TECHNICAL MANUAL HEADQUARTERS

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS LIST FOR SHEARING MACHINE MODEL 10-U-8 (NSN 3445-00-277-9100)

HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1983

WARNINGS

OPERATE ONLY WITH ALL SAFETY DEVICES, SHEILDS AND COVERS IN PLACES-SHUT OFF POWER TO MAKE ADJUSTMENTS.

SHUT OFF POWER BEFORE OILING BLADES.

WEAR GLOVES WHEN HANDLING BLADES AND USE CARE TO PREVENT DAMAGE TO BLADES.

TECNICAL MANUAL

HEADQUARTERS
DEPARTMENT OF THE ARMY

NO. 9-3445-106-14&P

WASHINGTON, DC, 18 April 1983

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REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 20282, located in back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSARMASSE, Rock Island, IL 61299. A reply will be furnished to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this equipment is issued.

Manufactured by: Roper Whitney Inc.
2833 Huffman Blvd.
Rockford, IL 61101
Procured under Contract No. DAAA09-79-C-4885

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 3103, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS

NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

1 - Manufacturer's Federal Supply Code Number. 65434

2 - Manufacturer's Part Number exactly as listed herein.

3 - Nomenclature exactly as listed herein, including dimensions, if necessary.

4 - Manufacturer's Model Number. 10-U-8

5 - Manufacturer's Serial Number (End Item).

6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.

7 - If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50. Complete Form as Follows:

(a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number - 65434 followed by a colon and manufacturer's Part Number for the repair part.

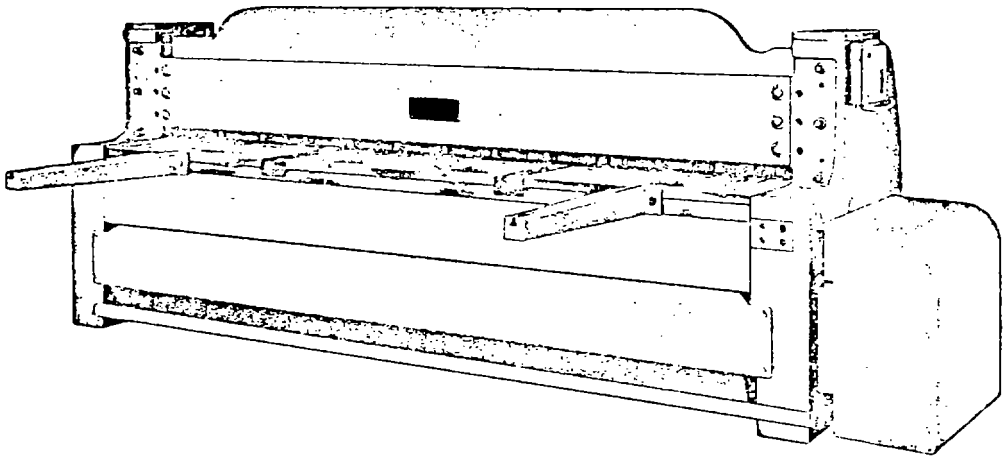
(b) Complete Remarks field as follows:

Noun:	(nomenclature of repair part)
For:	NSN: 3445-00-277-9100
Manufacturer:	Roper Whitney, Inc.
	2833 Huffman Blvd
Model: 10-U-8	Rockford, IL 61101
Serial: (of end item)	

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

10-U- 8

PRECISION SHEAR



SPECIFICATIONS

Capacity - Mild Steel	10 Gauge
- Stainless Steel	12 Gauge
Nominal Cutting Length	9.b Inches
Motor - 1800 RPM	7-1/2 HP
Back Gauge Range	24 Inches
Front Gauge Range	51 Inches
Speed	60 SPM
Weight (approximately)	14, 500 Lbs.

Table of Contents

Illustrations

SET UP AND OPERATING INSTRUCTIONS

#10-U- 8 PRECISION POWER SQUARING

SHEAR

SECTION 1

I. This shear has been inspected and tested at the factory to cut full length stock of capacity gauge. DO NOT EXCEED SHEARING CAPACITY LIMITS ON ANY LENGTH OF STOCK!

II. To set up: Remove shear from skids and place on level, solid foundation. Remove front and rear panels and gear housing. Level the shear by means of shims at "J" Fig. 3 as necessary. Bolt shear to foundation- recheck level. Place shims or spacers under the center bearing at "I" Fig. 2 to support the center bearing and main shaft. It is important that the tie brace be firmly bolted to the foundation and that there be no sag or hump in main shaft.

III. Shear is shipped with blades out of adjustment to prevent damage in transit. Upper set screws "E" are used to move bed (to which lower blade is fixed,) 'in', lower set screws "D" are used to move bed 'cut'. Blade clearance is measured at the cutting edge between the upper and lower blades at point 'I" Figure 2.

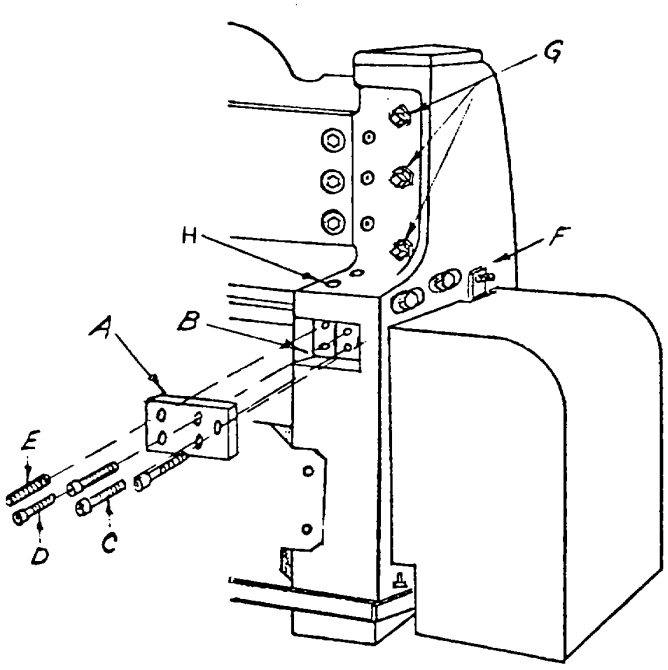


Figure 1

IV. It is extremely important that this measurement be made only at the exact point at which the blades cross! Blade clearance for 10 gauge mild steel is .005 at each end, decreasing to .004 at the center. Stainless steel requires a closer setting of blade clearance - .002 at the ends and .001 at the center. It will be necessary to turn the shear through a complete cycle by hand before applying power in order to check blade clearances. To do this, rotate the flywheel BY HAND in the direction of the arrow on the flywheel, with the treadle depressed to engage clutch. Blades must not Touch! Check clearances at every 12 inches across full length of blades. Check only at point of passing between upper and lower blades. Compensation for "bow-in" or "bow-out" of the upper blade is obtained by adjusting the tie rod on the back of the crosshead. This adjustment can be made at each end and in the middle.

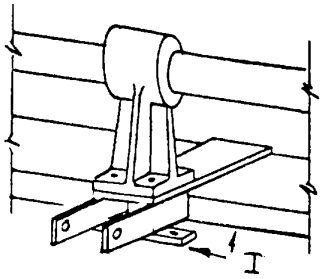


Figure 2

NOTE: This critical adjust- adjustment has been correctly made at the factory and further adjustment should be avoided unless absolutely necessary. When blades are set correctly, securely tighten all bed bolts, push down screws, and replace front panel and gear housing before applying power to shear.

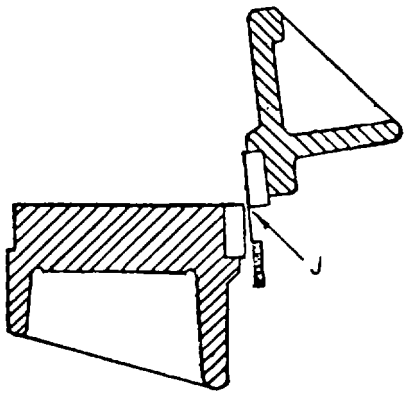


Figure 3

V. Electrical connections must be made by a qualified electrician. To make electrical connections, remove rear apron from shear. Make sure available voltage is proper for motor as indicated on motor nameplate. When testing motor, check flywheel rotation as shown by arrow on flywheel. Check drive belts and tighten if necessary by turning wing nut on motor base. NOTE: Belts should be just tight enough to drive shear with no slip. Over tension on belts reduces their life.

VI.

Standard equipment includes a one shot type lubrication system. The reservoir for this is located on the right hand leg of the Shear. Check to be sure there is an ample supply of oil (see Lubrication Plate on Shear) in the reservoir. The operating handle is located on top of the reservoir pull handle to actuate the lubrication system. This should be done twice a day when using Shear. Grease fittings are provided on each back gauge holder and should be serviced daily with a chassis lubricant MILG10924. Four grease fittings for bearings on flywheel shaft and intermediate shaft are located on R.H. housing at gear cover. These four fittings should be serviced once every three months. At the same interval, you should lubricate the face of the gear teeth located on the right hand end of the shear under the gear guard cover. Oil or grease counterbalance spring guide rods at top of cross head under leg caps.

WARNING: OPERATE ONLY WITH ALL SAFETY DEVICES, SHIELDS AND COVERS IN PLACE - SHUT OFF POWER TO MAKE ADJUSTMENTS.

VIII. OPERATING PROCEDURE

A. Move Clutch cycle control lever "F", Fig. 7, to correct position "Back" position for single cycle operation or "Forward" position for continuous operation.

B. Set back gauge to desired width of cut.

C. Turn on power and allow time f6r flywheel to reach normal speed.

D. Position sheet to insure a square cut, use care to locate sheet metal positively against back gauge and side gauge. Sheets narrower than full width of Shear should be cut on right side of Shear.

E. Depress treadle to shear stock. During long cutting runs, an occasional wiping of the blades with an oil soaked rag will serve to reduce wear and help prevent "buildup" when shearing aluminum, stainless or galvanized. WARNING: Shut off power before oiling blades.

Brake, Fig. 4, is. located on left hand side of the main shaft and is accessible with the front panel removed. Brake should be tight enough to insure cross head stopping

at top of stroke and to prevent "Clicking" of clutch pin. Left hand end of main shaft and leg are marked (see Fig. 5) to indicate correct position of main shaft when crosshead is at top of stroke. Misalignment of these marks indicate that brake adjustment is required. If the mark on the shaft stops to the left of the mark on the leg, loosening of the brake is indicated. If the mark on the shaft stops to the right of the mark on the leq, tightening is indicated. **CAUTION: Brake will overheat if adjustment is too tight. Brake band must be kept dry and free of oil, grease, etc. Brake should be checked occasionally to maintain correct adjustment.**

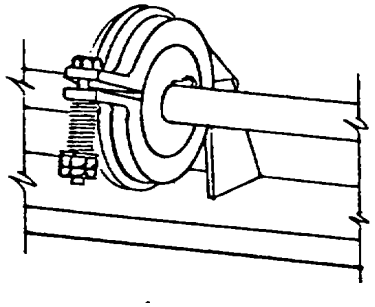


Figure 4

IX. Gibs are located inside of lqgs at top to provide adjustable bearing surfaces for crosshead ways and are adjusted by means of 3 set screws "G" Fig. 1 with locking nuts. Adjustment too loose will prevent accurate shearing of material. Adjustment too tight will cause crosshead to "freeze". For correct adjustment, bring all set screws "G" to snug tight, set clearance at .002" at top and bottom of crosshead bearing with feeler gauge.

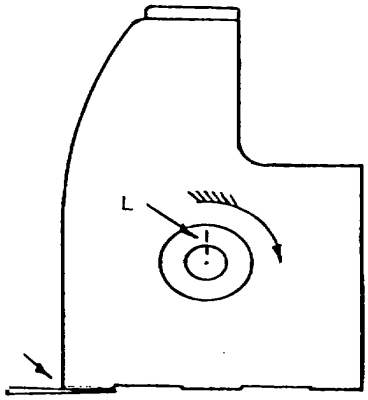


Figure 5

X. Blades are four edge type. Turn end for end-or rotate to provide when all four cutting edges have been used. To rotate blades, turn power off. To remove upper blade first, dismount holddown (See holddown instruction sheet). **CAUTION Use blocks of wood between upper blade and bedblade (one piece at each end) to prevent blade from dropping**. Remove all blade bolts (workfrom ends to center.) Rotate blade or turn end for end to get new edge into cutting position. **WARNING:Wear gloves when handling blades and use care to prevent damage to blades.** Avoid contact with all other materials except wood when blades are removed from shear. With new cutting

edge in position, replace all bolts, (work from center out to ends), nuts and washers. Use woodpry bar to seat top of blade tight to crosshead. Tighten all nuts on blade bolts very securely, working from center out to ends. To remove lower blade, set back gauge to extreme" out" position. Remove blade bolts and set new cutting edge into position. **WARNING :Wear Gloves!** Shims are used under lower blade to position cutting edge exactly flush with surface of bed. After regrinding blades, shims must be added. Use wood pry bar to seat blade to shims on bed. Tighten nuts on all blade bolts very securely.

XI. TREADLE ADJUSTMENT (Refer to Figures 6 and 7) The treadle actuates the Shear through the movement of the Connecting Link in Clutch (Part G Fig.12) Set screws (89 R.H. Side) and (94 'L.H. Side) limit treadle stroke. If clutch does not engage when treadle is depressed, adjust set screws to allow treadle to move upward. If clutch "clicks" when treadle is depressed, (indicating only partial release of clutch pin), adjust to allow treadle to move downward.

XII. For replacing holddown see holddown instructions. Before applying power check blade clearance (see para. I). Turn through complete stroke by hand to be sure blades do not lap.

Adherence to these instructions will provide continuous troublefree service. The shear is built to stand hard usage over extended periods of time. If replacement parts are ever required, contact your dealer or the factory and specify name of part required as well as the model or serial given on the Shear nameplate.

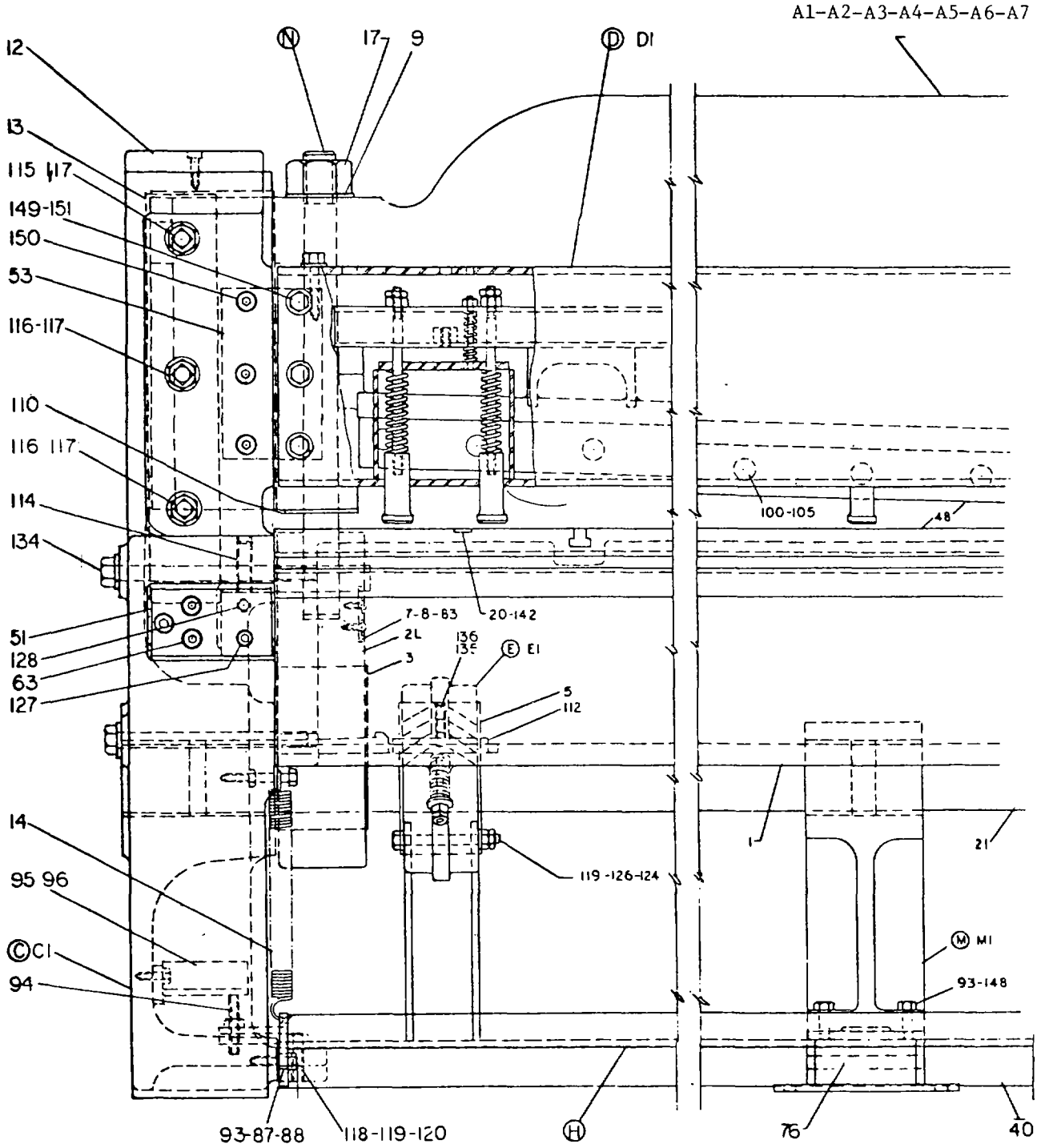


Figure 6

Figure 6

PARTS IDENTIFICATION CHART
REFER TO SECTIONS 4 AND 5 FOR PARTS LIST

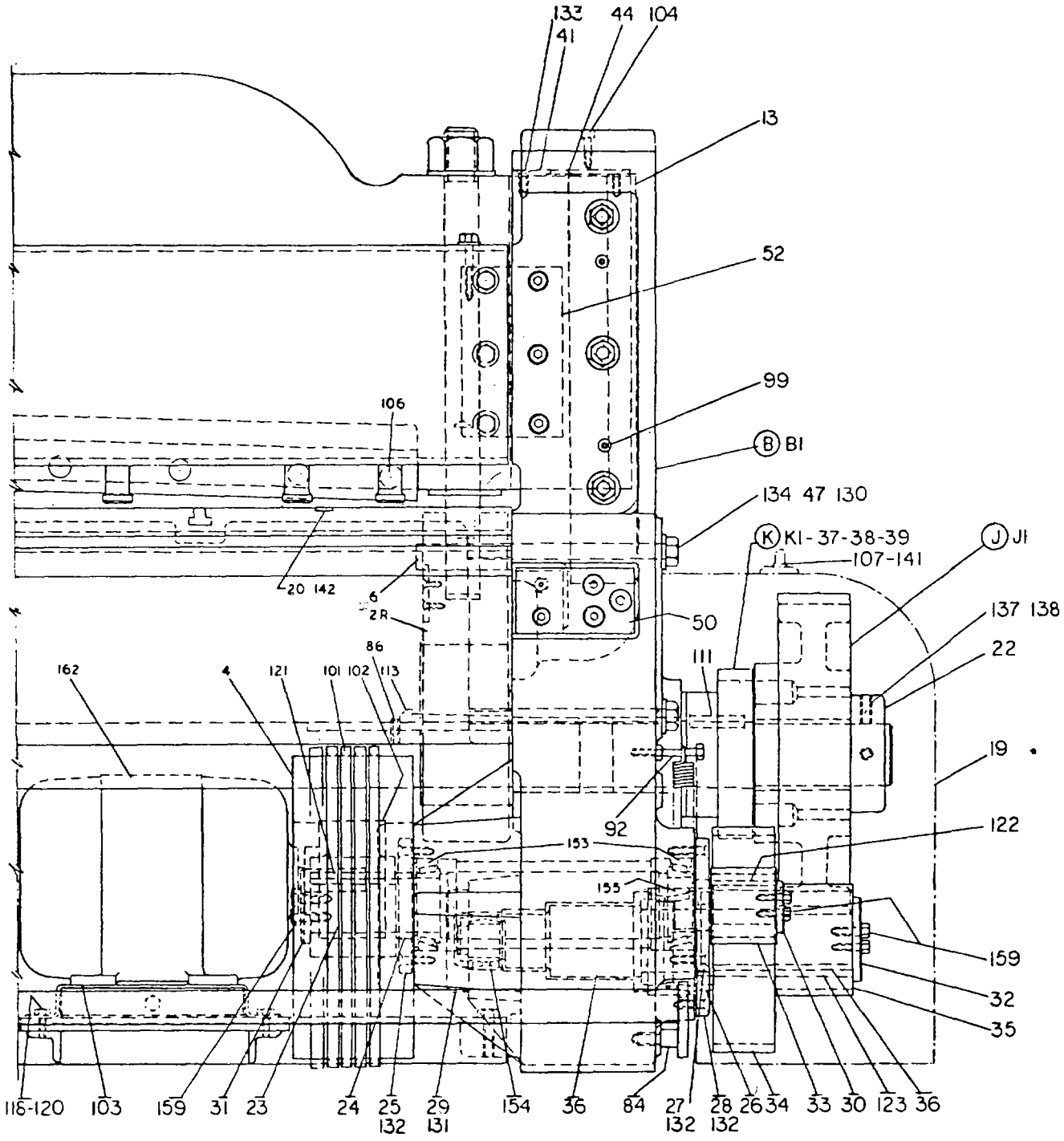


Figure 6 (Cont)

PARTS IDENTIFICATION CHART
REFER TO SECTIONS 4 AND 5 FOR PARTS LIST

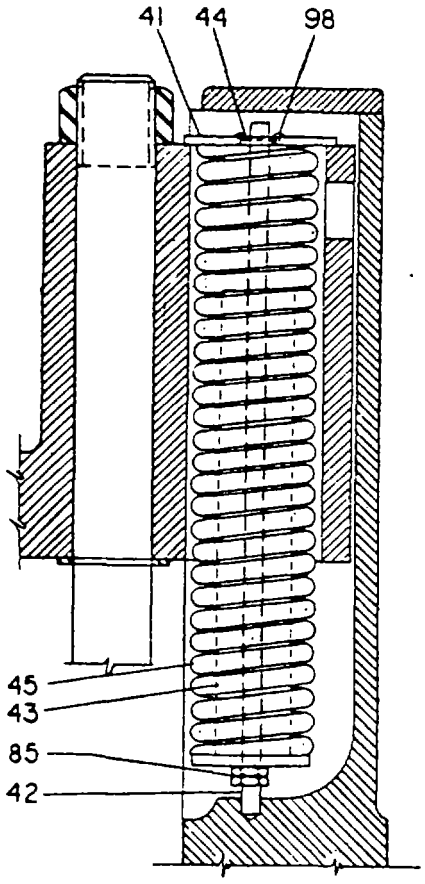


Figure 7

PARTS IDENTIFICATICN CHART
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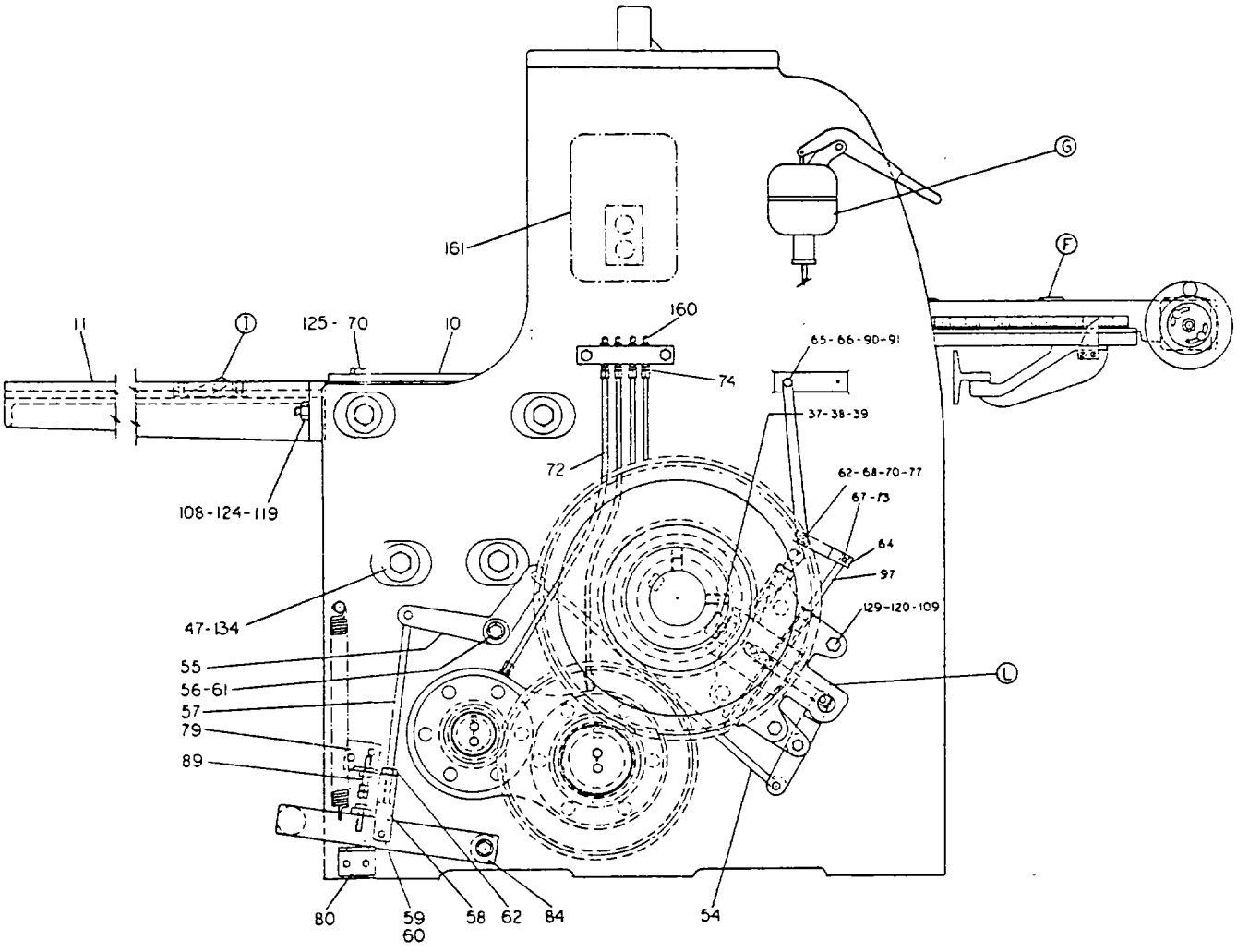


Figure 7 (cont)

PARTS IDENTIFICATION CHART
REFER TO SECTIONS 4 AND 5 FOR PARTS LIST

SECTION 2

HOLDDOWN INSTRUCTIONS

READ CAREFULLY BEFORE MAKING ANY ADJUSTMENTS

Refer to Figure 8 - HOLDDOWN ADJUSTMENT

Key

A. Six holddown mounting bolts (Hex cap screws)

B. Holddown pressure adjustment (two hex head cap screws)

C. Holddown removal screws (Six 5/8" x 6" Hex head cap screws to be inserted only when removing holddown.)

I. GENERAL INSTRUCTIONS:

The holddown has been correctly installed and adjusted at the factory. Further adjustment is unnecessary and should be avoided.

Should it become necessary to remove or adjust the holddown, read carefully the complete instructions for removal, adjustment and replacement before proceeding.

II. HOLDDOWN REMOVAL:

a. Shut off power with crosshead at top of stroke.

b. Insert removal screws (C) in holes. Bring to snug tight, then tighten two more complete turns. (This relieves spring pressure on crosshead).

c. Remove two holddown pressure screws (B).

d. Remove six holddown mounting bolts (A).

e. Force holddown away from crosshead and remove from shear. CAUTION: Place wood strips on bed to protect surface.

f. Lubricate all springs and holddown plunger feet bearings before replacing.

III. HOLDDOWN REPLACEMENT:

a. Power must be off with crosshead at top of stroke.

b. Remount holddown on shear and run up six mounting bolts (A) to snug position.

c. Replace two holddown pressure adjustment screws (B).

d. Take out removal screws (C).

e. Set holddown at "Normal" position with screws (B).

f. Tighten 6 mounting bolts (A) securely and holddown is ready for operation.

IV. HOLDDOWN PRESSURE ADJUSTMENT:

Holddown and legs are marked at each end to indicate the correct setting for normal holddown pressure. This is maximum holddown pressure and cannot be increased. Holddown pressure can be decreased by means of adjusting screws (B).

a. Power must be off with crosshead at top of stroke.

b. Position holddown with adjusting screws (B) at "Normal"

c. Loosen mounting bolts (A) one full turn.

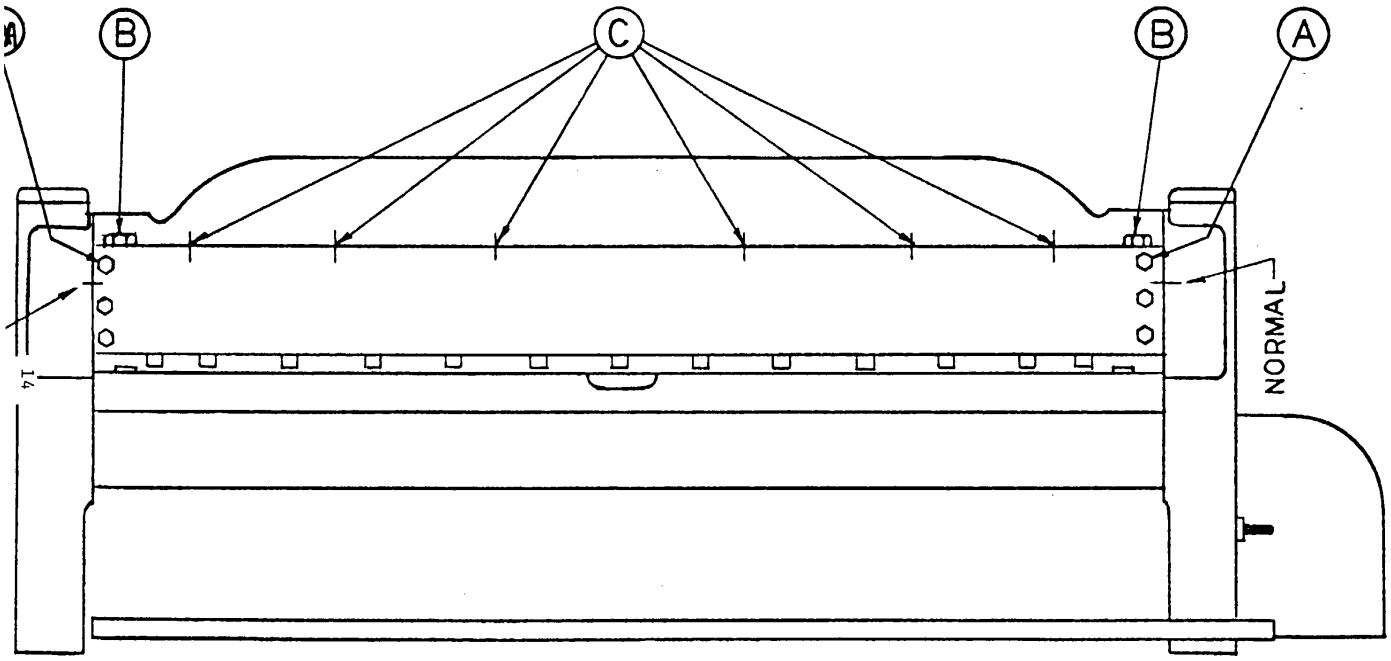
d. Back off adjusting screws (B) within range of holddown beam movement to obtain decreased pressure.

e. This adjustment will not exceed 3/8 inches. It is essential that an equal adjustment be made at each end when adjustment is completed. Holddown pads must engage sheet before blades start to cut.

f. Tighten mounting bolts (A) securely.

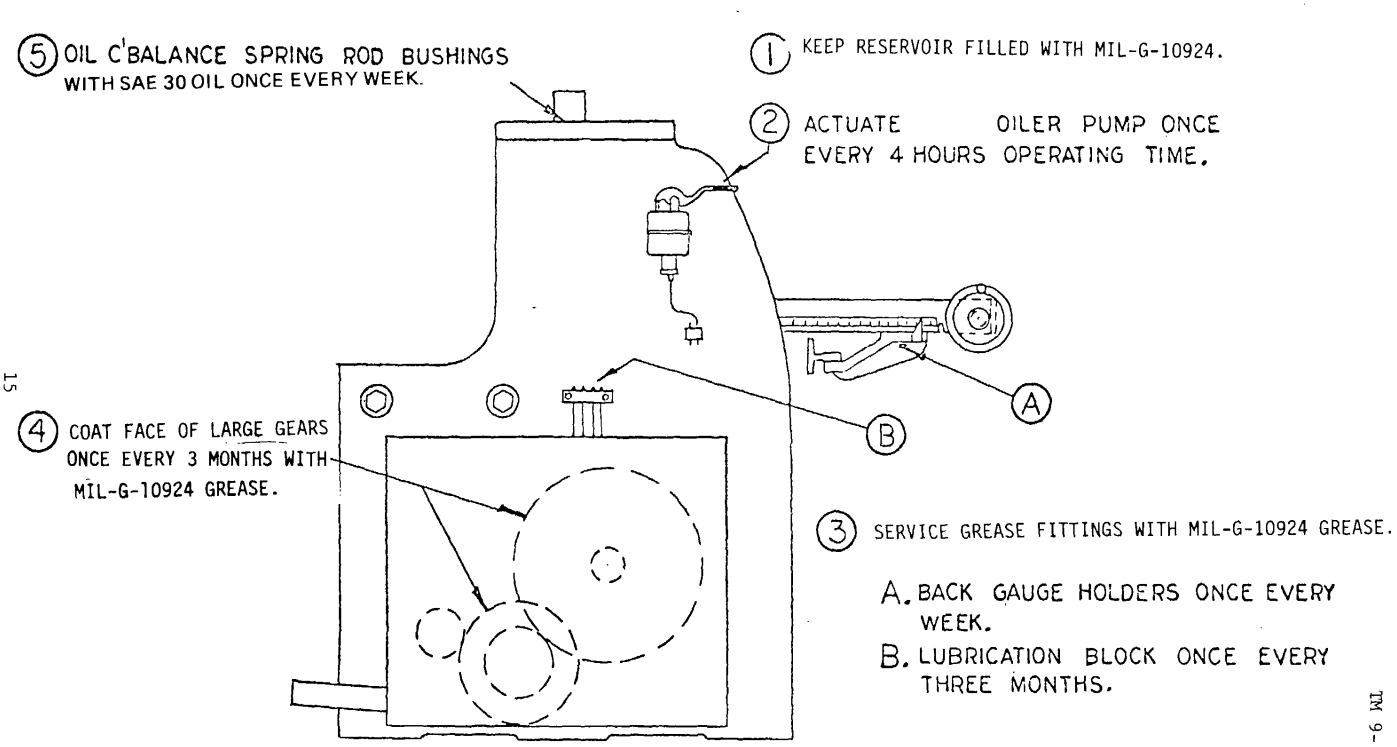
g. Safety shieldis adjustable and must be repositioned whenever holddown pressure adjustment is changed from its original location. Screws in front of finger guard are movable in slotted holes to allow correct positioning of guard.

h. Holddown is ready for operation.



IOUIO HOLDDOWN ADJUSTMENT

FIGURE 8



IOUIO POWER SHEAR LUBRICATION CHART

FIGURE 9

SECTION 3

B-18 and B-24 BACK GAUGE - INSTRUCTIONS

I. Set up shear as per Shear Operating Instructions.

II Loosen knurled lock screw on index plate next to handwheel. Turn handwheel until scale pointer (on R.H. bracket) reads 1" and index points to "O" on handwheel. Tighten lock screw to hold handwheel in position. Insert stock in machine, making sure it is squarely against gauge tee-bar for entire length of cut. Cut two pieces in this manner, and measure the second piece cut for width and parallelism.

IIL If piece is not parallel, loosen split collar at right hand end of connecting shaft between brackets. By turning connecting shaft, move left hand end of back gauge bar in or out as needed. Tighten split collar and take a cut. If still not parallel, repeat above.

IV. If scale and handwheel do not show true width of piece as cut, proceed as follows after parallel setting is made with handwheel at "0" and pointer at "1", cut a strip of stock and measure with a micrometer. Loosen 2 Socket Head Cap Screwsat face of handwheel, as well as lock screw in index plate. Without moving back gauge, move handwheel until proper setting as measured, is shown at index line. (Each division of the handwheel equals 1/128" or .008") When measurement and handwheel reading coincide, tighten Socket Head Cap Screws on face of handwheel. Move handwheel to reset back gauge for 1". Take another cut and check width of piece. Repeat above if necessary.

V. After width and parallel settings are made, adjust pointer by loosening screws holding it to R.H. gauge holder and sliding pointer until it is right on either a "full inch" mark of a"l/2 inch" mark on the scale with handwheel at "zero". Tighten pointer screws.

VI. Back gauge is now ready to give long accurate service. Lubricate weekly all points provided with grease fittings, with automobile chassis lubricant as well as oiling behind handwheel at frequent intervals.

B-18 AND B-24 BACK GAUGE

INDEX	PART
150	Handwheel
151	Handwheel Handle
152	Clamp
153	Cross Shaft Tube
154	Gauge Bar
155	Pointer
156	Friction Shoe
157	Lock.Screw
158	Adjusting Collar
159	Index Plate
160	Scale
161	#2 x 1/4 Long Drive Screw
162	¼/4 Std. Lock Washer
163	1/4-20 NC x 1/2 Socket Hd. Cap Screw
164	3'6 x 15/16 Key
165	3/s-16 NC Check Nut
166	(6-24 NC x 1/2 Rd. Hd. Mach Screw 1671/4-20 NC x 3/4 Soc. Hd. Cap Screw 168'/2-13 NC x 13A Hex. Hd. Cap Screw
169	.156 x 11/e Rollpin-
170	3(6 Std. Washer
171	Thrust Collar
172	#10-24 NC x 1 Soc.'Cap Screw
173	#5 x 21/2 Taper Pin
174	¼/4-20 NC x % Button Head Socket Screw
L	Complete R. H. Bracket Assembly
L1	Bracket
L2	Gauge Holder
L3	Bearing Retainer Cap
L4	Housing Cap
L5	Handwheel ShaftM22
L6	Adjusting Screw
L7	Bearing Retainer
L8	Thrust Collar
L9	Gauge Holder Gib
L10	Bearing Spacer
L11	Shoulder Screw
L12	Special Washer
L13	Gear
L14	Pinion
L15	Timken Shims
L16	Timken Bearing Cone & Cup
L17	Grease Fitting 1/8 Pipe Thd.
L18	Needle Bearing
L19	3/a-16 NC x 3/4 Soc. Hd. Cap Scr.
L20	12-24 NC x 1/2 Fil. Hd. Screw
L21	1/4-20 NC x 5/8 Soc. Hd. Cap Scr.
L22	Soc. Hd. Cap Screw .156 x 13/a Rollpin
L23	.156 x 7/8 Rollpin
L24	1/4-20 NC x 1/2 Soc. Hd. Cap Scr.
M1	Complete L. H. Brackel Assembly
M1	Bracket
M2	Gauge Holder
M3	Bearing Retainer Cap
M4	L. H. Housing Cap
M5	L. H. Gear Shaft
M6	Adjusting Screw
M7	Bearing Retainer
M8	Thrust Collar
M9	Gauge Holder Gib
M10	Bearing Spacer
M11	Shoulder Screw
M12	Special Washer
M13	Gear
M14	Pinion
M15	Timken Shims
M16	Timken Bearing Cone & Cup
M17	Grease Fitting 1/8 Pipe Thd.
M18	Needle Bearing
M19	3/8-16 NC x 7/8 Soc. Hd. Cap Screw
M20	12-24 NC x 1/2 Fil. Hd. Screw
M21	1/4-20 NC x % Soc. Hd. Cap Screw ¼/4-20 NC x 1/2 Soc. Hd. Cap Screw
M23	.156 x 13/8 Rollpin
M24	.156 x 7/8 Rollpin

When ordering replacement parts always give Model No. and Serial No. of Shear and specify length of gauge, 18 inch or 24 inch.

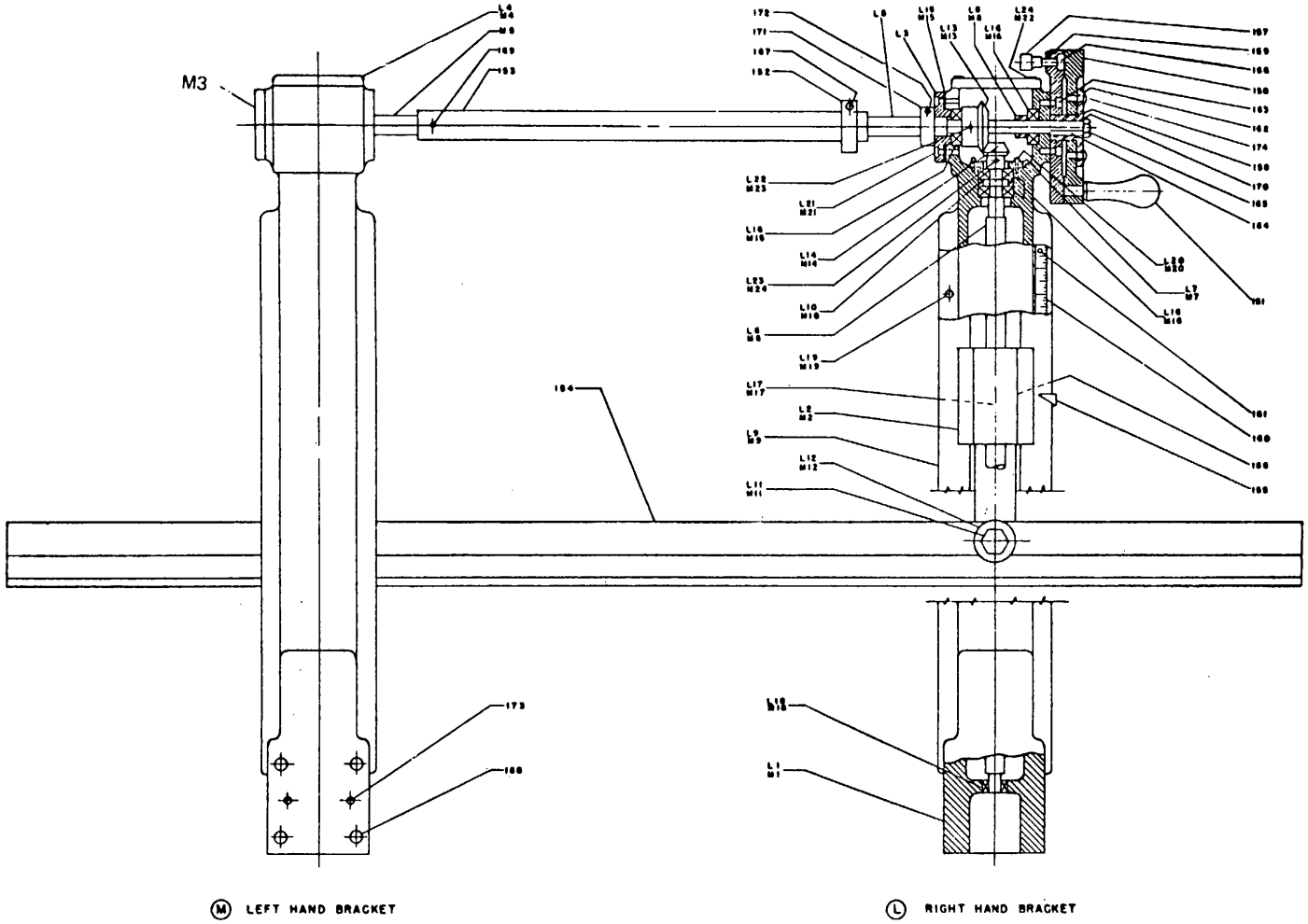


FIGURE 10.

PARTS IDENTIFICATION CHART
FOR
B-18 & B-24 BACK GAUGE

18

DISAPPEARING FRONT GAUGING STOPS:

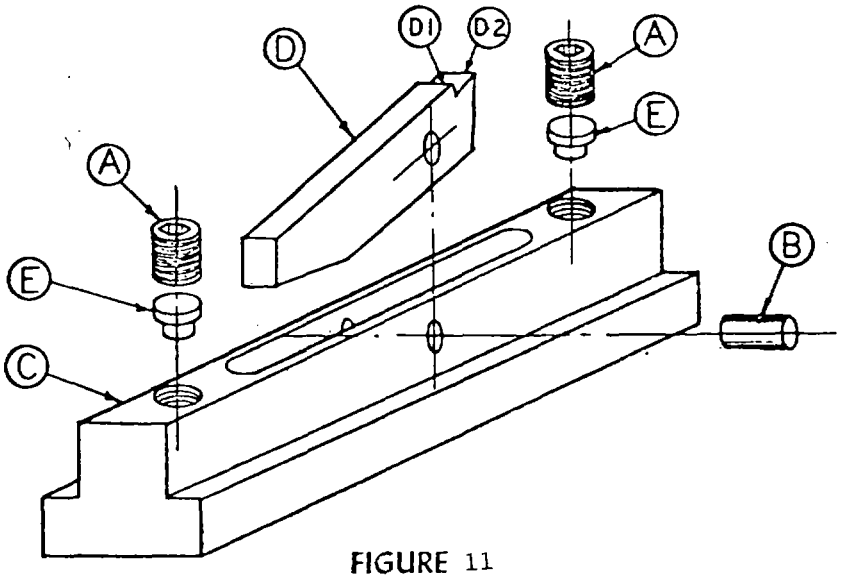


FIGURE 11

FIGURE 11

INDEX TO DRAWING:

A - Socket Set Screws
B - Pivot Pin
C - Gauge Holder
D - Disappearing Stop

D1 - Trim-cut Stop Surface
D2 - Finish-cut Stop Surface

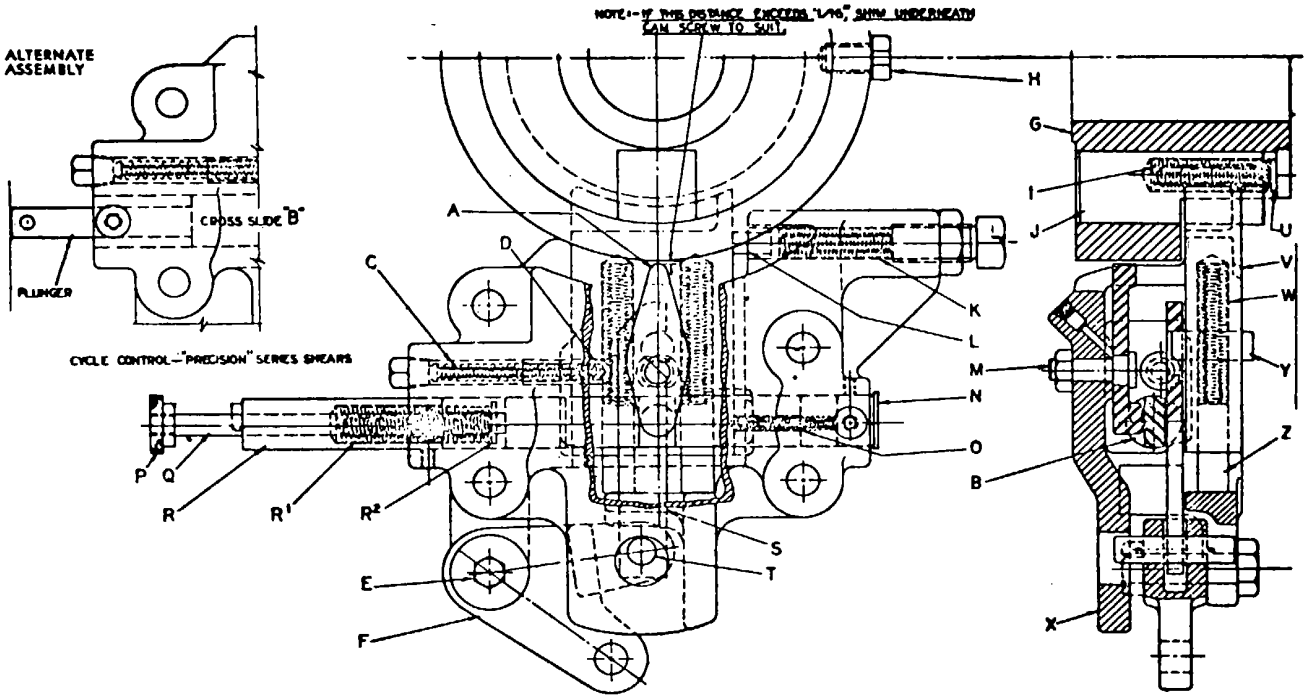
E - Brass Plug

GAUGE ADJUSTMENT:

The Disappearing Front Gauge Stops are used in lieu of a front gauge bar. The stops have two gauge surfaces, D1 and D2. D1 is used for trimming or squaring of sheets. Surface D2 is used for precise finish cuts. Distance between D1 and D2 is 1/4".

To set gauge, loosen socket set screws (A) and slide gauge in tee slot to desired position. Surface D1 will be 1/4" further from blade than desired width of finish cut. Tighten Screws (A)

SAFETY CLUTCH
Parts Diagram



CLUTCH PARTS

A – PAWL
B – CROSS SLIDE
C – CONNECTING LINK SPRING
D – CUP – CONNECTING LINK SPRING
E – SHOULDER SCREW
F – BELL CRANK
G – CLUTCH BLOCK
H – CAM SCREW
I – CLUTCH PIN SPRING
J – CLUTCH PIN
K – BACKING SPRING
L – BACKING PIN
M – PAWL PIVOT STUB
N – CROSS SLIDE SPRING PLUG
O – CROSS SLIDE SPRING
P – CYCLE ROD NUT
Q – CYCLE CONTROL ROD
R – CYCLE ROD BEARING
R¹ – CYCLE ROD SPRING
R² – CYCLE ROD WASHER
} USED ONLY ON "WORKHORSE" SERIES SHEARS
S – CONNECTING LINK
T – BELL CRANK PIN
U – CLUTCH PIN SPRING SEAT
V – THROWOUT
W – THROWOUT SPRING
X – CLUTCH BRACKET
Y – THROWOUT PIN
Z – THROWOUT SPRING PIN

WHEN ORDERING BE SURE TO SPECIFY MODEL AND SERIAL NUMBER OF SHEAR

FIGURE 12

SECTION 4

#10-U-8 GENERAL PARTS LIST

1	Bed
2R	Connection R.H.
2L	Connection L.H.
3	Eccentric
4	Flywheel
5	Brake Block
6	Pivot Pin (Conn.)
7	Conn. Plate
8	3/8-16X3/4 Button Hd Soc. Cap Scr. (Conn. Plate)
9	1-7/8 Std. Washer
10	Side Gauge
11	Front Arms
12	Leg Caps
13	Gibs
14	Treadle Springs
15	Mounting Brkt. (Rear Panel) (Not Shown)
16	Front Panel Guard (Not Shown)
17	2"-4½ Hex Nuts
18	Rear Panel (Not Shown)
19	Gear Guard
20	Bed Scales
21	Main Shaft
22	Collar (Main Shaft)
23	Flywheel Shaft
24	Brg. Sleeve
25	Inner Ret. Collar (Flywheel Shaft)
26	Intermediate Shaft Sleeve
27	Outer Ret. Collar (Flywheel Shaft)
28	Inter. Shaft Collar
29	Inter. Shaft Cap
30	Pinion Washer (Flywheel Shaft)
31	Washer (Flywheel Shaft)
32	Washer (Inter. Shaft)
33	Pinion
34	Intermediate Gear
35	Intermediate Pinion
36	Intermediate Shaft
37	Clutch Pin Spring
38	Clutch Pin
39	Clutch Pin Spring Guide
40	Tie Brace

41	Crosshead End Caps
42	Spring Rods (C'Balance)
43	Spring Pipe (C'Balance)
44	Spring Rod Brg. (C'Balance)
45	Counterbalance Spring
46	Safety shield(not shown)
47	Special Washers (Bed to leg)
48	Std. & Edge Blades
49	16 Taper Pin 21 lg w/nuts (back ga. to crosshead)(Not Shown)
50	R.H. Bed Adj. Plate
51	L.H. Bed Adj. Plate
52	R.H. Holddown Lug
53	L.H. Holddown Lug
54	Long Clutch Rod
55	Bell Crank Lever
56	Spacer (Bell Crank Lever)
57	Short Clutch Rod
58	Clevis (Clutch Rod)
59	Clevis Pin
60	1/8 x 1 Cotter Pin (Clevis Pin)
61	½-13x2¼ Hex Cap Screw (Bell Crank)
62	½-13 Hex Nut
63	3/4-10x2½ Soc. Hd. Cap Scr. (Bed Adj. Plate)
64	Clutch Control Lever
65	Lock
66	Spring (lock)
67	Pin (Clutch Cont. Lever)
68	Pivot Stud
69	Nameplate (not shown)
70	1/2 Std. Washer
71	5/16-18 Hex Nuts (rear panel) (not shown)
72	Copper Tubing
73	3/32 x 3/4 Cotter Pin
74	Compr. Unions (¼" Tubing - 1/8 Male Pipe Thd.)
75	Compr. Elbows
76	Pivot Pin (treadle center brg.)
77	½-13 Hex Check Nut
78	1/8 x 1¼ Cotter Pin
79	R.H. Treadle Stop (Top)
80	R.H. Treadle Stop (Lower)
81	5/32 x 1 1/8 Roll Pins (Cycle Cont. Stop)
82	Lube Block
83	3/8 Lock Washer
84	R.H. Hinge Pivot (Treadle)
85	3/4 - 10 Hex Nut

86	5/8-llxlh Soc. Set Scr. (Main Shaft Key)
87	Spacer (L.H. Treadle Hinge Bolt)
88	½-13x2½ Hex Cap Scrs.
89	½-13x2½ Sq. Hd Set Scrs.
90	1/16 x 5/8 Spiral Pin (Lock)
91	3/16 Washer
92	½-13X3 Hex Cap Scr. (Treadle Spr. Stud)
93	½ Lock Washer (Treadle Pivot Stud)
94	½-13xl1 Cup Pt. Soc. Set Scr. (L.H. Treadle Stop)
95	L.H. Treadle Stop
96	3/8-16X1½ Hex Cap Scr. (LH. Treadle Stop)
97	Clutch Shift Plunger
98	1/4-20x5/8 Button Hd Cap Scr. (Soc. Type)
99	Grease Pipe
100	5/8 Heavy Washer (Blades)
101	B78 "V" Belts (Matched set of 5)
102	Motor Sheave (5 Groove "B" Sect.-6.4 P.D.-1 3/8 Bore)
103	Motor Base (West. #213)
104	½-13X1-3/4 Stripper Bolts (Leg Cap)
105	Blade Bolts
106	End Blade Bolts (upper only)
107	Handle (gear guard)
108	5/8-11x2½ T Slot Bolts
109	Alemite Compressor
110	Eye Rod Spacers
111	1 x 4½ Feather Key (Clutch Block)
112	1 x 5½ Feather Key (Brake Block)
113	1 X 6 Gib Key (Eccentrics)
114	7/8-9X3 Soc. Set Scrs. (Bed Pull Down)
115	7/8-9X4½ Sq. Hd Set Special Screw (Gib)
116	7/8-9X4½ Half Dog Sq. Hd Set Scr (gib)
117	7/8-9 Hex Check Nut
118	5/8-llX1 Hex Cap Scr (Tie Brace)
119	5/8 Washers
120	5/8 Lock Washers
121	Flywheel Key
122	½ x 3-3/4 Feather Key (Pinion)
123	7/8x7-7/8 Key (Inter. Shaft Pinion & Gear)
124	5/8-11 Hex Nuts
125	½-13Xlh Hex Cap Scrs (Side Gauge)
126	5/8-11X4 Hex Cap Scrs (Brake Strap)
127	Adj. Screw (Bed "out")
128	7/8X9X2½ Half Dog. Pt. Soc. Set Scrs. (Bed"iny
129	5/8-llX2¼ Hex Cap Screw (Clutch)
130	1" Spring Type Lockwasher

131	3/8-16x2 Hex Cap Scr. (inter. Shaft Cap)
132	½-13xl1 Soc. Type Flat Hd Cap Scr. (Ret. Collars)
133	½-20x1-3/4 Flat Hd. Cap Scr. soc. Type (crosshead end cap)
134	1"-8xll½ Hex Cap Screw (Bed to leg)
135	½-13xl Cone Pt. Soc. Set Scr. (Brake Block)
136	1/2-13xl/2 Oval Pt. Soc. Set Scr. (Brake Block
137	3/4-10x3/4 Cup Pt. Soc. Set Scr. (Main Shaft Collar)
138	3/4-10x3/4 Oval Pt. Socket Set Scr. (Main Shaft Collar)
139	Hex Key Set
140	5/16-18x½ Bending Hd. Mach. Scr. (Front Panel) (Not Shown)
141	#6-32x½ Flat Hd. Mach. Scrs. (Gear Guard Handl
142	#6-32x3/8 Flat Hd. Mach. Scrs. (Bed Scales)
143	5/16-18x3/4 Rnd. Hd. Scrws. (Gear Guard) (not shown)
144	5/16 Std. Washers (finger guard) (not shown)
145	5/16 Lock Washers (Finger guard) (not shown)
146	5/16-18X3/4 Filister Hd. Mach. Scr. (finger guard) (not shown)
147	½-20x3/4 Rnd. Hd. Scrs. (starter) (not shown)
148	½-13x2½ Hex Cap Scrs. (Center Brg)
149	7/8-9x3-3/4 Hex Cap Scr (holddown lug)
150	7/8-9/2-3/4 Hex Cap Scr (holddown lug)
151	7/8 Std. Washers
152	½-13-2-3/4 Hex Cap Scrs (holddown Adj.)
153	Brq. (Flywheel Shaft)
154	Brg. (Inside Inter. Shaft)
155	Brg. (outside Inter. Shaft)
156	Lock Nut TN10
157	Washer TW110
158	Shims (Flywheel Shaft) (not shown)
159	Special Hex Cap Screw (Inter. & Flywheel Shaft
160	1/8 x 45 degree alemite fittings
161	Magnetic Starter
162	7-1/2 HP - 1800 RPM open dripproof Bell Brg. Motor
163	Shims (Inter. Shaft) (not shown)
164	Lubrication Plate (not shown)

SECTION 5

SUB-ASSEMBLY PARTS LIST

I CROSSHEAD ASSEMBLY

- Al Crosshead
- A2 Tie Rod
- A3 Adj. Screw
- A4 Hex Nuts 1-1/2 - 6 Thd.
- A5 Washers 1-1/2
- A6 Adj. Screw Washer
- A7 Adj. Screw Nut 1-1/8 - 7 Thd.

II. R.H. LEG ASSEMBLY

- B1 R.H. Leg
- B2 Bushings

III. L.H. LEG ASSEMBLY

- C1 L.H. Leg
- C2 Bushings

IV. HOLDDOWN ASSEMBLY

- D1 Holddown beam
- D2 Plunger beam
- D3 Plunger springs
- D4 Plunger Rods
- D5 Plunger Feet
- D6 Support Springs
- D7 .156 X 1-3/8 Roll Pins
- D8 5/8 - 11 Hex Nuts
- D9 5/8 - 11 Check Nuts
- D10 Name Plate
- D11 Studs - Support Spring
- D12 Brass Plugs
- D13 3/8 - 16 Half dog pt. Set Screw
- D14 3/4 - 10 Allen Set Screw Oval Pt.
- D15 1/4 - 20 Flat Hd. Screws
- D16 5/8 - llX6 Hex Cap Screws
- D17 5/16 - 18 Hex Nuts

V. BRAKE ASSEMBLY

- El Upper Strap
- E2 Lower Strap
- E3 Asb. Lining
- E4 Copper Rivets
- E5 Pins
- E6 Cotter Pins
- E7 7-5/8 Hex Cap Screw
- E8 5/8 - 11 Hex Nut
- E9 5/8 - 11 Hex Check Nut
- E10 5/8 Washer
- E11 Spring

VI BACK GAUGE ASSEMBLY

VII. LUBRICATION SYSTEM

- G1 Lubricator - Pump
- G2 Meter Unit FSA-1 Clutch (3)
- G3 Meter Unit FSA-4 L.H. Conn. (1)
- G4 Meter Unit FSA-3 Crosshead Lower Front (2) R.H. Conn. (1) Legs (2) Main Shaft (11) Eye Rods (2)
- G5 Meter Elbow Tee FTD-4 Front Upper Crosshead (2)
- G6 Meter Tee FTA-4 Upper Rear Crosshead (2)
- G7 Meter Tee FTA-3 Lower Rear Crosshead (2)
- G8 1/4" Swivel Mainshaft (1)
- G9 5/8X900 Elbow Conn. Clutch (1)
- G10 5/8X450 Elbow Conn. Legs-Mainshaft (2) Connections (2)
- G11 3 Way Junctions Eye Rods (2)
- G12 Meter Tee FTD-2 Center Bkg. (1)
- G13 6 Way Junction - Double Outside R.H. Leg (1)
- G14 5 Way Junction - Single Inside R.H. Leg (1)
- G15 4 Way Junction - Single Inside L.H. Leg (1)
- G16 18" Hose Assy. 7/16 Type SS Connections (2)
- G17 10" Hose Assy. 5/16 Type SS Eye Rods (2)
- G18 5/32 OD X .020 Wall Steel Tubing 5-S-20
- G19 Single Tubing Clips (18)
- G20 Compression Nuts - Female Thd - (14)
- G21 Compression Bushings - Male Thd (38)
- G22 Compression Sleeves - Ferrule (53)
- G23 5/16 - 18 x 1/2 Hex Cap Screws - Pump (2)
- G24 5/16 Washers - Pump (2)
- G25 1/4 - 20 X 1 Button Hd. Screws (8) Junctions
- G26 3/16 - 24 X 3/8 Button Hd. Screws (18) Clips
- G27 Elbow Connections 1-1/4 X 900 Front Lower Crosshead (2)
- G28 Elbow Connections 1-1/4 X 450 Eye Rods (2)

VIII. TREADLE ASSEMBLY

IX. DISAPPEARING GAUGES

11	Base
12	Finger
I3	Pivot Pin
14	Brass Plugs
I5	1/2 - 13 X 3/4 Sock Set Screws

X. CLUTCH GEAR ASSY.

J1	Gear
J2	Bronze Bushing
J3	Wheel Pins (3)
J4	Backlash Pins (3)
J5	Wheel Ring

Xl. CLUTCH BLOCK ASSEMBLY

K1	Clutch Block
K2	Ring
K3	Plate
K4	Cam Screw
KS5	3/8 - 16 X 7/8 Flat Hd. Screw

XII. THROWOUT ASSEMBLY

XIII. CENTER BEARING ASSEMBLY

M1	Center Brg.
M2	Sleeve Brgs (2)

SECTION 6

A C C E S S O R I E S

EXTENSION SQUARING GAUGE

MOBILE CONTROL

MANUAL FRONT OPERATED BACK GAUGE

POWER OPERATED BACK GAUGE

LIGHT BEAM

The accessories detailed in this section are not standard equipment. They may be ordered as optional equipment for Shear.

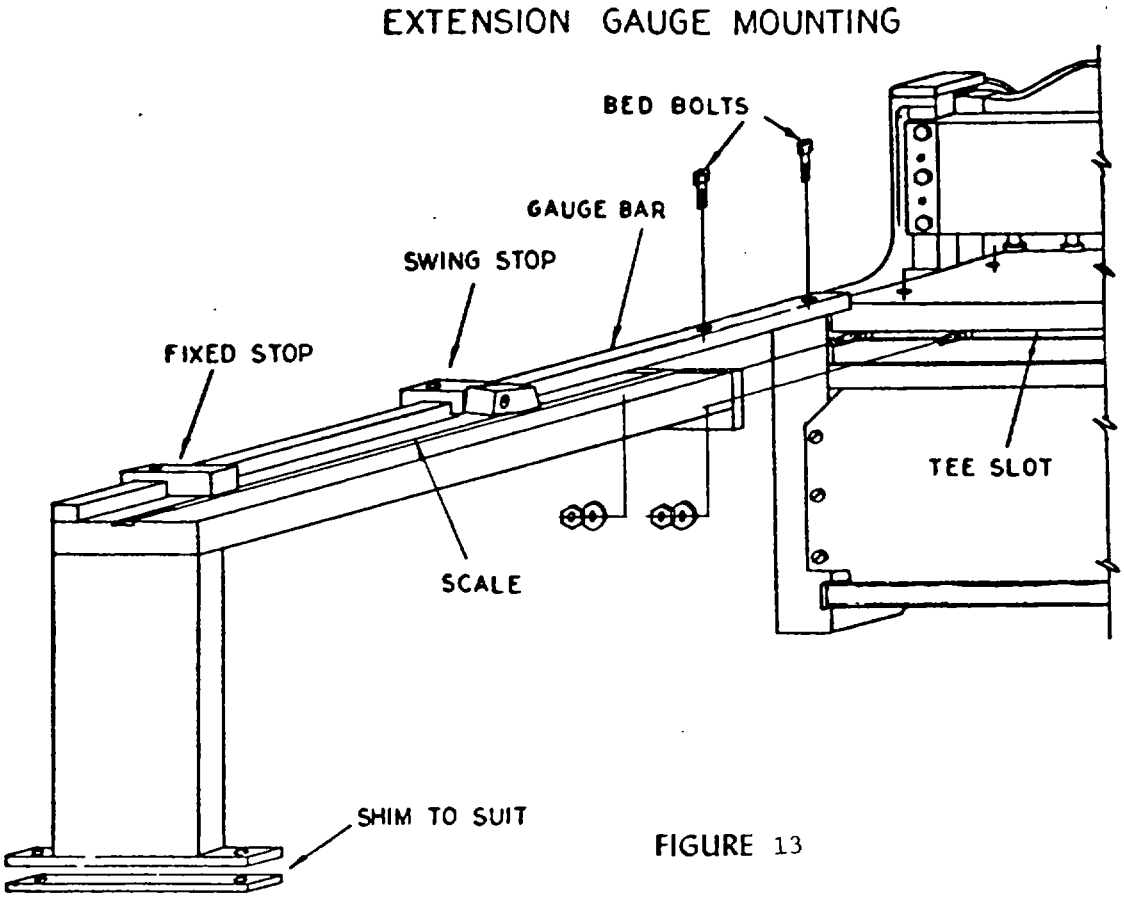


FIGURE 13

EXTENSION SQUARING GAUGES

The Extension Squaring Gauge provides long length precision positioning surface for resquaring sheets and shearing blanks. Gauge is equipped with one fixed stop and one swing stop for two gauge settings. The fixed stop is used for settings farthest from blades. Additional swing stops are available for multiple settings. The gauge can be mounted on either side of the shear, (preferably on the right.)

To mount gauge, insert two tee bolts in Tslot in front of bed. Bring gauge up to shear, allowing tee bolts to pass through the mounting holes in the bracket of the gauge. Put on washers and nuts but do not tighten. Line up mounting holes in gauge bar with bed holes normally used for side gauge. Insert bed bolts but do not tighten. Check gauge to make sure it is level with top of bed, if not, shim up gauge outer support leg. Square up gauge with blades. Tighten all bolts securely. Secure gauge support leg to floor. Recheck squareness of gauge bar with blades and level of gauge. Check gauge on regular basis during use.

FRONT OPERATED

F-18, F-24 BACK GAUGE - INSTRUCTIONS

This back gauge has been adjusted and aligned at the factory and is shipped mounted on the Shear to save assembly time, as well as possible damage in transit.

Adjustment of this back gauge may have been disturbed slightly in shipping. To check and reset, after Shear has been adjusted:

I. Tighten all set screws between operating wheel and righthand bracket, including those around ratchet assembly. Turn operating wheel until indicator shows a setting of one inch. Insert stock in machine, making sure it is squarely against back gauge bar for entire length of cut. Cut two pieces in this manner. Measure the second piece cut for width and parallelism.

II If piece is not parallel, loosen split collar at right hand end of connecting shaft between brackets, and by turning connecting shaft, move left hand end of back gauge' bar in or out as needed. Tighten split collar and take a cut. If still not parallel, repeat above.

III. If indicator does not show true width of piece as cut, adjust as follows after parallel setting is made: With indicator set at one inch, cut a strip of stock and check with a micrometer. Dismount indicator gear cover by removing three screws holding cover to indicator. Loosen set screws in counter pinion and set indicator to correct width as measured. DO NOT MOVE BACK GAUGE. Adjust gears so no backlash exists, and tighten set screws. Check setting by cutting another strip and repeat if necessary. Grease indicator gears lightly and replace gear cover.

IV. To adjust ratchet between flexible shaft and right hand bracket, loosen check nut and move 5/8 set screw (near ratchet on bracket between right hand gauge bracket and flexible shaft) in or out to increase or decrease ratchet holding power. Do not remove ratchet entirely as it holds gauge setting. Each notch of ratchet wheel = .006" movement of gauge bar.

V. Back gauge is now ready to give long, accurate service. Lubricate occasionally with automobile chassis lubricant all points provided with grease fittings, as well as ratchet and both back gauge lead screws (located inside back gauge brackets).

MOTOR OPERATED

BACK GAUGE - INSTRUCTIONS

This back gauge has been adjusted and aligned at the factory and is shipped mounted on the Shear to save assembly time, as well as possible damage in transit.

Adjustment of this back gauge may have been disturbed slightly in shipping. To check and reset, after Shear has been adjusted:

I. Remove chain guard between motor and connecting shaft. Tighten motor mounting bolts. Check and tighten set screws in both chain sprockets. Check chain lubrication and regrease if necessary. Replace chain guard. Check motor operation by pushing buttons marked "in" or "out", to move back gauge. Do not hold button down when setting near "O" or near maximum setting. Jog motor near these points to prevent damage to back gauge. If motor moves back gauge freely, set until counter reads one inch. Insert stock in machine, making sure it is squarely against back gauge bar for entire length of cut. Cut two pieces in this manner. Measure the second piece cut for width and parallelism.

II. If piece is not parallel, loosen split collar at right hand end of connecting shaft between brackets, and by turning connecting shaft, move left hand end of back gauge bar in or out as needed. Tighten split collar and take a cut. If still not parallel, repeat above.

Ill If indicator does not show true width of piece as cut, adjust as follows after parallel setting is made: With indicator set at one inch, cut a strip of stock and check with a micrometer. Dismount indicator gear cover by removing three screws holding cover to indicator. Loosen set screws in counter pinion and set indicator to correct width as measured. DO NOT MOVE BACK GAUGE. Adjust gears so no backlash exists, and tighten set screws. Check setting by cutting another strip and repeat if necessary. Grease indicator gears lightly and replace gear cover.

IV. To adjust ratchet on right hand bracket, loosen check nut and move 5/8 set screw in or out to increase or decrease ratchet holding power. Do not remove ratchet entirely as it holds gauge setting. Each notch of ratchet wheel = .006" movement of gauge bar.

V. Back gauge is now ready to give long accurate service. Lubricate all points provided with grease fittings weekly with automobile chassis lubricant, as well as ratchet and both back gauge lead screws (located inside back gauge brackets).

ACCESSORY EQUIPMENT PARTS LIST

MOTOR OPERATED BACK GAUGE

QUANTITY	PART NAME
1	Counter Mounting Bracket
1	Push Button Station Bracket
1	Counter Gear Cover
1	Upper Shaft Collar
1	Clamp
1	Motor Mounting Plate
1	Upper Gear Shaft (Counter)
1	Lower Gear Shaft (Counter)
1	Coupling Sleeve - upper - lower gear shaft
1	Counter Reset Wheel
1	Lower Gear Shaft Bushing
2	Micro Switches #BZE-2RQ
1	Chain Guard
1	Counter Gear
1	Counter Pinion
1	Lower Gear
1	Lower Pinion
1	Right Angle, instantly reversible gear motor - 1/8 HP, 48 RPM mounting (Specify voltage - phase & frequency)

ACCESSORY EQUIPMENT PARTS LIST

SOLENOID OPERATED CLUTCH

QUANTITY	PART NAME
1	Clutch Lever
1	Solenoid Bracket
1	Gear Guard
1	Pivot Bar
1	Connecting Rod
1	Pivot for Clutch Lever
1	Connecting Link Pin
1	Throwout Pivot Link
2	Clutch Lever Connecting Links
2	Lever Pivot Bar Spacers
1	Pin for Solenoid
2	Clutch Lever Spacers
1	Solenoid #CR9503-206B Pull type. (Specify voltage)
1	Foot Switch Class 9002 Type AW-14
10’	14 Ga. - 3 Wire Portable Cord 600 Volt
1	Pivot Link Pin
1	Solenoid Cover
1	Connecting Rod Spring
1	Spring Collar
1	Pedal Guard

(The following items are eliminated from Basic Machine Parts List - Sect. 4, and Safety Clutch Parts Diagram).

Index	Part
F	Treadle
42	Spacers
16	Conn. Links
15	Treadle Springs
17	Conn. Link Pins
21	Gear Guard

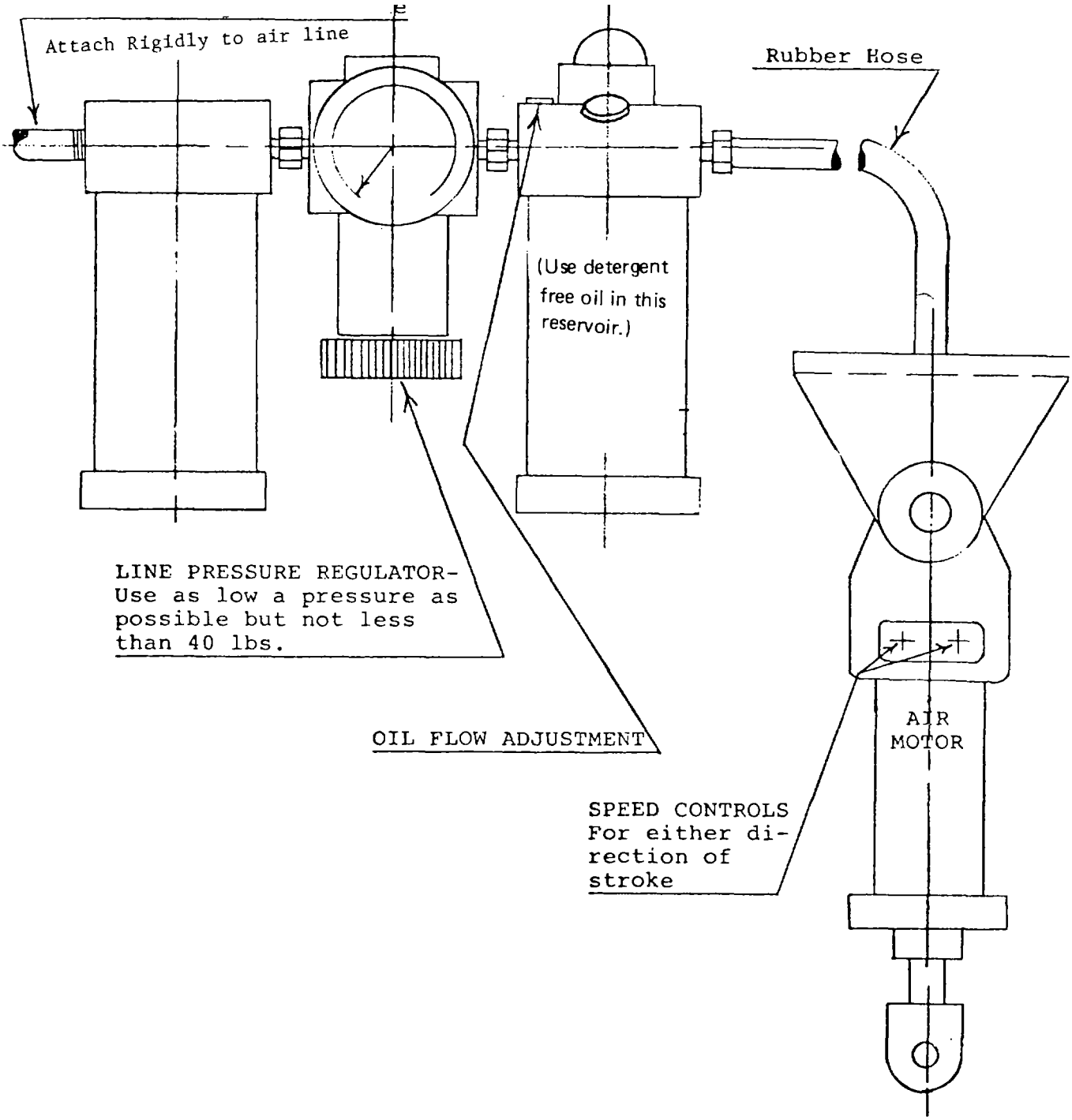
SAFETY CLUTCH

Index	Part
F	Bell Crank

ACCESSORY EQUIPMENT PARTS LIST

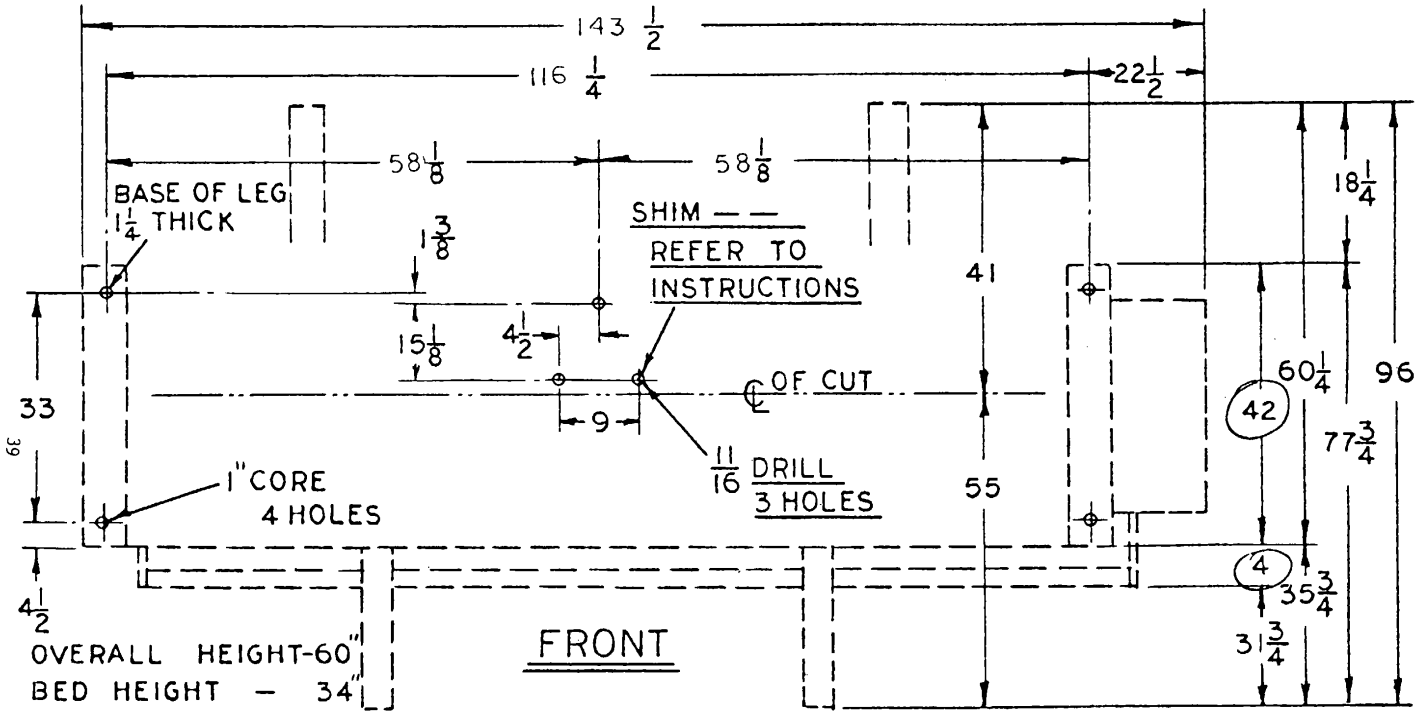
LIGHT BEAM

QUANTITY	PART NAME
	R30 #75R30/SP 125 Volt Med. Base, inside 75W reflector spot light bulbs.
1	12100-B Wiremold Channel and Cover
1	$2110-A Wiremold End Connector
1	#2110-B Wiremold Blank End Fitting
7	#26 Wiremold Keyless Sockets
1	Light Cover
2	Support Rods
4	Springs
2	3/8 - 16 X 3 Hex Cap Screws
7	1/4 - 20 X 3/8 Button Hd. Screws
7	1/4 - 20 Hex Nuts
	3 conductor #16 light cord with plug cap and connector
2	End Braces
8.	#8 - 32 X 1/4 Button Hd. Screws
1	R.H. Leg Cap (to replace Item 12)
1	L.H. Leg Cap (to replace item 13)



ELECTRO - AIR CLUTCH LUBRI-UNIT

FIGURE 14

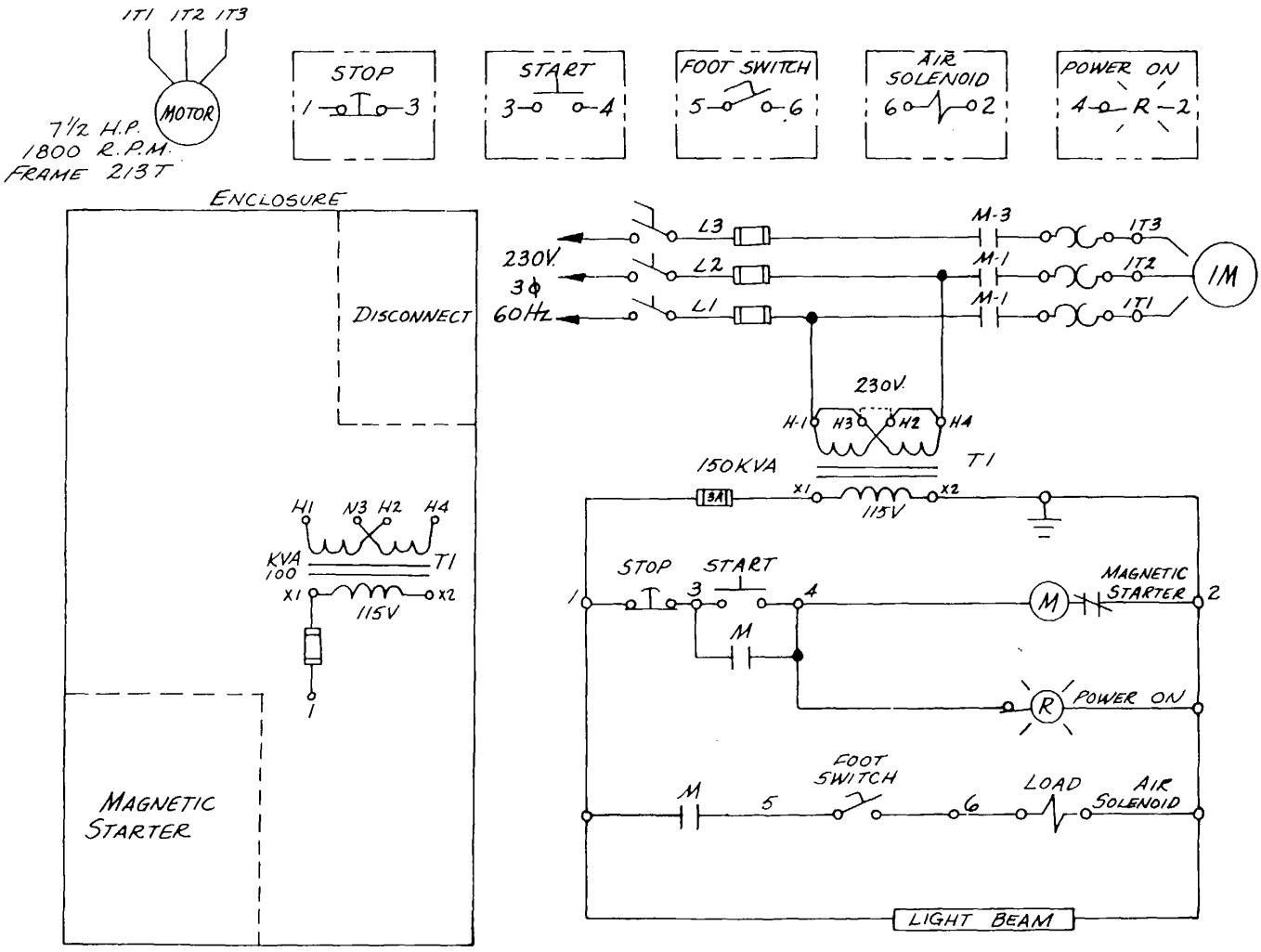


NOTE: PLACE FOUNDATION BOLTS IN 2 1/2 DIA. PIPE TO ALLOW FOR VARIATIONS IN MOUNTING DIMENSIONS.

SET INTO A MINIMUM OF 12 THICK STEEL REINFORCED CONCRETE.

FOUNDATION PLAN

FIGURE 15



ELECTRICAL DIAGRAM

FIGURE 16

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches

1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches

1 Kilometer = 1,000 Meters = 0.621 Miles

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches

1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet

1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches

1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces

1 Liter = 1,000 Milliters = 33.82 Fluid Ounces

TEMPERATURE

5/9 (°F -32) = °C

212° Fahrenheit is equivalent to 100° Celsius

90° Fahrenheit is equivalent to 32.2° Celsius

32° Fahrenheit is equivalent to 0° Celsius

9/5 C° +32 = F°

WEIGHTS

1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces

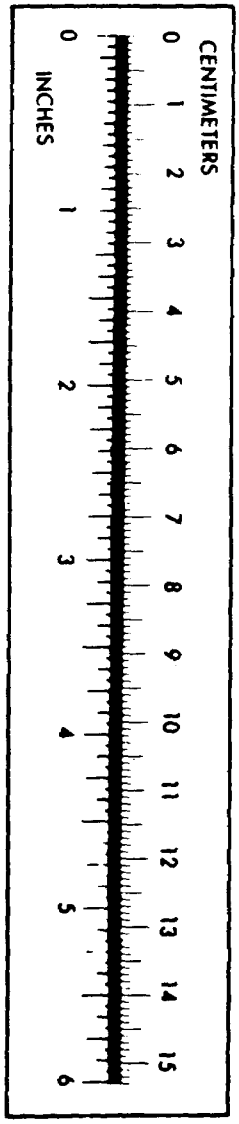
1 Kilogram = 1,000 Grams = 2.2 Lb.

1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds Per Square Inch	Kilopascals	6.895
Miles Per Gallon	Kilometers Per Liter	0.425
Miles Per Hour	Kilometers Per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds Per Square Inch	0.145
Kilometers Per Liter	Miles Per Gallon	2.354
Kilometers Per Hour	Miles Per Hour	0.621



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