

DWG. NO. IL000046-0000	DO NOT SCALE	MATERIAL	MATERIAL DESCRIPTION SIZE OF MATERIAL	HEAT TREAT HARDNESS CARBURIZE (ECD)	WELDING STANDARD IS ISO METHOD A	PROJECTION THIRD ANGLE
ENG ORDER K-806	DATE ISSUED 4-22-47	REVISIONS	FCS1389 FDB0312 (H) FDB1173 (9) 1018563			

CAUTION STATEMENT

THIS MACHINE IS NOT PERMISSIBLE EXCEPT WHEN USED UNDER THE FOLLOWING CONDITIONS: (DO NOT CHANGE WITHOUT MSHA APPROVAL)

CAUTIONS TO BE OBSERVED FOR ALL MACHINES

GENERAL SAFETY: FREQUENT INSPECTIONS MUST BE MADE TO SEE THAT ALL ELECTRICAL PARTS, INCLUDING WIRING, CONNECTORS, HOSE CONDUIT AND CABLE ENTRANCES, ARE IN A SAFE CONDITION. SPECIAL EFFORTS SHALL BE MADE TO MAINTAIN CABLE ROUTING PATHS FREE FROM MUD, ROCK AND OTHER DEBRIS THAT COULD EVENTUALLY CAUSE CABLE DAMAGE. CABLES SHOULD BE CLOSELY EXAMINED ON A REGULAR BASIS AND DAMAGED CABLES OR PROTECTIVE HOSE CONDUITS SHALL BE REPLACED AND THE CAUSE OF THE DAMAGE IDENTIFIED AND CORRECTED BEFORE THE EQUIPMENT IS PLACED BACK INTO SERVICE. THERE MUST BE NO OPENINGS INTO THE CASTINGS OF ELECTRICAL PARTS.

FASTENINGS: ALL BOLTS, NUTS, SCREWS, AND OTHER MEANS OF FASTENING MUST BE KEPT IN PLACE, PROPERLY TIGHTENED AND SECURED. ALL SCREW COVERS MUST BE KEPT LOCKED OR SEALED. THE KEY OR SEALING TOOL SHALL BE IN THE CARE OF AUTHORIZED PERSON.

RENEWALS AND REPAIRS: SPECIAL CARE MUST BE TAKEN IN MAKING RENEWALS AND REPAIRS. LEAVE NO PARTS OFF, USE NEW PARTS EXACTLY LIKE THOSE FURNISHED BY THE MANUFACTURER. WHEN ANY LEAD ENTRANCE IS DISTURBED, THE ORIGINAL OR EXACT DUPLICATE THEREOF SHALL BE USED AND STUFFING BOXES SHALL BE FASTENED OR RE-PACKED IN THE APPROVED MANNER. WHEN MACHINE CABLES ARE REPLACED OR OTHERWISE DISTURBED FROM THEIR NORMAL POSITION, THEY SHALL BE ROUTED IN THE SAME MANNER AS THEY WERE WHEN THE MACHINE WAS SHIPPED FROM THE MANUFACTURER. IN ADDITION, ANY CLAMPS, CONDUIT OR GUARDS THAT WERE IN PLACE TO PREVENT CABLE DAMAGE SHALL BE REPLACED.

SPECIFIC CAUTIONS TO BE OBSERVED FOR ALL BATTERY OPERATED MACHINES

GENERAL SAFETY: FREQUENT INSPECTIONS MUST BE MADE TO SEE THAT BATTERY WIRING AND CELL CONNECTORS ARE MAINTAINED IN A SAFE CONDITION.

FASTENINGS: THE RUNNING PLUGS AND BATTERY BOXES MUST BE KEPT LOCKED OR SEALED.

RENEWALS AND REPAIRS: INSPECTIONS, RENEWALS, OR REPAIR OF ELECTRICAL PARTS MUST NOT BE MADE UNLESS THE MACHINE IS IN A SAFE PLACE.

CLEANLINESS: THE BATTERY CELLS, BATTERY CONNECTORS, AND THE BATTERY BOXES MUST BE KEPT FREE FROM ACCUMULATIONS OF ELECTROLYTE, DUST AND DIRT.

SPECIFIC CAUTIONS TO BE OBSERVED FOR ALL NON-BATTERY MACHINES

GENERAL SAFETY: THE TRAILING CABLE MUST BE KEPT IN A SAFE CONDITION. A PERMISSIBLE JUNCTION BOX MUST BE USED IN CONNECTING TO THE POWER CIRCUIT UNLESS CONNECTION IS MADE IN PURE INTAKE AIR. TO MAINTAIN THE OVERLOAD PROTECTION ON DIRECT CURRENT MACHINES, THE UNGROUND CONDUCTOR OF THE TRAILING CABLE MUST BE CONNECTED TO THE PROPER TERMINAL. THE MACHINE FRAME MUST BE EFFECTIVELY GROUNDED BY A GROUND CONNECTOR OR AN APPROVED GROUND DETECTING SYSTEM THAT REMOVES POWER FROM THE TRAILING CABLE WHEN A GROUND OCCURS ON THE MACHINE. THE OPERATING VOLTAGE MUST NOT EXCEED THE VOLTAGE RATING OF THE MACHINE. WITH TRAILING CABLE ENERGIZED, POWER MAY BE PRESENT ON THE LINE SIDE OF ANY CIRCUIT INTERRUPTING DEVICE EVEN THOUGH THE CIRCUIT INTERRUPTING DEVICE IS OPEN OR IN THE OFF POSITION.

RENEWALS AND REPAIRS: INSPECTIONS, RENEWALS, OR REPAIRS OF ELECTRICAL PARTS MUST NOT BE MADE UNLESS THE TRAILING CABLE IS ENTIRELY DISCONNECTED FROM THE CIRCUIT FURNISHING THE POWER AND THE CABLE MUST NOT BE CONNECTED AGAIN UNTIL ALL PARTS ARE PROPERLY REASSEMBLED.

SERVICING: EXPLOSION-PROOF ENCLOSURES SHALL BE RESTORED TO THE STATE OF ORIGINAL SAFETY WITH RESPECT TO ALL FLAME-ARRESTING PATHS, LEAD ENTRANCES, ETC., FOLLOWING DISASSEMBLY FOR REPAIR OR REBUILDING, WEATHER BY THE OWNER OR AN INDEPENDENT SHOP.

CABLE REQUIREMENTS: A FLAME-RESISTANT PORTABLE CABLE BEARING AN MSHA ASSIGNED IDENTIFICATION NUMBER, ADEQUATELY PROTECTED BY AN AUTOMATIC CIRCUIT-INTERRUPTING DEVICE SHALL BE USED. SPECIAL CARE SHALL BE TAKEN IN HANDLING THE CABLE TO GUARD AGAINST MECHANICAL INJURY AND WEAR. SPLICES IN PORTABLE CABLES SHALL BE MADE IN A WORKMANLIKE MANNER, MECHANICAL STRONG, AND WELL INSULATED. ONE TEMPORARY SPLICE MAY BE MADE IN ANY TRAILING CABLE. SUCH TRAILING CABLE MAY ONLY BE USED FOR THE NEXT 24-HOUR PERIOD. NO TEMPORARY SPLICE SHALL BE MADE IN A TRAILING CABLE WITHIN 25 FEET OF THE MACHINE, EXCEPT CABLE REEL EQUIPMENT. CONNECTIONS AND WIRING TO THE OUTBY END OF THE CABLE SHALL BE IN ACCORDANCE WITH RECOGNIZED STANDARDS OF SAFETY.

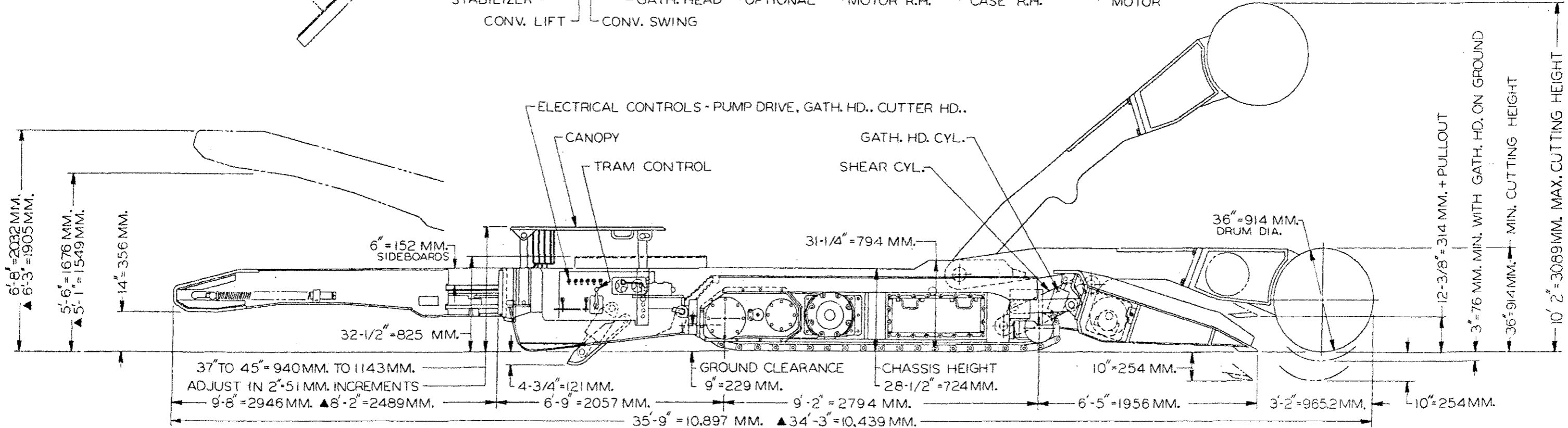
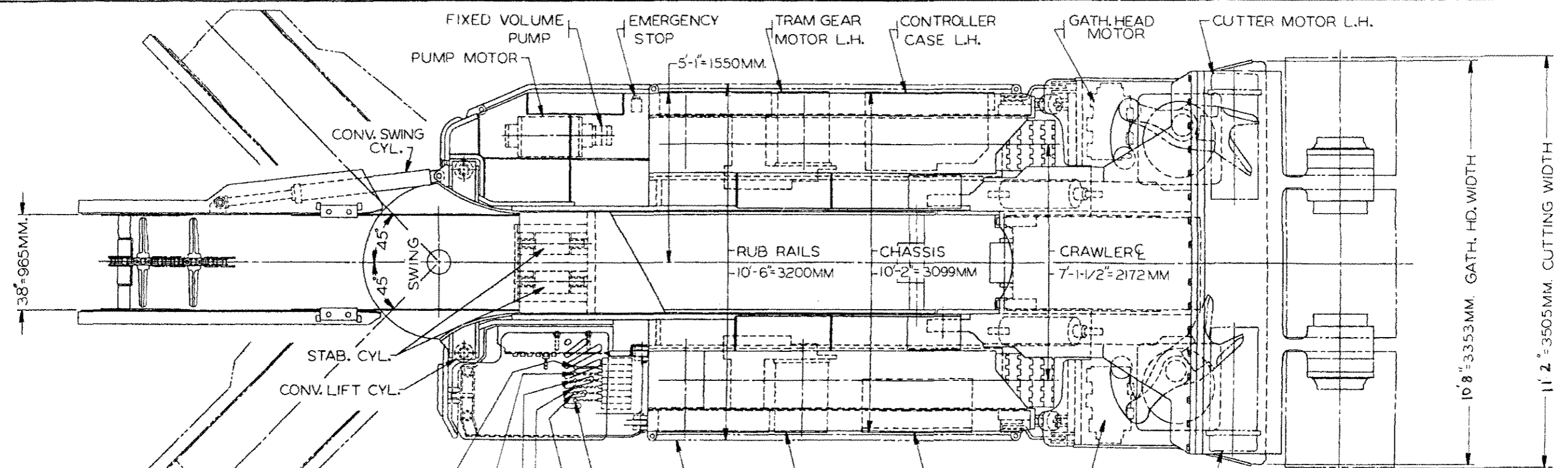
POWER TAKE OFF: A POWER TAKE OFF SHALL BE USED ONLY FOR THE CONNECTION OF PORTABLE CABLE OF ANOTHER PERMISSIBLE MACHINE.

**DO NOT CHANGE
WITHOUT APPROVAL OF
MSHA**

CAD/CAM
MANUAL REVISIONS
NOT AUTHORIZED

PATTERN NO	TOLERANCE TO BE AS SPECIFIED BELOW UNLESS OTHERWISE STATED				FINISH SYMBOLS				DR: C. MOORE	PLANT LOCATION					
	ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED				IN	MICRO INCHES	STK	MICRO m	DESCRIPTION		IN	MICRO INCHES	STK	MICRO m	DESCRIPTION
	MACHINING	FABRICATION PLATE & STRUCTURAL WORK		CASTINGS	A	4	N3	0.1	PRECISION POLISH	F	125	N8	3.2	COMMON MACHINE	CHK'D:
	±0.5 mm	UP TO 304mm ±1mm	301 TO 1000 mm ±2mm	1001 TO 2000 mm ±2mm	B	8	N4	0.2	FINE POLISH	G	250	N9	6.3	ROUGH MACHINE	DATE:
				WALL THICKNESS ±12-1/2X	C	16	N5	0.4	COMMON POLISH	H	500	N10	12.5	HEAVY ROUGH	APP:
					D	32	N6	0.8	GRIND OR EQUAL	K	1000	N11	25	EX HEAVY ROUGH	DATE:
					E	63	N7	1.3	SMOOTH MACHINE						SIMILAR TO:
															REPLACES:
															REPLACED BY:
	ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED				THIS DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF AND CONFIDENTIAL TO JOY TECHNOLOGIES INC. IT MUST NOT BE MADE PUBLIC OR COPIED. IT IS LOANED SUBJECT TO RETURN UPON DEMAND. IS NOT TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTEREST.										
	MACHINING	FABRICATION PLATE & STRUCTURAL WORK		CASTINGS											
	FRACTIONAL DIMENSIONS UP TO 12" ±1/64 OVER 12" ±1/32	UP TO 12" ±1/32	12" TO 36" ±1/16	OVER 36" ±1/8											
				WALL THICKNESS ±12-1/2X											
DWG. DIMS. IMPERIAL <input type="checkbox"/>															
METRIC <input checked="" type="checkbox"/>															
										TITLE: CAUTION STATEMENT		SCALE: CLASS:			
										SHEET: 1 OF 1		A3 DWG. NO. IL000046-0000			

JCM00760-0080



▲ OPTIONAL CONVEYOR

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JOY MANUFACTURING CO.	
PLANT LOCATION AS INDICATED BELOW	
BIRMINGHAM, AL	LA GRANGE, NC
BUFFALO, NY	MICHIGAN CITY, IN
CAMBRIDGE, ONT., CANADA	NEW DELAWARE, OH
CLARDON, NY	
EAST KILBREE, WOOD.	
FRANKLIN, PA	

GENERAL ARRANGEMENT	
14CM15-11B (20' CRAWLER)	
SIMILAR TO	NAME OR INITIAL & DATE
SUPERSEDES	DR. KURTZHALS
SUPPLACES	TR. 1/27/90
REPLACES	CK
REVISED BY	APPVD

ENG. ORDER	FDC 2535	REVISIONS	FDC 3879	1020924
DATE	03/92			

SCALE 1"=1'-0" CLASS. 14CM15

JCM00760-0080

GREASE SPECIFICATIONS

SK025318-0000

	MOBILE MACHINE		ELECTRIC MOTOR GREASE	
JOY GREASE IDENTIFICATION	JL-G	BG-H	BG-M	BG-Y
JOY PART NUMBER	00823038-0000	00823031-0000	00823030-0000	00823032-0000
SOAP OR THICKENER	LITHIUM 12 HYDROXY STEARATE	LITHIUM 12 HYDROXY STEARATE	LITHIUM 12 HYDROXYSTEARATE, LITHIUM COMPLEX, POLYUREA	LITHIUM COMPLEX, POLYUREA
NLGI GRADE	---	---	2	2
PENETRATION MM/10 AT 77°F WORKED 60 STROKES (ASTM D217)	400-500	265-295	265-295	265-295
PENETRATION WORKED 100,000 X (ASTM D217)	---	---	NO MORE THAN +15% DEVIATION FROM PUBLISHED WORKED 60 X PENETRATION	NO MORE THAN +15% DEVIATION FROM PUBLISHED WORKED 60 X PENETRATION
ROLL STABILITY/PENETRATION (ASTM D-1831)	---	---	NO MORE THAN +15% DEVIATION FROM PUBLISHED WORKED 60 X PENETRATION	NO MORE THAN +15% DEVIATION FROM PUBLISHED WORKED 60 X PENETRATION
DROPPING POINT °F (ASTM D2265)	320	350	385 MIN	470 MIN
MINERAL OIL VISCOSITY				
cSt AT (40°C)	---	---	110-160	110-160
cSt AT (100°C)	---	---	10-15	10-15
SUS AT 100°F (40°C)	1500-2100	500-650	500-800	500-800
SUS AT 210°F (100°C)	110-130	62-70	60-75	60-75
BOMB OXIDATION STABILTY (ASTM D 942)	5 PSI IS THE MAX. PRESSURE DROP ALLOWABLE FOR A PERIOD OF 100 HOURS.		7 PSI IS THE MAX. PRESSURE DROP ALLOWABLE FOR A PERIOD OF 100 HOURS.	5 PSI IS THE MAX. PRESSURE DROP ALLOWABLE FOR A PERIOD OF 100 HOURS.
WATER RESISTANCE (ASTM D1264)	5% IS THE MAX.GREASE WASHOUT BY WATER AT 100°F AND FOR A PERIOD OF 1 HOUR.		10% IS THE MAX.GREASE WASHOUT BY WATER AT 100°F AND FOR A PERIOD OF 1 HOUR.	5% IS THE MAX.GREASE WASHOUT BY WATER AT 100°F AND FOR A PERIOD OF 1 HOUR.
RUST PROTECTION RATING (ASTM D1743)	1	1	1	1
TIMKEN OK LOAD-POUNDS (ASTM D2509)	25	40	---	---
HI TEMP.BALL BEARING TEST AT 350°F (ASTM D-3336)	---	---	500 HOURS MIN.	500 HOURS MIN.
WHEEL BEARING TEST (ASTM D-3527)	---	---	200 HOURS MIN.	200 HOURS MIN.
VISCOSITY INDEX (ASTM D-2270)	---	---	90 MIN	90 MIN

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JOY MANUFACTURING CO.
PLANT LOCATION AS INDICATED BELOW

BIRMINGHAM, AL	LA GRANGE, NC
BUFFALO, NY	MICHIGAN CITY, IN
CAMBRIDGE, ONT. CANADA	NEW PHILADELPHIA, OH
CLAREMONT, NH	
E. KILBRIDE, SCOTLAND	
FRANKLIN, PA	

GREASE SPECIFICATION CHART

BG-H THIS IS JOY'S STANDARD GREASE FOR ALL APPLICATIONS OTHER THAN ELECTRIC MOTORS.

JL-G THIS IS A SEMI-FLUID GREASE WHICH WAS USED WHEN A MACHINE WAS EQUIPPED WITH A POWER GREASE PUMP. JL-G IS NOT RECOMMENDED FOR CURRENT JOY MACHINES.

NO EP TYPE GREASE IS ACCEPTABLE FOR ELECTRIC MOTORS.

BG-Y THIS HIGH TEMPERATURE GREASE SPECIFICATION IS SUITABLE FOR USE IN ALL ELECTRIC MOTOR APPLICATIONS, INCLUDING THOSE OPERATING WITH GREASE TEMPERATURES OVER 350° F.
IT MAY ALSO BE USED AS AN ALTERNATIVE TO BG-H OR BG-M.

BG-M THIS HIGH QUALITY GREASE MAY BE SPECIFIED FOR USE IN ELECTRIC MOTORS OPERATING WITH A GREASE TEMPERATURE LESS THAN 350° F.
IT MAY ALSO BE USED AS AN ALTERNATIVE TO BG-H.

LUBRICANT SPECIFICATIONS

IMPORTANT: LUBRICANT SPECIFICATIONS ARE ONLY A GENERAL GUIDE TO ASSIST IN LUBRICANT SELECTION. THEY DO NOT MEASURE QUALITY OR PERFORMABILITY. USE QUALITY LUBRICANTS AS RECOMMENDED BY REPUTABLE SUPPLIERS TO INSURE MAXIMUM PERFORMANCE AND MINIMUM DELAYS. ALWAYS BE CONSISTENT IN USING GREASES WITH THE SAME THICKENER. THIS WILL INSURE THAT THE GREASES USED WILL BE COMPATIBLE. FOR MORE INFORMATION SEE SERVICE BULLETIN FG67.

LITHOPRINT THIS DRAWING

EO FOR 954
DATE 7-31-86

FDE8297 (H) FDF0501 (9) 1020079

REVISIONS

FCS0921 FCS1025

(D) FDE2813 (E) FDE7932 (F) FDE9611

E. KILBRIDE, SCOTLAND
FRANKLIN, PA

SIMILAR TO
SUPERSEDES
REPLACES
REPLACED BY

(NAME OR INITIAL & DATE)
DR R.L.A.P.E. 5-18-86
TR
CK
APPD

SCALE NONE CLASS ALL

SK025318-0000

1000-813520X5

HYDRAULIC OIL SPECIFICATIONS

JOY HYDRAULIC OIL IDENTIFICATION	HO-A	HO-T	HO-S	HO-T2
JOY PART NUMBER	00823088-0000	00823063-0000	00823064-0000	00823065-0000
ISO GRADE (ISO 3448)	AUTOMATIC TRANSMISSION FLUID DEXRON III	46	68	150
ASTM GRADE (ASTM 2422)		215	315	700
OIL VISCOSITY cSt AT 40°C (100 °F) cSt AT 100°C (212°F) SSU AT 40°C (100°F) SSU AT 100°C (210°F) (ASTM D445 AND D2161)	35-41 10-11 160-190 45-51	42-51 10-11 195-235 46-50	64-72 11-12 295-335 52-57	144-159 15-18 665-735 71-82
VISCOSITY INDEX (MINIMUM) (ASTM D2270)	140	90	90	90
POUR POINT °C (°F) (MAXIMUM) (ASTM D97)	-40 (-40)	-29 (-20)	-23 (-10)	-12 (10)
FLASH POINT °C (°F) (MINIMUM) (ASTM D92)	160 (320)	210 (410)	215 (420)	215 (420)
ANILINE POINT (MINIMUM) (ASTM D611)	200	200	200	200
OXIDATION STABILITY HOURS (MINIMUM)(ASTM D943)	500	500	500	500
RUST PROTECTION (ASTM D665A AND D665B)	PASS	PASS	PASS	PASS
FOAM SUPPRESSION (ASTM D892)	USE ANTI-FOAMING ADDITIVE			
VICKERS PUMP WEAR TEST (ASTM D2882)	PASS	PASS	PASS	PASS
DEMULSIBILITY TEST (MAXIMUM) (ASTM D1401)	-	10	15	35
COPPER CORROSION TEST (MINIMUM) (ASTM D-130)	1B	1B	1B	1B

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LITHOPRINT THIS DRAWING



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JOY MANUFACTURING CO.

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CLAREMONT, NH	
E KILBRIDE, SCOTLAND	
FRANKLIN, PA	

HYDRAULIC OIL SPECIFICATION CHART

SIMILAR TO _____
SUPERSEDES _____
REPLACES _____
REPLACED BY _____

(NAME OR INITIAL & DATE)
DR RLAPE 3-18-86
TR _____
CK _____
APPD _____

SCALE NONE CLASS ALL

SK025318-0001

EO FORM 354
DATE 7-31-86

REVISIONS

(B)

FD1841

(C)

FD3874

(A)

1020079

SIZE 2
 (2 JOI LEHS)
 SK025318-0004
 UNLESS OTHERWISE NOTED: ALL DIMENSIONS IN INCHES:
 MACHINING DIMENSIONS LIMITED TO FRACTIONAL ±1/64,
 ANGULAR ±1/2°. STRUCTURAL DIMENSIONS LIMITED TO ±1/16,
 DO NOT SCALE THIS DRAWING
 LITHO PRINT YES NO
 ENG ORDER (A) FDE7272
 REVISIONS (B) FDE8793 (C) 1020079

TRANSMISSION OIL IDENTIFICATION	TO-LEP	TO-MEP	TO-HEP
JOY PART NUMBER	00823077-0000	00823078-0000	00823079-0000
ISO GRADE (ISO)	68	220	320
AGMA LUBRICANT NUMBER	2 EP	5 EP	6 EP
<u>OIL VISCOSITY</u>			
cSt AT 40° C	68	220	320
cSt AT 100° C (REF.) (ASTM D445)	8.7	18.7	24.0
VISCOSITY INDEX (MINIMUM) (ASTM D2270)	100	100	100
POUR POINT °C(°F)(MAX.) (ASTM D97)	-30(-20)	-20(-5)	-18(0)
FLASH POINT °C(°F) (MIN.) (ASTM D92)	210(410)	227(440)	227(440)
OXIDATION STABILITY (MAXIMUM) (ASTM D 2893)	5.9%	10%	10%
EP ADDITIVES TESTS			
FALEX (ASTM D3233 METHOD B)(lb)	—	3000+	3000+
FOUR BALL (ASTM D2783)			
LOAD WEAR INDEX, kg	46+	46+	46+
WELD POINT, kg	250+	250+	250+
FZG GEAR TEST			
MINIMUM STAGES PASSED	12+	12+	12+
RUST PROTECTION (ASTM D665A AND D665B)	PASS	PASS	PASS
COPPER CORROSION PROTECTION (MAXIMUM) (ASTM D130) I,II,III	1b	1b	1b
FOAM SUPPRESSION ml. (MAXIMUM)			
SAME FOR ALL TEST SEQUENCES			
5 MINUTE BLOW	75	75	75
10 MINUTE REST (ASTM D892)	10	10	10
<u>EMULSIBILITY TEST</u>			
MAXIMUM VOLUME OF WATER SEPARATION (ml)			
1 HOUR	—	0	0
24 HOUR	—	0	0
48 HOUR	—	2	2
(ASTM D1401 MODIFIED - TEST MIXTURE OF 40 ML OIL AND 4 ML WATER)			

TO-LEP THIS IS TRANSMISSION OIL WHICH WILL BE SPECIFIED FOR LOW AMBIENT TEMPERATURE. CLUTCHLESS GEARCASE APPLICATIONS."ARCTIC CONDITIONS"

TO-MEP THIS TRANSMISSION OIL IS A MEDIUM WEIGHT OIL SPECIFIED FOR CLUTCHLESS APPLICATIONS REQUIRING MODERATE OPERATING VISCOSITY.

TO-HEP THIS TRANSMISSION OIL IS A HEAVY WEIGHT OIL SPECIFIED FOR CLUTCHLESS GEARCASE APPLICATION REQUIRING HIGH OPERATING VISCOSITY.

LUBRICANT SPECIFICATIONS

IMPORTANT: LUBRICANT SPECIFICATIONS ARE ONLY A GENERAL GUIDE TO ASSIST IN LUBRICANT SELECTION. THEY DO NOT MEASURE QUALITY OR PERFORMABILITY. USE QUALITY LUBRICANTS AS RECOMMENDED BY REPUTABLE SUPPLIERS TO INSURE MAXIMUM PERFORMANCE AND MINIMUM DELAYS.

CAUTION

- MIXING LUBRICANTS SUPPLIED BY DIFFERENT VENDORS IN THE SAME APPLICATION MAY AFFECT LUBRICANT PERFORMANCE. PROPER PRECAUTIONS, SUCH AS FLUSHING OR DRAINING LUBRICANT RESERVOIR, BEFORE USING DIFFERENT SUPPLIER'S LUBRICANTS IS RECOMMENDED TO AVOID PROBLEMS.
- THE ABOVE OILS ARE EP OILS AND ARE NOT RECOMMENDED FOR WET CLUTCH APPLICATIONS. NON EP OILS SHOULD BE USED IN WET CLUTCH APPLICATIONS.

CAD/CAM DRAWING
 MANUAL REVISIONS
 NOT AUTHORIZED.

PATTERN NO. _____
 HEAT TREAT _____
 HARDNESS _____
 CARBURIZE (ECO) _____

SYMS	MICRO INCHES	DESCRIPTION	FINISH SYMBOLS	MICRO INCHES	DESCRIPTION
A	4	PRECISION POLISH	F	125	COMMON MACH.
B	8	FINE POLISH	G	250	ROUGH MACH.
C	16	COMMON POLISH	H	500	HEAVY ROUGH
D	32	GRIND OR EQUAL	K	1000	EX HEAVY ROUGH
E	63	SMOOTH MACH.			

JOY TECHNOLOGIES INC.
 FRANKLIN, PENNSYLVANIA 16323

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TRANSMISSION OIL SPECIFICATION CHART

SIMILAR TO SK025318-0003
 REPLACES _____
 REPLACED BY _____

OR TOM ALLEN
 DATE 05-23-95
 CLASS ALL
 SCALE NONE

SK025318-0004
 (SHEET 1 OF 2)

SIZE 2
 (2) JOY 2 TEHS(S)
 4000-812520MS
 UNLESS OTHERWISE NOTED: ALL DIMENSIONS IN INCHES:
 MACHINING DIMENSIONS LIMITED TO FRACTIONAL 1/16",
 ANGULAR ±1/2°; STRUCTURAL DIMENSIONS LIMITED TO ±1/16"
 DO NOT SCALE THIS DRAWING.
 LITHOPRINT YES NO
 ENG ORDER ① 1020079
 REVISIONS ② 1034295

TRANSMISSION OIL IDENTIFICATION	TO-SMEP	TO-SHEP	TO-SHD
JOY PART NUMBER	00823013-0000	100064332	100064333
ISO GRADE (ISO)	220	320	460
AGMA LUBRICANT NUMBER	5 EP	6 EP	7 EP
OIL VISCOSITY cSt AT 40° C cSt AT 100° C (REF.) (ASTM D445)	220 25.0	320 35.0	460 45.0
VISCOSITY INDEX (MINIMUM) (ASTM D2270)	160	160	165
POUR POINT °C(°F)(MAX.) (ASTM D97)	-40(-40)	-40(-40)	-37(-35)
FLASH POINT °C(°F) (MIN.) (ASTM D92)	235(455)	238(460)	246(475)
OXIDATION STABILITY (MAXIMUM) (ASTM D 2893)	3.0%	3.5%	4.0%
EP ADDITIVES TESTS FALEX (ASTM D3233 METHOD B)(lb) FOUR BALL (ASTM D2783) LOAD WEAR INDEX, kg WELD POINT, kg FZG GEAR TEST MINIMUM STAGES PASSED	3000+ 46+ 250+ 12+	3000+ 46+ 250+ 12+	3000+ 46+ 250+ 12+
RUST PROTECTION (ASTM D665A AND D665B)	PASS	PASS	PASS
COPPER CORROSION PROTECTION (MAXIMUM) I, II, III (ASTM D130)	1b	1b	1b
FOAM SUPPRESSION ml. (MAXIMUM) SAME FOR ALL TEST SEQUENCES 5 MINUTE BLOW 10 MINUTE REST (ASTM D892)	75 10	75 10	75 10
EMULSIBILITY TEST MAXIMUM VOLUME OF WATER SEPARATION (ml) 1 HOUR 24 HOUR 48 HOUR (ASTM D1401 MODIFIED - TEST MIXTURE OF 40 ML OIL AND 4 ML WATER)	4 4 4	4 4 4	4 4 4

TO-SMEP THIS SYNTHETIC TRANSMISSION OIL IS A MEDIUM WEIGHT OIL SPECIFIED FOR CLUTCHLESS APPLICATIONS REQUIRING MODERATE OPERATING VISCOSITY.

TO-SHEP THIS SYNTHETIC TRANSMISSION OIL IS A HEAVY WEIGHT OIL SPECIFIED FOR CLUTCHLESS GEARCASE APPLICATION REQUIRING HIGH OPERATING VISCOSITY.

TO-SHD THIS SYNTHETIC TRANSMISSION OIL IS A HEAVY DUTY OIL SPECIFIED FOR CLUTCHLESS GEARCASE APPLICATION REQUIRING EXTREMELY HIGH OPERATING VISCOSITY.

LUBRICANT SPECIFICATIONS

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CAD/CAM DRAWING
 MANUAL REVISIONS
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 FRANKLIN, PENNSYLVANIA 16323

SYNTHETIC TRANSMISSION OIL SPECIFICATION CHART

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

SIMILAR TO SK025318-0003
 REPLACES _____
 REPLACED BY _____





OR DENNIS C. WEATHER
 DATE 10/24/2000
 CLASS ALL
 SCALE NONE

SK025318-0004
 (SHEET 2 OF 2)

PATTERN NO. _____
 HEAT TREAT _____
 HARDNESS _____
 CARBURIZE (ECO) _____

FINISH SYMBOLS	
SYMBOL	DESCRIPTION
A	PRECISION POLISH
B	FINE POLISH
C	COMMON POLISH
D	GRIND OR EQUAL
E	SMOOTH MACH.

METRIC CAP SCREWS				
CAP SCREW SIZE	METRIC TORQUE VALUE (NEWTON METERS)		IMPERIAL TORQUE VALUE (FOOT POUNDS)	
	 CLASS 10.9 HEX HEAD	 CLASS 12.9 SOCKET HEAD	 CLASS 10.9 HEX HEAD	 CLASS 12.9 SOCKET HEAD
M3	2 Nm	2 Nm	1 FT-LB	2 FT-LB
M4	4 Nm	5 Nm	3 FT-LB	4 FT-LB
M5	9 Nm	10 Nm	6 FT-LB	8 FT-LB
M6	15 Nm	18 Nm	11 FT-LB	13 FT-LB
M8	36 Nm	43 Nm	27 FT-LB	32 FT-LB
M10	72 Nm	87 Nm	53 FT-LB	64 FT-LB
M12	125 Nm	150 Nm	92 FT-LB	111 FT-LB
M16	305 Nm	365 Nm	225 FT-LB	269 FT-LB
M20	590 Nm	710 Nm	435 FT-LB	524 FT-LB
M24	1020 Nm	1220 Nm	752 FT-LB	900 FT-LB
M30	2050 Nm	2450 Nm	1512 FT-LB	1807 FT-LB
M36	3560 Nm	4280 Nm	2625 FT-LB	3157 FT-LB

IMPERIAL CAP SCREWS				
CAP SCREW SIZE	METRIC TORQUE VALUE (NEWTON METERS)		IMPERIAL TORQUE VALUE (FOOT POUNDS)	
	 GRADE 5 HEX HEAD	 GRADE 8 AND SOCKET HEAD	 GRADE 5 HEX HEAD	 GRADE 8 AND SOCKET HEAD
1/4 - 20	12 Nm	18 Nm	9 FT-LB	13 FT-LB
5/16 - 18	26 Nm	35 Nm	19 FT-LB	26 FT-LB
3/8 - 16	45 Nm	64 Nm	33 FT-LB	47 FT-LB
7/16 - 14	72 Nm	102 Nm	53 FT-LB	75 FT-LB
1/2 - 13	108 Nm	156 Nm	80 FT-LB	115 FT-LB
9/16 - 12	156 Nm	224 Nm	115 FT-LB	165 FT-LB
5/8 - 11	217 Nm	305 Nm	160 FT-LB	225 FT-LB
3/4 - 10	386 Nm	542 Nm	285 FT-LB	400 FT-LB
7/8 - 9	617 Nm	875 Nm	455 FT-LB	645 FT-LB
1 - 8	929 Nm	1315 Nm	685 FT-LB	970 FT-LB
1-1/8 - 7	1146 Nm	1871 Nm	845 FT-LB	1380 FT-LB
1-1/4 - 7	1627 Nm	2624 Nm	1200 FT-LB	1935 FT-LB
1-3/8 - 6	2129 Nm	3444 Nm	1570 FT-LB	2540 FT-LB
1-1/2 - 6	2820 Nm	4583 Nm	2080 FT-LB	3380 FT-LB

INSTRUCTIONS:

- DETERMINE WHETHER THE CAPSCREWS ARE METRIC OR IMPERIAL. ALL METRIC CAPSCREWS HAVE THE CLASS STAMPED ON THE TOP OR SIDE OF THE HEAD SUCH AS 10.9 FOR CLASS 10.9 OR 12.9 FOR CLASS 12.9. ALL IMPERIAL HEX HEAD CAP SCREWS THAT ARE GRADE 5 HAVE 3 MARKS ON THE HEAD AND GRADE 8 HAVE 6 MARKS. ALL IMPERIAL SOCKET HEAD CAPSCREWS ARE GRADE 8.
- DETERMINE IF THE TORQUE WRENCH INDICATES IN METRIC OR IMPERIAL UNITS. THEN SELECT THE CORRECT PORTION OF THE RECOMMENDED TORQUE VALUES FOR METRIC CAP SCREWS.
- TORQUE THE CAPSCREWS TO THE RECOMMENDED TORQUE.

EXAMPLE:

GIVEN AN M12 METRIC SOCKET HEAD CAP SCREW AND TORQUE WRENCH THAT READS IN METRIC, THE CAP SCREW SHOULD BE TORQUED TO 150 NEWTON METERS.






CAUTIONS:

- A TORQUE WRENCH CALIBRATED TO AN ACCURACY OF +/- 5% IS TO BE USED.
- USE THESE VALUES FOR TIGHTENING CAP SCREWS UNLESS A VALUE IS ON THE ASSEMBLY DRAWING. THE TORQUE VALUES ON THE DRAWING MAY DIFFER FROM LISTED VALUE DEPENDING UPON SPECIFIC APPLICATION REQUIREMENTS.
- THE TORQUE VALUES IN THESE TABLES APPLY TO CAP SCREWS WITH A LIGHT COATING OF MACHINE OIL (AS RECEIVED CONDITION), A LIGHT COATING OF REGULAR (NON-EP) OIL, NEVER-SEIZE, OR THREAD LOCKER. THESE TORQUE VALUES APPLY TO PLATED CAP SCREWS ALSO.
- THE USE OF SOME FRICTION REDUCING COMPOUNDS (I.E. MOLY-DISULFIDE OR EP OIL ADDITIVES, ETC.) ON THREADS CAN RESULT IN OVER-TORQUING AND BREAKAGE IF USED WITH THE TORQUE VALUES LISTED ON THIS TABLE. DUE TO THE WIDE VARIATION OF FRICTION REDUCTION (POSSIBLE 30-50 PERCENT), USE OF THESE LUBRICANTS SHOULD BE AVOIDED UNLESS A TORQUE WRENCH IS NOT AVAILABLE THAT IS CAPABLE OF THE TORQUE VALUE IN THE TABLE. IN THIS CASE, THE SPECIAL LUBRICANT MUST BE SPECIFIED ON THE DRAWING AND A LOWER TORQUE VALUE MUST BE CALCULATED TO AGREE WITH THE DECREASED COEFFICIENT OF FRICTION.

CAD/CAM DRAWING
MANUAL REVISIONS
NOT AUTHORIZED

ENG ORDER FBN0840	E.G. CHANGE	FCW0914	FCX0245	FDC3261	FDC9194
DATE ISSUED	FDE9598	1053224			
MATERIAL	SALES DRAWING NO <input type="checkbox"/> YES <input checked="" type="checkbox"/>		DWG. DIMS IMPERIAL <input checked="" type="checkbox"/> METRIC <input checked="" type="checkbox"/>		
HEAT TREAT	PATTERN NO		FRACTIONAL DIMENSIONS UP TO 12" 1/164 OVER 12" 1/132		
HARDNESS			UP TO 12" 1/132	12" TO 36" 1/116	OVER 36" 1/108
CARBURIZE (ECD)			WALL THICKNESS 1/12-1/24		

TOLERANCE TO BE AS SPECIFIED BELOW UNLESS OTHERWISE STATED			
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED			
MACHINING	FABRICATION PLATE & STRUCTURAL WORK	CASTINGS	
± 0.5mm	UP TO 300 mm ± 0.2 mm	301 TO 1000 mm ± 0.3 mm	1001 TO 2000 mm ± 0.4 mm
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED			
MACHINING	FABRICATION PLATE & STRUCTURAL WORK	CASTINGS	
	UP TO 12"	12" TO 36"	OVER 36"
	1/164	1/116	1/108
	WALL THICKNESS		1/12-1/24

FINISH SYMBOLS					
FINISH	SYMBOL	DESCRIPTION	FINISH	SYMBOL	DESCRIPTION
A		PRECISION POLISH	F		COMMON MACHINE
B		FINE POLISH	G		ROUGH MACHINE
C		COMMON POLISH	H		HEAVY ROUGH
D		GRIND OR EQUAL	K		EX HEAVY ROUGH
E		SMOOTH MACHINE			

DR: L. A. S.
DATE: 7-19-73
CRS'D:
DATE:
APP:
DATE:
SIMILAR TO:
REPLACES: SK024122-0001
REPLACED BY:

PLANT LOCATION: FRANKLIN PENNSYLVANIA, USA
TITLE: VALUES, TORQUE, CAP SCREWS
SCALE: NO SCALE CLASS: ALL
SHEET: 1 OF 1
DWG. NO. SK024122-0000

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PROCEDURE:

1. CLEAN SEALS AND RING SETS WITH CLEANING SOLVENT
2. WIPE SEAL FACES CLEAN AND COAT WITH LIGHT OIL. THERE MUST BE NO OIL ON TORIC RING OR RING SEAT.
3. USE PROPER INSTALLER TOOL, WET RING IN SOLVENT, AND PRESS INTO SEAT MAKING SURE IT IS NOT TWISTED.
4. ALWAYS ASSEMBLE SEALS IN MATCHED PAIRS. NEVER ASSEMBLE ONE NEW SEAL AND ONE USED SEAL TOGETHER, OR TWO SEALS THAT HAVE NOT PREVIOUSLY RUN TOGETHER.

© JOY MINING MACHINERY 1998 ALL RIGHTS RESERVED. THIS DRAWING IS THE PROPERTY OF JOY MINING MACHINERY AND IS CONFIDENTIAL. IT IS ISSUED SUBJECT TO THE CONDITIONS THAT: (1) THE INFORMATION OR ANY PART THEREOF CONTAINED IN IT SHALL NOT BE DISCLOSED IN ANY FORM TO A THIRD PARTY. (2) IT OR ANY PART OF IT SHALL NOT BE REPRODUCED IN ANY FORM.	GENERAL NOTES 1. WELDING SYMBOLS STANDARD TO ISO 2553 METHOD A. 2. REMOVE ALL BURRS & SHARP EDGES. 3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED. 4. THIRD ANGLE PROJECTION	FINISH SYMBOLS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SYM</th> <th>MICRO</th> <th>SYM</th> <th>MICRO</th> </tr> <tr> <td>N3</td> <td>0.1</td> <td>N8</td> <td>3.2</td> </tr> <tr> <td>N4</td> <td>0.2</td> <td>N9</td> <td>6.3</td> </tr> <tr> <td>N5</td> <td>0.4</td> <td>N10</td> <td>12.5</td> </tr> <tr> <td>N6</td> <td>0.8</td> <td>N11</td> <td>25</td> </tr> <tr> <td>N7</td> <td>1.6</td> <td></td> <td></td> </tr> </table>	SYM	MICRO	SYM	MICRO	N3	0.1	N8	3.2	N4	0.2	N9	6.3	N5	0.4	N10	12.5	N6	0.8	N11	25	N7	1.6			TOLERANCES UNLESS OTHERWISE STATED <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>MACHINING</th> <th>±0.3</th> <th>PROJECT TREATMENT</th> <th></th> </tr> <tr> <td>ANGULAR</td> <td>±1/2°</td> <td>FABRICATION TOL'S</td> <td></td> </tr> <tr> <td colspan="2">FABRICATION & STRUCTURAL</td> <td>MACHINING TOL'S</td> <td></td> </tr> <tr> <td colspan="2"></td> <td>FINISH SPEC</td> <td></td> </tr> <tr> <td></td> <td>UP TO 300</td> <td>MANUFACTURING SPEC</td> <td></td> </tr> <tr> <td></td> <td>301 UP TO 1000</td> <td>WELDING SPEC</td> <td></td> </tr> <tr> <td></td> <td>1001 UP TO 2000</td> <td>HEAT TREATMENT</td> <td></td> </tr> <tr> <td></td> <td>OVER 2000</td> <td>HARDNESS</td> <td></td> </tr> </table>		MACHINING	±0.3	PROJECT TREATMENT		ANGULAR	±1/2°	FABRICATION TOL'S		FABRICATION & STRUCTURAL		MACHINING TOL'S				FINISH SPEC			UP TO 300	MANUFACTURING SPEC			301 UP TO 1000	WELDING SPEC			1001 UP TO 2000	HEAT TREATMENT			OVER 2000	HARDNESS		SEE TABLE MATERIAL WEIGHT ESTIMATED WEIGHT PLATE INDICATOR BURR USE X REPLACED BY SIMILAR TO	VERSION 05 CHANGE NO. 1053916 DRAWN BY R.J. CAD SYSTEM MANUAL DATE 12-30-68 SCALE --- SHEET 1 of 1 MACHINE MODEL ---	DESIGN LOCATION Franklin, PA USA ORDER REF # 05	DESCRIPTION SEAL INSTALLATION INSTRUCTIONS DWG. NO. SK021855-0000
			SYM	MICRO	SYM	MICRO																																																										
			N3	0.1	N8	3.2																																																										
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PRECAUTIONS FOR USERS OF JOY CHAIN PRODUCTS

SK64073

INTRODUCTION:

Chains are by function fast moving items and should be treated with proper respect. If they should come into contact with people, cables, hoses, or other elements, injury could result. While working with chains, safe work habits must be followed. In addition, some specific recommendations to reduce risk of injury are listed below.

BIT CHANGING IN BIT CARRYING CHAINS & ELEMENTS:

Bit changing in chains and other bit carrying elements can be hazardous, if not properly executed. The following precautions should be practiced:

- A. Remove power from the motor driving the cutting element to be worked on.
- B. Safety glasses should be worn.
- C. Stand at the side of ripper or cutter bars, out of the line of chain rotation.
- D. Bits which must be inserted by hammering should be driven with a hammer made of soft material such as lead or leather to reduce the risk of shattering the carbide inserts in bits.
- E. Flying bits can be hazardous. Where setscrew held bits are used, tighten securely to a minimum torque of 200 ft. lbs.

Where quick change type bits are used, check and replace worn keepers or blocks at first sign of excessive looseness.

GENERAL PRECAUTIONS - ALL CHAINS:

1. Positively disconnect power before attempting to work on chains, bars, or conveyors.
2. Provide slack in chain before attempting to uncouple.
3. Do not check line-up of pin holes by inserting finger in hole.
4. Do not thread chains on or off machine by using machine power.
5. Wear safety glasses when driving pins, inserting locks, cutting locks, or removing side plates.
6. Use soft hammer for driving pins to prevent pin from chipping.
7. Wear gloves while handling chains.

SPECIAL PRECAUTIONS - CONVEYOR CHAINS:

1. Support all machine elements which may move, or drop, while working on chains.
2. Chain may fall from tail roller when uncoupled. Support the chain, lower the rear conveyor, and stand clear of this area.
3. When bucking bar is used to assemble connector side plates, do not support it with the feet.
4. Keep chain tension correctly adjusted. In some applications an improperly adjusted chain may jump the sideboards. A safety tunnel, for operator's protection, should be constructed. (See Joy Service Bulletin FGJ-99 for 8/9/10/11CM Miners).

SPECIAL PRECAUTIONS - CRAWLER CHAINS: SEE SK64218

SPECIAL PRECAUTIONS - RIPPER CHAINS:

1. Support bar by lowering on blocks under bit rings to prevent idler head from rotating. Also take load off hydraulic system before uncoupling chain.
2. Use soft hammer for driving pins to prevent pins from chipping. Pins have a brittle, case hardened surface.
3. Do not drive broken bit shanks down into sprocket tooth area of chain.

SPECIAL PRECAUTIONS - CUTTER CHAINS:

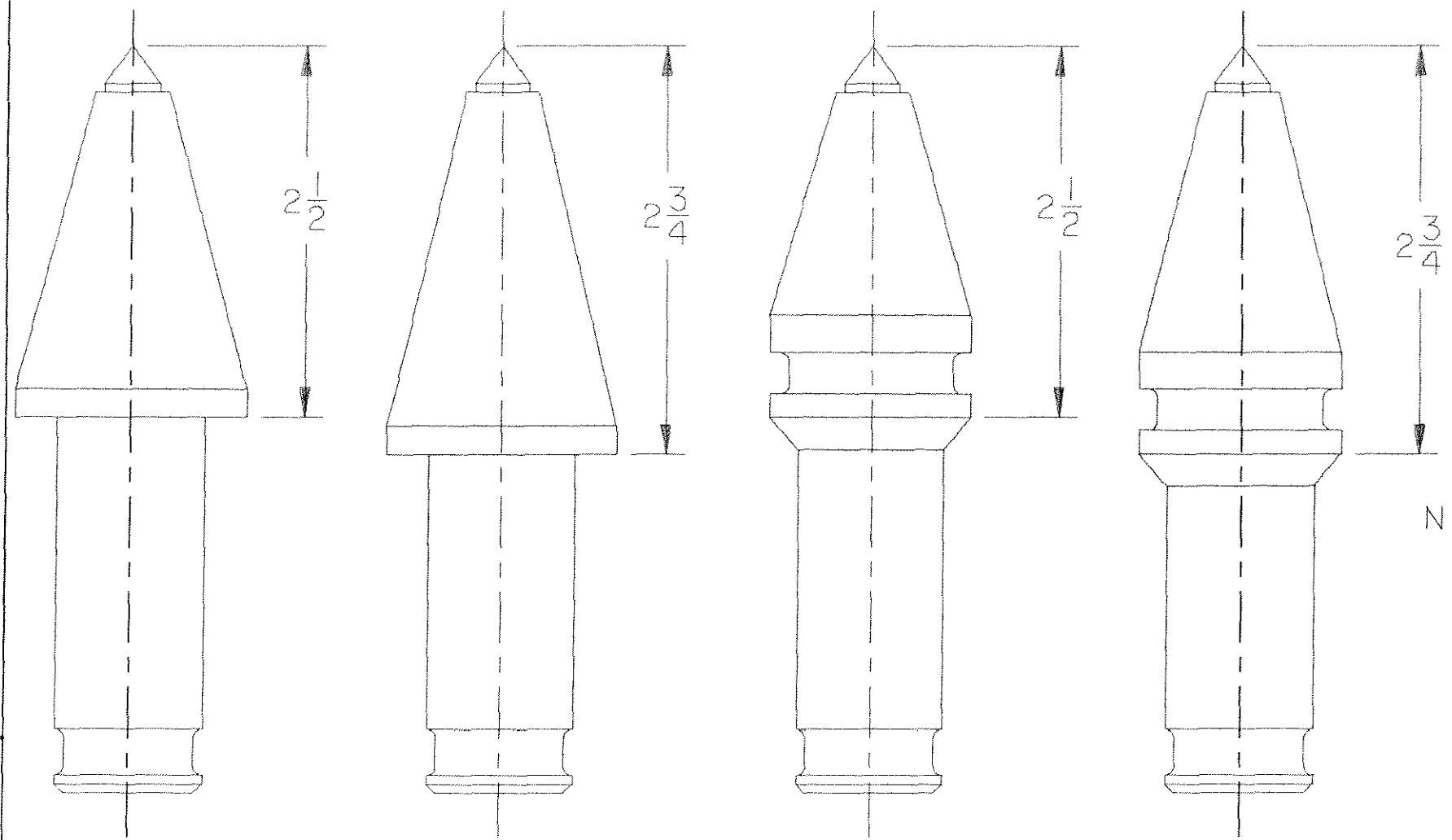
1. Support cutter head, boom, and bar, such that load is not on the hydraulic system when working on chain or sprocket.
2. Use soft hammer for driving pins to prevent chipping. Pins have a brittle, case hardened surface.
3. Do not drive broken bit shanks down into sprocket tooth area of chain.

SPECIAL PRECAUTIONS - RIPPERVEYOR CHAINS: SEE SK64219

DATE R.O.F. RM-405 REVISIONS	JOY MANUFACTURING CO. PLANT LOCATION AS INDICATED BELOW BUFFALO, N. Y. CLARKSBURG, N. W. FARMINGTON, PA. GALT, ONTARIO, CANADA GERRYSBURG, SCOTLAND MICHIGAN CITY, IND.	<p style="font-size: 2em; font-weight: bold; text-align: center;">PRECAUTIONS FOR USERS OF JOY CHAIN PRODUCTS</p> SIMILAR TO _____ SUPERSEDED BY _____ REPLACED BY _____ REPLACED BY _____ DWS, 7-11-73 SCALE _____ CLASS _____ SK64073
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Page No. 1/1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	FCX0574	05/87	
	B	FDC8341	5-8-92	
	C	FDC8667	5-25-93	



NOTES!
 USE OF BITS LONGER THAN THOSE LISTED IN THE CHART COULD CAUSE INTERFERENCE WITH THE GEAR CASE.
 THIS RECOMMENDATION IS FOR 1" (25MM) AND 1-1/8" (28.5MM) SHANK BITS ONLY.

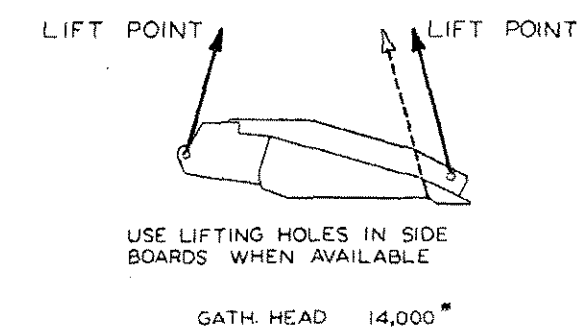
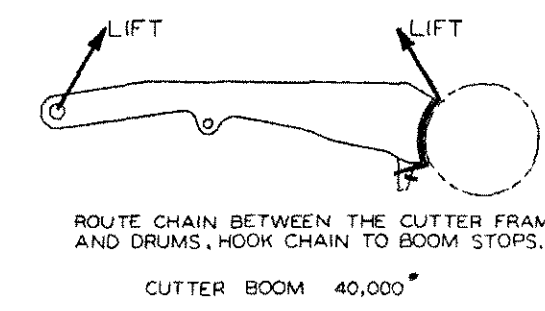
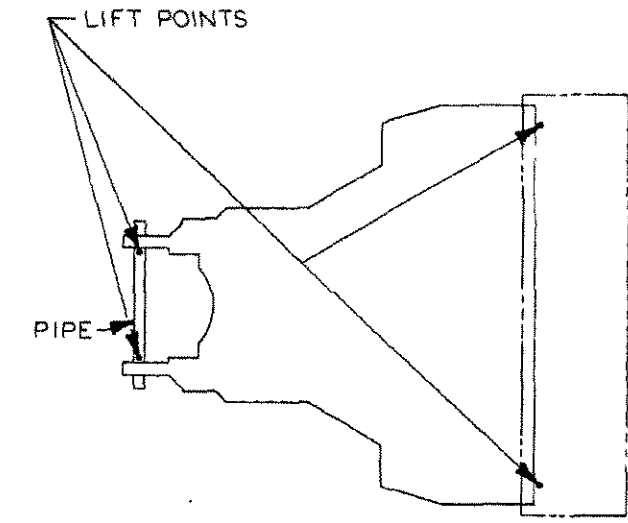
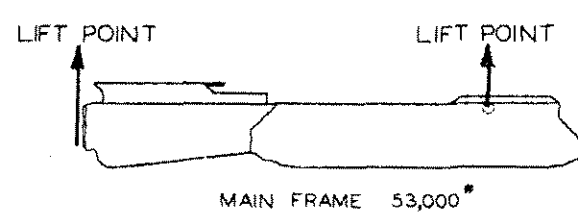
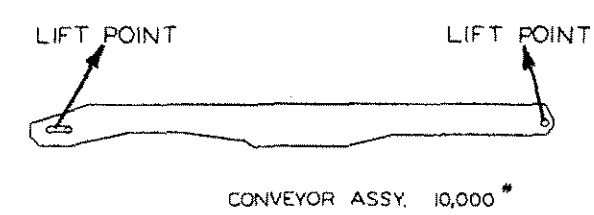
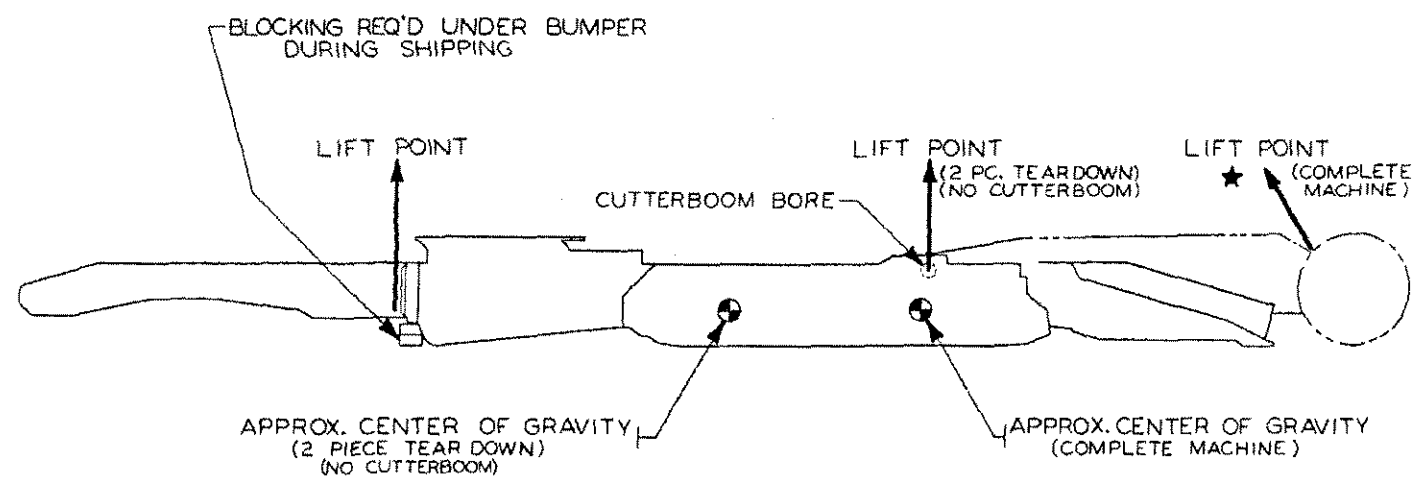
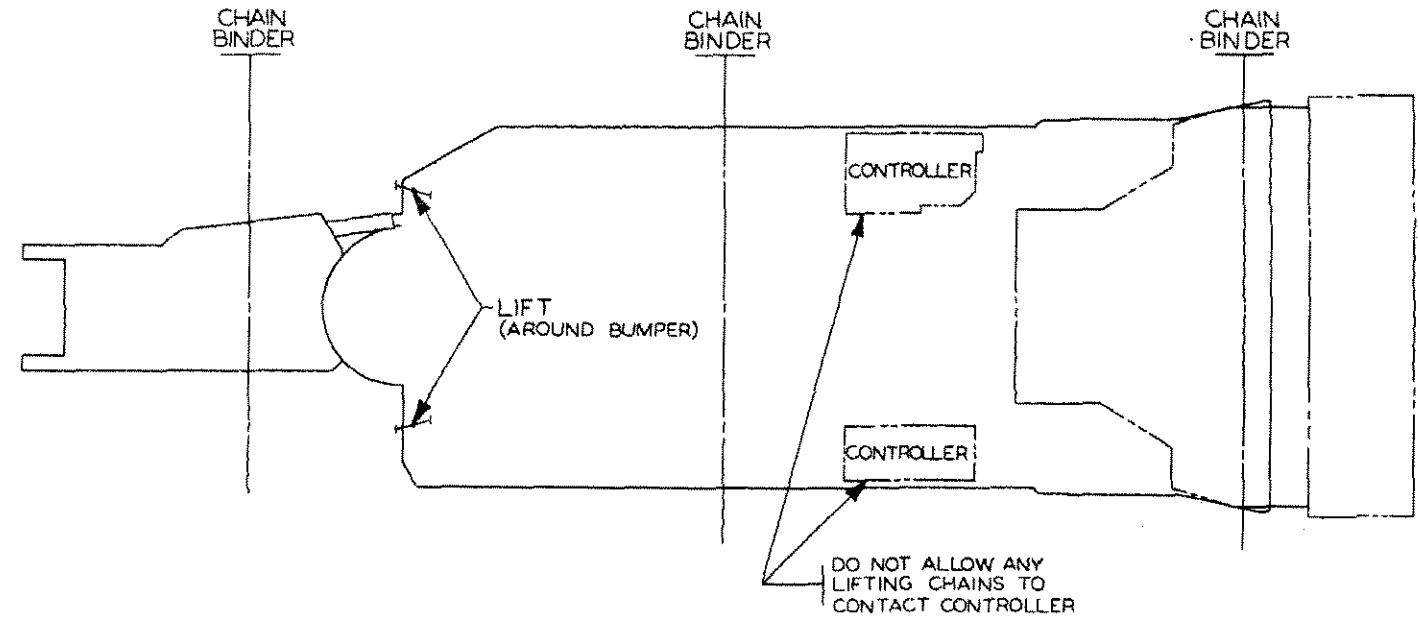
MACHINE MODEL	RECOMMENDED BIT	MAXIMUM BIT
12CM7,10,12,15,18 12EDI8 14CM9,15	2-3/4	2-3/4
12CM11 12HM9,12 14CM10,11,12,14 17CM1	2-3/4	2-3/4
15CM1/2/3	2-1/2	2-1/2

MATERIAL		HEAT TREAT	
		CARBURIZE (ECD)	
		HARDNESS	
LITHO PRINT	CLASS MINER	SIMILAR TO	SK24544
DRAFTER# M.LUKASIAK 05/87	 JOY MANUFACTURING COMPANY FRANKLIN, PENNA. 16323		
CHECKER#	BIT INFO FOR VARIOUS JOY MINERS		
ENGINEER#			
APPROVAL#	SIZE	FSCM NO.	DWG. NO.
	B	75003	SK024544-0001
CAD / CAM DRAWING MANUAL REVISIONS NOT AUTHORIZED	SCALE FULL	WGT.	SHEET 1

UNLESS OTHERWISE NOTED ALL DIMENSIONS IN INCHES; MACHINING DIMNSIONS LIMITED TO FRACTIONAL 1/64, DECIMAL .005, ANGULAR 1/2°; STRUCTURAL DIMENSIONS LIMITED TO 1/16. DO NOT SCALE THIS DRAWING.

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REVISIONS			
ZONE	REV	DESCRIPTION	DATE
	A	FDG 2/133	9/2/89



★WARNING: NOT RECOMMENDED
 LOAD LOCKING SYSTEM WILL CAUSE BOOM TO RAISE WHEN MACHINE IS LIFTED, RESULTING IN THE MACHINE JACK-KNIFING. ENGINEERING SHOULD BE NOTIFIED TO PROVIDE CHANGES TO THE HYDRAULIC CIRCUITRY TO ENABLE THIS TYPE OF LIFT.

NOTES:
 ACTUAL FRAME WEIGHTS MAY BE LESS THAN SHOWN
 COMPLETE MACHINE WEIGHT: 117,000*
 MACHINE WEIGHT NO CUTTER BOOM: 77,000*
 PROTECT BORE FINISHES FROM MARRING OR DAMAGE BEFORE LIFTING.

MATERIAL		CLASS 14CM		SIMILAR TO	
YES LITHOGRAPH		JOY TECHNOLOGIES INC.		FRANKLIN, PENNA. 15023	
DRAWN BY	DATE	LIFTING & BLOCKING INSTRUCTIONS 14CM			
GIERLACH	9-89				
CHECKED BY	DATE				
ENGINEER	DATE				
APPROVAL	DATE				
PART NO. 75003		REV. NO. JCM00832-0004		REV. A	
SCALE 3/4"		SHEET			

UNLESS OTHERWISE NOTED ALL DIMENSIONS IN INCHES; MACHINE DIMENSIONS LIMITED TO FRACTIONAL 1/16".
 AMERICAN 31/2" STRUCTURAL DIMENSIONS LIMITED TO 1/16". DO NOT SCALE THIS DRAWING.
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CABLE SPECIFICATION	CABLE TYPE	DIAMETER	MAX. BREAKER SETTINGS						INSULATION
			MAX. CABLE 500 FT.	MAX. CABLE 750 FT. ALT.	MAX. CABLE 800 FT. ALT.	MAX. CABLE 850 FT. ALT.	MAX. CABLE 900 FT. ALT.	MAX. CABLE 1000 FT. ALT.	
#1-3 COND. ROUND	SHD-GC	1.672-1.901	1000 AMP	1000	—	—	—	—	2000V, 90°C
	SHD-CGC	1.758-1.998							
#1/0-3 COND. ROUND	SHD-GC	1.767-2.009	1250 AMP	1250	1250	—	—	—	
	SHD-CGC	1.853-2.106							
#2/0-3 COND. ROUND	SHD-GC	1.900-2.100	1500 AMP	1500	1480	1450	—	—	
		1.900-2.160							
		1.909-2.160							
	1.986-2.257								
	SHD-CGC	1.900-2.160							
		1.909-2.160							
#2/0-3 COND. FLAT	SHD-SHG	1.131-1.231	1500 AMP	1500	1480	1450	—	—	
		2.910-3.070							
		1.125-1.225							
		2.910-3.070							
		1.105-1.255							
2.890-3.090									
#3/0-3 COND. ROUND	SHD-GC	2.024-2.300	2000 AMP	1580	1560	1535	1510	—	
		2.100-2.387							
#4/0-3 COND. ROUND	SHD-GC	2.194-2.495	2500 AMP	1650	1625	1600	1580	1535	
	SHD-CGC	2.242-2.549							
	SHD-CGC	2.194-2.495							

CERTIFIED ASSEMBLY
 Certification reference drawing
 Australia:
 United Kingdom:
 United States: 571390-3455
 South Africa:

REDRAWN BY JKOST 06/25/99

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