

GENERAL NOTES

1. CABLE SHIELDS REFERENCED TO THIS NOTE ARE TO BE TIED BACK OR ‘FLOATED’ ON THE EQUIPMENT END WITH THE REFERENCE.
2. CABLE SHIELDS REFERENCED TO THIS NOTE ARE TO BE CONNECTED TO GROUND ON THE EQUIPMENT END WITH THE REFERENCE.
3. SPARE CONDUCTORS ARE TO BE BUNDLED BY CABLE AND TIED TOGETHER. SUFFICIENT SLACK SHALL BE ALLOWED TO BE ABLE TO CONNECT CONDUCTORS IN EQUIPMENT.
4. ALL CABLES AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE ABS, USCG & IEEE-STD-45 REQUIREMENTS.
5. BONDING, GROUNDING AND EMI SHEILDING SHALL BE IN ACCORDANCE WITH REFERENCE 2.

REVISIONS


REV	ZONE	DESCRIPTION	DATE	APPROVED

DOCUMENT DISTRIBUTION RECORD														
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HMP PROD CNTRL														
PROG MGMT														
OWNER/OWNER REP	E													
ACMA	E													
AS-BUILT	x													
ELECTRICAL														
TWMC	E													
ISSUED BY														

AS-BUILT

HULL APPLICABILITY M283 1956 M284 1957						0	0	0	0	0	REV
	10	9	8	7	6	5	4	3	2	1	SHT
	REVISION STATUS										
	DRL NUMBERS										
A034											

4	LIGHTING SYSTEM ONE LINE DIAGRAM	FE17
3	MACHINERY CONTROL & ALARM SYS BLOCK DIAGRAM	FE24
2	POWER ONE LINE	PE01
1	BOW THRUSTER CONTROL SYSTEM BLOCK DIAGRAM	FE31
NO.	TITLE	DRAWING NUMBER
REFERENCES		

This drawing, design concept and specifications are the property of VT Halter Marine, Inc. and are furnished on a confidential basis with an expressed understanding that they will not be copied in any manner, used for manufacture, sold, transferred, nor used to the detriment of said firm without written permission. The recipient further agrees not to disclose these contents hereof to any other parties except for those specific purposes for which this drawing was issued.	VT Halter Marine, Inc.			VESSEL				
	 Vision Technologies Systems			FRV40 CLASS 63m FISHERIES RESEARCH VESSEL				
	DRAWN BY MDT 05/21/07		ABS APPV	BOW THRUSTER CONTROL SYSTEM TERMINAL LIST				
	CHECKED BY LH 07/09/07		USCG APPV					
	APPROVED BY		OWNER APPV					
HULL NO 1956		CAGE CODE 3BJ86	SIZE B	JOB NO. M283	ITEM 568	DELIVERABLE PE32	SHEET 001	REV 00
ESTIMATE NO 00-104		SCALE NONE		FILE R:\M283\ProductionDesign\Issued\ElecDwgs		SHEET 1 OF 5		

BOW THRUSTER

WIRE NO.	COLOR	CUSTOMER REFERENCE	P072	ROCKWELL AUTOMATION		
		CABLE TYPE	DXIU-6	DWG: WE-FSJ26-	SHT. NO. 300	
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BOW THRUSTER DRIVE	SHIPS PNL P222	
300040	BLK	120V CONTROL POWER		300TB1	1	P222-11 L1
300060	WHT	120V CONTROL POWER		300TB1	2	P222-11 L2

(REF 2)

WIRE NO.	COLOR	CUSTOMER REFERENCE	P103-6	ROCKWELL AUTOMATION		
		CABLE TYPE	DXIU-26	DWG: WE-FSJ26-	SHT. NO. 302	
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	---A	BOW THRUSTER DRIVE	SHIPS PNL P103	
302070	BLK	DRIVE HEATER		302TB1	1-3	P103-6 L1
302100	WHT	DRIVE HEATER		302TB1	4-6	P103-6 L2

(REF 2)

WIRE NO.	COLOR	CUSTOMER REFERENCE	P106	ROCKWELL AUTOMATION		
		CABLE TYPE	DXIU-4	DWG: WE-FSJ26-	SHT. NO. 302	
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BOW THRUSTER DRIVE	THRUSTER XFMR	
302191	BLK	XFMR HEATER		302TB3	1	L1
302221	WHT	XFMR HEATER		302TB3	2	L2

(REF 2)

WIRE NO.	COLOR	CUSTOMER REFERENCE	P107	ROCKWELL AUTOMATION		
		CABLE TYPE	DXIU-4	DWG: WE-FSJ26-	SHT. NO. 302	
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	---A	BOW THRUSTER DRIVE	THRUSTER XFMR	
302072	BLK	MTR HEATER		302TB2	1	L1
302102	WHT	MTR HEATER		302TB2	2	L2

(REF 2)

WIRE NO.	COLOR	CUSTOMER REFERENCE	L123E-11	ROCKWELL AUTOMATION		
		CABLE TYPE	TXIU-4	DWG: WE-FSJ26-	SHT. NO. 304	
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BOW THRUSTER DRIVE	SHIP'S PANEL	
304240	BLK	120V RECEPT MAINTENANCE RECPT		304TB2	1	L123E-11 L1
304270	WHT	120V RECEPT MAINTENANCE RECPT		304TB2	2	L123E-11 L2
GROUND	GRN	RECEPT GROUND TO PE BUS BAR			PE	L123E PE

(REF 4)

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-001	ROCKWELL AUTOMATION		
		CABLE TYPE	DXIU-4	DWG: WE-FSJ26-	SHT. NO. 316	
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BOW THRUSTER DRIVE	BLOWER MTR PNL	
316340	BLK	MAIN BLOWER MOTOR ON		BT_LR_6	15	NA
HOT	WHT	MAIN BLOWER MOTOR ON		BT_LR_6	16	NA

(REF 2)

WIRE NO.	COLOR	CUSTOMER REFERENCE	P416-10	(REF 1)		
		CABLE TYPE	FXIU-4			
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BT MOTOR STARTER	SHIP'S PANEL	
P416-10A	BLK	MAIN BLOWER MOTOR STARTER			L1	P416-10 L1
P416-10B	WHT	MAIN BLOWER MOTOR STARTER			L2	P416-10 L2
P416-10C	RED	MAIN BLOWER MOTOR STARTER			L3	P416-10 L3

WIRE NO.	COLOR	CUSTOMER REFERENCE	P416-10A	(REF 1)		
		CABLE TYPE	FXIU-4			
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BT MOTOR STARTER	BT MOTOR	
P416-10A-L1	BLK	MAIN BLOWER MOTOR			L1	X1
P416-10B-L2	WHT	MAIN BLOWER MOTOR			L2	X2
P416-10C-L3	RED	MAIN BLOWER MOTOR			L3	X3

WIRE NO.	COLOR	CUSTOMER REFERENCE	P103-17	(REF 1)		
		CABLE TYPE	DXIU-4			
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	SHIP'S PNL	BT MOTOR STARTER	
P103-17-L1	BLK	BLOWER MOTOR HEATER		P103-17	L1	NA
P103-17-L2	WHT	BLOWER MOTOR HEATER		P103-17	L2	NA

WIRE NO.	COLOR	CUSTOMER REFERENCE	P103-17A	(REF 1)		
		CABLE TYPE	DXIU-4			
		VOLTAGE RATING	---V	FROM	TO	
		CURRENT RATING	--A	BT MOTOR STARTER	BT BLOWER MOTOR	
P103-17A-L1	BLK	BLOWER MOTOR HEATER		P103-17A	NA	P103-17A NA
P103-17A-L2	WHT	BLOWER MOTOR HEATER		P103-17A	NA	P103-17A NA

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-502	ROCKWELL AUTOMATION		
		CABLE TYPE	LS3SWU-10	DWG: WE-FSJ26-	SHT. NO. 320 & 326	
		VOLTAGE RATING	***V	FROM	TO	
		CURRENT RATING	***A	BT DRIVE	BT MOTOR	
320060	1-BLK	RTD PHASE R		A301	A-0	PH R 1
320070	1-WHT	SENSE PHASE R		A301	B-17	PH R 3
320080	1-RED	RET PHASE R		A301	A-1	PH R 2
SHLD	1-SHLD	SCREEN		SHLD	C-39	NOTE 1
320140	2-BLK	RTD PHASE Y		A301	A-2	PH Y 4
320150	2-WHT	SENSE PHASE Y		A301	B-19	PH Y 6
320160	2-RED	RET PHASE Y		A301	A-3	PH Y 5
SHLD	2-SHLD	SCREEN		SHLD	C-40	NOTE 1
320220	3-BLK	RTD PHASE B		A301	A-4	PH B 16
320230	3-WHT	SENSE PHASE B		A301	B-21	PH B 18
320240	3-RED	RET PHASE B		A301	A-5	PH B 17
SHLD	3-SHLD	SCREEN		SHLD	C-41	NOTE 1
320300	4-BLK	RTD BEARING DE		A301	A-6	BRG DE 26
320310	4-WHT	SENSE BEARING DE		A301	B-23	BRG DE 28
320320	4-RED	RET BEARING DE		A301	A-7	BRG DE 27
SHLD	4-SHLD	SCREEN		SHLD	C-42	NOTE 1
320480	5-BLK	RTD BEARING NDE		A301	A-8	BRG NDE 29
320490	5-WHT	SENSE BEARING NDE		A301	B-25	BRG NDE 31
320500	5-RED	RET BEARING NDE		A301	A-9	BRG NDE 30
SHLD	5-SHLD	SCREEN		SHLD	C-43	NOTE 1
326060	6-BLK	RTD MTR HOT AIR		A307	A-0	HOT AIR 32
326070	6-WHT	SENSE MTR HOT AIR		A307	B-17	HOT AIR 34
326080	6-RED	RET MTR HOT AIR		A307	A-1	HOT AIR 33
SHLD	6-SHLD	SCREEN		SHLD	C-39	NOTE 1
326140	7-BLK	RTD MTR COLD AIR		A307	A-2	COLD AIR 35
326150	7-WHT	SENSE MTR COLD AIR		A307	B-19	COLD AIR 37
326160	7-RED	RET MTR COLD AIR		A307	A-3	COLD AIR 36
SHLD	7-SHLD	SCREEN		SHLD	C-40	NOTE 1
131140	8-BLK	SPARE				
131160	8-WHT	SPARE				
131150	8-RED	SPARE				
SHLD	8-SHLD	SPARE		NOTE 1		
SPARE	9-BLK	SPARE				
SPARE	9-WHT	SPARE				
SPARE	9-RED	SPARE				
SPARE	9-SHLD	SPARE		NOTE 1		
SPARE	10-BLK	SPARE				
SPARE	10-WHT	SPARE				
SPARE	10-RED	SPARE				
SPARE	10-SHLD	SPARE		NOTE 1		

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-007	ROCKWELL AUTOMATION		
		CABLE TYPE	LS3SWU-10	DWG: WE-FSJ26-	SHT. NO. 320 & 326	
		VOLTAGE RATING	***V	FROM	TO	
		CURRENT RATING	***A	BT DRIVE	XFMR 350IT	
320560	1-BLK	RTD 0 DEG XFMR U PH		A301	A-10	U PH 1
320570	1-WHT	SENSE 0 DEG XFMR U PH		A301	B-27	U PH 3
320580	1-RED	RET 0 DEG XFMR U PH		A301	A-11	U PH 2
SHLD	1-SHLD	SCREEN		SHLD	C-44	U PH NOTE 1
320640	2-BLK	RTD 0 DEG XFMR V PH		A301	A-12	V PH 7
320650	2-WHT	SENSE 0 DEG XFMR V PH		A301	B-29	V PH 9
320660	2-RED	RET 0 DEG XFMR V PH		A301	A-13	V PH 8
SHLD	2-SHLD	SCREEN		SHLD	C-45	V PH NOTE 1
320720	3-BLK	RTD 0 DEG XFMR W PH		A301	A-14	W PH 13
320730	3-WHT	SENSE 0 DEG XFMR W PH		A301	B-31	W PH 15
320740	3-RED	RET 0 DEG XFMR W PH		A301	A-15	W PH 14
SHLD	3-SHLD	SCREEN		SHLD	C-46	W PH NOTE 1
326560	4-BLK	RTD 30 DEG XFMR U PH		A301	A-10	U PH 1
326570	4-WHT	SENSE 30 DEG XFMR U PH		A301	B-27	U PH 3
326580	4-RED	RET 30 DEG XFMR U PH		A301	A-11	U PH 2
SHLD	4-SHLD	SCREEN		SHLD	C-44	U PH NOTE 1
326640	5-BLK	RTD 30 DEG XFMR V PH		A301	A-12	V PH 7
326650	5-WHT	SENSE 30 DEG XFMR V PH		A301	B-29	V PH 9
326660	5-RED	RET 30 DEG XFMR V PH		A301	A-13	V PH 8
SHLD	5-SHLD	SCREEN		SHLD	C-45	V PH NOTE 1
326720	6-BLK	RTD 30 DEG XFMR W PH		A307	A-14	W PH 13
326730	6-WHT	SENSE 30 DEG XFMR W PH		A307	B-31	W PH 15
326740	6-RED	RET 30 DEG XFMR W PH		A307	A-15	W PH 14
SHLD	6-SHLD	SCREEN		SHLD	C-46	W PH NOTE 1
SPARE	7-BLK	0 DEG REACTOR RTD		A307	A-6	---- ----
SPARE	7-WHT	0 DEG REACTOR RTD		A307	B-23	---- ----
SPARE	7-RED	0 DEG REACTOR RTD		A307	A-7	---- ----
SPARE	7-SHLD	SCREEN		SHLD	C-42	NOTE 1
SPARE	8-BLK	30 DEG REACTOR RTD		A307	A-8	---- ----
SPARE	8-WHT	30 DEG REACTOR RTD		A307	B-25	---- ----
SPARE	8-RED	30 DEG REACTOR RTD		A307	A-9	---- ----
SPARE	8-SHLD	SCREEN		SHLD	C-43	NOTE 1
SPARE	9-BLK	SPARE				
SPARE	9-WHT	SPARE				
SPARE	9-RED	SPARE				
SPARE	9-SHLD	SPARE				
SPARE	10-BLK	SPARE				
SPARE	10-WHT	SPARE				
SPARE	10-RED	SPARE				
SPARE	10-SHLD	SPARE				

HULL NO 1956	CAGE CODE 3BJ86	SIZE B	JOB NO. M283	ITEM 235	DELIVERABLE PE32	SHEET 002	REV 00
ESTIMATE NO 00-104		SCALE NONE		FILE R:\M283\ProductionDesign\Issued\ElecDwgs		SHEET 2 OF 5	

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-401	ROCKWELL AUTOMATION			
		CABLE TYPE	MNI-10-3	DWG: WE-FSJ26-	SHT. NO. 324		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		STEERING MTR STARTER PNL	
324130	1-BLK	BOW THRUSTER DRIVE	TRIPPED	A305	B-4	TB2/1	C36
324140	2-WHT	BOW THRUSTER DRIVE	TRIPPED	A305	C-5	TB2/1	A1
324170	3-RED	BOW THRUSTER DRIVE	RUNNING	A305	B-6	TB2/1	C37
324180	4-GRN	BOW THRUSTER DRIVE	RUNNING	A305	C-7	TB2/1	A2
324250	5-ORG	BOW THRUSTER TO DRIVE	READY	A305	B-10	TB2/1	C35
324260	6-BLU	BOW THRUSTER TO DRIVE	READY	A305	C-11	TB2/1	A0
324290	7-WHT/BLK	EMERGENCY STOP		A305	B-12	TB2/6	52
324300	8-RED/BLK	EMERGENCY STOP		A305	C-13	TB2/6	51
324330	9-GRN/BLK	LOCAL CONTROL		A305	B-14	TB2/3	A8
324340	10-ORG/BLK	LOCAL CONTROL		A305	C-15	TB2/3	A9

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-402	ROCKWELL AUTOMATION			
		CABLE TYPE	MNI-30-3	DWG: WE-FSJ26-	SHT. NO. 321		
		VOLTAGE RATING	***V	FROM		TO	
		CURRENT RATING	***A	BT DRIVE		STEERING MTR STARTER PNL	
321050	1-BLK	BRIDGE AFT CONTROL		A302	A-0	TB2/3	A7
300540	2-WHT	BRIDGE AFT CONTROL		A302	C-35	TB2/3	A6
321090	3-RED	LOCAL PB CONTROL		A302	A-1	TB2/3	A9
300540	4-GRN	LOCAL PB CONTROL		A302	C-36	TB2/3	A8
321130	5-ORG	REMOTE START		A302	A-2	TB2/2	A1
300540	6-BLU	COMMON		A302	C-37	TB2/2	A0
321170	7-WHT/BLK	REMOTE STOP		A302	A-3	TB2/2	A3
321210	8-RED/BLK	RESET		A302	A-4	TB2/2	A5
321250	9-GRN/BLK	SPARE		A302	A-5	SPARE	SPARE
321290	10-ORG/BLK	BOW THRUSTER ENABLE		A302	A-6	TB2/2	A7
321330	11-BLU/BLK	READY FOR SERVICE		A302	A-7	TB2/2	A9
300540	12-BLK/WHT	READY FOR SERVICE		A302	C-42	TB2/2	A8
321470	13-RED/WHT	RPM LEVER IN IDLE		A302	A-8	TB2/2	A11
300540	14-GRN/WHT	RPM IDLE CONTROL		A302	C-43	TB2/2	A10
321510	15-BLU/WHT	DP MODE CONTROL		A302	A-9	TB2/2	A13
300540	16-BLK/RED	DP MODE CONTROL		A302	C-44	TB2/2	A12
321550	17-WHT/RED	MASTER CONTROL		A302	A-10	TB2/3	A1
300540	18-ORG/RED	COMMON		A302	C-45	TB2/3	A0
321590	19-BLU/RED	PORT CONTROL		A302	A-11	TB2/3	A3
321630	20-RED/GRN	STARBOARD CONTROL		A302	A-12	TB2/3	A5
321670	21-ORG/GRN	E-STOP		A302	A-13	TB2/6	54
300540	22-BLK/WHT/RED	E-STOP		A302	C-49	TB2/6	53
SPARE	23-WHT/BLK/RED	SPARE					
SPARE	24-RED/BLK/WHT	SPARE					
SPARE	25-GRN/BLK/WHT	SPARE					
SPARE	26-ORG/BLK/WHT	SPARE					
SPARE	27-BLU/BLK/WHT	SPARE					
SPARE	28-BLK/RED/GRN	SPARE					
SPARE	29-WHT/RED/GRN	SPARE					
SPARE	30-RED/BLK/GRN	SPARE					

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-403	ROCKWELL AUTOMATION			
		CABLE TYPE	LS2SWU-1	DWG: WE-FSJ26-	SHT. NO. 322		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		STEERING MTR STARTER PNL	
322050	BLK	SPEED DEMAND SIGNAL		A303	A-0	TB2/4	A8
322090	WHT	SPEED DEMAND SIGNAL		A303	A-1	TB2/4	A9
SHLD	SHLD	SHIELD		A303	C-39		

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-404	ROCKWELL AUTOMATION			
		CABLE TYPE	LS2SWU-1	DWG: WE-FSJ26-	SHT. NO. 323		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		STEERING MTR STARTER PNL	
323470	BLK	SPEED FEEDBACK SIGNAL		A304	A-8	TB2/4	A0
323490	WHT	SPEED FEEDBACK SIGNAL		A304	A-9	TB2/4	A1
SHLD	SHLD	SHIELD		A304	C-43		

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-002	ROCKWELL AUTOMATION			
		CABLE TYPE	TP16TIU-1	DWG: WE-FSJ26-	SHT. NO. 322		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		DAU MCC A11	
322210	BLK	SPEED FEEDBACK SIGNAL		A303	A-4	TB4	5
322230	WHT	SPEED FEEDBACK SIGNAL		A303	A-5	TB4	4
SHLD	SHLD	SHIELD		A303		TB4	3

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-003	ROCKWELL AUTOMATION			
		CABLE TYPE	TP16TIU-1	DWG: WE-FSJ26-	SHT. NO. 323		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		DP	
323050	BLK	SPEED FEEDBACK SIGNAL		A304	A-0	TB4	1
323090	WHT	SPEED FEEDBACK SIGNAL		A304	A-1	TB4	2
SHLD	SHLD	SHIELD		A304	C-39	TB4	

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-501	ROCKWELL AUTOMATION			
		CABLE TYPE	MNI-7-3	DWG: WE-FSJ26-	SHT. NO. 324 & 325		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		MAIN SW BOARD	
324050	BLK	COMMON		A305	B-0	BT1PM	1
324060	WHT	MAIN BREAKER CLOSE COMMAND		A305	C-1	BT1PM	2
324100	RED	MAIN BREAKER OPEN COMMAND		A305	C-3	BT1PM	3
325050	GRN	MAIN BREAKER STATUS		A306	A-0	BT1PM	7
300540	BLU	MAIN BREAKER STATUS		A306	C-35	BT1PM	6

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-005	ROCKWELL AUTOMATION			
		CABLE TYPE	FXIU-4	DWG: WE-FSJ26-	SHT. NO. 325		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		DAU 3 A5	
325130	BLK	PMS START PERM		A306	A-2	TB3	9
300540	WHT	PMS START PERM		A306	C-37	TB3	8
325170	RED	PMS ON		A306	A-3	TB3	12
300540	GRN	PMS ON		A306	C-38	TB3	11

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-006	ROCKWELL AUTOMATION			
		CABLE TYPE	DXIU-4	DWG: WE-FSJ26-	SHT. NO. 325		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		BT BLOWER STARTER	
325670	BLK	BT BLOWER MOTOR STARTER AUX		A306	A-13	--	--
300540	WHT	BT BLOWER MOTOR STARTER AUX		A306	C-48	--	--

REF 1

WIRE NO.	COLOR	CUSTOMER REFERENCE	P073	ROCKWELL AUTOMATION			
		CABLE TYPE	FLEXI BUS (SWE)	DWG: WE-FSJ26-	SHT. NO. 350 & 352		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		350IT XFMR	
350Y1	BLK	WYE SECONDARY 600V/433A		350BB	1	350IT	Y1
350Y2	WHT	WYE SECONDARY 600V/433A		350BB	2	350IT	Y2
350Y3	RED	WYE SECONDARY 600V/433A		350BB	3	350IT	Y3

WIRE NO.	COLOR	CUSTOMER REFERENCE	P074	ROCKWELL AUTOMATION			
		CABLE TYPE	FLEXI BUS (SWE)	DWG: WE-FSJ26-	SHT. NO. 350 & 352		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		350IT XFMR	
350X1	BLK	DELTA SECONDARY 600V/433A		350BB	4	350IT	X1
350X2	WHT	DELTA SECONDARY 600V/433A		350BB	5	350IT	X2
350X3	RED	DELTA SECONDARY 600V/433A		350BB	6	350IT	X3
350X0	GRN	GROUND		350TB	N	350IT	Y0

WIRE NO.	COLOR	CUSTOMER REFERENCE	P101	ROCKWELL AUTOMATION			
		CABLE TYPE	(3)TPNSB-313	DWG: WE-FSJ26-	SHT. NO. 354		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BT DRIVE		BT MOTOR	
354U	BLK	MOTOR FEED 600V/1150A		354BB	1	MTR	T1
354V	WHT	MOTOR FEED 600V/1150A		354BB	2	MTR	T2
354W	RED	MOTOR FEED 600V/1150A		354BB	3	MTR	T3
354MGND	GRN	GROUND		PE BUS	PE	MTR	G
354MSHD	SHLD	SHIELD		SHLD	PE	MTR	SHLD

WIRE NO.	COLOR	CUSTOMER REFERENCE	P416-4	ELLIOT/BESTWAY			
		CABLE TYPE	TXIU-16	DWG: BEL 0081	SHT. NO. E 101		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	STEERING MTR STARTER		P416-4	
P416-4A	BLK	POWER 480V, 32A			1	P416-4	L1
P416-4B	WHT	POWER 480V, 32A			2	P416-4	L2
P416-4C	RED	POWER 480V, 32A			3	P416-4	L3

WIRE NO.	COLOR	CUSTOMER REFERENCE	P222-11	ELLIOT/BESTWAY			
		CABLE TYPE	DXIU-4	DWG: BEL 0081	SHT. NO. E 101		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	-- A	STEERING MTR STARTER		P222-11	
P222-11-1	BLK	POWER 120V, 16A			4		L1
P222-11-2	WHT	POWER 120V, 16A			5		L2

WIRE NO.	COLOR	CUSTOMER REFERENCE	C-AM-500-52	ELLIOT/BESTWAY	
		CABLE TYPE	TP16TIU-3	DWG: BEL 0081	SHT. NO. 102
		VOLTAGE RATING	***V	FROM	TO
		CURRENT RATING	***A	STEERING MTR STARTER	DAU 4
TB2/3-A10	1-BLK	ESSENTIAL/SHUTDOWN ALARM		TB2/3-A10	1
TB2/3-A11	2-WHT	ESSENTIAL/SHUTDOWN ALARM		TB2/3-A11	2
TB2/3-A12	3-RED	NON ESSENTIAL ALARM		TB2/3-A12	3
TB2/3-A13	4-GRN	NON ESSENTIAL ALARM		TB2/3-A13	4
TB2/3-A14	5-ORG	SPARE		TB2/3-A14	5
TB2/3-A15	6-BLU	SPARE		TB2/3-A15	6
	7-WHT/BLK	SPARE			

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-105	ELLIOT/BESTWAY	
		CABLE TYPE	TXIU-4	DWG: BEL 0081	SHT. NO. E 102
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	FIRE CONTROL SYS
K-BT-105-1	1-BLK	EMERGENCY STOP		TB4/1 81	1
K-BT-105-2	2-WHT	EMERGENCY STOP		TB4/1 82	2
K-BT-105-3	3-RED	EMERGENCY STOP RELAY CONTACT		TB4/1 83	3
K-BT-105-4	4-GRN	EMERGENCY STOP RELAY CONTACT		TB4/1 84	4

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-205	ELLIOT/BESTWAY	
		CABLE TYPE	DXIU-4	DWG: BEL 0081	SHT. NO. E 103
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	STEER'G MTR TERM BOX
K-BT-205-1	BLK	BRAKE		8	BRAKE
K-BT-205-2	WHT	BRAKE		9	BRAKE

WIRE NO.	COLOR	CUSTOMER REFERENCE	P416-4(L)	ELLIOT/BESTWAY	
		CABLE TYPE	LS4SJ-14	DWG: BEL 0081	SHT. NO. E 103
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	STEER'G MTR TERM BOX
P416-4(L)-1	1-BLK	POWER		10	U1
P416-4(L)-2	2-WHT	POWER		11	V1
P416-4(L)-3	3-RED	POWER		12	W1
P416-4(L)-4	4-GRN	POWER		13	E
P416-4(L)-SCR	SCRN	SCREEN		SCR	

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-202	ELLIOT/BESTWAY	
		CABLE TYPE	DXIU-4	DWG: BEL 0081	SHT. NO. E 103
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	STEER'G MTR TERM BOX
K-BT-202-1	BLK	HEATER		23	HTR
K-BT-202-2	WHT	HEATER		24	HTR

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-204	ELLIOT/BESTWAY	
		CABLE TYPE	LS3SJ-14	DWG: BEL 0081	SHT. NO. E 103
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	COOLING FAN TERM BOX
K-BT-204-1	BLK	COOLING FAN		14	U1
K-BT-204-2	WHT	COOLING FAN		15	V1
K-BT-204-3	RED	COOLING FAN		16	W1
K-BT-204-SCR	SCRN	SCREEN		SCR	

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-206	ELLIOT/BESTWAY	
		CABLE TYPE	LS4SJ-16	DWG: BEL 0081	SHT. NO. E 104
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	TRANSMITTER J-BOX
K-BT-206-1	1-BLK	TRANSMITTER JUNCTION BOX		TB1/1 44	-
K-BT-206-2	2-WHT	TRANSMITTER JUNCTION BOX		TB1/4 B17	+
K-BT-206-3	3-RED	TRANSMITTER JUNCTION BOX		TB1/4 A2	A
K-BT-206-4	4-GRN	TRANSMITTER JUNCTION BOX		TB1/4 A6	B

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-207	ELLIOT/BESTWAY	
		CABLE TYPE	LS4SJ-16	DWG: BEL 0081	SHT. NO. E 104
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	TRANSMITTER J-BOX
K-BT-207-1	1-BLK	TRANSMITTER JUNCTION BOX		TB1/1 45	-
K-BT-207-2	2-WHT	TRANSMITTER JUNCTION BOX		TB1/4 B25	+
K-BT-207-3	3-RED	TRANSMITTER JUNCTION BOX		TB1/4 A10	A
K-BT-207-4	4-GRN	TRANSMITTER JUNCTION BOX		TB1/4 A14	B

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-203	ELLIOT/BESTWAY	
		CABLE TYPE	LS2SWU-1	DWG: BEL 0081	SHT. NO. E 105
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	STEER'G MTR TERM BOX
K-BT-203-1	BLK	STEERING MTR TERM BOX		TB1/1 46	1T1
K-BT-203-3	WHT	STEERING MTR TERM BOX		TB1/1 47	1T2

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-209	ELLIOT/BESTWAY	
		CABLE TYPE	MNI-10-3	DWG: BEL 0081	SHT. NO. 105
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER PNL	AUX JUNCTION BOX
K-BT-209-1	1-BLK	----		TB1/1 41	TB1/1 41
K-BT-209-2	2-WHT	----		TB1/1 42	TB1/1 42
K-BT-209-3	3-RED	----		TB1/3 43	TB1/1 43
K-BT-209-4	4-GRN	----		TB1/3 C35	TB1/3 C35
K-BT-209-5	5-ORG	----		TB1/3 A0	TB1/3 A0
K-BT-209-6	6-BLU	----		TB1/3 C36	TB1/3 C36
K-BT-209-7	7-WHT/BLK	----		TB1/3 A1	TB1/3 A1
K-BT-209-8	8-RED/BLK	----		TB1/3 C37	TB1/3 C37
K-BT-209-9	9-GRN/BLK	----		TB1/2 A2	TB1/3 A2
K-BT-209-10	10-ORG/BLK	SPARE	--	--	--

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-208	ELLIOT/BESTWAY	
		CABLE TYPE	LSTCKX-3	DWG: BEL 0081	SHT. NO. E 105
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER PNL	AUX JUNCTION BOX
K-BT-208-1	BLK	STEERING MTR TERM BOX		TB1/2 A0	TB1/2 A0
K-BT-208-2	WHT	STEERING MTR TERM BOX		TB1/2 A1	TB1/2 A1

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-214	ELLIOT/BESTWAY	
		CABLE TYPE	TXIU-4	DWG: BEL 0081	SHT. NO. E 106
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	THRUSTER LUBE OIL PMP 1
K-BT-214-1	BLK	POWER		17	U
K-BT-214-2	WHT	POWER		18	V
K-BT-214-3	RED	POWER		19	W

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-215	ELLIOT/BESTWAY	
		CABLE TYPE	TXIU-4	DWG: BEL 0081	SHT. NO. E 106
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	THRUSTER LUBE OIL PMP 2
K-BT-215-1	BLK	POWER		20	U
K-BT-215-2	WHT	POWER		21	V
K-BT-215-3	RED	POWER		22	W

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-212	ELLIOT/BESTWAY	
		CABLE TYPE	SWE	DWG: BEL 0081	SHT. NO. E 106
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	BT TEMP SENSOR
K-BT-212-1	BLK	THRUST BEARING TEMPERATURE SENSOR		TB1/2 A0	UNIT
K-BT-212-2	WHT	THRUST BEARING TEMPERATURE SENSOR		TB1/2 A1	UNIT

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-211	ELLIOT/BESTWAY	
		CABLE TYPE	SWE	DWG: BEL 0081	SHT. NO. E 106
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	BT LOW OIL PRESSURE
K-BT-211-1	BLK	THRUST BEARING LOW LUBE OIL PRESSURE SWITCH		TB1/3 C35	COM UNIT
K-BT-211-2	WHT	THRUST BEARING LOW LUBE OIL PRESSURE SWITCH		TB1/3 A0	N/O UNIT

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-210	ELLIOT/BESTWAY	
		CABLE TYPE	SWE	DWG: BEL 0081	SHT. NO. E 106
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	BT LOW LOW OIL PRESSURE
K-BT-210-1	BLK	THRUST BEARING LOW LOW LUBE OIL PRESSURE SWITCH		TB1/3 C36	COM UNIT
K-BT-210-2	WHT	THRUST BEARING LOW LOW LUBE OIL PRESSURE SWITCH		TB1/3 A1	N/O UNIT

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-213	ELLIOT/BESTWAY	
		CABLE TYPE	SWE	DWG: BEL 0081	SHT. NO. E 106
		VOLTAGE RATING	---V	FROM	TO
		CURRENT RATING	--A	STEERING MTR STARTER	BT AZIMUTH ALIGNMENT
K-BT-213-1	BLK	AZIMUTH ALIGNMENT MAGNETIC PROXIMITY SWITCH		TB1/3 C37	UNIT
K-BT-213-2	WHT	AZIMUTH ALIGNMENT MAGNETIC PROXIMITY SWITCH		TB1/3 A2	UNIT

REF 1

HULL NO 1956	CAGE CODE 3BJ86	SIZE B	JOB NO. M283	ITEM 235	DELIVERABLE PE32	SHEET 004	REV 00
ESTIMATE NO 00-104		SCALE NONE		FILE R:\M283\ProductionDesign\Issued\ElecDwgs		SHEET 4 OF 5	

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-309	ELLIOT/BESTWAY			
		CABLE TYPE	MNI-10-3	DWG: BEL 0081		SHT. NO. 108	
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	STEERING MTR STARTER PNL		BRIDGE MASTER J-BOX	
K-BT-309-1	1-BLK	---		TB3/1	61	TB5/1	61
K-BT-309-2	2-WHT	----		TB3/1	62	TB5/1	62
K-BT-309-3	3-RED	----		TB3/1	63	TB5/1	63
K-BT-309-4	4-GRN	----		TB3/1	64	TB5/1	64
K-BT-309-5	5-ORG	----		TB3/1	68	TB5/1	68
K-BT-309-6	6-BLU	----		TB3/1	69	TB5/1	69
K-BT-309-7	7-WHT/BLK	----		TB3/1	70	TB5/1	70
K-BT-309-8	8-RED/BLK	----	(SEE NOTE BELOW)	TB3/1	71	TB5/1	71
K-BT-309-9	9-GRN/BLK	----		TB3/1	72	TB5/1	72
K-BT-309-10	10-ORG/BLK	----		TB3/1	73	TB5/1	73
		NOTE: ISOLATING LINKS ON TERMINAL 71 AT					
		BOTH ENDS OF CABLE 309 TO BE OPENED					

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-310	ELLIOT/BESTWAY			
		CABLE TYPE	DXIU-4	DWG: BEL 0081	SHT. NO. E 109		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BRIDGE MASTER J-BOX		DP SYSTEM	
K-BT-310-1	BLK	DP SYSTEM DEMAND CONTROL		TB5/3	C44		--
K-BT-310-2	WHT	DP SYSTEM DEMAND CONTROL		TB5/3	A9		--

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-312	ELLIOT/BESTWAY			
		CABLE TYPE	FXIU-4	DWG: BEL 0081	SHT. NO. E 109		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	STEERING MTR STARTER		DP SYSTEM	
K-BT-312-1	1-BLK	DP SYSTEM IN CONTROL		TB5/3	A14		--
K-BT-312-2	2-WHT	DP SYSTEM IN CONTROL		TB5/3	B31		--
K-BT-312-3	3-RED	SPARE		TB5/3	A15		--
K-BT-312-4	4-GRN	SPARE		TB5/3	B32		--

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-311	ELLIOT/BESTWAY			
		CABLE TYPE	LS2SSWU-7	DWG: BEL 0081	SHT. NO. E 109		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	STEERING MTR STARTER		DP SYSTEM	
K-BT-311-1A	PR1-BLK	AZIMUTH DEMAND SIGNAL 0-10V DC		TB5/5	A2		+
K-BT-311-1B	PR1-WHT	AZIMUTH DEMAND SIGNAL 0-10V DC		TB5/5	A3		-
K-BT-311-2A	PR2-BLK	AZIMUTH FEEDBACK SIGNAL 0-10V DC		TB5/5	A10		+
K-BT-311-2B	PR2-WHT	AZIMUTH FEEDBACK SIGNAL 0-10V DC		TB5/5	A11		-
K-BT-311-3A	PR3-BLK	SPEED DEMAND SIGNAL 0-10V DC		TB5/5	A6		+
K-BT-311-3B	PR3-WHT	SPEED DEMAND SIGNAL 0-10V DC		TB5/5	A7		-
K-BT-311-4A	PR4-BLK	SPEED FEEDBACK SIGNAL 0-10V DC		TB5/5	A14		+
K-BT-311-4B	PR4-WHT	SPEED FEEDBACK SIGNAL 0-10V DC		TB5/5	A15		-
K-BT-311-5	PR5	SPARE					
K-BT-311-6	PR6	SPARE					
K-BT-311-7	PR7	SPARE					
K-BT-311-SCR	SCRN	SCREEN			SCR		

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-313	ELLIOT/BESTWAY			
		CABLE TYPE	MNI-10-3	DWG: BEL 0081	SHT. NO. 110		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BRIDGE MASTER J-BOX		BRIDGE PORT J-BOX	
K-BT-313-1	1-BLK	----		TB5/1	61	TB6/1	61
K-BT-313-2	2-WHT	----		TB5/1	62	TB6/1	62
K-BT-313-3	3-RED	----		TB5/1	63	TB6/1	63
K-BT-313-4	4-GRN	----		TB5/1	65	TB6/1	65
K-BT-313-5	5-ORG	----		TB5/1	66	TB6/1	66
K-BT-313-6	6-BLU	----		TB5/1	69	TB6/1	69
K-BT-313-7	7-WHT/BLK	----		TB5/1	70	TB6/1	70
K-BT-313-8	8-RED/BLK	----		TB5/1	71	TB6/1	71
K-BT-313-9	9-GRN/BLK	SPARE					
K-BT-313-10	10-ORG/BLK	SPARE					

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-314	ELLIOT/BESTWAY			
		CABLE TYPE	MNI-10-3	DWG: BEL 0081	SHT. NO. 110		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BRIDGE MASTER J-BOX		BRIDGE STBD J-BOX	
K-BT-314-1	1-BLK	----		TB5/1	61	TB7/1	61
K-BT-314-2	2-WHT	----		TB5/1	62	TB7/1	62
K-BT-314-3	3-RED	----		TB5/1	63	TB7/1	63
K-BT-314-4	4-GRN	----		TB5/1	66	TB7/1	66
K-BT-314-5	5-ORG	----		TB5/1	67	TB7/1	67
K-BT-314-6	6-BLU	----		TB5/1	69	TB7/1	69
K-BT-314-7	7-WHT/BLK	----		TB5/1	70	TB7/1	70
K-BT-314-8	8-RED/BLK	----		TB5/1	71	TB7/1	71
K-BT-314-9	9-GRN/BLK	SPARE					
K-BT-314-10	10-ORG/BLK	SPARE					

WIRE NO.	COLOR	CUSTOMER REFERENCE	K-BT-315	ELLIOT/BESTWAY			
		CABLE TYPE	MNI-10-3	DWG: BEL 0081	SHT. NO. 110		
		VOLTAGE RATING	---V	FROM		TO	
		CURRENT RATING	--A	BRIDGE MASTER J-BOX		BRIDGE AFT J-BOX	
K-BT-315-1	1-BLK	----		TB5/1	61	TB8/1	61
K-BT-315-2	2-WHT	----		TB5/1	62	TB8/1	62
K-BT-315-3	3-RED	----		TB5/1	63	TB8/1	63
K-BT-315-4	4-GRN	----		TB5/1	67	TB8/1	67
K-BT-315-5	5-ORG	----		TB5/1	68	TB8/1	68
K-BT-315-6	6-BLU	----		TB5/1	69	TB8/1	69
K-BT-315-7	7-WHT/BLK	----		TB5/1	70	TB8/1	70
K-BT-315-8	8-RED/BLK	----		TB5/1	71	TB8/1	71
K-BT-315-9	9-GRN/BLK	SPARE					
K-BT-315-10	10-ORG/BLK	SPARE					

NETWORK CABLES

REF 3

REF 1

HULL NO	CAGE CODE	SIZE	JOB NO.	ITEM	DELIVERABLE	SHEET	REV
1956	3BJ86	B	M283	235	PE32	005	00
ESTIMATE NO		SCALE		FILE R:\M283\ProductionDesign\Issued\ElecDwgs		SHEET 5	OF 5
00-104		NONE					