C-MAG SYSTEM FOR M16 WEAPONS

CCM000	CMAG MAGAZINE **S/N**
PCMS11	CARRYING POUCH (BLACK)
LCMP05	PERSONAL LOADER
XXXGT1	DRY LUBRICANT
XXXICE	INSTRUCTION CARD
XXXSD1	POCKET SCREWDRIVER TOOL
XCMTED	DOMESTIC TECHNICAL MANUAL

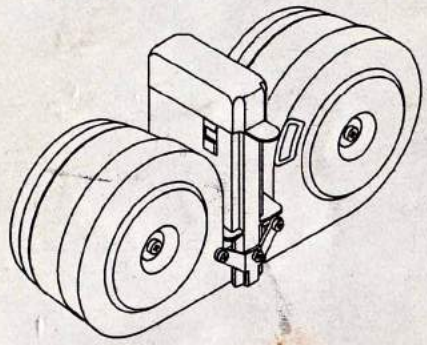
THE BETA COMPANY, 2137B Flintstone Drive, Tucker, Georgia 30084
Phone (770) 270-0773 OR 1-800-669-BETA, Fax (770) 270-0559

C-MAG®

TECHNICAL INFORMATION
AND
MAINTENANCE MANUAL

C-MAG MAGAZINE SYSTEM
for M16 family of weapons

NSN 1005013604862



BETA

THE BETA COMPANY
2137B Flintstone Drive
Tucker, Georgia 30084

TABLE OF CONTENTS

Continued

List of TABLES

List of APPENDICES

CLEANING AND DISASSEMBLY INSTRUCTIONS

C-MAG MAGAZINE SYSTEM

for M16 family of weapons

1.0 C-MAG AMMUNITION MAGAZINE

1.1 DISASSEMBLY

CLEAN the exterior of the C-MAG of any foreign materials such as dirt, sand or oils.

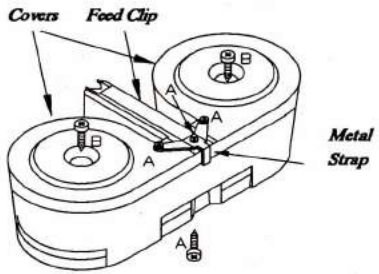


Figure 1.1

REMOVE the four (4) screws labeled "A" in Figure 1.1.

REMOVE the metal strap and feed clip. Components in the feed clip will fall out.

REMOVE the two (2) screws labeled "B" and the back cover set.

DO NOT REMOVE ANY MORE SCREWS.

SEE 1.2 for clearing ammunition blockages in drum mechanism.

INSPECT the components to determine nature and severity of any contamination.

SEE Table 1.1 for specific CLEANING PROCEDURES.
Magazines with obvious and serious damage to the drum assembly cannot be field repaired and should be returned to the manufacturer for repair.

All other components are available as spare parts for field replacement.
SEE Appendices A-D for a list of spare parts and part numbers.
Screws sizes are (A) #6-32 UNC by 3/8 inch long and (B) #10-32 UNF by 3/8 inch long, both phosphate treated for corrosion resistance.

For MAINTENANCE BEYOND INTERMEDIATE REPAIR send C-MAG to:
The Beta Company, 2137B Flintstone Drive, Tucker, Georgia 30084;
Phone (770) 270-0773 OR 1-800-669-BETA, Fax (770) 270-0599.

RECOMMENDED PROCEDURES FOR C-MAG CLEANING	
CONTAMINATION	**PROCEDURE OR ACTION**
Harsh sand, dirt, etc.	May be removed with a cloth or compressed air. Heavier deposits generally require water flushing.
Fine sand, silt, mud etc.	Soak in water with detergent (optional) to saturate and dissolve deposits. Wipe and shake as necessary to aid in removal. Flush with clean water.
Oils, grease, residues from solvents or fuels (gasoline, diesel)	Remove as much as possible by wiping, then soak or flush with solvent. Use acetone or alcohol. Do not use oily fuels such as diesel, mineral spirits or kerosene. Wash with detergent and water and finally rinse with water to remove solvent and detergent residue.
Corroded ammunition and/or corrosion deposits from corroded ammunition	Follow the instructions in 1.2 to remove live ammunition. Then treat as oils and grease.
Salt deposits from seawater	Light deposits may be removed by soaking in clean water to dissolve the salt residue. Drum assemblies with heavier deposits should be returned to the manufacturer for repair.

TABLE 1.1

1.2 CLEARING AMMUNITION BLOCKAGES

REMOVE ammunition blocking the mechanism in either drum by rotating the drive mechanism in the directions shown in Figure 1.2.

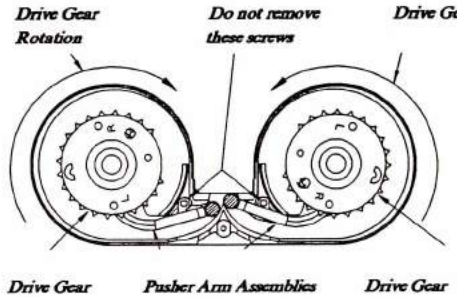


Figure 1.2

INVERT drum assembly, grasp and slowly rotate the drive gear to dislodge the ammunition. Shake drum assembly if necessary.

Do not allow the drive mechanism to snap back into place. THIS MAY CAUSE DAMAGE.

1.3 DRUM HOUSING - CLEANING AND ASSEMBLY

CLEAN drum assembly and covers with water and detergent or as suggested in Table 1.1. Drive gears and pusher rounds should rotate smoothly. Continue flushing with water while rotating the drive gears until smooth operation is obtained. Shake out excess water and dry.

INSPECT drum assembly and covers for damage. Check drum around the feed clip attachment screw holes. Drive gear mechanisms or pusher rounds must rotate freely. DO NOT USE drum assembly if any interior components are damaged (broken, chipped or cracked). Exterior scratches are normal and do not affect performance.

REPLACE back cover set (Part No: SCM02B) if cracked or chipped.

Appearance of brass markings on interior surfaces indicate normal use.

Before reassembly begins, pusher arm assemblies should be in fully released positions as shown in Figures 1.2 and 1.3.

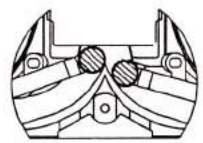


Figure 1.3

APPLY dry lubricant (Part No. XXXGT1) on dry drum assembly to inner walls of drum, covers and center holes of drive gears.
DO NOT USE any grease, oil or other fluid based lubricants.

REASSEMBLE back cover set to the drum assembly using the screws labeled "B" in Figure 1.1. Tighten moderately with a screwdriver or C-MAG screwdriver tool (Part No. XXXSD1).

1.4 FEED CLIP - CLEANING, INSPECTION OF PARTS

Components of the feed clip assembly are identified in Figure 1.4.

CLEAN each component in accordance with Table 1.1. The interior of the feed clip should be wiped out with a cloth. If washed, completely rinse, then dry each part.

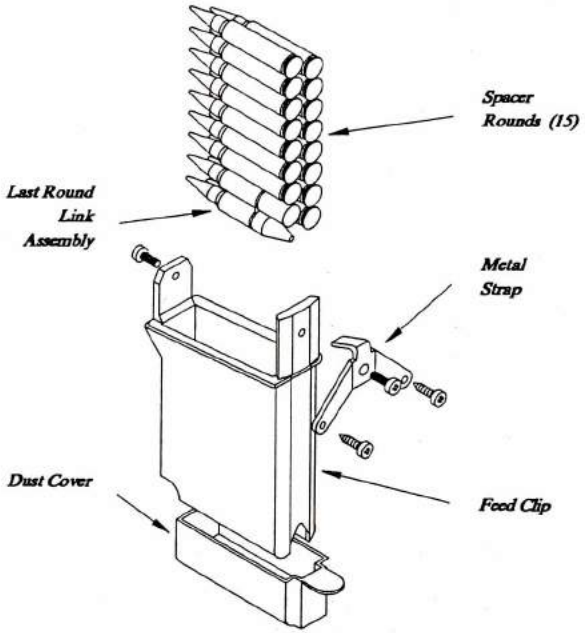


Figure 1.4

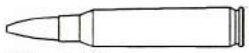


Figure 1.5

INSPECT each component for damage. Spacer rounds, Figure 1.5 (Part No. SCM131) must be clean and straight.

SPACER ROUNDS need to roll freely on flat surface; replace dented or scratched ones not rolling freely.

Figure 1.6

LAST ROUND LINK ASSEMBLY, Figure 1.6 (Part No. ACM012) must also roll freely on a flat surface. Scrapes on tapered end (upper round) are normal, caused by the overriding action of the weapon bolt. Replace if damage is excessive.

Linked assembly may lengthen slightly during normal use, no longer fitting easily within the feed clip. Components can be pushed back together, unless other damage exists. Replace assembly if length cannot be corrected.

Spacer rounds are anodized (dark surface) for durability and corrosion resistance. Sections of shiny color indicate that the protective surface is broken. REPLACE when large sections of anodized surface are broken.

INSPECT FEED CLIP (Figure 1.4, Part No. SCM030) for damage:

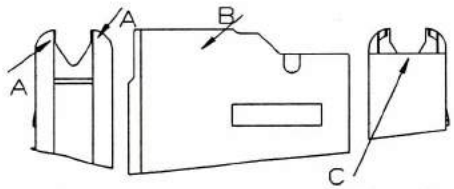


Figure 1.7

- **FEED CLIP - LEGS** used for attachment to drum;
- **FEED CLIP - TOP** (Figure 1.7):
  HAIRLINE CRACKS at locations A and B. Cracks may not immediately cause failures, but feed clip should be replaced.
  CHIPS (missing material) at location C, result from loading. Minor chipping is common, replace if chipping is excessive.

1.5 FEED CLIP - ASSEMBLY OF PARTS

REATTACH feed clip and metal strap to drum assembly (Figure 1.1, use screws "A"). Tighten screws and test security of the feed clip attachment.
DO NOT OMIT THE METAL STRAP. It is important for maintaining proper orientations for covers, feed clip and drum assembly attachments.

RELOAD feed clip with spacer rounds (Part No. SCM131). Individually drop 14 of the required 15 rounds into the feed clip (Figure 1.8); save one (1) round to insert with last round link assembly (Part No. ACM012). Spacer rounds are an integral part of the C-MAG, necessary for proper operation of the magazine. Orient the spacer rounds in the direction of the pusher rounds which are visible when looking into the empty feed clip (Figure 1.8). Only continue if both pusher rounds are visible.

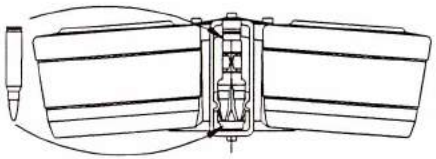


Figure 1.8

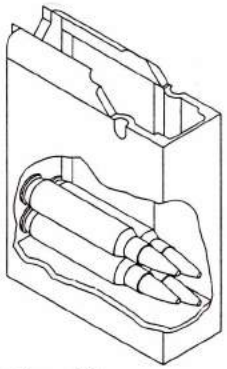


Figure 1.9

SPACER ROUNDS must rest against the wall of the feed clip in an alternating pattern (Figure 1.9). The first spacer round inserted may be oriented on either side (left or right) of the feed clip. The most common method for reloading is to hold the C-MAG in one hand (the left hand for a right handed person) and tilt it slightly to either side as the spacer rounds are dropped in. With practice this procedure becomes routine.

A quantity of fifteen (15) spacer rounds is required for reassembly of the feed clip. IN AN EMERGENCY ONLY clean ball ammunition may TEMPORARILY be used as substitute for any or all of the spacer rounds.

Once the **14 spacer rounds** are correctly in place, the last round link assembly (Part No. ACM012) is inserted in the orientation shown in Figure 1.10.A.

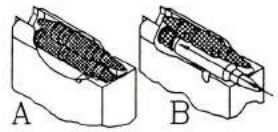


Figure 1.10

The **last round link assembly** serves the major function of allowing the weapon bolt to harmlessly close after the last round is chambered and fired.

There are **four (4) important details** in the insertion of the last round link assembly:

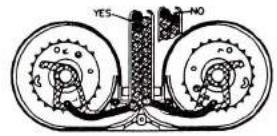
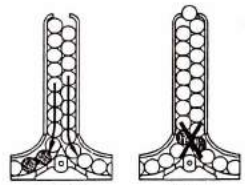


Figure 1.11

- Position assembly against the wall of the feed clip on the side with the lower stack of spacer rounds (note: this can be either the left side or the right side depending only on which side the first spacer round was placed on);
- both elements of the assembly are touching the same wall (in other words, one round above the other);
- the tapered end is nearest the feed clip opening (on top);
- the last spacer round is inserted as shown in Figure 1.10.B. It must be pushed from the front into the space between the two elements of the last round link assembly. Slightly tilt the assembly in the feed clip to achieve this. Tap the spacer round in order to completely seat it in position.



YES **NO**

Figure 1.12

Reassembly of the feed clip is completed (see Figure 1.11). **Failure to meet these requirements may cause damage because loading ammunition past 15 rounds will be prohibited (see Figure 1.12).**

CHECK for free movement of rounds by pressing down. REPEAT procedure if free movement is not obtained. Apply a small amount of dry lubricant (Part No. XXXGT1) to top of the last round link assembly.

LOAD the magazine with 100 rounds. Download a few live rounds by hand to test movement. Reclean or reinspect if difficulty in either loading or downloading is noted. Install dust cover (Part No. SCM160) on the feed clip.

1.6 ADAPTATION FOR BLANK ROUNDS (US M200 ONLY)

The C-MAG can be used with blank rounds. Feed clip and related components must be exchanged with those provided in the Blank Adapter Kit (Figure 1.13, Part No: BCM000, see Appendix D).

DETACH feed clip with spacer rounds and back strap from drum assembly.

ATTACH BLANK ADAPTER KIT (Part No. BCM000) to drum assembly. Follow steps described in section 1.5 for assembly.

Do not mix parts from blank adapter kit with standard feed clip components.

For easy identification:
- Color of the blank adapter is blue
- Blank spacer rounds (Part No. BCM131) and blank last round link assembly components (Part No. BCM012) are shortened.

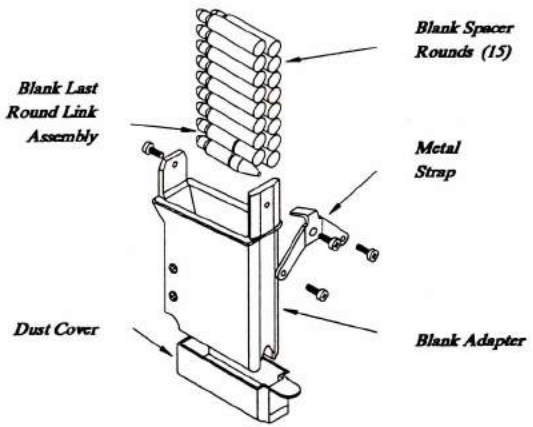


Figure 1.13

PROCEDURES described in sections 1.1 through 1.5 for the installation, removal, assembly, inspection and cleaning of the C-MAG components apply to the blank adapted C-MAG as well.

ACCESSORIES

2.0 INDIVIDUAL LOADERS

2.1 SPEED LOADER (10 ROUND)

THE SPEED LOADER (Part No. LCMS10) uses 10 round ammunition clips (Figure 2.1) for rapid loading.

Figure 2.1

Figure 2.2

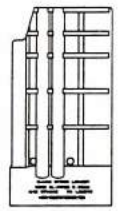


Figure 2.3

The **SPEED LOADER** consists of two parts:

Housing (Figure 2.3):
Fits over the feed clip of the C-MAG, holding the metal clip and rounds.

- **Plunger** (Figure 2.2):
Slides within the housing, stripping the rounds from the clip, inserting them into the C-MAG.

KEEP LOADER CLEAN to avoid introducing contamination into the magazine during loading. For cleaning procedures, recommendations in Table 1.1 may be followed.

2.2 PERSONAL LOADER (5 ROUND)

THE PERSONAL LOADER (Part No. LCMP05) uses loose or bulk ammunition.

The **PERSONAL LOADER** (Figure 2.4) consists of two parts:

- **Housing:**
  Fits over the feed clip of the C-MAG
- **Plunger:**
  Raise the plunger to insert up to 5 loose rounds into the side opening of the housing, depress plunger to load rounds into the C-MAG.

Figure 2.4

KEEP LOADER CLEAN to avoid introducing contamination into the magazine during loading. For cleaning procedures, recommendations in Table 1.1 may be followed.

3.0 CARRYING POUCH

THE CARRYING POUCH (Part Nos. PCMS10/olive drab, PCMS11/black, PCMS12/desert camouflage) holds one C-MAG for storage and transportation.

Each carrying pouch is equipped with an exterior pocket for storage of one loader.

KEEP POUCH CLEAN to reduce introduction of contamination into magazine and loader. The pouch (Figure 3.1) may be cleaned with water and detergent.

Figure 3.1

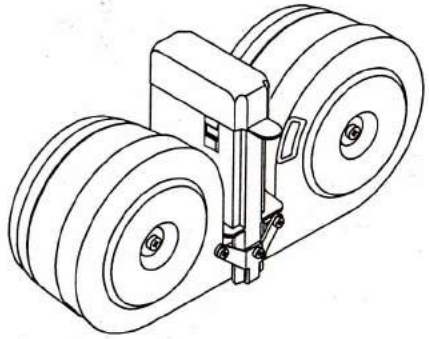
TROUBLESHOOTING C-MAG PERFORMANCE

CHARACTERISTIC	CAUSE AND ACTION
Loading stops after about 40 rounds; loading is unusually difficult; feed is erratic	All characteristic of a dirty magazine. Disassemble and clean as directed. If not dirty inspect component parts for damage. May also be symptomatic of dirty or corroded ammunition.
Loading stops after about 15 rounds	Last round link assembly improperly installed, inspect to determine if it is stacked and against one wall of the feed clip.
Double feeds in weapon; two rounds, or one round and a casing, in the upper receiver.	Feed clip may be cracked on one side allowing rounds to eject spontaneously.
Live rounds mixed with spacer rounds in feed clip below last round link assembly	One drum hesitated feeding. Drum assembly should be cleaned and inspected.
Spacer round is chambered	Same as above
Weapon bolt drives last round link assembly into front of feed clip	Last round link assembly was installed upside down. Replace assembly and feed clip, inspect other parts and replace as needed. Reassemble and retest.
Last round link assembly drags in feed clip	Last round link assembly has become lengthened. May be pushed back together and reused if no other damage is evident.
Magazine will not stay in weapon receiver.	Magazine may not be fully seated. Magazine latch in feed clip is damaged - replace feed clip.
Weapon fires several rounds then jams, magazine feeds well by hand when out of the weapon.	Check for secure attachment between the feed clip and drum assembly. Tighten screws if necessary.
Magazine will not contain 100 rounds	More than 15 spacer rounds in the feed clip. Remove and count.
Last round link assembly falls out of feed clip	Less than 15 spacer rounds in the feed clip. Remove and count.
C-MAG rattles when empty or full	This is normal. The rattle disappears when magazine contains less than about 20 rounds.

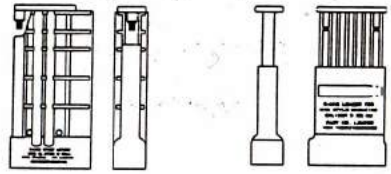
TABLE 1.2

C-MAG MAGAZINE SYSTEM

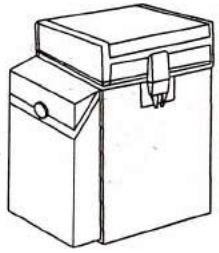
Appendix A



I



II III



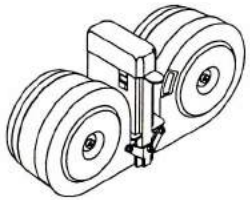
IV a, IV b, IV c

ITEM NO.	PART NO.	NSN	DESCRIPTION
I	CCM000	1005013604862	C-MAG Ammunition Magazine for M16 weapons (5.56mm), capacity 100 rounds, double drum design.
II	LCMS10	1005013630199	Speed Loader, 10 round loader for use with 10rd ammunition clip.
III	LCMP05	1005013630200	Personal Loader, 5 round loader for use with loose ammunition.
IV a	PCMS10	1005013633776	Carrying Pouch for one C-MAG with pocket for one loader; color: olive drab.
IV b	PCMS11	1005013630207	Same as IV a, color: black.
IV c	PCMS12	1005013633777	Same as IV a, color: desert camouflage

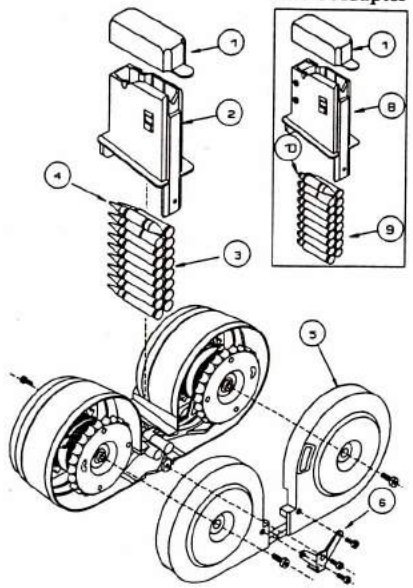
C-MAG MAGAZINE SYSTEM

C-MAG Components

Appendix B



I

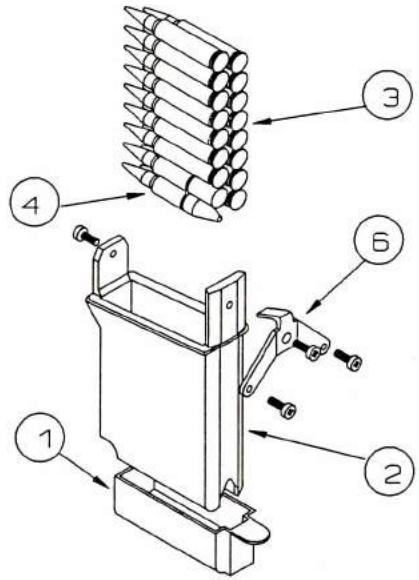


ITEM NO.	PART NO.	NSN	DESCRIPTION	QTY
I	CCM000	1005013604862	C-MAG Ammunition Magazine for M16 weapons (5.56mm), capacity 100 rounds, double drum design	
1	SCM160	1005013630203	Dust Cover	1
2	SCM030	1005013633783	Feed Clip for M16	1
3	SCM131	1005013630201	Spacer Round	15
4	ACM012	1005013630202	Last Round Link Assembly	1 Assy.
5	SCM02B	1005013633784	Drum Back Cover Set	1 Set
6	SCM110	1005013630204	Back Strap with Screws	1 Set
8	BCM030	1005013633785	Blank Adapter (see Table D, Blank Adapter Kit)	1
9	BCM131	1005013630206	Blank Spacer Round (see Table D, Blank Adapter Kit)	15
10	BCM012	1005013630205	Blank Last Round Link Assembly (see Table D, Blank Adapter Kit)	1 Assy.

C-MAG MAGAZINE SYSTEM

Feed Clip Component Parts

Appendix C

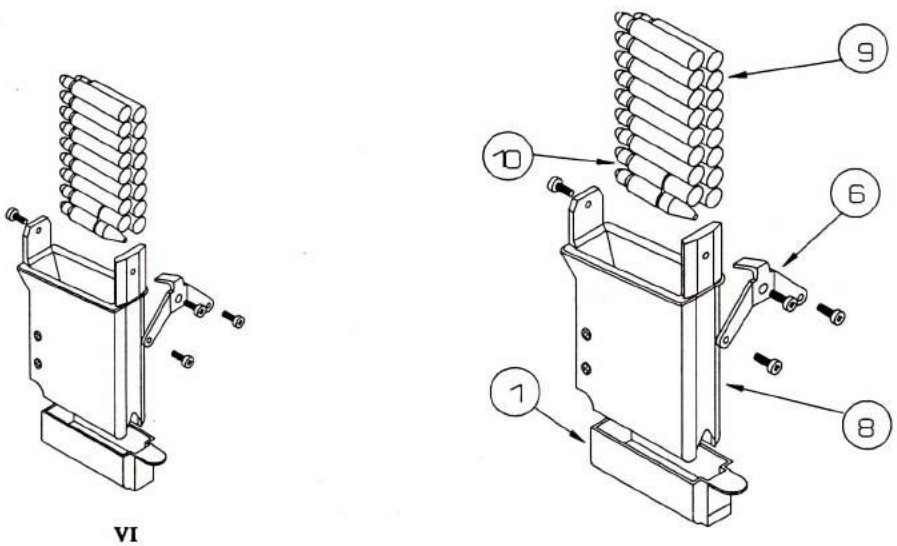


ITEM NO.	PART NO.	NSN	DESCRIPTION	QTY
1	SCM160	1005013630203	Dust Cover	1
2	SCM030	1005013633783	Feed Clip	1
3	SCM131	1005013630201	Spacer Round	15
4	ACM012	1005013630202	Last Round Link Assembly	1 Assy
6	SCM110	1005013630204	Back Strap with screws	1 Set

C-MAG MAGAZINE SYSTEM

Blank Adapter Kit

Appendix D



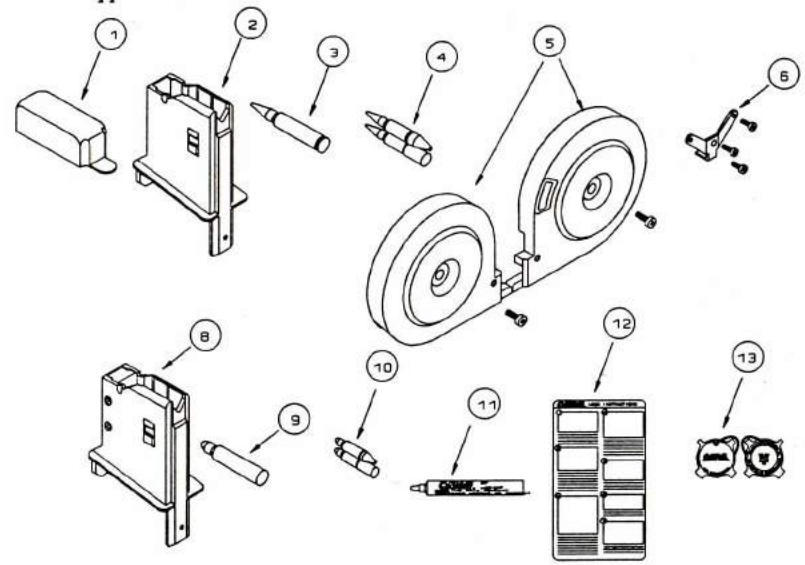
VI

ITEM NO.	PART NO.	NSN	DESCRIPTION	QTY
VI	BCM000	1005013636689	Blank Adapter Kit for M16 weapons (5.56mm)	
1	SCM160	1005013630203	Dust Cover	1
6	SCM110	1005013630204	Back Strap with Screws	1 set
8	BCM030	1005013633785	Blank Adapter; color blue	1
9	BCM131	1005013630206	Blank Spacer Round	15
10	BCM012	1005013630205	Blank Last Round Link Assembly	1 Assy.

C-MAG MAGAZINE SYSTEM

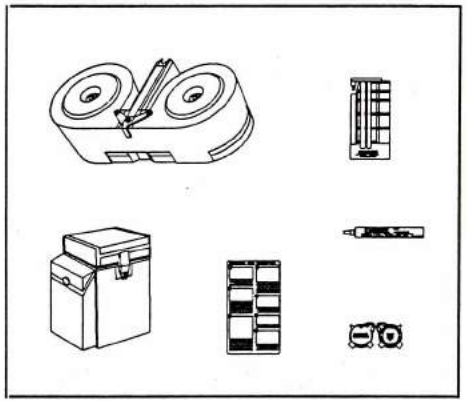
Spare Parts

Appendix E

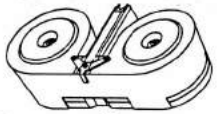


ITEM NO.	PART NO.	NSN	DESCRIPTION
1	SCM160	1005013630203	Dust Cover
2	SCM030	1005013633783	Feed Clip for M16 weapons
3	SCM131	1005013630201	Spacer Round
4	ACM012	1005013630202	Last Round Link Assembly
5	SCM02B	1005013633784	Drum Back Cover Set with screws
6	SCM110	1005013630204	Back Strap with screws
8	BCM030	1005013633785	Blank Adapter for M16 weapons; color blue
9	BCM131	1005013630206	Blank Spacer Round
10	BCM012	1005013630205	Blank Last Round Link Assembly
11	XXXGT1		Dry Lubricant Tube
12	XXXICE		C-MAG Instruction Card
13	XXXSD1		Screwdriver Tool

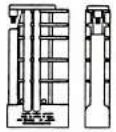
C-MAG MAGAZINE SYSTEM
Systems I, II, III
Appendix F



X, XI, XII



I



II

IV a, IV b,
IV c

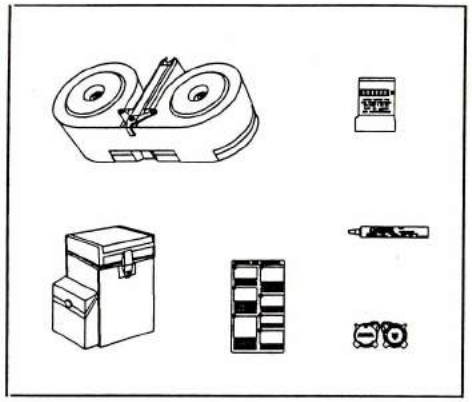
12

11

13

ITEM NO.	PART NO.	NSN	DESCRIPTION
X	MCMS10	1005013636690	C-MAG System I consists of components: I, II, IV a, 11, 12 and 13. (for details see appendices A and E)
XI	MCMS11	1005013642285	C-MAG System II consists of components: I, II, IV b, 11, 12 and 13. (for details see appendices A and E)
XII	MCMS12	1005013636691	C-MAG System III consists of components: I, II, IV c, 11, 12 and 13. (for details see appendices A and E)

C-MAG MAGAZINE SYSTEM
Systems IV, V, VI
Appendix G



XIII, XIV, XV

I

III

IV a, IV b,
IV c

12

11

13

ITEM NO.	PART NO.	NSN	DESCRIPTION
XIII	MCMP05	1005013636692	C-MAG System IV consists of components: I, III, IV a, 11, 12 and 13. (for details see appendices A and E)
XIV	MCMP06	1005013636693	C-MAG System V consists of components: I, III, IV b, 11, 12 and 13. (for details see appendices A and E)
XV	MCMP07	1005013642286	C-MAG System VI consists of components: I, III, IV c, 11, 12 and 13. (for details see appendices A and E)