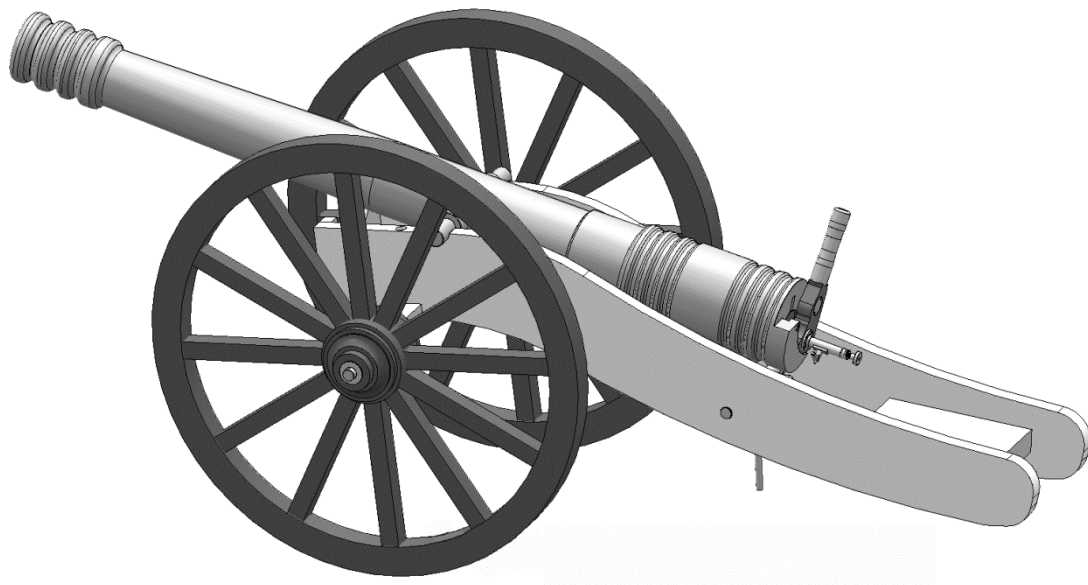


**Operator's
and
Maintenance Manual with
Spare Parts List**

Saluting Cannon "AL-KHALEEJ"

Cal. 75 mm, towed

Saluting Cartridge M 337 Cal. 75 mm



FGS FREX Ltd.
Hasenlohweg 8
CH-6315 Oberaegeri
Switzerland

☎ +41-41-7500515 Fax +41-41-7500517
info@fgs-frex.ch www.fgs-frex.ch

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WARNING INSTRUCTIONS



WARNING AMMUNITION

DO NOT use cartridges other than those authorized for the 75 mm Saluting Cannon “AL-KHALEEJ”!

Death or injury can result from the use of unauthorized cartridges!



WARNING DANGEROUS PROCEDURES

DO NOT point muzzle in direction of personnel when loading, clearing or firing Saluting Cannon, as this can result in injury or death to personnel!



FURTHER SAFETY REGULATIONS

Before loading the cannon assure that, the barrel is completely clean and empty!

Never put any object into the barrel when firing the cannon!

Place the cannon in such a manner that an open area of at least 50m in front of the muzzle is available!

Never move or transport the cannon if a cartridge is loaded in the chamber!

It is not permitted to stand in front of, or behind the barrel!

The gunner’s place is on the left rear of the cannon at the distance of the fully stretched lanyard!

Cartridges have to be positioned at least 10 m from the cannon!

Table of Contents

Warning instructions	2
Chapter 1 INTRODUCTION	4
Section I – General	4
1-1 Purpose and scope.....	4
1-2 Report of Equipment Publications Improvements.....	4
Section II – Description and Data.....	4
1-3 Description.....	4
1-4 Tabulated Data	5
Section III – Ammunition	6
1-5 General.....	6
1-6 Complete round	6
1-7 Identification, handling and storage	6
1-8 Preparing for firing	7
1-9 Precautions in Firing	7
Chapter 2 Operating instructions	8
Section 1 – Operating procedures.....	8
2-1 General.....	8
2-2 Preparation for Firing	8
2-3 Service before Firing.....	8
2-4 Loading.....	8
2-5 Firing	9
2-6 Misfire and hangfire	9
Section 2 – Operating under unusual conditions	11
2-7 General	11
Chapter 3 Maintenance instructions	12
Section I – Lubrication and Cleaning Instructions.....	12
3-1 Lubricants and cleaning materials.....	12
3-2 Lubrication under usual conditions.....	12
3-3 Lubrication under unusual conditions.....	13
Section II – Preventive Maintenance checks and services	14
3-4 General.....	14
3-5 Cleaning and Care.....	14
3-6 Basic Preventive Maintenance.....	14
3-7 Schedule of Preventive Maintenance.....	15
Part 2 – Spare Parts	17

CHAPTER 1

INTRODUCTION

Section I – General

1-1 Purpose and scope

- a. This manual is for use in operating and maintaining the 75 mm Saluting Cannon “AL-KHALEEJ”
- b. The appendix contains current references for the 75 mm Saluting Cannon “AL-KHALEEJ”
- c. .

1-2 Report of Equipment Publications Improvements

The reporting of errors, omissions and recommendations of improving this publication by the individual user is encouraged. Reports should be submitted to

FGS FREX Ltd.
Hasenlohweg 8
CH-6315 Oberaegeri
Switzerland
☎ +41-41-7500515 Fax +41-41-7500517
info@fgs-frex.ch www.fgs-frex.ch

Section II – Description and Data

1-3 Description

The saluting Cannon “AL-KHALEEJ” is a single shot weapon. It is breech-loading, fires a 75 mm blank cartridge and has no sights. The cannon is composed of the following:

- carriage with wheels
- barrel with breech block and spindle
- Firing mechanism

1-4 Tabulated Data

a. Weapon

Length of saluting cannon overall	4.00 m
Length of barrel with breech	2.80 m
Height	1.50 m
Width	1.8 m
Weight	1600 kg

Rate of fire:

Maximum effective rate	10 shots per minute
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b. Ammunition M337 series

Calibre	75 mm x 184
Type	Fixed
Length	184 mm
NATO Stock Number.	1315-33-214-6700

c. Sound level

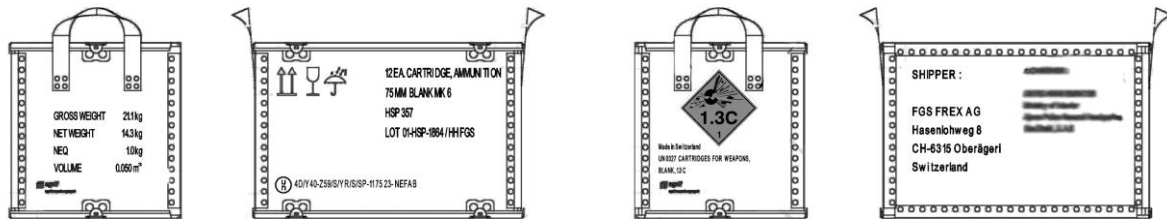
- 155 decibel (dBA) measured 15 m from the side of the muzzle

Section III – Ammunition

1-5 General

Only blank ammunition may be used with the saluting cannon “AL-KHALEEJ”. Blank ammunition is used for firing the morning and evening cannon, e.g. during the holy month of Ramadan in the Moslem World and for saluting.

Typical Packing of saluting cartridges



Wooden box with 12 cartridges



Container marking



Cartridge case

1-6 Complete round

a) Description

A complete round of blank ammunition consists of a cartridge case, primer, powder, charge and a closing cup secured in the mouth of the cartridge case. The primer is fitted to the cartridge base as in fixed or semi-fixed rounds of service ammunition. The blank cartridge contains no projectile. The powder charge consists of loose smokeless black powder.

b) Functioning

When the firing pin of the cannon strikes the primer, a flash is generated which ignites the black powder charge producing noise and a small flash to simulate firing the weapon.

1-7 Identification, handling and storage

a) Authorized rounds

Only 75 mm blank cartridges M337 series with either brass or aluminium cases are authorized for use with this weapon. Substitution of unauthorized rounds is strictly prohibited.

b) Handling and Storage

Ammunition is packed to withstand conditions ordinarily encountered in the field. Care must be taken to keep packing from becoming broken or damaged. Since ammunition and explosives are adversely affected by moisture and high temperature, special attention should be given to the following:

- (1) Do not open boxes until ammunition is to be used. Ammunition removed from airtight containers, particularly in damp climates is apt to corrode, thereby making the ammunition unserviceable.
- (2) Protect ammunition from high temperature and direct rays of the sun. More uniform firing is obtained if rounds are at the same temperature.
- (3) Do not attempt to disassemble the cartridge or any of the components, as unauthorized disassembly and use is extremely dangerous.
- (4) The use of oil or grease on cartridges is prohibited.
- (5) Protect ammunition from sand, mud, moisture, frost, snow, ice, grease and other foreign matter. If ammunition gets wet or dirty, wipe off immediately. If light corrosion forms on the cartridge, wipe off with clean, dry cloth-, however, cartridges should not be polished to make them look better or brighter.
- (6) Aluminium cartridge cases are easily dented and should be protected from hard knocks and blows. Dented cartridge cases may prevent the cartridge from seating properly, and lead to jamming in the chamber and difficulty in extraction.

1-8 Preparing for firing

After removal from packing materials, cartridges are ready for firing as issued. Cartridges which are not used will be returned to original packing or suitable packing boxes, marked with nomenclature, quantity and ammunition lot number. These cartridges will be used first when firing is resumed.

1-9 Precautions in Firing



WARNING!

To prevent injury to personnel and/or damage to material, follow closely precautions listed below

- a) Cartridges should be free of sand, mud, moisture, frost, snow, ice, grease or other foreign matter before inserting into the cannon.
- b) Do not fire corroded ammunition.
- c) Protect primer and case from hard knocks and blows, as they may be dented easily.
- d) Do not use damaged cartridges.
- e) Do not fire ammunition unless identified by ammunition lot number and grade.
- f) Misfires and hangfires will be handled as indicated in 2-6.
Do not fire if there are objects within a 50-meter radius unless they are adequately protected from fragmentation.

CHAPTER 2

OPERATING INSTRUCTIONS

Section 1 – Operating procedures



Warning

If equipment fails to operate, refer to Troubleshooting Procedures Table 3-9.

2-1 General

This section describes, locates and illustrates the various controls provided for the operation and maintenance of the 75 mm Saluting Cannon “AL-KHALEEJ” under conditions of moderate temperature and humidity.

2-2 Preparation for Firing



Warning

Do not transport or move cannon in open position. Cannon must be only moved in a closed and unlocked position.

- a) Check bore to be sure it is free of foreign matter or obstructions.
- b) Check all ammunition to be sure proper type is used.
- c) Check saluting cannon to be sure it functions properly.

2-3 Service before Firing

Perform before firing operations outlined in operator’s preventive maintenance checks and services in table 3-7.

2-4 Loading

- a) Point muzzle of cannon at an area clear of personnel.
- b) Lift breech lever up and open cannon.
- c) Insert blank cartridge into chamber opening. Push complete round forward until extractor contacts the rim of cartridge case.
- d) Close the weapon completely by pressing the breech lever fully down.



2-5 Firing

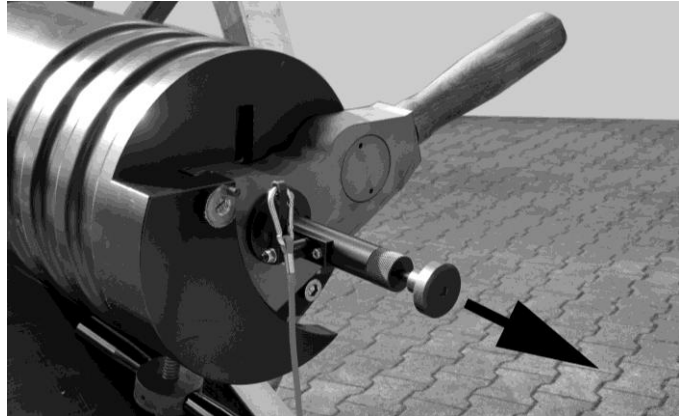


Warning

The danger radius of the blank cartridge is 50 meters. When firing, be sure line of fire is clear of all obstructions that could endanger personnel.

Observe ammunition warning and precautions in paragraph 1-9.

Pull firing pin to the rear until the sear engages and the firing pin is cocked (see arrow). The firing pin is released by pulling the lanyard sling while standing on the left rear of the cannon.



2-6 Misfire and hangfire



Warning

During the time necessary to determine reason for delay, all personnel must stand clear of muzzle.

During the time necessary to determine reason for delay, all personnel must stand clear of muzzle.

a) Misfire

A misfire is a complete failure to fire. A misfire, in itself, is not dangerous. However, it cannot be immediately distinguished from a delay in the functioning of the firing mechanism or a hangfire.

A misfire must be treated as a hangfire until otherwise determined. Delay in the functioning of the firing mechanism can be caused by the presence of foreign matter such as grit, sand, frost or ice. The delay in the functioning of the firing pin mechanism could also result from improper or excessive oil or grease, broken firing pin or broken firing pin spring.

b) Hangfire

A hangfire is a delay in functioning of the powder charge at time of firing and cannot be distinguished immediately from a misfire.

c) Failure to fire

In case of failure to fire due to possibility of a misfire or hangfire, assume a hangfire has occurred and proceed with corrective action as follows:

- (1) Wait 3 seconds from the time of failure of cannon to fire. Cock firing pin and attempt to fire again. If round fails to fire a second time, wait 30 seconds before opening ~~weapon~~ the cannon and removing the round.
- (2) After removing the round from the barrel, determine whether the round or firing mechanism is at fault.

- (3) If the round is at fault, keep separated from other rounds for disposal. Misfired blank cartridges will be destroyed locally under the supervision of qualified explosive disposal personnel. Precautions for handling black powder and other smokeless powders should be observed.
- (4) If the firing mechanism is at fault, the round may be reloaded and fired after the cause for failure to fire is corrected.

a) Service during firing

Perform the preventive maintenance checks and services during firing operations.

b) Unloading

To unload move breech block operating lever up and open cannon completely. Grasp cartridge case and remove round.

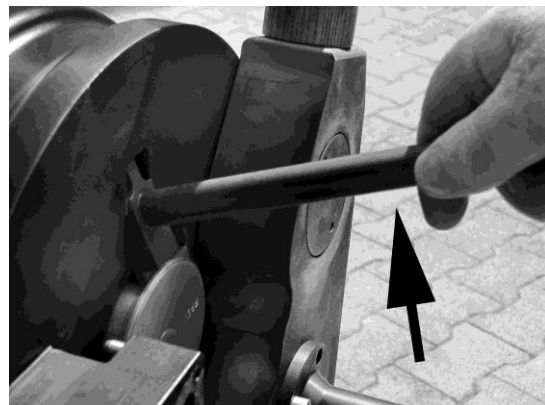
d) Stuck cartridge case removal

In the unlikely event that a cartridge case is stuck in the chamber, do not use force to remove the case from the chamber with the breechblock lever.

Instead slowly open the breechblock completely.

Place the extracting tool in the recess of the case rim and slowly push tool upwards, until cartridge case is released.

Grasp cartridge case and remove it.



Section 2 – Operating under unusual conditions

2-7 General

In addition to the normal operating procedures, service at more frequent intervals is necessary where extremes of temperature, humidity and atmospheric conditions are present or anticipated. Proper cleaning, lubrication, storage and handling of lubricants not only ensure operation of the cannon, but also guard against excessive wear of the working parts and deterioration of the material.

Local commanders may extend service intervals when determination has been made that prevailing weather conditions warrant such an extension.

a) Extreme Cold

Extreme cold weather causes grease to congeal and oil to thicken.

Caution

Be sure cannon is dry before taking into temperatures below freezing, as ice can form in the mechanism preventing cannon from operating.

- (1) Exercise moving parts as necessary to prevent freezing in place and keep in operating condition.
- (2) Protect weapon when not in use. Keep snow and ice from operating parts.
- (3) When the cannon is taken from a cold to a heated temperature, wrap in protective covering, to allow the cannon to reach room temperature gradually.
- (4) When condensation causes moisture to form on metal, disassemble and as soon as saluting cannon reaches room temperature, clean and oil.

b) Extreme Heat

Hot weather causes the film of oil, necessary for operation and preservation, to dissipate quickly.

- (1) Inspect entire cannon thoroughly for corrosion.
- (2) Clean, wipe dry and restore oil film after handling cannon, as perspiration contains acids and salts contributing to corrosion.

c) Sandy or dusty Areas

Sand or dust sticks to lubricants forming an abrasive causing rapid wear.

- (1) Clean and lubricate saluting cannon frequently.
- (2) Keep sand or dust out of mechanism, if possible, when inspecting and lubricating. Shield parts from flying sand or dust with any available covering during disassembly and assembly.

d) Rainy or humid Climate

Moist and salty atmospheres cause oil and grease to break down destroying lubrication and protective qualities.

- (1) Inspect cannon frequently. When saluting cannon is active, clean and lubricate bore and exposed metal surfaces often.
- (2) Inspect all parts frequently for corrosion. When saluting cannon is inactive, coat all metal surfaces with a film of lubricating oil (CLP).

e) Mud

Clean receiver and barrel, removing all foreign particles. Wipe dry before lubricating with CLP.

CHAPTER 3 MAINTENANCE INSTRUCTIONS

Section I – Lubrication and Cleaning Instructions

3-1 Lubricants and cleaning materials

NATO- Stock-No	Description	Military Symbol	Use
9150-01-053-6688	Cleaner, Lubricant, Preservative MIL-L-63460 “Breakfree CLP” or equivalent	CLP	On all moving parts in extreme heat and rainy or humid climates

3-2 Lubrication under usual conditions

- a) Clean bore of barrel with CLP.
- b) Wipe dry
- c) Clean and oil exterior surfaces of breech block locking lever and firing mechanism with CLP.
- d) Clean all exposed metal surfaces and wipe with a cloth saturated with CLP.

3-3 Lubrication under unusual conditions

Abnormal operations and extreme conditions may quickly destroy protective qualities of the lubricant. Lubricants are prescribed for temperature ranges above or below freezing temperatures.

Change grade of lubricant when air temperatures are constantly in next higher or lower range. Keep close check on operation of Saluting Cannon during weather season changes to determine when to substitute another lubricant.

a) Extreme cold

Perform lubricating operations in a warm place, if possible. Lubricate Saluting Cannon lightly with lubricating oil (CLP). Wipe all exposed metal surfaces with cloth moistened with CLP oil.

b) Extreme Heat

Hot damp climates accelerate corrosion on all parts of cannon. Inspect and lubricate cannon frequently as extreme heat tends to dissipate lubricants. Special lubricants are not required. Lubricate with CLP oil.

c) Sandy or Dusty areas

Lubricate as necessary with CLP. Clean and inspect all lubricated surfaces after firing or after travelling under sandy or dusty conditions.

d) Rainy or humid climate

Lubricate frequently with CLP as high humidity, moisture or salt air breaks down lubricants.

e) After immersion

- 1) Take corrective action as soon as practicable to prevent deterioration and avoid damage to cannon.
- 2) After immersion in salt water, wash with fresh water to remove corrosive salts.
- 3) Perform lubrication services.
- 4) Notify organizational maintenance personnel so that complete disassembly, cleaning and lubrication can be accomplished as soon as practicable.

f) Inactive periods

Lubricate as necessary. Saluting cannons not in use, which remain in storage for prolonged periods, must be cleaned and lubricated every 90 days.

Section II – Preventive Maintenance checks and services

3-4 General

Preventive maintenance services are the responsibility of the operator. The overall inspection is a check to determine if the cannon is in good condition, assembled correctly and secure.

3-5 Cleaning and Care

Any special instructions required for cleaning and care of the cannon are contained in chapter 3, section 1. General instructions are given below. The cleaning brush and rod for cleaning the barrel are authorized at organizational level only and must be obtained from organisational maintenance personnel.

a) General Usage

To clean grease or oil from all parts, use cleaning solvent or mineral spirits paint thinner.

b) General Precautions

- (1) Cleaning solvent and mineral spirits paint thinner are flammable and should not be used near an open flame.
- (2) Do not use cleaning solvent and mineral spirits paint thinner without gloves as continuous use may cause cracks in skin, mild irritation or inflammation.
- (3) The use of diesel fuel oil, gasoline or benzine (benzol) for cleaning is prohibited.
- (4) The use of high-pressure water, steam or air for cleaning cannon is prohibited.

c) Powder-Fouled Parts

Clean all exposed parts with cleaner, lubricant, preservative (CLP). Wipe dry and oil parts requiring lubrication. Do not use cleaning solvent or mineral spirits paint thinner. Wipe dry. To prevent corrosion, apply a light film of proper lubricant to all metal surfaces.

3-6 Basic Preventive Maintenance

Observe general preventive maintenance checks and services procedure as follows:

- a) Corrosion, dirt, grit, gummed oil and water cause rapid deterioration of internal mechanisms and outer surfaces. Take special care to keep all surfaces clean and properly lubricated. Do not clean or polish exterior surfaces of cannon (components) with treated cloth or other commercial compounds.
- b) Secure loose screws.
- c) Although firing pin guide tube should only be replaced by organisational maintenance personnel, make sure guide tube is tight.

3-7 Schedule of Preventive Maintenance

Observe general preventive maintenance checks and services procedure as follows:

a) Purpose

To assure maximum operational readiness, certain scheduled maintenance services must be performed. Any deficiencies discovered that cannot be corrected will be reported to the designated authority.

b) Schedule

Items to be inspected and serviced are listed in Table 3-7.

Table 3-7 Preventive Maintenance Checks and Services

B = Before operation

A = After Operation

W = Weekly

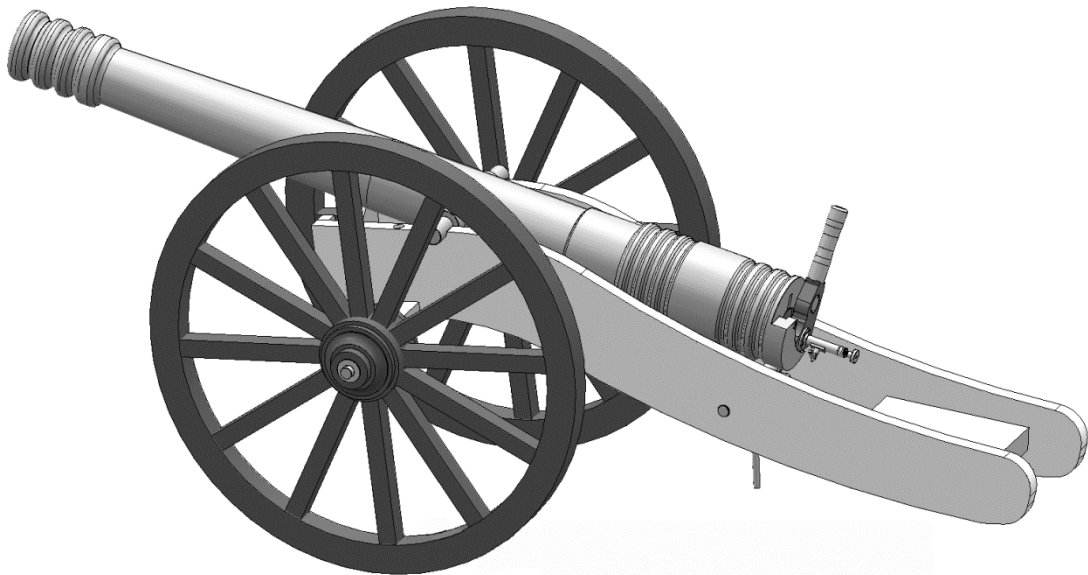
M = Monthly

No	Item to be inspected	Procedure	Interval			
1	Tools and equipment	check for completeness and serviceability	X			X
2	Chamber and bore	clean and wipe dry clean and lubricate	X	X	X	X
3	Breech block	check for proper function clean and lubricate	X	X		X
4	Firing mechanism	check for proper function clean and lubricate	X	X	X	X
	Ejector	check for proper function clean and lubricate	X	X		X
	Elevating spindle	check for serviceability clean and lubricate	X	X		X

Spare Parts

Saluting Cannon “AL-KHALEEJ”

Cal. 75 mm, towed



FGS FREX Ltd.
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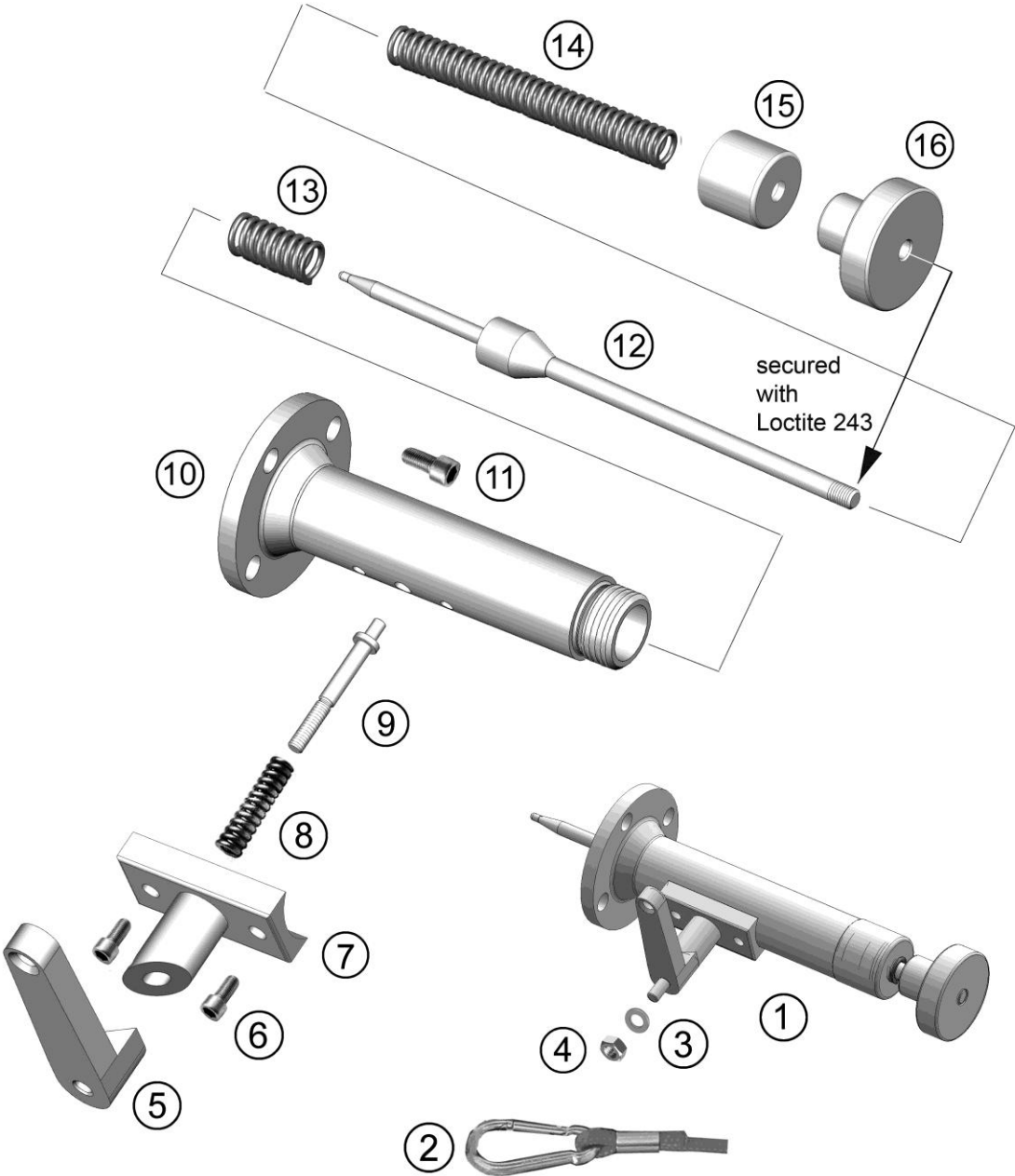
☎ +41-41-7500515 Fax +41-41-7500517
info@fgs-frex.ch www.fgs-frex.ch

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Firing mechanism

Pos.	Art.-No.	Designation	Qty.
1		Firing mechanism compl.	1
2		Lanyard sling	1
3		Washer M6 V2A	1
4		Hexagonal Nut M 6, similar to DIN 934 with Ilux securing	1
5	33.9	Firing lever	1
6		Screw M5x8 V2A DIN 912	2
7	33.7	Guiding tube	1
8		Compression spring for trigger Da 9mmx28,5mm d=1mm	1
9	33.8	Arresting Pin	1
10	33.1	Firing pin holder complete	1
11		Screw M8x16 V2A DIN 912	4
12	33.3	Firing pin	1
13	33.10	Retracting spring V2A, Da.11,5mmx25,6mm / d=1,5mm	1
14	33.11	Firing pin spring spring V2A, Da. 13mmx107mm / d=2mm	1
15	33.6	Knurled bushing	1
16	33.5	Knurled nut	1

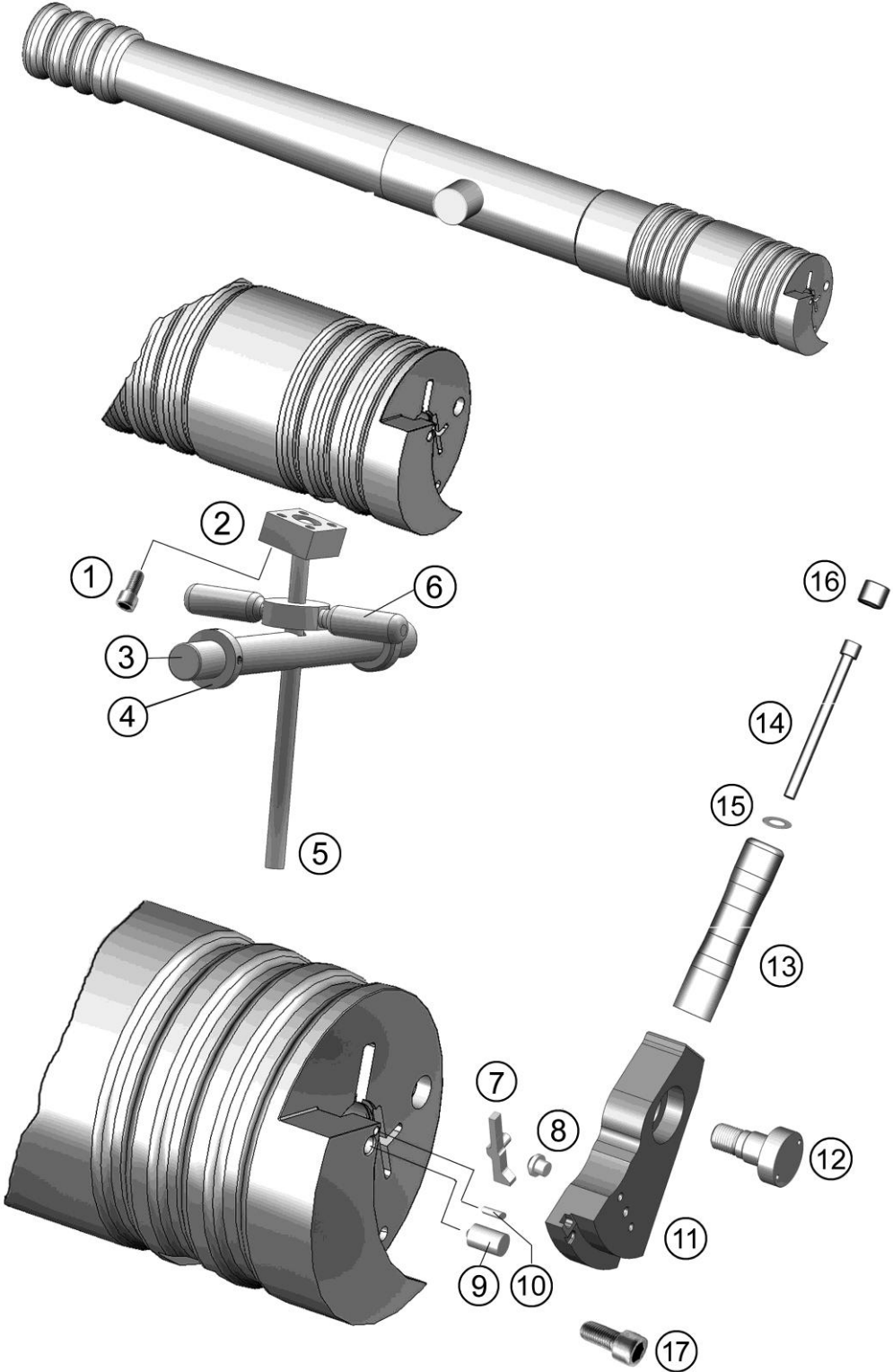
Firing mechanism



Barrel with Breech

Pos.	Art.-No.	Designation	Qty.
1		Screw M10x35 V2A DIN 912	4
2	6335-01.06	Barrel elevating support	1
3	6335-01.091	Axle	1
4	K0406.304002	Fixing ring KIPP	2
5	6335-01.11	Threaded rod	1
6		Adjusting wheel	1
7	6335-01.04	Ejector lever	1
8	6335-01.071	Bolt	1
9	6335-01.05	Spring plunger	1
10		Cylinder pin 8x40 DIN 7979	1
11	6335-01.021	Breech lever	1
12	6335-01.08	Threaded pin	1
13	6335-01.12	Wooden handle	1
14	6335-01.13	Screw M16x220 DIN 912	1
15		Washer M16	1
16		Cover	1
17		Screw M16x16 DIN 913	1

Barrel with Breech



Carriage

Pos.	Art.-No.	Designation	Qty.
1	6335-02.066	Washer	2
2		Cotter pin 8x80 V2A DIN 94	2

Carriage

