

# REBEL FORCES IN NORTHERN MALI

Documented weapons, ammunition  
and related materiel

April 2012-March 2013

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Copy-edited by Alex Potter (fpcc@mtnloaded.co.za)

Reviewed by Alex Diehl and Nic Jenzen-Jones

Design and layout by Julian Knott ([www.julianknott.com](http://www.julianknott.com))

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# ABOUT

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Conflict Armament Research and the Small Arms Survey worked in tandem to produce this report. It is part of the Small Arms Survey's Security Assessment in North Africa and comprises one of a growing number of investigations by Conflict Armament Research into trans-Saharan arms trafficking.

## Conflict Armament Research

Conflict Armament Research identifies and tracks conventional weapons in contemporary armed conflicts. Established in 2011, it was created in response to the growing need for informed, on-the-ground reporting on weapons proliferation in modern wars and insurgencies.

Conflict Armament Research's primary objective is to provide the monitoring and diagnosis needed for the development of international policy responses to conventional weapons proliferation. It offers core technical expertise in a range of fields, including in-theatre investigation and analysis of armed conflicts and weapons trafficking; the design, implementation, and management of arms reduction initiatives; and advice on programming and policy.

Conflict Armament Research also provides specific technical expertise in weapons identification and tracing, and support to criminal investigations and United Nations sanctions-monitoring groups.

For more information visit:  
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## The Small Arms Survey

The Small Arms Survey is an independent research project located at the Graduate Institute of International and Development Studies in Geneva, Switzerland. It serves as the principal international source of public information on all aspects of small arms and armed violence and as a resource for governments, policy-makers, researchers, and activists.

### The Small Arms Survey's Security Assessment in North Africa

The Security Assessment in North Africa is a multi-year project of the Small Arms Survey that supports those engaged in building a more secure environment in North Africa and the Sahel-Sahara region. It produces timely, evidence-based research and analysis on the availability and circulation of small arms, the dynamics of emerging armed groups, and related insecurity. The project receives core funding from the Ministry of Foreign Affairs of the Netherlands. In addition, this publication benefits from specific support from the Swiss Federal Department of Foreign Affairs.

For more information visit:  
[www.smallarmssurvey.org](http://www.smallarmssurvey.org)

# ABBREVIATIONS AND ACRONYMS

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## API

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Armour-piercing incendiary

## HEAT

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High-explosive anti-tank

## MNLA

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Mouvement national pour la libération de l'Azawad  
(National Movement for the Liberation of Azawad)

## MUJAO

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Mouvement pour le tawhîd et du jihad en Afrique  
de l'ouest (Movement for Unity and Jihad in West  
Africa)

# INTRODUCTION

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In January 2012 fighters aligned with the Mouvement national pour la libération de l'Azawad (National Movement for the Liberation of Azawad, or MNLA), a Tuareg separatist movement, launched military operations against Malian government forces in northern Mali. The rebellion was later to involve a disparate array of rebel forces ranging from MNLA splinter groups to fighters with Islamist agendas affiliated with Ansar ed-Din, al-Qaeda in the Islamic Maghreb, and the Mouvement pour le tawhîd et du jihad en Afrique de l'ouest (Movement for Unity and Jihad in West Africa, or MUJAO).

This report documents weapons, ammunition, and related materiel in service with, abandoned by, or seized from these non-state armed groups. For the purposes of the report they are all considered as 'rebel forces', primarily because weapons appear to have changed hands repeatedly among these forces during the 2012–13 period and the chain of custody is often unclear.

The rebellion differs in scale and intensity to previous Tuareg rebellions in northern Mali—a factor that many international commentators have attributed to an outpouring of weapons, ammunition, and related materiel from the 2011 Libyan civil war. The report identifies weaponry (some of it heavy) that can be attributed to former Libyan military arsenals. This includes 106 mm recoilless rifles and NR-160 rockets. Weapons such as BM-21 multiple-launch rocket systems, 9M22M rockets, and UB-32 rocket launchers proliferated extensively in post-conflict Libya and may well have originated there. However, there is too little information visible on the weapons themselves in the film/video footage and photographs taken in Mali, or on the precise composition of Libya's pre-civil war arsenal, to draw firm conclusions as to their origins.

Furthermore, the report documents numerous weapons, ammunition, and related materiel whose provenance is unclear. There are firm indications that rebel fighters captured some of this materiel from the Malian armed forces, particularly during the rapid advances made in March–April 2012, when they seized military bases in the towns of Gao, Kidal, and Timbuktu. Recovered weapons indicate that these advances led to the capture of a variety of ordnance, including small arms and light weapons, in addition to major conventional weapons, such as BM-21 multiple-launch rocket systems.

Because at the time of writing rebel forces remained active in north-east Mali and a full complement of weapons had yet to be documented, the following list is indicative rather than exhaustive.

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## **THE REBELLION DIFFERS IN SCALE AND INTENSITY TO PREVIOUS TUAREG REBELLIONS IN NORTHERN MALI.**

# 1. SMALL ARMS

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## 1.1 KALASHNIKOV-PATTERN 7.62 X 39 MM ASSAULT RIFLES

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These weapons were documented in numerous locations in northern Mali, including Gao, Timbuktu, and the Adrar des Ifoghas mountain range, between April 2012 and March 2013. They include various models of Kalashnikov-pattern assault rifle, although the difficulty of analysing marks from available media (primarily film footage) makes precise identification problematic. Analysis of overt physical characteristics, however, enables the identification of the following types: AKM- and AKMS-pattern (Russian Federation/Soviet Union-designed, exact provenance unclear); ARM (Bulgaria); Model 63 and Model 65 (Romania); M70-pattern (Serbia/Yugoslavia, but possibly Iraq); and Type 56, Type 56-1, and Type 56-2 (China). Film footage does not allow for the identification of years of manufacture.

.....  
*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 11:29–11:37, 12:59–13:06, 13:16–13:17, 20:42–20:44, 36:49–36:50, and 38:25–38:26

## 1.2 FN FAL-PATTERN 7.62 X 51 MM RIFLE

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This weapon was documented in Gao, northern Mali, in April–May 2012. Film footage does not permit precise identification of the country of manufacture.

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*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 04:50–04:54

## 1.3 G3-PATTERN 7.62 X 51 MM RIFLE

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This weapon was documented in Gao, northern Mali, in April–May 2012. Film footage does not permit precise identification of the country of manufacture.

.....  
*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 12:28–12:30

## 1.4 MAT-49 9 X 19 MM SUB-MACHINE GUN

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This weapon was documented in Gao, northern Mali, in April–May 2012. Manufactured in France from the late 1940s to the late 1970s, weapons of this type were provided to a wide range of West African government forces from the 1940s onwards. The provenance of this example is unknown and there are numerous potential government sources in the region.

.....  
*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 02:10–02:20

## 1.5 RPD-PATTERN 7.62 X 39 MM LIGHT MACHINE GUN

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This weapon was documented in Gao, northern Mali, in April–May 2012. Film footage does not enable the identification of factory marks. Neither the weapon's year of manufacture nor its provenance is clear.

.....  
*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 02:39–02:43

## 1.6 PK-PATTERN 7.62 X 54R MM GENERAL-PURPOSE MACHINE GUN

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This weapon was documented in Gao, northern Mali, in April–May 2012 and in Aguelhok in January 2012. Film footage does not permit identification of the country of origin or manufacture. Extensive appearance of the weapons in film footage suggests widespread deployment among rebel forces in northern Mali. The weapons' different flash-hider designs suggest early (PK) and later (PKM) production models in service.

.....  
*Source:* Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 04:14–04:18, 04:38–04:46, 11:44–11:50, 12:15–12:20, 12:28–12:30, and 12:35–12:43; and (2) AFP (2012a), visible in minutes 00:08–00:11

### 1.7 FN MAG-PATTERN 7.62 X 51 MM GENERAL-PURPOSE MACHINE GUN

This weapon was documented in Gao, northern Mali, in April–May 2012. Film footage does not permit precise identification of the country of manufacture.

*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 03:26–03:28, 04:39–04:46, and 10:58–10:60

### 1.8 BARRELS FOR 7.62 X 54R MM RP-46 GENERAL-PURPOSE MACHINE GUNS

These barrels were documented in Diabaly, northern Mali, on 24 January 2013, following the recapture of the town by French, Malian, and allied forces. There is no documented evidence of complete RP-46 weapons in circulation. The provenance of these barrels is unclear, although they were probably manufactured in the Soviet Union between the 1940s and 1960s.

*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny

### 1.9 DRAGUNOV SVD-PATTERN 7.62 X 54R MM SNIPER RIFLE

This weapon was documented in Timbuktu in April 2012 and in Aguelhok in January 2012. Film footage does not permit identification of the country of origin.

*Source:* Verified film footage from NBC (2013), visible in minutes 02:11–02:15

### 1.10 PSL-PATTERN 7.62 X 54R MM SNIPER RIFLE

This weapon was documented in Timbuktu in April 2012 and in Aguelhok in January 2012. It is unclear whether the weapon is a Romanian FPK variant of the PSL or an Iraqi Al-Kadesih, which closely resembles the former.

*Source:* Verified film footage from AFP (2012b), visible in minutes 00:26–00:29

### 1.11 SKS-PATTERN 7.62 X 39 MM RIFLE

This weapon was documented in Gao in April–May 2012. Film footage suggests numerous weapons in circulation among rebel forces, although does not permit identification of the country of origin.

*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 37:29–37:44



## 2. SMALL ARMS AMMUNITION

### 2.1 7.62 X 39 MM AMMUNITION



This ammunition was documented in Diabaly, northern Mali, on 24 January 2013 and in Gao, northern Mali, on 16 February 2013, following the recapture of these towns by French, Malian, and allied forces. In Diabaly the ammunition is of two types: (1) manufactured by Factory 31, China, in 1966; and (2) manufactured by Factory 61, China, in 1997. In neither example is there sufficient evidence to identify the year in which China transferred the ammunition or the recipient of the transfer. In Gao ammunition markings indicate three types: (1) M67 ammunition manufactured by Prvi Partizan, Serbia (then Yugoslavia) in 1981; (2) cartridges manufactured by Factory 711, China, in 1989; and (3) ammunition manufactured by Arsenal, Bulgaria, in 2011. Beyond dates and places of manufacture, there is no evidence to suggest the recent provenance of these three types of ammunition.

*Source:* Photographic evidence compiled in (1) Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny; and (2) Gao, northern Mali, 16 February 2013. Images kindly provided by Aris Roussinos

### 2.2 7.62 X 54R MM AMMUNITION

This ammunition was documented in Gao, northern Mali, in April–May 2012 and 16 February 2013. In the first instance the projectiles bear red and black painted tips, which indicate an armour-piercing incendiary (API) load. Film footage does not permit examination of marks on the base of the cartridge (headstamp) to allow for identification of the country or year of manufacture. Better documented examples from an abandoned MUJAO base in Gao include three types: (1) manufactured by the Barnaul Machine Tool Plant, Soviet Union, in 1988; (2) produced by State Factory 60 in Frunze, Kyrgyzstan (then part of the Soviet Union) in 1986; and (3) manufactured by Arsenal, Bulgaria, in 2011. Beyond dates and places of manufacture, there is no evidence to suggest the recent provenance of these three types of ammunition.

*Source:* Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 11:37–11:41; (2) photographic evidence compiled in Gao, northern Mali, 16 February 2013. Images kindly provided by Aris Roussinos



**7.62 x 39 mm  
ammunition  
manufactured by Prvi  
Partizan, Serbia (then  
Yugoslavia) in 1981.**



© Aris Roussinos, 2013

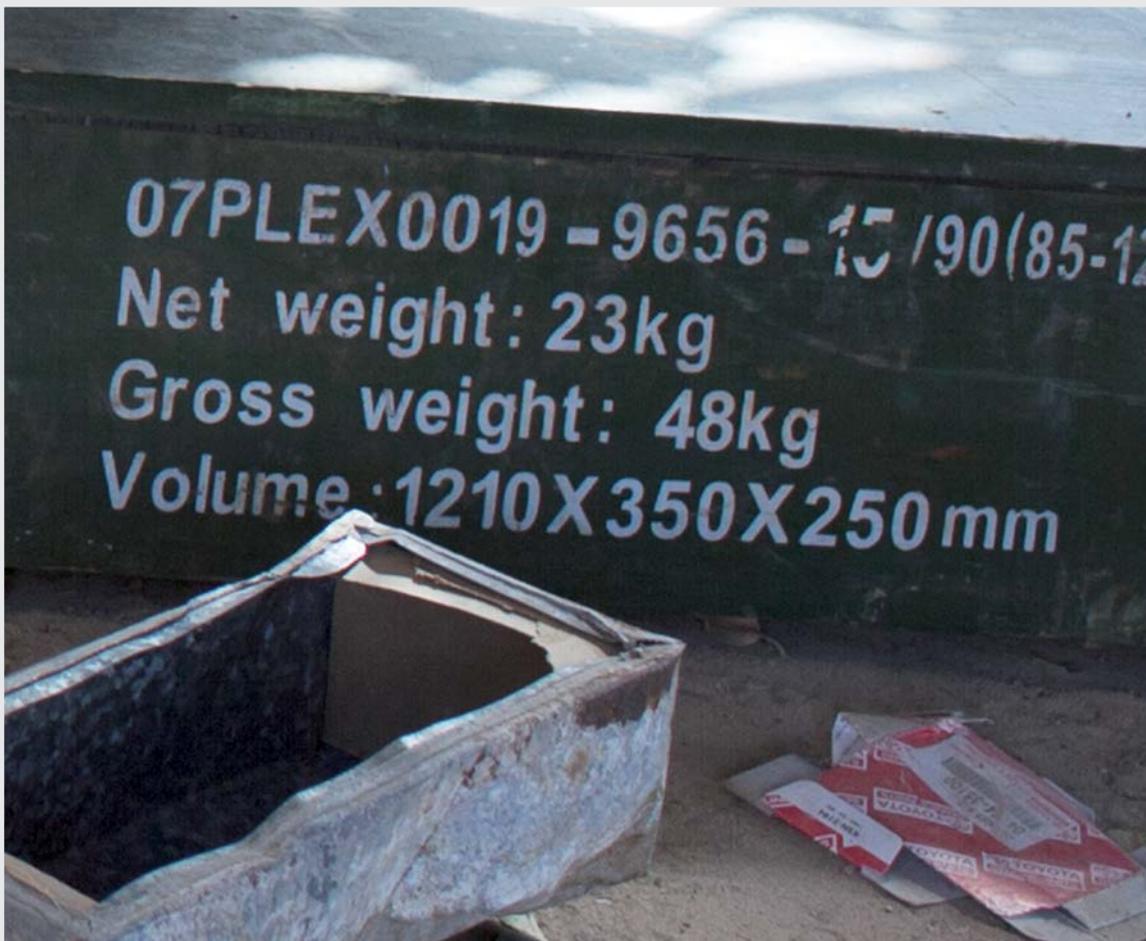
# 3. LIGHT WEAPONS

## 3.1 DSHKM-PATTERN 12.7 X 108 MM HEAVY MACHINE GUN

This weapon was documented in Gao, northern Mali, in April–May 2012 and February 2013, and in film footage of rebel military action in Aguelhok in January 2012. Examples were also recovered by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali on 3 March 2013. In most instances the weapons were deployed on Toyota Landcruiser 4x4 vehicles. Numerous

weapons of this type mounted on visually different vehicles suggest their widespread deployment among rebel forces in northern Mali.

.....  
*Source:* Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 10:10–10:14, 10:32–10:38, 10:53–11:00, 12:33–12:35, and 12:49–12:52; (2) AFP (2012b), visible in minutes 01:24–01:32; (3) BFMTV (2013), visible in minutes 00:14–00:15; (4) Francetv (2013), visible in minutes 00:28–00:33; and (5) Armée française (2013a), visible in minutes 00:23–00:30



📷 3.2

**Type 85 heavy machine gun box, exported from China in 2007.**

© Joseph Penny, 2013

### 3.2 TYPE 85 12.7 X 108 MM HEAVY MACHINE GUN (BOX ONLY)

This box was documented in Diabaly, northern Mali, on 24 January 2013, following the recapture of the town by French, Malian, and allied forces. Box marks indicate a Chinese 2007 contract number (recipient not specified), but do not indicate the date of shipment.

*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny

### 3.3 KPVT/KPVT-PATTERN 14.5 X 114 MM HEAVY MACHINE GUN

This weapon was documented in Gao, northern Mali, in April–May 2012 and during a rebel assault on Aguelhok in January 2012. In Gao a KPVT weapon is mounted in an armoured turret from a BRDM-2 armoured personnel carrier that has been modified for deployment on a Toyota Landcruiser 4x4 vehicle. Additional footage taken during a rebel assault on Aguelhok in January 2012 documents a KPVT weapon mounted on a Toyota Landcruiser 4x4 vehicle in single-barrel ZPU-1 configuration. Images taken in the spring of 2012 in Timbuktu also illustrate the weapon deployed in ZPU-1 configuration.

*Source:* Photographic evidence reproduced in Cahier du RETEX (2013, p. 1); verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 12:10–12:12; and (2) AFP (2012a), visible in minutes 00:02–00:05

### 3.4 81/82 MM MORTAR

This weapon was documented in Ansar ed-Din-released film footage of military action taken during a rebel assault on Aguelhok in January 2012. The quality of image prevents precise identification of the weapon (beyond its calibre) and provides no indication of its provenance.

*Source:* Verified film footage from NBC (2013), visible in minutes 02:09–02:11

### 3.5 RPG-7-PATTERN ROCKET LAUNCHER

This weapon was documented in Gao, northern Mali, in April–May 2012 and in film footage of rebel military action in Aguelhok in January 2012. Film footage does not permit identification of the country of origin. PG-7 rockets for use in these weapons (see Entry 4.3, below) have also been documented in Diabaly, Gao, and Aguelhok.

*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny; verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 00:09–00:13, 12:21–12:26, and 13:08–13:11; and (2) NBC (2013), visible in minutes 02:09–02:11

### 3.6 SPG-9-PATTERN 73 MM RECOILLESS GUN

This weapon was documented in March 2013 (day not provided) after having been recovered by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali. Film footage does not permit precise identification of the country of manufacture.

*Source:* Verified film footage from Armée française (2013a), visible in minutes 00:15–00:24

### 3.7 M40 106 MM RECOILLESS GUN

This weapon was documented in Gao, northern Mali, in April–May 2012 while in service with Tuareg/Islamist forces. 106 mm projectiles, photographed in Diabaly and Konna, respectively, confirm the presence of weapons of this type in the two areas (see Entry 4.9, below). The prevalence of this weapon in Libya and its relative scarcity in West Africa suggest probable transfers from Libya in 2011–12. 106 mm ammunition for this weapon documented in Mali is almost certainly of Libyan provenance.

*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 11:00–11:25

# 4. LIGHT WEAPONS AMMUNITION

## 4.1 12.7 X 108 MM AMMUNITION



This ammunition was documented in Diabaly on 24 January 2013 and in Gao on 16 February 2013, following the recapture of these towns by French, Malian, and allied forces. In the photographs taken in Diabaly case heads and associated marks (headstamps) are not visible, which prevents identification of either the manufacturer or the date of manufacture. However, several of the cartridges feature black-tipped projectiles, which indicate Chinese production (year and factory unknown). In Gao ammunition box markings indicate API ammunition manufactured by Factory 41, China, in 2007. Beyond date and place of manufacture, there is no evidence to suggest the recent provenance of this ammunition. Ammunition seized by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali (late March 2013) is of two types: (1) manufactured by the

Novosibirsk plant in the Soviet Union in 1976; and (2) Chinese-manufactured API cartridges (year and manufacturer not visible in film footage).

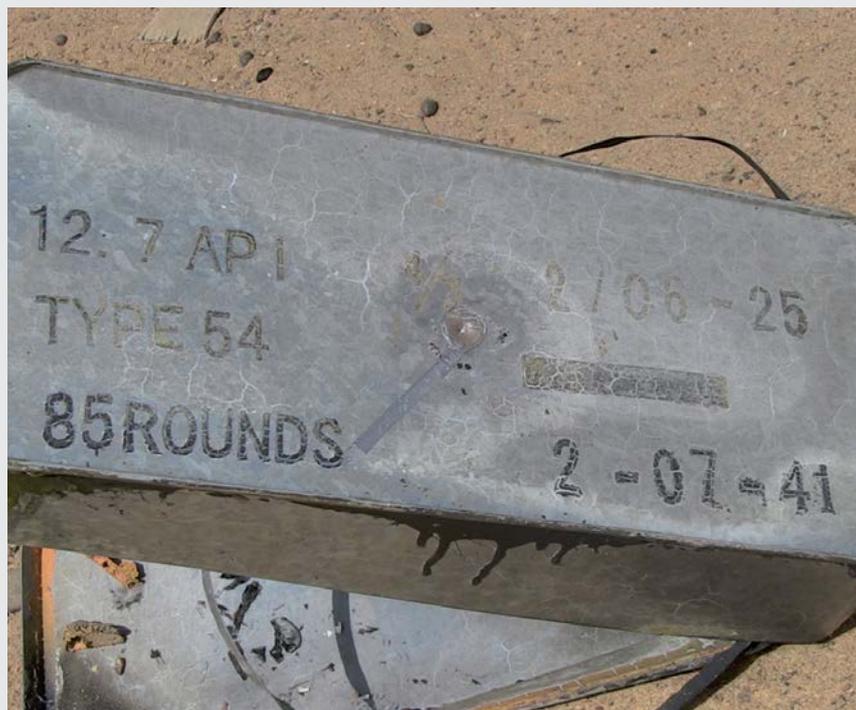
*Source:* Verified film footage from Armée française (2013b), visible in minutes 00:44–00:46; photographic evidence compiled in (1) Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny; and (2) Gao, northern Mali, 16 February 2013. Images kindly provided by Aris Roussinos

## 4.2 14.5 X 115 MM AMMUNITION

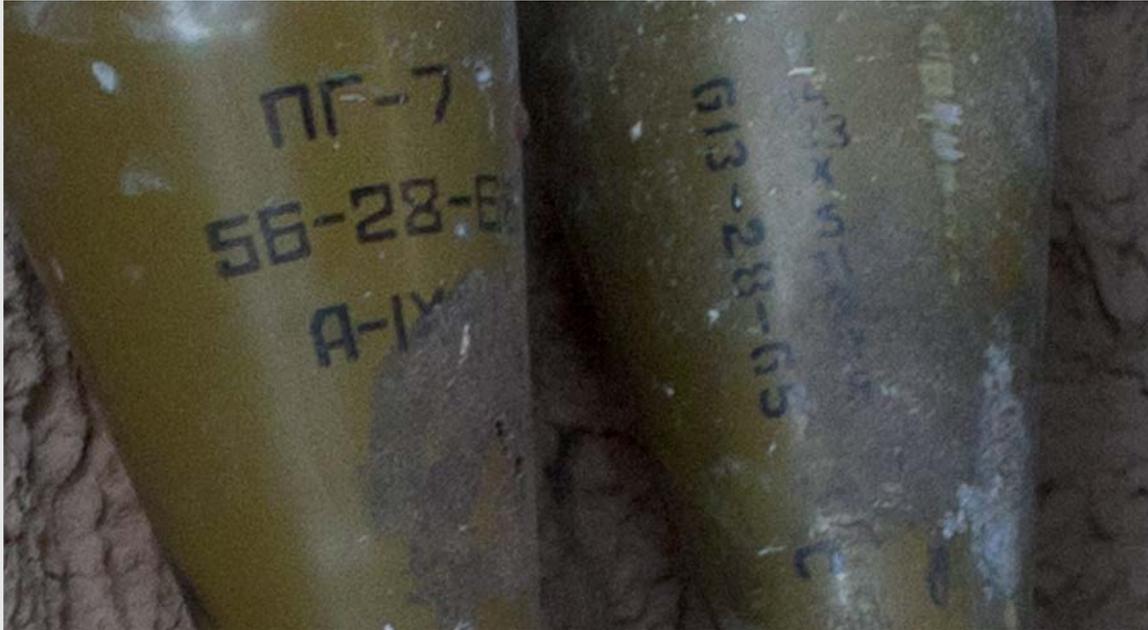
This ammunition was documented in Konna on 26 January 2013 and Diabaly on 24 January 2013, following the recapture of these towns by French, Malian, and allied forces. In Diabaly the case heads and associated marks (headstamps) are not visible in the photographs, which prevents identification of either the manufacturer or

### 4.1

**12.7 x 108 mm ammunition box manufactured by Factory 41, China, in 2007.**



© Aris Roussinos, 2013



4.3

**PG-7 rockets manufactured in the Soviet Union in 1968 (left) and with propellant dated 1965 (right).**

© Joseph Penny, 2013

the date of manufacture. However, some of the projectile jackets are non-plated and feature a clear lacquer of greyish appearance, which indicates Soviet Union/Russian Federation manufacture (year and factory unknown). In Konna marks applied to the ammunition box indicate the ammunition is API, manufactured by Factory 41, China, in 2007. There is no evidence to identify the year in which China transferred the ammunition or the recipient of the transfer.

*Source:* Photographic evidence compiled in (1) Konna, northern Mali, 26 January 2013. Images kindly provided by Richard Valdmanis; and (2) Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny

#### 4.3 PG-7 ROCKETS



These rockets were documented in Diabaly, northern Mali, on 24 January 2013 following the recapture of the town by French, Malian, and allied forces. All examples documented in Diabaly are Soviet Union manufactured and date from the 1960s. There is no evidence to identify the year of transfer or the recipient. Film footage from Gao in April–May 2012 and of rebel military action in Aguelhok in

January 2012 also depicts various PG-7-pattern rockets. Wide-shot film footage does not permit identification of the country of manufacture in these examples.

*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny; verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 00:09–00:13, 12:21–12:26, and 13:08–13:11; and (2) NBC (2013), visible in minutes 02:09–02:11

#### 4.4 OG-82 AND PG-82 ROCKETS

These rockets were documented in Diabaly, northern Mali, on 24 January 2013 following the recapture of the town by French, Malian, and allied forces. Manufactured in the Soviet Union for use in the SPG-82 anti-tank rocket launcher, the rockets are of pre-1970s manufacture. The OG-82 features a high-explosive fragmentation (HE-FRAG) warhead for anti-personnel use. The PG-82 features a high-explosive anti-tank (HEAT) warhead.

*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny

**4.5 82 MM MORTAR BOMBS**

These mortar bombs were documented on 3 March 2013 after having been recovered by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali. Wide-shot film footage and the general condition of the bombs (marks abraded) do not permit identification of the country of manufacture.

Source: Verified film footage from Francetv (2013), visible in minutes 00:04–00:19

**4.6 120 MM MORTAR BOMBS**

These mortar bombs were documented on 3 March 2013 after having been recovered by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali. Wide-

shot film footage and the general condition of the bombs (marks abraded) do not permit identification of the country of manufacture.

Source: Verified film footage from Francetv (2013), visible in minutes 00:04–00:19

**4.7 UNIDENTIFIED NOSE FUZES**

These fuzes were documented in Diabaly, northern Mali, on 24 January 2013 following the recapture of the town by French, Malian, and allied forces. The images provide little impression of scale, which hinders conclusive identification.

Source: Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny



4.7

**Boxed nose fuzes.**

© Joseph Penny, 2013



#### **NR-160 rocket of 1970s Belgian manufacture.**

© Richard Valdmanis, 2013

#### **4.8 F1-PATTERN FRAGMENTATION GRENADES**

These grenades were documented in Diabaly, northern Mali, on 24 January 2013 and in the Adrar des Ifoghas mountain range in north-eastern Mali on 3 March 2013. The grenades are of the Soviet Union-designed F1 type, with UZRG-type fuzes, although production has been widespread in former Soviet Union-aligned countries, including China. Wide-shot film footage and the general condition of the items (marks obscure) do not permit identification of the specific country of manufacture.

.....  
*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny; verified film footage from Francetv (2013), visible in minutes 00:04–00:19

#### **4.9 NR-160 106 MM HEAT PROJECTILES**



These projectiles were documented in Diabaly and Konna, northern Mali, in January 2013 following the recapture of these towns by French, Malian, and allied forces. They were also documented in film footage of rebel forces in Gao in April–May 2012 and recovered by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali on 3 March 2013. This ammunition is designed for use in the M40 106 mm recoilless gun. Manufacturer marks indicate that the ammunition is of Belgian manufacture and dates from the 1970s. Belgium supplied ammunition of this type to Libya in the same period and there are no records of this type of ammunition in Malian army stockpiles prior to the rebellion (see Chivers, 2013 for further information).

.....  
*Source:* Photographic evidence compiled in Konna, northern Mali, 26 January 2013. Images kindly provided by Richard Valdmanis; verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 11:14–11:22; and (2) Francetv (2013), visible in minutes 00:18:00:20; information on Belgian production, confidential interview, 30 January 2013

# 5. LARGER CONVENTIONAL WEAPONS

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## 5.1 2A14-PATTERN SINGLE-BARREL 23 X 152B MM CANNON

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This weapon was documented in Gao, northern Mali, in April–May 2012. The weapon is pictured mounted on a Toyota Landcruiser 4x4 vehicle. Wide-shot film footage does not permit identification of the country of manufacture.

.....  
*Source:* Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 12:07–12:10

## 5.2 ZU-23-2-PATTERN TWIN-BARREL 23 X 152B MM CANNON

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This weapon was documented in service with rebel forces in Gao in April–May 2012 and in film footage of rebel military action in Aguelhok in January 2012. Photographs of ammunition for this weapon (see Entry 6.1, below) and disintegrating ammunition links (see Entry 6.2, below) suggest that rebel forces may have deployed at least one such weapon in Diabaly.

.....  
*Source:* Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 12:51–12:53; (2) Euronews (2013), visible in minutes 00:01–01:21; and (3) NBC (2013), visible in minutes 02:02–02:07

## 5.3 TYPE 63-PATTERN 12-TUBE 107 MM ROCKET LAUNCHER

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This rocket launcher was documented in Gao in April–May 2012 and mounted on a civilian pick-up. It is probably of Chinese manufacture, although it may be one of a number of copies manufactured by states that include Egypt, Iran, Sudan, and Turkey. Visual comparison with known Chinese

models suggests that the weapon pictured is identical.

.....  
*Source:* Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 00:01–00:05 and 12:12–12:15; (2) Euronews (2013), visible in minutes 00:01–01:21; and (3) NBC (2013), visible in minutes 02:02–02:07

## 5.4 UB-32 57 MM MULTIPLE ROCKET LAUNCHER

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This rocket launcher was documented in Gao, northern Mali, on 25 February 2013, following the recapture of the town by French, Malian, and allied forces. The weapon is designed to be mounted on aerial platforms, such as the Mi-24 attack helicopter, and fires 32 S-5 air-to-ground rockets. The weapon has been adapted for launch from the back of a 4x4 vehicle. In this configuration it is identical to many ad hoc uses of the weapon observed during the 2011 Libyan civil war. However, the fact that the Malian armed forces deploy Mi-24 helicopters (IISS, 2011, p. 432) capable of operating the system, in addition to a number of regional governments, means that no firm conclusions can be drawn as to the weapon's provenance.

.....  
*Source:* Verified film footage from BFMTV (2013), visible in minutes 00:00–00:21

## 5.5 D-30A 122 MM TOWED HOWITZER

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This weapon was documented on 3 March 2013 in footage of weapons captured by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali. It is known to have been in service with Libyan and Malian forces before the 2011 start of hostilities in these two countries.<sup>1</sup> Its

<sup>1</sup> The IISS (2011, pp. 320, 432) lists a total of 190 D-30 systems in service with the Libyan armed forces prior to 2011 and eight D-30 systems in service with the Malian armed forces prior to 2011.

provenance is unclear. French forces also destroyed quantities of 122 mm howitzer ammunition discovered in the same location (see Entry 6.3, below).

*Source:* Verified film footage from Francetv (2013), visible in minutes 00:25–00:27

#### 5.6 **BM-21 122 MM MULTIPLE-LAUNCH ROCKET SYSTEM**

This weapon was documented in Gao, northern Mali, in April–May 2012 in film footage taken at Gao International Airport. The film documents two BM-21 systems. The first may be immobile (tyres deflated) and is unloaded. The second system is pictured moving and loaded with 34 rockets of 9M22M (M21-OFM) type (see Entry 6.4, below). In January 2013 French forces reported having destroyed one BM-21 system (location and date not reported) (The Guardian, 2013) and on 19 February 2013 reported having captured a further three systems near the town of Bourem (Reuters, 2013). French forces

documented a third system in the Adrar des Ifoghas mountain range in north-eastern Mali on 3 March 2013. The total number of BM-21 systems fielded by rebel forces is unclear. Rebel forces probably captured the two systems documented in Gao from the Malian army in late March 2012. The two systems may originate from a batch supplied to Mali by the Soviet Union in 1982 (SIPRI, n.d.).

*Source:* Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 10:40–10:44, 11:55–11:59, and 12:54–12:57; (2) The Guardian (2013), visible in minutes 00:06–00:14; and (3) Francetv (2013), visible in minutes 00:23–00:25



12.7 x 108 mm ammunition – see 4.1

# 6. AMMUNITION FOR CONVENTIONAL WEAPONS

## 6.1 23 X 152B MM AMMUNITION



This ammunition was documented in Diabaly, northern Mali, on 24 January 2013, following the recapture of the town by French, Malian, and allied forces. The ammunition features a high-explosive incendiary (HEI) load and is used in the ZU-23-2 (see Entry 5.2, above) and ZSU-23-4 cannon. No factory marks are visible in the images, although box design characteristics suggest that the ammunition is of either Bulgarian or Russian Federation manufacture.

.....  
*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny

## 6.2 DISINTEGRATING LINKS FOR 23 X 152B MM AMMUNITION BELTS

These links were documented in Diabaly, northern Mali, on 24 January 2013, following recapture of the town by French, Malian, and allied forces. The links may indicate the deployment (undocumented in Diabaly) by rebel forces of a ZU-23-2 cannon (see Entry 5.2, above).

.....  
*Source:* Photographic evidence compiled in Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny



### 6.1 23 x 152B mm ammunition box.

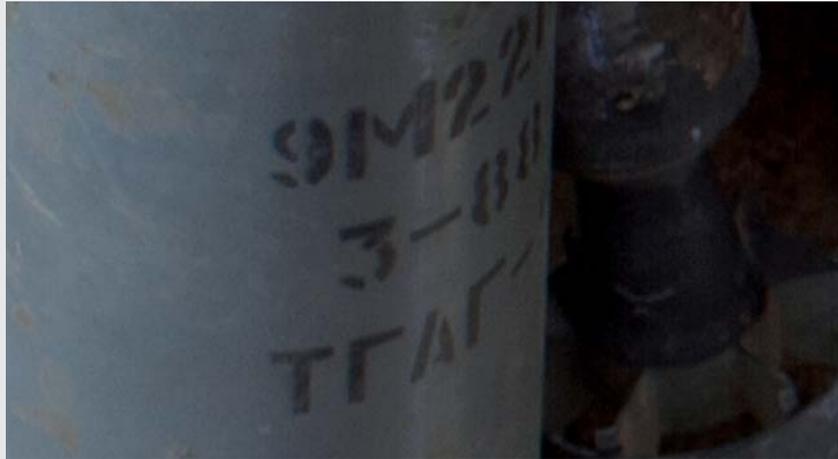


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6.4

### 9M22M 122 mm rockets (top) and 9M22M boxes (bottom).



© Joseph Penny, 2013

### 6.3 122 MM HOWITZER AMMUNITION

This ammunition was documented on 3 March 2013 in footage of weapons captured by French forces in the Adrar des Ifoghas mountain range in north-eastern Mali. This ammunition, which can be employed in the D-30A towed howitzer (see Entry 5.5, above), is known to have been in service with Libyan and Malian forces before the start of hostilities in these two countries. The provenance of the ammunition is unclear.

Source: Verified film footage from Francetv (2013), visible in minutes 00:17–00:20

### 6.4 9M22M 122 MM ROCKETS



These rockets were documented in Diabaly, following the recapture of the town by French and Malian forces; in service with rebel forces in Gao (witnessed deployed in BM-21 multiple-launch rocket systems);

and at a Malian military base captured by rebel forces in April–May 2012. Rockets of the same batch (1988) as those identified in Diabaly were also documented in Konna on 26 January 2013 and Gao on 25 February 2013. The rockets, which have a range approaching 20 km, are used in the BM-21 multiple-launch rocket system (see Entry 5.6, above) and are of Soviet Union/Warsaw Pact country manufacture. The available images do not document the markings needed to identify the country of manufacture. Visible markings indicate 1972 and 1988 as dates of manufacture.

Source: Photographic evidence compiled in (1) Diabaly, northern Mali, 24 January 2013. Images kindly provided by Joseph Penny; and (2) Konna, northern Mali, 26 January 2013. Images kindly provided by Richard Valdmanis; verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 37:59–38:08; and (2) BFMTV (2013), visible in minutes 00:10–00:12

# 7. ARMoured MILITARY VEHICLES

## 7.1 BRDM-2 ARMoured PERSONNEL CARRIER

This vehicle was documented in Gao, northern Mali, in April–May 2012. The vehicle is of Soviet Union/Warsaw Pact country manufacture. Its provenance is unclear, although rebel forces may have captured it from the Malian army during operations in 2012. Mali is reported to have deployed 64 BRDM-2 vehicles before the 2012 rebellion (IISS, 2011, p. 432), of which Bulgaria is reported to have supplied 44 in 2007–09 (SIPRI, n.d.).

Source: Verified film footage from (1) Ben Rabie/Echorouk TV (2012), visible in minutes 11:54–11:55, 12:33–12:35, and 12:54–12:57; and (2) AFP (2012a), visible in minutes 00:17–00:24

## 7.2 BTR-60 ARMoured PERSONNEL CARRIER

This vehicle is of unknown manufacture or provenance. Film footage precludes an accurate technical assessment and precise identification of the BTR-60 variant. Rebel forces could have captured it from the Malian army in March 2012, which was reported to have deployed 44 of the vehicles before the 2012 rebellion (IISS, 2011, p. 432). However, the colour scheme (disruptive pattern) differs from documented Malian armoured vehicles, which are usually painted in plain dark green.<sup>2</sup>

Source: Verified film footage from Ben Rabie/Echorouk TV (2012), visible in minutes 10:23–00:31

<sup>2</sup> SIPRI (n.d.) describes 34 BTR-60 vehicles supplied by Bulgaria to the Government of Mali in 2008–09 as (turreted) BTR-60PB variants.



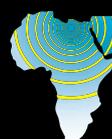
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Email: [admin@conflictarm.com](mailto:admin@conflictarm.com)

[www.conflictarm.com](http://www.conflictarm.com)



Security Assessment  
in North Africa



a project of the small arms survey, geneva

Email: [sas@smallarmssurvey.org](mailto:sas@smallarmssurvey.org)

[www.smallarmssurvey.org](http://www.smallarmssurvey.org)