

# WHELEN<sup>®</sup>

ENGINEERING COMPANY INC.

51 Winthrop Road

Chester, Connecticut 06412-0684

Phone: (860) 526-9504

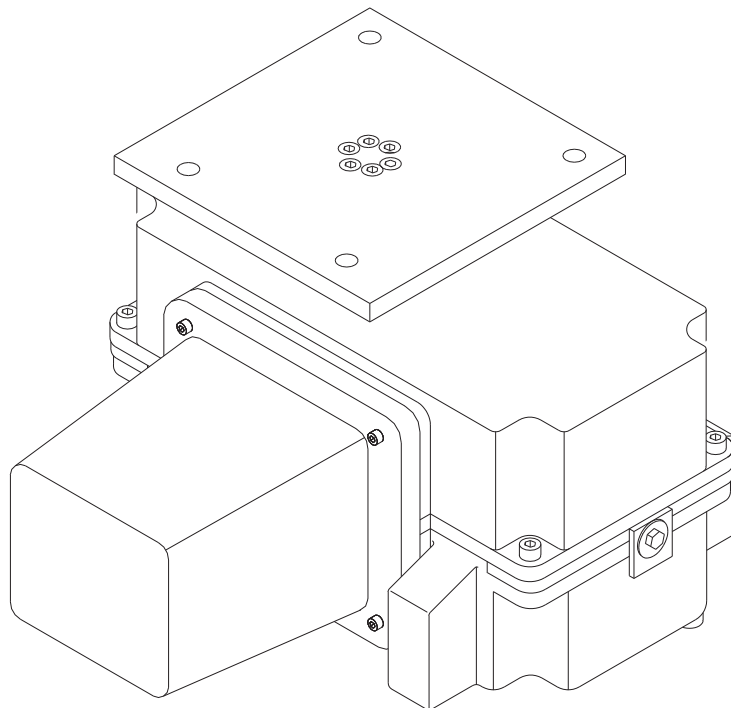
Internet: [www.whelen.com](http://www.whelen.com)

Sales e-mail: [autosale@whelen.com](mailto:autosale@whelen.com)

Customer Service e-mail: [custserv@whelen.com](mailto:custserv@whelen.com)

**⚠ WARNING:** This product can expose you to chemicals including Lead which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## Whelen Engineering Rotor Assembly Retrofit Procedure



**Mass Notification**

**This manual will outline the procedure necessary to replace belt driven siren rotors with gear driven rotor assemblies. Before beginning, the technician must read this entire manual and thoroughly. This will allow for an efficient and proper operational procedure with a minimum of station down-time.**

**IMPORTANT! DISCONNECT BOTH AC AND DC VOLTAGES FROM THE SIREN STATION PRIOR TO BEGINING THIS PROCEDURE.**

## **Section I: Removal of Existing Assemblies**

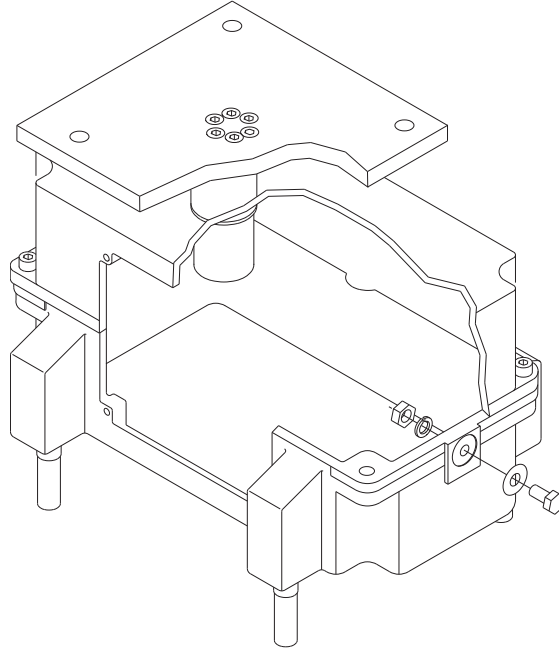
- 1. Remove hardware securing the side cover to the rotor housing to allow removal of the side cover.**
- 2. Disconnect the switch assembly from its wire harness. Using a stubby, #2 phillips screwdriver, remove the two screws that secure the switch assembly to the rotor housing. Remove the switch assembly.**
- 3. Using a 1/2" wrench, remove the hex stand-off nearest to the cover opening that is used to mount the switch assembly.**
- 4. Using a 1/2" crowfoot or similar tool, loosen the jam nut on the motor stabilization bolt. Remove the jam nut, lockwasher and stabilization bolt from the rotor housing.**
- 5. Remove the four, motor mount nuts and washers from beneath the rotor housing.**
- 6. Disconnect the wires from the siren speakers at the wire connectors. It may also be necessary to unscrew the cable clamp securing the wires to the bottom of the rotor housing.**

**NOTE: These wires are numbered and color coded. Make sure that these wires are re-connected properly during re-assembly.**

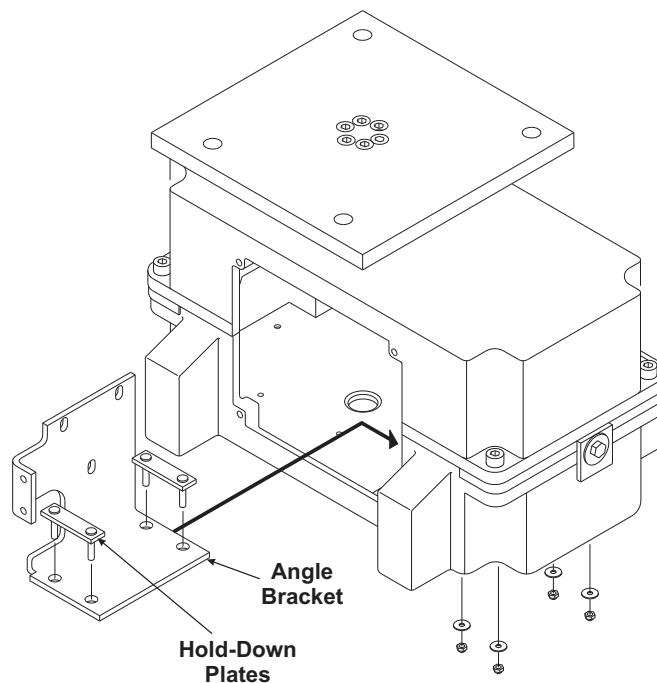
- 7. Slide the motor assembly inwards to loosen and remove the drive belt. The rotor motor may now be removed.**
- 8. Rotate the siren assembly until the key for the large siren belt pulley is furthest away from the rotor housing opening. This locates the split in the collet (on the underside of the pulley) to a position that is easily accessible.**
- 9. Using a 7/16" wrench, remove the three bolts located on the underside of the pulley. Thread these bolts into the smaller holes adjacent to the holes from which these bolts were removed. These bolts will now serve as "jacking" bolts.**
- 10. Tighten the jacking bolts equally, one 1/4 turn at a time. Continue this tightening sequence until the belt pulley is loose. If the jacking bolts have been tightened to their full depth, and the pulley is still not free, insert a straight blade screwdriver into the split in the collet (under the belt pulley) and spread the split opening until the pulley is free. Remove the pulley and the key from the housing.**

## Section II: Installation of New Rotor Assemblies

1. **Install a flat washer onto the new 1" x 5/16 bolt. Insert this bolt through the hole used by the stabilization bolt, install a lockwasher onto the bolt and tighten firmly using the old hex nut.**



2. **Insert the new angle bracket into the rotor housing. This bracket will use the existing holes and hardware for mounting purposes. With the bracket in position, insert the hold-down plates through the bracket and out the bottom of the rotor housing. Install the existing flat washers and new elastic stop nuts onto each of the four mounting studs. DO NOT TIGHTEN!**

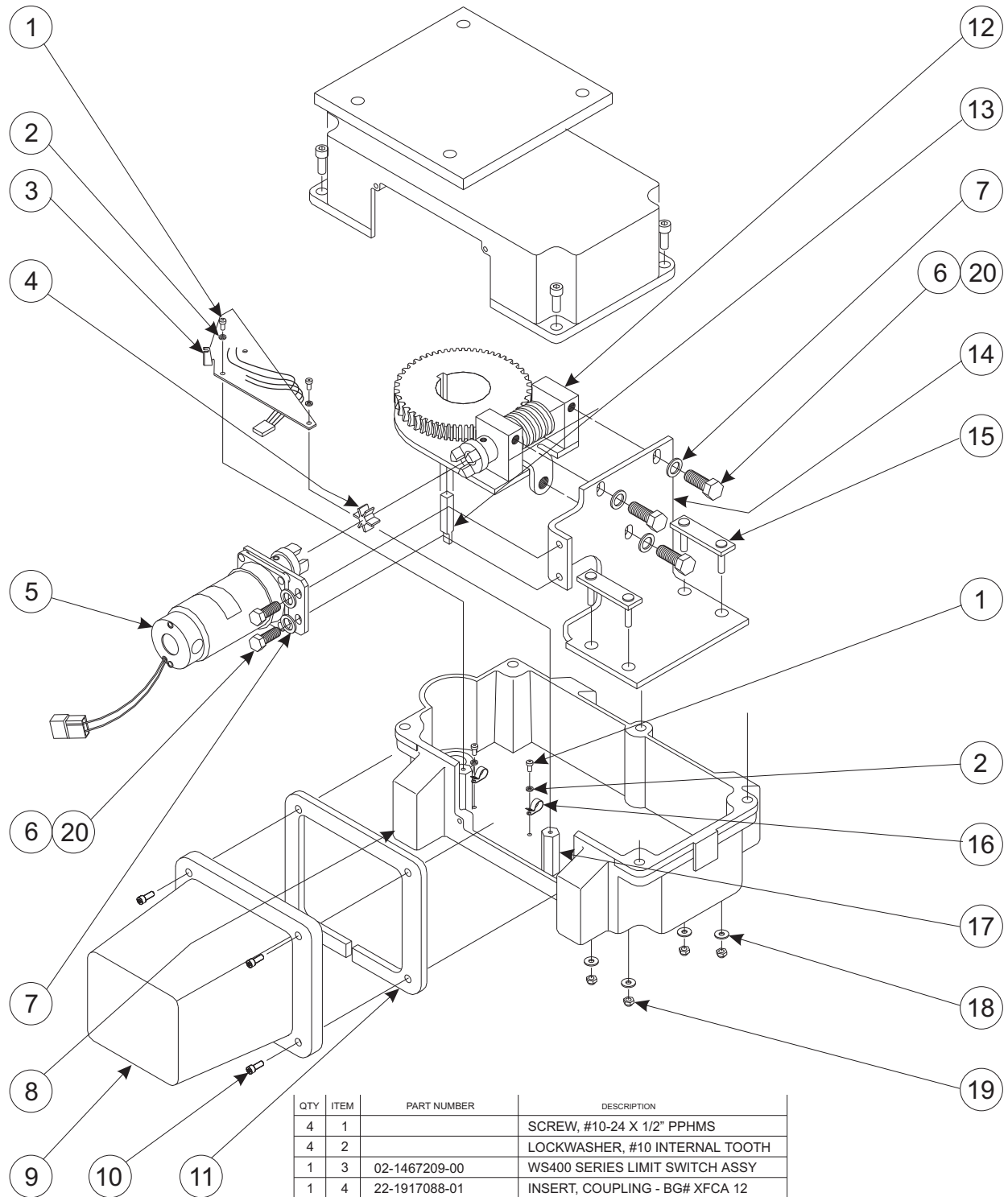


3. Rotate the siren assembly until the keyway in the main rotor shaft is easily accessed.
4. Orient the new gear assembly so that worm gear is closest to the angle bracket. Rotate the gear assembly until the keyway in the gear is aligned with the keyway in the main rotor shaft.

**NOTE:** When rotating the gear assembly, the set screw below gear teeth must be accessible after the gear assembly has been installed onto the main rotor shaft.

5. Feed the siren wires through the opening in the center of the gear.
6. Place the new key into gear assembly keyway. When correctly orientated the tapered end will point towards the bottom. The retaining ring below the gear will also be seated in the groove cut into the key.
7. While holding the key in position, install the gear assembly up, onto the main rotor shaft as far as possible.
8. Firmly tighten the set screw with a 1/8" allen wrench.
9. Slide the angle bracket up against the gear assembly. Make sure that the surface of the angle bracket is flat against the gear assembly.
10. Install a flat washer onto the 3/8" x 7/8" bolt. Coat the bolt threads with thread locking compound. Install the bolt through the angle bracket and into the rotor assembly. Repeat this procedure for the remaining two mounting bolts and torque each bolt sequentially to 35 ft/lbs.
11. Tighten the angle bracket elastic stop nuts to 6 ft/lbs.
12. Reconnect the siren wires to their wire connectors and use the existing clamp to secure the wires to the bottom of the rotor housing. **MAKE SURE THAT THESE WIRES ARE NOT ABLE TO SNAG ON THE GEARS!**
13. Re-install the hex stand-off in its original location.
14. Re-mount the switch assembly in its original location and re-connect its wires.
15. Remove the tape used to hold the coupling insert in place during shipping. Position this insert onto the motor assembly coupling. Carefully engage the gear assembly coupling and the motor assembly coupling. Using two, 3/8" bolts with flat washers installed and thread locking compound applied, secure the motor assembly to the angle bracket and torque to 35 ft/lbs. It will be necessary to manually support the motor assembly to ensure proper alignment of the coupling while tightening these bolts.
16. Route the wires going to the motor so that they pass under the switch plate. Secure these wires so that they are out of the way. Connect the motor to its wiring connector.
17. Locate the new, adhesive backed cover gasket. Note that center 1/2" section of one side of the gasket is pre-cut. Orient the gasket so that this side of the gasket is the bottom side.

- 18. Without removing the backing, test fit the gasket around the cover opening of the rotor housing, making sure that the holes in the gasket align with the cover mounting holes in the rotor housing. After a satisfactory test-fit, remove the protective backing from the gasket and carefully adhere the gasket to the rotor housing. Make sure to remove any ripples or puckers from the gasket to help ensure a good seal.**
- 19. Remove the 1/2", pre-cut section from the gasket (this opening can now function as a drain). Mount the new cover onto the rotor housing and evenly tighten the mounting bolts to complete the retro-fit procedure.**



QTY	ITEM	PART NUMBER	DESCRIPTION
4	1		SCREW, #10-24 X 1/2" PPHMS
4	2		LOCKWASHER, #10 INTERNAL TOOTH
1	3	02-1467209-00	WS400 SERIES LIMIT SWITCH ASSY
1	4	22-1917088-01	INSERT, COUPLING - BG# XFCA 12
1	5	02-0383691-000	ASSEMBLY, MOTOR
5	6	14-156439-14N	SCREW, 3/8-16 X 7/8 HHCS - ST/ZC GR5
5	7		FLATWASHER, 3/8" X 5/8" X .073"
1	8	11-482994-000	HOUSING, BOTTOM CASTING
1	9	11-283533-300	COVER EXTENSION, CASTING
4	10	14-130A26-160	SCREW, 1/4-20 X 1" SHCS
1	11	38-0163386-00	GASKET,
1	12	02-0383588-00	GEAR DRIVE ASSY
1	13	22-1742767-00	KEY, ROTOR MAIN SHAFT
1	14	07-183532-000	PLATE, ANGLE - GEAR DRIVE
2	15	07-242531-000	BRACKET, MOTOR HOLD DOWN
2	16		CLAMP, 3/8" CABLE
2	17	20-7216102E13	STANDOFF, #10-32 X 2 1/4 HEX
4	18		FLATWASHER, 1/4"
4	19		NUT, 1/4-20 ELASTIC STOP
A/R	20		COMPOUND, THREAD LOCKING