

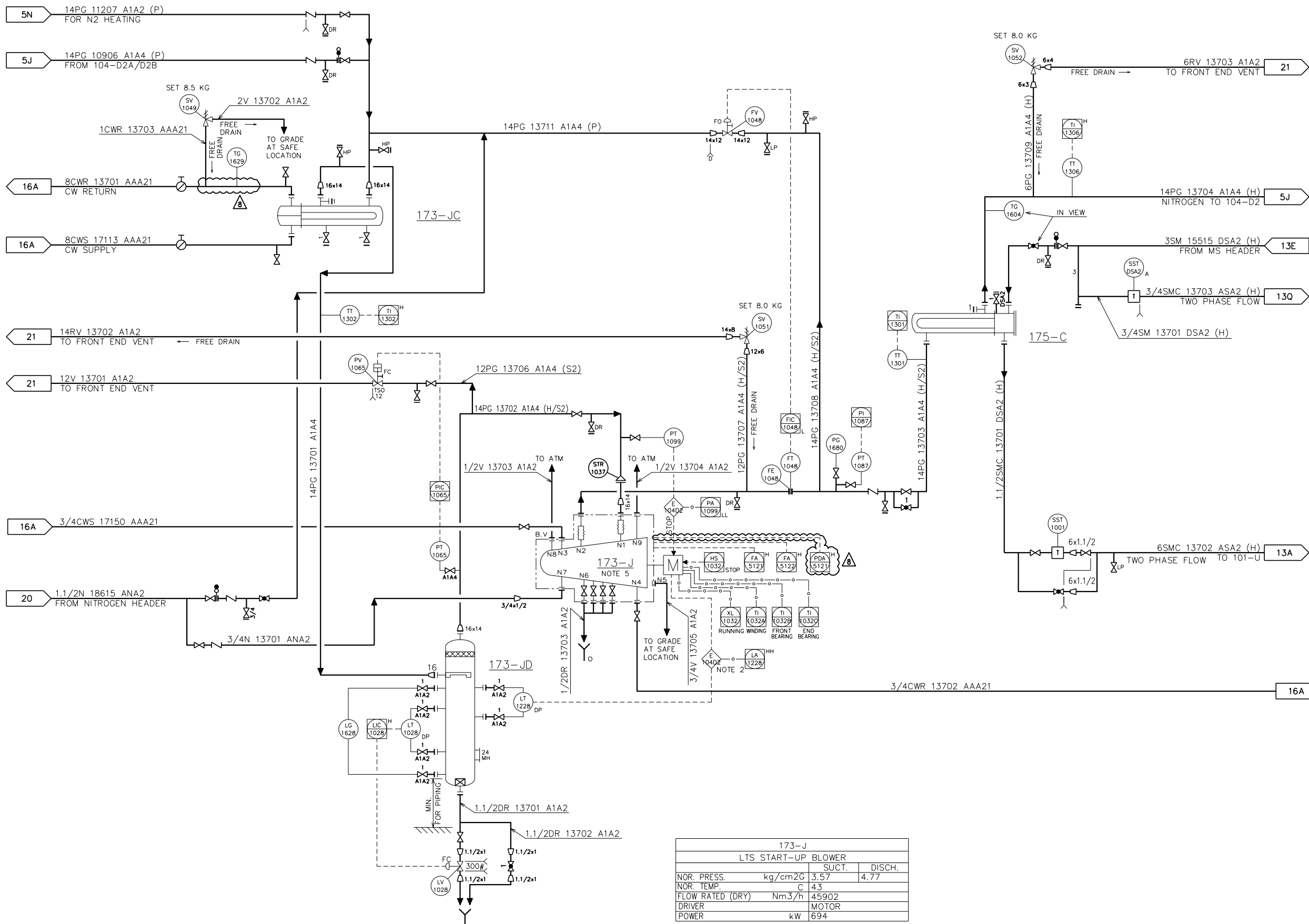
173-JC START-UP N2 COOLER			
	SHELL	TUBE	
DES./OPER.TEMP	°C 275/230;43	80/36;43	
DES./OPER.PRESS	kg/cm2G 8/3.55	10/4.2	
INSULATION/THICK	mm PP/70	NO/-	
MATERIAL	CS	CS	
DIMENSION (ID SHELLxL)	mm 750x2500		
SURFACE AREA	m2 196		

173-JD START-UP N2 SEPARATOR			
DES./OPER.TEMP	°C 80/43		
DES./OPER.PRESS	kg/cm2G 8/3.5		
INSULATION/THICK	mm NA		
MATERIAL	CS		
DIMENSION (ID SHELLxL)	mm 1900x2450		
VOLUME	m3 8.7		

175-C LTS START-UP HEATER			
	SHELL	TUBE	
DES./OPER.TEMP	°C 275/88;215	425/386.7;258.8	
DES./OPER.PRESS	kg/cm2G 8/4.77	52/46.4	
INSULATION/THICK	mm HOT/95	HOT/130	
MATERIAL	CS	CS	
DIMENSION (ID SHELLxL)	mm 750x3700		
SURFACE AREA	m2 80.5		

NOTES

- FOR GENERAL NOTES AND SYMBOLS SEE DRAWING 4A, 4B.
- REFER TO WRITE-UP BY CONTROL SYSTEMS ENGINEERING FOR INTERLOCK DESCRIPTION.
- DELETED.
- DELETED.
- FOR DETAIL OF LTS START-UP BLOWER, PLEASE SEE K5-E3-173J-PD-001.



REV.	DESCRIPTION	DATE	BY	CHKD.	APPD.	DATE
1	RE-ISSUED FOR CONSTRUCTION (AFC-3)	14/11/13	TS	ABA	DU	14/11/13
2	RE-ISSUED FOR CONSTRUCTION (AFC-2)	25/06/13	TS	ABA	DU	25/06/13
3	RE-ISSUED FOR CONSTRUCTION (AFC-1)	10/04/13	TS	ABA	DU	10/04/13
4	ISSUED FOR CONSTRUCTION (AFC)	25/11/12	TS	ABA	DU	25/11/12
5	RE-ISSUED FOR APPROVAL (AFD-1)	25/06/12	TS	ABA	DU	25/06/12
6	ISSUED FOR APPROVAL (AFD)	22/04/12	TS	ABA	DU	22/04/12
7	ISSUED FOR DETAIL DESIGN (AFD-2)	14/02/12	TS	ABA	DU	14/02/12

REVISIONS		DATE
1	RE-ISSUED FOR CONSTRUCTION (AFC-3)	14/11/13
2	RE-ISSUED FOR CONSTRUCTION (AFC-2)	25/06/13
3	RE-ISSUED FOR CONSTRUCTION (AFC-1)	10/04/13
4	ISSUED FOR CONSTRUCTION (AFC)	25/11/12
5	RE-ISSUED FOR APPROVAL (AFD-1)	25/06/12
6	ISSUED FOR APPROVAL (AFD)	22/04/12
7	ISSUED FOR DETAIL DESIGN (AFD-2)	14/02/12

PROJECT NAME : KALTIM-5 PROJECT
2500 MTPD AMMONIA AND 3500 MTPD UREA
BONTANG, EAST KALIMANTAN, INDONESIA

CLIENT NAME : PT. PUPUK KALIMANTAN TIMUR

KBR Engineering Services by
KBR Technical Services, Inc.

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CONTRACTOR : PT. PUPUK KALIMANTAN TIMUR
CONTRACTOR WORK NUMBER : 10107 / BA096300 / 11-018-01

PIPING & INSTRUMENT FLOW DIAGRAM
START-UP CIRCULATOR

SCALE : DWG. NO. K5-01-E1-PD-5AN-T
DOC. NO. K5-01-E1-PD-039-T SHEET 039/073 REV.8