

Parts for Small Arms and Light Weapons

Small arms and light weapons are composed of numerous parts, ranging from nuts, screws, and bolts that are also used in dozens of other products to highly specialized, technologically sophisticated sensors designed specifically for a particular model of light weapon. This *Research Note* provides a brief overview of parts for small arms and light weapons, as well as the international trade in these parts.

As defined by the Small Arms Survey, 'parts' are items that are essential for the basic, intended use of small arms and light weapons. Parts differ from 'accessories' in that the latter increase the effectiveness or usefulness of small arms and light weapons, but generally speaking are not essential (Schroeder, 2013; Grzybowski, Marsh, and Schroeder, 2012, pp. 243–45). While it is clear that the international trade in parts is robust, the full extent of this trade is not clear. Of the data sources commonly used to track small arms transfers, only UN Comtrade contains useful information on parts. Few, if any, countries provide detailed, disaggregated data on transfers of parts to the UN Register of Conventional Arms and other multilateral reporting mechanisms, or in their national reports on arms transfers. While UN Comtrade is a valuable resource, it was not designed to be a transparency mechanism for the arms trade and thus in most cases its data reveals little about the specific types of parts transferred or the weapons for which they are intended. Data on some types of parts—such as those for portable missiles and light weapons ammunition—is aggregated with data on unrelated items,

making the trade in parts extremely difficult to track and measure.

Despite these limitations, there is sufficient data to estimate the value of the global trade in parts for many small arms and light weapons, which is worth at least USD 1.4 billion annually.¹ Transfers of parts account for approximately 16 per cent² of the estimated USD 8.5 billion global trade in small arms; light weapons; and their parts, accessories, and ammunition (Grzybowski, Marsh, and Schroeder, 2012, p. 242).

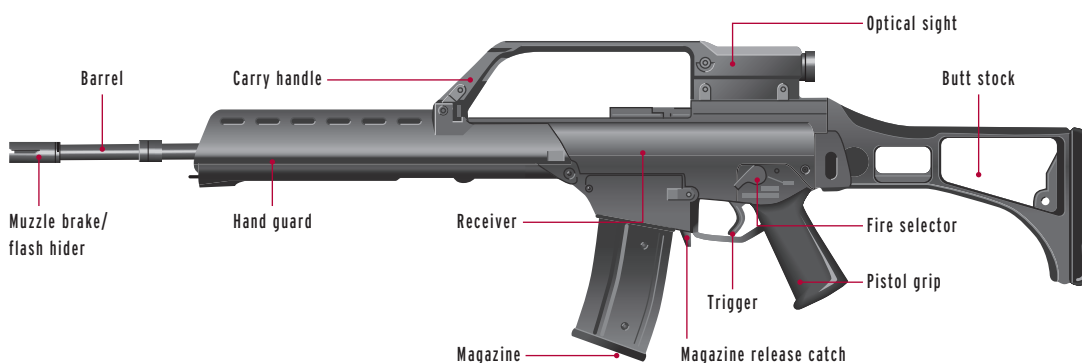
Range and types of parts

Small arms are constructed of various parts, including barrels, bolts, butt stocks, grips, hand guards, magazines, triggers, and trigger guards. These parts are shown in Figures 1 and 2. Figure 1 depicts a typical assault rifle, while Figure 2 shows the parts that comprise a specific rifle, FN Herstal's 5.56mm FNC (*Fabrique Nationale Carabine*) assault rifle.

Other types of small arms contain similar parts. A feature that all small arms have in common is a receiver. Designs vary, but receivers house the gun's moving parts and usually contain springs, levers, and pistons. The magazines of pistols are contained in the pistol grip, while the short pistol barrel does not require a hand guard.

Parts for light weapons vary considerably. Mortars, which are primarily muzzle loaded, are simply constructed and usually consist of a tube, base plate, and bipod. Rocket launchers and recoilless rifles, which fire unguided projectiles, consist of a launch tube that is connected to a firing mechanism. Man-portable

Figure 1. Parts of an assault rifle



air defence systems (MANPADS) and anti-tank guided weapons (ATGWs) are complex, technology-intensive systems. Both are based around a missile, which usually contains sensors, a central guidance unit, a warhead, a rocket motor, and propellant. The missile is usually propelled from a launch tube. In the case of MANPADS, a grip stock and battery unit are usually attached under the launch tube. ATGWs are more diverse, but many contain a tripod and an aiming and fire-control unit (in addition to the missile and launch tube).

The international trade in parts for small arms and light weapons

Research conducted by the Survey indicates that in many countries the production of small arms and light weapons is carried out through globalized production chains. Countries with companies participating in these production chains import much larger quantities of parts than countries that do not produce small arms.³ These transfers occur throughout the production chain among several types of organizations and under various contractual conditions, which are discussed below.

- **Outsourcing** occurs when parts are purchased from a company other than the manufacturer of the finished product. In some cases a large number of firms may compete and produce similar parts that may be sold to manufacturers of finished products through an intermediary. In other cases one company may be highly reliant on another as a sole supplier or purchaser.
- Under **licensed production** agreements one organization grants another a licence (usually for a fee) to produce a particular weapon. The transfer of intellectual property (such as designs) normally accompanies licensed production. In addition, the licensor may also provide production machinery and parts that will be used by the licensee to produce the finished weapons. Initially, the licensee may

depend on imports of parts from the licensor, but over time it may switch to local suppliers or produce the parts itself (Gimelli Sulashvili, 2007).

- In **co-production**, two or more companies (often located in different countries) agree to develop and produce a weapon system jointly. An example is the MILAN anti-tank weapon, which was originally developed by Euromissile, a consortium of the French Aerospatiale Group and Germany's Daimler-Benz Aerospace (Gander and Cutshaw, 1999, p. 355).
- **Offset and countertrade** arrangements occur when a supplier agrees to buy products from the country purchasing the finished weapon (Brauer and Dunne, 2004). For example, a ministry of defence might procure missiles from a producer in another country and a condition of the deal might be that the missile producer buys parts from companies based in the importing country.
- Transfers of parts also occur among elements of **multinational corporations**, e.g. parts produced in a plant in one country may be sent across the border for assembly in another.

The small arms production industry is not uniformly globalized. Brazil, which has one of the world's largest pistol-exporting industries, imports very few pistol parts. Brazilian firms either produce the parts themselves or purchase them from domestic suppliers. Countries and firms choose not to source parts internationally for several reasons. Ministries of defence that prioritize security of supply may decide to avoid dependence on foreign suppliers for crucial parts of weapons used by their armed forces. State-owned firms may also prioritize local employment over the potential cost savings associated with procuring parts from abroad (Dimitrov and Hall, 2012).

Export controls may also limit the globalization of small arms production. Many parts used in small arms and light weapons are controlled goods that require a licence if they are to be

exported and are subject to re-export controls. Such transfer controls can restrict the direct or indirect transfer of parts, as is the case with transfers of weapons and parts from the United States to China. Such retransfer controls also influence trade among Western countries. The United States has strict retransfer controls that require importing firms to request permission before the parts—including parts in finished weapons—are transferred to another country. According to one industry representative, these controls have led European producers to source parts from non-US suppliers to avoid US retransfer controls,⁴ although the extent to which retransfer controls affect procurement decisions is unclear.

Producers of parts for small arms and light weapons may specialize in these items or they may produce a wide variety of products. For example, Lothar Walther focuses solely on gun barrels, which it sells through a worldwide network of dealers (Lothar Walther, n.d.). The Dandong Xunlei Technology Company of China offers a wider range of products, but still targets the small arms market. The company produces numerous parts for small arms, such as butt stocks, hand guards, and rails, as well as accessories, such as telescopic sights, flashlights, and laser pointers (DXT, n.d.). Other companies produce parts that are incorporated into a wide array of products, including—but not limited to—small arms. An example is the US-based Connecticut Spring & Stamping Corporation, which makes springs and stamped metal products that are used in the medical, aerospace, defence, automotive, and small arms industries (CSS, n.d.).

Repair and maintenance

Internationally transferred parts for small arms and light weapons are also used for maintenance, repair, and upgrades. Parts are replaced during routine maintenance, when a weapon is unexpectedly damaged, and when weapons are upgraded. Research conducted by the Survey indicates that repairs, maintenance, and upgrades account for a small percentage of the

overall trade in parts. Data on transfers of parts shows that in 2005–09, 56 countries—all of which engage in domestic production—imported 97 per cent of the financial value of all parts for military firearms and light weapons. Although there is no statistical relationship between the size of a state's armed forces and that state's import of parts of military firearms and light weapons, there is such a relationship with the production of these weapons. This may be because imported finished weapons are often returned to their respective manufacturers abroad for repairs and upgrades.⁵ In these cases parts associated with repairs and maintenance would be transferred to the country of manufacture rather than the country of import. It is important to note, however, that light weapons parts in particular are often supplied with the finished weapons when they are initially exported and so may be recorded as part of these transactions.⁶ The value of these parts may thus be included in data on transfers of the finished (complete)

weapons rather than in data on transfers of parts as such. The value of parts transferred with weapons is likely to be small, however.

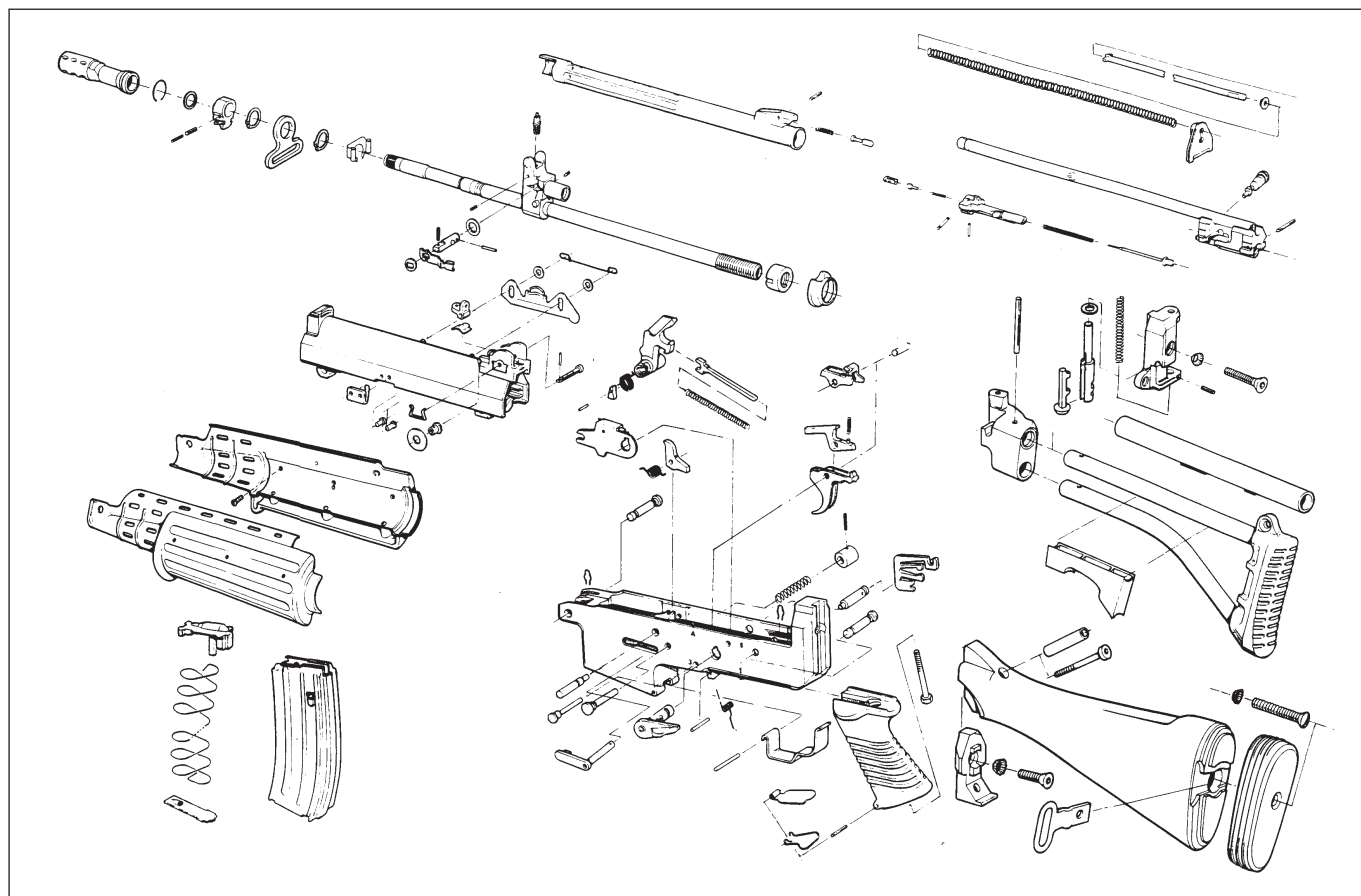
With respect to handguns and sporting rifles and shotguns, civilian purchasers may simply replace a damaged weapon (which costs only a few hundred dollars) rather than attempt to repair it.⁷ In this way the demand for small arms parts is centred on the production of new small arms rather than the maintenance of previously manufactured weapons. Country-specific data appears to support this theory. For example, sales of parts and accessories by Sturm, Ruger & Co.—a US manufacturer of pistols, revolvers, and rifles—accounted for only 4.6 per cent of total small arms sales in 2010 (i.e. USD 11.5 million out of USD 251.7 million in total sales).⁸

Conclusion

As explained above, the international trade in parts is a critical component of the broader trade in small arms

and light weapons. Parts form a significant percentage of the value of the international small arms trade, and are essential for the production and maintenance of small arms and light weapons worldwide. The trade in parts is particularly important for arms manufacturers with globalized production chains and for governments and other end users that lack the domestic capacity to produce the full range of items required to maintain their small arms and light weapons. Demand for parts also exists among armed groups, arms traffickers, and other criminals. Armed groups that have established production and repair capabilities (particularly those with large, diverse holdings of weapons and a high operational tempo) require consistent access to parts. Diverted parts are also used in the illicit production of small arms and light weapons by armed groups and arms traffickers, some of whom illegally assemble firearms from parts diverted from licit channels. These weapons are then illicitly re-exported

Figure 2. **Diagram of 5.56mm FNC (Fabrique Nationale Carabine) assault rifle shown with either fixed or foldable buttstock**



to criminals in other countries (Schroeder, Close, and Stevenson, 2008, p. 130).

For these reasons, transparency in the global trade in parts is as important as transparency in the trade in the weapons themselves. However, as noted above, no countries routinely publish detailed, disaggregated, and comprehensive data on transfers of parts for all types of small arms and light weapons and their associated ammunition. Access to more and better data would help policymakers and the public to better understand this trade, including transfers that could result in diversion to unauthorized end users. ■

Sourcing

This *Research Note* is based on 'Piece by Piece: Authorized Transfers of Parts and Accessories', by Matt Schroeder, Janis Grzybowski, and Nicholas Marsh, in *Small Arms Survey 2012: Moving Targets*.

Notes

- 1 Parts of small calibre ammunition and shotgun shells are included in data on transfers of finished ammunition, which were assessed in *Small Arms Survey 2010: Gangs, Groups, and Guns* (Herron et al., 2010, pp. 23–27).
- 2 Note that 16 per cent is probably an underestimate since it does not include the value of transfers of parts for ammunition, the data on which is aggregated with data on the ammunition itself, or parts for portable guided missiles.
- 3 Other countries, such as Norway, export more parts than finished weapons.
- 4 Author communication with an industry representative, 27 October 2011.
- 5 The Small Arms Survey includes international movement of arms for repairs and maintenance in transfers studied as part of its four-year project to assess the trade (Dreyfus, Marsh, and Schroeder, 2009, p. 9).
- 6 Author interview with industry representative, 4–5 October 2011.
- 7 Author interview with industry representative, 4–5 October 2011.
- 8 Author communication with analyst Jurgen Brauer, who compiled statistics on Sturm, Ruger & Co., 16 December 2011. The average value of the company's sales of parts and accessories for the period 1993–2010 was 3.2 per cent.

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For more information on small arms and light weapons, please visit: <http://www.smallarmsurvey.org/weapons-and-markets.html>

About the Small Arms Survey

The Small Arms Survey serves as the principal international source of public information on all aspects of small arms and armed violence, and as a resource centre for governments, policy-makers, researchers, and activists. In addition to Research Notes, the Survey distributes its findings through Occasional Papers, Special Reports, Working Papers, Issue Briefs, a Book series, and its annual flagship publication, the *Small Arms Survey*.

The project has an international staff with expertise in security studies, political science, international public policy, law, economics, development studies, conflict resolution, sociology, and criminology, and works closely with a worldwide network of researchers and partners.

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