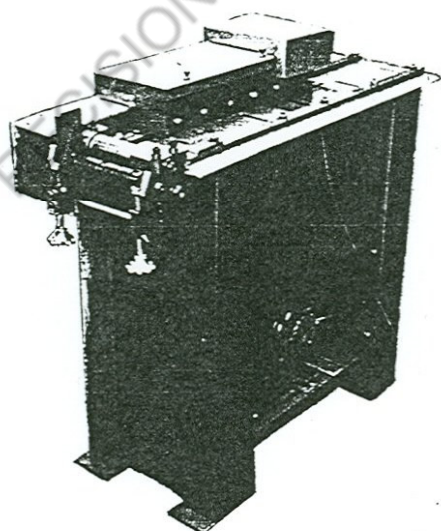


Operating Instructions

LOCKFORMER

SPIN COLLAR MAKER



THE LOCKFORMER COMPANY

711 W. OGDEN AVENUE • LISLE, ILLINOIS 60532

SPIN COLLAR MAKER

CAPACITY: 24 GAUGE GALVANIZED MAXIMUM

CAUTION: DO NOT RUN HEAVIER GAUGES

STOCK WIDTH: 3 INCH AS DELIVERED

6 INCH WITH ROLL INTERCHANGE

DIAMETER RANGE: 4 INCH MINIMUM 16 INCH MAXIMUM

CURLER ADJUSTMENT:

TO ADJUST DIAMETER, SEE DRAWING #58013. LOOSEN THE TWO WING NUTS #61473 AND RAISE THE PIVOT ROLL ASSEMBLY BY TURNING ADJUSTING SCREWS #57565. THE HIGHEST POSITION WILL GENERATE AN APPROXIMATE 4 INCH DIAMETER COLLAR. MINOR ADJUSTMENT WILL GENERATE THE DESIRED DIAMETER.

THE ANGULAR PLANE OF THE PIVOT BARS WILL BE APPROXIMATELY:

4 INCH DIAMETER AT 30 DEGREE/28 DEGREE

8 INCH DIAMETER AT 15 DEGREE/13 DEGREE

DUE TO THE VARIANCES IN COMMERCIAL TOLERANCES OF METALS, IT IS NOT PRACTICAL TO ESTABLISH EXACT SETTINGS FOR THE DIAMETER REQUIRED. IT MAY BE NECESSARY TO ADJUST FOR EACH DIFFERENT RUN OF MATERIAL.

GUIDE FINGER ADJUSTMENT:

A GUIDE FINGER (40111) IS LOCATED ON THE CURLER ASSEMBLY (58013). THE PURPOSE OF THIS FINGER IS TO FORM THE BEAD SECTION CONSISTANTLY AND REDUCE THE STRAIGHT SECTION WHICH CAN OCCUR AT THE LEAD END OF THE COLLAR BEAD. THE FINGER IS VERTICALLY ADJUSTABLE AND SHOULD BE RE-SET FOR EACH DIAMETER COLLAR BEING RUN.

TO SET GUIDE FINGER: (SEE 58013)

1. LOOSEN THE TWO SCREWS (60395) AND LOWER FINGER OUT OF PASSLINE.
2. SET CURLER ROLLS BY ADJUSTING ADJUSTMENT KNOBS (57565) TO OBTAIN CORRECT DIAMETER AS REQUIRED.
3. WHEN CORRECT DIAMETER COLLAR IS ACHIEVED, RUN A TEST PIECE THRU CURLER AND STOP MACHINE WHEN COLLAR IS APPROXIMATELY HALF CURLED.
4. PUSH FINGER UPWARD FIRMLY INTO THE BEAD OF THE PARTIALLY FORMED COLLAR AND FIRMLY FASTEN THE TWO MOUNTING SCREWS (60395).
5. RUN THE COLLAR OUT OF CURLER.

TO SET GUIDE FINGER CONT:

6. RUN A TEST PIECE THRU MACHINE AND NOTE RESULTS. IF COLLAR IS FORMED PROPERLY, MACHINE IS READY FOR PRODUCTION OPERATION. IF A STRAIGHT SECTION EXISTS AT THE LEAD END OF FORMED COLLAR IT IS NECESSARY TO EXERT MORE UPWARD PRESSURE WITH GUIDE FINGER.

SEVERAL TEST PIECES AND SUBSEQUENT GUIDE FINGER ADJUSTMENTS MAY BE NECESSARY TO ACHIEVE OPTIMUM RESULTS.

GAUGE BAR SETTING:

PLACE A STRAIGHT EDGE AGAINST THE OUTSIDE FACE OF THE MACHINE PLATE AS SHOWN ON SKETCH #1. SET THE RIGHT ENTRANCE GAUGE BAR 1-1/2" TO 1-9/16" TO THE RIGHT. SET THE LEFT ENTRANCE GAUGE BAR STOCK WIDTH (PLUS 1/64" TO 1/32" TO ALLOW MATERIAL TO PASS FREELY) TO THE LEFT. SET REAR LEFT GAUGE BAR TO ALIGN WITH FRONT BAR. IT MAY BE NECESSARY TO TAPER THE REAR OF THIS BAR SLIGHTLY INWARD TO ACHIEVE BEST FORMING. RUN A TEST PIECE THRU THE ROLLS AND STOP IT JUST PRIOR TO ENTERING THE COLLAR MAKER. SET THE EXIT GAUGE BAR FLUSH AGAINST RIGHT EDGE OF STOCK (AS VIEWED FROM ENTRANCE).

ROLLFORMER HOLD DOWN STUDS:

THE TWO HOLD DOWN STUDS ARE LOCATED ABOVE THE LEFT MACHINE PLATE. MAKE "HOLD-DOWN ADJUSTMENT" TO MEET ANY VARIATION IN THE MATERIAL BEING RUN. DO NOT ADJUST UNLESS MATERIAL SLIPS, OR STICKS IN FORMING OPERATION.

OPERATION:

START MACHINE AND PLACE MATERIAL SHEARED TO PROPER WIDTH BETWEEN GAUGE BARS AND FEED MATERIAL AGAINST THE STOP. THE MACHINE WILL THEN NOTCH THE LEAD EDGE OF THE STOCK. CONTINUE TO PUSH THE BLANK PAST THE STOP UNTIL THE ROLLS GRIP THE BLANK AND POWER IT THRU THE MACHINE. **CAUTION!** DO NOT OPERATE THIS MACHINE WITH COVERS REMOVED DUE TO EXPOSED GEARS, CHAIN, SPROCKET, ETC.

ALWAYS FEED MATERIAL WITH CURL DOWN.

PUNCH AND DIE MAINTENANCE: (DRAWING #58014)

WHEN IT IS NECESSARY TO SHARPEN THE PUNCH AND DIE, REMOVAL OF DIE SET CAN BE DONE AS FOLLOWS:

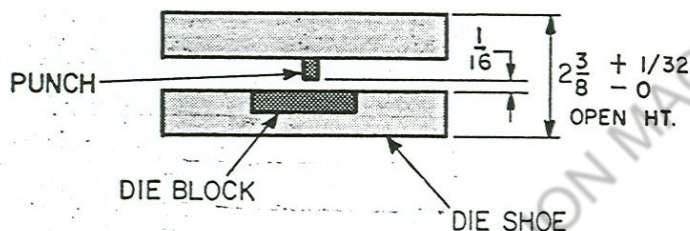
- A. REMOVE FRONT TOP COVER WHICH ENCLOSES THE DIE AREA.
- B. REMOVE FRONT TABLE TOP.
- C. REMOVE (2) DIE MOUNTING SCREWS....ONE LOCATED ON EACH SIDE ON DIE SLOT.
- D. SLIDE DIE SET OUT OF MACHINE FOR SERVICING.
- E. TO RE-ASSEMBLE REVERSE ABOVE PROCEDURE.

PUNCH AND DIE MAINTENANCE CONT:

IT IS RECOMMENDED THAT THE DIE SET BE SENT TO A COMPETENT GRINDING HOUSE OR TOOL AND DIE SHOP.

IF EQUIPPED TO SHARPEN DIE SET YOURSELF IT IS RECOMMENDED THAT THE FOLLOWING COMMENTS BE OBSERVED.

1. REMOVE DIE BLOCK FROM DIE SHOE AND GRIND TOP SURFACE ONLY. CAUTION! NEVER GRIND TOP OF DIE SHOE.
2. GRIND PUNCH END FLAT.
3. SHIM PUNCH AND DIE TO EXACT AMOUNT WHICH WAS REMOVED DURING GRINDING TO MAINTAIN ORIGINAL PUNCH AND DIE HEIGHT.
4. MAINTAIN $2\frac{3}{8}" + \frac{1}{32}"$ OPEN HEIGHT OF DIE SET.
5. WHEN $2\frac{3}{8}"$ DIMENSION IS MAINTAINED THE CLEARANCE BETWEEN DIE TOP AND PUNCH BOTTOM SHOULD BE $\frac{1}{16}"$.



**DIE BLOCK TOP MUST BE
FLUSH WITH TOP OF DIE SHOE**

CURLER CRIMP CHANGEOVER:

1. REMOVE CURLER GUARD.
2. REMOVE THREE SIDE PLATE MOUNTING SCREWS (TWO SOCKET HEAD AND ONE HEX HEAD SCREW).
3. REMOVE CHAIN GUARD.
4. REMOVE ENTIRE UPPER CURLER FEED ROLL ASSEMBLY (LOOSEN TWO SCREWS IN EACH PILLOW BLOCK).
5. REMOVE RETAINING RING FROM END OF SHAFT OPPOSITE GEAR. ALSO REMOVE THRUST RACE AND THRUST BEARING.
6. REARRANGE CRIMP ROLL AND SPACERS TO CONFORM TO WIDTH DESIRED.
7. REMOVE CURLER PIVOT BAR RETAINING RINGS AND THRUST RACE AND BEARING.
8. SLIDE SIDE PLATE OFF SHAFT ENDS.
9. REARRANGE COMPONENTS ON SHAFT TO CONFORM TO DESIRED WIDTH AND MATCH UPPER ASSEMBLY.

LOCKFORMERCURLER CRIMP CHANGEOVER CONT:

10. REASSEMBLE COPONENTS AND REINSTALL ONTO CURLER IN REVERSE PROCEDURE ABOVE.

ADJUSTMENTS AND TROUBLE SHOOTING:

1. MATERIAL NOT FEEDING INTO BEAD AND CRIMP ROLL COLLAR MAKER.

CHECK SIDE GAUGE SETTING FOR PROPER WIDTH WITH 1/32 CLEARANCE.
CHECK STOCK FOR BEING OVERSIZE. ADJUST ACCORDINGLY.

2. METAL SKEWING OUT OF COLLAR MAKER MAKING ENDS OUT OF MATCH EXCEEDING 1/16 INCHES.

A. TIGHTEN BOTH SOCKET HEAD CAP SCREWS ON BEAD END PILLOW BLOCK OF COLLAR MAKER.

B. CHECK GAUGE BAR SETTING AT ENTRY END TO COLLAR MAKER. EXCESS CLEARANCE BEYOND 1/32 INCHES MAY BE CAUSE.

C. RUN COLLAR HALF WAY THRU CURLER AND STOP MACHINE. ADJUST VERTICAL PLATE FLUSH AGAINST SIDE OF BEAD.

3. LEAD EDGE OF BEAD TORN AS IT EXITS FROM COLLAR MAKER OR MATERIAL JAMS AND FOLDS UNDER ON SMALL DIAMETER.

A. CHECK AND LOWER FINGER #40111 (SEE DRAWING #58013) SLIGHTLY OR REMOVE AND INCREASE LEAD END RADIUS ON A GRINDER. NOTE PART IS THRU HARDENED AND GRINDING WILL NOT CREATE A SOFT AREA.

THE PURPOSE OF THE GUIDE IS TO MINIMIZE THE FLAT OR REVERSE CURVE CAUSED ON THE LEAD END BY THE RAPID FORMING OF THE BEAD IN THIS ONE ROLL STATION. SEE SET UP AND ADJUSTMENTS AS PREVIOUSLY OUTLINED.

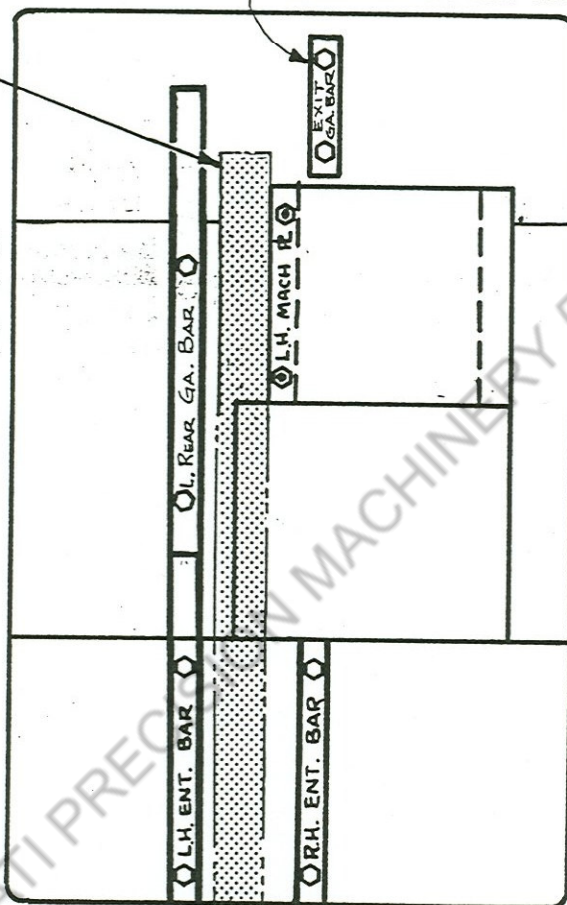
ENCLOSURES:

DRAWING # 58013 (CURLER ASSEMBLY), 58024 (MECH. ASSEMBLY), 58090
58025 (FINAL ASSEMBLY), 58014 (NOTCH DIE ASSEMBLY)
SKETCH #1

PARTS LIST: #0960211 - STAND AND DIE SETS
#0960212 - CHASSIS (ROLLFORMER)
#0960213 - CURLER UNIT
#0960405 - ELECTRICALS

STRAIGHT EDGE
(AGAINST FACE OF
MACHINE PLATE)

SET FLUSH WITH EDGE OF STOCK UPON
EMERGENCE FROM ROLLS



$\frac{1}{2}$ TO $\frac{9}{16}$

BLANK WIDTH + $\frac{1}{32}$ " - 0



FEED DIRECTION

LOCKFORMER

INSTRUCTION SKETCH NO. 1

LEV	COMPONENT ITEM NUMBER	QTY PER UM	DESCRIPTION	OPER	SCRAP FCTR	B/M TYP	ENG REV	REL DATE	S Z	PRI NUM	ROUTE	ITM STS	COM L M
1	14101	2.0000	EA GR TDLR	0	0	A	03	09/01/89	B	PRIM	A	S	C M
1	14110	1.0000	EA PCH UNIT DRY GR	0	0	A	01	03/30/84	B	PRIM	A	S	C M
1	14317	5.0000	LB SUPPORT POSTS	0	0	A	01	03/15/84	A	PRIM	A	S	C M
1	19347	1.0000	EA PCH UNIT UPR SPCR	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	19348	1.0000	EA PCH UNIT LMR SPCR	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	19350	1.0000	EA PCH UNIT CAN SHFT	0	0	A	02	05/30/84	A	PRIM	A	S	C M
1	19351	1.0000	EA PCH UNIT CAN GR PVT	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	19352	2.0000	EA PCH UNIT IDLR PVT	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	21476	1.0000	EA STK HLD DOWN	0	0	A	01	09/29/80	A	PRIM	A	S	C M
1	23043	1.0000	EA BEAD SUPPORT	0	0	A	03	06/26/81	A	PRIM	A	S	C M
1	26812	1.0000	EA SIDE SQUARE BRACE	0	0	A	01	08/20/80	A	PRIM	A	S	C M
1	26813	1.0000	EA PCH UNIT LMR FR PLT	0	0	A	02	05/30/84	B	PRIM	A	S	C M
1	26814	1.0000	EA PCH UNIT UPR FR PLT	0	0	A	01	05/30/84	B	PRIM	A	S	C M
1	26815	1.0000	EA PCH UNIT TP PLT	0	0	A	02	05/30/84	B	PRIM	A	S	C M
1	26816	1.0000	EA PCH UNIT TIE BAR	0	0	A	03	10/14/81	A	PRIM	A	S	C M
1	26817	1.0000	EA PCH UNIT SW MTG PLT	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	26818	1.0000	EA PCH UNIT SN LNK	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	26819	1.0000	EA PCH UNIT CAM ARM	0	0	A	01	03/30/84	A	PRIM	A	S	C M
1	26820	1.0000	EA CAM ARM PVT BLK	0	0	A	04	05/30/84	A	PRIM	A	S	C M
1	26821	1.0000	EA IDLR GR SUP PLT	0	0	A	02	05/30/84	A	PRIM	A	S	C M
1	26822	1.0000	EA ADJ GD BAR	0	0	A	05	05/30/84	A	PRIM	A	S	C M
1	26823	1.0000	EA FXD STK GD	0	0	A	06	05/30/84	A	PRIM	A	S	C M
1	26827	1.0000	EA CRLR GD BAR	0	0	A	01	05/30/84	A	PRIM	A	S	C M
1	26831	2.0000	EA DIE & RLFMR TIE BR	0	0	A	02	07/19/78	A	PRIM	A	S	C M
1	29510	1.0000	EA MTR BASE	0	0	A	01	05/30/84	A	PRIM	A	S	C M
1	31586	1.0000	EA PCH UNIT SN MTG PLT	0	0	A	02	05/30/84	A	PRIM	A	S	C M
1	31591	1.0000	EA CRLR TP PLT	0	0	A	01	05/30/84	A	PRIM	A	S	C M
1	31593	1.0000	EA REAR TP PLT	0	0	A	02	05/30/84	B	PRIM	A	S	C M
1	36155	1.0000	EA CHN GD INSD SD PT	0	0	A	01	05/30/84	A	PRIM	A	S	C M
1	36156	1.0000	EA LNT SWITCH CVR	0	0	A	01	05/30/84	B	PRIM	A	S	C M
1	36157	1.0000	EA PCH UNIT CVR	0	0	A	03	05/30/84	C	PRIM	A	S	C M
1	43535	1.0000	EA RLFMR CVR	0	0	A	01	05/30/84	C	PRIM	A	S	C M
1	53378	1.0000	PC TOP PLT MACHINED	0	0	A	01	03/15/84	C	PRIM	A	S	C M
1	57923	1.0000	EA GUIDE BAR WLD	0	0	A	02	08/31/81	A	PRIM	A	S	C M
1	57924	1.0000	EA CHN GRD WLD(SC&CN)	0	0	A	01	11/08/84	A	PRIM	A	S	C M
1	57925	1.0000	EA GUIDE PLT(C&PN C&CN)	0	0	A	01	11/08/84	A	PRIM	A	S	C M
1	57927	1.0000	EA CRLR GRD WLD	0	0	A	03	12/02/80	A	PRIM	A	S	C M
1	57930	1.0000	EA CAM DR PIN(C&P & CH	0	0	A	01	11/08/84	A	PRIM	A	S	C M
1	58014	1.0000	EA BCK PLT WLD(C&C &CN	0	0	A	02	11/08/84	B	PRIM	A	S	C M
1	58025	1.0000	EA PNCH UNIT ASSY	0	0	A	00	08/07/80	D		A	S	C M
1	58863	1.0000	EA FINAL ASSY	0	0	A	00	11/17/83	D		A	S	C M
1	58864	1.0000	EA MECH ASSY	0	0	A	00	05/23/84	D		A	S	C M
1	60000	2.0000	PC STAND WLD 6"	0	0	A	02	05/30/84	D	PRIM	A	S	C P
1	60002	2.0000	EA 1/4-20X1/2 HHCS	0	0	A	00				A	S	C P
1	60005	2.0000	EA 1/4-20X1 HHCS	0	0	A	00				A	S	C P
1	60045	2.0000	EA 1/4-20X3/4 HHCS	0	0	A	00				A	S	C P
1	60047	2.0000	EA 5/16-18X3/4 HHCS	0	0	A	00	09/20/88			A	S	C P

Run Date: 13-APR-1994 Time: 07:10 AM B/M EXPLOSION REPORT: SINGLE LEVEL User: PLB Page 00003
Parent Item: 960211 Prod Cat: GA Usr Def: The Lockformer Company Eng Rls: Date: 09/26/80 Rev: 00 (Cont'n)
61N STNDRPNCH UNIT Stk: S Ctl: C P/M: M Comm: Size: Route:

LEV	COMPONENT ITEM NUMBER	QTY PER UM	DESCRIPTION	OPER	SCAP B/M SQ FCTR TYP RLS	ENGGR RELEASE---	S I ROUTE	PRI NUM	ITH STS	T K	L L	CODE
1	60052	2.0000	EA 5/16-18X1HCS	0	0	0	00	00	A	S	C	P
1	60094	11.0000	EA 3/8-16X1.25HCS	0	0	0	00	00	A	S	C	P
1	60304	2.0000	EA 1/4-20X1SHCS	0	0	0	00	12/13/85	A	S	C	P
1	60309	6.0000	EA 1/4-20X1/2 SHCS	0	0	0	00	00	A	S	C	P
1	60480	5.0000	EA 10-24X3/8SHCS	0	0	0	00	00	A	S	C	P
1	60483	1.0000	EA 10-24X1/4SHCS	0	0	0	00	03/10/80	A	S	C	P
1	60549	2.0000	EA 10-24X1/2 FHS	0	0	0	00	00	A	S	C	P
1	60550	3.0000	EA 1/4-20X1/2RHMS CAD	0	0	0	00	04/26/80	A	S	C	P
1	60588	2.0000	EA 6-32X1 RHS	0	0	0	00	08/07/80	A	S	C	P
1	60651	1.0000	PC 5/16-18X3/8SSS	0	0	0	00	09/20/88	A	S	C	P
1	60821	5.0000	EA 10-12 SMS TP-A	0	0	0	00	00	A	S	C	P
1	60876	4.0000	EA 3/8-16X1-1/4CB	0	0	0	00	00	A	S	C	P
1	61000	2.0000	EA 6-32 HN	0	0	0	00	00	A	S	C	P
1	61040	1.0000	EA 10-24 HN	0	0	0	00	00	A	S	C	P
1	61061	4.0000	EA 1/4-20HN HVS SF	0	0	0	00	00	A	S	C	P
1	61100	4.0000	EA 5/16-18 HN FIN	0	0	0	00	00	A	S	C	P
1	61120	4.0000	EA 3/8-16HN HVS SF	0	0	0	00	00	A	S	C	P
1	61204	10.0000	EA 3/8-16 HN FIN	0	0	0	00	00	A	S	C	P
1	61325	1.0000	EA 5/8-18 HN SAE	0	0	0	00	00	A	S	C	P
1	62000	6.0000	EA 3/8-24 LCK NUT	0	0	0	00	12/13/85	A	S	C	P
1	62002	2.0000	EA 1/4X062 WSHR	0	0	0	00	00	A	S	C	P
1	62003	2.0000	EA 7/32ID WSHR	0	0	0	00	08/07/80	A	S	C	P
1	62029	11.0000	EA 3/8 X 1/16	0	0	0	00	08/11/88	A	S	C	P
1	62363	1.0000	EA 3/8 LCK WSHR	0	0	0	00	05/12/81	A	S	C	P
1	62370	6.0000	EA 1/4 LCK WASHER	0	0	0	00	07/28/88	A	S	C	P
1	62401	1.0000	PC 9 WDRF KEY	0	0	0	00	00	A	S	C	P
1	62613	2.0000	EA 1/4X1 DNL	0	0	0	00	00	A	S	C	P
1	62621	2.0000	EA 5/16X1 1/4 DNL	0	0	0	00	00	A	S	C	P
1	62622	1.0000	EA 1/8X3/4 ROLL PIN	0	0	0	00	08/04/77	A	S	C	P
1	62709	2.0000	EA 1/8X1-1/2 PINS	0	0	0	00	05/08/73/80	A	S	C	P
1	62736	1.0000	EA NOTCH DIE	0	0	0	00	08/07/80	A	S	C	P
1	65591	2.0000	EA B108 TORR BRG	0	0	0	00	08/07/80	A	S	C	P
1	66010	2.0000	EA 5/16D STL BALL	0	0	0	00	08/07/80	A	S	C	P
1	66287	1.0000	EA AA-1069-14 OILITE	0	0	0	00	08/07/80	A	S	C	P
1	66288	1.0000	EA FF-838-1 OILITE	0	0	0	00	08/07/80	A	S	C	P
1	66289	1.0000	EA YCRS-16 TORR CAN	0	0	0	00	08/07/80	A	S	C	P
1	66410	1.0000	EA AA628-10 AMPLX BRG	0	0	0	00	08/07/80	A	S	C	P
1	70358	1.0000	EA BK-36 5/8B SHV	0	0	0	00	10/31/83	A	S	C	P
1	70967	1.0000	EA SPRING	0	0	0	00	08/07/80	A	S	C	P
1	71045	1.0000	PC LE049D-7 SPRING MU	0	0	0	00	08/07/80	A	S	C	P
1	72215	1.0000	EA 4L660 V BELT	0	0	0	00	08/07/80	A	S	C	P
1	73092	1.0000	EA 40 CHAIN 50 P	0	0	0	00	08/07/80	A	S	C	P
1	85156	1.0000	EA LF CAP NAMEPLT	0	0	0	00	04/06/77	A	S	C	P
1	85312	1.0000	EA PATENT LABEL	0	0	0	00	10/12/93	A	S	C	P
1	AA62001	8.0000	EA FLT WASHER.31X.75	0	0	0	00	00	A	S	C	P

LEV	COMPONENT ITEM NUMBER	QTY PER UM DESCRIPTION	OPER	SA	SCRAP B/M FCR TYP	ENGGR RLS	REV	DATE	PRI I ROUTE	ITH	STS	K	L	T	P	CONH M CODE
1	14101	4.0000 EA GR TDLR	0	0	-0	A	03	09/01/89	B	PRIM	A	S	C	M		
1	14310	1.0000 EA GR DRV HUB	0	0	-0	A	06									
1	14624	1.0000 EA THRUST CLR	0	0	-0	A	03	06/11/85	B	PRIM	A	S	C	M		
1	16117	1.0000 EA B1	0	0	-0	A	04	05/30/84	A	PRIM	A	S	C	M		
1	16118	1.0000 EA T1	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16119	1.0000 EA T2	0	0	-0	A	03	05/30/84	A	PRIM	A	S	C	M		
1	16120	1.0000 EA B2	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16121	1.0000 EA T3	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16122	1.0000 EA B3	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16123	1.0000 EA T4	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16124	1.0000 EA B4	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16125	1.0000 EA T5	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	16126	1.0000 EA B5	0	0	-0	A	02	05/30/84	A	PRIM	A	S	C	M		
1	19553	1.0000 EA M1 DRV SHFT	0	0	-0	A	07									
1	19554	1.0000 EA M2 DRV SHFT	0	0	-0	A	02	03/15/84	C	PRIM	A	S	C	M		
1	20061	1.0000 EA UPR FRT PLT	0	0	-0	A	01	03/15/84	C	PRIM	A	S	C	M		
1	21263	1.0000 EA BACK PLATE	0	0	-0	A	02	03/15/84	C	PRIM	A	S	C	M		
1	21564	1.0000 EA LOWER FRT PLT	0	0	-0	A	01	04/13/93	B	PRIM	A	S	C	M		
1	40580	2.0000 EA BRKT CSTG 88280	0	0	-0	A	04									
1	43358	1.0000 PC A.C.90 SHEAVE	0	0	-0	A	01	04/13/93	B	PRIM	A	S	C	M		
1	44201	1.0000 EA SPGR T1180	0	0	-0	A	00	11/17/83								
1	58090	1.0000 EA CHASSIS ASSY	0	0	-0	A	00									
1	60091	4.0000 EA 3/8-16X1 1/4HCS	0	0	-0	A	00									
1	60095	2.0000 EA 3/8-16X1 1/4HCS	0	0	-0	A	00	06/16/88	P							
1	60650	1.0000 PC 5/16-18X5/16 SSS	0	0	-0	A	00	09/20/88								
1	60680	1.0000 PC 3/8-16X3/8SSS	0	0	-0	A	00									
1	61300	2.0000 EA 3/8-16 JAM NUT SF	0	0	-0	A	00									
1	61325	28.0000 EA 3/8-24 LCK NUT	0	0	-0	A	00									
1	62202	4.0000 EA 3/4X3/8 LCK USHR	0	0	-0	A	00	08/11/88	-							
1	62363	4.0000 EA 3/8 LCK USHR	0	0	-0	A	00	07/28/88	P							
1	62401	3.0000 PC 9 HDRF KEY	0	0	-0	A	00									
1	62553	14.0000 EA SPACER STUO	0	0	-0	A	00									
1	66010	4.0000 EA B108 TORR BRG	0	0	-0	A	00	01/14/87								
1	66020	4.0000 EA B128 TORR BRG	0	0	-0	A	00	01/14/87								
1	66050	20.0000 EA B1012 OH	0	0	-0	A	00	10/13/85								
1	71180	3.0000 PC 2428 SLEEVE SPACER	0	0	-0	A	00	08/07/80								
1	72216	1.0000 EA 40B11 3/4B SPRKT	0	0	-0	A	00									

CINCINNATI EXPLOSION MACHINERY 513-860-4133

LEV

Run Date: 13-APR-1994 Time: 07:50 AM B/H EXPLOSION REPORT: SINGLE LEVEL
Parent Item: 960213 Prod Cat: CA User Def: The Lockformer Company
6IN CURLER Stk's Ctl: C P/M: M Comm:

User: PLB Page 00003
Eng Rls: Rev: 00
Date: 08/26/80 Size: Route:

LEV	COMPONENT ITEM NUMBER	QTY PER UM	DESCRIPTION	OPER	SQ	SCRAP B/M FCIR TYP RLS	ENGGR REV	RELEASE DATE	S Z	PRI NUM	S C	P T	S K	L H	C O	D
1	13777	1.0000	EA SPACER	0	0	0	0	03/04/78	A	PRIM	A	S	C	M		
1	13779	1.0000	EA TOP SPACER	0	0	0	0	03/02/77	A	PRIM	A	S	C	M		
1	13806	3.0000	EA SPACER UPPER 1IN C	0	0	0	0	02/09/78	A	PRIM	A	S	C	M		
1	13817	1.0000	EA SPACER 5/8 UPPER	0	0	0	0	02/09/78	A	PRIM	A	S	C	M		
1	13927	3.0000	EA 1 SPACER LOWER	0	0	0	0	02/12/78	A	PRIM	A	S	C	M		
1	13928	1.0000	EA SPACER 5/8 LOWER	0	0	0	0	02/12/78	A	PRIM	A	S	C	M		
1	14116	1.0000	EA UPR CRMP ROLL SHFT	0	0	0	0	03/03/81	A	PRIM	A	S	C	M		
1	14412	1.0000	EA BOTTOM CURLER GEAR	0	0	0	0	02/03/81	A	PRIM	A	S	C	M		
1	14413	1.0000	EA UPPER CURLER GEAR	0	0	0	0	01/03/81	A	PRIM	A	S	C	M		
1	14058	1.0000	EA TOP CRIMP ROLL	0	0	0	0	08/07/80	A	PRIM	A	S	C	M		
1	16116	1.0000	EA CRMP ROLL	0	0	0	0	03/08/80	A	PRIM	A	S	C	M		
1	16127	1.0000	EA CRMP ROLL	0	0	0	0	04/11/80	A	PRIM	A	S	C	M		
1	16128	1.0000	EA CRMP ROLL	0	0	0	0	02/08/80	A	PRIM	A	S	C	M		
1	16141	1.0000	EA CRMP ROLL	0	0	0	0	02/08/80	A	PRIM	A	S	C	M		
1	19555	1.0000	EA LWR CRMP RLL SHFT	0	0	0	0	02/08/80	A	PRIM	A	S	C	M		
1	26032	1.0000	EA SIDE PLATE	0	0	0	0	05/12/80	A	PRIM	A	S	C	M		
1	26038	2.0000	EA PILLOW BLOCK	0	0	0	0	05/07/80	A	PRIM	A	S	C	M		
1	26821	1.0000	EA CRMP BSE PLT	0	0	0	0	04/08/80	A	PRIM	A	S	C	M		
1	40111	1.0000	EA GD SHOE MACH	0	0	0	0	01/08/80	A	PRIM	A	S	C	M		
1	42860	1.0000	EA SIDE PLT	0	0	0	0	03/03/82	A	PRIM	A	S	C	M		
1	52810	2.0000	EA MTR ADJ BOLT ASY	0	0	0	0	03/10/84	A	PRIM	A	S	C	M		
1	52856	1.0000	EA LDR ARM ROTO-NICH	0	0	0	0	04/10/84	A	PRIM	A	S	C	M		
1	57537	1.0000	EA LDR ARM ROTO-NICH	0	0	0	0	04/10/84	A	PRIM	A	S	C	M		
1	58013	2.0000	EA CRMP ASSY	0	0	0	0	08/07/80	A	PRIM	A	S	C	M		
1	60014	2.0000	EA 3/8-16X1 1/2 HHCS	0	0	0	0	02/02/78	A	PRIM	A	S	C	M		
1	60392	4.0000	EA 3/8-16X1 1/2 SHCS NYL	0	0	0	0	02/02/78	A	PRIM	A	S	C	M		
1	60394	2.0000	EA 3/8-16X3/4 SHCS NYL	0	0	0	0	02/02/78	A	PRIM	A	S	C	M		
1	60395	2.0000	EA 5/16-18X1-1/4 SHCS	0	0	0	0	02/02/78	A	PRIM	A	S	C	M		
1	61473	2.0000	EA 3/8-16 WING NUT	0	0	0	0	02/02/78	A	PRIM	A	S	C	M		
1	62340	32.0000	EA 3/8 BLVL USHR	0	0	0	0	08/11/83	A	PRIM	A	S	C	M		
1	62363	2.0000	EA 3/8 LCK USHR	0	0	0	0	07/28/83	A	PRIM	A	S	C	M		
1	62401	1.0000	EA 15 WDRF KEY	0	0	0	0	08/11/83	A	PRIM	A	S	C	M		
1	62402	1.0000	EA 15 WDRF KEY	0	0	0	0	07/28/83	A	PRIM	A	S	C	M		
1	62449	1.0000	EA 1/4 SQ X 6 LG KEY	0	0	0	0	02/21/78	A	PRIM	A	S	C	M		
1	62450	1.0000	EA 3/16 SQ KEY	0	0	0	0	02/21/78	A	PRIM	A	S	C	M		
1	62518	3.0000	EA 5/16-98 RET RING	0	0	0	0	11/19/82	A	PRIM	A	S	C	M		
1	62526	2.0000	EA RET RING 5/16-75	0	0	0	0	11/19/82	A	PRIM	A	S	C	M		
1	62611	4.0000	EA 1/4X1/2 DWL	0	0	0	0	11/19/82	A	PRIM	A	S	C	M		
1	66010	2.0000	EA B108 TORR BRG	0	0	0	0	02/17/78	A	PRIM	A	S	C	M		
1	66030	2.0000	EA B168 O.H. TORR BRG	0	0	0	0	02/17/78	A	PRIM	A	S	C	M		
1	66060	2.0000	EA B1612 TORR BRG	0	0	0	0	02/17/78	A	PRIM	A	S	C	M		
1	66100	2.0000	EA B1612 TORR BRG	0	0	0	0	02/17/78	A	PRIM	A	S	C	M		
1	66160	2.0000	EA BEARING OILITE #TT1102-1	0	0	0	0	02/17/78	A	PRIM	A	S	C	M		
1	66333	2.0000	EA TRB 1220 THRS RC	0	0	0	0	05/25/82	A	PRIM	A	S	C	M		
1	66354	1.0000	EA TRB 1625 THRS RC	0	0	0	0	05/25/82	A	PRIM	A	S	C	M		
1	66420	6.0000	EA TT1205 THRUST BRG	0	0	0	0	05/25/82	A	PRIM	A	S	C	M		
1	66421	1.0000	EA TT1502 THRUST BRG	0	0	0	0	05/25/82	A	PRIM	A	S	C	M		
1	66425	2.0000	EA TT1709-1THRUST BRG	0	0	0	0	05/25/82	A	PRIM	A	S	C	M		
1	66430	3.0000	EA TT1502-2THRUST BRG	0	0	0	0	05/25/82	A	PRIM	A	S	C	M		

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Eng Rls: Rev: 00 (Contin)
Date: 08/26/80 Size: Route:

	S	PRI	S	C	P	
	I	ROUTE	ITM	T	T /	COMM
	Z	NUM	STS	K	L H	CODE
OPER	SA	FCTR TYP	RLS	REV	DATE	
	SCRAP	B/M	--ENGR	RELEASE----		

66571	1.0000	PC DU 14 GAR.	BRG.	0	0	A	00	11/06/84	P	A	S	C	P
66885	2.0000	IN TT-1002	THRUST BRG	0	0	A	00	02/17/89	P	A	S	C	P
72217	1.0000	EA 40E22	3/4B SPKRT	0	0	A	00	08/07/80		A	S	C	P

Run Date: 13-APR-1994 Time: 07:45 AM B/M EXPLOSION N-PORT: SINGLE LEVEL
Parent Item: 960215 Prod Cat: CA User Def: The Lockformer Company
12IN CURLER Stk:S Ctl:C P/M:M Comm: Eng Rls: User: PLB Page 00002
Date: 09/02/80 Size: Rev: 00 Route:

LEV	COMPONENT ITEM NUMBER	QTY PER UM	DESCRIPTION	OPER	SCRAP B/M SQ FCTR TYP RLS	ENGGR REV	RELEASE DATE	S I	PRI NUM	ITM STS	CON L M CODE
1	13379	1.0000	EA TOP SPACER	0	0	0	03/02/78	A	PRIM	A	S C M
1	13381	2.0000	EA SPACER-UPPER-	0	0	0	02/02/78	A	PRIM	A	S C M
1	13806	2.0000	EA SPACER UPPER 1IN C	0	0	0	02/09/14/78	A	PRIM	A	S C M
1	13817	1.0000	EA SPACER 5/8 UPPER	0	0	0	02/09/20/78	A	PRIM	A	S C M
1	13910	1.0000	EA SPACER	0	0	0	01/11/19/80	B	PRIM	A	S C M
1	13911	1.0000	EA UPR CRMP RLL SHAFT	0	0	0	04/09/02/80	B	PRIM	A	S C M
1	13912	1.0000	EA LWR CRMP RLL SHAFT	0	0	0	05/09/02/80	B	PRIM	A	S C M
1	13914	1.0000	EA SPACER-UPPER	0	0	0	02/09/02/80	B	PRIM	A	S C M
1	13927	2.0000	EA 1 SPACER LOWER	0	0	0	02/12/12/80	A	PRIM	A	S C M
1	13928	1.0000	EA SPACER 5/8 LOWER	0	0	0	02/12/12/80	A	PRIM	A	S C M
1	13929	1.0000	EA SPACER LOWER	0	0	0	02/12/12/80	A	PRIM	A	S C M
1	13930	1.0000	EA SPACER LOWER	0	0	0	02/12/12/80	A	PRIM	A	S C M
1	14412	1.0000	EA BOTTOM CURLER GEAR	0	0	0	02/12/12/80	A	PRIM	A	S C M
1	14413	1.0000	EA UPPER CURLER GEAR	0	0	0	02/03/06/81	A	PRIM	A	S C M
1	15756	2.0000	IN UPPER SPACER	0	0	0	02/02/17/89	A	PRIM	A	S C M
1	15757	2.0000	IN UPPER SPACER	0	0	0	02/02/17/89	A	PRIM	A	S C M
1	15758	2.0000	IN LOWER SPACER	0	0	0	02/02/17/89	A	PRIM	A	S C M
1	15759	2.0000	IN LOWER SPACER	0	0	0	02/02/17/89	A	PRIM	A	S C M
1	16058	1.0000	EA TOP CRIMP ROLL	0	0	0	08/07/31/78	A	PRIM	A	S C M
1	16127	1.0000	EA TP CRIMP ROLL	0	0	0	04/11/04/80	A	PRIM	A	S C M
1	16128	1.0000	EA TP CRIMP ROLL	0	0	0	02/08/07/80	A	PRIM	A	S C M
1	16129	1.0000	EA CURLER ROLL	0	0	0	03/09/02/80	B	PRIM	A	S C M
1	16141	1.0000	EA CURLER ROLL	0	0	0	08/02/16/82	B	PRIM	A	S C M
1	16189	2.0000	IN TOP BEAD ROLL	0	0	0	00/02/17/89	A	PRIM	A	S C M
1	16190	2.0000	IN TOP BEAD ROLL	0	0	0	00/02/17/89	A	PRIM	A	S C M
1	16200	1.0000	PC BEAD ROLL	0	0	0	00/09/19/89	A	PRIM	A	S C M
1	16201	1.0000	PC BEAD ROLL	0	0	0	00/09/19/89	A	PRIM	A	S C M
1	22781	1.0000	EA CURLER SHOE MTG-SP	0	0	0	01/09/19/89	A	PRIM	A	S C M
1	24539	1.0000	EA CURLER SHOE MTG-SP	0	0	0	00/09/19/89	A	PRIM	A	S C M
1	26032	1.0000	EA SIDE PLATE	0	0	0	07/11/14/80	B	PRIM	A	S C M
1	26038	2.0000	EA PILLOW BLOCK	0	0	0	05/07/26/78	A	PRIM	A	S C M
1	27030	1.0000	EA UPR SHAFT ALIGNER	0	0	0	03/08/31/81	A	PRIM	A	S C M
1	34602	1.0000	EA UPR SHAFT ALIGNER	0	0	0	03/08/31/81	A	PRIM	A	S C M
1	42860	1.0000	EA CURLER SHOE	0	0	0	02/09/15/89	B	PRIM	A	S C M
1	52610	2.0000	EA SIDE PLT	0	0	0	01/08/07/80	B	PRIM	A	S C M
1	54107	1.0000	EA MTR ADJ BOLT ASSY	0	0	0	03/03/26/82	A	PRIM	A	S C M
1	55253	1.0000	EA CURLER GUARD WLDT	0	0	0	00/09/19/89	C	PRIM	A	S C M
1	57556	1.0000	EA IDLR ARM ROTO-NICH	0	0	0	03/10/09/84	A	PRIM	A	S C M
1	58120	1.0000	EA IDLR ARM ROTO-NICH	0	0	0	04/10/09/84	A	PRIM	A	S C M
1	60005	2.0000	EA 6" COLLAR SET-UP	0	0	0	00/11/17/83	C	PRIM	A	S C M
1	60014	2.0000	EA 3/8-16X1 1/2 HHCS	0	0	0	00/02/02/78	A	PRIM	A	S C M
1	60047	2.0000	EA 5/16-18X3/4 HHCS	0	0	0	00/09/20/88	A	PRIM	A	S C M
1	60392	4.0000	EA 5/16-18X1 1/4 HHCS	0	0	0	00/02/21/78	A	PRIM	A	S C M
1	60394	4.0000	EA 3/8X2-1/2 SHCS NYL	0	0	0	00/02/21/78	A	PRIM	A	S C M
1	61473	2.0000	EA 3/8-16X3/4SHCS NYL	0	0	0	00/02/17/78	A	PRIM	A	S C M
1	62340	40.0000	EA 3/8-16 VING NUT	0	0	0	00/02/17/78	A	PRIM	A	S C M
1	62340	40.0000	EA 3/8 BLVL WSHR	0	0	0	00/02/17/78	A	PRIM	A	S C M

QLP

Run Date: 13-APR-1994 Time: 07:45 AM B/M EXPLOSION, ORT: SINGLE LEVEL User: PLB Page 00003
Parent Item: 960215 Prod Cat: CA Use Def: The Lockformer Company Stk: S Ctl: C P/M: M Comm: Eng Rls: 00 Rev: 00 (Contin)
12IN CURLER Size: Route:

LEV	COMPONENT ITEM NUMBER	QTY PER UM	DESCRIPTION	OPER	SQ	SCRAP B/M FCTR TYP	ENG REV	DATE	PRI Z	ROUTE NUM	ITEM STS	COM L H CODE
1	62362	6.0000	EA 5/16 LCK USHR	0	0	-0 A	00	09/20/88	P	A	S C P	
1	62363	2.0000	EA 3/8 LCK USHR	0	0	-0 A	00	08/11/88	-	A	S C P	
1	62370	2.0000	EA 1/4 LCK WASHER	0	0	-0 A	00	05/12/81	P	A	S C P	
1	62401	2.0000	PC 9 WDRF KEY	0	0	-0 A	00	07/28/88	P	A	S C P	
1	62402	1.0000	EA 15 WDRF KEY	0	0	-0 A	00			A	S C P	
1	62421	1.0000	EA 3/16SQ X 7/8 KEY	0	0	-0 A	00	02/21/78		A	S C P	
1	62449	2.0000	EA 1/4 SQ X 6 LG KEY	0	0	-0 A	00	02/21/78		A	S C P	
1	62450	3.0000	EA 5/16 SQ KEY	0	0	-0 A	00	02/21/78		A	S C P	
1	62518	2.0000	EA RET RG 5160-75	0	0	-0 A	00	11/19/82		A	S C P	
1	62526	4.0000	EA 1/4X1/2 DNL	0	0	-0 A	00			A	S C P	
1	62811	2.0000	EA 3/8 X 1 ROLL PIN	0	0	-0 A	00	03/15/84	P	A	S C P	
1	62893	4.0000	EA 1/8-27X3/8 SHP	0	0	-0 A	00			A	S C P	
1	65201	2.0000	EA B108 TORR BRG	0	0	-0 A	00			A	S C P	
1	66010	2.0000	EA B168 O.H. TORR BRG	0	0	-0 A	00			A	S C P	
1	66030	3.0000	EA B12120H TORR BRG	0	0	-0 A	00			A	S C P	
1	66061	3.0000	EA B16120H TORR BRG	0	0	-0 A	00	02/17/78		A	S C P	
1	66101	2.0000	EA BEARING, OILITE #TT1102-1	0	0	-0 A	00			A	S C P	
1	66160	2.0000	EA TRB 1625 THRS RC	0	0	-0 A	00	05/25/82		A	S C P	
1	66333	2.0000	EA TRB 1625 THRS RC	0	0	-0 A	00			A	S C P	
1	66354	2.0000	EA TT1205 THRS BRG	0	0	-0 A	00			A	S C P	
1	66420	2.0000	EA TT1709 THRS BRG	0	0	-0 A	00			A	S C P	
1	66442	2.0000	EA TT1502-2 THRS BRG	0	0	-0 A	00			A	S C P	
1	66450	4.0000	PC DU 14 GAR. BRG.	0	0	-0 A	00	11/06/84	P	A	S C P	
1	66571	2.0000	EA 1640 GRS FTG	0	0	-0 A	00			A	S C P	
1	66640	4.0000	EA 1/4-28 GREASER FIT	0	0	-0 A	00	10/31/83		A	S C P	
1	72217	1.0000	EA 40B22 3/4B SFKRT	0	0	-0 A	00	08/07/80		A	S C P	
1	AA62001	6.0000	EA FLT WASHER. 31X.75	0	0	-0 A	00	10/12/93	P	A	S C P	