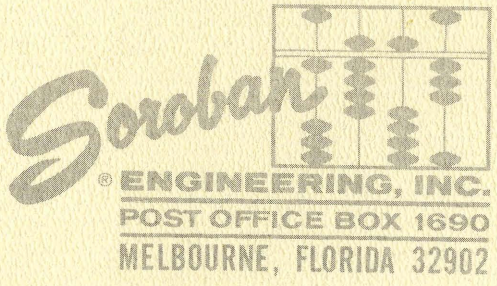
ADJUSTMENT AND LUBRICATION PROCEDURES

FOR

DECODER AND POWER UNIT OF THE COMPUTERITER



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ADJUSTMENT PROCEDURES
FOR
DECODER AND POWER UNIT

INTRODUCTION:

The series ET typing computeriters, designed principally as auxiliaries in computing facilities to automatically present computed data in final report form, are equally adaptable to office-report writing function. Physically, the computeriter consists of an electric typewriter equipped with a mechanical decoder designed to accept electrical signals for automatic typing operation.

The computeriter's mechanical decoder is designed for reliable automatic sequencing of all typewriter functions and type key levers from appropriately coded electrical input signals at a rate of 10 characters per second. The decoder makes extensive use of ball bearings, nylon bushings, appropriately hardened and plated precision parts, etc., all of which insure long life and trouble-free operation.

THE COMPUTERITER DECODING PROCESS:

With the decoder installed in the typewriter, the upper end of each seeker is positioned to hook over a pin installed in the side of each typewriter key lever. Thus, a downward motion of a seeker produces a typing action. Decoder power is supplied from a solenoid controlled half-revolution cam mounted under the typewriter power roll. Each time the solenoid is energized, the cam is permitted to engage the power roll, and rotates one half revolution. The shape of the cam is such that this rotation causes the pull wire attached to the decoder to move towards the rear of the typewriter, then return to its original position. Mechanical interlocks prevent more than one such "pull" on the pull wire with each energize cycle of the solenoid.

Figure 1 illustrates how the decoding bars are positioned by a pusher type ledex solenoid. To accomplish seeker selection for typewriter operation, these spring loaded bars are notched so that for any specific solenoid actuating condition, only one continuous slot can exist across all bars into which a seeker may enter.

In the initial condition, the force of a return spring on the drive crank operates a toggle which pushes the pivoted actuator all the way to the rear. In turn, the actuator positions the decoder bail such that all seekers are lifted free of contact with the decoding bars. Thus solenoids may position decoding bars with a minimum of friction and interference.

When decoding bars have been positioned, a "pull" supplied through the pull wire draws the decoder bail forward. Although the spring loaded seekers attempt to follow the bail's motion, all but the selected one are restrained by the notched decoding bars. The selected seeker enters the selecting slot in the decoding bars, pivots around the pivot rod, and follows the decoder bail throughout its stroke. Since the geometry of the bail's motion is determined by the rotational motion of the pivoted actuator, the bail ultimately commences a downward motion and engages the seeker's notch, drawing the selected seeker downward. Although the selected seeker maintains contact with the bail throughout its complete cycle, all other seekers are blocked by the code bars prior to completion of the bail's motion, and are free of the bail when downward motion commences. At the end of the downward stroke, the "pull" on the pull wire is released and springs restore all components to their initial positions.

DECODER REMOVAL: (Refer to D-5022 for part identification)

1. Raise front of typewriter until machine is resting on its back cover.

2. Disconnect pull wire from power unit assembly by spreading adjustable pin clevis at its fulcrum until it disengages its ball bearing.

3. Disconnect electrical plug below right end of the decoder assembly.

4. Remove both front feet from typewriter.

5. Remove screws through strut hangers of typewriter (on front frame) into mounting struts of decoder.

6. Grasp decoder and rotate slightly about its left and right supports such that the seekers rise slightly and move towards the back of the typewriter. This motion disengages the seekers from the pins in the typewriter key levers permitting the decoder to be withdrawn.

POWER UNIT REMOVAL:

1. Disconnect electrical plug below left side of power unit assembly.

2. Disconnect pull wire by spreading adjustable pin clevis at its fulcrum until it disengages its ball bearing.

3. Remove three mounting screws.

4. Move power unit to right slightly to disengage CAM SUPPORT BRACKET and remove from typewriter.

POWER UNIT ADJUSTMENTS: (Unit removed from typewriter)

1. Check cam trip arm and accelerator cams for excessive lateral play and rubbing on cam frame or nylon cam.

   A. If play is excessive and arms can rub side frames on nylon cam, disassemble power cam assembly and insert sufficient shims to correct this condition.

2. Loosen adjusting screw on TCM, insert .004" thick shim between armature and mounting frame of TCM, mechanically energize and then tighten adjusting screw. (Refer to Figure 3, of D-5022).

3. Bend pusher arm of energized TCM such that the anti-repeat lug of the cam trip arm engages the stop pin by one half its width (.031").

4. De-energize TCM (Figure 4, of D-5022) and bend arm stop of TCM until the trip lug of the cam trip arm engages the stop pin by one half its width (.031").

5. Tighten cam drive tube assembly at approximately the middle of its adjustment and after installation check that its axis is parallel to that of the power roll.

6. Install power unit in typewriter (reverse order of steps 1-4 of power unit removal).

7. With TCM de-energized, check clearance of cam to power roll (clearance should be .015" - .020").

   A. To alter cam to power roll clearance loosen slightly the screw holding the cam eccentric in its position between the sides of the cam frame. Rotate the eccentric until the proper clearance is obtained, then retighten the screw.

      1. A quick check on cam to power roll clearance can be made by tripping TCM by hand. (Typewriter power switch off). As soon as the cam is tripped it will flip against the power roll, and if its clearance to power roll is adequate, the trip lug will just drop behind the stop pin when TCM is released.

8. Check the clearance further by rotating the power roll by hand with TCM energized until cam completes its stroke and the stop pin rests against the anti-repeat lug. With TCM still energized rotate power roll through one complete revolution in reverse direction to check for possible rubbing if power roll is eccentric. If rubbing occurs, increase clearance slightly (Step A above).

DECODER ADJUSTMENTS: (Decoder removed from typewriter)

Permutation Bars -

1. With decoder solenoids de-energized, position the permutation bar stop such that the center of each tooth on each bar is approximately in line with the center of a corresponding seeker.

2. Position each decoder solenoid approximately in the middle of its adjustment. Mechanically energize each solenoid to check for possible interference with its adjacent solenoid.

3. Energize each decoder solenoid in turn and check that its associated permutation bar touches the permutation bar stop at the same instant the armature of its actuating solenoid bottoms.

   A. If the permutation bar does not move far enough or if the solenoid armature does not bottom, correct the situation by bending the magnet arm below the twist (Figure 1).

SEEKERS AND BAIL SWITCH:

1. Hold decoder in such a position that seekers are horizontal and permutation bars above. Move the long crank off its stop until the decoder drive shaft, actuator rod and main connecting link shaft are in a straight line (See Figure 5). Check clearance between seekers and each permutation bar at both ends of the decoder (clearance should be .012" - .015" at all points).

   A. With improper adjustment, clearance between seekers and permutation bars may very from bar to bar or from one end of a bar to the other. In this case, shift the seeker guide cap by moving the fulcrum wire towards or away from the seeker guide plate until equal clearance is obtained throughout.

      1. If it is necessary to shift the seeker guide cap, care must be taken not to change its longitudinal position. Slots in the guide cap and guide plate must line up such that all seekers are perpendicular to the fulcrum wire.

   B. To increase the amount of clearance, remove shims under the shaft support assembly. Add shims to decrease clearance.

C. Steps A and B may have to be repeated to obtain proper clearance and equal clearance.

2. With the decoder drive shaft, actuator rod and main connecting link shafts in a straight line, adjust bail switch such that the top section is closed and .008" - .012" clearance between the contacts of the lower section.

DECODER INSTALLATION:

1. Insert decoder in typewriter and check that each seeker is over its respective key lever pin.

2. Insert screws through strut hanger into the decoder mounting strut.

3. Snug typewriter front feet through left and right decoder supports.

4. Check position of decoder such that the tip of each seeker overlaps its key lever pin by .094" (See Fig.7).

   A. Shifting of decoder to this position is accomplished by adding or removing shims between both strut hangers and the typewriter main frame, and between the left and right supports of the decoder and the seeker guide plate.

5. Adjust position of left and right supports on decoder such that when the typewriter feet are tightened, there is .012" - .015" average clearance between the actuating surface of each seeker and its key lever pin (too little clearance here may prevent typewriter cams from resetting).

6. Check lateral positioning of decoder such that the average clearance of each seeker to its key lever is .031".

   A. If lateral shifting is necessary, loosen front feet of typewriter, and screws attaching both strut hangers, to typewriter front frame. Shift as necessary and retighten. (Do not loosen screws through strut hangers into mounting strut of decoder for this operation).

7. Tighten all attaching screws firmly and tighten typewriter feet.

   A. After positioning adjustments of decoder have reached this point, decoder may be removed at any time and re-installed without shifting its position in the machine providing:

      1. In removing decoder, loosen only typewriter front feet and screws through strut hangers into mounting struts of decoder.

      2. After re-installing decoder, always tighten screws through strut hangers into decoder mounting struts before tightening typewriter front feet.

8. Attach adjustable pin clevis to power unit.

   A. Pull wire assembly should be lengthened or shortened by turning the adjustable pin clevis until maximum clearance is obtained between seekers and permutation bars on the decoder. (i.e., to position drive shaft actuator rod and main connecting link shafts in a straight line).

      1. When the pull wire is the proper length a half turn of the adjustable pin clevis in either direction will reduce the clearance between the seekers and the permutation bars.

9. Mechanically trip TCM (typewriter power off) and turn the typewriter power roll by hand until the power cam is at its point of maximum left.

   A. At this point, the decoder bail should just touch the coroprene stops located on the bottom inside surface of the seeker guide plate (see Figure 6).

      1. If the bail stroke is not correct, adjustment of the cam drive tube assembly of the power unit is required. To increase the bail stroke, loosen the mounting screws holding the cam drive tube assembly to the power unit, and slide toward the

decoder slightly. Check that the center line of this assembly is parallel to the power roll and then re-tighten.

2. To decrease the bail stroke move the cam drive tube away from the decoder.

3. Re-adjust the adjustable pin clevis such that clearance between seekers and permutation bars is again correct, and recheck the stroke of the bail.

11 December 1958
Retyped 3 February 1961

SOROBAN ENGINEERING, INC.
Melbourne, Florida

LUBRICATION PROCEDURES FOR DECODER AND POWER UNIT

Lubrication of the Soroban Computeriter involves using the correct lubricants in proper amounts and at frequent intervals to prevent excessive wear. Lubricants used in excess may flow on the power cam and power roll causing the cam to slip and fail in operation, also causing damage to the power roll. Insufficient lubrication will cause excessive wear and machine failure.

Drawing No. D-5022 indicates the points of lubrication by figures. These figures are listed below with their associated lubricant.

Name	Source	Description
Lubri-Plate No. 2 or equivalent	Fiske Bros. Refining Co., Newark, New Jersey	Light oil, good lubricant and rust preventative.
Molub-Alloy No. 3 or equivalent	Imperial Oil & Grease Co., 6399 Wilshire Blve., Los Angeles 48, California	Long Adherent properties, high pressure lube.

Lubrication points on the figures are indicated by numbers enclosed in circles and letters enclosed in squares. The numbered points require use of Lubri-Plate No. 2 or equivalent and the lettered points require the use of Molub-Alloy No.3 or equivalent.

Figure 1 :

Use Lubri-Plate No. 2 at following points:

1. Magnet Arm Shaft.

2. Permutation bar guides at bearing surfaces and at bearing surface of center spacer not shown in figure.

3. Permutation bar return spring.

Use Molub-Alloy No. 3 at following points:

A. Pack bearings.

B. Between magnet arm and permutation bar.

Figure 6:

Use Lubri-Plate No. 2.

4. Flange bushing.

5. Bail roller on each end of decoder.

6. Bail guides on each end of decoder.

7. Each seeker and seeker guide cap.

Use Molub-Alloy No. 3:

C. On bail spring loops on each end of decoder.

Figure 2:

Use Lubri-Plate No. 2:

8. Cam trip arm and sleeve and accelerator arm and sleeve.

9. Cam magnet arm and cam magnet bracket.

Use Molub-Alloy No. 3:

A. Pack bearings.

E. Stop pins, accelerator pins, accelerator arm, and trip arm lugs.

Figure 3:

Use Lubri-Plate No. 2::

10. Can roller.

11. TCM armature shaft.

Use Molub-Alloy No. 3:

D. Cam trip arm pin and magnet arm.

E. Stop pins, accelerator pins, accelerator arm and trip arm lugs.

	DET.	NAME OF PART	DESCRIPTION

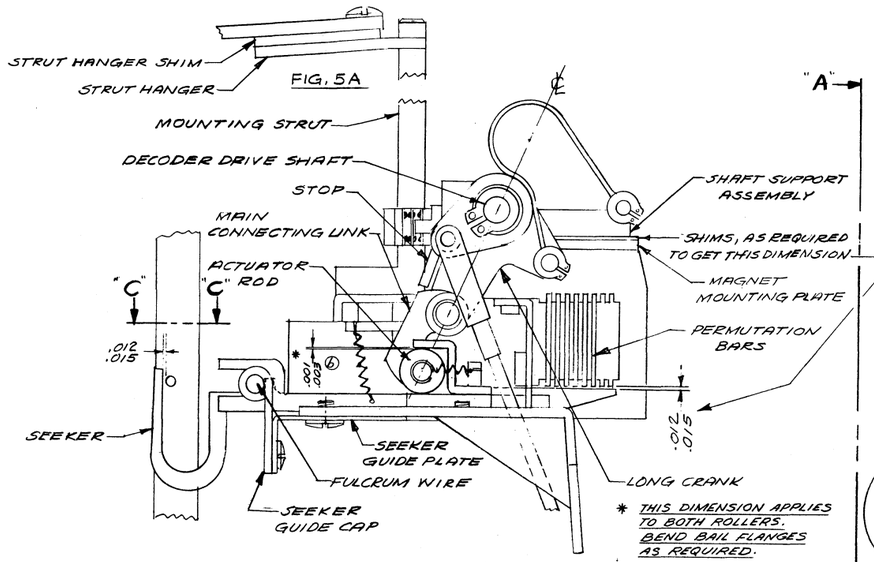
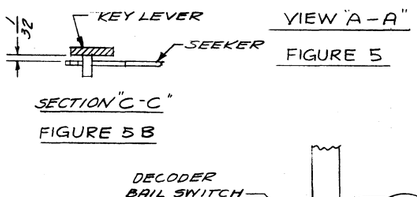


FIG. 5A



VIEW "A-A"

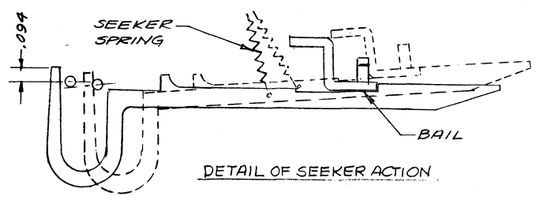
FIGURE 5

SECTION "C-C"

FIGURE 5B

VIEW "A-A"

FIGURE 6



DETAIL OF SEEKER ACTION

FIGURE 7

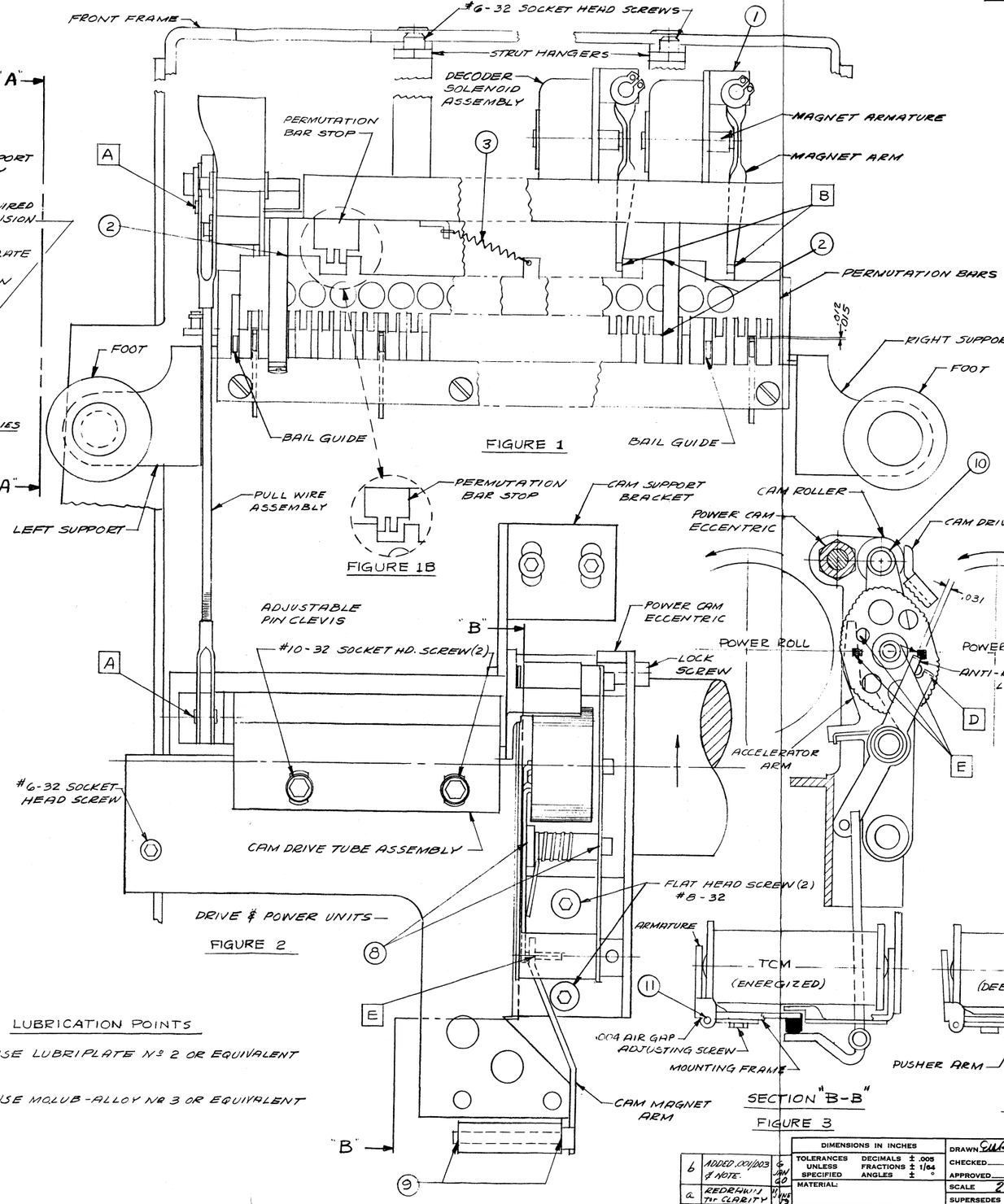


FIGURE 1

FIGURE 1B

FIGURE 2

SECTION "B-B"

FIGURE 3

SECTION "B-B"

FIGURE 4

LUBRICATION POINTS

○ USE LUBRIPLATE No 2 OR EQUIVALENT

□ USE MOLUB-ALLOY No 3 OR EQUIVALENT

LTR.	CHANGE No.	DATE
b	ADDED 1001003 & NOTE.	6 JAN 60
a	REDRAWN FOR CLARITY	11 JUNE 59

DIMENSIONS IN INCHES		
TOLERANCES UNLESS SPECIFIED	DECIMALS ± .005	
	FRACTIONS ± 1/64	
	ANGLES ± °	
MATERIAL:		
FINISH:		

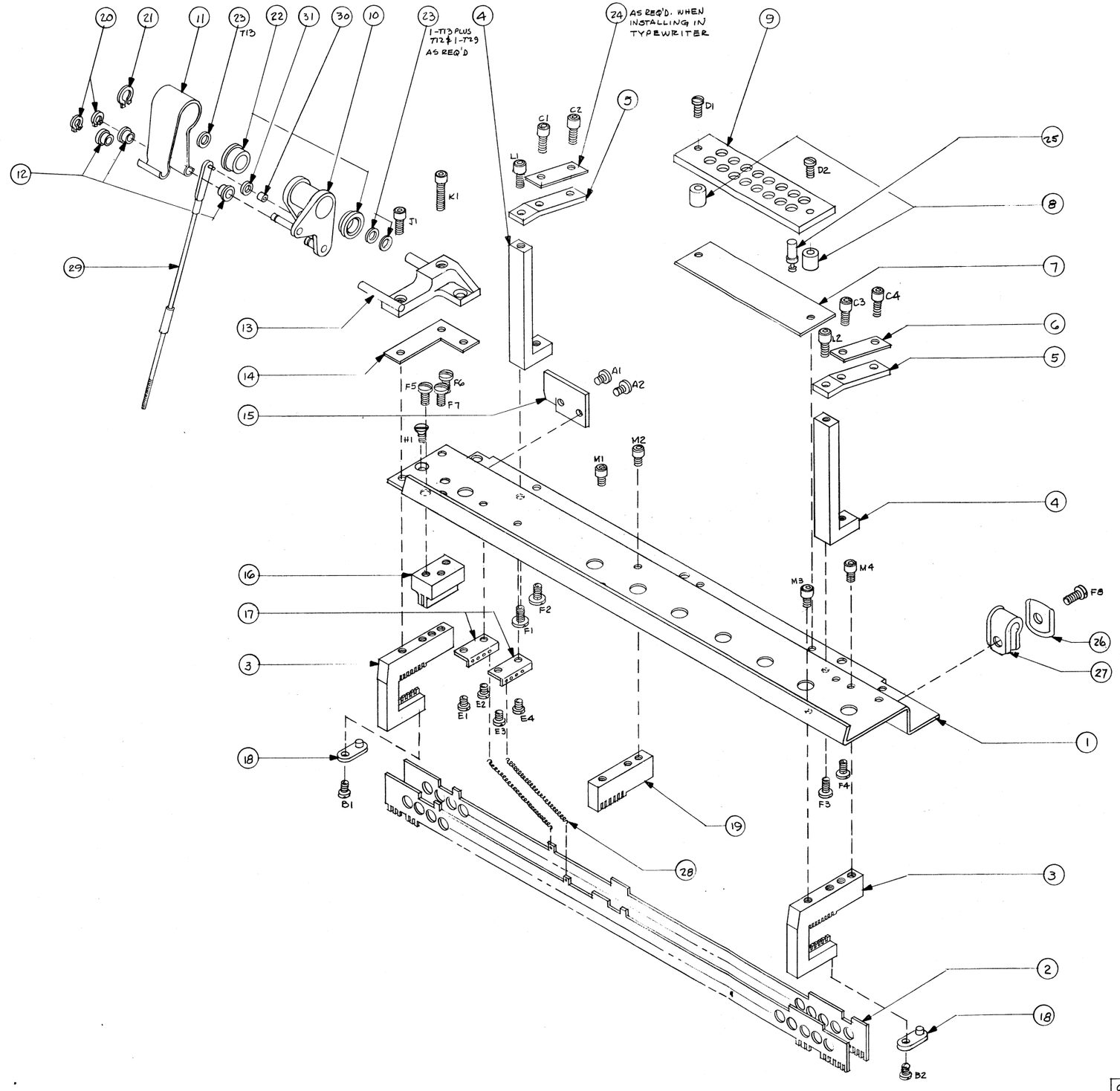
DRAWN GWR 11 JUNE 59
CHECKED
APPROVED
SCALE 2:1
SUPERSEDES
FOR

SOROBAN ENGINEERING INC.
MELBOURNE, FLORIDA

DECODER ADJUSTMENT POINTS

DWG. No. D-5022

C. S. CO., NO. 287 40987



SCREW	QTY.	DET.	NAME OF PART	DESCRIPTION
	1	1	MAGNET MOUNTING PLATE	D-4684B
	5-8	2	PERMUTATION BAR	C-4810
	2	3	PERM. BAR GUIDE & CAP	B-4767B
	2	4	MOUNTING STRUT	B-4707B
	2	5	STRUT HANGER	A-4715A
	1	6	STRUT HANGER SHIM	A-4808
	1	7	INSULATOR	A-4946
	2	8	TERM. BOARD SPACER	A-4944
	1	9	TERMINAL BOARD	A-4945A
	1	10	DRIVE CRANK ASS'Y.	B-4720A
	1	11	" " SPRING	B-4904A
	4	12	FLANGED BUSHING	A-3327 (T6)
	1	13	SHAFT SUPPORT ASS'Y	A-4701A
	1	14	SUPPORT SHIM	A-4809
	1	15	TRANSLATOR STOP	A-4908
	1	16	PERM. BAR STOP	B-4786-P2A
	2	17	" " SPRING RETAINER	A-4689A
	2	18	TIE STRAP ASS'Y.	A-4903
	1	19	CENTER PERM. BAR GUIDE	A-4766A
	2	20	GRIP RING	TRUARC #5555-12MD
	1	21	" "	" " -18MD
	2	22	BALL BEARING	MPB #5632-CHH
	AS REQ'D	23	SHIM	C-3817C, T12, T13, T29
	"	24	STRUT SHIM	A-4808
	5-8	25	TAPER PIN TERMINAL	CTC #X2113D
	1	26	WASHER	WECKESSER #D-140
	1	27	CABLE CLAMP	" #3/16-6
	5-8	28	DECODER SPRING	A-4905, T2
	1	29	PULL WIRE ASS'Y.	A-4950
	1	30	CLEVIS PIN BUSHING	A-4853A
	1	31	BALL BEARING	MPB # 3332
A	2		BIND. HD. MACH. SCREW	#4-40 X 1/8 S.S.
B	2		" " " "	#4-40 X 3/16 S.S.
C	4		SOCK. HD. CAP SCREW	#6-32 X 1/8 S.S.
D	2		BIND. HD. MACH. SCREW	#4-40 X 1/2 S.S.
E	4		" " " "	#2-56 X 1/8 S.S.
F	8		" " " "	#6-32 X 1/4 S.S.
H	1		FLAT " " "	#4-40 X 1/4 S.S.
J	1		SOCK. HD. CAP SCREW	#4-40 X 3/8 S.S.
K	1		" " " "	#4-40 X 5/8 S.S.
L	2		" " " "	#6-32 X 5/16 S.S.
M	4		" " " "	#4-40 X 3/16 S.S.

LTR.	CHANGE	DATE
a	REDRAWN & CORRECTED	2-11-60

DIMENSIONS IN INCHES		
TOLERANCES UNLESS SPECIFIED	DECIMALS ± .005	
	FRACTIONS ± 1/64	
	ANGLES ± 1/2°	
MATERIAL:		
FINISH:		

DRAWN SLR 1 DEC. 60
CHECKED
APPROVED
SCALE FULL
SUPERSEDES
FOR

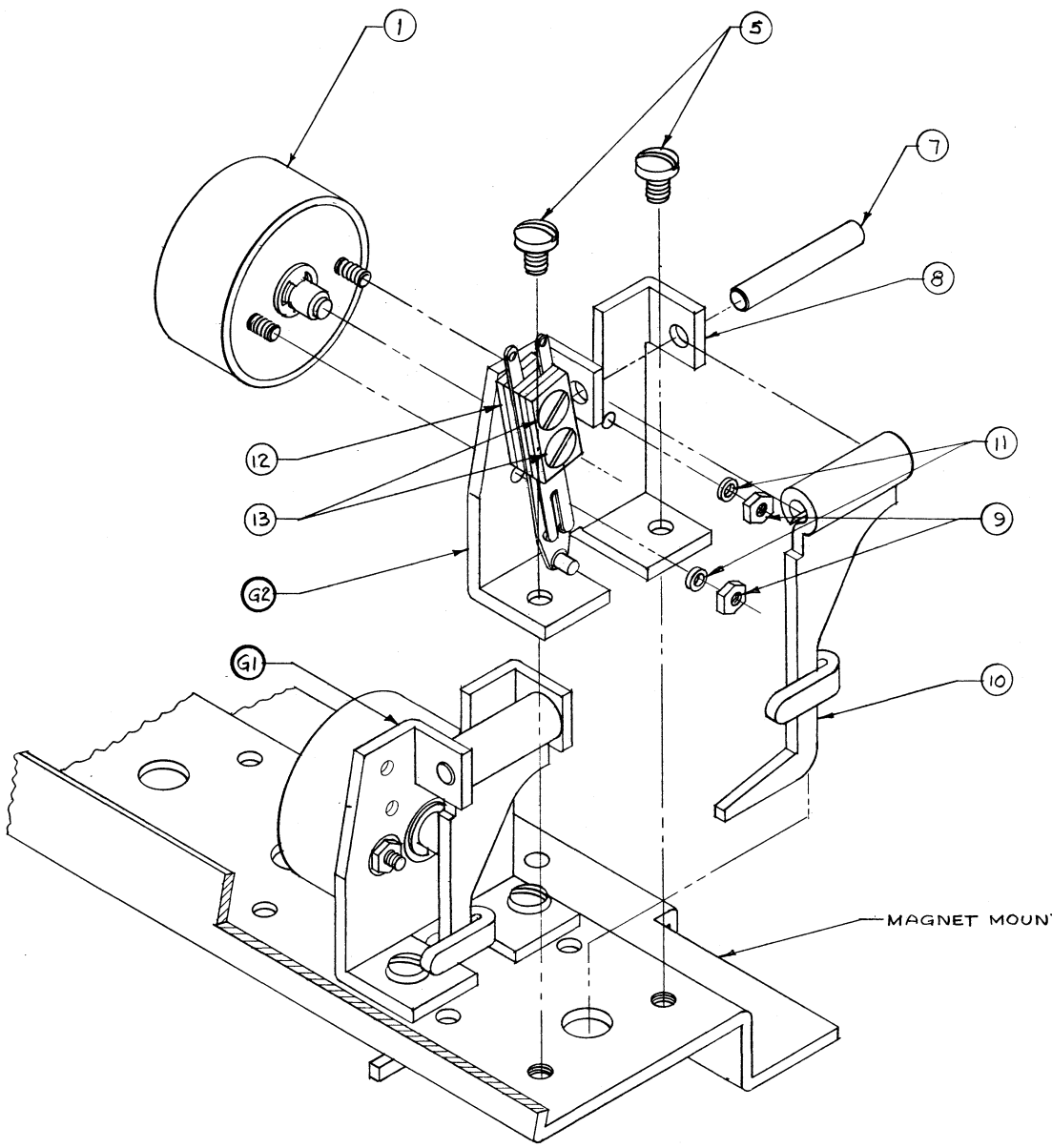
SOROBAN ENGINEERING INC.
MELBOURNE, FLORIDA

DECODER SECTION ASSEMBLY

DWG. No. D-5525B

C. S. CO., NO. 207 41147

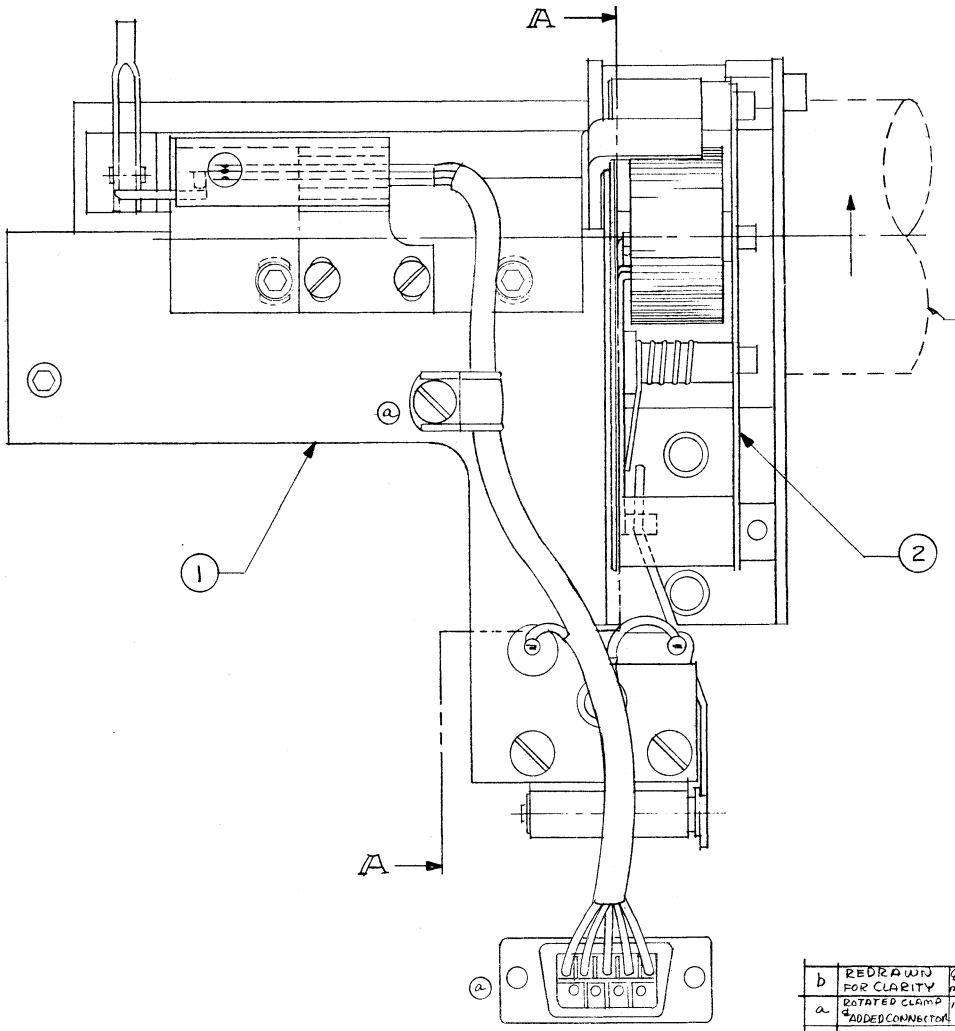
	G2	G1	DET.	NAME OF PART	DESCRIPTION
	1	1	1	SOLENOID ASSEMBLY	A-2229-1
(a)	1		12	CONTACT ASSEMBLY	P.B. FORM "B"
(a)	2		13	FLAT H.D. MACH. SCREW	#2-56 X 1/16 L. CAD. PLATE
	2	2	5	BINDER HD. MACH. SCREW	#4-40 X 5/32 L. ST. STL.
	1		8	MAGNET BRACKET	A-4673B, T2
	1	1	7	MAGNET ARM SHAFT	A-4671A-1, T2
		1	8	MAGNET BRACKET	A-4673B, T1
	2	2	9	NUT-HEX. FULL FINISH	#3-48 X 3/16 FLT. CAD. PLATE
	1	1	10	MAGNET ARM	B-4782B
	2	2	11	LOCKWASHER	#3 SPRING - ST. STL.

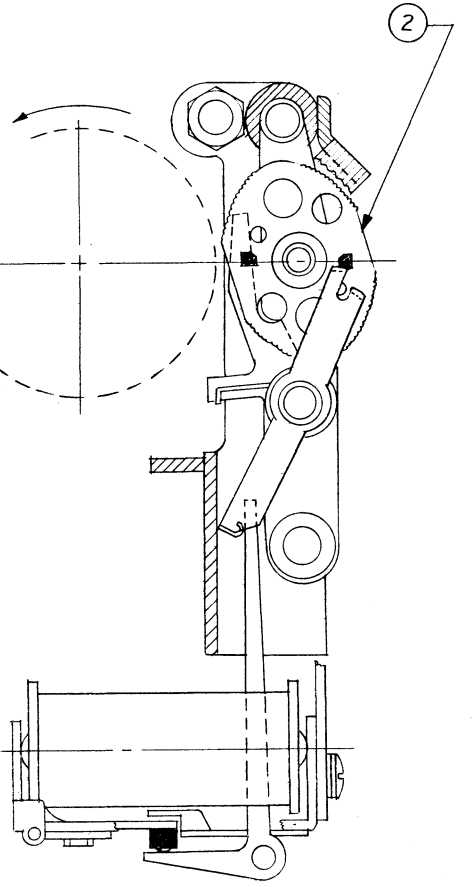


b	WAS: C-5525A	CPK 7-31 61	DIMENSIONS IN INCHES	DRAWN ENR 12 AUG. 57	SOROBAN ENGINEERING INC. MELBOURNE, FLORIDA
a	MADE A SUB-ASSY. OF DET. 1, 2, 3 & 4. DELETED DET. 6, ADDED DET. 12 & 13	3 AUG. 59	TOLERANCES UNLESS SPECIFIED: DECIMALS ± .005; FRACTIONS ± 1/64; ANGLES ± 1/2°	CHECKED JHN 3 AUG. 59	
	CO. TR-110, 30 DEC. 57		MATERIAL:	APPROVED	SOLENOID & MOUNTING BRACKET ASSEMBLY
				SCALE 2:1	
				SUPERSEDES	
LTR.	CHANGE	DATE	FINISH:	FOR D-5525A	DWG. No. C-5526-1

C. B. CO., NO. 867 41147

QTY.	DET.	NAME OF PART	DESCRIPTION
1	1	POWER UNIT ASS'Y	C-5529-P2A
1	2	DRIVE UNIT ASS'Y.	C-5527-1





SECTION A-A

LTR.	CHANGE	DATE
b	REDRAWN FOR CLARITY	CHR 11/6/57
a	ROTATED CLAMP & ADDED CONNECTOR	10/30/57
	TR-152 18 AUG 59	

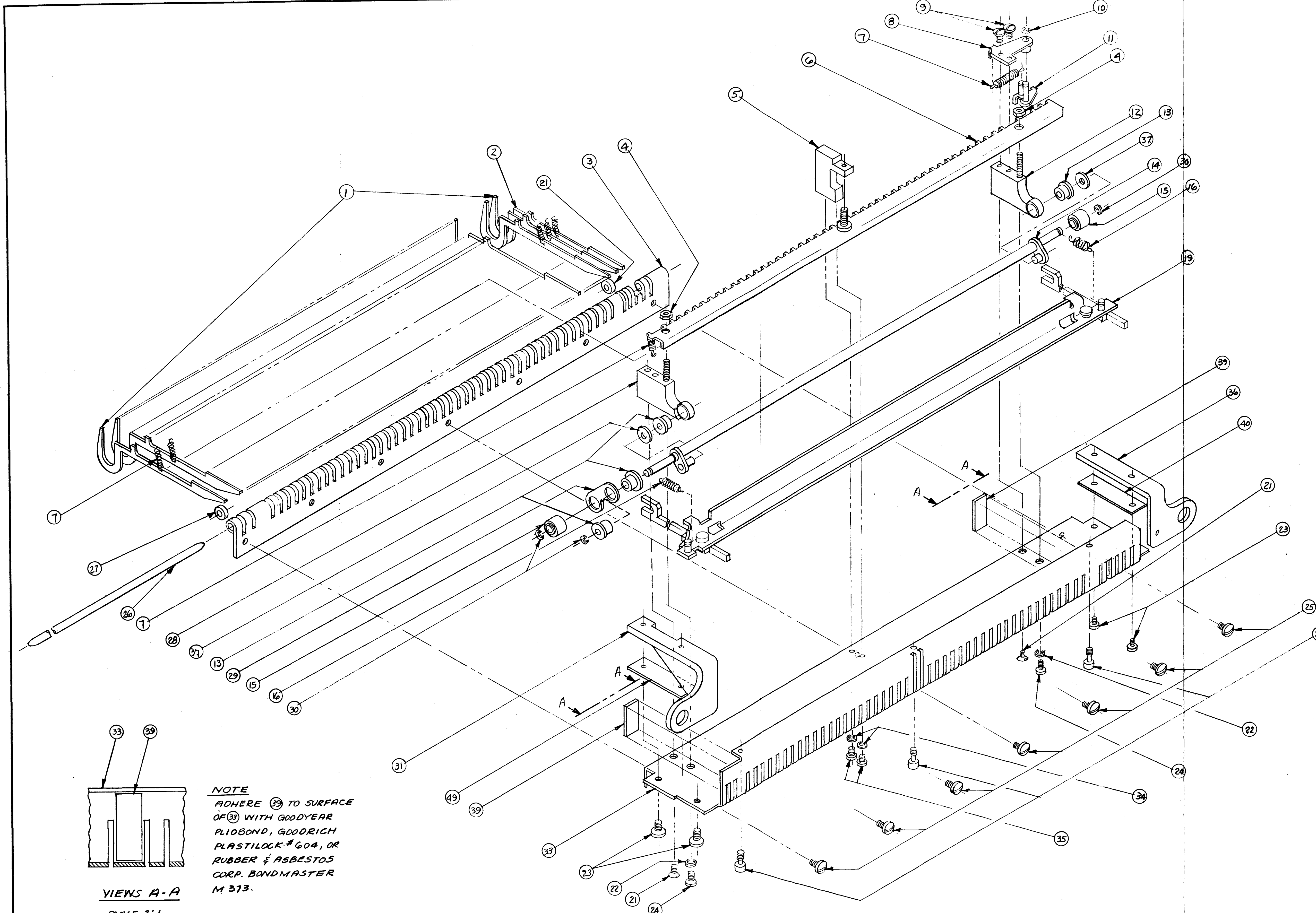
DIMENSIONS IN INCHES
TOLERANCES UNLESS SPECIFIED: DECIMALS ± .005; FRACTIONS ± 1/64; ANGLES ± 1/2°
MATERIAL:
FINISH:

DRAWN CHR 4 DEC. 57
CHECKED
APPROVED
SCALE 2:1
SUPERSEDES
FOR C-4996A-P1 & D-5022

SOROBAN ENGINEERING INC.
MELBOURNE, FLORIDA

POWER & DRIVE UNIT ASSEMBLY

DWG. No. C-5041-P2A



VIEWS A-A

SCALE 2:1

NOTE

ADHERE (39) TO SURFACE OF (33) WITH GOODYEAR PLIOBOND, GOODRICH PLASTILOCK #604, OR RUBBER & ASBESTOS CORP. BONDMASTER M 373.

	QTY.	DET.	NAME OF PART	DESCRIPTION
	11-49	1	SEEKER	A-4700A
	0-1	2	LOWER CASE SEEKER	A-4971
	1	3	SEEKER GUIDE CAP	C-4674C
	2	4	SPRING RETAINER SPACER	A-4679-1
	1	5	CENTER SPACER	B-4930
	1	6	SPRING RETAINER ASS'Y.	A-4793
	12-51	7	SPRING	A-4905-1
	1	8	BRKT. & BUSHING ASS'Y.	A-4970B
	2	9	FILISTER HD. SCREW	#4-40 X 3/16 ST.STL
	1	10	TRUARC RING	#5133-9 MD.
	1	11	LATCH & PIN ASS'Y.	B-4969A-1
	1	12	SPACER ASS'Y, R.H.	A-4931.4
	4	13	BEARING	SS FCHH 416 OR SS FHH 416
	1	14	ACTUATOR ASS'Y.	B-4705B
	2	15	BAIL ROLLER	A-4678B
	2	16	SPRING	A-4860
(b)	1	19	BAIL ASSEMBLY	B-4933
	2	21	FLAT HD. SCREW	#4-40 X 1/4 CAD. PL. & IRIDITE
	2	22	LOCKWASHER	#4 CAD. PL. & IRIDITE
	4	23	BINDER HD. SCREW	#6-32 X 3/16 ST. STL
	2	24	BINDER HD. SCREW	#4-40 X 1/4 CAD. PL. & IRIDITE
	7	25	BINDER HD. SCREW	#4-40 X 1/8 ST. STL.
	1	26	SEEKER GUIDE ROD	A-4812
	2	27	BAIL GUIDE BUSHING	A-4732
	1	28	SPACER ASS'Y, L.H.	A-4931-4
	1	29	MAIN CONNECTING LINK	A-4685-A-1
	3	30	TRUARC RING	#5103-12 MD
	1	31	LEFT SUPPORT ASS'Y.	B-4866
	3	32	CAPTIVE SCREW	A-4947
	1	33	SEEKER GUIDE PLATE	D-4675B
	2	34	LOCKWASHER	#3 CAD. PL. & IRIDITE
	2	35	BINDER HD. SCREW	#3-48 X 1/4 CAD. PL. & IRIDITE
	1	36	RIGHT SUPPORT	B-4713A
(c)	1 EA. BRG 2 MIN.	37	PIVOT PIN WASHER	B-3817B
	1	38	PIVOT PIN WASHER	A-4772A
	2	39	BAIL STOP	A-5042A
	AS REQ'D.	40	SUPPORT SHIM	A-4807

LTR.	CHANGE No.	DATE
c	ADDED QTY. TO DET. 37 & D... WAS A-4772B	
b	MADE BAIL & ASSOC. PARTS INTO ASS'Y. ADDED PIN. TO SCREWS	10 AUG. 59
a	REDRAWN FOR CLARITY	6/12/59

DIMENSIONS IN INCHES

TOLERANCES UNLESS SPECIFIED: DECIMALS ± .005, FRACTIONS ± 1/64, ANGLES ± °

MATERIAL:

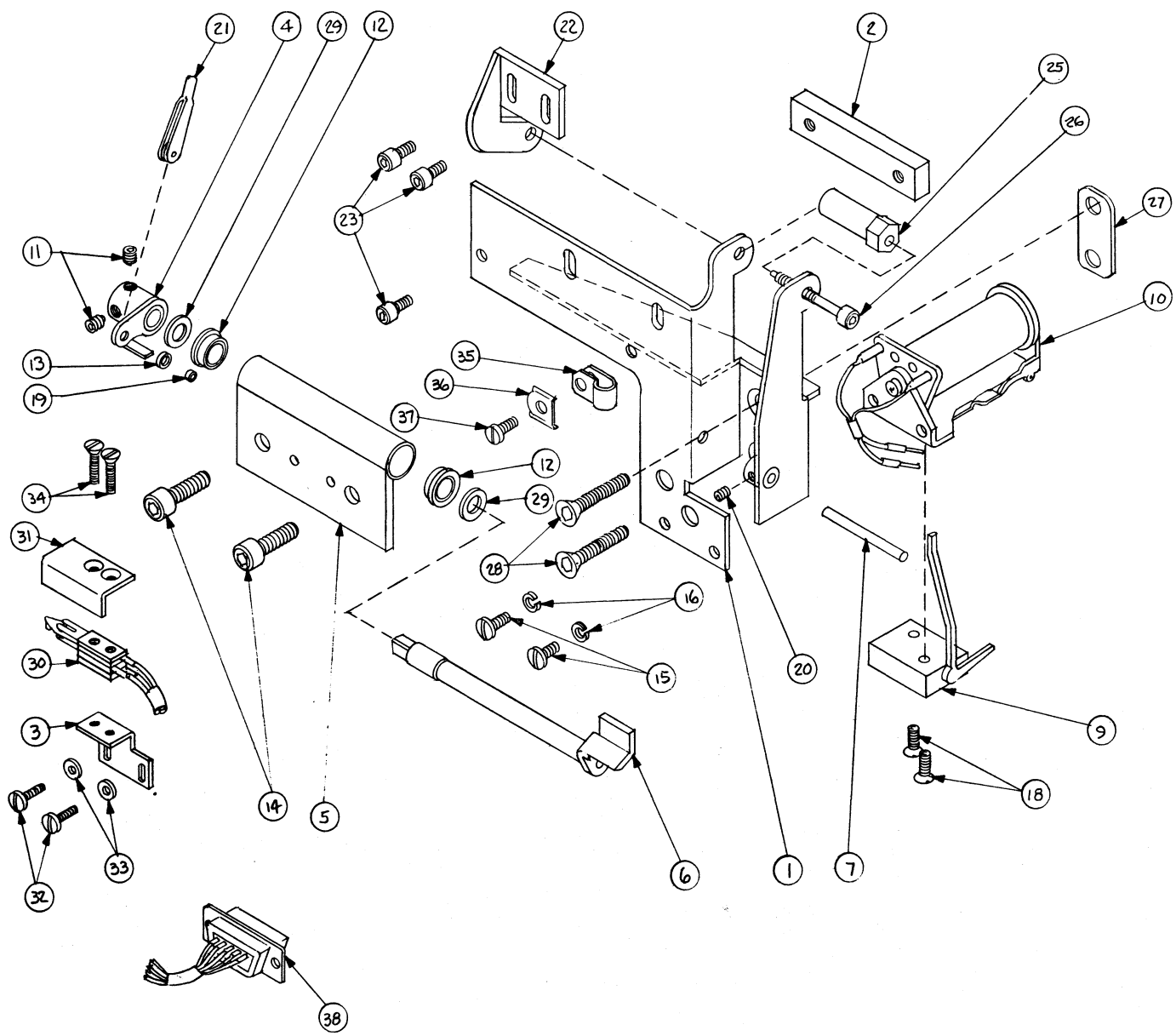
FINISH:

DRAWN ELLR 12 JUNE 59
CHECKED
APPROVED
SCALE FULL
SUPERSEDES
FOR X-5531

SOROBAN ENGINEERING INC.
MELBOURNE, FLORIDA

ACTUATOR & BAIL ASSEMBLY

DWG. No. D-5528-1



QTY.	DET.	NAME OF PART	DESCRIPTION
1	1	CAM MOUNTING BRACKET ASSEMBLY	B-4927A
1	2	NUT STRAP	A-4900A
1	3	BRACKET, TIMING CONTACT	A-5055
1	4	DRIVE ARM & HUB ASSY.	A-4852-P2
1	5	CAM DRIVE TUBE ASSEMBLY	A-4742B
1	6	CAM DRIVE SHAFT ASSEMBLY	A-4854-1
1	7	CAM PIVOT PIN	A-4844
1	9	CAM MAGNET ARM & BEARING ASS'Y.	A-5069
1	10	RELAY	CLARE TYPE "J" *40EC
2	11	SPLINE SOCK. SET SCREW CUP POINT	#6-32 X 1/8 L. CAD. PL.
2	12	FLANGED BEARING	FAFNIR #FCHH 614
1	13	BEARING	MPB #3332
2	14	SOCK. HD. CAP SCREW	#10-32 X 1/2 L S.S.
2	15	BIND. HD. MACH. SCREW	#6-32 X 5/16 L. S.S.
2	16	LOCKWASHER	#6 S.S.
2	18	FLAT HD. MACH. SCREW	#3-48 X 5/16 L. S.S.
1	19	CLEVIS PIN BUSHING	A-4853A
1	20	SPLINE SOCK. SET SCREW FLAT POINT	#4-40 X 1/8 L. CAD. PL.
1	21	CLEVIS	IBM PART #1070020
1	22	CAM SUPPORT BRACKET	A-4820A-1
3	23	SOCK. HD. CAP SCREW	#6-32 X 1/4 L. S.S.
1	25	CAM ECCENTRIC	A-4827
1	26	" " SCREW	A-4828
AS REQ'D.	27	SHIM	A-5034-1
2	28	FLAT SOCK. HD. SCREW	#8-32 X 3/4 L. S.S.
2	29	SHIM	C-3817C, T20
1	30	TIMING CONTACT	P.B. FORM "C"
1	31	SHIELD, TIMING CONTACT	A-5056
2	32	BIND. HD. MACH. SCREW	#4-40 X 3/16 L. S.S.
2	33	PLAIN WASHER	#4 X 1/32 THK. S.S.
2	34	FLAT HD. HIGH STRESS MACH. SCREW	#2-56 X 7/16 L. S.S.
1	35	"D" WASHER	WECKESSER D-140
1	36	CABLE CLAMP	" 1/8-3
1	37	BIND. HD. MACH. SCREW	#6-32 X 5/16 L. S.S.
1	38	CONNECTOR	CANNON DE-9P

LTR.	CHANGE	DATE
C	REDRAWN FOR CLARITY	17 OCT. 59
b	ROTATED DET. 25 & 26 + ADDED DET. 38	22 OCT. 59
a	CHANGED DET. 34 TO FLAT HD. SCREW	20 AUG. 59
	TR-152 18 AUG. 59	

DIMENSIONS IN INCHES
TOLERANCES UNLESS SPECIFIED: DECIMALS ± .005; FRACTIONS ± 1/64; ANGLES ± 1/2°
MATERIAL:
FINISH:

DRAWN CMR 16 OCT. 59
CHECKED J.H.M. 19 AUG. 59
APPROVED
SCALE FULL
SUPERSEDES
FOR C-5041-P2A

SOROBAN ENGINEERING INC.
MELBOURNE, FLORIDA

POWER UNIT ASSEMBLY

DWG. No. C-5529-P2A

DATE: January 5 1961
Revised: August 24 1959

PARTS LIST FOR COMPUTERITER

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. ISSUED PER UNIT		EXT.
1.	DECODER SECTION: Dwg. D-5525B								
2.	A-3327-2,T6	Flanged Bushing					4		
3.	D-4684B	Magnet Mounting Plate					1		
4.	A-4689B	Permutation Bar Spring Retainer					2		
5.	A-4701A-1	Shaft Support Assembly					1		
6.	A-4698A-1	Shaft Support				1			
7.	A-4687-1	Translator Drive Shaft				1			
8.	1/8 X 1"	Pin (Reamer Blank)				1			
9.	B-4707A-P2	Mounting Strut					2		
10.	A-4715A	Strut Hanger					2		
11.	B-4720A	Drive Crank Assembly					1		
12.	A-4717A	Long Crank				1			
13.	A-4691A-2	Short Crank				1			
14.	A-4686A	Translator Drive Bearing Tube				1			
15.	A-4718A	Crank Pin				1			
16.	1/8 X 9/16 Reamer Blank	Pin				1			
17.	A-4766A-1	Center Permutation Bar Guide					1		
18.	B-4767B-1	Permutation Bar Guide & Cap					2		
19.	B-3817B, T12, T13 or T29	Drive Bearing Washer					2		
20.	B-4786-P2	Permutation Bar Stop					1		
21.	A-4808	Strut Hanger Shim					as req'd.		
22.	A-4809	Support Shim					1		
23.	C-4810, T1-T8	Permutation Bar					5-8		
24.	A-4853A	Clevis Pin Bushing					1		
25.	A-4903	Tie Strap Assembly					2		
26.	A-4901-1	Tie Strap				1			
27.	A-4902-1	Tie Strap Boss				1			
28.	B-4904A	Drive Crank Spring					1		
29.	A-4905-1	Decoder Spring					5-8		
30.	A-4908	Translator Stop					1		
31.	A-4944	Terminal Board Spacer					2		
32.	A-4945A	Terminal Board					1		
33.	A-4946-1	Terminal Board Insulator					1		
34.	A-4950	Pull Wire Assembly					1		
35.	B-4948	Link Reworked (IBM #1072190)				1			
36.	A-4949	Pull Wire Sleeve				1			

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PARTS LIST FOR COMPUTERITER

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. ISSUED PER UNIT	EXT.
1.	#5555-12 MD	Grip Ring, Truarc					2	
2.	#5555-18	Grip Ring, Truarc					1	
3.	#5632-CHH	Ball Bearing					2	
4.	#X2113D	CTC Taper Pin Terminal					5-8	
5.	1/4"	Nygrip Cable Clamp					1	
6.	#4-40 X 1/8 S.S.	Binder Head Machine Screw					2	
7.	#4-40 X 3/16 S.S.	Binder Head Machine Screw					2	
8.	#4-40 X 1/2 S.S.	Binder Head Machine Screw					2	
9.	#2-56 X1/8 S.S.	Binder Head Machine Screw					4	
10.	#6-32 X 1/4 S.S.	Binder Head Machine Screw					6	
11.	#4-40 X 1/4 S.S.	Binder Head Machine SCrew					1	
12.	#4-40 X 3/8 S.S.	Socket Head Machine Screw					1	
13.	#4-40 X 5/8 S.S.	Socket Head Machine Screw					1	
14.	#6-32 X 1/4 S.S.	Socket Head Machine Screw					6	
15.	#4-40 X 3/16 S.S.	Socket Head Machine Screw					4	
16.	MPB #3332	Ball Bearing					1	
17.	SOLENOID & MOUNTING BRACKET ASSEMBLY Dwg. #c-5526-1							
18.	A-2228-2	Bearing Modification					5-8	
19.	A-2226-3	Bearing Blank				1		
20.	BD2E-St. Push - 40	Ledex Solenoid				1		
21.	A-4671A-1,T2	Magnet Arm Shaft					5-8	
22.	A-4673B,T1	Magnet Bracket					5-8	
23.	A-4716-P1-1	Arm & Shaft Modifications					5-8	
24.		Leland Part No. for above B-63680-001						
25.	B-4782B	Magnet Arm					5-8	
26.	A-4926	Armature Button					5-8	
27.	#5133-15	"E" Retaining Ring, Waldes					5-8	
28.	#4-40 X 5/32	Binder Head Machine Screw					5-8	
29.	#4-40	Lock Washer					10-16	
30.	#3-48	Nut					10-16	
31.	#3	Lock Washer					10-16	
32.								
33.	POWER & DRIVE UNIT ASSEMBLY: #C-5041-P2A							
34.	C-5529-P2A	Power Unit Assembly					1	
35.	B-3817B,T20	Shim				2		
36.	A-4742B	Cam Drive Tube Assembly				1		

DATE: January 5 1961
Revised: August 29 1959

PARTS LIST FOR COMPUTERITER

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. ISSUED PER UNIT		EXT.
1.	C-5529-P2A	Power Unit Assembly (Cont'd.)							
2.	A-4730A	CAm Drive Tube			1				
3.	A-4729-1	Cam Drive Tube Flange			1				
4.	A-4820A-1	Cam Support Bracket				1			
5.	A-4827	Cam Eccentric				1			
6.	A-4828	Cam Eccentric Screw				1			
7.	A-4844	Cam Pivot Pin				1			
8.	A-4852-P2	Drive Arm & Hub Assembly				1			
9.	A-4849-P2	Drive Arm			1				
10.	A-4851-P1	Drive Arm Hub			1				
11.	A-4853A	Clevis Pin Bushing				1			
12.	A-4854-1	Cam Drive Shaft Assembly				1			
13.	B-4822-1	Cam Drive Shaft			1				
14.	A-4845-2	Cam Drive Arm			1				
15.	A-4900A	Nut Strap				1			
16.	B-4927A	Cam Mounting Bracket Assembly				1			
17.	D-4754B-2	Cam Mounting Bracket			1				
18.	A-4848-2	Cam Pivot Pin Retainer			1				
19.	A-5034-1	Shim				as req'd.			
20.	A-5055	Timing Contact Bracket				1			
21.	A-5056	Shield Timing Contact				1			
22.	A-5069	Cam Magnet Bearing Assembly				1			
23.	B-4859-P2	Cam Magnet Arm Assembly			1				
24.	B-4856-P2	Cam Magnet Arm		1					
25.	1/8 X 1"	Dowel Pin		1					
26.	A-4740B-P3	Cam Magnet Bearing			1				
27.	#5555-12	Grip Ring, Waldes			1				
28.	Form C	Contact				1			
29.	Type "J" #40 E.C.	Clare Relay				1			
30.	#6-32 X1/8 Cad Plate	Set Screw				2			
31.	#D-140	"D" Washer - Wechesser				1			
32.	#FCHH614	Flanged Bearing, Fafnir				2			
33.	#3332	Bearing, MPB				1			
34.	1/8 X 3" Wechesser	Cable Clamp				1			
35.	#10-32 X 1/2 1. S.S.	Socket Head Cap Screw				2			
36.	#6-32 x 5/16 L. S.S.	Binder Head Cap Screw				2			

DATE: January 5 1961
Revised: August 29 1959

PARTS LIST FOR COMPUTERITER

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. PER UNIT	NO. ISSUED	EXT.
1.	#4 x 1/32 S.S.	Plain Washer				2			
2.	#6	Lock Washer				2			
3.	#2-56 x 7/16 S.S.	Flat Head Machine Screw				2			
4.	#3-48 x 5/16 S.S.	Flat Head Machine Screw				2			
5.	#4-40 x 3/16 S.S.	Binder Head Screw				2			
6.	#4-40 x 1/8 Cad Plate	Set Screw				1			
7.	IBM #1070020	Clevis				1			
8.	#6-32 x 1/4 S.S.	Socket Head Cap Screw				3			
9.	#8-32 x 3/4 S.S.	Flat Head Machine Screw				2			
10.	C-5527-1	Drive Unit Assembly					1		
11.	A-4803,T2	Cam Frame				1			
12.	B-4804B	Cam Trip Arm				1			
13.	B-4805A	Cam Accelerater				1			
14.	B-3817B,T15	Cam Washer				as req'd.			
15.	A-4817A	Sleeve				1			
16.	A-4818A	Cam Roller				1			
17.	A-4819A,T2	Spacer				1			
18.	A-4819A,T3	Spacer				1			
19.	A-4819A,T4	Spacer				1			
20.	A-4819A,T5	Spacer				1			
21.	B-4922	Cam Frame Assembly				1			
22.	B-4922-W1	Cam Frame Assembly (Soldering)			1				
23.	A-4825-1,T1	Shaft		2					
24.	A-4825-1,T2	Shaft		1					
25.	A-4824-1	Pivot Tube		1					
26.	A-4803,T1	Cam Frame		1					
27.	A-4816-2	Bearing Tube			1				
28.	A-4955B	Spring				1			
29.	B-5530-1	Power Cam Assembly				1			
30.	B-4923B	Cam Sub-Assembly			1				
31.	B-4821C	Cam		1					
32.	A-4814-1	Stop Pin		2					
33.	A-4815-1	Accelerator Pin		2					
34.	MPB #5632FCHH	Bearing			2				
35.	A-4819A,T1	Spacer			1				
36.	A-4813A-2,T4	Cam Washer			as req'd.				

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PARTS LIST FOR COMPUTERITER

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. ISSUED PER UNIT		EXT.
1.	#4	Lock Washer				3			
2.	#4-40 x 1/4	Socket Head Cap Screw				3			
3.	ACTUATOR & BAIL ASSEMBLY: Dwg.	D-5528-1							
4.	D-4675B	Seeker Guide Plate					1		
5.	C-4674C	Seeker Guide Cap					1		
6.	A-4679-1	Spring Retainer Spacer					2		
7.	A-4678B-1	Bail Roller					2		
8.	A-4685A-1	Main Connecting Link					1		
9.	A-4700A	Seeker					11-49		
10.	B-4705B	Actuator Assembly					1		
11.	B-4702B	Actuator Rod				1			
12.	A-4695B	Actuator Crank				2			
13.	A-4704C	Pivot Pin				2			
14.	A-4732	Bail Guide Bushing					2		
15.	A-4772A	Pivot Pin Washer				as req'd.			
16.	A-4793	Spring Retainer Assembly					1		
17.	B-4680A	Spring Retainer				1			
18.	#4-40 x 7/16	Steel Stud				1			
19.	A-4843A	Washer				1			
20.	A-4807	Support Shim					1		
21.	A-4812	Seeker Guide Rod					1		
22.	A-4860-1	Spring					1		
23.	B-4713A	Right Support					1		
24.	B-4866	Left Support Assembly					1		
25.	B-4731A	Left Support				1			
26.	A-4864	Gusset				1			
27.	A-4905-1	Spring					12-51		
28.	B-4930	Center Spacer					1		
29.	A-4931-4	Spacer Assembly RH					1		
30.	A-4929-2	Spacer				1			
31.	5/16 OD x 7/32 ID	Steel Tube				2			
32.	#4-40 x 11/16 S.S.	Stud				2			
33.	A-4931-4	Spacer Assembly LH					1		
34.	A-4929-2	Spacer				1			
35.	5/16 OD x 7/32 ID	Steel Tube				2			
36.	#4-40 x 11/16 S.S.	Stud				2			

DATE: January 5 1961
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PARTS LIST FOR COMPUTERITER

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. ISSUED PER UNIT		EXT.
1.	B-4933	Translator Bail Assembly					1		
2.	B-4932	Transfer Bail				1			
3.	A-4861	Bail Spring Pin				2			
4.	A-4792	Bail Rivet				2			
5.	A-4690B	Bail Guide				2			
6.	A-4947	Captive Screw					3		
7.	B-4969A-1	Latch & Pin Assembly					1		
8.	A-4965A	Upper Case Latch				1			
9.	A-4980	Spring Pin				1			
10.	A-4968A-1	Upper Case Latch Pin				1			
11.	A-4970B	Bracket & Bushing Assembly					1		
12.	A-4966B	Upper Case Latch Bracket				1			
13.	A-4967A-1	Upper Case Latch Bushing				1			
14.	A-4971	Lower Case Seeker					0-1		
15.	A-5042A	Bail Stop					2		
16.	#4-40 x 3/16	Filister Head Screw S.S.					2		
17.	#5133-9 MD	Truarc Ring					1		
18.	#FCHH418 S.S. or SS-FHH-418	Bearing					4		
19.	#4-40 x 1/4	Flat Head Screw, Cad Plate & Iridite					2		
20.	#4	Lock Washer Cad Plate & Iridite					2		
21.	#6-32 x 3/16	Binder Head Screw S.S.					4		
22.	#4-40 x 1/4	Binder Head Screw Cad Plate & Iridite					2		
23.	#4-40 x 1/8	Binder Head Screw S.S.					7		
24.	#5103-12 MD	Truarc Ring					3		
25.	#3	Lock Washer, Cad Plate & Iridite					2		
26.	#3-48 x 1/4	Binder Head Screw, Cad Plate & Iridite					2		
27.									
28.									
29.									
30.									
31.									
32.									
33.									
34.									
35.									
36.									

DATE:
Revised: 24 August 1959

MODIFICATIONS FOR TYPEWRITERS

SHEET __ OF ___

ITEM NO.	PART NO.	DESCRIPTION	PER SUB ASSY #3	PER SUB ASSY #2	PER SUB ASSY #1	PER ASSY	NO. ISSUED PER UNIT	EXT.
1.	A-4657-1	Key Lever Pin					50	
2.	A-4830	Space Cam Actuator					1	
3.	A-4837,T3	Spacer					1	
4.	B-4934	Automatic Format Bracket					1	
5.	A-4935B	Resistor Bracket					1	
6.	A-4936B	Mounting Bracket					1	
7.	B-4937-P1-2	Plug Bracket					1	
8.	A-4939-1	Left Cam Stop Bracket Mod. Assembly					1	
9.	A-4938	Gusset				1		
10.		I.B.M. #107325				1		
11.	A-4942	Bracket & Button Assembly					1	
12.	A-4831	Bracket				1		
13.	A-4941	Button				1		
14.	A-4943	Spacer Modification					1	
15.	A-4952	Spacer Key Lever Modification					1	
16.	B-4953	Escapement Key Lever Modification					1	
17.	A-4958A	Microswitch Bracket					1	
18.	A-4960-P1-1	Carriage Stop Modification					1	
19.	A-4979-1	Tab Stop					100	
20.	B-4984-1	Space & Tab Contact Bracket					1	
21.	A-4820A-1	Cam Support Bracket					1	
22.	A-5021	Cam Follower Assembly					1	
23.	A-4919	Spring Cam Follower				1		
24.	A-4921	Cam Follower Pin				1		
25.	A-4920	Cam Follower Roller				1		
26.	B-5025	Bracket, RH Margin Stop Switch					1	
27.								
28.								
29.								
30.								
31.								
32.								
33.								
34.								
35.								
36.								