TECHNICAL NOTE

*A LOW-COST, HIGH-CAPACITY MAINTENANCE
FEEDING DEVICE FOR PRIMATES¹*

In the course of work using primates maintained for considerable periods of time in hyperbaric environments, we have found need for a feeding mechanism having several requirements not met by commercially available devices. The requirements include: (1) sufficient feeder capacity to dispense a full maintenance ration over a period of several days; (2) capability to dispense food items of various configurations; (3) remote operation and compact size of feeder; (4) feeder portability and adaptability to a variety of equipment configurations; (5) reliable operation without direct access to the mechanism during use; and (6) low expense.

Particularly lacking in commercially available machines is the combination of high capacity and small physical size. The design presented here meets these and other requirements.

The feeder (Figure 1) consists of a Plexiglas octagonal drum (A) mounted by means of a series of elements consisting of a coupler (K), a spacer (H), two bearing mounts (E and G), and a thrust bearing (B) to a shaft (F), which is driven by a small synchronous motor (N). The drum has eight segmented compartments, each of which holds 25 to 30 Purina monkey

chow pellets. The motor rotates the drum magazine over a fenestrated plate (C), such that the load of

Fig. 2. Photograph of the assembled feeding device.

Fig. 1. Exploded view of the feeding device: (A) Magazine; (B) Thrust bearing; (C) Fenestrated plate; (D) Bracket for drop chute; (E) (G) Bearing mounts; (F) Drive shaft; (H) Spacer; (I) (J) (L) (M) Mounting frame members; (K) Motor coupler; (N) Motor.

monkey pellets (or other contents of a single drum segment) is discharged into a dish or chute as the drum moves past the opening in the plate.

The motor employed in the present model is a Hurst 2 rpm geared motor with high torque. The feeder has been shown to operate with a high degree of reliability over extended time periods, provided that the motor torque exceeds 150 oz-in. (1.059 N-m). Because the feeder is intended for dispensing a maintenance ration and not for "scheduled reinforcement", the motor can operate at low speed. This factor ob-

viates the need for elaborate indexing systems to start and stop the drum rotation.

The assembled feeder (Figure 2) measures approximately 11 in. wide by 9 in. high (28 by 23 cm) and weighs 3.5 kg. The device can be assembled at a cost of less than \$100, including shop time.

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