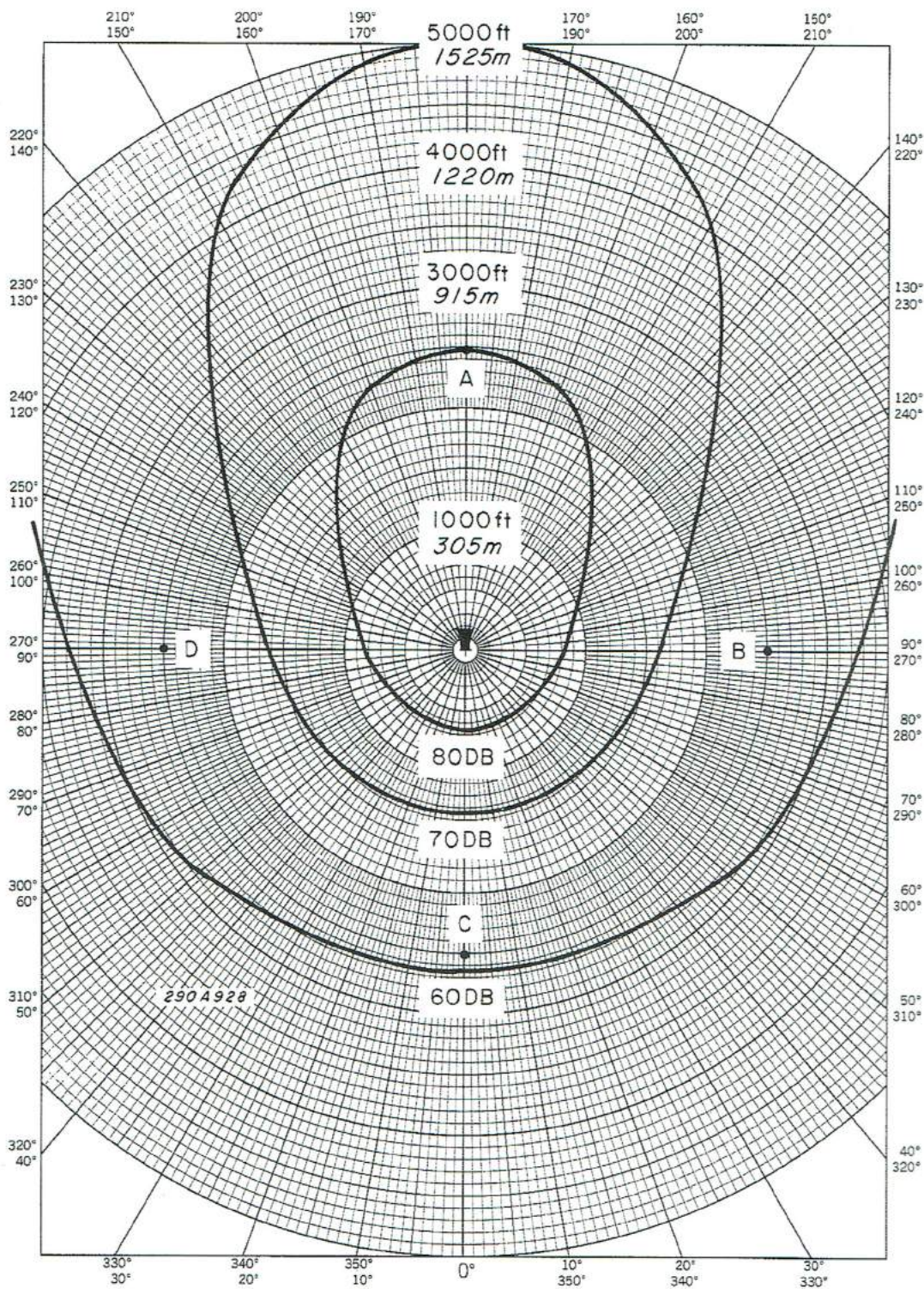


*Seirá*  
Lawrence English

2018



Graph 1-1. Thunderbolt Coverage Pattern

## A Brief History The Siren

In Homer's *Odyssey*, the Sirens were said to produce a sound so compelling as to draw sailors to their peril. As the unseen sounds rang out across the ocean, ships' crews became entranced; sailors focused so fixedly on the ethereal voices they would run aground, colliding with sunken rocks before having their boat smashed apart by fierce waves. As mythological figures, Sirens were said to be part women, part bird; perhaps they had a syrinx rather than a larynx, accounting for their marvelous vocal capacities. So profound and alluring were they that Ulysses himself had to be lashed to the mast of his vessel to ensure he didn't run aground, tempted by the affective voices.

The modern connotation of a siren similarly refers to a sound that commands absolute attention. The siren, as a means of communicating alarm or warning, traces a history back to 1799 when Scottish physicist John Robinson developed a prototype siren as part of his explorations into organ music. Across the following century, the application of the siren shifted significantly, as did the technologies through which the acoustic tones of the siren were created. In 1887, the first siren developed with the specific intent of warning people of impending danger was installed in Scotland at the Ailsa Craig Lighthouse; it warned ships of the island's position during dense sea fogs.

At the beginning of the 20th century, following the widespread introduction of electricity and developments in technologies such as electric motors, the siren began to proliferate. Research and development aided by funding from conflicts such as the First World War saw the siren become an increasingly relevant device through which communication could be transmitted over significant distances. The siren's ability to output a very loud and sustained sound, commonly in the range of 108-125dB within approximately 100 feet, meant it was invaluable for use in situations where a high-level ambient noise floor existed, such as the battlefield. As the 20th century progressed, so did the siren's evolution. Siren manufacturers began to multiply and with the onset of the Second World War, the siren's place in North American urban environments solidified.

# Los Angeles Civil Defense Siren System

In 1942 the first civil defense sirens were installed in Los Angeles. At the time, there was concern of possible air raid strikes by Japanese Imperial Forces following the attack at Pearl Harbor. During the Battle Of Los Angeles, the civil defense sirens were officially sounded for the first time just after 2am on the 25th of February. Whilst the events were later called a false alarm, the sirens left a lasting impact; the first two fatalities recorded during the incident were notably heart attacks resulting from the sounding of the sirens.

Across the 1950s and 60s, as Cold War tensions mounted, a county-wide network of sirens were installed across Los Angeles. Whilst operated by the county the civil defense sirens were manufactured by various corporations, each of which recognized the post-World War II market could be expanded in advance of the Cold War. One such company—Federal Signals Corporation—became synonymous with the growth of sirens as a means of civil defense. Their iconic Thunderbolt siren became a symbol of the promise such systems provided for widespread communication in times of looming danger.

At the peak of their usage, there were over 200 sirens installed across Los Angeles County. Following their installation, the sirens were tested regularly on the last Friday of each month at 10am. During these tests, schools and other community groups would practice various evacuation and nuclear attack protection scenarios, including the infamous 'Duck And Cover.'

From the mid 1950s through the 1970s, the civil defense system was a priority for the county, constantly attended to and maintained. As Cold War tensions eased and the Los Angeles Nike-Ajax and Hercules missiles sites were removed, the role of the sirens diminished. Additionally, the retraction of matched government funding for the sirens reduced their affordability and further increased their irrelevance. Their place as an agent in the urban landscape began to fade.

In Los Angeles, the sirens sounded one final time in January 1985. Since then, they have faded into the background of the city's architecture. Over 25% of Los Angeles's civil defense siren system is no longer standing. Roughly 150 of them are still visible across the city, though many are in significant states of disrepair.

## Returning, Siren Echoes

The civil defense sirens of Los Angeles may now lie dormant, but their spectre haunts the city. In their silence, they have come to function as an important example for several critical understandings of how sound functions for upon and around us.

### A Weaponization Of Sound

The civil defense siren system was a network that existed with the express intention of protecting those within its range by offering an early warning of potential danger. The sound, which acted both as communicator and as a way of creating connectivity between communities and neighborhoods, was primarily deployed as a means of assurance to those within the city. If nothing else, the sirens provided a psychological support network as geopolitical tensions escalated across the mid-to-late 20th century.

Since the turn of the century, and specifically following the bombing of the USS Cole off the coast of Yemen and the subsequent development of devices such as the Long Range Acoustic Device (LRAD), there has been a distinct shift in the way sound is used within civil and social environments across North America. The LRAD, which employs both a range of specifically designed siren tones and the capacity for voice broadcast, has increasingly been deployed as a non-lethal weapon.

Explicitly, the siren tone developed for the LRAD has been designed to saturate human audition with frequencies to which our ears are particularly sensitive and which therefore become distinctly uncomfortable when delivered at high sound pressure levels. LRAD's increased use by law enforcement, private security, and other groups as a means of exerting control and power has significantly shifted understandings of how sound is used in urban settings—especially the siren. The role of the siren has effectively shifted from civil defense to civil assault.

## Acoustic Space

The sirens brought with them a significant new array of discussions around the role sound plays as an agent in the activation and articulating of place. Beyond the sonic and architectural implications of the sirens as a means of creating an acoustic reading of the city—at both a macro and local level—the sirens highlighted recognition of sound’s capacity to affect the body. The casualties of The Battle Of Los Angeles exemplify this corporeal toll.

The sirens also present indicators through which the socio-economic makeup of the city can be understood. Their increasing rarity across the county speaks directly to the gentrification of many Los Angeles neighborhoods. In a historical context, the placement of the sirens speaks to matters of the physical, social, and economic layout of the city during the mid 20th century, as evidenced in civil defense planning documents held by the Los Angeles County Archive.

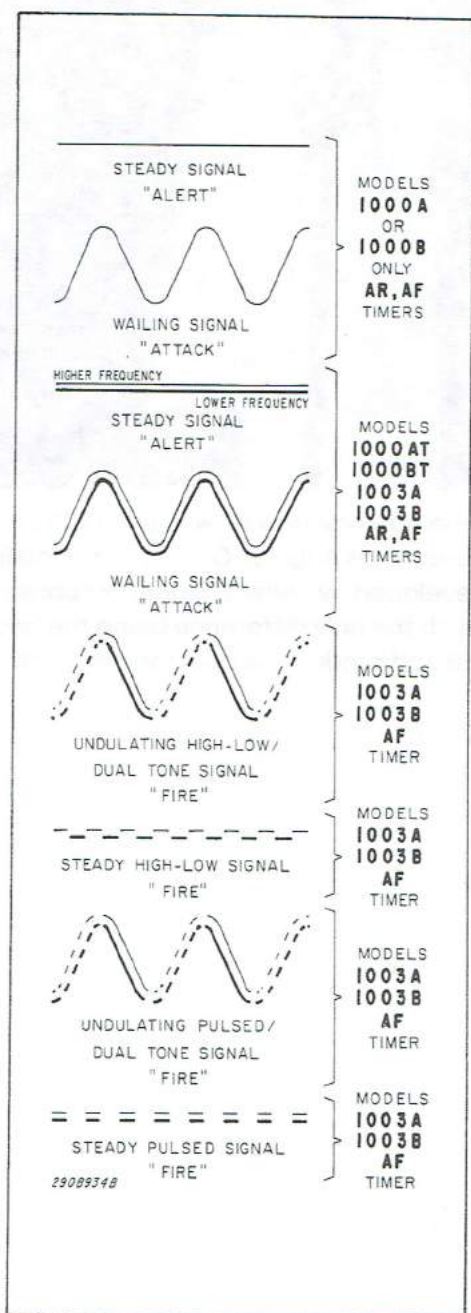
## The Politic Siren

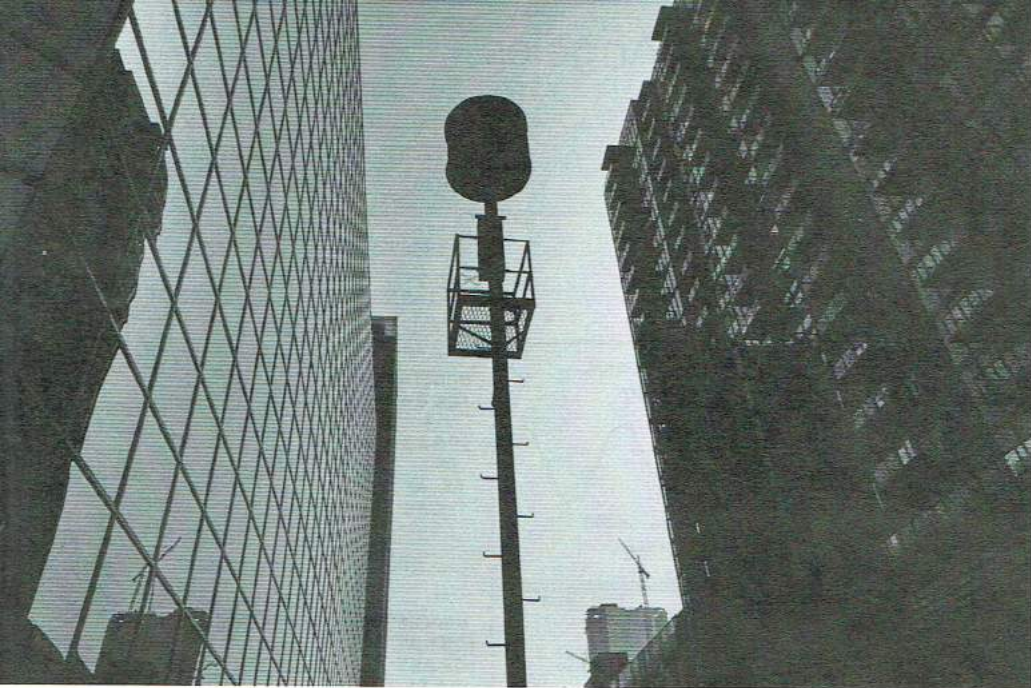
For the first time since the end of the Cold War, the threat of potential Intercontinental Ballistic Missile (ICBM) attack against the United States has presented itself in 2018. The North Korean crisis, which began escalating in the early 00s and this year boiled to a head resulting in The Doomsday Clock, Bulletin Of The Atomic Scientists, being set at two minutes to midnight—the closest it has been to midnight since 1953.

Whilst silent, the civil defense sirens resonate once again, this time with a sense of the ever-present (and arguably, largely forgotten) histories of the 20th century. The threat of attack and obliteration posed by an unseen enemy in a distant part of the world few in the United States have seen—let alone understand—raises an important question about the nature of intergenerational amnesia.

The sirens carry with them an important and diverse history that acts both as a concrete tool for the analysis and understanding of Los Angeles and—more broadly—the United States. They invite critical readings in terms of their iconic capacities, their relevance to understandings of spatial relations, sonic architecture, and political ecologies. Consequentially, they raise questions of sound’s interaction with the body and the power relations that exist in terms of who permits communication, who can listen, and how the relation between these parties might be understood and shaped as we listen into the future.

# A Field Guide to Los Angeles Civil Defense Sirens





The SD10 (Special Dual Tone, 10 Horsepower) was one of the most commonly installed civil defense sirens in Los Angeles County and remains one of the most visible. The siren, developed by Federal Signal Corporation is acoustically identical to the Model 5, with the only difference being the housing assembly. Its output at 100ft is 109dB and produces a dual tone of 521Hz and 694Hz.





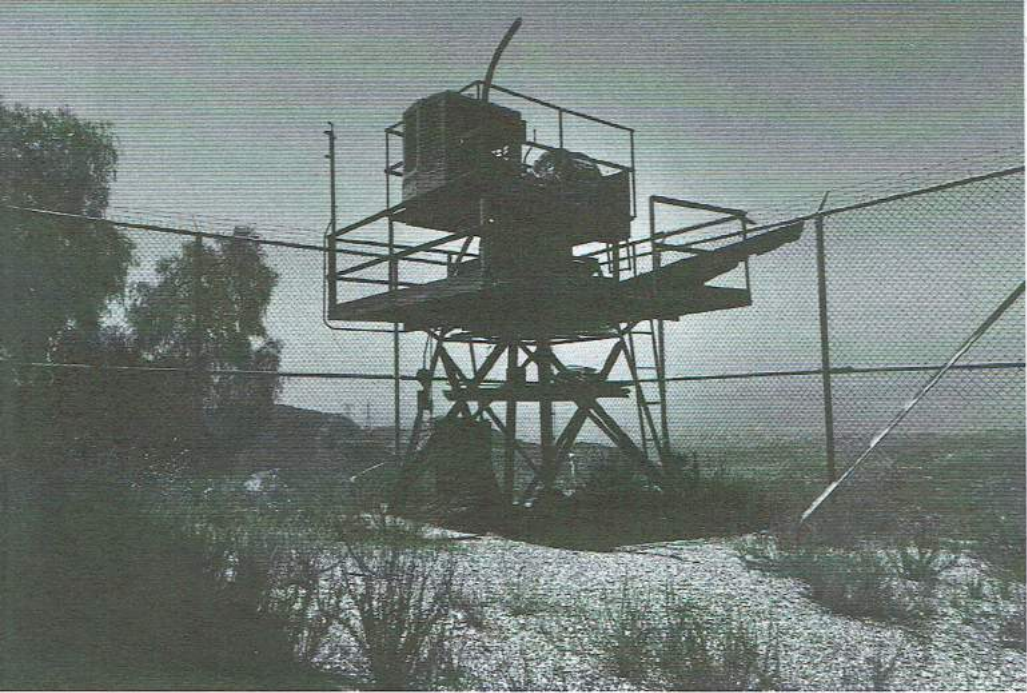
The other most common siren still visible in the Los Angeles landscape is the Federal Model 500T, known for its rotational capacity. It used non-harmonic minor 3rd and 4th intervals to create a distinct tone set that carried over considerable distance.



The Federal Model 5T, nicknamed the 'Bird House' due to its design architecture, can be found in some numbers across Los Angeles County. In operation, the siren output 108dB at 100feet and produced an upper pitch dual tone of 521Hz and 694Hz.



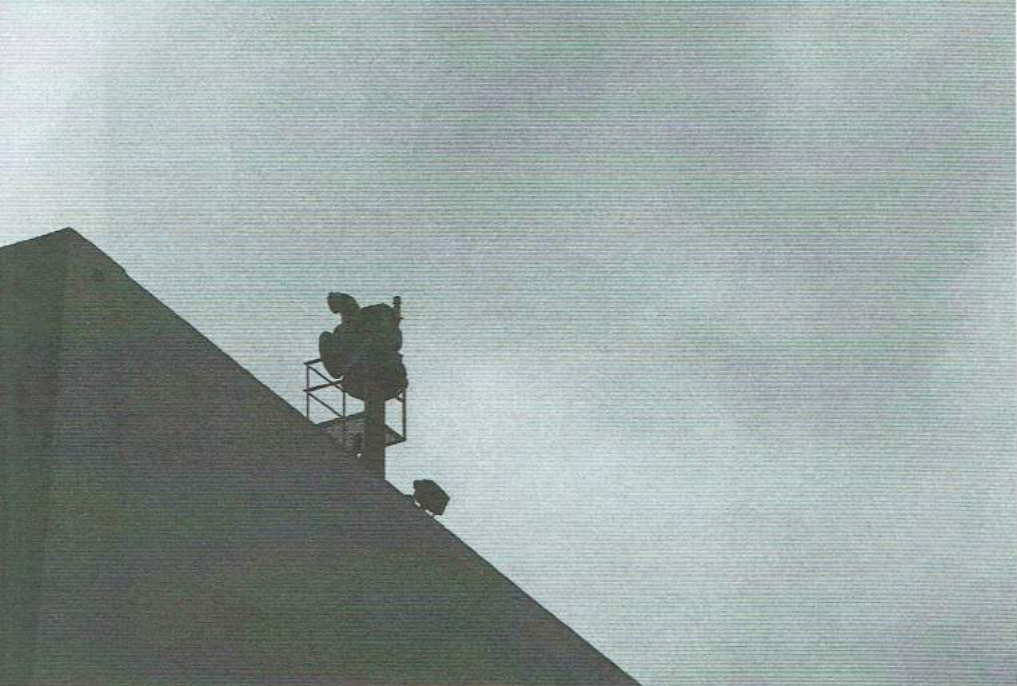
The Thunderbolt 1000T is perhaps the most iconic of the 20th century sirens. Its shape and rotary design meant it was extensively deployed across North America. It is still in uses in many parts of the Mid-West. In Los Angeles County, the majority of these sirens were located in West Covina and the surrounding area. One working Thunderbolt 1000T survives in Gardena. It outputs 126dB at 100feet and used 4/5 or 5/6 port ratios—minor 3rd and major 3rd intervals, respectively.



Developed by Chrysler in tandem with Bell Laboratories, the aptly named Chrysler Bell Victory Siren was powered by a Hemi V8 Engine. Weighing over three tons, the Chrysler Bell features six 91 cm horns, which helped produce 138dB at 100 feet. Their sound carried up to 25 miles, making them the loudest and most effective long-distance communication siren. Only three of the original 24 sirens remain in Los Angeles, with one of them likely to be removed within a matter of months.



Most commonly installed in the San Fernando Valley, the H.O.R Siro-Drone resembles the Federal Model 5, though can be identified by its flatter housing assembly. H.O.R was often misconceived as Hear Our Roar; rather it stands for Harry O. Ricci, the founder of the Long Island-based company.



Originally known as the Mobil Directo (manufactured by the Biersach & Niedermeyer Company) and later as the ACA Allertor 125, this siren was developed by Alerting Communicators Of America. Only a small number of these sirens were installed and all of them were located in Culver City. The ACA Allertor 125 had a dual-horn design, the lower of which was used as an intake valve, allowing it to output 125dB at 100 feet. It was produced until 1980.



The 2T22A siren is a dual-tone siren that is made up of 22 ports. There are 12 upper ports and 10 lower ports. It outputs a frequency of 675hz at the highest and 575hz at the lowest. There is just one of these sirens located in Los Angeles County, making the 2T22A the most unusual siren in the area. It can still be viewed, sitting silent aloft the Brentwood Theatre.

# Lawrence English: Seirá (2018)

*Seirá* (Duet For Choir And Thunderbolt 1000T Siren) is performed by  
The Australian Voices (Artistic Director: Gordon Hamilton)

## Daily at Dusk

Nov. 2  
5:59pm

Nov. 3  
5:58pm

Nov. 4  
4:57pm

Nov. 5  
4:56pm

Nov. 6  
4:55pm

Nov. 7  
4:54pm

Nov. 8  
4:54pm

Nov. 9  
4:53pm

Nov. 10  
4:52pm

Nov. 11  
4:51pm

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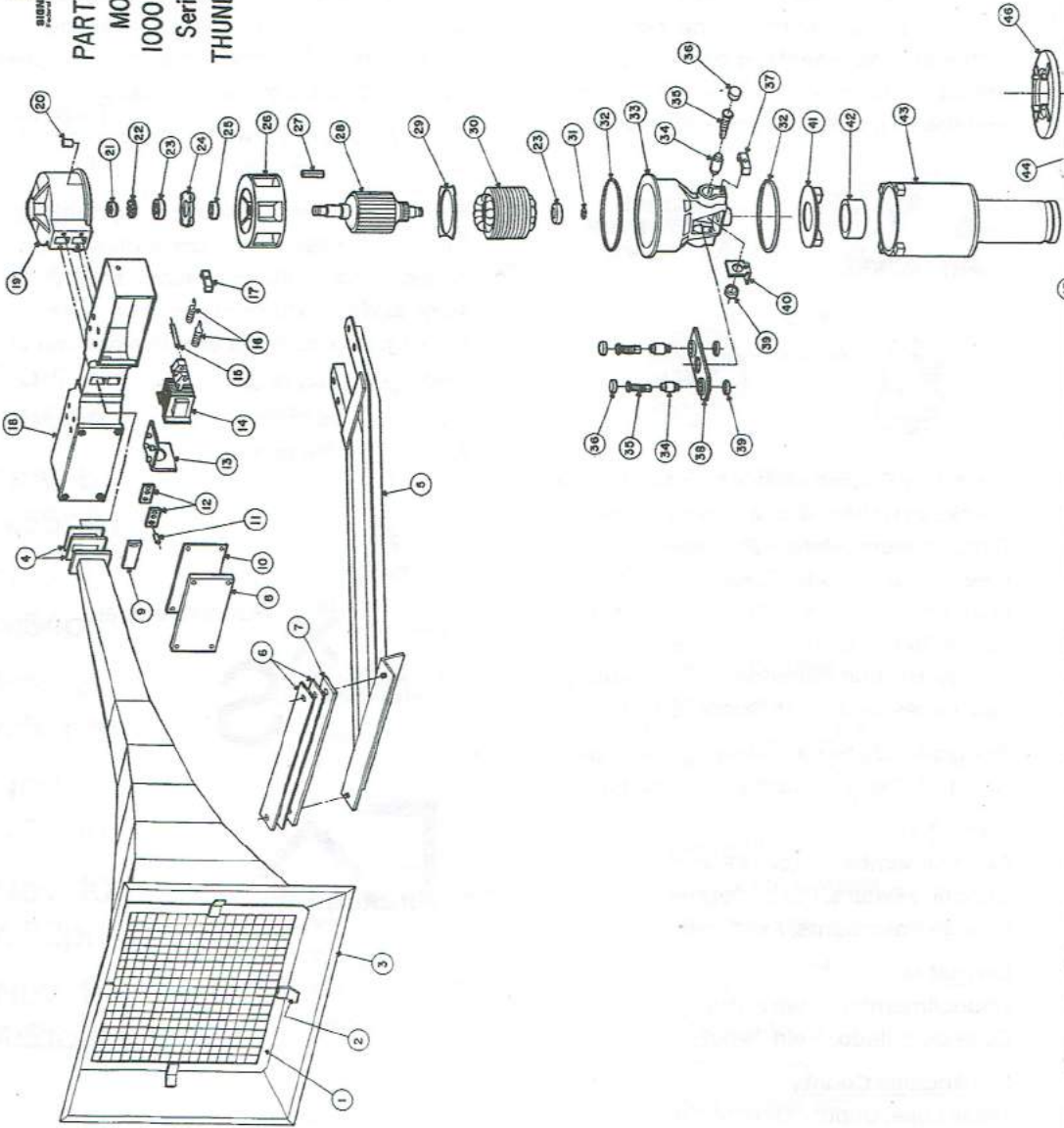
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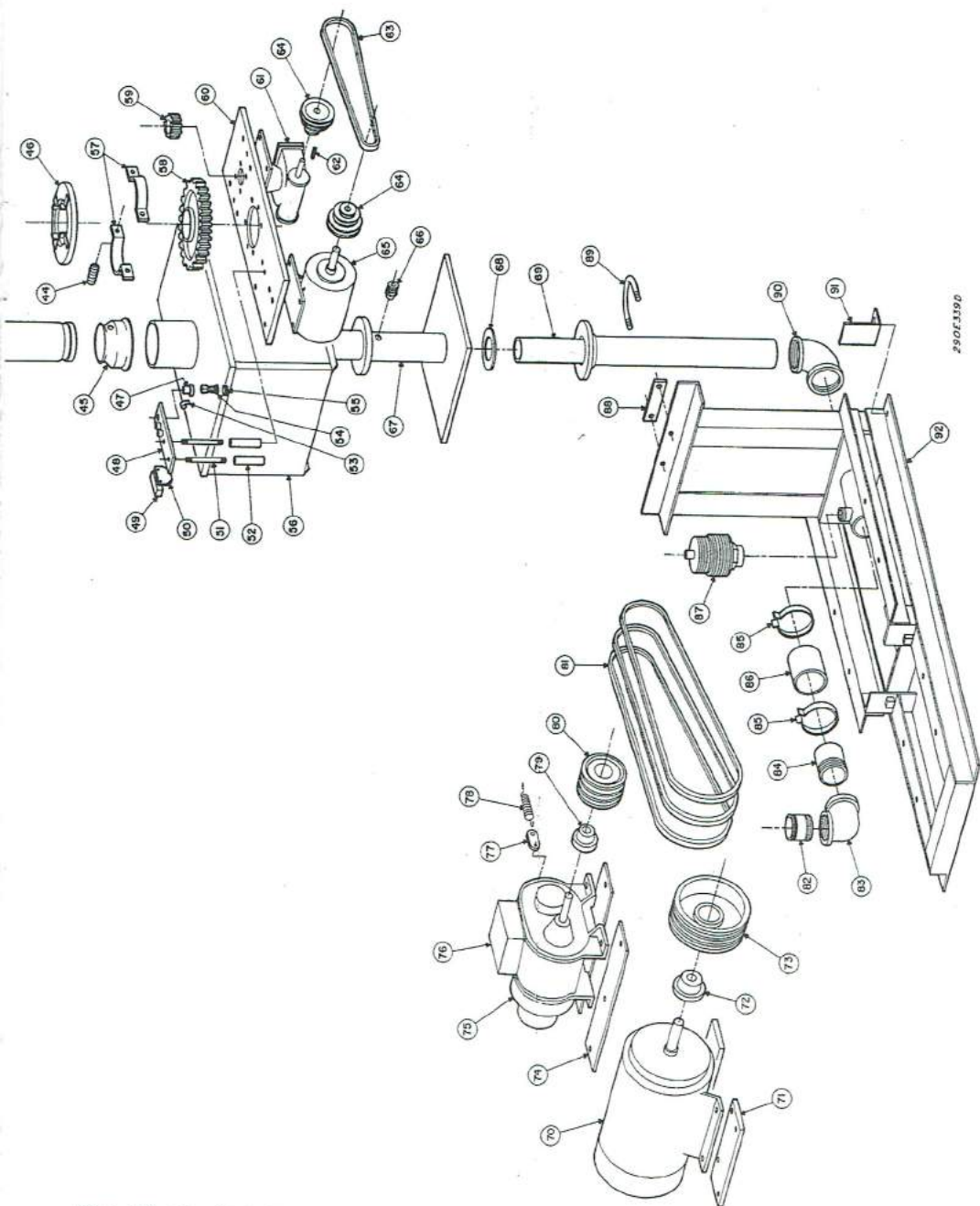
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**PARTS INDEX**  
**MODELS**  
**1000, & 1003**  
**Series "A"**  
**THUNDERBOLT**





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Figure 5-20. Thunderbolt Siren Parts Index.



12/100 *London*