

David Albert Collection

**NOTES ON MATERIEL**

**U. S. CARBINE  
CALIBER .30 M-2 (T-4)**

**INLAND MANUFACTURING DIVISION  
GENERAL MOTORS CORPORATION**



DEPARTMENT OF THE ARMY  
ROCK ISLAND ARSENAL  
ROCK ISLAND, ILLINOIS 61299

REPLY TO  
ATTENTION OF:

May 5, 1993

Rock Island Arsenal Museum

David Albert Collection

Michigan U.S. Carbine Collector's Association  
ATTN: Mr. Chuck Osborne, Senior Editor  
P.O. Box 47038  
Oak Park, MI 48237

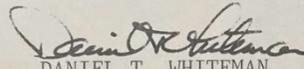
Dear Mr. Osborne,

Thank you for your generous offer to donate the original copy of "Notes on Material, U.S. Carbine Cal .30 MI (T4)" to the Rock Island Arsenal Museum. We will ensure that the manual is preserved and kept available for serious researchers.

I would appreciate it if we could also obtain a copy of the reprint for routine use.

Thank you again for thinking of the Rock Island Arsenal Museum.

If I can be of further assistance, please contact me at (309) 782-5021.

  
DANIEL T. WHITEMAN  
Director, Rock Island  
Arsenal Museum



MICHIGAN U.S. CARBINE  
COLLECTORS ASSOCIATION  
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OAK PARK, MI 48237  
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-ONE OF TWENTY FIVE HUNDRED-

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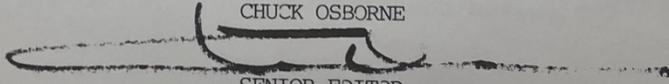
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CHUCK OSBORNE



SENIOR EDITOR



GENERAL REMARKS  
DESCRIPTION OF WEAPON

Type: Caliber .30 Automatic and Semi-Automatic Carbine  
(conversion of U. S. Cal. .30 M-1 Carbine designated  
Model M-2 (Experimental T-4).

Ammunition: Standard Cal. .30 M-1 Cartridge.

Type of Feed: Box Magazine - standard 15 round Carbine  
magazine and new (curved) 30 round magazine.

Operation Principle: Same as U. S. Carbine Cal. .30 M-1.  
Automatic action operated by the use of a cam on  
the operating slide inertia block.

Weight: Less magazine and sling 5-1/4 lbs. approximately.

Weight of Magazine: 15 round, empty .17#; loaded .59#

30 round, empty .26#; loaded 1.10#

Cyclic Rate: 750 to 800 rounds per minute approximately.

Manufacturing Components: Total 90

Component Parts, Disassembled: 24 (field stripped)

Overall Dimensions and Specifications: Same as Cal. .30 M-1.

## GENERAL REMARKS

This weapon is a conversion of the semi-automatic Carbine Cal. .30 M-1 to selective semi-automatic and full automatic operation. All components and characteristics of the standard Carbine remain the same with the exception of the following list of added or altered components:

1. Stock - altered to provide clearance for disconnecter lever and selector.
2. Operating Slide - altered to provide cam on inertia block.
3. Trigger Housing - altered to provide clearance for disconnecter lever and to retain selector spring.
4. Hammer - clearance cut added for disconnecter.
5. Sear - surface added for disconnecter contact.
6. Magazine Catch - added portion to contact additional retaining lug on 30 round magazine.

(Items 7 through 14 are new parts)

7. Pin - Selector - replaces trigger housing retaining pin.
8. Lever - Disconnecter assembled to selector pin (7).
9. Disconnecter
10. Disconnecter Plunger
11. Disconnecter Plunger Spring.
12. Selector
13. Selector Spring
14. Magazine - A new thirty round, curved, box magazine, double row type, was developed which operates satisfactorily in the M-2 (T-4) or the standard Carbine. The new magazine is loaded and used in the same manner as the standard magazine. The curved construction approximates the natural curve that

a row of cartridges will assume due to the taper employed on the case. This feature allows the smooth even feed necessary for automatic operation.

With the exception of the above basic differences, the weapon remains the same as described in the Army Manual F.M. 23-7 U. S. Carbine, Cal. .30 M-1 and M-1 A-1.

#### DESIGN FEATURES

This conversion features the original lightness and compactness, and easily assembled component grouping used in the basic M-1 Carbine.

The original design was altered as little as possible to retain these features, and to make the problem of immediate conversion relatively simple.

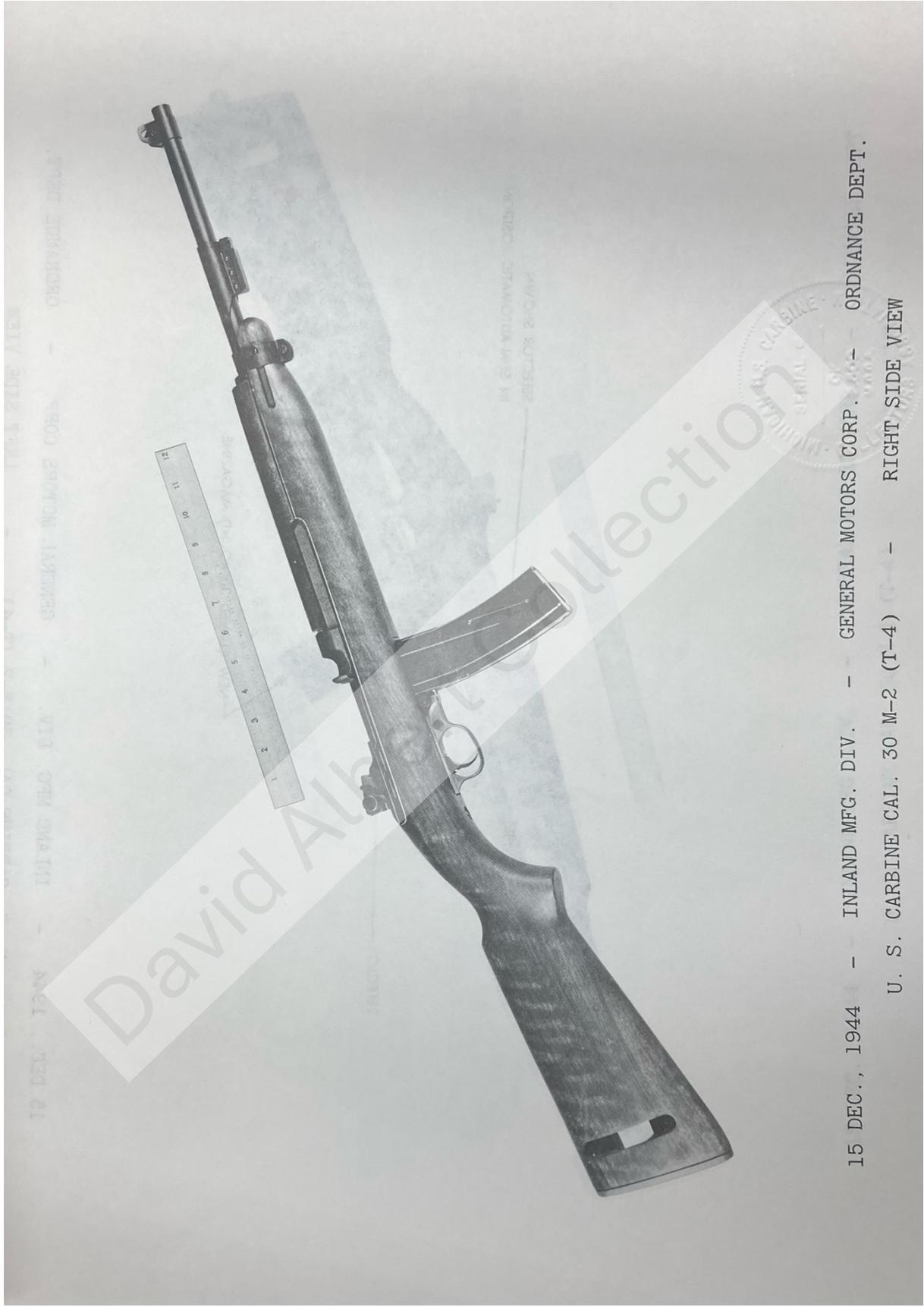
Most of the major altered parts and new parts can also be used in an emergency to replace the original part in the M-1 Carbine. The M-2 Stock, Operating Slide, Trigger Housing, and Sear can be installed easily on the M-1. The Hammer can be used provided it is spaced by a disconnecter or equivalent spacer.

Energy for operation of the automatic mechanism is obtained from the final dwell travel of the operating slide. This surplus energy is expended without effect on the gas piston in the M-1 Carbine after the weapon is loaded, and the bolt locked in battery. The cam on the operating slide that transfers this energy to the lever operating the disconnecter

is so designed that the bolt is always in battery before the lever is energized. This insures complete safety from prefires during automatic operation.

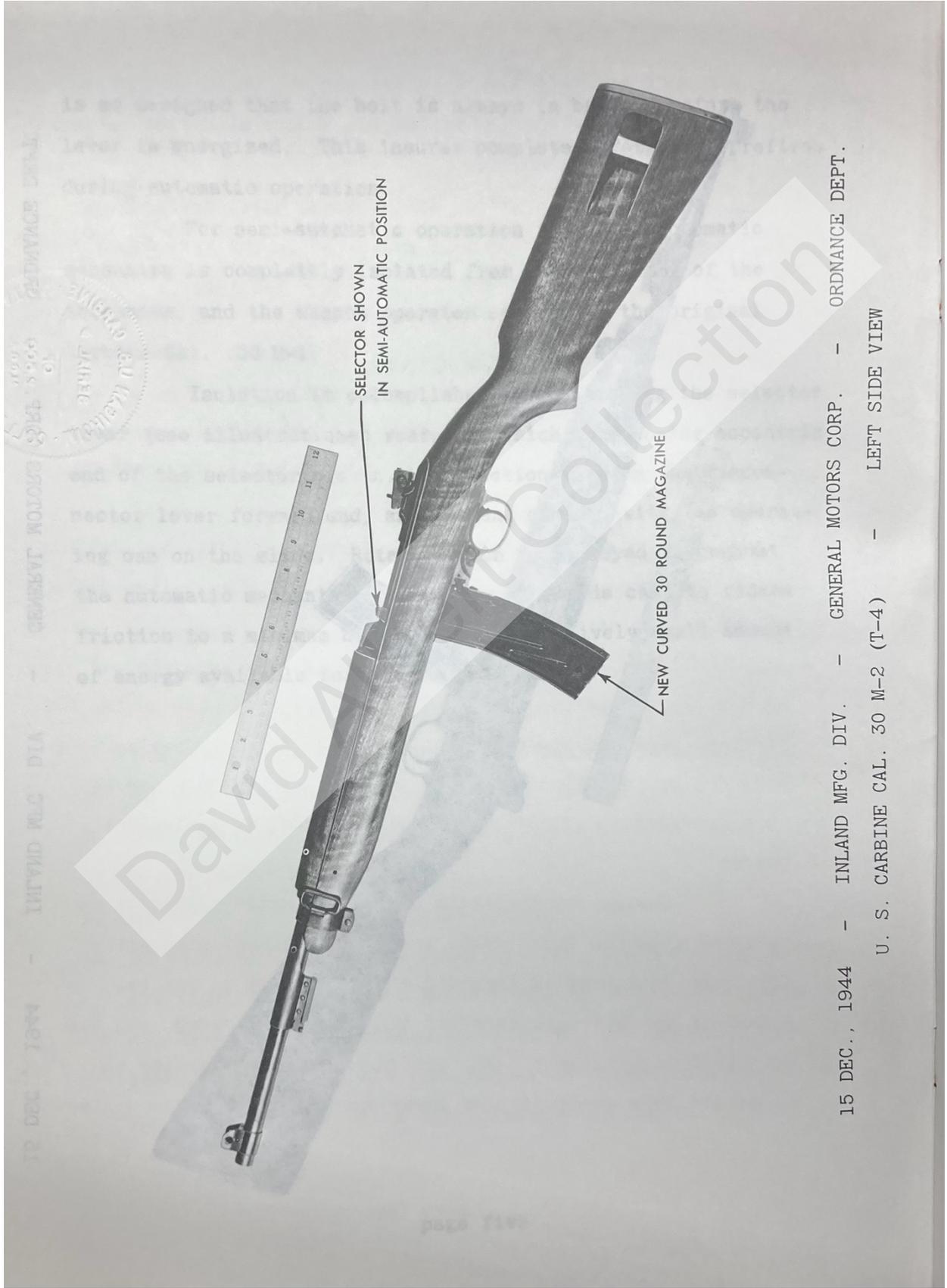
For semi-automatic operation the added automatic mechanism is completely isolated from the remainder of the mechanism, and the weapon operates exactly as the original Carbine Cal. .30 M-1.

Isolation is accomplished by positioning the selector lever (see illustrations) rearward, which rotates the eccentric end of the selector pin in the direction to drop the disconnect lever forward end, and prevent contact with the operating cam on the slide. Rotary motion is employed throughout the automatic mechanism (except for the slide cam) to reduce friction to a minimum because of the relatively small amount of energy available for operation.



15 DEC., 1944 - INLAND MFG. DIV. - GENERAL MOTORS CORP. - ORDNANCE DEPT.

U. S. CARBINE CAL. 30 M-2 (T-4) - RIGHT SIDE VIEW

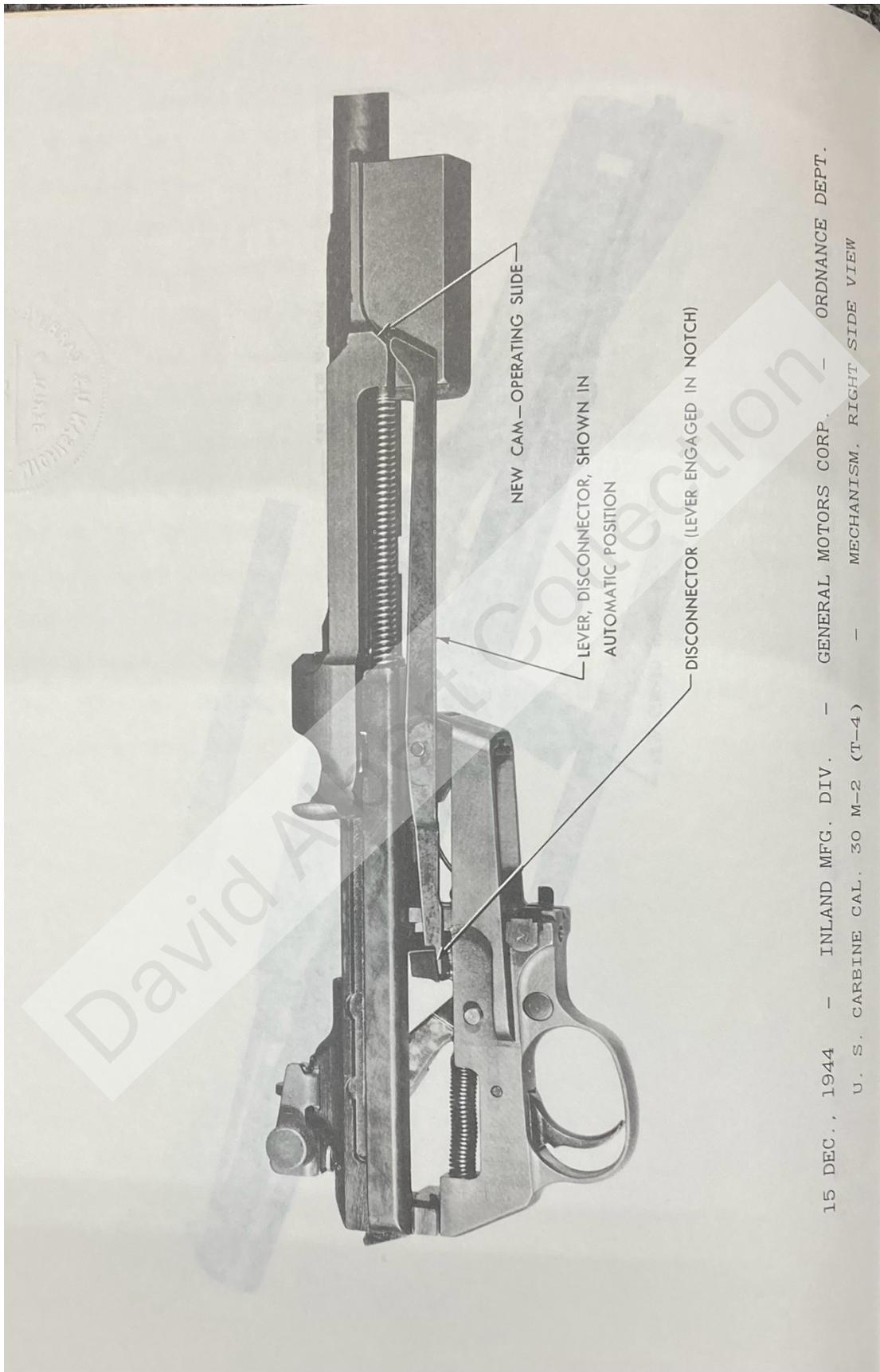


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U. S. CARBINE CAL. 30 M-2 (T-4) - LEFT SIDE VIEW



SELECTOR

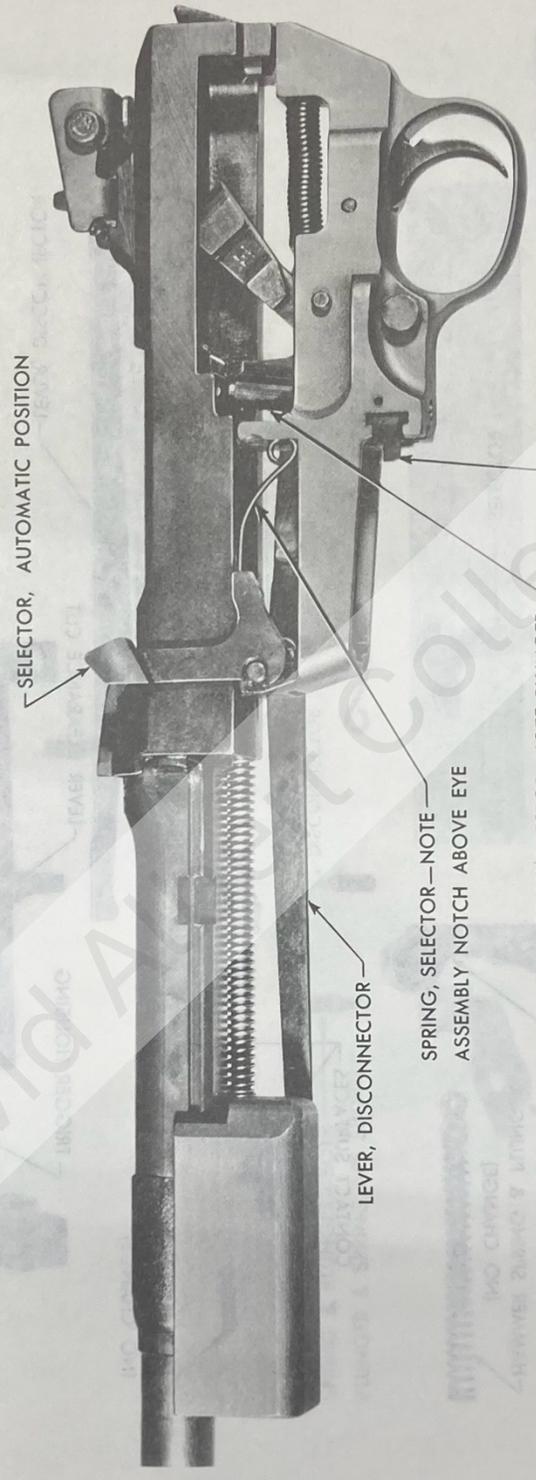
15 DEC., 1944 - INLAND MFG. DIV. - GENERAL MOTORS CORP. - ORDNANCE DEPT.  
U. S. CARBINE CAL. 30 M-1 (T-4) - TOP VIEW



15 DEC., 1944 - INLAND MFG. DIV. - GENERAL MOTORS CORP. - ORDNANCE DEPT.  
U. S. CARBINE CAL. 30 M-2 (T-4) - MECHANISM, RIGHT SIDE VIEW

12 DEC. 1944 - INLAND MFG. DIV. - GENERAL MOTORS CORP. - ORDNANCE DEPT.

HYDRAULIC CYLINDER WITH TIE ROD EXTENSION



SELECTOR, AUTOMATIC POSITION

LEVER, DISCONNECTOR

SPRING, SELECTOR—NOTE  
ASSEMBLY NOTCH ABOVE EYE

DISCONNECTOR, NOTE PLUNGER  
AT REST ON RECEIVER BRIDGE

CATCH, MAGAZINE, SHOWING  
NEW LUG EXTENSION.

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U. S. CARBINE CAL. 30 M-2 (T-4) - MECHANISM, LEFT SIDE VIEW



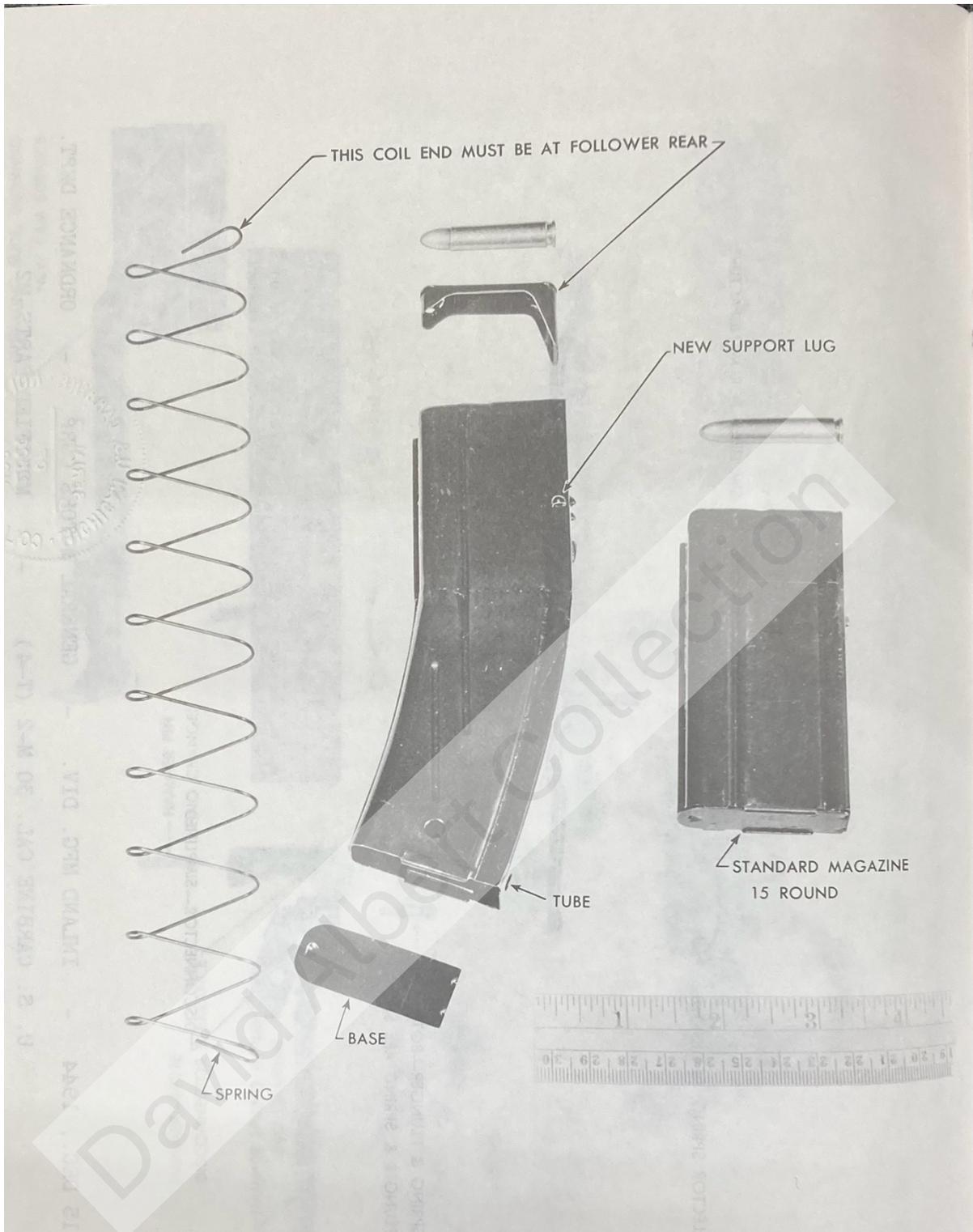
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U. S. CARBINE CAL. 30 M-2 (T-4) - DIS-ASSEMBLY-AUTOMATIC PARTS



15 DEC., 1944 - INLAND MFG. DIV. - GENERAL MOTORS CORP. - ORDNANCE DEPT.

U. S. CARBINE CAL. 30 M-2 (T-4) - MODIFIED PARTS-M2



15 DEC., 1944 - INLAND MFG. DIV. - GENERAL MOTORS CORP. - ORDNANCE DEPT.  
U. S. CARBINE CAL. 30-M2 (T-4) - NEW MAGAZINE, 30 ROUND

## OPERATION

The semi-automatic fire operation is exactly as described in the standard manual F.M. 23-7 covering the M-1 Carbine. Prepare the weapon for semi-automatic operation by pulling the knurled knob on the selector lever to the rear. This lever is located directly opposite the operating slide handle on the left side of the receiver.

On later models an 'A' is exposed on the side of the selector lever when the lever is in position for 'automatic' fire. This position is obtained with the lever pushed forward. Actual firing is the same as the M-1 Carbine except that when the trigger is pulled, with the selector in 'automatic' position, the weapon continues to fire as long as the trigger is held back, or until the magazine is empty. The firing cycle can be interrupted at any time by releasing the trigger.

Caution: If the trigger is held back after firing a round in 'semi-automatic' position, and the selector lever is pushed to 'automatic' position, the weapon will resume firing automatically. Always release trigger when moving the selector lever.

Function: Semi-Automatic. Function and operation of the weapon in 'semi-automatic' is exactly the same as that of the M-1 Carbine since the automatic mechanism is rendered in-operative.

Function: Automatic. With the selector lever forward, the eccentric on the right end of the selector pin raises the disconnecter lever into position to contact the slide cam on the inertia block.

Function in the 'automatic' phase is the same as semi-automatic, except that when the trigger is held back, the sear, which holds the hammer cocked, is prevented from returning to the top of the trigger pedestal. In this position, the disconnecter contact surface on the sear is under the contact surface of the disconnecter. The disconnecter lever is actuated by the slide cam during the dwell, or overtravel period of the operating slide. Prefire is impossible since the bolt is fully locked as the dwell travel begins.

The slide cam depresses the forward end of the disconnecter lever, rotating it on the selector pin eccentric, raising the rear end. This rotates the disconnecter in the opposite direction until contact with the sear is made. Continued rotation forces the sear from the hammer notch, releasing the hammer, which fires the chambered round. This action is repeated as long as the trigger is held back, or until the magazine is empty.

When the trigger is released at any point in the cycle, the sear returns to the rear, preventing contact with the disconnecter, and automatic fire ceases with the hammer held in the cocked position by the sear and trigger. The disconnecter spring and plunger returns the disconnecter and disconnecter lever to firing position as the slide recoils after each automatic shot. In the semi-automatic position, the spring also holds the disconnecter away from the sear to prevent interference with the normal operation of the sear.

Disassembly: Disassembly and assembly are the same

as for the M-1 Carbine except for differences caused by the added parts as follows:

1. With the mechanism out of the stock, remove operating slide spring and guide rod.
2. Place selector in semi-automatic position. Using guide rod, insert small end in eye of selector spring; raise spring eye up from its seat to the disengaging notch on the trigger housing. Pull spring outward to the left and remove.
3. The selector can now be withdrawn to the rear and removed.
4. Push selector pin lightly from the left until its crank boss clears the trigger housing magazine well on the right side of the housing. Rotate the pin counterclockwise 180°, moving the lever forward and out of the disconnecter slot. Do not force. Complete withdrawal of lever and pin assembly. (Note: On early models (T4) the pin and lever were separate parts, and the lever was simply lifted off the pin boss and withdrawn).
5. Disengage the trigger housing from the receiver, being careful not to lose the disconnecter plunger and spring (held in by the receiver bridge).
6. Further take down procedure is the same as for the standard Carbine. The disconnecter lever is removed with the hammer and hammer pin.

Assembly: Reverse the above procedure being careful to assemble the disconnecter on the right side of the hammer. In assembling the trigger housing group to the receiver, make sure the slide is already assembled to the barrel and receiver

assembly. Assemble trigger housing from rear, and depress disconnecter plunger to allow it to pass under the receiver bridge. Insert the selector pin and lever assembly as described in 'disassembly'. Do not force. Reinstall selector and selector spring. Insert plain end of selector spring, bowed portion up, into hole in selector, with selector rearward in 'semi-automatic' position. Enter eye of spring in notch at top of trigger housing, engage guide groove and force eye down groove into seat. The eye will then be at rest on the top of the magazine well wall. Reinstall operating slide spring and guide. In returning mechanism to stock, hold selector lever against the side of the receiver to prevent interference with, and damage to, the stock.

Check operation with selector lever in semi-automatic position as directed for Carbine Cal. .30 M-1.

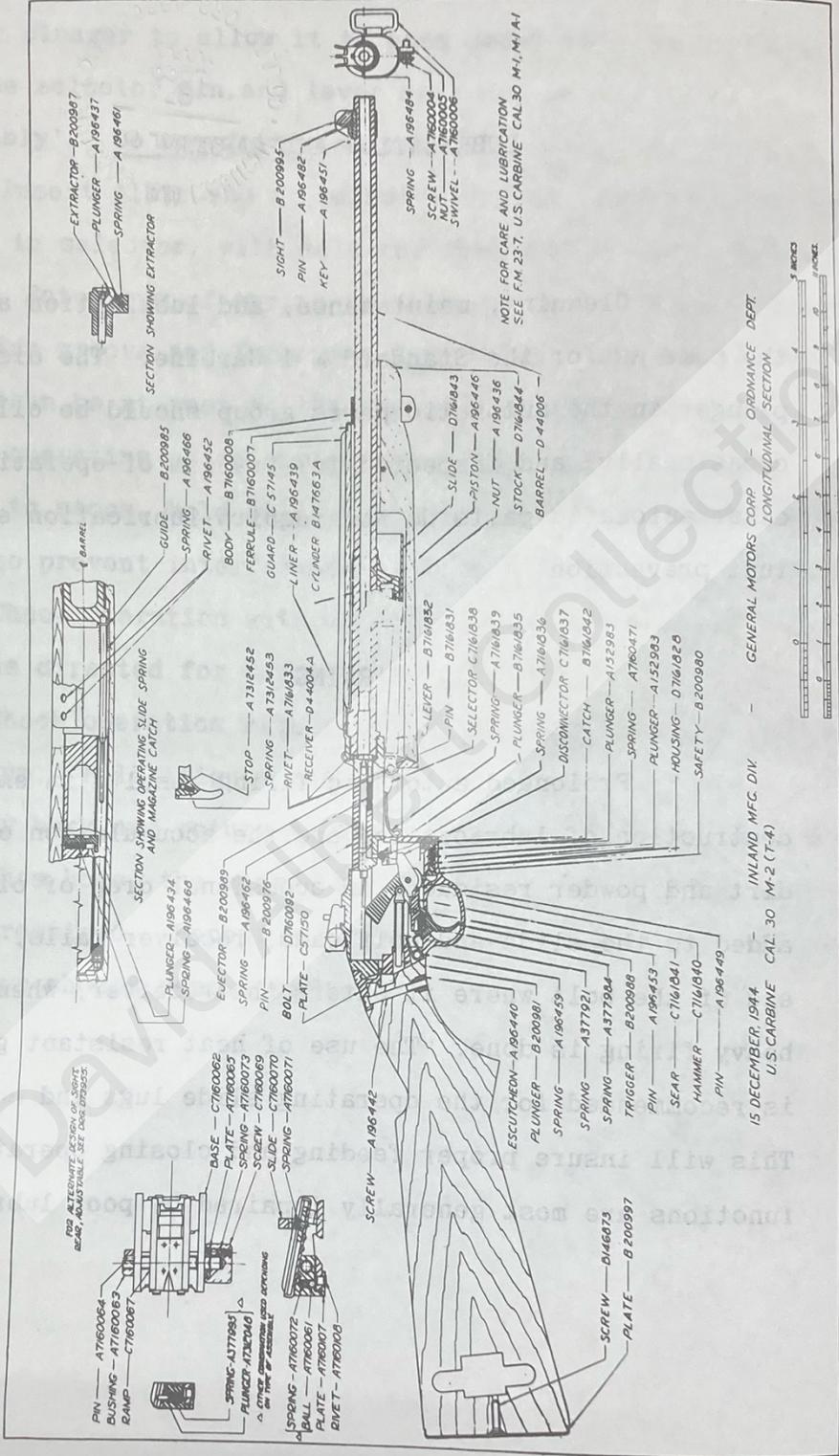
Check operation with selector in automatic position with an empty gun. Pull trigger and hold back. Pull operating slide all the way back and return to battery slowly by hand. As the slide reaches home, the hammer should fall. Very little pressure should be required. Repeat with the trigger free after dry firing. Hammer should remain cocked.

## LUBRICATION AND CARE

Cleaning, maintenance, and lubrication are generally the same as for the Standard M-1 Carbine. The disconnecter plunger in the automatic parts group should be oiled lightly occasionally, and inspected for freedom of operation. The other automatic parts do not require lubrication except for rust prevention.

### WARNING

Prolonged automatic firing results in excessive heat, destruction of lubrication, and the accumulation of excess dirt and powder residue. An occasional drop of oil should be added to the slide and bolt cams, receiver rails, and the rear end of the bolt where it enters the receiver, when continued heavy firing is done. The use of heat resistant graphited grease is recommended for the operating slide lugs and barrel grooves. This will insure proper feeding and closing operations, as those functions are most generally impaired by poor lubrication.



ALPHABETICAL LIST OF MANUFACTURERS PARTS

<u>PART NAME</u>	<u>PART NO.</u>
BALL	A7160061
BARREL	D44006 D44006A
BASE, ADJUSTABLE REAR SIGHT	C7160062
BASE, MAGAZINE	B200984A
BODY, FRONT BAND	B7160008
BOLT	D7160092
BUSHING, WINDAGE SCREW	A7160063
CATCH, BAND, FRONT	B7312232
CATCH, MAGAZINE	B7161842
CYLINDER, GAS	B147663A
DISCONNECTOR	C7161837
EJECTOR	B200989
ESCUTCHEON, RECOIL PLATE SCREW	A196440
EXTRACTOR	B200987
FOLLOWER, MAGAZINE	B200983
GUARD, HAND	C57145
GUIDE, OPERATING SLIDE SPRING	B200985
HAMMER	C7161840
HOUSING, TRIGGER	D7161828
KEY, FRONT SIGHT	A196451
LEVER, DISCONNECTOR	B7161832
LINER, HAND GUARD	A196439
NUT, FRONT BAND	A7160005

ALPHABETICAL LIST OF MANUFACTURERS PARTS (continued)

<u>PART NAME</u>	<u>PART NO.</u>
NUT, PISTON	A196436
PIN, FIRING	B200976
PIN, FRONT SIGHT	A196482
PIN, HAMMER	A196449
PIN, TRIGGER	A196453
PIN, TRIGGER HOUSING AND SELECTOR	B7161831
PIN, WINDAGE SCREW	A7160064
PISTON	A196446
PLATE, BUTT	B200997
PLATE, DETENT	A7160065
PLATE, RECOIL	C57150
PLATE, ZERO INDEX	A7160107
PLUNGER, DISCONNECTOR	B7161835
PLUNGER, EXTRACTOR SPRING	A196437
PLUNGER, HAMMER SPRING	B200981
PLUNGER, MAGAZINE CATCH	A196434
PLUNGER, MAGAZINE CATCH RETAINER	A152983
PLUNGER, RAMP GUIDE	A7312048
PLUNGER, SAFETY	A152983
RAMP, ADJUSTABLE REAR SIGHT	C7160067
RECEIVER	D44004A
RIVET, BAND, FRONT	A7312533
RIVET, DISCONNECTOR LEVER	A7161833

ALPHABETICAL LIST OF MANUFACTURERS PARTS (continued)

<u>PART NAME</u>	<u>PART NO.</u>
RIVET, HAND GUARD LINER	A196452
RIVET, ZERO INDEX PLATE	A7160108
SAFETY	B200980
SCREW, BUTT PLATE	B146873
SCREW, FRONT BAND	A7160004
SCREW, RECOIL PLATE	A196442
SCREW, WINDAGE	C7160069
SEAR	C7161841
SELECTOR	C7161838
SIGHT, FRONT	B200995
SLEEVE, BAND, FRONT	C7312231
SLIDE, APERTURE	C7160070
SLIDE, OPERATING	D7161843
SPRING, APERTURE SLIDE	A7160071
SPRING, BASE	A7160072
SPRING, DISCONNECTOR	A7161836
SPRING, EJECTOR	A196462
SPRING, EXTRACTOR PLUNGER	A196461
SPRING, HAMMER	A377921
SPRING, INDEX	A7160073
SPRING, LOCKING, FRONT BAND	A196484
SPRING, MAGAZINE	B200982
SPRING, MAGAZINE CATCH	A196468

(continued) ALPHABETICAL LIST OF MANUFACTURERS PARTS (concluded)

<u>PART NAME</u>	<u>PART NO.</u>
SPRING, OPERATING SLIDE	A196466
SPRING, OPERATING SLIDE STOP	A7312453
SPRING, RAMP GUIDE PLUNGER	A377995
SPRING, SAFETY PLUNGER	A7160471
SPRING, SEAR	A377984
SPRING, SELECTOR	A7161839
SPRING, TRIGGER	A196459
STOCK	D7161844
STOP, OPERATING SLIDE	A7312452
SWIVEL, FRONT BAND	A7160006
TRIGGER	B200988
TUBE, MAGAZINE	C57147

NOTE: Above parts list does not include the alternate machined adjustable rear sight D73955.

**Magazine** parts listed refer to standard 15 round magazine. New 30 round magazine part numbers and drawings will not be issued until testing under production conditions has been completed.

