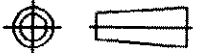


DWG. NO. IL000046-0000	DO NOT SCALE	MATERIAL	MATERIAL DESCRIPTION SIZE OF MATERIAL	HEAT TREAT _____ HARDNESS _____ CARBURIZE (ECD) _____	WELDING STANDARD IS ISO METHOD A	PROJECTION THIRD ANGLE 
ENG ORDER K-806	DATE ISSUED 4-22-47	REVISIONS	FCS1389 FDB0312 (H) FDB1173 (9) 1018563			

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.

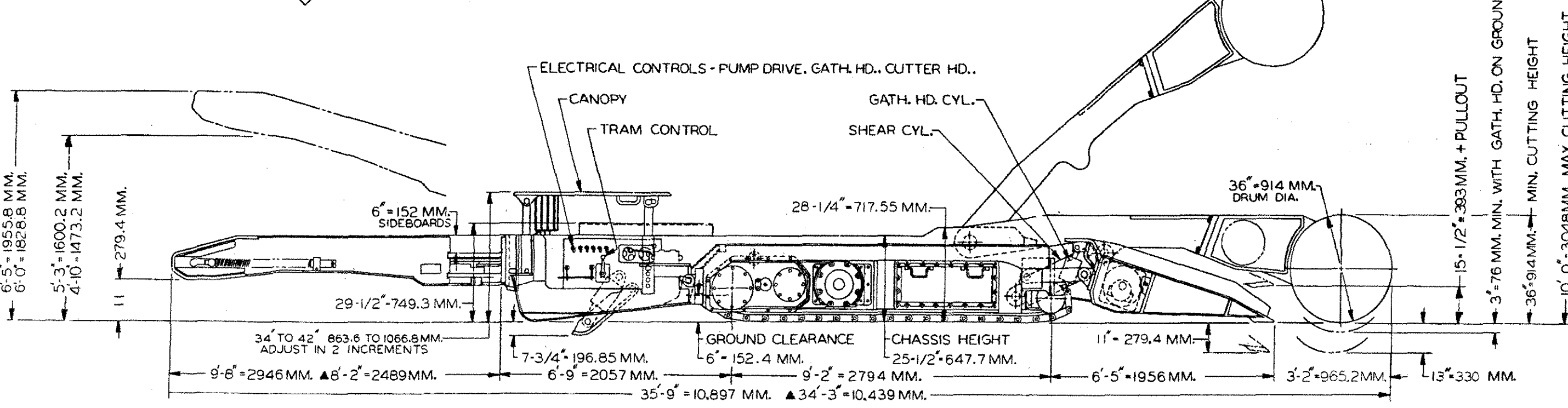
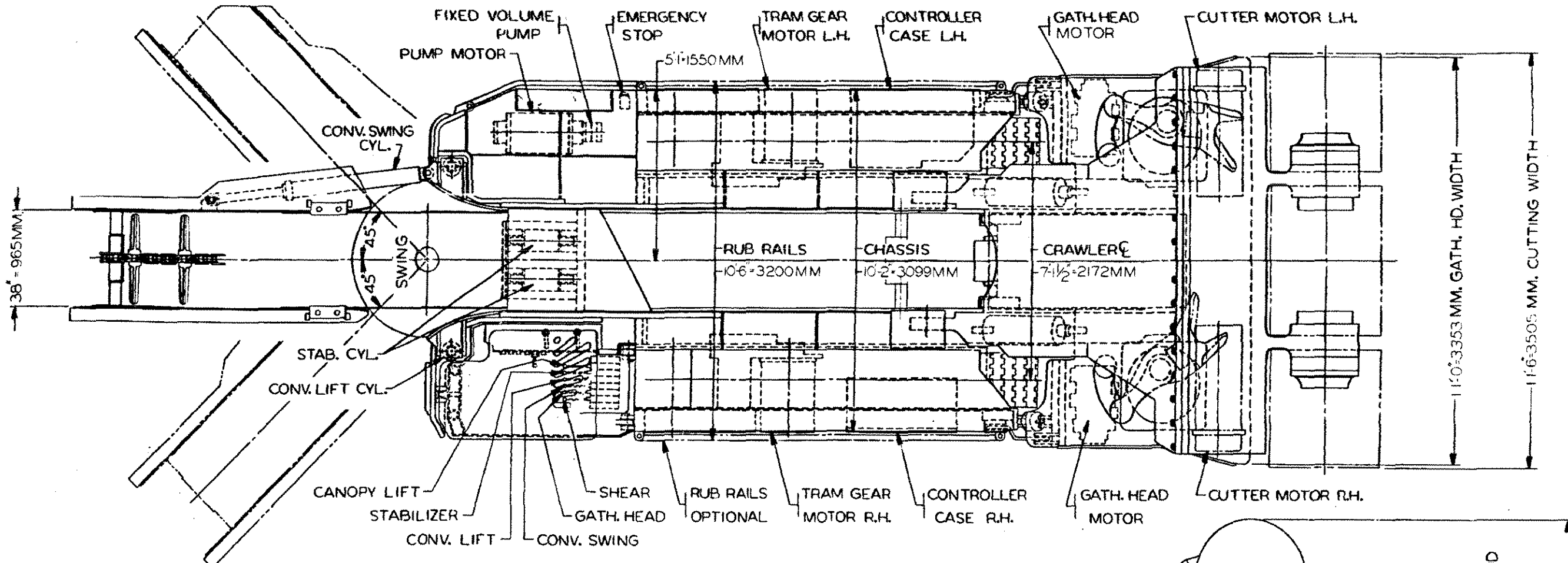
POWER TAKE OFF: A POWER TAKE OFF SHALL BE USED ONLY FOR THE CONNECTION OF PORTABLE CABLE OF ANOTHER PERMISSABLE MACHINE.

CAD/CAM
MANUAL REVISIONS
NOT AUTHORIZED

**DO NOT CHANGE
WITHOUT APPROVAL OF
MSHA**

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								DATE: 7-28-97	
CONFIDENTIAL NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>	MACHINING	FABRICATION PLATE & STRUCTURAL WORK		CASTINGS	#	MICRO INCHES	#	MICRO m	DESCRIPTION	DATE:
	±0.5 mm	UP TO 304mm ±1mm	301 TO 1000 mm ±2mm	1001 TO 2000 mm ±2mm	A	4	N5	0.1	PRECISION POLISH	CHK'D:
				WALL THICKNESS ±12-172X	B	8	N4	0.2	FINE POLISH	DATE:
					C	16	N5	0.4	COMMON POLISH	APP:
					D	32	N6	0.8	GRIND OR EQUAL	DATE:
					E	63	N7	1.6	SMOOTH MACHINE	SIMILAR TO:
					F	125	N8	3.2	COMMON MACHINE	REPLACES:
					G	250	N9	6.3	ROUGH MACHINE	REPLACED BY:
					H	500	N10	12.5	HEAVY ROUGH	
					K	1000	N11	25	EX HEAVY ROUGH	
DWG. DIMS. IMPERIAL <input type="checkbox"/> METRIC <input checked="" type="checkbox"/>	ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED								TITLE: CAUTION STATEMENT	
	MACHINING	FABRICATION PLATE & STRUCTURAL WORK		CASTINGS					SCALE:	CLASS:
	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	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.				A3 DWG. NO	IL000046-0000

JCM00760-0116



▲ 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 PHILADELPHIA, OH
CLAREMONT, NH	
EAST RENO, WYOM.	
FRANKLIN, PA	

14CM15-10C GEN. ARRANGEMENT (20 CRAWLERS)

SIMILAR TO: _____
 SUPERSEDED BY: _____
 REPLACES: _____
 REPLACED BY: _____

SCALE: 1" = 1'-0" CLASS: 14CM

JCM00760-0116

ENG. ORDER: _____ DATE ISSUED: _____
 REVISION: _____

CONFIDENTIAL
 NO YES

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 HYDROXY STEARATE, 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				
cSI AT (40°C)	---	---	110-160	110-160
cSI AT (100°C) (ASTM D445)	---	---	10-15	10-15
SUS AT 100°F (40°C)	1500-2100	500-650	500-800	500-800
SUS AT 210°F (100°C) (ASTM D445 & D2161)	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)	I	I	I	I
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

FDE8297 (H) FDE0501 (9) 1020079
 REVISIONS FCS0921 FCS1025 (D) FDE2813 (E) FDE7932 (F) FDE9611
 DATE 7-31-86

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JOY MANUFACTURING CO.
 PLANT LOCATION AS INDICATED BELOW

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

GREASE SPECIFICATION CHART

SIMILAR TO _____
 SUPERSEDES _____
 SUPERSEDED BY _____
 REPLACES _____
 REPLACED BY _____
 (NAME OR INITIAL & DATE)
 DR. R. LAPE 3-18-86
 TR _____
 CK _____
 APPD _____
 SCALE NONE CLASS ALL
 SK025318-0000

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

SK025318-0001

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			
ASTM GRADE (ASTM 2422)	46	68	150	
	215	315	700	
OIL VISCOSITY				
cSt AT 40°C (100 °F)	35-41	42-51	64-72	144-159
cSt AT 100°C (212°F)	10-11	10-11	11-12	15-18
SSU AT 40°C (100°F)	160-190	195-235	295-335	665-735
SSU AT 100°C (210°F) (ASTM D445 AND D2161)	45-51	46-50	52-57	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

LUBRICANT SPECIFICATIONS

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LITHOPRINT THIS DRAWING
 CAD/CAM

EO FORM 954
 DATE 7-31-86

REVISIONS (B) FDF1841 (C) FDF3874 (4) 1020079

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CAMBRIDGE, ONT. CANADA	NEW PHILADELPHIA, OH
CLAREMONT, NH	
E KILBRIDE, SCOTLAND	
FRANKLIN, PA	

HYDRAULIC OIL SPECIFICATION CHART

SIMILAR TO _____
 SUPERSEDES BY _____
 REPLACES _____
 REPLACED BY _____

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

SCALE NONE CLASS ALL

SK025318-0001

SIZE 2
 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.

SK025318-0004 (2) JOI TEHS (S)
 LITHOPRINT YES NO
 ENG ORDER (A) FDE7272
 REVISIONS (B) FDE8793 (C) 1020079

	TO-LEP	TO-MEP	TO-HEP
TRANSMISSION OIL IDENTIFICATION			
JOY PART NUMBER	00823077-0000	00823078-0000	00823079-0000
ISO GRADE (ISO)	68	220	320
AGMA LUBRICANT NUMBER	2 EP	5 EP	6 EP
OIL VISCOSITY			
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 10 MINUTE REST (ASTM D892)	75 10	75 10	75 10
EMULSIBILITY TEST			
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

- 1) 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.
- 2) 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) _____

FINISH SYMBOLS	
MICRO INCHES	DESCRIPTION
A 4	PRECISION POLISH
B 9	FINE POLISH
C 15	COMMON POLISH
D 32	GRIND OR EQUAL
E 63	SMOOTH MACH.
MICRO INCHES	DESCRIPTION
F 125	COMMON MACH
G 250	ROUGH MACH.
H 500	HEAVY ROUGH
K 1000	EX HEAVY ROUGH

JOY TECHNOLOGIES INC.
 FRANKLIN, PENNSYLVANIA 16323

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TRANSMISSION OIL SPECIFICATION CHART

SIMILAR TO SK025318-0003
 DR. TOM ALLEN
 DATE 05-23-95
 CLASS ALL
 SCALE NONE

SK025318-0004
 (SHEET 1 OF 2)

SIZE 2
 (2) JO 2 T3HS) SK025318-0004
 UNLESS OTHERWISE NOTED: ALL DIMENSIONS IN INCHES:
 MACHINING DIMENSIONS LIMITED TO FRACTIONAL 1/164,
 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	220	320	460
cSt AT 100° C (REF.) (ASTM D445)	25.0	35.0	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)	3000+	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
EMULSIBILITY TEST			
MAXIMUM VOLUME OF WATER SEPARATION (ml)			
1 HOUR	4	4	4
24 HOUR	4	4	4
48 HOUR	4	4	4
(ASTM D1401 MODIFIED - TEST MIXTURE OF 40 ML OIL AND 4 ML WATER)			

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

IMPORTANT:
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CAUTION

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- 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.

MATERIAL	
PATTERN NO.	
HEAT TREAT	
HARDNESS	
CARBURIZE (ECO)	

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

JOY TECHNOLOGIES INC.
 FRANKLIN, PENNSYLVANIA 15323





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SYNTHETIC TRANSMISSION OIL SPECIFICATION CHART

SIMILAR TO SK025318-0003
 REPLACES _____
 REPLACED BY _____

DR DENNIS C. MEYER
 DATE 10/24/2000
 CLASS ALL
 SCALE NONE

SK025318-0004
 (SHEET 2 OF 2)

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:

1. 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.
2. 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.
3. 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:

1. A TORQUE WRENCH CALIBRATED TO AN ACCURACY OF +/- 5% IS TO BE USED.
2. 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.
3. THE TORQUE VALUES IN THESE TABLES APPLY TO CAP SCREWS WITH A LIGHT COATING OF MACHINE OIL (AS RECEIVED CONDITION) OR A LIGHT COATING OF REGULAR OIL. THESE TORQUE VALUES APPLY TO PLATED CAP SCREWS ALSO.
4. THE USE OF FRICTION REDUCING LUBRICANTS (I.E. MOLY-DISULFIDE, 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		REV ORDER FBN0840		REVISIONS FCW0914	FCX0245	FDC3261	FDC9194	TOLERANCE TO BE AS SPECIFIED BELOW UNLESS OTHERWISE STATED				FINISH SYMBOLS				DATE: 7-19-73	PLANT LOCATION: FRANKLIN PENNSYLVANIA
DATE ISSUED: FDE9598		SALES DRAWING NO <input type="checkbox"/> YES <input checked="" type="checkbox"/>		ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED				ALL DIMENSIONS IN INCHES UNLESS OTHERWISE STATED				DESCRIPTION: PRECISION POLISH, FINE POLISH, COMMON POLISH, SKIMS OR EQUAL, SMOOTH MACHINE				DATE: 7-19-73	TITLE: VALUES, TORQUE, CAP SCREWS
HEAT TREAT: _____		PATTERN NO: _____		MACHINING: _____				FABRICATION PLATE & STRUCTURAL WORK: _____				DESCRIPTION: COMMON MACHINE, ROUGH MACHINE, HEAVY ROUGH, EX HEAVY ROUGH				DATE: _____	CLASS: ALL
HARDNESS: _____		DWG. DIMS: IMPERIAL <input checked="" type="checkbox"/> METRIC <input checked="" type="checkbox"/>		FRACTIONAL DIMENSIONS: UP TO 12" 1/32, 12" TO 36" 1/16, OVER 36" 1/8				WALL THICKNESS: UP TO 12" 1/32, 12" TO 36" 1/16, OVER 36" 1/8				THIS DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF AND CONFIDENTIAL TO JOY HIMING MACHINERY. IT MUST NOT BE MADE PUBLIC OR COPIED, REPRODUCED, LOANED, REPRODUCED, RETURNED UPON DEMAND. IS NOT TO BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTEREST.				REPLACES: SK024122-0001	SCALE: NO SCALE
CARBURIZE (CCB): _____		DWG. NO. SK024122-0000		SHEET: 1 OF 1				A2				DWG. NO. SK024122-0000					

SK21855

PROCEDURE:

1. CLEAN SEALS AND RING SEATS 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.

CONFIDENTIAL

NO YES

ENG. ORDER <u>EBD927</u>	REVISIONS <u>FBM697</u>	JOY MANUFACTURING CO.	INSTALLATION INSTRUCTIONS FOR CATERPILLAR SEALS
DATE ISSUED _____		PLANT LOCATION AS INDICATED BELOW	
③ 1009670	④ 1022187	CLAREMONT, N. H.	NEW PHILADELPHIA, O.
		DALLAS, TEXAS	ST. LOUIS, MISSOURI
		FRANKLIN, PA. <input checked="" type="checkbox"/>	
		GALT, ONTARIO, CAN.	
		GREENOCK, SCOTLAND	
		MICHIGAN CITY, IND.	
		DR. R. J. 12-30-68 TR.	CK. _____ APPVD. _____
		SUPERSEDES _____	SCALE <u>CM</u> CLASS _____
		SUPERSEDED BY _____	SK21855
		REPLACES _____	
		REPLACED BY _____	

PRECAUTIONS FOR USERS OF JOY CHAIN PRODUCTS

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 EOFFRM-405 REVISIONS	JOY MANUFACTURING CO. PLANT LOCATION AS INDICATED BELOW BUFFALO, N. Y. CLAREMONT, N. M. FRANKLIN, PA. GALT, ONTARIO, CANADA GERRYOCH, SCOTLAND MICHIGAN CITY, IND.	SIMILAR TO SUPERSEDED BY REPLACED BY DAVIS 7-11-73 SCALE SK64073
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PRECAUTIONS FOR USERS OF JOY CHAIN PRODUCTS

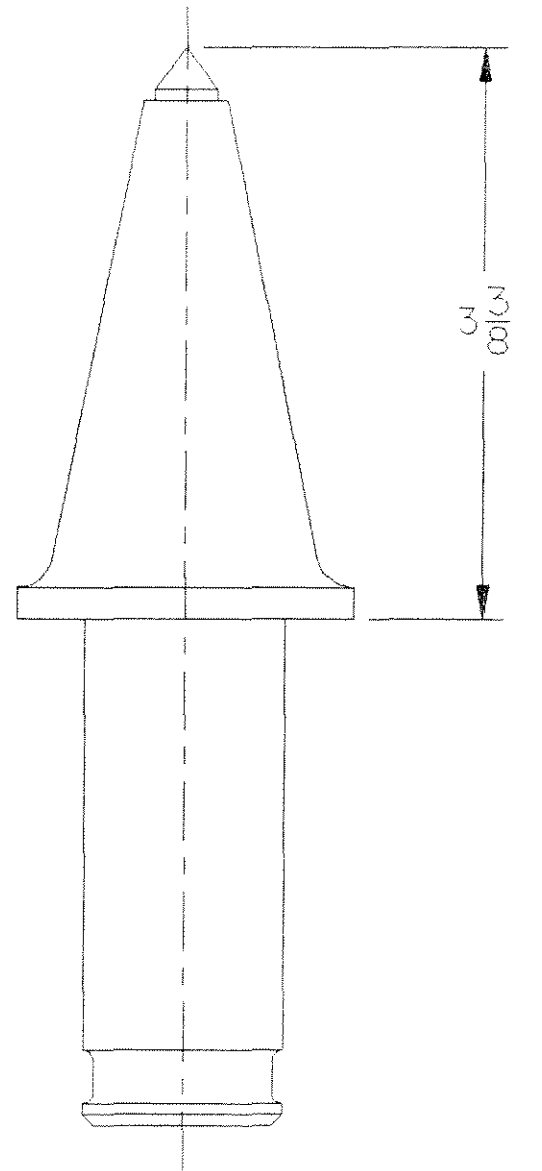
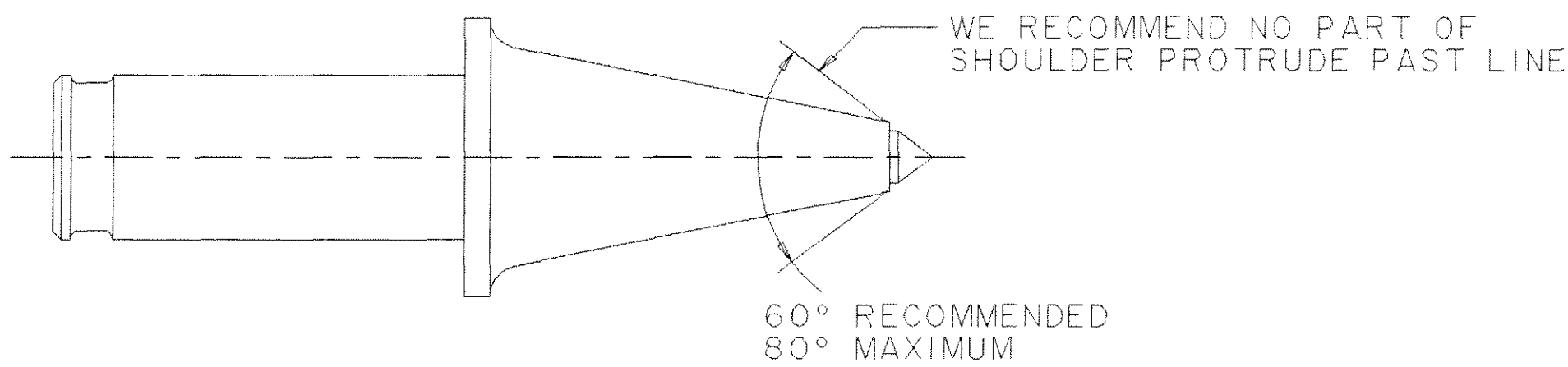
SK64073

DWG. SIZE 3

ITEM NO. 113

DWG. NO. SK024544-0002		DO NOT SCALE		MATERIAL		HEAT TREAT _____ HARDNESS _____ CARBURIZE (ECD) _____		WELDING STANDARD IS ISO METHOD A		PROJECTION THIRD ANGLE	
ENG ORDER FDEI349	DATE ISSUED	E.O. CHANGE	② 1018563								

NOTES!
 USE OF A BIT LONGER THAN WHAT IS LISTED IN THE CHART
 COULD CAUSE INTERFERENCE WITH THE CUTTER HEAD GEAR CASE.
 THIS RECOMMENDATION IS FOR 1-3/16 INCH (30MM) SHANK BITS ONLY.

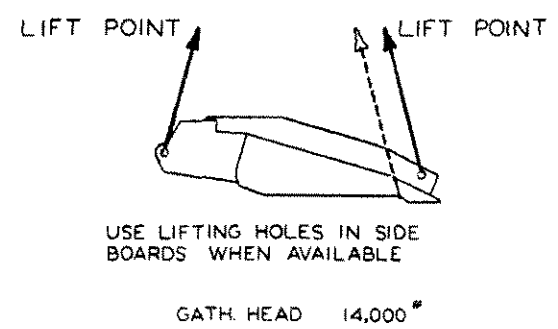
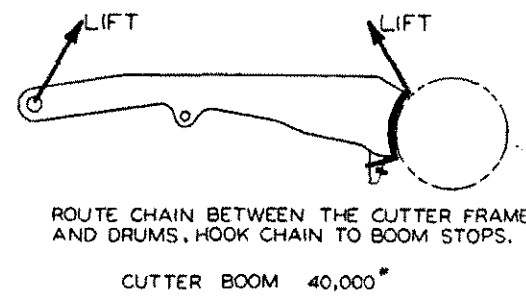
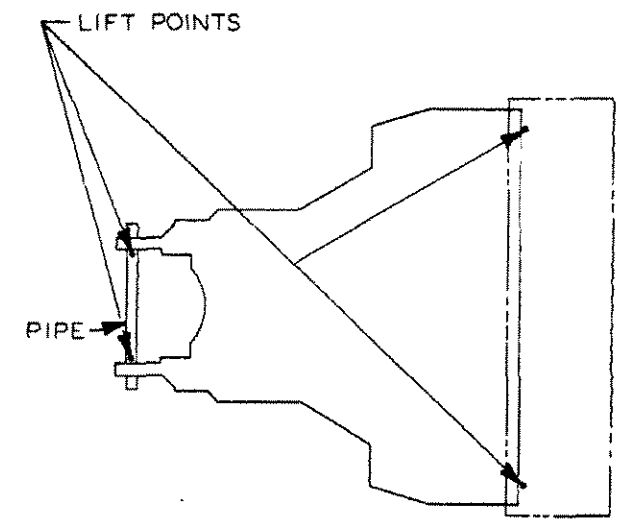
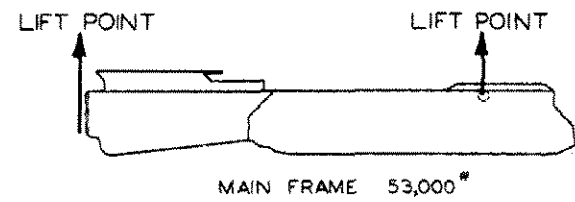
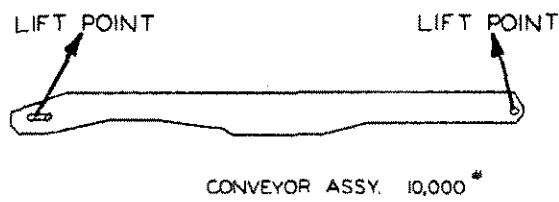
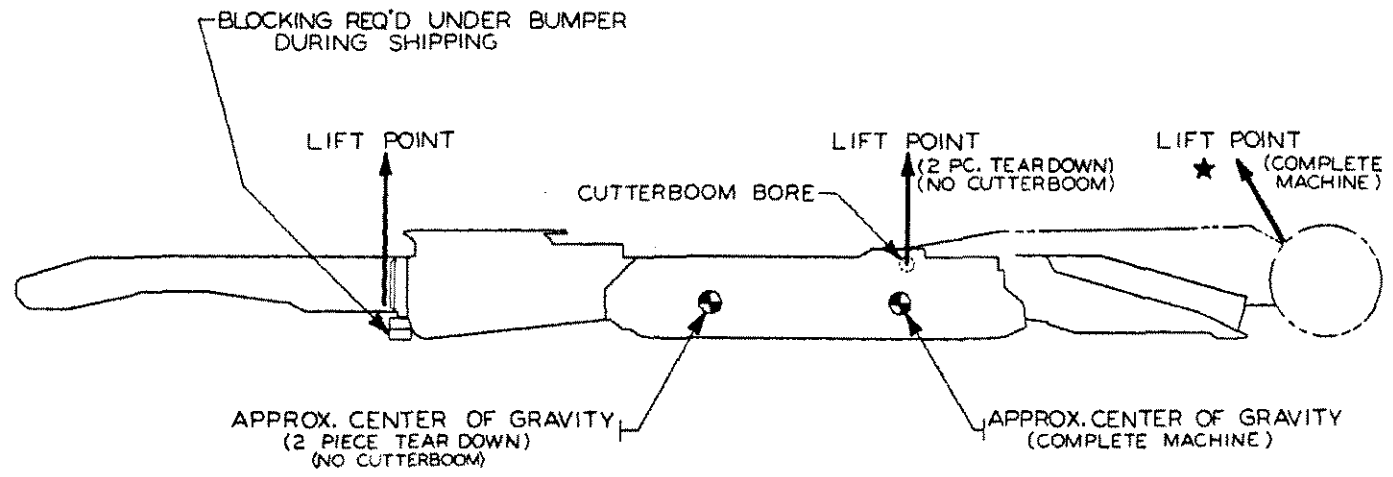
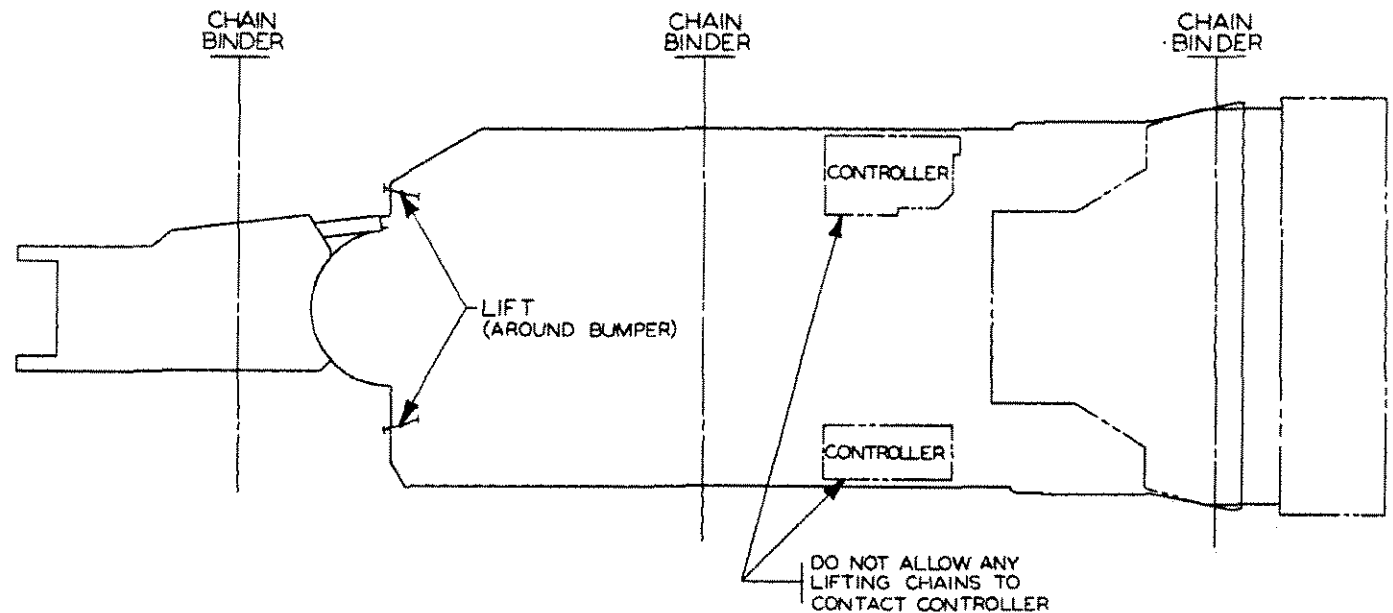


MACHINE MODEL	RECOMMENDED BIT	MAXIMUM BIT
12CM7,10,11,12,15,18 12HM9,10,12,16 12EDI8 14CM09,10,11,12,14,15	3-3/8"	3-3/8"

CAD/CAM DRAWING
 MANUAL REVISIONS
 NOT AUTHORIZED.

PATTERN NO		TOLERANCE TO BE AS SPECIFIED BELOW UNLESS OTHERWISE STATED				FINISH SYMBOLS				DR DENNIS C. WEAVER		PLANT LOCATION FRANKLIN PENNSYLVANIA TITLE: INFORMATION. CUTTER BIT. JOY MINER (1-3/16" (30MM) SHANK) SCALE: FULL CLASS: MINERS																																																											
CONFIDENTIAL NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>		ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED				<table border="1"> <thead> <tr> <th>SYMBOL</th> <th>MICRO INCHES</th> <th>SYMBOL</th> <th>MICRO INCHES</th> <th>DESCRIPTION</th> <th>SYMBOL</th> <th>MICRO INCHES</th> <th>SYMBOL</th> <th>MICRO INCHES</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>4</td> <td>N3</td> <td>0.1</td> <td>PRECISION POLISH</td> <td>F</td> <td>125</td> <td>N8</td> <td>3.2</td> <td>COMMON MACHINE</td> </tr> <tr> <td>B</td> <td>5</td> <td>N4</td> <td>0.2</td> <td>FINE POLISH</td> <td>G</td> <td>250</td> <td>N9</td> <td>6.3</td> <td>ROUGH MACHINE</td> </tr> <tr> <td>C</td> <td>16</td> <td>N5</td> <td>0.4</td> <td>COMMON POLISH</td> <td>H</td> <td>500</td> <td>N10</td> <td>12.5</td> <td>HEAVY ROUGH</td> </tr> <tr> <td>D</td> <td>32</td> <td>N6</td> <td>0.8</td> <td>GRIND OR EQUAL</td> <td>K</td> <td>1000</td> <td>N11</td> <td>25</td> <td>EX HEAVY ROUGH</td> </tr> <tr> <td>E</td> <td>63</td> <td>N7</td> <td>1.6</td> <td>SMOOTH MACHINE</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				SYMBOL	MICRO INCHES		SYMBOL	MICRO INCHES	DESCRIPTION	SYMBOL	MICRO INCHES	SYMBOL	MICRO INCHES	DESCRIPTION	A	4	N3	0.1	PRECISION POLISH	F	125	N8	3.2	COMMON MACHINE	B	5	N4	0.2	FINE POLISH	G	250	N9	6.3	ROUGH MACHINE	C	16	N5	0.4	COMMON POLISH	H	500	N10	12.5	HEAVY ROUGH	D	32	N6	0.8	GRIND OR EQUAL	K	1000	N11	25	EX HEAVY ROUGH	E	63	N7	1.6	SMOOTH MACHINE						DATE: 04-21-93 CHK'D: JOHN FILER DATE: 04-22-93 APP: ED NIEDERRITER DATE: 04-22-93 SIMILAR TO: SK024544-0001 REPLACES: REPLACED BY:
SYMBOL	MICRO INCHES	SYMBOL	MICRO INCHES	DESCRIPTION	SYMBOL	MICRO INCHES	SYMBOL	MICRO INCHES	DESCRIPTION																																																														
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DWG. DIMS IMPERIAL <input checked="" type="checkbox"/> METRIC <input type="checkbox"/>		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.				A3 DWG. NO. SK024544-0002																																																													

REV. NO.		DESCRIPTION		DATE	APPROVED
A		FDC 2/33		9/88	



★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		HEAT TREAT	
YES LITHOGRAPH		CLASS 14CM	
DATE	DATE	DATE	DATE
9-89	9-89	9-89	9-89
DRAWN BY: SHERLACH		JOY TECHNOLOGIES INC.	
CHECKED BY: SHERLACH		FRANK, NY, PENN. 15063	
LIFTING & BLOCKING INSTRUCTIONS 14CM			
SCALE: 1/4" = 1'-0"		SHEET: 1	

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES. DIMENSIONS LISTED TO FRACTIONS (1/16") SHALL BE TO THE NEAREST FRACTION UNLESS OTHERWISE SPECIFIED. DIMENSIONS LISTED TO DECIMALS (0.125) SHALL BE TO THE NEAREST 0.001 UNLESS OTHERWISE SPECIFIED. THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF JOY TECHNOLOGIES INC. AND IS TO BE USED ONLY FOR THE PURPOSES SPECIFIED HEREON. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF JOY TECHNOLOGIES INC.

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 1.758-1.998	1000 AMP	1000	—	—	—	—	2000V, 90°C
	SHD-CGC	1.672-1.901							
#1/0-3 COND. ROUND	SHD-GC	1.767-2.009 1.853-2.106	1250 AMP	1250	1250	—	—	—	
	SHD-CGC	1.767-2.009							
#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 X 2.910-3.070	1500 AMP	1500	1480	1450	—	—	
		1.125-1.225 X 2.910-3.070							
		1.105-1.255 X 2.890-3.090							
		2.024-2.300							
		2.100-2.387							
		2.194-2.495							
#3/0-3 COND. ROUND	SHD-GC	2.024-2.300 2.100-2.387	2000 AMP	1580	1560	1535	1510	—	
	SHD-GC	2.194-2.495 2.242-2.549							
#4/0-3 COND. ROUND	SHD-GC	2.194-2.495 2.242-2.549	2500 AMP	1650	1625	1600	1580	1535	
	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

JOY MINING MACHINERY 1999 ALL RIGHTS RESERVED THIS DRAWING IS THE PROPERTY OF JOY MINING MACHINERY AND IS CONFIDENTIAL. IT IS LOANED SUBJECT TO THE CONDITIONS THAT: (1) THE INFORMATION ON ANY PART THEREOF CONTAINED HEREIN 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 1555 METHOD A. 2. REMOVE ALL BURRS & SHARP EDGES. 3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED. 4. THIRD ANGLE PROJECTION	FINISH SYMBOLS SM MICRO S NS 0-1 NI 0-2 NW 0-2 NI 0-2 ND 0-4 NI 0-2 NN 0-8 NI 0-2 NF 0-8 NI 0-2	TOLERANCES UNLESS OTHERWISE STATED MILLIMETER 0.1/0.2 MILLIMETER 0.1/0.2 MILLIMETER 0.1/0.2 MILLIMETER 0.1/0.2 MILLIMETER 0.1/0.2 MILLIMETER 0.1/0.2	MANUFACTURING SPECIFICATIONS PROTECT TREATMENT FABRICATION TOL'S MACHINING TOL'S FINISH SPEC MANUFACTURING SPEC WELDING SPEC HEAT TREATMENT TOLERANCES	MATERIAL MATERIAL CODE WEIGHT UNITS ESTIMATED WEIGHT PLATE THICKNESS REFERENCED BY	VERSION CHANGE NO DRAWN BY DATE SCALE SHEET	BY ISTAR C. WALTER DATE 02/18/98 1 of 1	DESIGN LOCATION DESCRIPTION LIST, TRAILING CABLE, APPROVED (14CM) (950V)	DWG NO. SK025502-0003

1000-11252015

NEW CLASS - 01.0.0100

TWICE
EACH
SHIFT

TAP COAL PARTICLES OUT OF FILTER.
FLUSH FILTER.

DAILY

FLUSH INLETS AND DUCTWORK WITH FILTER
IN PLACE AND FILTER COVER OPEN.

WEEKLY

BACKFLUSH JET PUMP (IF SO EQUIPPED) FOR 15 SECONDS
BY CLOSING HAND VALVE AT JET PUMP.
OPEN SUMP DRAINS.
FLUSH MIST ELIMINATOR.
FLUSH SUMP.
RETURN FILTER TO POWER CENTER TO DRY
BEFORE TAPPING OUT COAL PARTICLES.

UNSPRINT THIS DRAWING

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JOY MANUFACTURING CO.
PLANT LOCATION AS INDICATED BELOW

BUFFALO, N. Y.	NEW PHILADELPHIA, O.
CLAREMONT, N. H.	
FRANKLIN, PA.	
SALT, ONTARIO, CANADA	
GREENOCK, SCOTLAND	
BRIDGEVIEW, ILL.	

RECOMMENDED MAINTENANCE FOR
FLOODED BED DUST COLLECTOR

SIMILAR TO _____
SUPERSEDED BY _____
REPLACES _____
REPLACED BY _____

NAME OR INITIAL & DATE
DR. REPLAUSER
TR. 9/2/88
CK. _____
APP. _____

SCALE _____ CLASS MINER
SK025211-0001

E.O. FDAO857 REVISIONS