

9471

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 K-806 4-22-27

REVISIONS

FCS1389|FDB0312|FDB0316

**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. THERE MUST BE NO OPENINGS INTO THE CASINGS 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 AN AUTHORIZED PERSON.

**RENEWALS AND REPAIRS:** SPECIAL CARE MUST BE TAKEN IN MAKING RENEWALS OR REPAIRS. LEAVE NO PARTS OFF, USE NEW PARTS EXACTLY LIKE THOSE FURNISHED BY THE MANUFACTURER. WHEN ANY LEAD ENTRANCE IS DISTURBED, THE LEADS MUST BE REPLACED AND FASTENED OR RE-PACKED IN THE APPROVED MANNER.

**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 REPAIRS 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 UNGROUNDED 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, WHETHER 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.

CRYSTAL YELLOW, 200 SMITH COMPANY, PHIL. PA. 19109-1280

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

**JOY TECHNOLOGIES INC.**  
 FRANKLIN, PENNSYLVANIA 15022

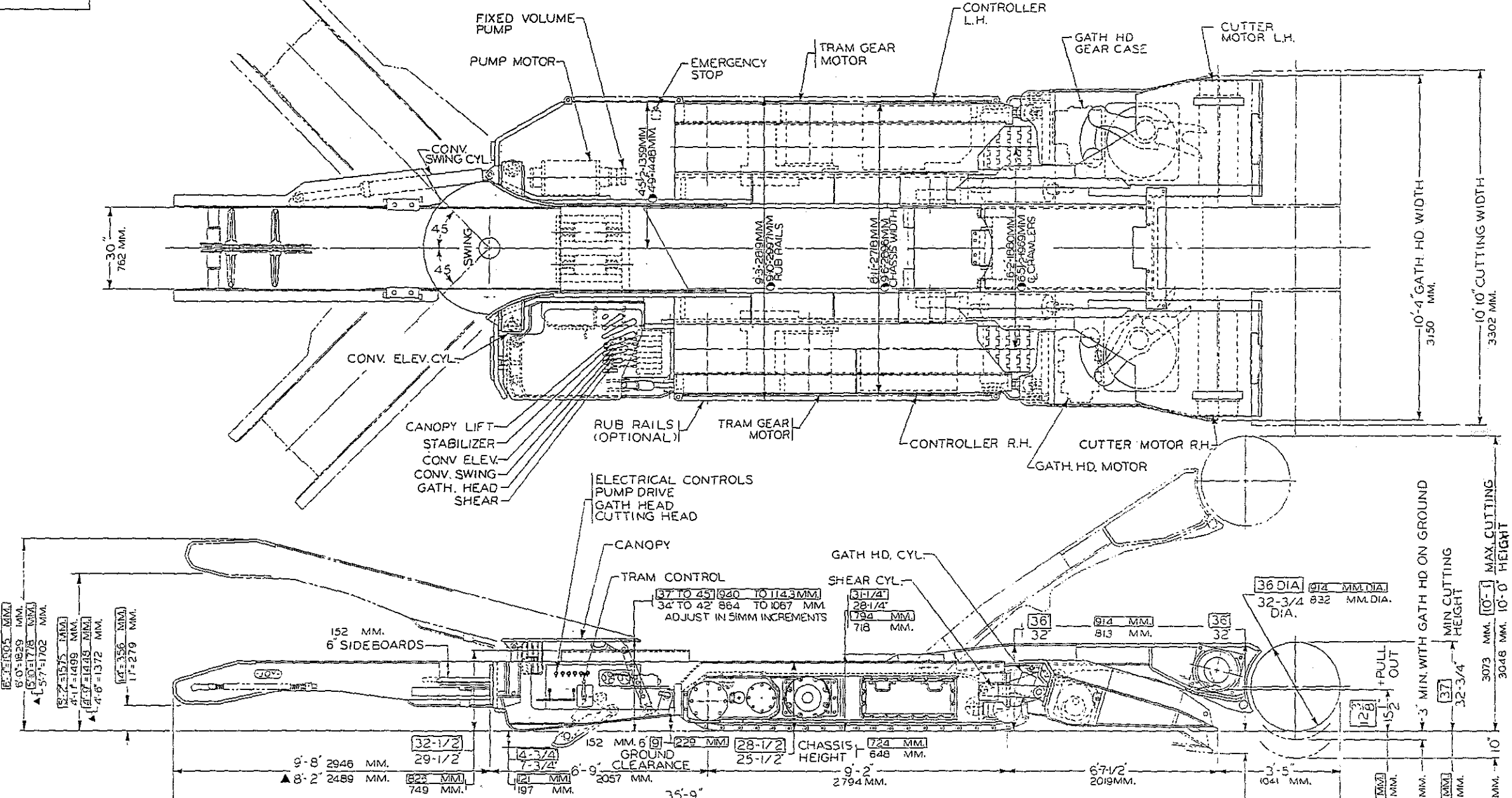
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**CAUTION STATEMENT**

IL 46 REPLACES IL 46 SHEET 1 AND 2

ON C-MOORE  
 DATE 1-28-91  
 BY COA  
 SCALE NA

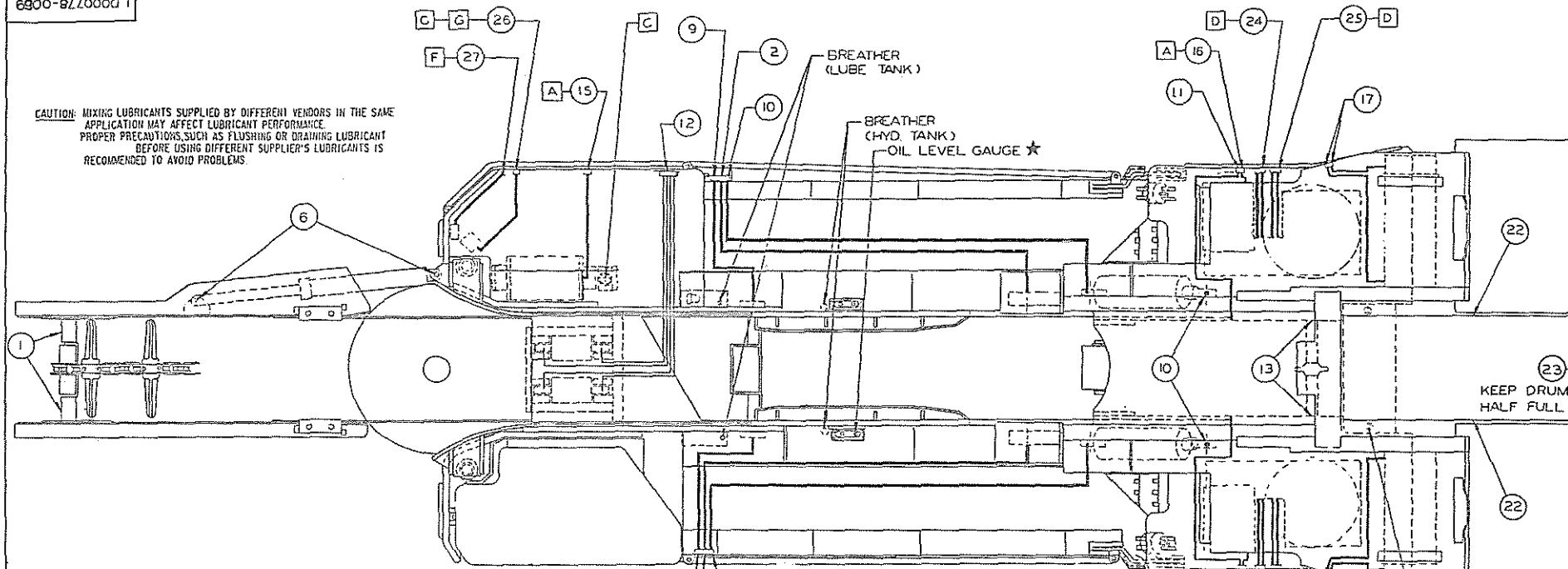
IL 46



**NOTE.**  
 DIMENSIONS SHOWN ARE FOR 'A' MODEL (LOW CHASSIS) 32 3/4 DIA. DRUMS [832 MM DIA. DRUMS]  
 DIMENSIONS SHOWN [ ] FOR 'B' MODEL (HIGH CHASSIS) 36 DIA. DRUMS [914 MM DIA. DRUMS]  
 ▲ WITH OPTIONAL CONVEYOR  
 ● WITH OPTIONAL 20 TRACKS

JCM 760-24 FCM109   FCM526   FCM709   FCN128   FCW658   FCY0493		JOY MANUFACTURING CO. PLANT LOCATION AS INDICATED BELOW BIRMINGHAM, AL   LA GRANGE, NC BUFFALO, NY   NICHOLAN CITY, TN CAMBRIDGE, ONT CANADA   NEW PHILADELPHIA, OH CLAMONT, NH EAST RILSHIRE, SCOT FRANKLIN, PA	GENERAL ARRANGEMENT 14 CM 10A / 10B SIMILAR TO _____ SUPERSEDED BY _____ REPLACES _____ REPLACED BY _____ DATE OF INITIAL ISSUE _____ OF _____ BY _____ SCALE 1:10 CLASS 1st 31 JCM 760-24
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**CAUTION:** MIXING LUBRICANTS SUPPLIED BY DIFFERENT VENDORS IN THE SAME APPLICATION MAY AFFECT LUBRICANT PERFORMANCE. PROPER PRECAUTIONS, SUCH AS FLUSHING OR DRAINING LUBRICANT BEFORE USING DIFFERENT SUPPLIER'S LUBRICANTS IS RECOMMENDED TO AVOID PROBLEMS.

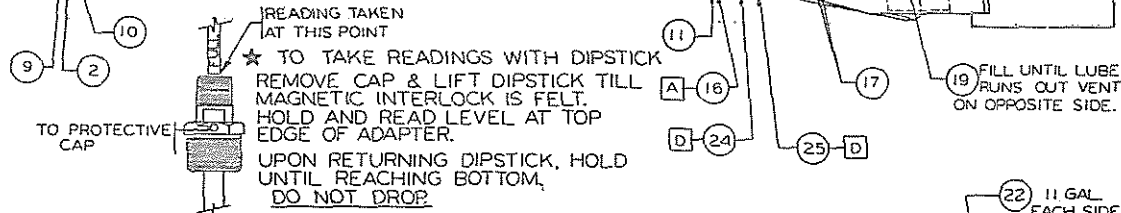


NO	LOCATION	LUBE	INTERVAL	CAP.
1	CONV TAIL ROLLER	BG-H	EVERY 3 SHIFTS	
2	CUTTER BOOM PIVOT (LH&RH)	BG-H	EVERY SHIFT	
6	CONVEYOR SWING CYL. PINS	BG-H	EVERY 3 SHIFTS	
7	CONV HINGE PIN (R.H. TOP)	BG-H	EVERY SHIFT	
8	CONV HINGE PIN (R.H. BOTTOM)	BG-H	EVERY SHIFT	
9	REAR CONV PIVOT (LH & RH)	BG-H	EVERY 3 SHIFTS	
10	SHEAR CYLINDER (LH & RH)	BG-H	EVERY SHIFT	
11	GATH. HD PIVOT (LH&RH)	BG-H	EVERY SHIFT	
12	STABILIZER CYLINDER	BG-H	EVERY 3 SHIFTS	
13	FOOT ROLLER	BG-H	EVERY 6 MONTHS	
15	PUMPDRIVE MOTOR	BG-M	EVERY 60 SHIFTS	
16	GATH. HD MOTOR (LH & RH)	BG-M	EVERY 20 SHIFTS	
17	CUTTER MOTOR (LH&RH)	BG-M	EVERY 20 SHIFTS	
19	CUTTER CHAIN IDLER	TO-HD	EVERY 3 SHIFTS	5 1/2 PINTS
20	TRACK IDLER (LH & RH)	TO-HD	EVERY 10 SHIFTS	2 PINTS EACH
21	TRACK PLANETARY & RED CASE (LH&RH)	TO-HD	KEEP FILLED TO LEVEL EVERY SHIFT	6 GAL. EACH
22	CUTTER HEAD GEAR CASE (LH&RH)	TO-HD	KEEP FILLED TO LEVEL EVERY SHIFT	22 GAL.
23	CUTTER DRUM BEARING (LH&RH)	TO-HD	KEEP HALF FULL EVERY SHIFT	3 GAL. EACH
24	GATH. HD REDUCER CASE RH & LH	TO-HD	KEEP FILLED EVERY SHIFT	2 1/2 GAL.
25	GATH. HD GEAR CASE RH & LH	TO-HD	KEEP FILLED EVERY SHIFT	3 GAL.
26	LUBE CIRCULATING SYSTEM	TO-HD	KEEP FILLED EVERY SHIFT	9 GAL.
27	HYDRAULIC SYSTEM	HO-S	KEEP FILLED EVERY SHIFT	52 GAL.

A. PUMP MOTOR AND GATHERING HEAD MOTOR HAVE RELIEVING TYPE GREASE FITTINGS. GREASE WILL RELIEVE AROUND THREADS WHEN BEARING IS FULL.

B. RELIEF FITTINGS ARE PROVIDED ON THE CRANK PIN BEARINGS.

C. CLEAN MAGNET EVERY 15 SHIFTS. HYD. AND LUBE SYSTEM.

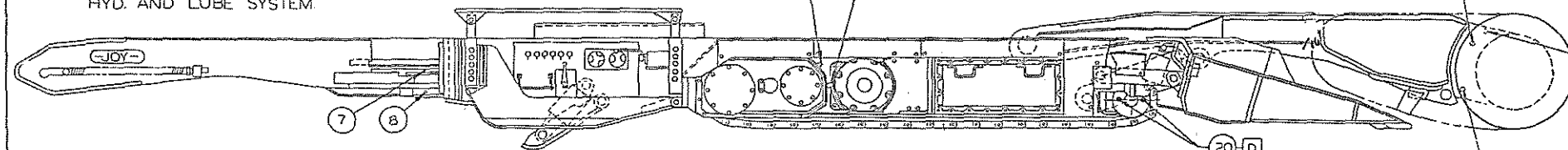


TO PROTECTIVE CAP  
READING TAKEN AT THIS POINT  
★ TO TAKE READINGS WITH DIPSTICK REMOVE CAP & LIFT DIPSTICK TILL MAGNETIC INTERLOCK IS FELT. HOLD AND READ LEVEL AT TOP EDGE OF ADAPTER. UPON RETURNING DIPSTICK, HOLD UNTIL REACHING BOTTOM, DO NOT DROP.

21 E FILL AND CHECK LEVEL BOTH SIDES

19 FILL UNTIL LUBE RUNS OUT VENT ON OPPOSITE SIDE.

22 11 GAL. EACH SIDE



D. REMOVE BOTH PLUGS. LUBRICATE ONE PORT UNTIL OIL FLOWS OUT THE OTHER PORT.

E. FILL AND LET SIT FOR FIVE MINUTES TO ASSURE THAT CASE IS FILLED TO CHECK LEVEL.

F. FILL HYDRAULIC SYSTEM THRU INJECTOR FILL UNTIL PROPER LEVEL IS INDICATED ON DIPSTICK

G. FILL (OPTIONAL) LUBE SYSTEM RESERVOIR THRU FILL POINT PROVIDED AT REAR L.H. CORNER OF MACHINE. OIL WILL PASS THRU FILTER. FILL UNTIL OIL FLOWS THRU BREATHER. LUBE SYSTEM DOES NOT UTILIZE INJECTOR TYPE FILL.

**LUBRICATION NOTES**

- USE BG-M IN ALL ELECTRIC MOTORS WITH BG-Y AS THE ONLY ALTERNATE
- FOR MOTOR APPLICATIONS WHERE GREASE TEMPERATURES EXCEED 350°F USE BG-Y
- USE BG-Y OR BG-M AS ALTERNATES FOR BG-H FOR GENERAL CHASSIS LUBE

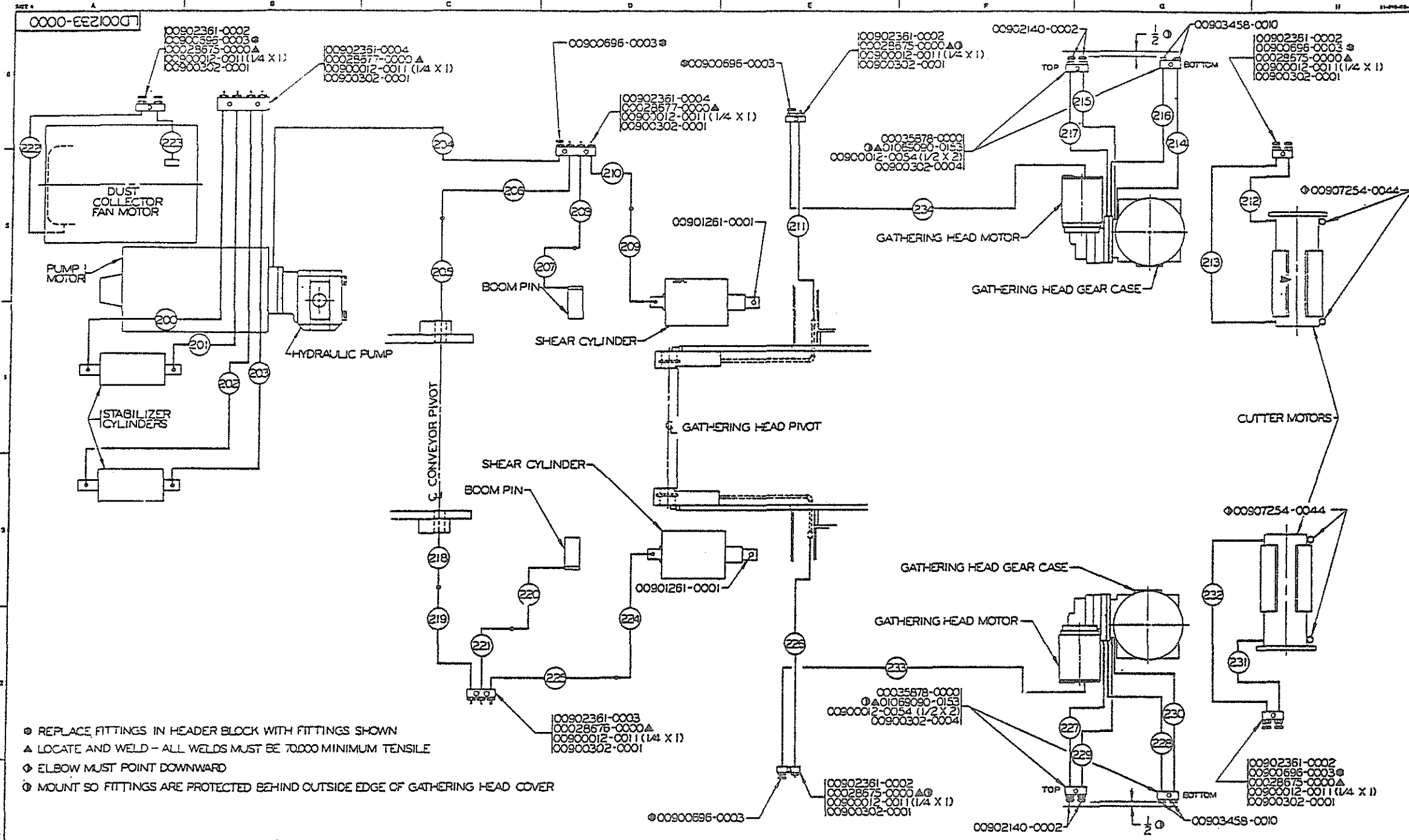
ALL CHECK LEVEL TESTS SHOULD BE MADE WITH THE MACHINE IN THE POSITION SHOWN

UNDER SEVERE CUTTING CONDITIONS LUBE IN CUTTER HEAD GEAR CASE SHOULD BE CHANGED EVERY 60 SHIFTS.

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JOY MANUFACTURING CO.	
PLANT LOCATION AS INDICATED BELOW	
BIRMINGHAM, AL.	LA GRANGE, ILL.
BUFFALO, N.Y.	MICHIGAN CITY, IN.
CANTON, OHIO	NEW PHILADELPHIA, OHIO
CLARKSBURG, W. VA.	
LADY WOODVILLE, MISS.	
FRANKLIN, PA.	

DIAGRAM LUBRICATION	
SIMILAR TO	REPLACES
SUPPERSEDES	REPLACED BY
DATE	APPROVED
SCALE	CLASS
LD000778-0069	



- ⊙ REPLACE FITTINGS IN HEADER BLOCK WITH FITTINGS SHOWN
- ▲ LOCATE AND WELD - ALL WELDS MUST BE 70,000 MINIMUM TENSILE
- ◇ ELBOW MUST POINT DOWNWARD
- ⊕ MOUNT SO FITTINGS ARE PROTECTED BEHIND OUTSIDE EDGE OF GATHERING HEAD COVER

ENG ORDER # PDC1332		REVISIONS		PATTERN NO		LITHOPRINT		JOY TECHNOLOGIES INC.		DIAGRAM, PIPING, LUBRICATION SYSTEM	
UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES. MANUFACTURING DIMENSIONS LIMITED TO PRACTICALITY & USE. ANGULAR & LIFT STRUCTURAL DIMENSIONS LIMITED TO 1/8". DO NOT SCALE THIS DRAWING.		MATERIAL		PATTERN NO		LITHOPRINT		JOY TECHNOLOGIES INC.		DIAGRAM, PIPING, LUBRICATION SYSTEM	
		HEAT TREAT		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF AND CONFIDENTIAL TO JOY TECHNOLOGIES INC. IT MUST NOT BE MADE PUBLIC OR COPIED, REPRODUCED, OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF JOY TECHNOLOGIES INC. ANY VIOLATION OF THIS NOTICE IS SUBJECT TO LEGAL ACTION.		SIMILAR TO _____ REPLACES _____ REPLACED BY _____	
		CARE/PRICE (EED)						PART NO DATE: 04/18/80 CLASS: JRCM10 SCALE		LD001233-0000	

# TRANSMISSION OIL SPECIFICATIONS

TRANSMISSION OIL IDENTIFICATION	TO-HD
ISO GRADE (ISO)	460
AGMA LUBRICANT NUMBER	7 EP
<b>OIL VISCOSITY</b>	
CST AT 40° C	414-506
CST AT 100° C (REF.) (ASTM D445)	30.4 MIN.
VISCOSITY INDEX (MINIMUM) (ASTM D2270)	100
POUR POINT °F (MAXIMUM) (ASTM D97)	0
FLASH POINT °F (MINIMUM) (ASTM D92)	440
EP-ADDITIVES (MIN.) (ASTM D3233 METHOD B)(LB)	3000
OXIDATION STABILITY (MAXIMUM) (ASTM D 2893)	10%
RUST PROTECTION (ASTM D665A AND D665B)	PASS
COPPER CORROSION PROTECTION (MAXIMUM) (ASTM D130)	2A
FOAM SUPPRESSION ML. (MAXIMUM) SAME FOR TEST SEQUENCES I, II, III 5 MINUTE BLOW 10 MINUTE REST (ASTM D892)	75 10
<b>EMULSIBILITY</b>	
MAXIMUM VOLUME OF WATER (ML) 1 HOUR 24 HOURS 48 HOURS (ASTM D1401 MODIFIED)	0 0 20

**TO-HD** THIS IS HEAVY DUTY TRANSMISSION OIL WHICH WILL BE SPECIFIED FOR GEAR CASES WITHOUT CLUTCHES IN SEVERE SERVICE CONDITIONS.

## LUBRICANT SPECIFICATIONS

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CAD/CAM DRAWINGS  
MANUAL REVISIONS  
NOT AUTHORIZED.

**JOY TECHNOLOGIES INC.**  
FRANKLIN, PENNSYLVANIA 15035

**TRANSMISSION OIL SPECIFICATION CHART**

MATERIAL	
PART NO.	
HEAT TREAT	
APPROVED	
CHECKED (ECON)	
FINISH SYMBOLS	
1 FINISH	DESCRIPTION
2 FINISH	DESCRIPTION
3 FINISH	DESCRIPTION
4 FINISH	DESCRIPTION
5 FINISH	DESCRIPTION
6 FINISH	DESCRIPTION
7 FINISH	DESCRIPTION
8 FINISH	DESCRIPTION
9 FINISH	DESCRIPTION
10 FINISH	DESCRIPTION
11 FINISH	DESCRIPTION
12 FINISH	DESCRIPTION
13 FINISH	DESCRIPTION
14 FINISH	DESCRIPTION
15 FINISH	DESCRIPTION

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OR  
DATE  
BY  
REPLACED BY

SK025318-0003

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.

LITHO PRINT YES  NO

ENG ORDER FDS0921

REVISIONS

FD07196 | FD07307 | FD07656 | FD07720

# HYDRAULIC OIL SPECIFICATIONS

SK25318-1

HYDRAULIC OIL IDENTIFICATION	HO-A	HO-T	HO-S	HO-T2
ISO GRADE (ISO 3448)	AUTOMATIC TRANSMISSION FLUID DEXRON II	46	68	150
ASTM GRADE (ASTM 2422)		215	315	700
OIL VISCOSITY SSU AT 100°F (40°C) SSU AT 210°F (100°C) (ASTM D445 AND D2161)	160-190 45-51	195-235 46-50	295-335 52-57	665-735 71-82
VISCOSITY INDEX (MINIMUM) (ASTM D2270)	140	90	90	90
POUR POINT °F (MAXIMUM) (ASTM D97)	-40	-20	-10	10
FLASH POINT °F (MINIMUM) (ASTM D92)	320	410	420	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

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JOY MANUFACTURING CO.  
PLANT LOCATION AS INDICATED BELOW

HYDRAULIC OIL SPECIFICATION CHART

ED FC9354 DATE 7-31-86	REVISIONS	BIRMINGHAM, AL BUFFALO, NY CAMBRIDGE, ONT. CANADA CLAREMONT, NH EXLAR, SCOTLAND FRANKLIN, PA	LA GRANGE, NC MICHIGAN CITY, IN NEW PHILADELPHIA, OH
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SIMILAR TO _____ SUPERSEDED BY _____ REPLACES _____ REPLACED BY _____	NAME OR INITIAL & DATE DR R LAPE 3-18-86 TR _____ CK _____ APPD _____	SCALE NONE CLASS ALL SK25318-1
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LITHOPRINT THIS DRAWING



## LUBRICANT SPECIFICATIONS

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# GREASE SPECIFICATIONS

SK025318-0000

	MOBILE MACHINE		ELECTRIC MOTOR GREASE	
JOY GREASE IDENTIFICATION	JL-G	BG-H	BG-M	BG-Y
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	---
ROLL STABILITY/PENETRATION (ASTM D-1831)	---	---	NO MORE THAN +15% DEVIATION FROM PUBLISHED WORKED 60 X PENETRATION	---
DROPPING POINT °F (ASTM D2265)	320	350	385 MIN	470 MIN
<b>MINERAL OIL VISCOSITY</b>				
SSU AT 100°F (40°C)	1500-2100	500-650	500-800	500-800
SSU AT 210°F (100°C) (ASTM D445)	110-130	62-70	60-75	60-75
cSI AT (40°C)	---	---	110-160	110-160
cSI AT (100°C) (ASTM D215)	---	---	10-15	10-15
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
- BUFFALO, NY
- CAMBRIDGE, ONT. CANADA
- CLAREMONT, NH
- ELK BRIDGE, SCOTLAND
- FRANKLIN, PA
- LA GRANGE, NC
- MICHIGAN CITY, IN
- NEW PHILADELPHIA, OH

SIMILAR TO \_\_\_\_\_  
SUPERSEDES BY \_\_\_\_\_  
SUPERSEDED BY \_\_\_\_\_  
REPLACES \_\_\_\_\_  
REPLACED BY \_\_\_\_\_

IMAGE OR INITIAL & DATE  
DR R.L.A.P. 3-18-86  
TR \_\_\_\_\_  
CK \_\_\_\_\_  
APPD \_\_\_\_\_

SCALE NONE CLASS ALL

SK025318-0000

## 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 IS USED WHEN A MACHINE IS EQUIPPED WITH A POWER GREASE PUMP. JL-G MAY BE USED AS AN ALTERNATIVE FOR BG-H EXCEPT FOR BALL BEARING AND RZEPPA TYPE UNIVERSAL JOINT APPLICATIONS.

**NO EP TYPE GREASE IS ACCEPTABLE FOR ELECTRIC MOTORS.**

**BG-Y** THIS IS HIGH TEMPERATURE GREASE PRIMARILY INTENDED FOR ELECTRIC MOTORS OPERATING WITH GREASE TEMPERATURE OVER 350°F. IT MAY BE USED AS AN ALTERNATE TO BG-M.

**BG-M** THIS IS THE STANDARD, HIGH QUALITY GREASE SPECIFIED FOR ELECTRIC MOTORS. IT MAY BE USED AS ALTERNATE TO BG-H.

## LUBRICANT SPECIFICATIONS

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LITHOPRINT THIS DRAWING

SK024122-0000  
SHT 1 OF 2

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




LITHOPRINT  
YES  NO

ENG ORDER  
FBNB40

REVISIONS

FCW914 FCX245 F.C3261 ©FDC9194

TORQUE VALUES FOR UNC THREAD CAP SCREWS

CAP SCREW DIA. - THDS.	GRADE 2 	GRADE 5 	GRADE 8 &  SOCKET HEAD
	TORQUE FT. LBS	TORQUE FT. LBS	TORQUE FT. LBS
1/4-20	6 (5-7)	9 (8-10)	13 (12-14)
5/16-18	12 (11-13)	19 (18-20)	26 (25-27)
3/8-16	21 (20-22)	33 (31-35)	47 (45-50)
7/16-14	39 (37-41)	53 (50-55)	75 (70-80)
1/2-13	52 (49-55)	80 (75-85)	115 (110-120)
9/16-12	75 (70-80)	115 (110-120)	165 (155-175)
5/8-11	105 (100-110)	160 (150-170)	225 (210-240)
3/4-10	185 (175-195)	285 (270-300)	400 (380-420)
7/8-9	180 (170-190)	455 (430-480)	645 (610-680)
1-8	265 (250-280)	685 (650-720)	970 (920-1020)
1 1/8-7	380 (360-400)	945 (880-980)	1380 (1310-1450)
1 1/4-7	535 (505-565)	1200 (1140-1260)	1935 (1840-2030)
1 3/8-6	700 (665-735)	1570 (1490-1650)	2540 (2410-2670)
1 1/2-6	930 (880-980)	2080 (1975-2185)	3380 (3210-3530)

NOTE:

USE THESE VALUES FOR TIGHTENING CAP SCREWS UNLESS A VALUE IS SPECIFIED ON ASSEMBLY DRAWING. TORQUE VALUE ON DRAWING MAY DIFFER FROM LISTED VALUE DEPENDING UPON SPECIFIC APPLICATION REQUIREMENTS.

ALLOWABLE VARIATION RANGE (PLUS OR MINUS 5%) IS IN PARENTHESIS FOLLOWING TORQUE VALUE.

TORQUE VALUES LISTED ARE BASED ON USING CAP SCREWS WITH BLACK FINISH IN AN 'AS RECEIVED' CONDITION (LIGHT COAT OF MACHINING OIL ON THREADS). AN ADDITIONAL APPLICATION OF REGULAR OIL IS ACCEPTABLE. VALUES ALSO APPLY TO PLATED (CADMIUM, ZINC, ETC.) CAP SCREWS.

CAUTION: USE OF 'EXOTIC' FRICTION REDUCING LUBRICANTS (MOLY-DISULFIDE, ETC.) ON THREADS CAN RESULT IN OVER-TORQUING AND BREAKAGE IF USED WITH LISTED VALUES. DUE TO THE WIDE VARIATION OF FRICTION REDUCTION POSSIBLE (30 TO 50%), USE OF THESE LUBRICANTS SHOULD BE AVOIDED UNLESS VALUES ARE RECALCULATED TO AGREE WITH FRICTION COEFFICIENT CHANGE. THE DATA ON THE CHART WAS CALCULATED USING 90% OF PROOF LOAD AND A FRICTION COEFFICIENT OF 0.20.

MATERIAL	FINISH SYMBOLS				JOY TECHNOLOGIES INC. FRANKLIN PENNSYLVANIA 16323	VALUES, TORQUE, CAP SCREWS
	2 MICRO INCHES	DESCRIPTION	3 MICRO INCHES	DESCRIPTION		
PATTERN NO	A 4 PRECISION POLISH	F 125 COMMON MACHINE	THIS DRAWING AND ALL INFORMATION THEREIN IS THE PROPERTY OF 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.		SIMILAR TO	OR T.A.S.
HEAT TREAT	B 8 FINE POLISH	G 250 ROUGH MACHINE			REPLACES	DATE 7-19-75
HARDNESS	C 16 COMMON POLISH	H 500 HEAVY ROUGH			REPLACED BY	SCALE
CAMBRIDGE (ECO)	D 32 GRIND OR EQUAL	K 1000 EX HEAVY ROUGH				
	E 83 SMOOTH MACHINE					

SK024122-0000  
SHT 1 OF 2



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.



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

SHEET NO. 1

SK21855

700045-169

NAME TOOL LIST (10CM-4A)

ORDER NO.

(INCLUDING SEAT &amp; MTG)

ISSUED:	JULY 21, 1971	FBJ999
FBQ84		
FBS119		

QUANTITY	PART NUMBER	NAME OF PART	COST PER PIECE	TOTAL AMOUNT
1	A7610-4 <sup>3</sup> / <sub>4</sub>	WRENCH (INNER GLAND NUT) (500112-231)		
1	507316-1	SEAT		
1	534155-5	POSITNER (BIT BLOCK)		
1	7609-6	WRENCH (SPANNER) (500112-231)		
1	7609-8	WRENCH (SPANNER)		
3	61799	SHIM (REAR CONVEYOR)		
1	64522	WRENCH (CONV. CHAIN ADJUSTING)		
8	1069533-97	SHIM (1/8) (RIPPERVEYOR CHAIN TAKE-UP)		
4	1069533-98	SHIM (1/4") (RIPPERVEYOR CHAIN TAKE-UP)		
4	1069533-99	SHIM (1/2) (RIPPERVEYOR CHAIN TAKE-UP)		
1	1069650-20	WRENCH (TRACK CHAIN TAKE-UP)		
1	1564290	BRACKET (SEAT)		
1	1564291	CLAMP (SEAT)		
2	1565952	TOOL (SEAL HOLDING-RIPPERVEYOR CHAIN SPROCKET)		
4	900020-135	CAP SCR (5/8 X 4) (1565952)		
1	900533-36	SCR KEY		
1	906667-137	TOOL (913128-12 SEAL INSTALLER) (500554-) (913128-13 SEAL INSTALLER) (534430)		
1	906667-142	TOOL (913128-13 SEAL INSTALLER) (500693)		
1	906667-143	TOOL (913131-13 SEAL INSTALLER) (530735)		
1	906667-146	TOOL (500153-) (913131-9 SEAL INSTALLER) (533902-)		

PRECAUTIONS FOR USERS OF JOY CHAIN PRODUCTS

DWG. SIZE 2  
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:

1. Support machine on adequate piling before going under it to remove or repair chain.
2. Block up chain where it is to be uncoupled and stand clear while removing final pin.

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:

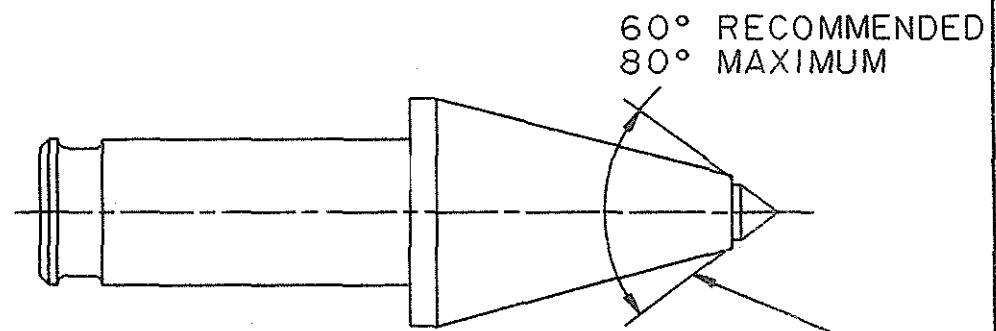
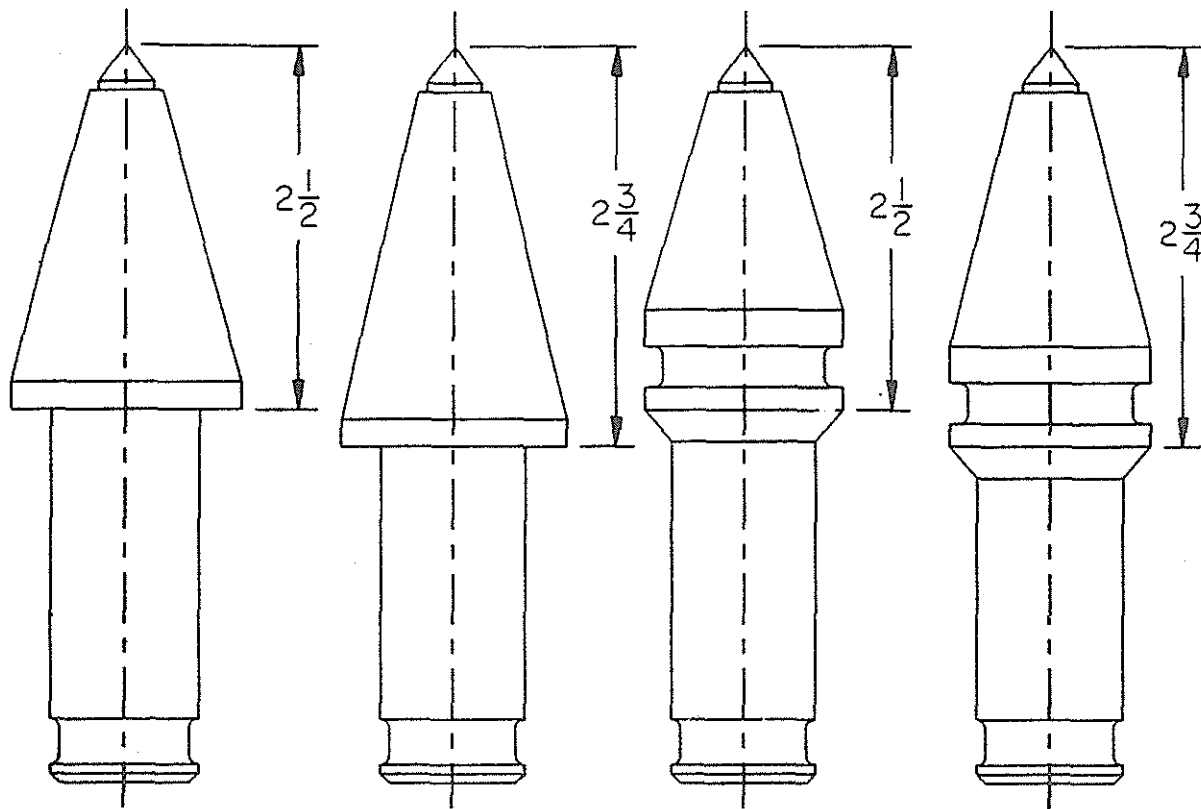
1. Support cutter head, boom, and bar, such that load is not on the hydraulic system when working on chain or sprocket.
2. Use soft hammer for driving pins to prevent chipping. Pins have a brittle, case hardened surface.
3. Do not drive broken bit shanks down into sprocket tooth area of chain.

SPECIAL PRECAUTIONS - RIPPERVEYOR CHAINS:

1. Support cutter head so that load is not on hydraulic system before working on chain.
2. Support chain while uncoupling. Do not stand in front of machine after support is removed, as chain may fall.
3. Replacement links are moderately heavy. Use leg power, not back power, when lifting them.

E. of F. RM-105 DATE REVISIONS	
JOY MANUFACTURING CO. PLANT LOCATION AS INDICATED BELOW BUFFALO, N. Y. CLAREMONT, N. H. FRANKLIN, PA. GAIT, ONTARIO, CANADA GREENOCK, SCOTLAND MICHIGAN CITY, IND.	
PRECAUTIONS FOR USERS OF JOY CHAIN PRODUCTS	
SIMILAR TO _____ SUPERSEDES BY _____ REPLACES _____ DRWS. 7-11-73 TR _____ CK _____ APPD _____	
SCALE _____ CLASS _____ SK64073	

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	FCX0574	05/87	
	B	FDC834I	5-8-92	
	C	FDC822I	3-8-93	
	D	FDEI349	4-30-93	
	E	FDC8667	5-28-93	



WE RECOMMEND NO PART OF SHOULDER PROTRUDE PAST LINE

NOTE! USE OF BITS LONGER THAN THOSE LISTED IN THE CHART COULD CAUSE INTERFERENCE WITH THE GEAR CASE.

MACHINE MODEL	RECOMMENDED BIT	MAXIMUM BIT
12CM7, 10, 12, 15, 18 12HM10, 16 12ED18 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"

THIS RECOMMENDATION IS FOR 1" (25MM) AND 1-1/8" (28.5MM) SHANK BITS ONLY.

PATTERN NO. \_\_\_\_\_

MATERIAL	HEAT TREAT
	CARBURIZE (ECD)
	HARDNESS

LITHO PRINT CLASS MINER SIMILAR TO SK24544.

DRAFTER: M.LUKASIAK 05/87

CHECKER:

ENGINEER:

APPROVAL:

**JOY MANUFACTURING COMPANY**  
FRANKLIN, PENNA. 16323

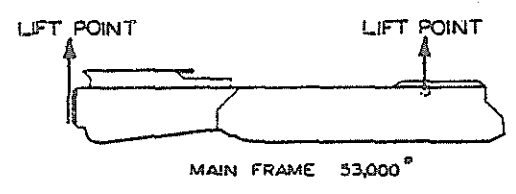
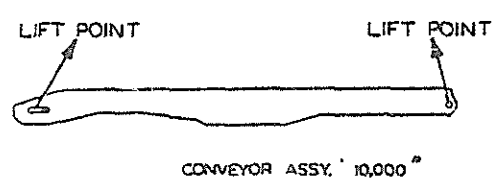
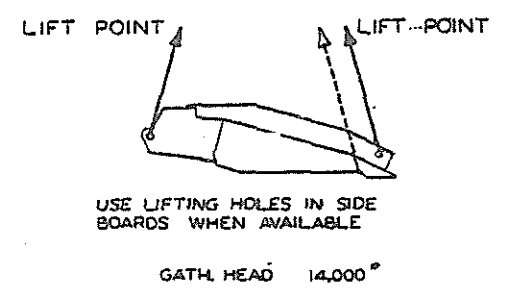
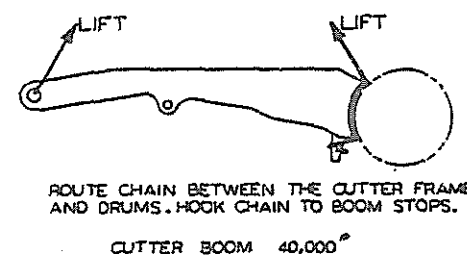
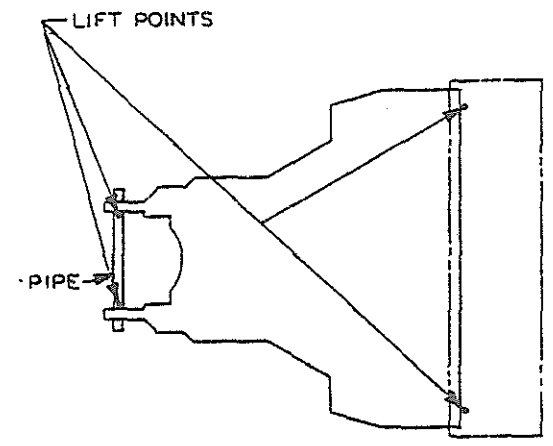
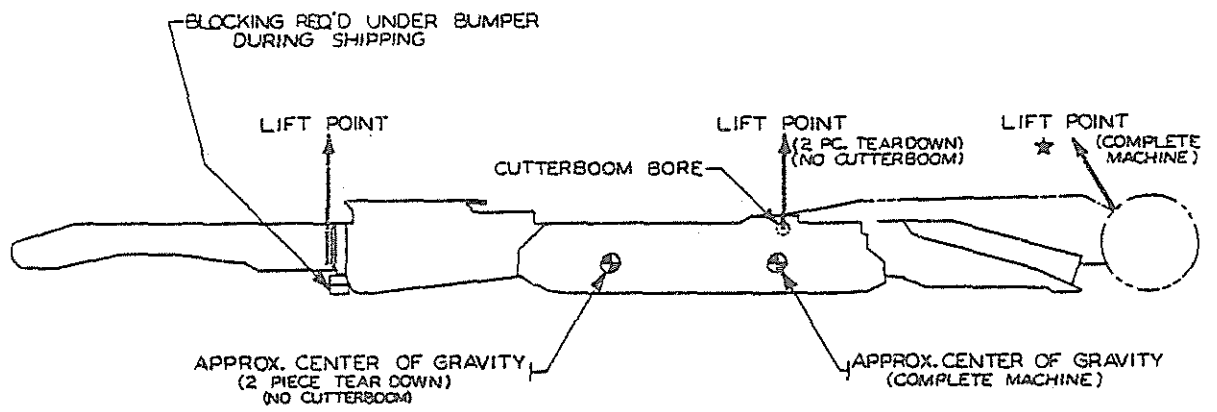
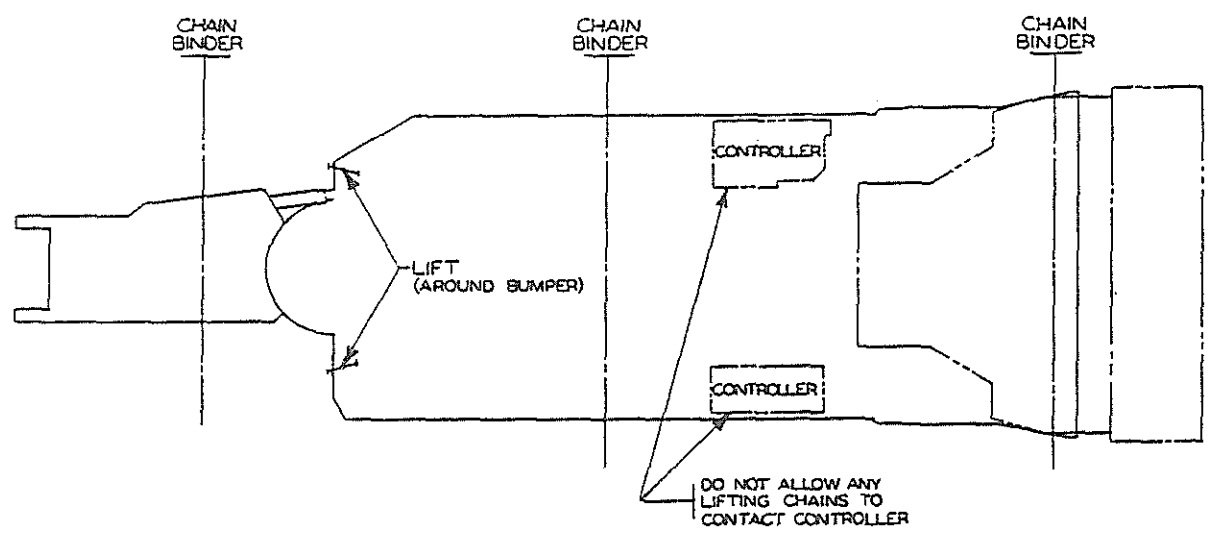
**BIT INFO FOR VARIOUS JOY MINERS**  
(1" (25MM) AND 1-1/8" (28.5MM) SHANK)

SIZE	FSCM NO.	DWG. NO.	REV
B	75003	SK024544-0001	E
SCALE	FULL	WGT.	SHEET 1

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CAD / CAM DRAWING  
MANUAL REVISIONS NOT AUTHORIZED

JCM00032-0004		REV	
REV	DATE	BY	CHKD
A	1/22/85		



★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<sup>lb</sup>  
 MACHINE WEIGHT NO CUTTER BOOM: 77,000<sup>lb</sup>  
 PROTECT BORE FINISHES FROM MARRING OR DAMAGE BEFORE LIFTING.

YES, LITHOGRAPH		SCALE 1/4"=1'-0"	
DATE	BY	JOY TECHNOLOGIES INC.	
02-89		LIFTING & BLOCKING INSTRUCTIONS 14CM	
E175003 JCM00032-0004		A	

APPROVED TRAILING CABLE					
CABLE SPECIFICATION	CABLE TYPE	DIAMETER	INSULATION	MAXIMUM APPROVED LENGTH	MAX. POWER CENTER BRKR. SETTING
#2/0-3 CONDUCTOR ROUND	SHD-GC, SHD-CGC	1.900-2.160	2000V., 90°C	500 FT	1500 AMP
				750 FT	1355 AMP
#2/0-3 CONDUCTOR FLAT	SHD	1.131 - 1.231 X 2.910 - 3.070.	2000V., 90°C	500 FT	1500 AMP
				750 FT	1355 AMP
#1/0-3 CONDUCTOR ROUND	SHD-GC, SHD-CGC	1.767-2.009	2000V., 90°C	500 FT	1250 AMP
				750 FT	1210 AMP
#1-3 CONDUCTOR ROUND	SHD-GC, SHD-CGC	1.672-1.901	2000V., 90°C	500 FT	1000 AMP

ONE ORDER P8E0724 DATE ISSUED FEB 16 1993	REVISIONS	LITHOPRINT YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	DWG. QPMS IMPERIAL <input type="checkbox"/> METRIC <input type="checkbox"/>	TOLERANCE TO BE AS SPECIFIED BELOW UNLESS OTHERWISE STATED ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED IF DIMENSION PLATE IS STRUCTURAL, USE 0.0050 IN. IF DIMENSION PLATE IS STRUCTURAL, USE 0.0050 IN. IF DIMENSION PLATE IS STRUCTURAL, USE 0.0050 IN. IF DIMENSION PLATE IS STRUCTURAL, USE 0.0050 IN.	FINISH SYMBOLS 1. UNFINISHED 2. SPOT FACED 3. CHAMFERED 4. BEVELLED 5. POLISHED 6. BRASS 7. STAINLESS 8. GALVANNEAL 9. ANNEAL 10. PICKLED 11. OILED 12. OILED 13. OILED 14. OILED 15. OILED 16. OILED 17. OILED 18. OILED 19. OILED 20. OILED 21. OILED 22. OILED 23. OILED 24. OILED 25. OILED 26. OILED 27. OILED 28. OILED 29. OILED 30. OILED 31. OILED 32. OILED 33. OILED 34. OILED 35. OILED 36. OILED 37. OILED 38. OILED 39. OILED 40. OILED 41. OILED 42. OILED 43. OILED 44. OILED 45. OILED 46. OILED 47. OILED 48. OILED 49. OILED 50. OILED 51. OILED 52. OILED 53. OILED 54. OILED 55. OILED 56. OILED 57. OILED 58. OILED 59. OILED 60. OILED 61. OILED 62. OILED 63. OILED 64. OILED 65. OILED 66. OILED 67. OILED 68. OILED 69. OILED 70. OILED 71. OILED 72. OILED 73. OILED 74. OILED 75. OILED 76. OILED 77. OILED 78. OILED 79. OILED 80. OILED 81. OILED 82. OILED 83. OILED 84. OILED 85. OILED 86. OILED 87. OILED 88. OILED 89. OILED 90. OILED 91. OILED 92. OILED 93. OILED 94. OILED 95. OILED 96. OILED 97. OILED 98. OILED 99. OILED 100. OILED	DATE: 02/16/93 DRAWN: [ ] CHECKED: [ ] APPROVED: [ ] DESIGNED: [ ] DIMENSIONED: [ ] INCHES TO: [ ] MILLIMETERS TO: [ ] REPLACES: [ ] REPLACES BY: [ ]	PLANT LOCATION: FRANKLIN, PA TITLE: LIST, TRAILING CABLE, APPROVED (14CM)(950V) SCALE: 1:1 CLASS: 14CM DWG. NO. SK025502-0003
--	-----------	---	---	---	--	--	---

1000-11252015

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.

LITHOPRINT THIS DRAWING

This drawing and all information therein is the property of the JOY MANUFACTURING CO. is confidential and 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.

**JOY MANUFACTURING CO.**  
PLANT LOCATION AS INDICATED BELOW

BUFFALO, N. Y.	NEW PHILADELPHIA, O.
CLAREMONT, N. H.	
FRANKLIN, PA.	
GALT, ONTARIO, CANADA	
GREENOCK, SCOTLAND	
MICHIGAN CITY, IND.	

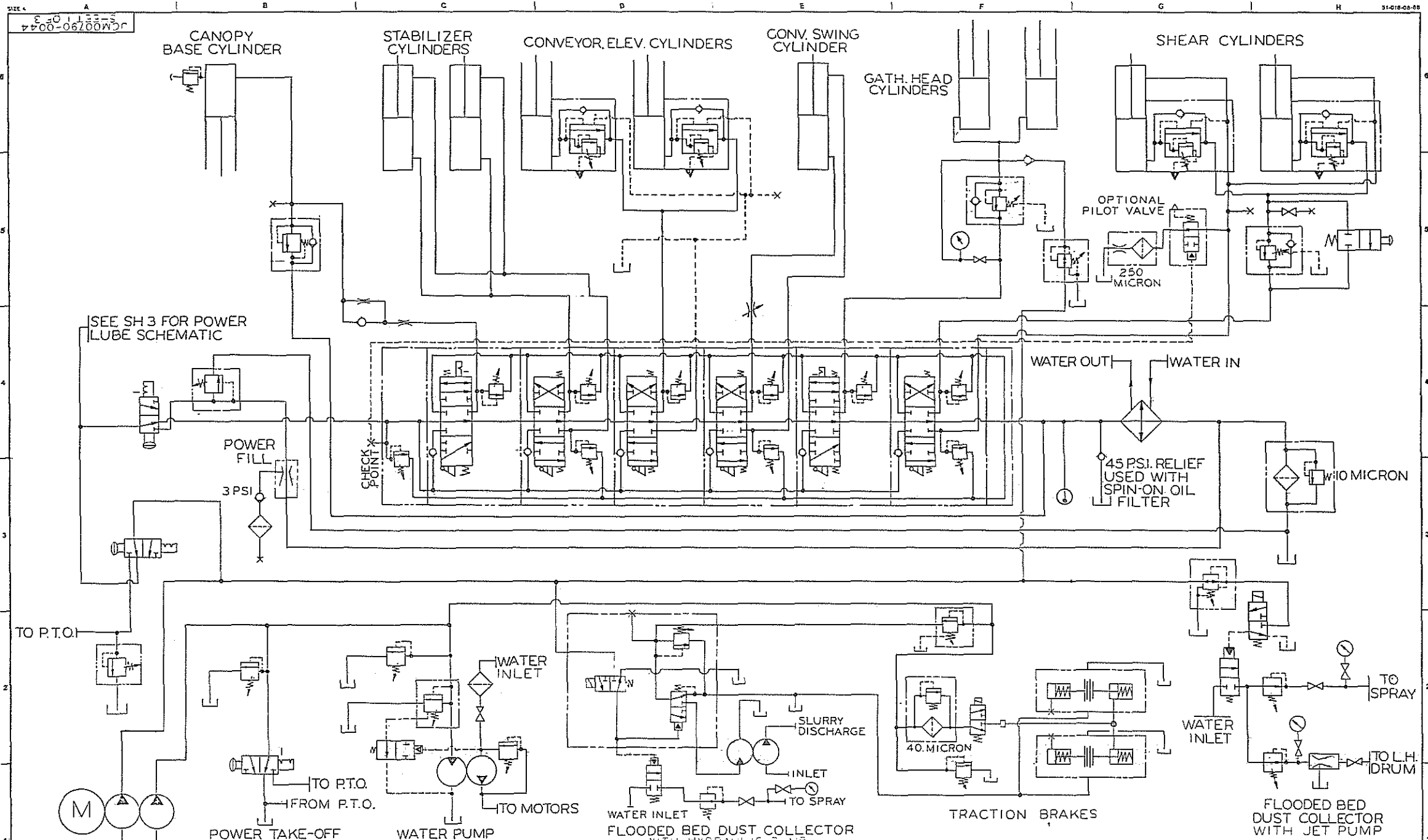
RECOMMENDED MAINTENANCE FOR  
FLOODED BED DUST COLLECTOR

SIMILAR TO _____	NAME OR INITIAL & DATE	SCALE _____ CLASS MINER
SUPERSEDES _____	DR. RBBLAUSER	
SUPERSEDED BY _____	TR. 9/2/88	
REPLACES _____	CK _____	
REPLACED BY _____	APPO _____	

SK025211-0001

E. O. FDA 0857  
DATE

REVISIONS



UNLESS OTHERWISE NOTED: ALL DIMENSIONS IN INCHES. MACHINED DIMENSIONS LIMITED TO FRACTIONAL ± 1/16. ANGULAR ± 1/2°. STRUCTURAL DIMENSIONS LIMITED TO ± 1/16. DO NOT SCALE THIS DRAWING.

REV	DESCRIPTION
1	PRECISION POLISH
2	FINE POLISH
3	COMMON POLISH
4	GRIND OR EQUAL
5	SMOOTH MACHINE

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

UNLESS OTHERWISE NOTED: ALL DIMENSIONS IN INCHES. MACHINED DIMENSIONS LIMITED TO FRACTIONAL ± 1/16. ANGULAR ± 1/2°. STRUCTURAL DIMENSIONS LIMITED TO ± 1/16. DO NOT SCALE THIS DRAWING.	REVISIONS	(PDR 6334)
MATERIAL	PATTERN NO	LITHOPRINT
HEAT TREAT		YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
HARDNESS		
CAREFULIZE (ECC)		

JOY TECHNOLOGIES INC.  
FRANKLIN, PENNSYLVANIA 16323

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SHEETS 1 OF 3

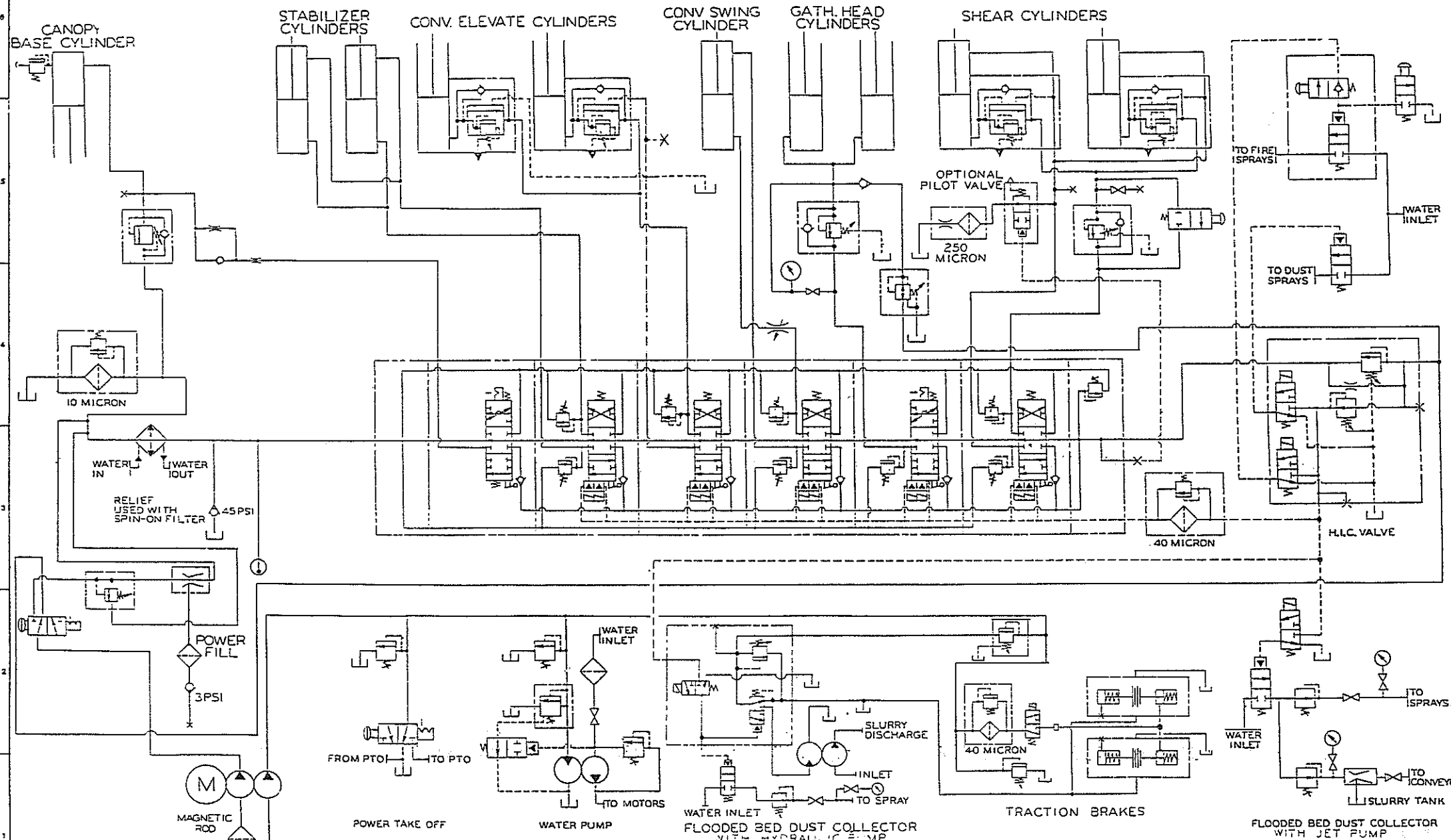
DATE: \_\_\_\_\_  
CLASS: \_\_\_\_\_  
SCALE: \_\_\_\_\_

DR: \_\_\_\_\_  
DATE: \_\_\_\_\_  
CLASS: \_\_\_\_\_  
SCALE: \_\_\_\_\_

JCM00790-0044  
SHEET 1 OF 3



SIZE A  
E 30 E 2000  
100-35-0010



ENG ORDER: FDCT875 REVISIONS: B/FCE 208C/C/FD19770(C)/PDE 33341

UNLESS OTHERWISE NOTED: ALL DIMENSIONS IN INCHES. MACHINING DIMENSIONS LIMITED TO FRACTURAL ± 1/16. ANGULAR ± 1/2° STRUCTURAL DIMENSIONS LIMITED TO ± 1/16. DO NOT SCALE THIS DRAWING.

MATERIAL: \_\_\_\_\_  
HEAT TREAT: \_\_\_\_\_  
HARDNESS: \_\_\_\_\_  
SURFACE RECD: \_\_\_\_\_

PATTERN NO: \_\_\_\_\_  
LITHOPRINT: YES  NO

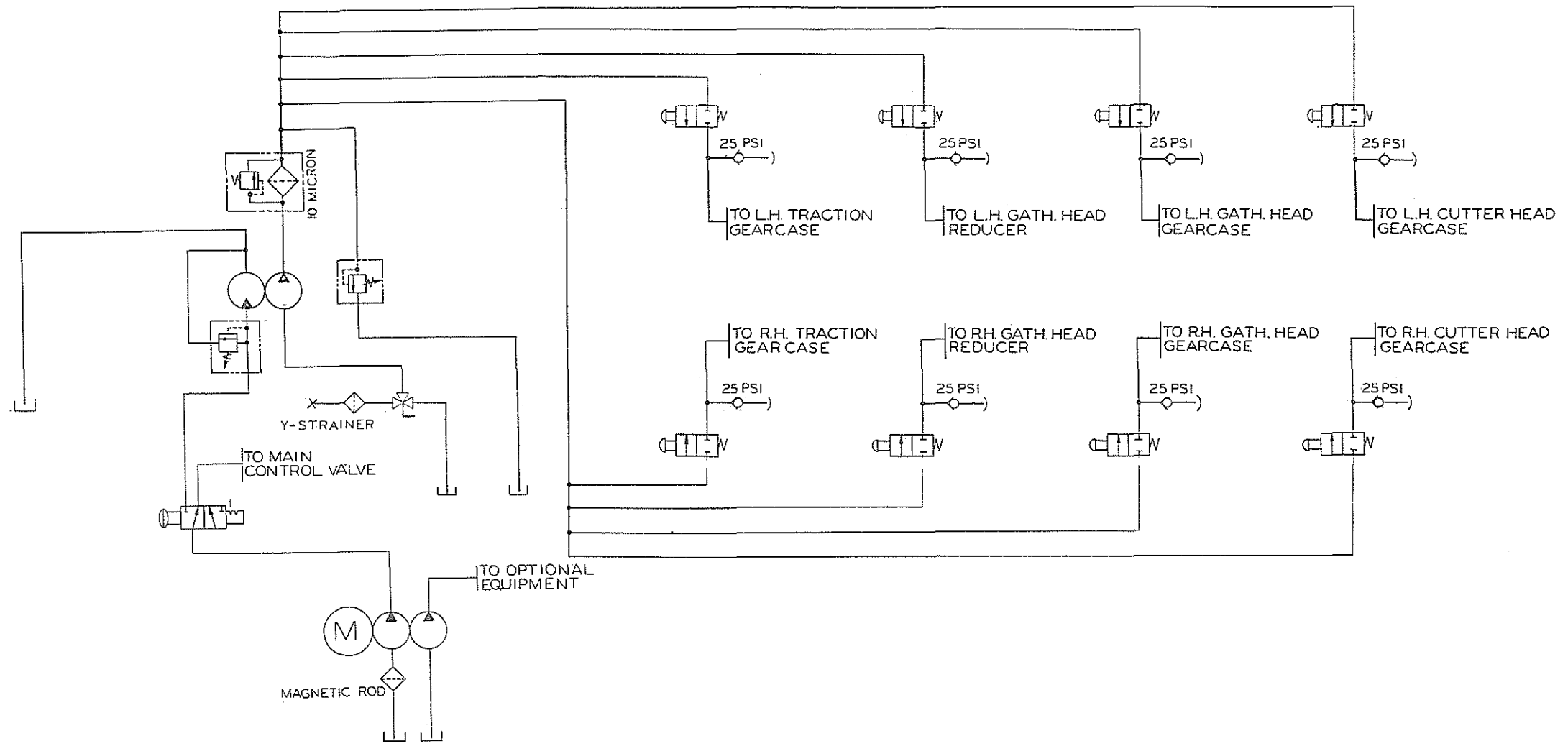
FINISH SYMBOLS  
1 [MICRO] 1 INCHES  
2 [MICRO] 1/2 INCHES  
A 1/4 1 PRECISION POLISH F 1 125 1 COMMON MACHINE  
B 1 5 1 FINE POLISH H 1 250 1 ROUGH MACHINE  
C 1 16 1 COMMON POLISH K 1 500 1 HEAVY ROUGH  
D 1 32 1 GRIND OR EQUAL L 1 1000 1 EX HEAVY ROUGH  
E 1 63 1 SMOOTH MACHINE

JOY TECHNOLOGIES INC.  
FRANKLIN, PENNSYLVANIA 15231

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SCHEMATIC, HYDRAULIC SYSTEM (REMOTE CONTROL)

DR: JOM ALLEN  
DATE: 22-02-82  
CLASS: 18CAL  
SCALE: \_\_\_\_\_  
REPLACES: \_\_\_\_\_  
REPLACED BY: \_\_\_\_\_  
JCM00790-0044 SHEET 2 OF 3



<b>ENG ORDER</b> FDC 7875		<b>REVISIONS</b>		(B) FDE 6334		<b>FINISH SYMBOLS</b>		<b>JOY TECHNOLOGIES INC.</b> FRANKLIN, PENNSYLVANIA 16323		<b>SCHEMATIC, HYDRAULIC SYSTEM</b> (GEAR CASE POWER FILL)	
UNLESS OTHERWISE NOTED ALL DIMENSIONS IN INCHES. MANUFACTURING DIMENSIONS LIMITED TO FRACTIONAL = 1/16. ANGULAR = 1/2°. STRUCTURAL DIMENSIONS LIMITED TO 3/16". DO NOT SCALE THIS DRAWING.				MATERIAL _____		2 MICRO INCHES A 4 PRECISION POLISH		2 MICRO INCHES F 125 COMMON MACHINE		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.	
HEAT TREAT _____		PATTERN NO _____		LITHO PRINT YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		8 FINE POLISH B 1 250 COMMON MACHINE		16 COMMON POLISH H 1 250 COMMON MACHINE		DR. TOM ALLEN DATE 07-05-87	
HARDNESS _____		CARDURIZE (ECD) _____		32 GRIND OR EQUAL D 1 32 COMMON MACHINE		63 SMOOTH MACHINE E 1 63 COMMON MACHINE		SIMILAR TO JEMDR750-0012 REPLACES _____ REPLACED BY _____		CLASS 14 CMA SCALE _____ JCM00790-0044 SHEET 3 OF 3	