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OPERATING INSTRUCTIONS

MACHINE TYPE: DAE/15K UNWIND
SHAFTLESS & REEL SPOOL OPERATION

SPECIFICATION: SHAFTLESS-AB 1524 MAX.
REEL SPOOL-AB 2134 MAX.

SERIAL NO: E82.0024 DELIVERY: 05/1982

CUSTOMER: CRANE & CO., DALTON, MA.

ISSUE: 5/82

REF. BM# V82078B



P.O. Box 188, Enfield, CT. 06082 USA Telephone: (203) 741-2501, Telex: 6 43161/62

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THIS

OPERATING MANUAL

FOR JAGENBERG EQUIPMENT MUST BE TREATED
CONFIDENTIALLY. IT IS INTENDED FOR THE USE
BY COMPETENT PEOPLE IN YOUR PLANT. PASSING
ON TO A THIRD PARTY IS NOT PERMITTED AND
IS BOUND TO INDEMNIFICATION.

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SPARE PARTSORDERING INFORMATION1. LOCATING THE REQUIRED PARTS:

- A. FIND THE PART IN THE APPROPRIATE ILLUSTRATION (FIG.) WHICH ARE ARRANGED ACCORDING TO FUNCTIONAL GROUPS.
- B. TO LOCATE THESE FUNCTIONAL GROUPS IN THE MANUAL, CONSULT THE LIST OF ILLUSTRATIONS - SECT. 10.3 - TABLE OF CONTENTS.
- C. FIND THE ITEM NO. OF THE REQUIRED PART.
- D. LOCATE ITEM NO., AND PART NO., IN SPARE PARTS LISTING ASSIGNED TO THE ILLUSTRATION.

2. WRITING OUT THE SPARE PARTS ORDER:

A CORRECT ORDER SHOULD CONTAIN THE FOLLOWING:

DETAILS OF THE MACHINE

1. TYPE OF MACHINE
2. WORKING WIDTH
3. SERIAL NO.

DETAILS OF SPARE PART

4. FIG. #
5. ITEM NO.
6. PART NO.
7. QUANTITY
8. DESCRIPTION

FOR FURTHER DETAILS ON WRITING OUT AN ORDER, SEE FOLLOWING PAGES.

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EXAMPLE: REQUIRED DETAILS OF THE MACHINE.

OPERATING INSTRUCTIONS

MACHINE TYPE: [REDACTED] ①

SPECIFICATION: WORKING WIDTH AB= [REDACTED] ②

SERIAL NO: [REDACTED] ③ DELIVERY: [REDACTED]

CUSTOMER: [REDACTED]

NOTE: ONLY THE BOXED IN INFORMATION IS REQUIRED.

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10.0 SHAFTLESS & REEL SPOOL UNWIND

10.1 TECHNICAL DATA

SHAFTLESS OPERATION

WORKING WIDTH (MAX.)	1524 MM
REEL DIA. (MAX.)	1270 MM
WEB SPEED (MAX.)	762 M/MIN

REEL SPOOL OPERATION

WORKING WIDTH (MAX.)	2134 MM
REEL DIA. (MAX.)	1524 MM
WEB SPEED (MAX.)	762 M/MIN

POWER SUPPLY * * * * * * * * * *
 * * * * * 460V-3PH-60HZ *
 * * * * *

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10.2 DESCRIPTION & MODE OF OPERATION

THIS MACHINE CONSISTS OF TWO UNWIND STANDS WITH ONE BRAKE ASSY. EACH, ONE REEL SPOOL STAND WITH A THREE BRAKE ASSY. ALL STANDS ARE MOUNTED ON ROLLERS AND CAN BE SHIFTED SIDWAYS ON A COMMON GUIDE TUBE.

BOTH UNWIND STANDS HAVE INCLINED RAMPS ON WHICH ARE MOUNTED ONE SLIDING CARRIAGE EACH. EACH CARRIAGE IS EQUIPPED WITH AN ADAPTER PLATE TO ACCOMMODATE CUSTOMERS CORE CHUCKS, FOR RAISING A SHAFTLESS UNWIND ROLL.

THE BRAKE SYSTEM FOR SHAFTLESS UNWIND IS BY MEANS OF A WATER COOLED PNEUMATIC DRUM BRAKE ON EACH CARRIAGE.

FOR LIFTING THE SHAFTLESS ROLL INTO OPERATING POSITION, THE SLIDING CARRIAGES ARE MOVED UPWARDS ALONG THE RAMPS BY A THREADED SHAFT WHICH IS DRIVEN BY A GEAR MOTOR.

THE PRESSURE IN THE BRAKE CYLINDERS OF THE DRUM BRAKES IS REGULATED EITHER BY AN AUTOMATIC WEB TENSION CONTROL SYSTEM, OR MANUALLY BY A CONTROL VALVE ON THE PNEUMATIC ENCLOSURE. THE GEARMOTORS FOR LIFTING THE ROLL, AND FOR SIDE SHIFTING THE UNWIND STANDS ARE EQUIPPED WITH ADJUSTABLE SLIP CLUTCHES SO THAT THE MOTORS ARE PROTECTED AGAINST OVERLOAD.

FOR REEL SPOOL OPERATION THE MACHINE IS EQUIPPED WITH A SUPPORT CONSOLE ON EACH OF THE CARRIAGES, AND WITH A REEL SPOOL MOVING STAND. THE REEL SPOOL STAND CARRIES THE BRAKE & COUPLING ASSY, AND AIR CYLINDER TO ENGAGE AND RETRACT THE COUPLING FROM THE REEL SPOOL. REEL SPOOLS ARE LOADED AND UNLOADED FROM AN OVERHEAD DELIVERY SYSTEM.

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10.3 EQUIPMENT

THE FOLLOWING DRAWINGS, & APPROPRIATE SPARE PARTS LIST, ARE CONTAINED IN THIS MANUAL:

<u>DRAWING NO.</u>	<u>DESCRIPTION</u>
82.3094.07065	DAE/15K SUPPORT STANDS
82.3094.07061	CARRIAGE ASSY, RIGHT
82.3094.07062	CARRIAGE ASSY, LEFT
82.3094.07063	BRAKE ASSY, RIGHT
82.3094.07064	BRAKE ASSY, LEFT
82.3094.07069	ASSY., REEL SPOOL EQUIP.
82.3094.07067	CONSOLE ASSY., RIGHT
82.3094.07068	CONSOLE ASSY., LEFT
82.3094.07059	CABLE TRACK SYSTEM
62.3094.07030	UNWIND STAND CABLEWAY
82.3094.07071	ASSY. PNEUM. & WATER CONT. CABINET
82.3094.07072	ASSY. REEL SPOOL PNEUM. CONT. CABINET
51.3476.03307	ROLL DETECTOR ASSY.
3094.07058	LENGTH PIECES-DAE/15K

THE FOLLOWING ILLUSTRATIONS ARE REFERENCES ONLY.

84.3476.04362	PNEUM. SCHEMATIC-DAE/15K
84.3476.04363	PNEUM. SCHEMATIC-REEL SPOOL EQUIP.
FIG. 1	OPERATING CONTROLS
FIG. 2	BRAKE COOLING SYSTEM

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12.0 PNEUMATIC EQUIPMENT:

OPERATING INSTRUCTIONS FOR DRUM BRAKE-SEE FIGS. 12a & 12b

THE PNEUMATIC EQUIPMENT REQUIRES COMPRESSED AIR FROM A DISTRIBUTOR TANK OF AN AIR COMPRESSOR. AIR PRESSURE OF 6 BAR (80 - 100 PSI) IS REQUIRED. A REGULATOR SHOULD BE USED TO SET THIS PRESSURE.

THE SEQUENCE CONTROL VALVE SHOWN IN FIG. 12e IS MARKED WITH SYMBOLS WHICH INDICATE THE DIRECTION OF AIR FLOW THROUGH THE CONTROL VALVES IN THE INDIVIDUAL SWITCH POSTIONS. THE CONTROL FUNCTION OF THE CONTROL VALVE IS DESCRIBED IN SECT. 14.2 - THIS VALVE IS SUPPLIED ON UNITS WITH THREE (3) OR MORE BRAKE ASSYS.

ON UNITS WITH TWO (2) OR LESS BRAKE ASSY., AN ON/OFF VALVE IS SUPPLIED AS SHOWN IN FIG. 12 f. MANUAL VALVES LOCATED NEXT TO THE DIAPHRAGM CYLINDER MAY BE USED TO ADJUST FLOW. AIR SHOULD BE FILTERED AND DRY.

NOTE:

ON THIS MACHINE, THE REEL SPOOL BRAKES ARE CONTROLLED BY A SEQUENCE VALVE (FIG. 12e). THE UNWIND BRAKES ARE CONTROLLED BY AN ON/OFF MANUAL VALVE (FIG. 12 f).

14.0 BRAKE SYSTEM

14.1 BRAKE FORCE:

THE BRAKE TORQUE OF THE DRUM BRAKES IS DETERMINED BY THE NUMBER OF THE PRESSURIZED BRAKE CYLINDERS AND BY THE PRESSURE OF THE BRAKING AIR WHICH IS AUTOMATICALLY CONTROLLED BY THE WEB TENSION CONTROL, - WHEN SUPPLIED.

THE NECESSARY BRAKE TORQUE OF EACH DRUM BRAKE DEPENDS ON THE DESIRED WEB TENSION AND THE WIDTH OF THE PARENT REEL BEING HANDLED.

14.2 BRAKING RANGES:

THE FOLLOWING BRAKING RANGES CAN BE SET WITH ROTARY SLIDE VALVE - ITEM 4

- * 4 = LARGE BRAKE TORQUE RANGE
FOUR BRAKE CYLINDERS ARE PRESSURIZED
 - 3 = MEDIUM BRAKE TORQUE RANGE
THREE BRAKE CYLINDERS ARE PRESSURIZED
ONE BRAKE CYLINDER IS VENTED
 - 2 = SMALL BRAKE TORQUE RANGE
TWO BRAKE CYLINDERS ARE PRESSURIZED
TWO BRAKE CYLINDERS ARE VENTED
 - 1 = MINIMUM BRAKE TORQUE RANGE
ONE BRAKE CYLINDER IS PRESSURIZED
THREE BRAKE CYLINDERS ARE VENTED
 - 0 = BRAKES DISENGAGED
ALL BRAKE CYLINDERS ARE VENTED
- * NOT APPLICABLE WHEN DRUM BRAKE HAS A TOTAL OF ONLY THREE BRAKING CYLINDERS.

15.0 PROXIMITY SWITCH

EACH OF THE UNWIND STANDS HAS A PROXIMITY SWITCH.
THE PURPOSE OF THESE SWITCHES IS TO SHUT OFF THE
GEARMOTORS USED FOR RAISING AND LOWERING THE UNWIND
ROLL, IF THROUGH A MALFUNCTION THE UNWIND STANDS
ARE LIFTED OFF THE TRACK BY THE ROLL.

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17.0 REEL MONITORING (MOTOR SYNCHRO MONITORING):

THE PURPOSE OF THIS EQUIPMENT IS TO PREVENT A DEVIATION IN THE MOVEMENT OF THE TWO UNWIND STANDS WHEN THEY ARE SHIFTING TOGETHER TO THE LEFT OR TO THE RIGHT. IF THIS WERE TO HAPPEN, ONE OF THE TWO CORE CHUCKS MIGHT BE PULLED OUT OF THE CORE OPENING IN THE ROLL.

17.1 MODE OF OPERATION:

THE REEL MONITOR CONSISTS OF ONE SIGNAL DISC EACH, ONE SLOT INITIATOR (MOUNTED ON EACH GEARMOTOR FOR THE AXIAL OR SIDE SHIFTING OF THE UNWIND STANDS) AND THE ELECTRONIC CONTROLS.

WHEN BOTH STANDS SIMULTANEOUSLY MOVE TO "LEFT" AND TO "RIGHT" SIGNALS ARE GENERATED BY EACH SLOT INITIATOR. IF THERE IS A DIFFERENCE IN THE RPM SPEED OF THE MOTORS, THEN THE NUMBER OF SIGNALS GENERATED ALSO DIFFERS. AS SOON AS THIS DIFFERENCE EXCEEDS A TOLERANCE WHICH CAN BE SET ON THE ELECTRONIC CONTROLS, THE PILOT LAMP "UNWIND DEFECT" LIGHTS UP. WHEN THE DEFECT HAS BEEN CORRECTED, PRESS THE PUSHBUTTON "CANCEL DEFECT."

17.2 TROUBLE SHOOTING:

ADVICE CONCERNING TROUBLE SHOOTING IS STATED IN SECT. 2 OF THE ATTACHED ELECTRONICS MANUAL.

19.0 OPERATING INSTRUCTIONS - (REF. FIG. 24)

SHAFTLESS OPERATION:

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19.1 LOADING THE UNWIND ROLL (SHAFTLESS UNWINDING):

SHIFT THE RIGHT HAND AND LEFT HAND UNWIND STANDS APART BY TURNING PUSHBUTTON SWITCHES, ITEM 2413, TO POSITION "STAND TO RIGHT" AND "STAND TO LEFT"
ROLL THE UNWIND ROLL BETWEEN THE UNWIND STANDS. NOW ALIGN THE CORE CHUCKS TO THE CORE HOLES IN THE UNWIND ROLL BY HOLDING PUSHBUTTON, ITEM 2411, IN "CORE CHUCK UP" OR "CORE CHUCK DOWN" DIRECTION.
NOW INSERT THE CORE CHUCKS INTO THE CORE OPENINGS BY TURNING PUSHBUTTON, ITEM 2413, IN "STAND LEFT" OR "STAND RIGHT" DIRECTION.

19.2 ROLL IN UNWINDING POSITION:

HOLD THE PUSHBUTTON, ITEM 2412, IN " BOTH CORE CHUCKS UP " UNTIL THE ROLL IS LIFTED INTO UNWINDING POSITION.
ALIGN THE ROLL LATERALLY TO THE WINDER OR SHEETER BY TURNING SWITCH, ITEM 2414, TO "BOTH STANDS TO THE LEFT" OR "BOTH STANDS TO THE RIGHT" AND REGULATE THE TRIM SLIT DURING THE WINDING PROCEDURE.
IF THE WEB HAS A SLACK EDGE, THIS CAN BE ELIMINATED BY RAISING OR LOWERING THE ROLL (SET SWITCH ITEM TO "CORE CHUCKS UP" OR "CORE CHUCKS DOWN"

19.3 REMOVING EMPTY CORE:

AFTER THE REEL HAS BEEN UNWOUND WITHDRAW THE CORE CHUCKS FROM THE CORE OPENINGS BY SETTING SWITCH ITEM 2413, "STANDS TO THE RIGHT" AND "STANDS TO THE LEFT". REMOVE THE EMPTY CORE.

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19.3 USING PUSHBUTTON, ITEM 2412, "BOTH CHUCKS DOWN", LOWER THE SELF LOCKING CHUCKS SO FAR THAT THEY CAN BE INTRODUCED INTO THE CORE OPENINGS OF THE NEW REEL TO BE LOADED. POSSIBLY, THE CORE CHUCKS MAY HAVE TO BE INDIVIDUALLY ADJUSTED TO THE CORE LEVEL THROUGH THE INDIVIDUAL MOVEMENTS "RAISE" AND "LOWER".

19.4 EXCHANGING CORE CHUCKS: (OPTIONAL EQUIP.)

THE DIAMETER OF THE CORE CHUCKS DEPENDS ON THE INSIDE DIAMETER OF THE CORE. TO EXCHANGE THE SELF LOCKING CHUCKS, UNBOLT THEM FROM THE FLANGE AND BOLT ON THE CORE CHUCKS CORRESPONDING TO THE CORE I.D. BEING USED.

IMPORTANT NOTES:

THE CORE ON WHICH THE PARENT REEL IS WOUND SHOULD CONSIST OF ONE PIECE ONLY. THE TWO ENDS OF THE CORES MUST NOT PROJECT, THEY MUST BE FLUSH WITH THE SIDES OF THE REEL. THE MACHINE MUST NOT BE STARTED UP WITHOUT SAFETY EQUIPMENT.

WHEN THE DRIVE MOTOR IS SWITCHED ON, IT IS NO LONGER POSSIBLE TO WITHDRAW THE CORE CHUCKS FROM THE REEL. WHEN THE DRIVE MOTOR IS SWITCHED OFF AND A REEL IS LOADED IN THE UNWIND, THE PUSHBUTTONS - "UNWIND STANDS RIGHT - LEFT" MUST NOT BE OPERATED, IN ORDER TO PREVENT ACCIDENTS. IF THE CORE CHUCKS ARE TO BE WITHDRAWN, THE REEL MUST FIRST BE LOWERED TO THE FLOOR (PUSHBUTTON, ITEM 2412- "BOTH CHUCKS DOWN"

THE GENERAL ACCIDENT PREVENTION REGULATIONS AND THE SPECIAL ACCIDENT PREVENTION REGULATIONS FOR PAPER CONVERSION MACHINES ARE TO BE OBSERVED BY ALL MEANS.

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REEL SPOOL OPERATION:

19.5 OPERATING INSTRUCTIONS-(REF. FIG. 1)

TO OPERATE THE UNWIND STAND IN THE REEL SPOOL MODE, THE FOLLOWING MUST BE DONE:

RAISE BOTH CARRIAGES TO THE TOP OF UNWIND STAND RAMPS. INSERT CARRIAGE STOP BLOCKS INTO HOLES IN RAMP MACHINED WAYS. LOWER CARRIAGES UNTIL THEY CONTACT BLOCKS.

SHIFT STANDS APART UNTIL REEL SPOOL CONSOLES ARE LOCATED AT BEARING POINTS OF THE APPROPRIATE REEL SPOOL.

EQUIP CONSOLES WITH THE CORRECT BEARINGS & RETAINERS FOR THE SPECIFIC REEL SPOOL BEING USED (SANDY HILL OR BAY STATE) - REF. DRAWINGS 82.3094.07067, AND 82.3094.07068.

EQUIP REEL SPOOL STAND WITH THE CORRECT SPOOL COUPLING REQUIRED
- REF. DRAWING 82.3094.07069.

LOWER REEL SPOOL INTO CARRIAGE CONSOLES, CLOSE & SECURE LATCHES.

DEPRESS PUSHBUTTON ON MAIN PNEUMATIC CONTROL BOX TO SWITCH AIR & WATER OVER TO REEL SPOOL OPERATION.

ENGAGE COUPLING WITH REEL SPOOL BY DEPRESSING BUTTON IN PNEUMATIC CONTROL BOX, ON SIDE OF REEL SPOOL STAND. COUPLING RETRACTION IS BY MEANS OF A PNEUMATIC LEVER VALVE ASSY, MOUNTED ON REAR OF EACH CONSOLE. THIS VALVE IS ACTUATED WHEN CONSOLE LATCH IS IN THE FULLY OPEN POSITION.

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19.6 CARRIAGE/REEL SPOOL INTERLOCK

THIS MACHINE IS EQUIPPED WITH A SAFETY INTERLOCK, TO PREVENT THE R.H. CARRIAGE FROM BEING LOWERED BEYOND A SPECIFIC POINT WHILE A REEL SPOOL IS MOUNTED ON THE UNWIND STAND.

A PROXIMITY SWITCH, MOUNTED ON THE SIDE OF R.H. STAND, SENSES WHEN THE CARRIAGE HAS BEEN LOWERED TO THE EXTREME SAFETY POSITION. THE PROXIMITY SWITCH WILL NOT ALLOW DOWNWARD CARRIAGE MOVEMENT BEYOND THIS POINT.

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20.4

ROTARY UNION:

ITEM 32 -- FIG. 16 SHOULD BE PROVIDED WEEKLY
WITH A LITHIUMSAPONIFIED ANTI FRICTION
BEARING. GREASE - ITEM 12 OF THE LUBRICATION
CHART.

EXAMPLE: SHELL ALVANIA GREASE 2

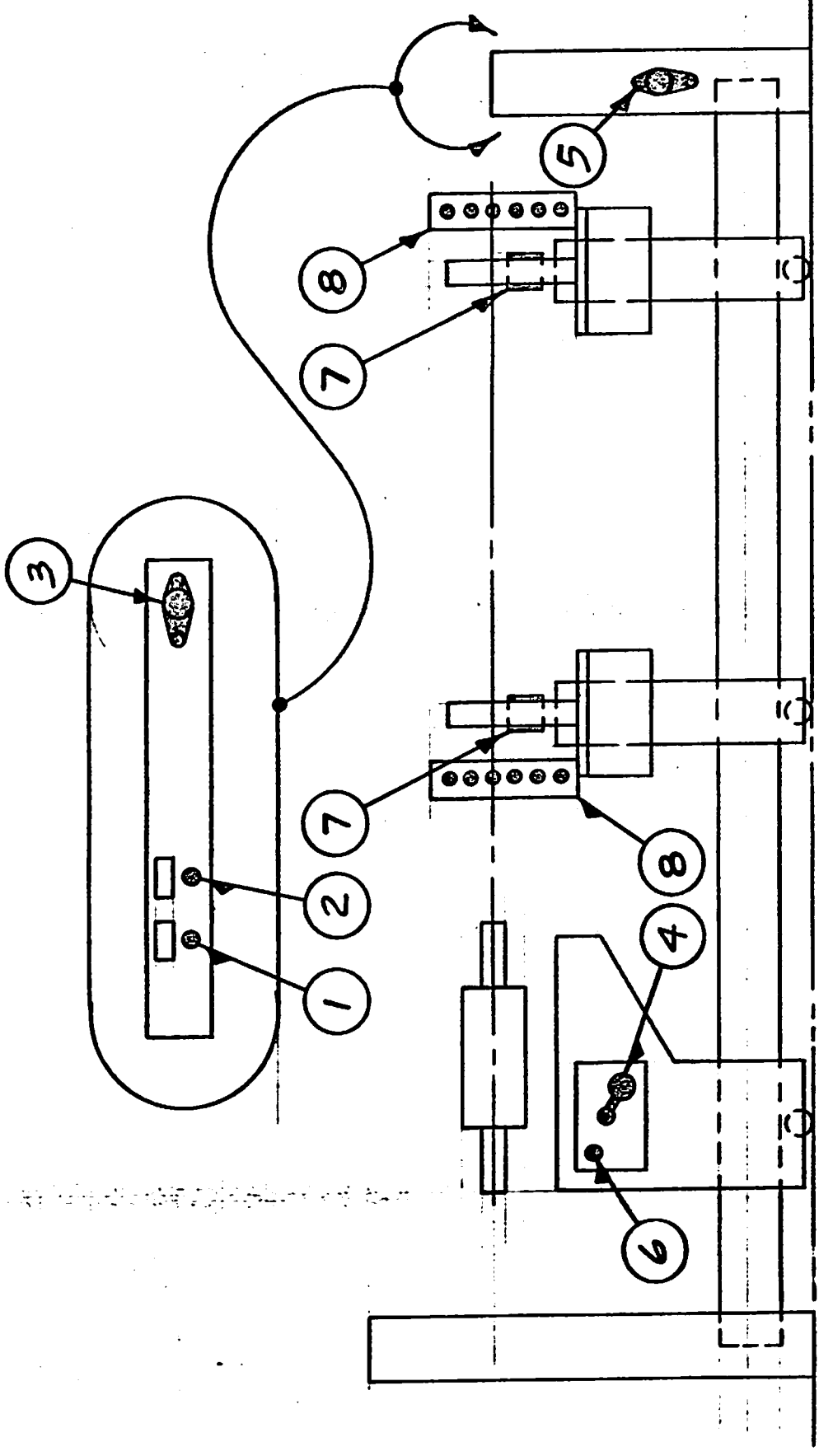
FIG. 1

OPERATING CONTROLS - DAE/15K

JINC 80-2

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- | | |
|--------------------------|---------------------------|
| 1 - REEL SPOOL OPERATION | 5 - COOLING WATER SHUTOFF |
| 2 - SHAFTLESS OPERATION | 6 - COUPLING ENGAGE |
| 3 - SHAFTLESS BRAKES | 7 - COUPLING RETRACT |
| 4 - REEL SPOOL BRAKES | 8 - STAND CONTROL PANEL |

APPR.

DRAWN

ISSUED

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		ENFIELD			
BILL OF MATERIAL # 82.3094.07060		DAE/15K UNWIND STAND			
		(CRANE CO.)			
IT	EM UF COMPONENT #	DESCRIPTION	QTY	TOTAL QTY	
1	1 51.3476.01929	DA 15 UNWIND STAND	2.0	2.0	
		REF. (E119.952)			
2	1 52.3478.01674	DETAILS FOR STANDS (PAIR)	1.0	1.0	
		REF. (E120.010)			
3	1 51.3476.03307	ROLL DETECTOR ASSY	2.0	2.0	
		REF. (E119.865)			
5	3094.07058	LENGTH PIECES-W/EDGE CONT.	1.0	1.0	
		DAE/15K (CRANE CO.)			
6	1 82.3094.07061	CARRIAGE ASSY., RIGHT 250D.,	1.0	1.0	
		SINGLE CYLINDER			
7	1 82.3094.07062	CARRIAGE ASSY., LEFT 250D.,	1.0	1.0	
		SINGLE CYL.			
8	82.3094.07059	CABLE TRACK SYSTEM (DAE/15K)	1.0	1.0	
9	62.3094.07030	UNWIND STAND CABLEWAY	2.0	2.0	
10	E120.080	ELECTRIC MOTORS 230/460/60	1.0	1.0	
11	3 55.3400.15002	DIAPHRAGM CYLINDER TYPE 12	2.0	2.0	
12	1 82.3094.07063	BRAKE ASSY., R.H. 250D.,	1.0	1.0	
		SINGLE CYL.			
13	1 82.3094.07064	BRAKE ASSY., L.H. 250D.,	1.0	1.0	
		SINGLE CYL.			
14	300.175	HEX HD. SCREW M12X30 ST. DIN 93	2.0	2.0	
15	82.3094.07071	ASSY. PNEUMATIC & WATER	1.0	1.0	
		CONTROL CABINET (DAE/15K)			
17	82.3094.07069	ASSY. REEL SPOOL EQUIP.	1.0	1.0	
18	1 82.3094.07067	CONSOLE ASSY.-R.H. (DAE/15K)	1.0	1.0	
19	1 82.3094.07068	CONSOLE ASSY.-L.H. (DAE/15K)	1.0	1.0	
20	1 82.3094.07072	ASSY. REEL SPOOL PNEUMATIC	1.0	1.0	
		CONTROL CABINET			
21	2 82.3094.07075	ASSY. PROXIMITY SWITCH	1.0	1.0	
		FOR CARRIAGE STOP BLOCK			

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BILL OF MATERIAL # 82.3094.07065 DAE/15K SUPPORT STANDS (ONE PAIR)						
IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
	4		451.244	DU-BUSHING 70X75X50 MB7050DU	2.0	2.0
	5		355.075	BEARING, THRUST FAG51215	4.0	4.0
	6	2	52.3476.01752	ASSY, DRIVE SCREW	2.0	2.0
	10	3	53.3478.02286	DRIVE SCREW BUSHING (118)	2.0	2.0
	13	2	53.3476.01928	GUIDE BAR (1300)	4.0	4.0
	23		411.812	PIN, DOWEL, 50X155	2.0	2.0
	24		448.560	CAM FOLLOWER	6.0	6.0
	30		E820.963	PURCH. LOCALLY INA NATR50-PP PROXIMITY SWITCH TUREK # MP-10H-UZ2	2.0	2.0
	33	3	53.3478.01496	BUSHING	3.0	3.0
	35		E292.962	SQUARE 0.25"X0.25"FELT F4	400.0	400.0
	36	4	53.3478.01497	RING (229 DIA)	3.0	3.0
	38	3	53.3479.01286	BUSHING (DAE/15K) (145)	1.0	1.0
	39	3	53.3479.01285	FLANGE (DAE/15K) (305)X(395)	1.0	1.0
	43	3	55.3477.01183	SPUR GEAR (62)	2.0	2.0

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BILL OF MATERIAL # 82.3094.07061 CARRIAGE ASSY., RIGHT 250D.,
SINGLE CYLINDER

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
	5	2	52.3478.02473	FLANGED SHAFT	1.0	1.0
	6	4	55.3478.02278	BEARING	1.0	1.0
				SKF 7219CG		
	8		354.329	ROLLER BEARING	1.0	1.0
				NU 2219M		
	9	4	55.3478.02280	NILOS-RING	1.0	1.0
	10	4	55.3478.02281	NILOS-RING	1.0	1.0
	11		316.084	170MM RETAIN. RING INT DIN 472	2.0	2.0
	14	3	53.3476.02356	GUIDE RAIL MEEHANITE GA 350	2.0	2.0
	15	3	53.3476.02354	WEAR PLATE (400)	1.0	1.0
	21		E470.409	"O"RING, SIMRIT 85,00-4,00	1.0	1.0
	22		317.976	FLAT WASHER M10 COP. DIN 125	3.0	3.0
	23	4	53.3478.02289	SPACER RING (8)	1.0	1.0
	24	4	53.3478.02295	FELT STRIP (30)X(80)	4.0	4.0
	27	3	83.3094.04028	FLANGE (31)	1.0	1.0
	29		E470.537	"O"RING, 185X6 SIMRIT -72NBR87	1.0	1.0
	31	4	53.3477.02037	PIPE TOE (140)	1.0	1.0
	32		484.E03019	ROTARY UNION	1.0	1.0
				DEUBLIN #255-000-003-043		
	35		484.E04002	BALL VALVE 3/8"FPT	1.0	1.0
				APOLLO # 70-102		
	42	1	83.3090.02001	BRAKE DRUM	1.0	1.0

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BILL OF MATERIALS ENFIELD

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BILL OF MATERIAL # 82.3094.07062 CARRIAGE ASSY., LEFT 250D.,
SINGLE CYL.

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
5	2	52.	3478.02473	FLANGED SHAFT	1.0	1.0
6	4	55.	3478.02278	BEARING SKF 7219CG	1.0	1.0
8		354.	329	ROLLER BEARING NU 2219M	1.0	1.0
9	4	55.	3478.02280	NILOS-RING	1.0	1.0
10	4	55.	3478.02281	NILOS-RING	1.0	1.0
11		316.	084	170MM RETAIN. RING INT DIN 472	2.0	2.0
14	3	53.	3476.02356	GUIDE RAIL MEEHANITE GA 350	2.0	2.0
15	3	53.	3476.02354	WEAR PLATE (400)	1.0	1.0
21		E470.	409	"O"RING, SIMRIT 85,00-4,00	1.0	1.0
22		317.	976	FLAT WASHER M10 COP. DIN 125	3.0	3.0
23	4	53.	3478.02289	SPACER RING (8)	1.0	1.0
24	4	53.	3478.02295	FELT STRIP (30)X(80)	4.0	4.0
27	3	83.	3094.04028	FLANGE (31)	1.0	1.0
29		E470.	537	"O"RING, 185X6 SIMRIT -72NBR87	1.0	1.0
31		484.	E03019	ROTARY UNION DEUBLIN #255-000-003-043	1.0	1.0
32	4	53.	3477.02037	PIPE TOE (140)	1.0	1.0
35		484.	E04002	BALL VALVE 3/8"FPT APOLLO # 70-102	1.0	1.0
42	1	83.	3090.02001	BRAKE DRUM	1.0	1.0

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BILL OF MATERIALS ENFIELD

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BILL OF MATERIAL # 82.3094.07063 BRAKE ASSY., R.H. 250D.,
SINGLE CYL.

IT EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
7		E316.135	RING, RETAINING WALDES M5100-3	4.0	4.0
8	2	53.3400.21002	BRAKE SHOE ARM	2.0	2.0
9		451.183	DU-BUSHING 30X34X30 MB3030DU	2.0	2.0
10		451.181	DU-BUSHING 30X34X20 MB 3020DU	2.0	2.0
11		451.167	DU-BUSHING 22X25X25 MB 2225DU	4.0	4.0
15	2	52.3400.21025	BRAKE SHOE ASSY.	2.0	2.0
16		410.693	PIN DOWEL, 30X82	2.0	2.0
18		E443.016	ROD, END	1.0	1.0
19		410.634	PIN DOWEL 22X58	1.0	1.0
20		316.131	22MM RETAIN. RING EXT. DIN 471	2.0	2.0
21		411.948	ROLL PIN 5X50 DIN 7344	1.0	1.0
22	4	53.3400.13078	THREADED STUD (115)	1.0	1.0
24	2	53.3400.15004	GUIDE HOUSING	1.0	1.0
27	4	53.3400.15005	ROD END	1.0	1.0
28		411.924	PIN ROLL 3X32 DIN 7344	1.0	1.0
29	4	53.3400.15006	SHAFT	1.0	1.0
30		411.631	PIN DOWEL 22X55	2.0	2.0
31		351.215	GROOVED BALL BEARING 6003-2Z	2.0	2.0
32		316.126	17MM RETAIN. RING EXT. DIN 471	2.0	2.0
33		412.165	SPACER	2.0	2.0

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BILL OF MATERIAL # 82.3094.07064		BRAKE ASSY., L. H. 250D., SINGLE CYL.			
IT	EM UF COMPONENT #	DESCRIPTION	QTY	TOTAL QTY	
7	E316.135	RING, RETAINING WALDES M5100-3	4.0	4.0	
8	2 53.3400.21002	BRAKE SHOE ARM	2.0	2.0	
9	451.183	DU-BUSHING 30X34X30 MB3030DU	2.0	2.0	
10	451.181	DU-BUSHING 30X34X20 MB 3020DU	2.0	2.0	
11	451.167	DU-BUSHING 22X25X25 MB 2225DU	4.0	4.0	
15	2 52.3400.21025	BRAKE SHOE ASSY.	2.0	2.0	
16	410.693	PIN DOWEL, 30X82	2.0	2.0	
18	E443.016	ROD, END	1.0	1.0	
19	410.634	PIN DOWEL 22X58	1.0	1.0	
20	316.131	22MM RETAIN. RING EXT. DIN 471	2.0	2.0	
21	411.948	ROLL PIN 5X50 DIN 7344	1.0	1.0	
22	4 53.3400.13078	THREADED STUD (115)	1.0	1.0	
24	2 53.3400.15004	GUIDE HOUSING	1.0	1.0	
27	4 53.3400.15005	ROD END	1.0	1.0	
28	411.924	PIN ROLL 3X32 DIN 7344	1.0	1.0	
29	4 53.3400.15006	SHAFT	1.0	1.0	
30	411.631	PIN DOWEL 22X55	2.0	2.0	
31	351.215	GROOVED BALL BEARING 6003-2Z	2.0	2.0	
32	316.126	17MM RETAIN. RING EXT. DIN 471	2.0	2.0	
33	412.165	SPACER	2.0	2.0	



P.O. Box 188, Enfield, CT. 06082 USA Telephone: (203) 741-2501, Telex: 6 43161/62

JAGENBERG INTERNATIONAL INC.

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		ENFIELD			
BILL OF MATERIAL # 82.3094.07075		ASSY. PROXIMITY SWITCH			
		FOR CARRIAGE STOP BLOCK			
IT					TOTAL
EM OF COMPONENT #		DESCRIPTION	QTY		QTY
3	E820.963	PROXIMITY SWITCH	1.0		1.0
		TUREK # MP-10H-UZ2			

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BILL OF MATERIAL # 82.3094.07069 ASSY. REEL SPOOL EQUIP.

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
3	1		53.3477.02197	BASE PLATE	1.0	1.0
4	2		53.3477.02207	SLIDE BAR	2.0	2.0
6	1		82.3094.07070	BRAKE DRUM ASSY.	1.0	1.0
7			484.E03019	ROTARY UNION	1.0	1.0
				DEUBLIN #255-000-003-043		
8	3		83.3094.04111	SIPHON TUBE	1.0	1.0
10	4		53.3477.02209	WIPER (14)X(78)	4.0	4.0
12	2		53.3400.21002	BRAKE SHOE ARM	6.0	6.0
13	4		53.3400.21007	BEARING (75)	4.0	4.0
14	4		53.3400.21008	SHAFT (334)	2.0	2.0
16	4		53.3400.13078	THREADED STUD (115)	3.0	3.0
17	4		53.3400.15006	SHAFT	3.0	3.0
18	3		55.3400.15002	DIAPHRAGM CYLINDER TYPE 12	3.0	3.0
19	4		53.3400.15005	ROD END	3.0	3.0
20	2		53.3400.15004	GUIDE HOUSING	3.0	3.0
22			451.183	DU-BUSHING 30X34X30	6.0	6.0
				MB3030DU		
23			451.181	DU-BUSHING 30X34X20	6.0	6.0
				MB 3020DU		
24			451.167	DU-BUSHING 22X25X25	12.0	12.0
				MB 2225DU		

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28	411.631	PIN DOWEL 22X55	6.0	6.0
32	411.948	ROLL PIN 5X50 DIN 7344	3.0	3.0
33	316.131	22MM RETAIN. RING EXT. DIN 471	6.0	6.0
34	410.634	PIN DOWEL 22X58	3.0	3.0
37	316.135	30MM RETAIN. RING EXT. DIN 471	4.0	4.0
38	412.165	SPACER	6.0	6.0
39	316.126	17MM RETAIN. RING EXT. DIN 471	6.0	6.0
40	351.215	GROOVED BALL BEARING 6003-2Z	6.0	6.0
41	2 52.3400.21025	BRAKE SHOE ASSY.	6.0	6.0
43	491.60E013	AIR CYLINDER SM3-5X5"NC TOMKINS-JOHNSON	1.0	1.0
44	491.60E014	ROD CLEVIS #SM-562 TOMKINS-JOHNSON	1.0	1.0
45	4 83.3094.04121	TIE BAR	2.0	2.0
51	3 83.3094.04117	BUSHING	2.0	2.0
53	E292.962	SQUARE 0.25"X0.25"FELT F4	650.0	650.0
54	4 53.3478.01497	RING (229 DIA)	2.0	2.0
62	448.560	CAM FOLLOWER PURCH. LOCALLY INA NATR50-PP	1.0	1.0
66	277.E01026	FLEXIBLE DUCT 3"ID FLEXADUX R-3	500.0	500.0
70	3 53.3477.02213	GUIDE BAR (910)	1.0	1.0
71	3 53.3477.02214	GUIDE BAR (910)	2.0	2.0
72	3 53.3477.02212	GUIDE BAR (910)	1.0	1.0
73	3 53.3477.02215	GUIDE BAR (910)	1.0	1.0
78	1 83.3094.04143	COUPLING ADAPTER	1.0	1.0
79	1 82.3094.04141	REEL SPOOL COUPLING (SANDY HILL)	1.0	1.0

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BILL OF MATERIAL # 82.3094.07069 ASSY. REEL SPOOL EQUIP.					
IT					
EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
80	1	83.3094.04142	REEL SPOOL COUPLING (135) (BAY STATE)	1.0	1.0
81		359.031	BEARING HOUSING WITH FELT SEA SKF #SN 516	2.0	2.0
82		356.061	ADAPTER, LOCKNUT, WASHER 70MM, SKF #H 316	2.0	2.0
83		456.527	STABILIZER RING, 140X10 SKF OR JW	1.0	1.0
84		352.563	BALL BEARING, TAPER LOCK, SKF # 2216K	2.0	2.0
87		310.502	KEY 20X12X140	1.0	1.0
88	2	63.3834.01352	ADAPTER PLATE (370)X(370)	2.0	2.0
94		484.E04002	BALL VALVE 3/8"FPT APOLLO # 70-102	1.0	1.0

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BILL OF MATERIAL # 82.3094.07067 CONSOLE ASSY. -R. H. (DAE/15K)

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
2	1		82.3094.04091	CONSOLE LATCH	1.0	1.0
3	2		83.3094.04098	REAR LATCH SUPPORT (100)X(155)	1.0	1.0
4	2		83.3094.04103	FRONT LATCH SUPPORT-R. H. (130)X(168)	1.0	1.0
5	3		83.3094.04095	BEARING RETAINER (143) (SANDY HILL REEL SPOOL)	2.0	2.0
6	3		83.3094.04096	BEARING RETAINER (191) (BAY STATE REEL SPOOL)	2.0	2.0
7	2		83.3094.04092	BEARING HOUSING (76)	1.0	1.0
8	2		83.3094.04093	RADIAL BEARING (76) (SANDY HILL REEL SPOOL)	1.0	1.0
9	2		83.3094.04094	RADIAL BEARING (84) (BAY STATE REEL SPOOL)	1.0	1.0
10	2		83.3094.04099	REEL SPOOL RETAINER (80) (SANDY HILL REEL SPOOL)	1.0	1.0
11	2		83.3094.04100	REEL SPOOL RETAINER (80) (BAY STATE REEL SPOOL)	1.0	1.0
12	3		83.3094.04102	LATCH SHAFT (122)	1.0	1.0
15	3		83.3094.04106	STOP (65)	2.0	2.0
16	4		83.3094.04109	KEY (50)	1.0	1.0
17	4		83.3094.04101	LATCH PIN (70)	1.0	1.0
18			316.132	25MM RETAIN. RING EXT. DIN 471	2.0	2.0
29	4		83.3094.04136	ARM STOP SPACER (14)	1.0	1.0
31	4		83.3094.04134	TRIP BLOCK (80)	1.0	1.0
33	2		82.3094.07074	LEVER VALVE ASSY. REEL SPOOL CYLINDER	1.0	1.0

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BILL OF MATERIAL # 82.3094.07068 CONSOLE ASSY. -L. H. (DAE/15K)

IT EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
2	1	82.3094.04091	CONSOLE LATCH	1.0	1.0
3	2	83.3094.04098	REAR LATCH SUPPORT (100)X(155)	1.0	1.0
4	2	83.3094.04104	FRONT LATCH SUPPORT-L. H. (130)X(168)	1.0	1.0
5	3	83.3094.04095	BEARING RETAINER (143) (SANDY HILL REEL SPOOL)	2.0	2.0
6	3	83.3094.04096	BEARING RETAINER (191) (BAY STATE REEL SPOOL)	2.0	2.0
7	2	83.3094.04092	BEARING HOUSING (76)	1.0	1.0
8	2	83.3094.04093	RADIAL BEARING (76) (SANDY HILL REEL SPOOL)	1.0	1.0
9	2	83.3094.04094	RADIAL BEARING (84) (BAY STATE REEL SPOOL)	1.0	1.0
10	2	83.3094.04099	REEL SPOOL RETAINER (80) (SANDY HILL REEL SPOOL)	1.0	1.0
11	2	83.3094.04100	REEL SPOOL RETAINER (80) (BAY STATE REEL SPOOL)	1.0	1.0
12	3	83.3094.04102	LATCH SHAFT (122)	1.0	1.0
15	3	83.3094.04106	STOP (65)	2.0	2.0
16	4	83.3094.04109	KEY (50)	1.0	1.0
17	4	83.3094.04101	LATCH PIN (70)	1.0	1.0
18		316.132	25MM RETAIN. RING EXT. DIN 471	2.0	2.0

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BILL OF MATERIAL # 82.3094.07059 CABLE TRACK SYSTEM (DAE/15K)

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
	1		277.E02007	CABLE & HOSE CARRIER	2.0	2.0
	2		277.E02015	CABLE HOSE CARRIER (1800MM LG.)	1.0	1.0
	4	1	62.3094.04021	COVER, TRACK JUNCTION	1.0	1.0
	6	1	83.3094.04125	COVER REEL SPOOL CABLEWAY	1.0	1.0

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BILL OF MATERIAL # 62.3094.07030 UNWIND STAND CABLEWAY

IT	EM UF COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
1	277.E02016	CABLE AND HOSE CARRIER (1600	1.0	1.0
2	1 63.3094.04072	JUNCTION BOX REWORK	1.0	1.0
3	2 62.3094.04075	COVER	1.0	1.0

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BILL OF MATERIALS ENFIELD

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BILL OF MATERIAL # 82.3094.07071 ASSY. PNEUMATIC & WATER
CONTROL CABINET (DAE/15K)

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
	4		484.E07001	BALL VALVE-VENTING 1/4"NPT, "WHITEY" NO. B43VF4	1.0	1.0
	7		277.892	TUBING, REINF. VINYL 1/4"ID KOROBRAID # KB-3	15.0	15.0
	8		484.E09005	BALL VALVE 1/2" NPT "WHITEY" B45F8	1.0	1.0
	20		E484.214	PUSH BUTTON 1/8NPT NC HUMPHREY #125P-3-10-22-40	2.0	2.0
	24		488.10E001	PRESSURE REGULATOR 1/4" NORGREN R11-200-RGLA	1.0	1.0
	25		488.10E011	MOUNTING BRACKET NORGREN 5203-01	1.0	1.0
	26		488.10E022	GAUGE 2"DIA, 0-100 NORGREN 18-013-235	1.0	1.0
	28		E484.071	VALVE 3-WAY 1/4" NPT FABCO 3-WAY-14DP-3	1.0	1.0
	34		823.51E001	SOLENOID VALVE, 1/4" NPT, N.O SKINNER V55DB2100, 110V60	1.0	1.0
	35		E484.262	SHUTTLE VALVE 1/4" FESTO #QS-1/4	1.0	1.0
	40		E484.076	VALVE 4-WAY 1/4" NPT FABCO 4-WAY-14DP-4	1.0	1.0
	52		484.E10002	INDICATOR LIGHT NORGREN "ROTOWINK" #5VS-402-000 BLACK	2.0	2.0
	59	4	85.3400.01032	STRAINER	1.0	1.0
	61		E823.623	SOLENOID VALVE, 3/4" NPT, NC SKINNER #L2DB 5150	1.0	1.0
	68	4	55.3476.04223	3-WAY PNEUMATIC DISTRIBUTOR VALVE OBTAIN J.W. GERMANY	1.0	1.0
	72		277.E91007	HOSE, 3/4" I.D. GATES #12RLA	15.0	15.0

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BILL OF MATERIAL # 82.3094.07072 ASSY. REEL SPOOL PNEUMATIC
CONTROL CABINET

IT EM UF COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
17 823.51E001	SOLENOID VALVE, 1/4" NPT, N.O SKINNER V55DB2100, 110V60	1.0	1.0
23 E381.161	LINE CONNECTOR FESTO #QM-1/4"-1/4"	2.0	2.0
29 Z 55.3476.04054	VALVE, ROTARY	1.0	1.0
31 277.892	TUBING, REINF. VINYL 1/4" ID KOROBRAID # KB-3	1500.0	1500.0
32 E484.262	SHUTTLE VALVE 1/4" FESTO #OS-1/4	3.0	3.0
46 E484.076	VALVE 4-WAY 1/4" NPT FABCO 4-WAY-14DP-4	1.0	1.0
51 E484.214	PUSH BUTTON 1/8NPT NC HUMPHREY #125P-3-10-22-40	1.0	1.0

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BILL OF MATERIAL # 51.3476.03307 ROLL DETECTOR ASSY
REF. (E119.865)

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
1	4	53.3476.03279		RING (20.5)	1.0	1.0
3	3	53.3476.03304		ACTUATING PLATE	1.0	1.0
6		85.3405.12033		SENSOR, PROXI	1.0	1.0
10	3	53.3476.03305		ENCLOSURE (.120)	1.0	1.0
12		841.330		REEL MONITOR RUE.3	0.0	0.0
				JAGENBERG GERMANY		

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BILL OF MATERIAL # 3094.07058

LENGTH PIECES-W/EDGE CONT.
DAE/15K (CRANE CO.)

IT	EM	UF	COMPONENT #	DESCRIPTION	QTY	TOTAL QTY
1	1		83.3094.04077	GUIDE TUBE (FOR DAE/15K) (6360)	1.0	1.0
2	3		55.3479.01231	RACK	2.0	2.0
5	3		53.3478.01670	KEYWAY (380)	1.0	1.0

LUBRICATION

General Instructions

1. All oil charges should be drained at working temperature. Oil of the initial fill-ups having operated no longer than 200 hours may be re-used for the same purpose after filtration and addition of new oil.

However, filtration should be perfect and the filtered lubricant should in no case contain impurities.

For fluid drives, only new oil should be used.

2. Before refilling, flush the drained gear boxes, anti-friction bearings, and hydraulic systems with the aid of oils to be specified by the technical services of the lubricants suppliers concerned.

3. Always use the same grease grades for repacking.

LUBRICATION CHART

Applications		Method of Lubrication	Recommended Lubricants				Special Remarks
							
System A	1 Boehringer Sturm oil drives at operat. temp. up to 75° C	Oil filled	Chevron OC Turbine Oil 19, Chevron Hydraulic Oil 19	NUTO H 54	MOBIL D.T.E. Oil Heavy	Shell Turbo Oil 37	For exact method see special instructions
	2 at operat. temp. exceeding 75° C	Oil filled	Chevron OC Turbine Oil 19, Chevron Hydraulic Oil 19	NUTO H 54	MOBIL D.T.E. Oil Heavy	Shell Turbo Oil 37	
	3 PIV gear at normal room temperatures	Oil filled	Chevron Hydraulic Oil 11	ESSTIC 65	MOBIL D.T.E. Oil Extra Heavy, MOBIL D.T.E. Oil Medium	Shell Tellus Oil 29	
	4 at higher room temperatures (spreaders)	Oil filled	Chevron Hydraulic Oil 26, Chevron Circulating Oil 95	ESSTIC 65	MOBIL D.T.E. Oil 88	Shell Vitrea Oil 72, Shell Tonna Oil 72	
	5 Jagenberg fluid drives	Oil filled	Chevron OC Turbine Oil 11, Chevron Hydraulic Oil 11	ESSTIC 50, TERESSO 52	MOBIL D.T.E. 26, MOBIL D.T.E. Oil Medium	Shell Tellus Oil 29	
6	Spur and bevel gears	Oil circulating system	Chevron Circulating Oil 65, Chevron Gear Compound 80	PEN-O-LED EP 2	MOBILGEAR 629, MOBIL Compound 88, MOBIL D.T.E. Oil Extra Heavy	Shell Vitrea Oil 41	First refill after 200 operating hours, then every 4000 hours. For less than 4000 hours/year, refill every year.
7	Sprocket chain gears	Oil bath					
8	Worm gears	Oil bath	Chevron Gear Compound 90	PEN-O-LED EP 3	MOBILGEAR 632, MOBIL Compound DD	Shell Macoma Oil R 71, Shell Tonna Oil 72	First refill after 50 operating hours, then every 4000 hours. For less than 4000 hours/year, refill every year.
9	Hydraulic systems: counterbalancing of slitter head, roll ejector and lowering device, hydraulically operated band brakes, lowering and mounting layboy	Oil filled	Chevron OC Turbine Oil 11, Chevron EP Hydraulic Oil 11, HG 25	NUTO H 54, ESSTIC 50	MOBIL D.T.E. 26, MOBIL D.T.E. Oil Medium	Shell Tellus Oil 29	Refill after approx. 1500 operating hours. For less than 1500 hours/year, refill every year.
10	Roller- and pin chains	By hand	Chevron Pinion Grease 250 TCB, Chevron Pinion Grease MS	SURETT FLUID 30	MOBILTAC A, MOBILTAC D	Shell Cordium Fluid D	Clean after abt. 4000 hours of operation, at least after one year in dry-cleaning spirit. Thereafter protect with recommended lubricant. Relubricate as and when required. Use brush and apply lubricant sparingly.
11	Pneumatic oil mist lubricator	Oil-filled, Atomization	Chevron OC Turbine Oil 11, Chevron EP Hydraulic Oil 11, HG 25	ESSTIC 50	MOBIL D.T.E. 26, MOBIL D.T.E. Oil Medium	Shell Tellus Oil 29	Set control screw so that one drop of oil is atomized every 20 to 25 seconds.
12	Anti-friction bearings Grease lubricated plain bearings	Grease packed Grease nipples	Chevron Dura-Lith Grease 2	BEACON 2	MOBILUX 2	Shell Alvania Grease R 2	Never allow anti-friction bearings to run dry. For lubricating periods see operating instructions (depending on operating conditions, every month to every 6 months). Under normal conditions flush and repack bearings every 3 years. Fill only 1/3 of free bearing space. For relubrication of plain bearings see operating instructions.
13	Anti-friction bearings of fan motors and rolls in drying tunnel, clip chain	Grease packed Grease nipples	Chevron Industrial Grease Heavy	NORVA 275	MOBILTEMP 78, MOBILGREASE 28	Shell Darina Grease 2	
14	Link joints for high loads	Grease nipples	Chevron Dura-Lith Grease 2	BEACON 2	MOBILUX 2	Shell Alvania Grease R 2	Relubricate after approx. 200 operating hours.
15	for low loads	Oil can	Chevron Gear Compound 90	PEN-O-LED EP 3	MOBILGEAR 632, MOBIL Compound DD	Shell Macoma Oil R 71, Shell Tonna Oil 72	Lubricate weekly
16	Open gears	By hand	Chevron Pinion Grease 250 TCB, Chevron Pinion Grease MS	SURETT FLUID 30	MOBILTAC A, MOBILTAC D	Shell Cordium Fluid D	Use brush and apply lubricant sparingly. Relubricate when dry spots appear on gear teeth
17	Open plain bearings, guide-ways and adjusting spindles	Oil can	Chevron Gear Compound 90	PEN-O-LED EP 3	MOBILGEAR 632, MOBIL Compound DD	Shell Macoma Oil R 71, Shell Tonna Oil 72	For guide-ways, grease lubrication is optional. If grease lubrication is preferred, use recommended lubricants for anti-friction bearings (item 12).
18	Clutches and slip clutches, Friction discs	Oil can	Chevron OC Turbine Oil 11, Chevron EP Hydraulic Oil 11, HG 25	ESSTIC 50, TERESSO 52	MOBIL D.T.E. Oil Medium	Shell Tellus Oil 129	Clutches see special instructions.

LUBRICATION CHART

	Parts to be lubricated	Method of Lubrication	Recommended Lubricants				Special Remarks
							
1	Boehring Sturml oil drives at operating temperat. up to 75° C	Oil filled	BP ENERGOL HLP 100	CASTROL PERFECTO MEDIUM, CASTROL HYSPIN 140	Gulf Harmony 61	SUNVIS 941	For exact method see special instructions
2	at operating temperat. exceeding 75° C	Oil filled	BP ENERGOL HLP 100	CASTROL PERFECTO MEDIUM, CASTROL HYSPIN 140	Gulf Harmony 61	SUNVIS 941	
3	PIV gear at normal room temperatures	Oil filled	BP ENERGOL CS 200	CASTROL ALPHA 317	Gulf Harmony 69	SUNVIS 851 WR	
4	System 4 at higher room temperatures (coating plants)	Oil filled	BP ENERGOL CS 300	CASTROL ALPHA 417, CASTROL ALPHA 617	Gulf Harmony 68	SUNVIS 899WR	
5	Jagenberg fluid drives	Oil filled	BP ENERGOL HLP 100	CASTROL HYSPIN 100, CASTROL HYSPIN AWS 68	Gulf Harmony 53 Gulf Harmony 54 AW	SUNVIS 821 WR	
6	Spur and bevel gears	Oil circulating system	BP ENERGOL CS 200	CASTROL ALPHA 317	Gulf E.P. Lubricant 65	SUNVIS 851 WR SUNEP 1060	First refill after 200 operating hours, then every 4000 hours. For less than 4000 hours/year run, refill every year.
7	Sprocket chain gears	Oil bath					
8	Worm gears	Oil bath	BP ENERGOL GR 425-EP	CASTROL ALPHA 617, CASTROL ALPHA LS 220	Gulf E.P. Lubricant 95	SUNEP 1070	First refill after 50 operating hours, then every 4000 hours. For less than 4000 hours year run, refill every year.
9	Hydraulic systems: counterbalancing of slitter head, roll ejector and lowering device, hydraulically operated band brakes, lowering and mounting layboy	Oil filled	BP ENERGOL HLP 100	CASTROL HYSPIN 100, CASTROL HYSPIN AWS 68	Gulf Harmony 53 Gulf Harmony 54 AW	SUNVIS 821WR	Refill after approx. 1500 operating hours. For less than 1500 hours/year run, refill every year.
10	Roller- and riveted chains	By hand	BP ENERGOL DC 850	CASTROL GRIPPA 60 S	Gulf Fluid Lubcole No. 3	SUNSPRAY B-2	Clean after abt. 4000 hours of operation, at least after one year in dry-cleaning spirit. Thereafter preserve by using one of marginal lubricants. Re-lubricate as and when required and apply sparingly by means of brush.
11	Pneumatic oil mist lubricator	Oil-filled, Atomization	BP ENERGOL HLP 100	CASTROL ALPHA 417	Gulf Harmony 54 AW	SUNVIS 821 WR	Set control screw so that one drop of oil is atomized every 20 to 25 seconds.
12	Anti-friction bearings Grease lubricated plain bearings	Grease packed Grease nipples	BP ENERGREASE LS 2	CASTROL SPHEEROL AP 2	Gulfcrown Grease No. 2	SUN MULTI DUTY Nr. 2	Never allow anti-friction bearings to be run unlubricated. For lubricating periods see operating instructions (according to operating conditions every month to every 6 months). Under normal conditions flush and repack bearings every 3 years. Fill only 1/2 of free bearing space with grease. For relubrication of plain bearings see operating instructions.
13	Anti-friction bearings of fan motors and rolls in drying tunnel, threading chain	Grease packed Grease nipples	BP ENERGREASE HTB 2	CASTROL SPHEEROL BNS	Gulf High Temperatur Grease	SUNAPLEX 992-EP	
14	Link joints for high loads	Grease nipples	BP ENERGREASE LS 2	CASTROL SPHEEROL AP 2	Gulfcrown Grease No. 2	SUN MULTI DUTY 2	
15	for low loads	Oil can	BP ENERGOL GR 425-EP	CASTROL ALPHA 617, CASTROL ALPHA LS 220	Gulf E.P. Lubricant 95	SUNEP 1070	Relubricate after approx. 200 operating hours.
16	Open gears	By hand	BP ENERGOL GR 3000-2, BP ENERGOL WRL	CASTROL GRIPPA 60 S	Gulf Fluid Lubcole No. 3	SUNSPRAY B-2	Lubricate weekly
17	Open plain bearings, guide-ways and adjusting spindles	Oil can	BP ENERGOL GR 425-EP	CASTROL ALPHA 617, CASTROL ALPHA LS 220	Gulf E.P. Lubricant 95	SUNEP 1070	Apply sparingly by means of brush and re-lubricate when greasiness patches appear.
18	Clutches and slip clutches, Friction discs	Oil can	BP ENERGOL HLP 100	CASTROL HYSPIN 100, CASTROL HYSPIN AWS 68	Gulf Harmony 51 Gulf Harmony 54 AW	SUNVIS 821 WR	For guide-ways grease lubrication optional by using lubricants as specified under anti-friction bearings.
							Clutches see special instructions.

TABLE 1

SYMBOL	FREQUENCY	IDENT. DISC
	DAILY	RED
	WEEKLY	YELLOW
	MONTHLY	BLUE
	EVERY 3 MOS.	WHITE
	EVERY 6 MOS.	BLACK
	YEARLY	
	AS REQD.	

TABLE 2

SYMBOL	MEANING
	OIL CHANGE
	OIL DRIP LUBRICATION
	AS PER SPECIAL INSTRUCTIONS
	ANTI - FRICTION BEARINGS , WASH OUT AFTER 3 YEARS OPERATION AND PACK WITH NEW GREASE (ITEM 12 IN LUBRICATION CHART)
	HAND OILER
	GREASE GUN
	FILL TO PROPER LEVEL

OIL CHANGE, MAINTENANCE AND LIMITATION OF
TORQUE (OVERLOAD PROTECTION) OF UNWIND
STAND GEARMOTORS

1. OIL CHANGE AND MAINTENANCE:

THE GEARS ARE FILLED WITH NON-AGEING GEAR OIL, SO THAT UNDER NORMAL OPERATING CONDITIONS, THE FIRST OIL CHANGE NEED ONLY BE MADE AFTER THREE YEARS.

DURING THIS INTERVAL, DIRT ACCUMULATING SHOULD BE REGULARLY REMOVED AND THE SHAFT SEALS CHECKED AT THE SAME TIME. IF THERE ARE LOSSES DUE TO LEAKAGE, OIL MUST BE ADDED.

FOR ADDING OIL AND FOR THE OIL CHANGE, USE HIGH PERFORMANCE GEAR OILS WITH EP ADDITIVES WITH A VISCOSITY OF SAE 140 (ABOUT 38° E/50° C), SUCH AS BP-ENERGOL GR 700 EP OR EQUIV. GEAR OILS OF OTHER MANUFACTURERS.

IF THE OPERATING TEMPERATURES ARE COLD (ABOUT 0°) USE HIGH PRESSURE GEAR OIL WITH SAE 90 (ABOUT 16° E/50° C), SUCH AS BP-ENERGOL GEAR OIL GR 300 EP.

2. LIMITATION OF TORQUE (OVERLOAD PROTECTION)

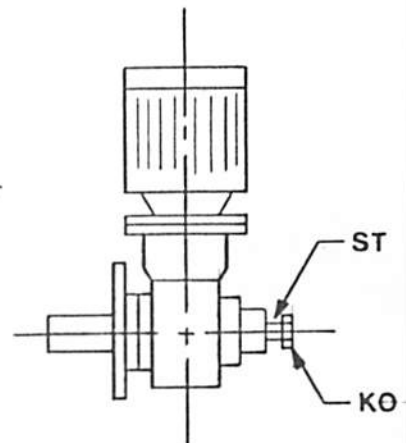
THE WORM GEAR IS PROVIDED WITH AN ADJUSTABLE FRICTION CLUTCH WHICH CAN BE SET FROM THE OUTSIDE TO EACH DESIRED TORQUE. THIS PREVENTS AN UNINTENTIONAL AND UNAUTHORIZED OVERLOADING OF THE DRIVEN PLANT AND AVOIDS DESTRUCTION OF VALUABLE PARTS THROUGH REPEATED BLOCKING OF THE MACHINE ON WHICH THE GEARMOTOR IS MOUNTED.

2.1 SETTING THE LIMITATION OF TORQUE:

THE TORQUE TO BE UTILIZED IS SET BY THE MFG. FOR GEAR SIZE 80 THE TORQUE IS 18 MKP. THE SETTING AND THRESHOLD ACCURACY OF THE CLUTCH IS ABOUT ± 50 CMKP. THE VALUE ONCE SET DOES NOT CHANGE TO ANY EXTENT EVEN WHEN THE GEAR GETS WARM.

AFTER A CERTAIN OPERATING TIME DURING WHICH REPEATED BLOCKING HAS OCCURRED, RESETTING OF THE FRICTION CLUTCH MAY BE REQUIRED. IN THIS CASE THE TORQUE MUST BE SET AS FOLLOWS:

ON THE SIDE OF THE HOUSING, OPPOSITE THE OUTPUT SHAFT JOURNAL, A SECOND SHORT SHAFT JOURNAL IS PROVIDED ON WHICH SETTING SCREW ST WITH COUNTERNUT KO IS LOCATED.



TXT-3

BY TURNING THE SETTING SCREW (AFTER LOOSENING THE COUNTERNUT) THE TORQUE OF THE DRIVE CAN BE ALTERED. IF THE SETTING SCREW IS COMPLETELY TURNED OUT THE CONNECTION TO THE OUTPUT SHAFT IS INTERRUPTED SO THAT THE SHAFT IS TURNABLE EVEN AT SELF LOCKING GEARS.

AFTER SETTING THE TORQUE, LOCK THE SETTING SCREW AGAIN WITH NUT KO.

FOR FINDING THE EXACT VALUE OF THE SET TORQUE, USE A WRENCH OR A LEVER ----- . DURING THIS OPERATION THE OUTPUT SHAFT MUST BE LOADED UNTIL THE FRICTION CLUTCH OPERATES. LOCK THE DRIVE JOURNAL IF THE GEAR IS NOT SELF LOCKING!