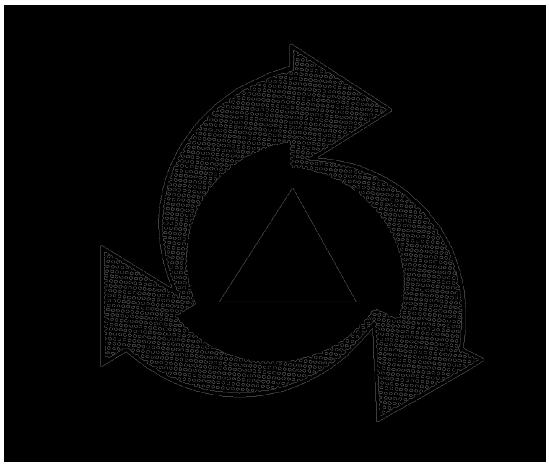
The Cyclone

OMNI-DIRECTIONAL SIREN

INSTALLATION, OPERATION, MAINTENANCE AND PARTS MANUAL



AMERICAN SIGNAL CORPORATION
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WARRANTY AND SERVICE

AMERICAN SIGNAL CORPORATION warrants that this siren equipment has been manufactured under rigid quality control, has been tested before shipment, and meets all required specifications as set up by O.C.D.

The MECHANICAL components of this equipment, if properly installed and maintained, are guaranteed for a period of 3 YEARS from date of purchase against defective workmanship or material provided such equipment is serviced and operated in accordance with any instructions and manuals supplied by ASC.

The ELECTRICAL components of this equipment, if properly installed and maintained, are guaranteed against defective workmanship or material for a period of 2 YRS. from date of purchase, provided such equipment is serviced and operated in accordance with any instructions and manuals supplied by ASC.

Every component of the complete system has been engineered for dependability and minimum maintenance. Should any operating problems develop, use the Trouble-Shooting Check List as a guide in eliminating obvious troubles. Major overhaul or replacement of components should not be undertaken without first contacting the manufacturer.

Equipment developing defects within the warranty period will be repaired or replaced at the option of ASC without cost to the purchaser, provided that such equipment is returned prepaid to the factory at Milwaukee, Wisconsin.

ASC is not responsible for cost of repairs or service made or attempted by others, nor for cost of labor for dismantling, installing, testing, or other miscellaneous costs relating to the use of its equipment unless specifically authorized in writing before such work is undertaken.

The liability of AMERICAN SIGNAL CORPORATION arising from sale or use of its equipment shall not in any case exceed the cost of correcting defects in the equipment, and upon the expiration of the two and three year periods specified above, all such liability shall terminate.

Specifications are subject to change without notice.

Local codes may supersede A.S.C. recommendations.

GENERAL INFORMATION

The CYCLONE is a 50 HP non-directional siren. The vertical design uses direct-coupled motors and overhanging hoods to prevent accumulation of ice and snow and to direct the sound for most effective coverage and penetration

The standardized signals are as follows:

1 - ALERT, a dual tone sustained tone signal
2 - ATTACK - TAKE COVER, a dual tone wailing slowly up and down tone scale signal
3 - FIRE, a dual tone wail of different timing than the attack signal

Any electrical controls associated directly with the siren are prewired and contained inside a weatherproof metal enclosure that may be mounted in any convenient location. Electrical installation is simple and straightforward.

A variety of signal sources may be employed to initiate operation of a siren or siren system including:

1 - Direct mechanical switch
2 - Telephone relay system
3 - Radio relay system
4 - Program timer
5 - Any combination of the above

CYCLONE SPECIFICATIONS

Rated sound output at 100 ft.*	(Db) (C scale)	125 - Dual Tone
Sound range at 70 DB	(Ft.)	4500
Total circular coverage	(Sq. miles)	2.2
Output frequencies	(Hz)	465-698
Sound dispersal		Beamed 15' below horizon ± 15'
Diameter	(In.)	44
Height	(In.)	55
Weight (crated)	(Lbs.)	775 w/ valve 750 w/o valve
Motor H.P.		50

NOTE: The decibel rating of the ASC equipment discussed herein is based on testing done by independent laboratories under ideal conditions. Test results may vary depending on various factors, including weather conditions.

ITEMS FURNISHED

Wood crated siren assembly.

When specified, pre-assembled and wired control panel cabinet with telephone relay or radio.

When specified, pole mount, roof mount or parapet mount.

ITEMS REQUIRED FOR INSTALLATION

- Suitable mount (pole, platform, etc.).
- Electrical conduit and wire for interconnecting to control cabinet and power source.
- Base mounting plate and hardware (see Figures 4 and 5).

TOOLS AND TEST EQUIPMENT

Ordinary mechanics' tools and electrical tools are suitable for installation of the siren assembly.

No test equipment is required for installation, except that it may be desirable to have available an AC voltmeter or voltage indicating device.

STORAGE

The unit is weather resistant as shipped and may be stored either indoors or outdoors provided there is no danger of submergence in water or other damaging fluids, or subject to possibility of vandalism.

SAFETY PRECAUTIONS

LIFTING THE SIREN - Use a lifting device of adequate capacity. Do not use the eyebolt for lifting if a pole or other mount is attached to the siren. (See other information on lifting under heading INSTALLATION.)

ELECTRICAL - During installation, prewire completely before connecting to power source. Always disconnect from power source before beginning any service or maintenance procedures. Only qualified personnel should open the electrical control panel cabinet. Refer to wiring diagrams and observe proper wiring procedures during installation.

TESTING - CAUTION: Wear ear protectors! Anyone on the same level as or very close to the siren should wear ear protection during operational tests.

PROLONGED EXPOSURE CAN CAUSE HEARING DAMAGE

ELECTRICAL INFORMATION

MOTOR*	RUNNING AMPS	STARTING AMPS	FUSE RECOMMENDED
50 HP 3 phase 230 VAC	116	850	200 Amp Slow Blow
50 HP 3 phase 460 VAC	58	425	200 Amp Slow Blow
50 HP 3 phase 208 VAC	130	900	200 Amp Slow Blow
*Single ended shaft, sealed ball bearings, semi-enclosed induction type, direct coupled to rotor.			

INSTALLATION

GENERAL

To insure satisfactory operation, careful consideration must be given to each of these factors:

1 - Site selection for optimum signal coverage
2 - Type of mounting
3 - Power supply requirements
4 - Provision for servicing

SITE SELECTION AND TYPES OF MOUNTING

Careful consideration must be given in selecting a site or sites for installation. Locations should be plotted on local area maps to provide the desired coverage. Generally, the highest possible site in the selected area is the best location. This might be a building, tower or a hill. Do not mount siren too high so that the sound goes over the top of the area.

In lieu of a suitable existing structure for mounting, a cedar pole approximately 60 feet long and sunk 8 feet deep is a generally recommended mount. Refer to the illustrated mounting layouts for details. Any tall building, trees, hills or other obstructions will tend to create a barrier, which will produce a deadened area behind the obstruction.

Figures 1 through 7 on pages 6 and 7 illustrate typical siren mounting arrangements, which have been used successfully. Also shown are details of suggested supports and platforms as well as erecting details.

Another general mounting recommendation that may be helpful is the following: Determine the height of any building or obstruction within 150 feet of the siren. Keep the siren at least 5 feet higher than the obstruction for best sound coverage. Remember that a siren mounted too high will beam the sound over the top of the required area.

ELECTRICAL POWER REQUIREMENTS

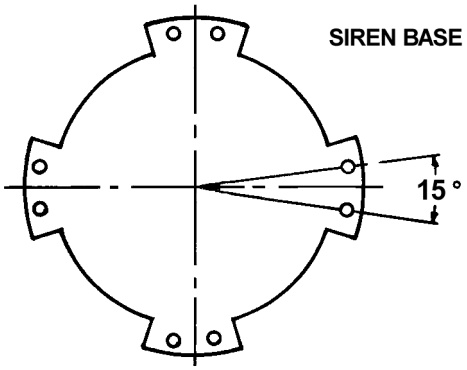
Adequate electrical power must be available at each siren site (see SPECIFICATIONS for requirements). Local power companies will charge extra if the siren is located more than 75 feet from the transformer.

NOTE

Line voltage fluctuations must not exceed ±10 percent for specified performance (NEMA standard).

MECHANICAL INSTALLATION

A sturdy mounting base is provided as part of the siren. A mounting plate must be fabricated as part of the siren mount. See Figures 4 and 5 for details. The plate must have eight 1-inch holes on a 22-inch diameter bolt circle. Mounting to this plate is then accomplished by means of 1-inch bolts, nuts and lock washers.



POLE MOUNT

Figures 6 and 7 illustrate a typical pole mount with integral mounting plate. The design and construction may be varied to suit conditions. The main requisite is the ability to properly support the weight and wind load of the siren assembly.

The electric control enclosure is usually mounted lower than the siren, but at least 8 feet above ground level to discourage attempts at tampering. Locate the enclosure for easy accessibility by qualified personnel.

ROOF MOUNT

The roof composition, spacing of the rafters or beams and the load carrying capacity must be known and considered. If the roof is capable of supporting the siren, no elaborate sub base is necessary provided the installed height is adequate for the desired sound coverage. In Snow Belt areas always mount above the highest snow level expected.

If the roof composition and/or span loading present a problem, a sub base should be used to distribute the weight. This base can consist of several 4 x 6 inch wood beams of sufficient length beneath the angle iron platform (see Figure 4) to spread the roof loading.

LIFTING THE SIREN INTO POSITION

1. When the siren is mounted to the pole before lifting to the vertical position:

   a. Do not lift the entire siren and pole by the eyebolts on top of the siren motor and do not let any weight rest on the fiberglass parts of the siren.

   b. The primary lift point is the pole and not the eyebolts on the siren.

   c. With the pole and siren in final position, proceed with electrical connections.

2. When the siren is separate from the pole or platform:

   a. The primary lift point of the siren assembly is the eyebolts located on top of the siren. These eyebolts are sturdy enough to lift the entire siren safely in a vertical direction. Do not lift the unit in this way if attached to a pole or platform mount.

   b. With the siren mounted in final position, proceed with electrical connections.

ELECTRICAL CONTROLS

The siren motor leads terminate in an approved weatherproof type conduit box.

All electrical controls needed for operating the siren are prewired and contained inside a weatherproof metal enclosure, which should be mounted near the siren in a position of easy access to authorized personnel, but out of easy reach of unauthorized persons. Install conduit between the control box and the siren, using wire adequate for the power requirements. Refer to Electrical Requirements in Specification section.

IMPORTANT

Always enter electrical control and junction boxes from the bottom to prevent leakage and water damage. (Refer to Figure 7.)

NOTICE: Warranty will be voided if conduit enters the top of the control enclosure.

Warranty is void if improper starter and/or overload protection is used.

Refer to ELECTRICAL INFORMATION for amperage requirements.

Control of the siren can be accomplished by either direct switch control, program timer at the installation, remote control, radio encoder transmitter to decoder receiver, or telephone lines, from a location different from installation.

The incoming signal actuates the magnetic starter, which, in turn, starts the siren motor. The system provides thermal overload protection. Refer to wiring diagrams.

Power for each siren is to be run from an ADEQUATELY FUSED DISCONNECT SWITCH CONNECTED TO THE POWER SOURCE. Additional disconnect switches may be required by code between the magnetic starter and the siren.

NOTE - Refer to page 8 for additional information on wiring and testing.

SIREN MOUNTING SUGGESTIONS

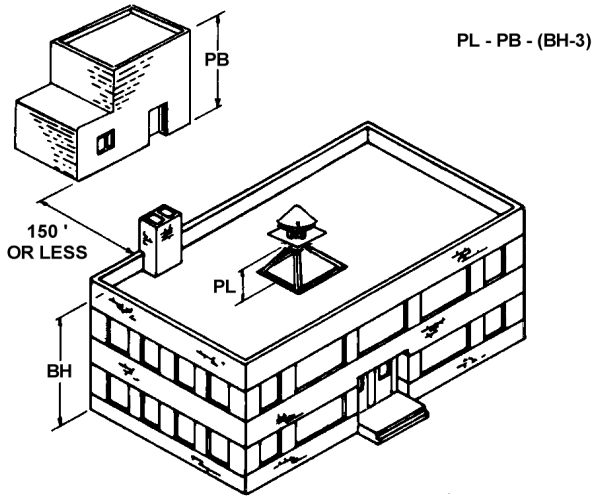


Figure 1

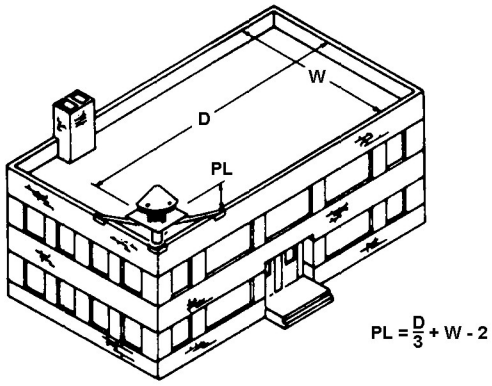


Figure 2

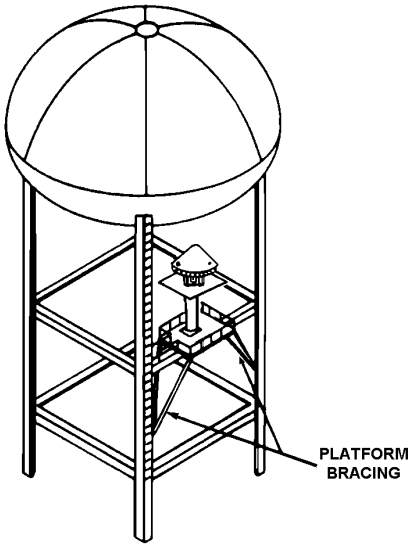


Figure3

ROOF MOUNT (FIGURE 1)

The siren may be mounted as shown on a support or platform on a flat roof. See Figure 4 for details of construction for a suggested roof mount. The siren should be mounted higher than the highest snow level anticipated at the installation.

PARAPET MOUNT (FIGURE 2)

Various custom-built mounts may be used similar to the Parapet mount illustrated. Actual design will be dictated by building construction and height desired.

TOWER OR TANK MOUNT (FIGURE 3)

A properly situated tower or tank may serve as an ideal mount. The support platform must be designed with adequate bracing to help carry the total load.

SIREN SUPPORT PLATFORM

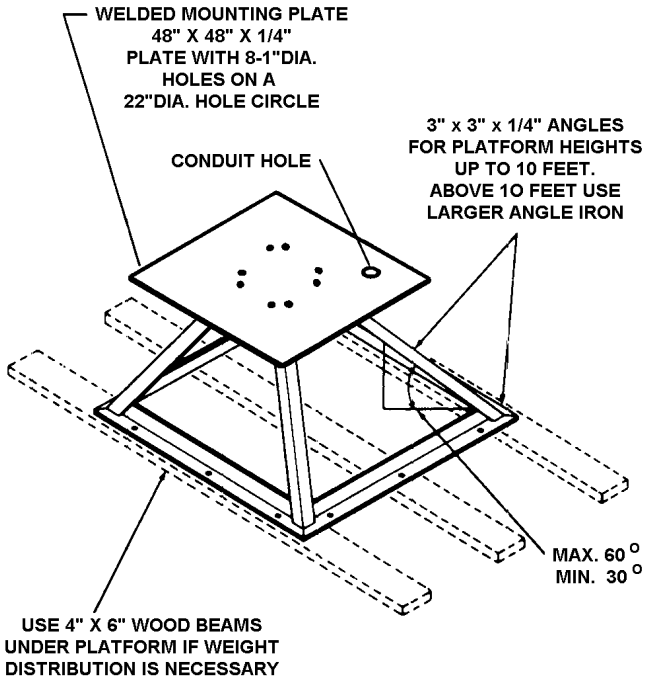


Figure 4

SUGGESTED SIREN SUPPORT

FOR POLE MOUNT

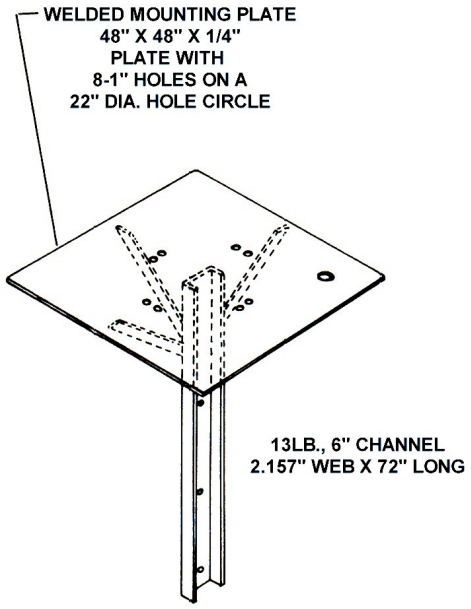


Figure 5

TYPICAL POLE INSTALLATION

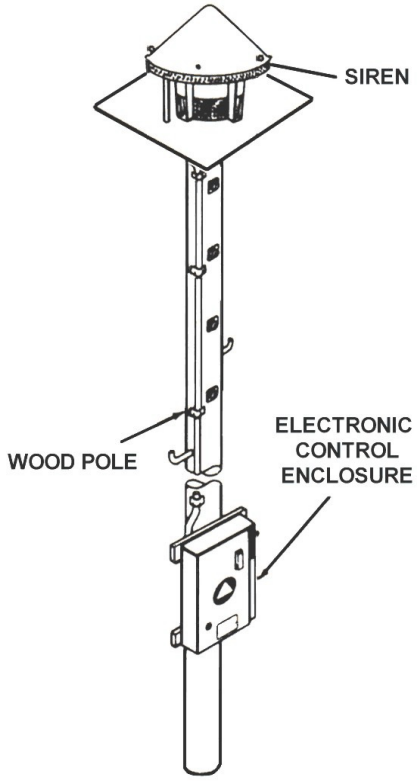


Figure 6

MOUNTING DETAILS WITH WOOD POLE

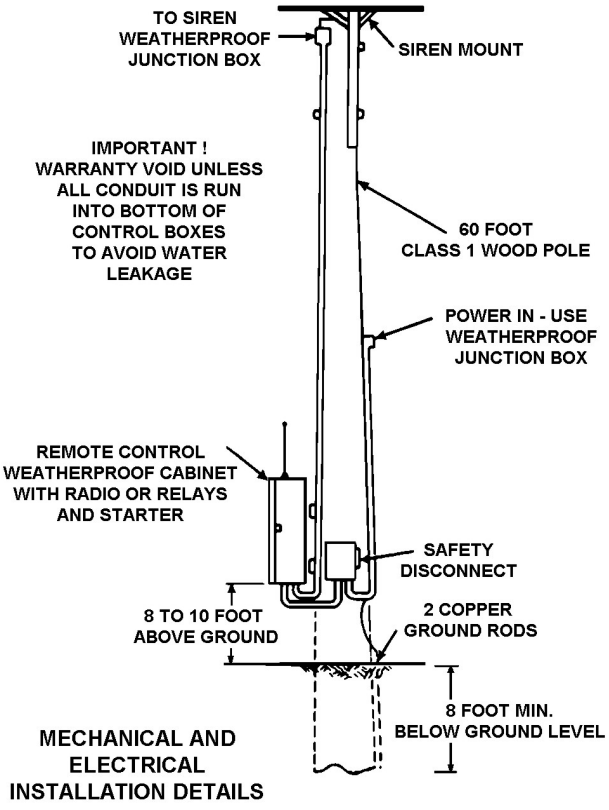
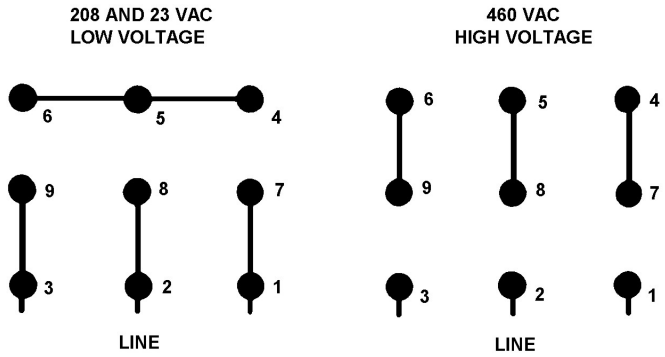


Figure 7

3-PHASE MOTOR CONNECTIONS



NOTE: Refer to separate wiring diagrams furnished for proper connections of siren and associated controls.

Figure 8

PRELIMINARY TEST

Prior to final wiring connection of Radio Decoder, Timer or Telephone Relays and with power connected to the starter controls, a check for proper motor rotation MUST be made.

PROPER ROTATION

Each siren is marked with an arrow designating the proper direction of the motor rotor.

1- Have one person observe the siren.

2 - Momentarily energize the motor through the magnetic starter contacts. Siren rotor should rotate in direction of arrow. If rotation is not correct, interchange line #1 and #3 of the three leads on a three phase motor.

FINAL WIRING AND TESTING

(Refer to wiring diagrams)
Connect the signal source wires to the magnetic starter control cabinet terminal block. Proceed to test the entire operation of the siren using the radio controls, timer or telephone system.

The magnetic starter assembly furnished with the siren is designed for universal application. Actuation and control may be by means of remote direct-wired lines, telephone lines and relays or special radio controls. The activating and timing equipment is to be provided by the procurement agency at time of installation. This manual will not attempt to define the exact operational procedure of the siren.

CAUTION

WEAR EAR PROTECTION. With the installation complete, the siren SHOULD NOT BE ALLOWED TO SOUND FOR ANY PROLONGED PERIOD (more than 30 seconds) while any person is on the same level as the horn. Ear guards must be worn as a precaution at all times during testing or possible remote starting.

OPERATION

MAINTENANCE AND INSPECTION

CAUTION

Make sure that electric power is OFF when inspecting electrical control panels.

MAINTENANCE

ASC siren design incorporates a high degree of maintenance free components. Permanently sealed bearings are provided at both ends of the motor. NO MAINTENANCE TO THE SIREN IS REQUIRED!

On models equipped with a valve type fire signal, the grease fittings of the valve assembly require grease once every five years.

INSPECTION

Since the siren is an emergency warning device, which will get minimal operational use, very little operational wear is to be anticipated.

Periodic operational tests should be made to verify function ability. The frequency of testing is considered to be a local option, however, at least once a year is suggested.

Once each six months, or at other optional intervals, the following inspections should be performed:

1 - Inspect external fiberglass surfaces and all mounting hardware for any physical damage.

2 - Inspect screened openings to determine that they are unobstructed and that screens are securely fastened.

3 - Visually inspect all electrical control cabinets.
Check door gaskets and interiors to that no water leakage exists.

4 - Manually operate starter control and visually inspect operation of the control and siren.

TROUBLE-SHOOTING CHECK LIST

SYMPTOM - Siren motor does not start

POSSIBLE CAUSE	CORRECTIVE PROCEDURE
1. No power to motor controls	1. Check fuses and power supply
2. Defective magnetic starter relay	2. Replace relay
3. Burned or pitted magnetic starter relay contacts	3. Replace relay
4. Loose connections in control panel	4. Check and repair
5. Overload tripped out on starter relay	5. Trace overload and correct the cause
6. Electric motor windings either open or shorted	6. Test motor and replace
7. Remote actuating system defective	7. Trouble-shoot and correct

SYMPTOM - Siren operates with difficulty or erratically.

POSSIBLE CAUSE	CORRECTIVE PROCEDURE
1. Siren air intake clogged	1. Clear obstruction
2. Build-up of foreign material between siren rotor and stator	2. Disassemble housing and clean. Air gap should be .025 inch or more.
3. Electric motor, rotor or windings damaged	3. Check supply voltage and current during operation. Test motor and repair or replace.

DISASSEMBLY, REPAIR, REPLACEMENT AND REASSEMBLY

The siren's physical design is such that it precludes most mechanical problems other than those caused by natural disasters or violent physical damage. The siren configuration is constructed from reinforced fiberglass and bolted together to form a weather-resistant enclosure for all moving parts.

The parts drawings illustrate component placement. Upon removal of the fiberglass cones, all working parts are exposed to view.

Disassembly procedures are extremely simple and will become obvious to the mechanic, depending on the parts or components needing service. Ordinary mechanics' tools are adequate for all service work. Refer to MAINTENANCE PROCEDURES for servicing and lubricating instructions.

PREPARATION FOR RESHIPMENT

Should the siren need to be relocated, the following procedures should be followed:

1. Disconnect all controls and electrical connections.
2. Remove magnetic starter control cabinet.
3. Provide means of lifting the siren from its mount.
4. Unfasten from the mount and lower to the ground.
5. Provide suitable shipping mount or crate.

STORAGE

No special precautions are necessary except that the unit should never be submerged in water or other damaging fluids.

INSPECTION NOTES:

_____
_____
_____
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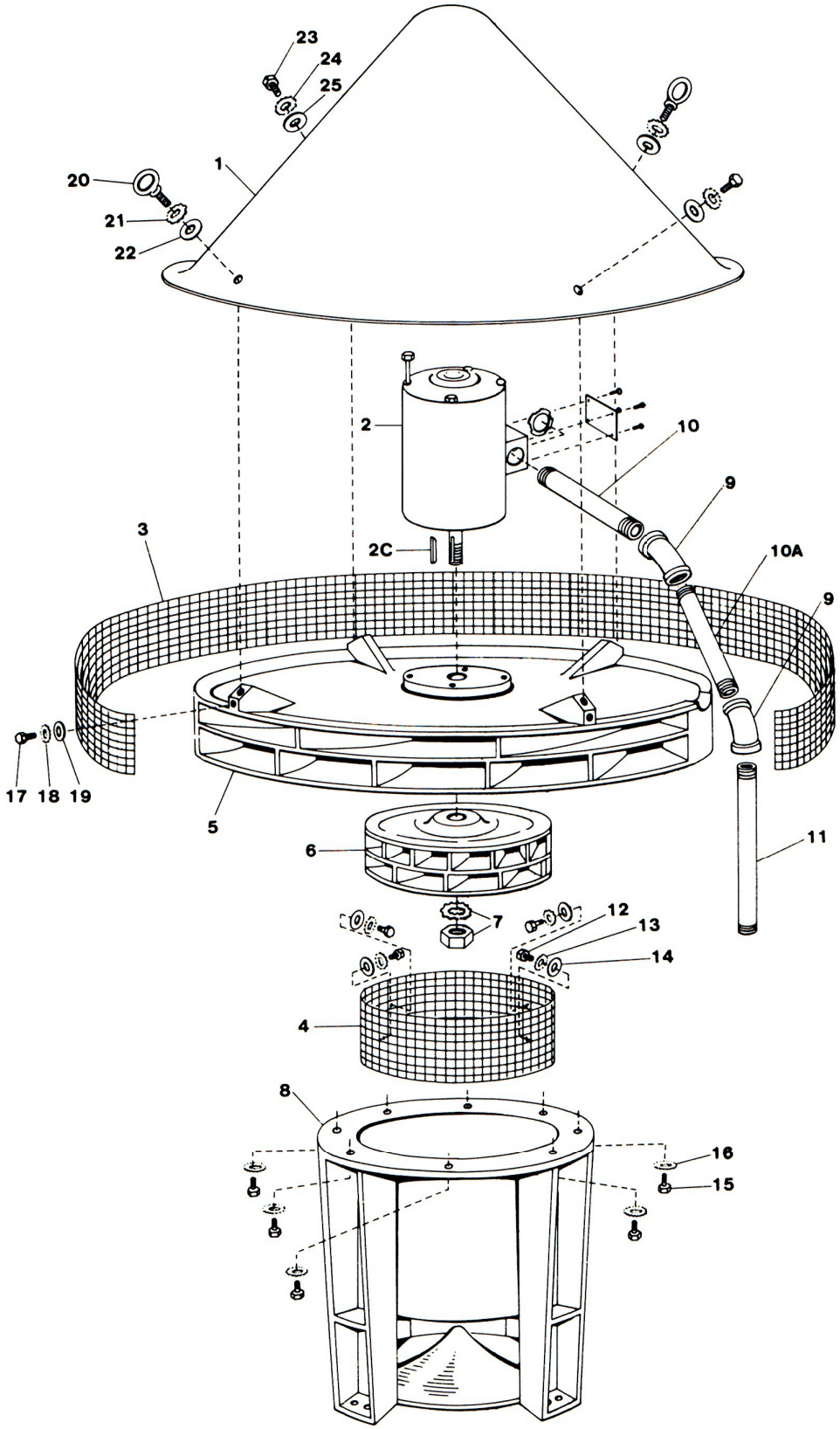
CYCLONE PARTS LIST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CYCLONE 120 PARTS LIST

Ref No.	A.S.C. Part No.	Description	No. Req'd.
1	001-0114	CONE, Motor Cover	1
2	004-0026	MOTOR, 50 HP, 3 phase 230/460V	1
2C		KEY, Motor Shaft	1
3	002-0017	SCREEN, Outlet	1
4	002-0016	SCREEN, Inlet	1
5	003-0036	STATOR, Siren	1
6	003-0016	ROTOR, Siren	1
7		NUT & LOCKWASHER, Rotor	1
8	003-0047	BASE & VALVE HOUSING, Siren	1
9	008-0009	ELBOW, Conduit 1-1/2" - 45°	2
10	008-0013	CONDUIT, Motor 1-1/2" x 6"	1
10A	008-0011	CONDUIT, Motor 1-1/2" x 10"	1
11	008-0011	CONDUIT, 1-1/2" Drop 10"	1

HARDWARE ITEMS (Zinc Plated Standard)

Ref No.	Description	No. Req'd.
12,17	SCREW, Hex. Hd. Cap 1/4"-20 x 5/8"	8
15	SCREW, Hex. Hd. Cap 3/8-16 x 1 Y2"	8
23	SCREW, Hex. Hd. Cap 1/2'-16 x lV2'	2
20	EYEBOLT, 1/2"-16	2
14,19	WASHER, Flat 1/4"	8
22,25	WASHER, Flat 1/2"	4
25	WASHER, Flat 5/16"	4
13,18	WASHER, Lock 1/4" Int. Ext.	8
16	WASHER, Lock 3/8" Int. Ext.	8
21	WASHER, Lock 1/2" Int. Ext.	2
24	WASHER, Lock 5/18" Int. Ext.	4

A.S.C. PART NUMBERS FOR COMPLETE CYCLONE UNITS

Standard	With Valve (Fire) Signal
041-0032 - 230 VAC 3/Ph	CONSULT FACTORY
041-0025 - 208 VAC 3/Ph	CONSULTFACTORY
041-0059 - 460 VAC 3/Ph	CONSULTFACTORY