set)
	LB 1-8-9 Chart paper	(1 roll)
	LB 1-8-10 Lubriacant	(1 pc)
	LB 1-18-2 Standard Accessories	(1 set)
	18-3 Comparison electrode	(1 pc)
	18-4 Pt electrode	(1 pc)
	18-5 Injector	(3 pcs)
	18-7 Electrolyte cell	(1 set)
	18-8 Thermometer 0-50°C	(1 pc)
	18-10 Kcl solution	(1 pc)
	18-11 Electrolyte solution	(1 pc)

	LB 1-5-4	Stepdown transformer	(1 pc)
	LB 1-6-2	Timer 690	(1 pc)
	6-4	Stepdown transformer	(1 pc)
	6-4	Color Analyzer	(1 pc)
	6-5	Lens 50 mm	(1 pc)
LB - 5	-	-	
LB - 6	-	-	
R - 1	-	-	
R - 2	-	-	
R - 3	-	-	
R - 4	-	-	
R - 5		Following Missing:	
	H 2-019	Level gauge for T-101 1450	(1 pc)
R - 6		Following Missing:	
	H 2-021	(2 pcs) Level gauge for T-201 L1150	(1 pc)
R - 7		Following Missing:	
	H 2-022	(2pcs) Level guage for T-202 L100	(1 pc)
R - 8		One switch cover broken	
R - 9	-	-	
R - 10	-	-	
R - 11		Following Missing:	
	H 2-007	Anchor Bolt and nut M16 x200L	(3 pcs)
	-023	" " " " for each tank	(23 pcs)
	-029	Ball valve (P-102) 2-1/2 B-PVC-FF	(1 pc)
	-198	Gasket (G.C.) 206s 0.6t	(1 pc)
	-199	Gasket (S.C.) 201S 0.1t	(2 pcs)
	-310	Level switch LSA-102-2850L	(1 pc)
	-311	" " LSA-201-1450L	(1 pc)
	-312	" " LSA-301-1450L	(1 pc)
	M5.05	O-Ring SX-2 NBR	(4 pcs)
	.06	O-Ring SX-3 NBR	(2 pcs)
	.07	Fuse 5A glass	(4 pcs)
	.08	O-Ring G-30 viton	(14 pcs)
R - 12	-	-	
R - 13	-	-	
R - 14	-	-	

R - 15  
M - 1  
M - 2  
M - 3  
M - 4  
M - 5

Following Missing:

HM - 02 spare parts (2 sets)  
- 03 spare parts (2 sets)  
- 22 spare parts (2 sets)  
- 23 spare parts (2 sets)  
- 24 spare parts (2 sets)  
- 25 spare parts (2 sets)

M - 6  
M - 7  
M - 8  
M - 9  
M - 10  
M - 11  
M - 12  
M - 13  
M - 14  
M - 15  
M - 16  
M - 17  
M - 18  
M - 19  
M - 20  
M - 21

Following Missing:

SK - 234 PT-506 pr. Transmitter (1 pc)  
- 237 PT-506, 605, 606 (3 pcs)  
(oval flange)  
- 241 pH-Sensor (2 pcs)

M - 22  
M - 23  
M - 24  
M - 25

M - 26

Following Missing:

OY - 02	Diaphragm spare	(1 pc)
- 03	Valve seat "	(4 pcs)
- 04	Ball valve "	(4 pcs)
- 05	L-wrench "	(1 pc)
- 11	Diaphragm spare	(1 pc)
- 12	Valve Seat "	(4 pcs)
- 13	Ball Valve "	(4 pcs)
- 14	L-wrench "	(1 pc)
- 21	Diaphragm "	(1 pc)
- 22	Valve seat "	(1 pc)
- 23	Ball valve "	(4 pcs)
- 24	L-wrench "	(1 pc)
- 32	Diaphragm "	(1 pc)
- 33	Valve seat "	(4 pcs)
- 34	Ball valve "	(4 pcs)
- 35	L-wrench "	(1 pc)
SK - 254	Tubular level gauge	(1 pc)

M - 27

M - 28

M - 29

M - 30

M - 31

M - 32

M - 33

M - 34

M - 35

M - 36

## 1.2 First Mission for Modification of Record of Discussion (R/D)







Minutes of meeting  
between SWCC and JICA

A meeting was held between SWCC and the visiting JICA delegation. The meetings were held from 27-31 July 1985.

The agenda for the meeting is attached as appendix-I

The points mentioned in the agenda were discussed in detail and the following agreement was reached between SWCC and JICA delegation as follows:

1. Extension of Term of Cooperation

As the R/D will expire in 1986 it was proposed by JICA to extend the term of cooperation. SWCC has agreed in principle to extend the R/D as the activities under the R/D has not started yet. SWCC requested JICA to communicate officially with H.E. the governor concerning the extension. JICA has submitted a letter in this regard to H.E. The Governor on 31 July 1985.

2. Establishment of JTT

SWCC has several times asked JICA to nominate a person to establish the JTT see minutes of meeting of 5 Aug. 1984, Nov. 20, 1984, 29 Aug. 1983

Now JICA has proposed to nominate a person in establishing the JTT. Further JICA has proposed to have two members of JTT instead of one as agreed in the R/D refer to Annex IV of R/D. One member of JTT will be for Research activities and the second member will be for training activities, SWCC has agreed to have two members from JICA as JTT shown in "Staffing of Japanese experts in the project" Appendix-II and has asked JICA to communicate officially proposing an amendment to R/D Annex IV. JICA has submitted a letter in this regard to H.E. The Governor on 31 July 1985.

3. Nomination and Assignment of Personnel

As this point is a repetition of item 2 it was agreed to delete this item from the Agenda.

رقم ( ..... ) Ref. ( ..... ) التاريخ ( ..... ) Date ( ..... ) المرفقات ( ..... ) Attachs ( ..... )



### Research

#### 1- Storage Condition of Plant and Research Equipment

The JICA delegation visited Medina-Yanbu desalination plant to inspect the storage of equipment sent by JICA for research activities on July 29.

SWCC enquired about the missing items from the equipment which were sent by JICA. JICA replied that the missing items will be sent to SWCC in the near future.

#### 2- Dispatch of Mr. Sakamoto

JICA has proposed the nomination of Mr. Sakamoto as a JTT member for research activities and he will be sent to SWCC by the end of 1985. SWCC has agreed to receive Mr. Sakamoto as JTT member and at that time will name a counterpart for Mr. Sakamoto.

Certain conditions were proposed by JICA to send Mr. Sakamoto which were amended and agreed by SWCC after discussion and are attached as Appendix-III.

### Training

#### 1- Specification of Equipment For Training

JICA has submitted two sets of documents list attached as Appendix-IV which consist of specifications of training equipment and related documents.

SWCC will study these documents and notify JICA of their comments on them within three months from now.

#### 2- Master Plan and Tentative Schedule of Implementation

The minimum qualification of trainees for operation and maintenance courses will be high school graduates. The master plan and tentative schedule was discussed in detail for the implementation of the training activities. After discussions the proposed Master Plan and tentative schedule was modified it is attached as Appendix V. Training Department will review the Master Plan and respond accordingly.

Attachs ( ..... ) المرفقات Date ( ..... ) التاريخ Ref. ( ..... ) رقم



3- Demarcation of Some Equipments between JICA and SWCC

JICA submitted the demarcation of equipments between SWCC and JICA. The document is attached as Appendix-VI. The proposed ratio of distribution between SWCC and JICA is 55% and 45%. As per R/D this should have been 61.4% and 38.6%.

SWCC requested JICA to assist in the procurement of equipment from Japan which are to be bought by SWCC. JICA will respond after consultations in Japan.

The following personnel from SWCC and JICA attended the meetings.

SWCC

Mr. Abdullah A. Al-Azzaz

Mr. Moflih Al-Shaghathrah

Mr. Habeeb Mohammed

JICA

Research

Mr. Hideki Nakamura

Mr. Katsuhiki Ozawa

Training

Mr. Kouichi Igarashi

Mr. Kazuaki Hayashi

Mr. Keizo Orihashi

Abdullah A. Al-Hussayen  
Deputy Governor (Acting)  
For Technical Affairs and Projects

Mr. Haruo Suzuki  
Leader of  
JICA Mission for  
the Research Center

Mr. Hidetoshi Yaoi  
Leader of  
JICA Mission for  
the Training Center

رقم ( ..... ) Ref. ( ..... ) التاريخ ( ..... ) Date ( ..... ) المرفقات ( ..... ) Attachs ( ..... )

July 27, 1985

## APPENDIX - I

### AGENDA

This agenda is prepared by JICA for the smooth and fruitful discussions on the Technical Cooperation of Sea Water Desalination Project between the JICA mission and SWCC.

#### General

1. EXTENSION OF TERM OF COOPERATION

Proposal : Record of Discussions (12th January, 1982) shall be extended as per Article 15. of the R/D in this coming autumn between JICA and SWCC.

2. ESTABLISHMENT OF JOINT TECHNICAL TEAM (JTT)

3. NOMINATION AND ASSIGNMENT OF PERSONNEL

Proposal : JICA and SWCC should nominate and assign personnel of the Project as stipulated in ANNEX IV of the R/D at least by the end of 1985.

#### Research

1. STORAGE CONDITION OF PLANT AND RESEARCH EQUIPMENT

2. DISPATCH OF MR. SAKAMOTO

Proposal : JICA will dispatch Mr. Sakamoto, a member of JTT, as soon as

possible on the condition that SWCC should fulfill some requests from JICA, which shall be submitted to SWCC in writing in the course of discussions.

Training

1. SPECIFICATION OF EQUIPMENTS FOR TRAINING

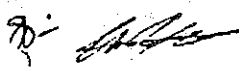
Proposal : The JICA mission will explain the specification, which contributes to the designation and construction of Training Center building.

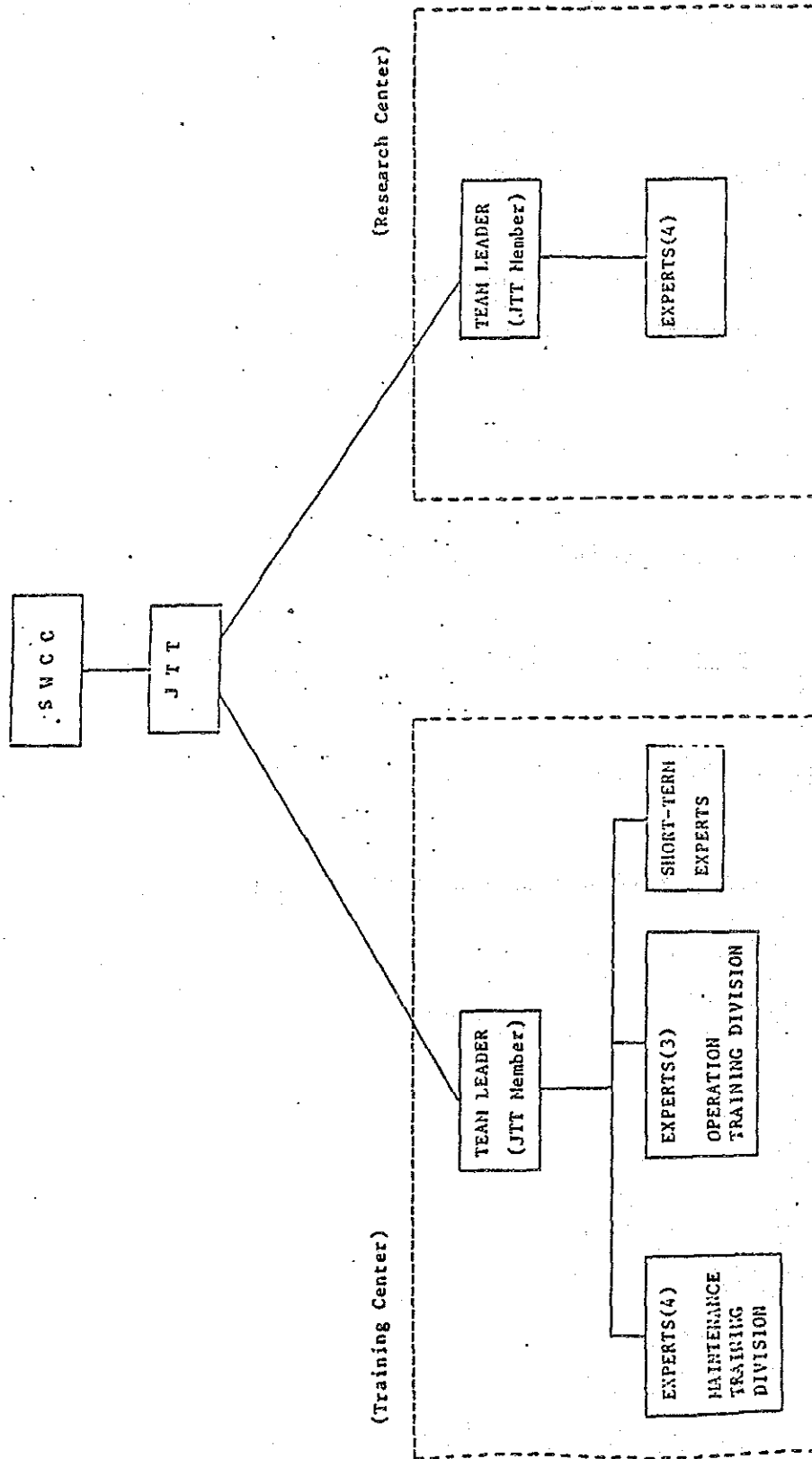
2. MASTER PLAN AND TENTATIVE SCHEDULE OF IMPLEMENTATION

3. DEMARCATION OF SOME EQUIPMENTS BETWEEN JICA AND SWCC

4. DEMARCATION OF EQUIPMENT INSTALLATION BETWEEN JICA AND SWCC

5. PROCUREMENT OF SOME EQUIPMENTS TO BE UNDERTAKEN BY SWCC





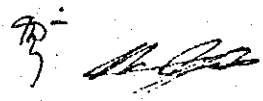

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Appendix - III

CONDITIONS OF DISPATCHING  
A MEMBER OF THE JOINT TECHNICAL TEAM (JTT)  
FROM JICA TO SWCC

In connection with dispatching a member of JTT to SWCC, JICA requests to SWCC to take the following measures until the both parties agree to the definition and function of JTT, and the comprehensive conditions for Japanese members (JTT members, researchers, engineers, and instructors) of the Project:

- (1) Providing suitable accommodation in Riyadh, as the main working place will be Riyadh until the completion of the laboratory building;
- (2) Providing a car with driver for official use;
- (3) Providing free medical treatment, hospitalization, and medicine at the government hospital when necessary;
- (4) Bearing the internal travel expenses;
- (5) Free use of office supplies, copying machine, and other SWCC'S facilities by the Japanese member;
- (6) Assigning a member (members) of JTT for the Project from SWCC side.





APPENDIX - IV  
 CONTENTS OF THE DOCUMENTS  
 SUBMITTED TO SWCC TRAINING  
 DEPARTMENT

No.	Title	DWG./DOCU.NO.		
1.	SPECIFICATION OF THE EQUIPMENT	SDC-JR-85-078(1/2)	A - 4	(651)
	PART - I			
2.	"	" 85-078(2/2)	A - 4	(199)
	PART - II			
3.	CATALOGUES OF THE EQUIPMENT	" 85-079	A - 4	(702)
4.	DRAWING OF THE EQUIPMENT	" 85-080	A - 3	( 34)
5.	UTILITY REQUIREMENT FOR TRAINING EQUIPMENT	SAJ-T85105	A - 4	( 23)
6.	TRAINING EQUIPMENT WASTE WATER AND EXHAUST GASES	SAJ-T85107	A - 4	( 5)
7.	CONSUMABLES LIST	SAJ-T85108	A - 4	( 30)
8.	ESTIMATED MAN POWER AND CONSTRUCTION AIDS FOR EQUIPMENT INSTALLATION AND COMMISSIONING OF TRAINING CENTER	SAJ-T85109	A - 4	( 5)
9.	LIST OF RECOMMENDABLE FURNITURE FOR TRAINING CENTER	SAJ-T85110	A - 4	( 21)

APPENDIX - V

TRAINING MASTER PLAN

FOR

THE PROJECT

ON

SEA WATER DESALINATION TECHNOLOGY

TRAINING CENTER

SALINE WATER CONVERSION CORPORATION

## I. TRAINING COURSE

The training Center conducts seven (7) training courses with a batch of fifteen (15) trainees as shown in the following table.

Course	Training Course	Trainee/year
Maintenance Training Course	(1) Mechanical Maintenance Course	15
	(2) Piping Equipment Maintenance Course	15
	(3) Electrical Equipment Maintenance Course	15
	(4) Instrumentation Maintenance Course	15
Operation Training Course	(5) Boiler Plant Operation Course	15
	(6) Steam Turbine & Power Generator Operation Course	15
	(7) Desalination Plant Operation Course	15
	Total	105

## 2. TRAINING TERM

The training terms of each course are one (1) year.

## 3. INTAKE QUALIFICATION OF TRAINEE

### 3-1. Maintenance Training

The trainee should be those who graduated from high school and passed the entrance examination of the Training Center.

### 3-2. Operation Training

The trainee should be those who graduated from high school and passed the entrance examination of the Training Center.

## 4. TRAINING TARGET

The targets of the each training course are mainly to provide the trainees the required knowledge and skills according to the curricula so as;

### 4-1. Mechanical Maintenance Course

- (1) to maintain and adjust machines and equipment such as turbine, blower, pumps, heat exchanger, etc.
- (2) to cut and repair parts of machines and equipment by machine tools.

### 4-2. Piping Equipment Maintenance Course

- (1) to cut, disassemble, assemble and inspect pipes, valves, pipe flanges, etc.
- (2) to weld pipes and repair.
- (3) to conduct non-destructive test.

### 4-3. Electric Equipment Maintenance Course

- (1) to conduct wiring installation and its check operation on switch-board and control panel.
- (2) to disassemble, assemble, repair and adjust electric equipment.

### 4-4. Instrumentation Maintenance Course

- (1) to conduct measurements by instruments.
- (2) to disassemble and assemble industrial instruments.
- (3) to repair and adjust industrial instruments.

### 4-5. Boiler Plant Operation Course

- (1) to operate boiler and to understand its principle.
- (2) to conduct daily maintenance and repair such as water

treatment, scale cleaning and anti-rust measures.

4-6. Steam Turbine and Power Generator Operation Course

- (1) to operate steam turbine and power generator based on their principles.
- (2) to understand the structures of turbine and generator.
- (3) to take countermeasures against emergencies and troubles.

4-7. Desalination Plant Operation Course

- (1) to operate desalination plant.
- (2) to understand the principles regarding desalination and water treatment such as the process of removal of minerals and organic materials from sea water.

5. JAPANESE EXPERT

5-1. Team leader (JTT Member) (1 person)

5-2. Experts (7 persons)

The experts in the fields of;

(1) Maintenance Training Division

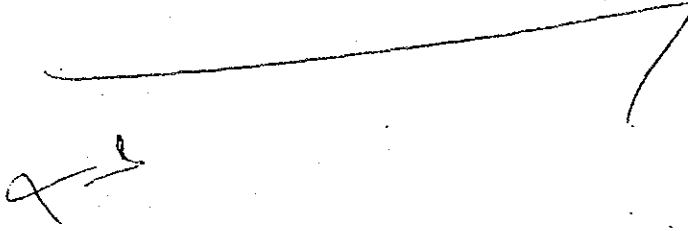
- (i) Mechanical maintenance
- (ii) Piping equipment maintenance
- (iii) Electric equipment maintenance
- (iv) Instrumentation maintenance

(2) Operation Training Division

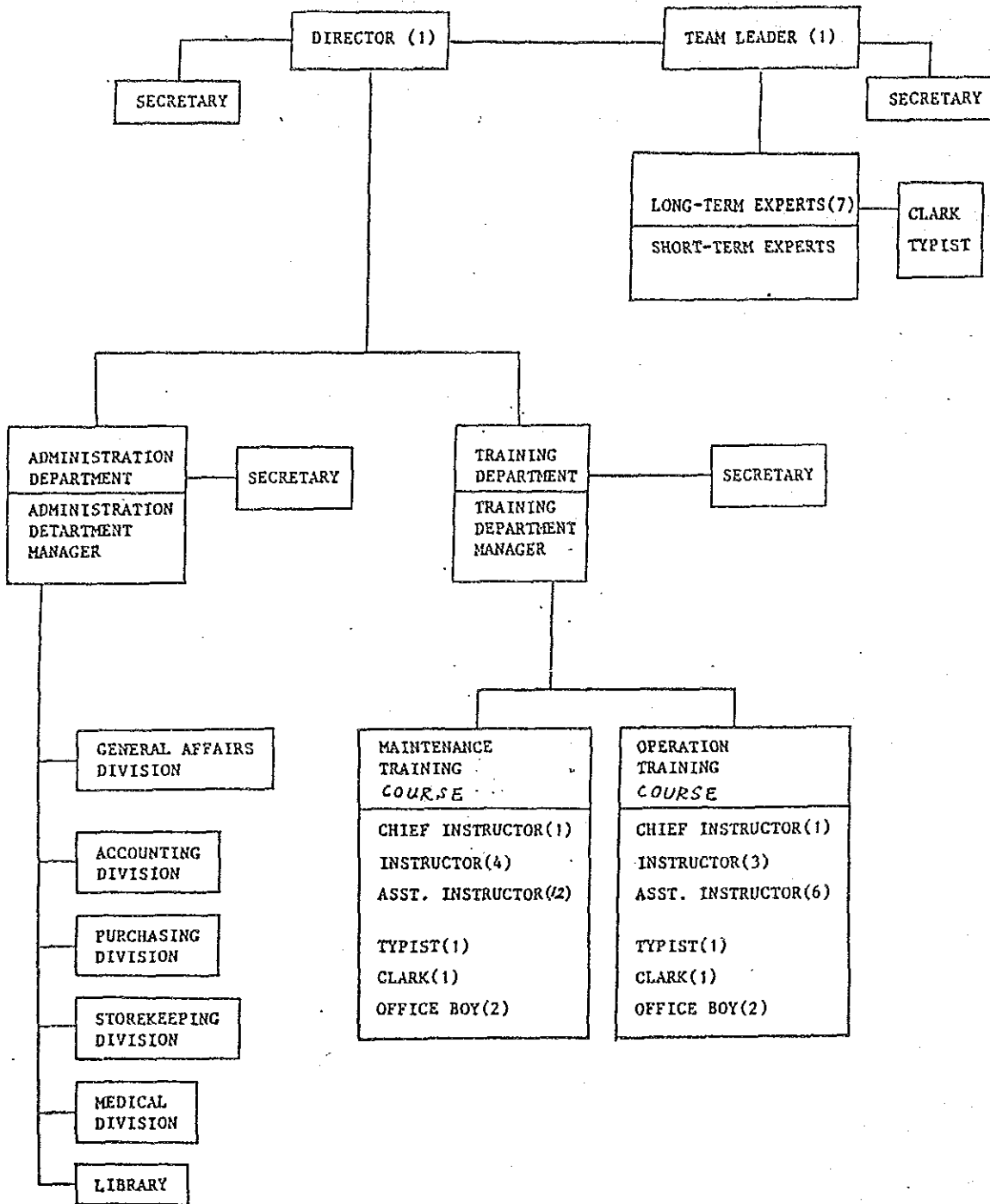
- (i) Boiler plant operation
- (ii) Steam turbine & power generator operation
- (iii) Desalination plant operation

5-3. Short-Term Experts

The short-term experts may be dispatched when necessity arises, for the smooth implementation of the training.



TRAINING CENTER ORGANIZATION



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APPENDIX- V

TENTATIVE SCHEDULE OF IMPLEMENTATION

Year Item	1985	1986	1987	1988	1989
Term of Co-operation					
1. Team Leader		1/1			
2. Experts					
(1) Maintenance course		1/7			
(2) Operation course		1/7			
Counterpart Training					
(1) Director					
(2) Instructor		1/4 6m	31/10		
Machinery and equipment from JICA					
Building construction	1/9		31/8		
Installation of machinery and equipment			1/9	30/4	
Training course					
(1) Maintenance course			1/2		
(2) Operation course			1/2		
Assignment of SWCC staff					
(1) Director		1/1			
(2) Instructors		1/7			
(3) Admin. staff		1/7			
Teaching material development		* 31/10	30/4	30/11	
Curriculum development		*			

\* JICA will submit to SWCC drafts of teaching material such as Text books, instruction manuals, job sheets and curriculum in six months after receiving comments on the equipment specifications from SWCC. SWCC will send comments in three months i.e. by Oct. 1985 and receive the drafts of teaching material by April 1986 for translation into Arabic.



APPENDIX - VI

Course-wise Summary of Estimated Price

Basis of Estimation : Ex-Godown, Yokohama, JAPAN

Unit : US\$

Ex. Rate : ¥230/US\$

CODE	Concerned Course	Estimated Price	Remarks
SW-1	Mechanical Maintenance	2 2 6, 5 0 9	
SW-2	Piping Maintenance	2 1 4, 1 2 6	
SW-3	Electrical Maintenance	1 8 2, 8 0 0	
SW-4	Instrumentation Maintenance	3 1 4, 8 0 0	
Sub-Total		9 3 8, 2 3 5	
SW-5	Plant Operation	4 9 6, 1 7 4	Mini Plant A, B
SW-6	Plant Operation	2 7 8, 8 7 8	Plant Simulator
SW-7	Plant Operation	2 4 2, 7 3 5	
SW-8	Audio-Visual Aids	1 2 8, 0 0 0	Common for all courses
Sub-Total		1, 1 4 5, 7 8 7	
Grand Total		2, 0 8 4, 0 2 2	

Attachment-1

Item	Unit	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8	T o t a l
Ex-Godown Price	US\$	226,509	214,128	182,800	314,800	496,174	278,878	242,735	128,000	2,084,022
Packing Charge	"	-	-	-	-	-	-	-	-	-
Shipping Charge	"	2,139	1,826	1,826	1,826	6,522	130	3,443	783	18,495
(Approx. Gross Weight)	(WT.)	( 20.14 )	( 18.27 )	( 14.27 )	( 8.52 )	( 20.12 )	( 1.2 )	( 1.5 )	( 4.8 )	( 88.82 )
(Approx. Gross Measurement)	( m <sup>3</sup> )	( 123 )	( 105 )	( 105 )	( 105 )	( 375 )	( 7.5 )	( 193 )	( 45 )	( 1058.5 )
FOR JAPAN	US\$	228,648	215,952	184,626	316,626	502,696	279,008	246,178	128,783	2,102,517
Estimated Insurance	"	1,874	1,757	1,521	2,513	4,261	2,104	2,104	1,026	17,161
Estimated Ocean Freight	"	21,391	18,261	18,261	18,261	65,217	1,305	33,566	7,826	184,957
Estimated CIF YANBU	"	251,913	235,970	204,408	337,400	572,174	282,417	291,848	137,635	2,303,765

Note 1) Estimated Unit Rate : US\$174/m<sup>3</sup> Ocean Freight

2) Packing Charge is included in Ex-Godown Price

3) Exchange Rate : ¥230/US\$



2. LIST OF ADDITIONAL LABORATORY EQUIPMENT



2. LIST OF ADDITIONAL LABORATORY EQUIPMENT

No.	Equipment Name	Quantity	Remarks
1-1	Ion Chromatograph (1) Measuring System (2) Recorder (3) Data Processor (4) Accessories and Spares	1 (1 set) (1) (1 set) (1 set)	These devices are used to conduct qualitative and quantitative analysis of positive and negative ions contained in seawater, concentrated seawater, produced water, waste water, etc. The results are employed in evaluating the MSF and RO processes for performance.
1-2	Total Organic Carbon Analyzer (1) Measuring System (2) Microsyringes (10, 50, 100 ml.; 3 each) (3) Spares and Consumables	1 (1 set) (1 set) (1 set) (1 set)	This device is used to conduct quantitative analysis of total carbon and total organic carbon contained in seawater, concentrated seawater, produced water waste water, etc. The objective of the analysis is to measure the overall quantity of those pollutants such as oil that cause reverse osmosis membranes to clog and deteriorate as well as produce sludge and scale in evaporators.
1-3	Biological Microscope (1) Measuring System (2) Devices for Adjusting samples (3) Consumables	1 (1 set) (1 set) (1 set)	These devices are used to observe microorganisms (planktons, bacteria, etc.) that exist in seawater and pretreated water for their effects on the pretreatment unit and reverse osmosis membranes.
1-4	High Performance Liquid Chromatograph (1) Measuring System (2) Data Processor (3) Columns and Fillers (4) Spares	1 (1 set) (1 set) (1 set) (1 set)	These devices are used to conduct component analysis of organic chemicals such as descaling and coagulating agents in order to check their relationship with overall performance.

No.	Equipment Name	Quantity	Remarks
1-5	Particle Counter (1) Measuring System (2) Measuring System	1 (1 set) (1 set)	This analyzer is used to count fine grains contained in seawater and pretreated water. Once the distribution of fine grains is found out, their effects on the pretreatment unit and reverse osmosis membranes are investigated.
1-6	Fouling Index Measuring Kit	1 set	This kit is used to check the fouling index of the seawater introduced into the reverse osmosis process.
1-7	High-pressure Sterilizer	1	This device is used to sterilize instruments employed in bacterial test as well as to conduct chemical analysis at high temperatures.
1-8	Water Samplers	1 set	These samplers are used to count live germs that exist in seawater and pretreated water.
1-9	Jar Tester	1	This tester is used to test coagulating agents for coagulation capability.
1-10	Low-temperature Thermostatic Chamber	1	This device is equipped with an external circulating pump (2 m of head, 10 l./min. or more of flow rate) for analysis in general tests. The accuracy for temperature adjustment is within $\pm 0.05^{\circ}\text{C}$ , and the temperature distribution is $0.1^{\circ}\text{C}$ or less.
1-11	Cooler for Constant Temperature Water-bath.	1	This is an immersion-type chiller for use in general tests and analysis. The cooling capacity is 80 kcal/hr or more.

No.	Equipment Name	Quantity	Remarks
1-12	Centrifugal Separator	1	This is a desk-top type centrifugal separator for use in general analysis. A total of 20 decanters (50 or 100 ml. each) are provided.
1-13	Shaker	1	This is an oscillating type shaker for use in general analysis (in horizontal and vertical setups). A 60-minute timer is provided.
1-14	Reference Thermometer	1	This thermometer, made of glass, is used to calibrate other thermometers. (The thermometer is certified by the Measurement Laboratory of Japan.)
1-15	Barometer	1	This is an aneroid barometer certified by the Meteorological Agency of Japan.
1-16	Ice-making Machine	1	This machine is used to make ice for test purposes. The capacity is 50 to 100 kg of ice per day.
1-17	Platinum Instruments (1) Platinum Crucible (with lid): 25 ml., 30 g (2) Platinum pan: 100 ml., 55 g	1 set	These instruments are used in general analysis.







