

A BATTERY POWERED AUTOMATIC FISH FEEDER FOR USE IN ROMOTE AREAS¹

by

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ABSTRACT

In an effort to supplement the food of fishes in remote areas lacking power lines and also to short-circuit the natural food chain, an automatic self-contained DC feeder was designed and built.

The paper deals with the construction details of this feeder.

INTRODUCTION

To supplement the food of fishes in remote areas where electricity is unavailable and to short-circuit the natural food chain, it became necessary to devise a rugged, dependable, self-contained DC feeder. A review of the literature gave several types of feeders (Carnes, 1966, Waite and Buss, 1963, Grizzell, 1969), but none appeared suitable for use in remote areas.

After two years of trial-and-error attempts, a rugged, self-contained, DC operated, feeder was developed. Following is a description of the construction details of this automatic feeder.

CONSTRUCTION OF THE FEEDER

The automatic self-contained DC feeder is composed of four integral parts: A plywood food storage bin which also serves as the housing unit; a motor and control system; a metered food supply unit; and a timer (Figures 1-4).

Our experience has shown that the bin should not be of such size as to hold more than a one-week supply—so it should not contain more than seven times the estimated maximum daily demand. This also serves to prevent the pellets from becoming sticky—resulting from high humidity.

The metered food supply unit consists of a box designed to hold a given amount of pelletized food which is controlled by the spaces or baffles installed in the box. The present unit is capable of dispensing 4, 6, or 8 pounds of food per release, but one could be made for any desired capacity. This unit is placed in the storage bin housing unit and it receives pelletized food from the storage bin directly above.

The motor and control system is attached directly to the metered food box. A complete cycle of the control system is as follows: A clock activates a micro-switch that completes a circuit to a 12-volt motor. This motor drives a cam system which alternately operates the intake and discharge gates to the metered food box once with each revolution. The cam system also activates a second micro-switch to stop the motor at a selected position. At this selected position, the cam system has closed the intake gate of the food box and opened the discharge gate, thereby allowing the food in the food supply unit to fall out. After a period of about 20 minutes, the micro-switch at the timer clock again activates the motor. The cam system then is driven to its original position which closes the discharge gate, opens the intake gate and thereby refills the metered food box.

¹Contribution from Federal Aid to Fish Restoration Funds under Dingell-Johnson Project F-19-R, State of North Carolina.

The timer controls operation of the entire feeder. This timer consists of an electric clock and a micro-switch. The hour hand of the clock activates the micro-switch which completes the circuit to the 12-volt motor. This operation occurs twice daily, however, it can be constructed to operate as frequently as desired.

In order to reduce vandalism, it is recommended that a padlock be placed on the lid to the food storage bin and that the feeder mechanism be locked within the unit.

The cost of the materials required for the construction of this self-contained DC fish feeder were as follows:

1 - 1.5 volt ignition battery	\$.75
1 - 12 volt "Hot-Shot" battery	3.10
1 TR 3 fit-up movement (Westclox Co. clock)	7.50
2 BZ2 RW-80-A2 Micro-Switches at \$2.16	4.32
1 (Chrysler) Window lift motor	28.20
Plywood, flat steel, wire, hinges, paint, etc. . .	19.71
TOTAL	\$63.58

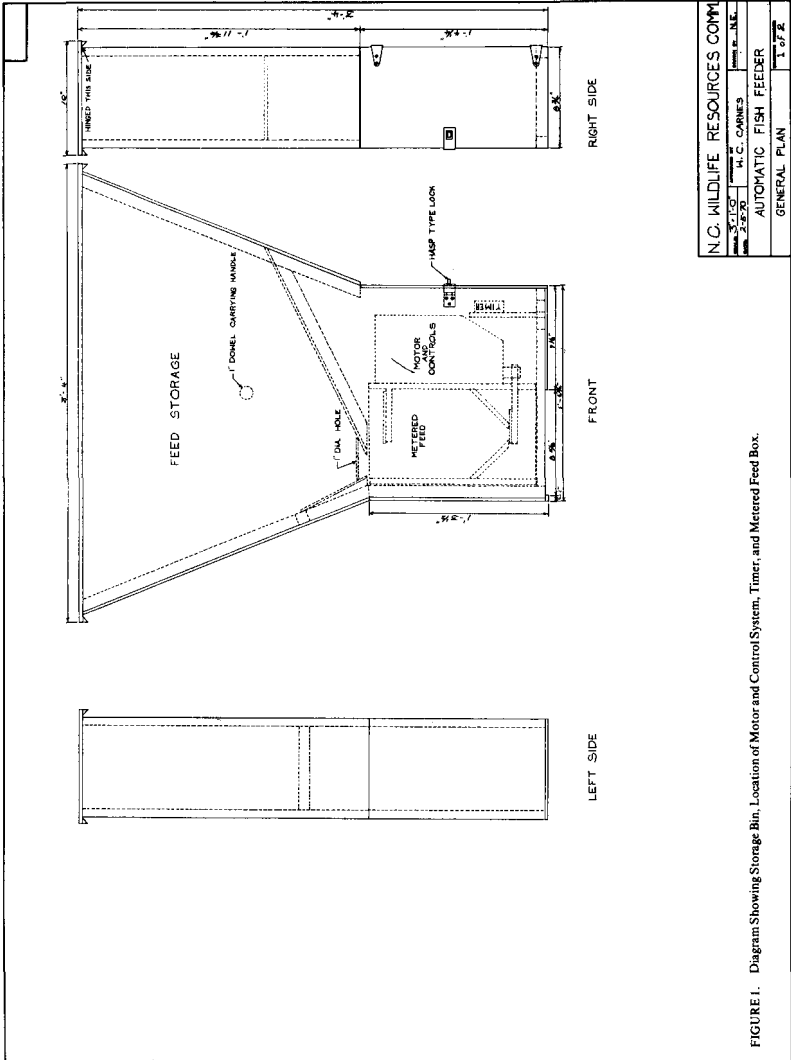
The feeder described above has been designed to operate on two cycles per day and to hold 100 pounds of pelletized food. This feeder is versatile. It can be adapted to hold almost any desired volume of food and to disperse food at any given number of times daily, depending upon one's particular needs.

LITERATURE CITED

Carnes, W. Cape. 1966. Preliminary observations on supplementary feeding of pond fishes. Proc. 20th Ann. Conf. S. E. Assoc. Game and Fish Comm. pp. 292-296.

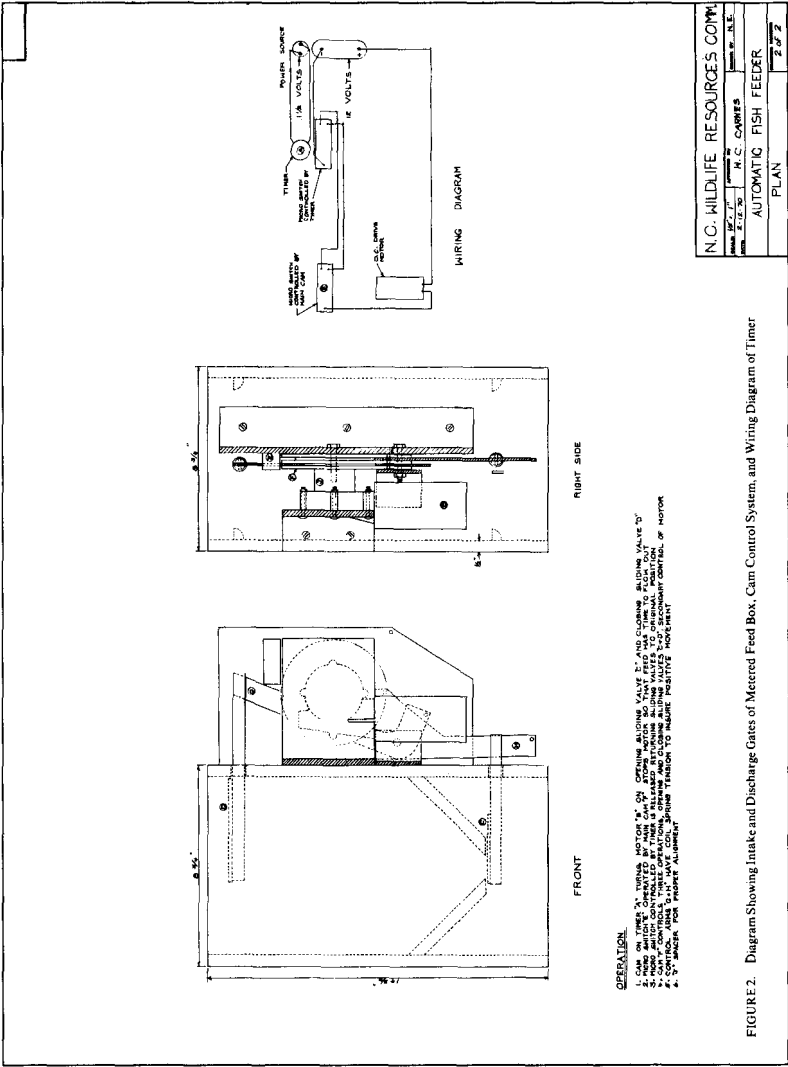
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AUTOMATIC FISH FEEDER	
GENERAL PLAN	

FIGURE 1. Diagram Showing Storage Bin, Location of Motor and Control System, Timer, and Metered Feed Box.



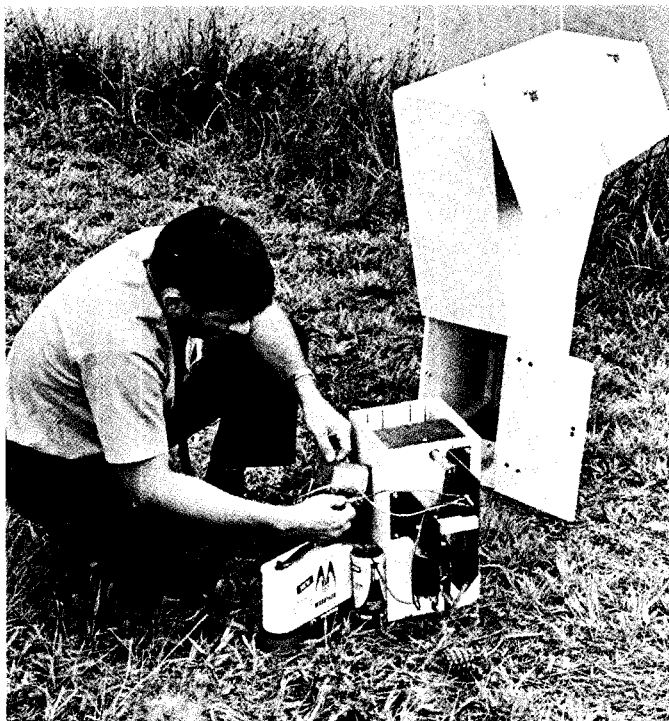


FIGURE 3. Photo Showing the Four Integral Components of the Battery Powered Automatic Fish Feeder.

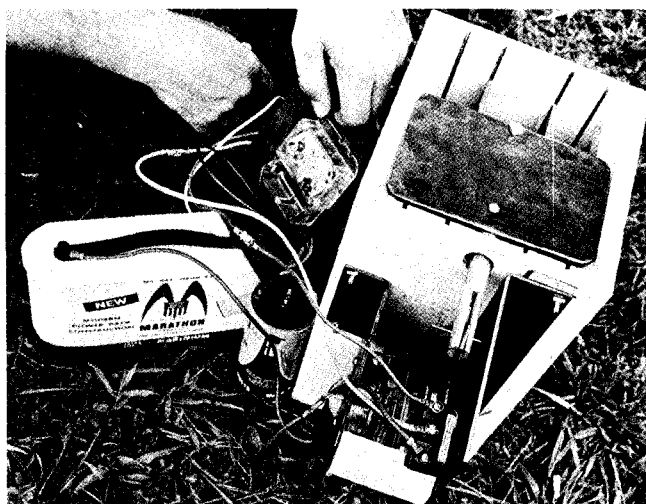


FIGURE 4. Details of the Metered Food Supply Unit, Motor and Control System, and Timer.