M1918 Browning Automatic Rifle

Rifle, Caliber .30, Automatic, Browning, M1918	
 The M1918A2 BAR	
Type	Automatic rifle
Place of origin	United States
Service history	
In service	1918–1960s (U.S.)
Used by	See *Users*
Wars	World War I, World War II, Chinese Civil War, Korean War, Bay of Pigs Invasion, Vietnam War (limited), Palestinian Civil War
Production history	
Designer	John Browning
Designed	1917
Manufacturer	Colt's Patent Firearms Manufacturing Company, Winchester Repeating Arms Company, Marlin-Rockwell Corporation, Royal McBee Typewriter Company, International Business Machines, Carl Gustafs Stads Gevärsfaktori, FN Herstal, Państwowa Fabryka Karabinów
Produced	1917–1950s
Number built	100,000+ (M1918)
Variants	See *Variants*
Specifications	
Weight	7.25 kg (15.98 lb) (M1918) Approx. 11 kg (24 lb) (M1922) 8.4 kg (19 lb) (M1918A1) 8.8 kg (19 lb) (M1918A2) 9.0 kg (20 lb) (wz. 1928)
Length	1194 mm (47 in) (M1918, M1922, M1918A1) 1215 mm (47.8 in) (M1918A2) 1110 mm (43.7 in) (wz. 1928)
Barrel length	610 mm (24.0 in) (M1918, M1922, M1918A1, M1918A2) 611 mm (24.1 in) (wz. 1928)
Cartridge	.30-06 Springfield (7.62x63mm) (M1918, M1922, M1918A1, M1918A2) 7.92x57mm Mauser (wz. 1928) 7.65x53mm Belgian Mauser (FN Mle 1930, FN Mle D) 7x57mm Mauser 6.5x55mm (Kg m/21, m/37) .303 British (7.7x56mmR) 7.62x51mm NATO
Action	Gas-operated, tilting breech block

Rate of fire	500–650 rounds/min (M1918, M1922, M1918A1) 300-450 or 500-650 rounds/min (M1918A2) 600 rounds/min (wz. 1928)
Muzzle velocity	860 m/s (2822 ft/s) (M1918, M1922, M1918A1, M1918A2) 853 m/s (2798.6 ft/s) (wz. 1928)
Effective range	100–1,500 yd sight adjustments
Maximum range	Approx. 4,500-5,000 yd
Feed system	20-round detachable box magazine
Sights	Rear leaf, front post 784 mm (30.9 in) sight radius (M1918, M1922, M1918A1) 782 mm (30.8 in) (M1918A2) 742 mm (29.2 in) (wz. 1928)

The **Browning Automatic Rifle** (**BAR**) was a family of American automatic rifles (or machine rifles) and light machine guns used by the United States and numerous other countries during the 20th century. The primary variant of the BAR series was the **M1918**, chambered for the .30-06 Springfield rifle cartridge and designed by John Browning in 1917 for the U.S. Expeditionary Corps in Europe as a replacement for the French-made Chauchat and M1909 Benet-Mercie machine guns.

The BAR was designed to be carried by advancing infantrymen, slung over the shoulder and fired from the hip, a concept called "walking fire"—thought to be necessary for the individual soldier during trench warfare.[1] However in practice, it was most often used as a light machine gun and fired from a bipod (introduced in later models).[2] The original M1918 version was and remains the lightest machine gun to fire the .30-06 Springfield cartridge, though the limited capacity of its standard 20-round magazine tended to hamper its utility in that role.[2]

History

John M. Browning, the inventor of the rifle, and Mr. Burton, the Winchester expert on rifles, discussing the finer points of the BAR at the Winchester plant.

The U.S. entered World War I with an inadequately small and obsolete assortment of various domestic and foreign machine gun designs, due primarily to bureaucratic indecision and the lack of an established military doctrine for their employment. When the declaration of war on Imperial Germany was announced on 6 April 1917, the military high command was made aware that to fight this machine gun-dominated trench war, they had on hand a mere 670 M1909 Benet-Mercies, 282 M1904 Maxims and 158 Colts, M1895.[3] After much debate, it was finally agreed that a rapid rearmament with domestic weapons would be required, but until that time, U.S. troops would be issued whatever the French and British had to offer. The arms donated by the French were often second-rate or surplus and chambered in 8mm Lebel, further complicating logistics as machine gunners and infantrymen were issued different types of ammunition.[1]

Development

A live fire demonstration of the BAR in front of military and government officials.

In 1917, prior to America's entry to the war, John Browning personally brought to Washington, D.C. two types of automatic weapons for the purposes of demonstration: a water-cooled machine gun (later adopted as the M1917 Browning machine gun) and a shoulder-fired automatic rifle known then as the **Browning Machine Rifle** or **BMR**, both chambered for the standard U.S. .30-06 Springfield cartridge.[1] Browning had arranged for a public demonstration of both weapons at a location outside of Washington, D.C. known as Congress Heights.[4] There, on 27 February 1917, in front of a crowd of 300 people (including high-ranking military officials, Congressmen, Senators, foreign dignitaries and the press), Browning staged a live fire demonstration which so impressed the gathered crowd, that he was immediately awarded a contract for the weapon and it was hastily adopted into service (the water-cooled machine gun underwent further testing).[4]

Additional tests were conducted for U.S. Army Ordnance officials at Springfield Armory in May 1917 and both weapons were unanimously recommended for immediate adoption. In order to avoid confusion with the belt-fed M1917 machine gun, the BAR came to be known as the M1918 or **Rifle, Caliber .30, Automatic, Browning, M1918** according to official nomenclature. On 16 July 1917, 12,000 BARs were duly ordered from Colt's Patent Firearms Manufacturing Company who had secured an exclusive concession to manufacture the BAR under Browning's patents (Browning's U.S. Patent 1293022 [5] was owned by Colt).[6] However Colt was already producing at peak capacity (contracted to manufacture the Vickers machine gun for the British Army) and requested for a delay in production while they expanded their manufacturing output with a new facility in Meriden, Connecticut. Due to the urgent need for the weapon, the request was denied and the Winchester Repeating Arms Company (WRAC) was designated as the prime contractor. Winchester gave valuable assistance in refining the BAR's final design, correcting the drawings in preparation for mass production.[7] Among the changes made, the ejection pattern was modified (spent casings were directed to the right side of the weapon—instead of straight up).

Production

2nd Lt. Val Browning with the Browning Automatic Rifle in France.

Since work on the gun did not begin until February 1918, so hurried was the schedule at Winchester to bring the BAR into full production, that the first production batch of 1,800 guns was delivered out of spec;[7] it was discovered that many components did not interchange between rifles and production was temporarily halted until manufacturing procedures were upgraded to bring the weapon up to specifications.[8] The initial contract with Winchester called for 25,000 BARs. They were in full production by June 1918, delivering 4,000 guns and in July were turning out 9,000 units a month.

Colt and Marlin-Rockwell Corp. also began production shortly after Winchester got into full production. Marlin-Rockwell, burdened by a contract to make rifles for the Belgian government, acquired the Mayo Radiator Co.'s factory and used it exclusively to carry out production of the BAR. The first unit from this source was delivered on 11 June 1918 and the company's peak output reached 200 automatic rifles per

day.[8] Colt only produced 9,000 BARs at the time of the armistice due to the heavy demands of previous orders.[8] These three companies produced a combined daily output of 706 rifles and a total of approximately 52,000 BARs were delivered by all sources by the end of the war.[8] Between 1918–1919, 102,125 BARs had been manufactured jointly by Colt (16,000 weapons), Winchester (47,123) and Marlin-Rockwell (39,002 units).

By July 1918, the BAR began to arrive in France and the first unit to receive them was the U.S. Army's 79th Infantry Division, which took them into action for the first time on 13 September 1918.[8] The weapon was personally demonstrated against the enemy by 2nd Lieutenant Val Allen Browning, the inventor's son.[8] Despite being introduced very late in the war, the BAR had made an impact disproportionate to its numbers; it was used extensively during the Meuse-Argonne Offensive and made a significant impression on the Allies (France alone requested 15,000 automatic rifles to replace their notoriously unreliable Chauchat machine rifle).[8]

Design details

The M1918 is a selective fire, air-cooled automatic rifle using a gas-operated long-stroke piston rod actuated by propellant gases bled through a vent in the barrel. The bolt is locked by a rising bolt lock. The gun fires from an open bolt. The spring-powered cartridge casing extractor is contained in the bolt and a fixed ejector is installed in the trigger group. The BAR is striker fired (the bolt carrier serves as the striker) and uses a trigger mechanism with a fire selector lever that enables operating in either semi-automatic or fully automatic firing modes. The selector lever is located on the left side of the receiver and is simultaneously the manual safety (selector lever in the "S" position – weapon is "safe", "F" – "Fire", "A" – "Automatic" fire). The "safe" setting blocks the trigger.

The weapon's barrel is screwed into the receiver and is not quickly detachable. The M1918 feeds using double-column 20-round box magazines, although 40-round magazines were also used in an anti-aircraft role; these were withdrawn from use in 1927. The M1918 has a cylindrical flash suppressor fitted to the muzzle end. The weapon was equipped with a fixed wooden buttstock and closed-type adjustable iron sights, consisting of a forward post and a rear leaf sight with 100 to 1,500 yard range graduations. Bayonets for the BAR were not manufactured in great quantity and are thus extremely rare. They consisted of a spike form with a slat on the top side, attaching to the bottom of the barrel in the conventional fashion.

Variants

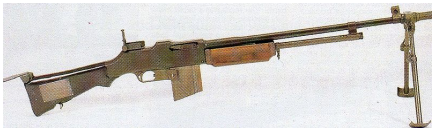
The primary U.S. M1918 variants

During its lengthy service life, the BAR underwent continuous development, receiving many improvements and modifications. The first major attempt at improving the M1918 resulted in the **M1922** light machine gun, adopted by the United States Cavalry in 1922. The weapon used a new heavy profile ribbed barrel, an adjustable spiked bipod (mounted to a swiveling collar on the barrel) with a rear, stock-mounted monopod, a side-mounted sling swivel and a new rear endplate, fixed to the stock retaining sleeve. The handguard was changed, and in 1926, the BAR's sights were redesigned to accommodate the heavy-bullet 172-grain M1 .30-06 ball ammunition then coming into service for machine gun use.

The early M1918 BAR

The second significant modification of the M1918 was intended to increase the weapon's effectiveness and controllability firing in bursts and took place in 1937, which saw the introduction of the **M1918A1** into U.S. Army inventories. Compared to the original M1918, the

newer model includes a lightweight spiked bipod attached to the gas cylinder with a leg height adjustment feature and a new hinged steel butt plate. Relatively few M1918s were rebuilt to the new M1918A1 standard.



M1918A2

In 1938–1939, work was begun on what would become the new **M1918A2**, accepted into service in 1940. One of the most important aspects of this modification involved removal of the semi-automatic firing capabilities of the weapon and using a rate-reducing buffer mechanism, activated by engaging the "F" position on the selector toggle. Furthermore, a new skid-footed bipod was fitted to the muzzle end of the barrel, magazine guides were added to the front of the trigger guard, the handguard was shortened, a heat shield was added to help the cooling process, a small monopod was hinged from and folded into the butt, and the weapon's role was changed to that of a squad light machine gun. The BAR's rear sight scales were also modified to accommodate the newly-standardized M2 Ball ammunition with its lighter flat-base bullet. In 1942, a fiberglass buttstock replaced the wood version, and late in the war, a barrel-mounted carrying handle was added. Initially, M1918A2s were obtained by converting older M1918 rifles (remaining in surplus) and a limited number of M1922s and M1918A1s; later, their production was undertaken at the New England Small Arms Corp. and International Business Machines Corp. (a total of 168,000 new weapons were manufactured). During the Korean War, production was again launched, this time contracted to the Royal McBee Typewriter Co. responsible for a further 61,000 M1918A2 light machine guns.

The M1918A2 is an automatic weapon which uses a trigger and fire control mechanism that permits fully automatic fire only but with two variable rates of fire: a normal rate (500–650 rounds/min) and a reduced rate (300–450 rounds/min), achieved by engaging a device which reduces the weapon's cyclic rate of fire, installed inside the buttstock (together with the buffer). The safety and fire selector lever is placed on the left side of the trigger group and has three positions: "S" – weapon safe, "F" – automatic fire with a mechanically reduced rate and "A" – continuous fire at the normal cyclic rate. The weapon's barrel has a new slotted flash suppressor (introduced during the Korean War), an adjustable bipod, a fixed stock with a folding shoulder rest, carry handle and fully adjustable iron sights, with a post foresight and a leaf rear sight (can be adjusted with windage and elevation corrections) with an elevation ladder graduated from 100 to 1,600 yd and a notch for immediate firing up to 300 yd.

International models

Export models

An FBI man practices with the Colt Monitor (R80). Characteristic of this model was the large slotted Cutts recoil compensator.

The BAR family of light machine guns also found a ready market overseas and were widely exported. In 1919, the Colt's company developed and produced a commercial variant called the **Automatic Machine Rifle Model 1919** (company designation: **Model U**), which has a different return mechanism compared to the M1918 (it is installed in the stock rather than the gas tube) and lacks a flash hider. Later the **Model 1924** rifle was offered for a short period of time, featuring a pistol grip and a redesigned handguard. However, the following **Model 1925** (**R75**) would achieve the highest popularity in export sales. It is based on the Model 1924 but uses a heavy, finned barrel, a lightweight bipod and is equipped with dust covers in the magazine well and ejection port (some of these features were patented: refer to US patents 1548709 and 1533968). The Model 1925 was produced in various calibers, including .30-06 Springfield (7.62x63mm), 7.65x53mm Belgian Mauser, 7x57mm Mauser, 6.5x55mm, 7.92x57mm Mauser and .303 British (7.7x56mmR). A minor variant of the Model 1925 (R75)

was the **R75A** light machine gun with a quick-change barrel (produced in 1924 in small quantities for the Dutch Army) and the **Monitor** (**R80**) automatic rifle, which was adopted by various US security services (including the FBI) in 1931. The R80 lacks a bipod and uses a lightweight receiver and a lightweight short 458 mm (18.0 in) barrel fitted with a Cutts compensator. These were produced in very limited numbers, no more than 125 were made and the majority went to the FBI.

Sweden

Pictured on the left is the Swedish Kg m/21 model which was nearly identical to the M1919 configuration.

In 1920, the Belgian arms manufacturer Fabrique Nationale (FN) acquired sales and production rights to the BAR series of firearms in Europe from Colt's. The first BAR model sold by FN was the **Kg m/21** (Kg—*Kulsprutegevär* or "machine rifle") chambered for the 6.5x55mm m/94 cartridge. The m/21 is a variant of the Model 1919 designed to Swedish specifications and manufactured initially by Colt's and later under license at the Carl Gustafs Stads Gevärsfaktori in Eskilstuna. Compared to the Model 1919, the Swedish weapon has—apart from the different caliber—a spiked bipod and pistol grip. The m/21 would become one of Sweden's main support weapons in the interwar years together with the water-cooled belt-fed Ksp m/1914 medium machine gun (Swedish adaptation of the Austrian M07/12). Dissatisfied with the rapidly overheating fixed barrel of the m/21, Carl Gustaf began to design a new quick-detach mechanism for the barrel which mates the externally grooved chamber to a series of rotating flanges in the receiver operated by a locking lever. The barrel also received cooling fins along its entire length. These enhancements were incorporated into the **fm/1935** prototype trialled successfully in 1935, which in turn led to the **m/37** variant that lacks the finned barrel, selected into service in 1937 and remaining in second-line use until 1980. Carl Gustaf also developed a belt-fed version of the weapon; however it was never adopted.

Poland

The Polish wz. 1928 variant.

Production of the BAR in Belgium began only after signing an agreement with Poland (on 10 December 1927) involving the procurement of 10,000 wz. 1928 light machine guns chambered in 7.92x57mm Mauser, which are similar to the R75 variant but designed specifically to meet the requirements of the Polish Army. Changes to the base design include a pistol grip, different type of bipod, open-type V-notch rear sight and a slightly longer barrel. Subsequent rifles were assembled locally in Poland under license by the State Rifle Factory (*Państwowa Fabryka Karabinów*) in Warsaw. The wz. 1928 was accepted into service with the Polish Army in 1927 under the formal name *7,92 mm rkm Browning wz. 1928* ("7.92 mm Browning hand-held machine gun model 1928") and – until the outbreak of World War II – was the primary light support weapon of Polish infantry and cavalry formations (in 1939 Poland had a total of approx. 20,000 wz. 1928 rifles in service). Additional detail modifications were introduced on the production line. Among them was the replacement of the iron sights with a smaller version and reshaping the butt to a fish tail.

In the mid-1930s, Polish small arms designer Wawrzyniec Lewandowski was tasked with developing a flexible aircraft-mounted machine gun based on the Browning wz.1928. This resulted in the **wz. 1937**. Changes included increasing the weapon's rate of fire to 1,100 rounds/min, eliminating the buttstock, adding a spade-type grip to the

rear of receiver, moving the main drive spring under the barrel and most importantly – changing the feed system. Sustained fire was practically impossible with the standard 20-round box magazine thus a new feed mechanism was developed, which was added to the receiver as a module. It contains a spring-loaded bolt-actuated lever, which would feed a round from a 91-round pan magazine located above the receiver and force the round into the feed path during unlocking. The machine gun was accepted in 1937 and ordered by the Polish Air Force as the *karabin maszynowy obserwatora wz. 1937* ("observers machine gun model 1937"). 339 machine guns were eventuality acquired and used as armament in the PZL.37 Łoś medium bomber and the LWS-3 Mewa reconnaissance aircraft.

Belgium

Based on the wz. 1928 a variant known as the **FN Mle 1930** was developed in 7.65x53mm Belgian Mauser by FN Herstal and adopted by the Belgian Army. This model had a different gas valve; it too used a rate-reducing fire control mechanism. The weapon also had a hinged shoulder plate and was adapted for use on a tripod mount. In 1932, Belgium adopted a new version of the FN Mle 1930 allocated the service designation **FN Mle D** (D—*Demontable* or "removable") which had a quick-change barrel, shoulder rest and a simplified take-down method for eased cleaning and maintenance. The Mle D was produced even after World War II in versions adapted for .30-06 Springfield and NATO-standard 7.62x51mm ammunition.

The Belgian-made FN Mle D variant with quick-change barrel.

Deployment

From its inception, the M1918 was an automatic rifle. First issued in September 1918 to the AEF, it was based on the concept of "walking fire", a French practice in use since 1916 for which the CSRG 1915 (Chauchat) had been used accompanying advancing squads of riflemen toward the enemy trenches, since the machine guns were too heavy to follow the troops during an assault. In addition to shoulder-fired operation, BAR gunners were issued a belt with magazine pouches for the BAR and sidearm along with a "cup" to support the stock of the rifle when held at the hip. In theory, this allowed the soldier to lay suppressive fire while walking forward, keeping the enemy's head down, a practice known as "marching fire". The idea would resurface in the submachine gun and ultimately the assault rifle. It is not known if any of the belt-cup devices actually saw combat use. The BAR saw little action in World War I, in part due to the Armistice, and also because the U.S. Army was reluctant to have the BAR fall into enemy hands, its first action being in September 1918. 85,000 BARs were built by the war's end.

The BAR remained in limited use during the early stages of the Vietnam War.

World War II

After the outbreak of World War II, the U.S. Military had belatedly realized it had no portable squad light machine gun, and attempted to convert the BAR to that role with the M1918A2. Its success in this role was mixed at best, since the BAR's fixed non-replaceable barrel and small magazine capacity greatly limited its utility in comparison to genuine light machine guns such as the Bren or the Japanese Type 96. The weapon's rate-reducer mechanism proved difficult to clean and was susceptible to damage from moisture and corrosion.[9] This in turn either rendered the weapon inoperable, or prevented it from firing in the automatic mode.[9] The bipod and flash hider, being easily removable, were often discarded by troops to save weight and improve portability.[9]

In combat, particularly in the Pacific Theatre of war, the BAR effectively reverted to its original role as a portable, shoulder-fired automatic rifle. The BAR was often employed at the point or tail of a patrol or infantry column, where its firepower could help break contact on a jungle trail in the event of ambush.[10] After a period of service, ordnance personnel began to receive BARs with inoperable or malfunctioning recoil buffer mechanisms. This was eventually traced to the soldier's common practice of cleaning the BAR in a vertical position with the butt of the weapon on the ground, allowing cleaning fluid and burned powder to collect in the recoil buffer mechanism.[9] Additionally, unlike the M1 Garand, the BAR's gas cylinder was never changed to stainless steel. Consequently, the gas cylinder frequently rusted solid from the use of corrosive-primered M2 service ammunition in a humid environment when not stripped and cleaned on a daily basis.[9]

The BAR was issued as automatic fire support for a squad, and all men were trained at the basic level how to operate and fire the weapon in case the designated operator(s) were killed or wounded. In an attempt to overcome the BAR's limited continuous-fire capability, U.S. Marine and some army units used two BAR fire teams per squad. One team would typically provide covering fire until a magazine was empty, whereupon the second team would open fire, thus allowing the first team to reload. While not without design flaws (a thin-diameter, fixed barrel that quickly overheated, limited magazine capacity, complex field-strip/cleaning procedure, unreliable recoil buffer mechanism, a gas cylinder assembly made of corrosion-prone metals, and many small internal parts), the BAR proved rugged and reliable enough when regularly field-stripped and cleaned.

During World War II, the BAR saw extensive service, both official and unofficial, with many branches of service. One of the BAR's most unusual uses was as a defensive aircraft weapon. In 1944, USAAF Air Transport Command Captain Wally A. Gayda reportedly used a BAR to return fire against a Japanese Army Nakajima fighter that had attacked his C-46 cargo plane over the Hump in Burma. Gayda shoved the rifle out his forward cabin window, emptying the magazine and apparently killing the Japanese pilot.[11] [12]

After World War II

After World War II, the BAR continued in service in the Korean War, and the early stages of the Vietnam War, when the U.S. delivered a quantity of weapons to the South Vietnamese. Quantities of the BAR remained in use by the Army National Guard up until the mid-1970s. Many nations in NATO and recipients of U.S. foreign aid adopted the BAR and used it into the 1990s.

The BAR proved a popular civilian weapon in the U.S., although fully automatic models were greatly restricted in the 1930s, which made them much harder to own and transfer. Importation of machine guns for U.S. civilian transfer was banned in 1968, and U.S. production of machine guns for civilian transfer was banned in 1986. Transferable civilian-owned BAR models remain, however.

Korean War, 1951: Taking cover behind their escort tank, a U.S. soldier returns fire on Chinese positions with an M1918A2.

Clyde Barrow, of the infamous Barrow Gang, used a shortened BAR (stolen from National Guard armories) during his spree in the 1930s. The six lawmen who killed Bonnie and Clyde used a variant of the BAR called the Colt Monitor in their ambush.

This weapon was also used in the police shootout with the Symbionese Liberation Army (SLA) in May 1974. The rounds used in this gun were Armor piercing .30-06 rounds. Police that took part in that shootout said that the deep ominous sound of that rifle struck great fear into them. No officers or civilians were killed in that shootout.

A modern manufacturer of firearms has produced a semi-automatic version of the Browning Automatic Rifle known as the **1918A3 SLR** ("self-loading rifle").[13]

The BAR hunting rifle currently offered by Browning is a completely different firearm, unrelated in design to the Browning military weapons.

Users

Polish resistance fighters during the Warsaw Uprising, 1944. The wz. 28 seen here is likely a survivor of the 1939 September Campaign.

- Austria
- Belgium
- Bolivia
- Brazil
- Chile
- People's Republic of China: A large number were seized from Republic of China during the Chinese Civil War.[14]
- Republic of China
- Colombia
- Cuba
- Egypt
- Ethiopia
- Finland
- Greece
- Haiti
- Israel
- Nazi Germany: The Wehrmacht captured a number of Polish-made Browning wz. 1928 guns and used them until the end of World War II under the designation of **IMG 28(p)**.
- Norway
- Pakistan
- Philippines
- Poland
- El Salvador
- South Korea
- South Vietnam
- Soviet Union: A number of wz. 1928s were seized from the Poles by the Red Army and used during the war.
- Sweden
- Thailand: Locally known as the **ปลก.88** or **ปืนเล็กกล 88**.
- Turkey(1950-1980)
- United Kingdom: Issued to the Home Guard in World War II[15]
- United States
- West Germany

See also

- Bren gun
- FM24/29
- Kg m/40 light machine gun
- Mendoza RM2
- Weibel M/1932

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External links

- Modern Firearms [18]
- The light machine guns of Sweden [19]
- 90th Infantry Division Preservation Group [20] – Reference manual page including 4 BAR manuals
- World War II Database [21]
- the Colt Monitor http://www.smallarmsreview.com/pdf/Monitor.pdf

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