CHORE-TIME®

Installation & Operator's Instruction Manual

MULTI FLO®

January 1999 MA580M

Chore-Time Warranty

Chore-Time Equipment warrants each new product manufactured by it to be free from defects in material or workmanship for one year from the date of initial installation by the original purchaser. If such a defect is found by Chore-Time to exist within the one year period, Chore-Time will, at its option, (a) repair or replace such product free of charge, F.O.B. the factory of manufacture, or (b) refund to the original purchaser the original purchase price, in lieu of such repair or replacement.

Additional extended warranties are herewith provided to the original purchaser as follows:

*1. **TURBO™ Fans**.

*2. **Poultry feeder pans** that become unusable within five years from date of installation. Warranty prorated after three years usage.

3. **MEAL-TIME® Hog Feeder pans** that become unusable within five years of installation.

4. **Rotating centerless augers**, excluding applications involving High Moisture Corn (exceeding 18%), for ten years from date of installation. Note: MULTIFLO® and applications involving High Moisture Corn are subject to a one year warranty.

5. **Chore-Time manufactured roll-formed steel auger tubes** for ten years from date of installation.

*6. **Laying cages** that become unusable within ten years. Warranty prorated after three years usage.

*7. **ULTRAFLO® Auger and ULTRAFLO® Feed Trough (except ULTRAFLO® Trough Liners)** are warranted for a period of five (5) years from date of original purchase against repeated breakage of the auger or wear-through of the feed trough caused solely by the auger.

Conditions and limitations:

1. The product must be installed and operated in accordance with instructions published by Chore-Time or warranty will be void.

2. Warranty is void if all components of a system are not supplied by Chore-Time.

3. This product must be purchased from and installed by an authorized Chore-Time dealer or certified representative thereof, or the warranty will be void.

4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under this warranty.

5. This warranty applies only to systems for the care of poultry and livestock. Other applications in industry or commerce are not covered by this warranty.

Chore-Time shall not be liable for any **Consequential** or **Special Damage** which any purchaser may suffer or claim to have suffered as a result of any defect in the product. **"Consequential"** or **"Special Damages"** *as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.*

THIS WARRANTY CONSTITUTES CHORE-TIME'S ENTIRE AND SOLE WARRANTY AND CHORE-TIME EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

Any exceptions to this warranty must be authorized in writing by an officer of the company. Chore-Time reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

*See separate Chore-Time Warranty as to these products.

CHORE-TIME EQUIPMENT, A Division of CTB, Inc.
P.O. Box 2000
Milford, Indiana 46542-2000 U.S.A.

Table of Contents

***Legend: C = Customer (end user), D = Distributor (sales), I - Installer of equipment**

Table of Contents – continued

***Legend: C = Customer (end user), D = Distributor (sales), I - Installer of equipment**

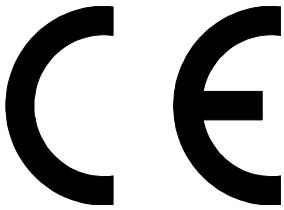
Support Information

Using this equipment for any other purpose or in a way not within the operating recommendations specified in this manual will void the warranty and may cause personal injury.

This manual is designed to provide comprehensive planning, installation, operation, and parts listing information. The Table of Contents provides a convenient overview of the information in this manual. The Table of Contents also specifies which pages contain information for the sales personnel, installer, and consumer (end user).

IMPORTANT: **CE stands for certified Europe.** It is a standard which equipment must meet or exceed in order to be sold in Europe. **CE** provides a benchmark for safety and manufacturing issues. **CE is required only on equipment sold in Europe.**

Chore-Time Equipment recognizes CE Mark and pursues compliance in all applicable products. ***Fill in the CE-Mark serial number in the blank space provided for future reference.***



(CE-mark serial number)

Distributor and Installer Information

Please fill in the following information about your Product.
Keep this manual in a clean, dry place for future reference.

Distributor's Name_____

Distributor's Address _____

Distributor's Phone _____ **Date of Purchase** _____

Installer's Name _____

Installer's Address_____

Installer's Phone _____ **Date of Installation** _____

System Specifications_____

_____

_____

Safety Information

Caution, Warning and Danger Decals have been placed on the equipment to warn of potentially dangerous situations. Care should be taken to keep this information intact and easy to read at all times. Replace missing or damaged safety signs.

Using the equipment for purposes other than specified in this manual may cause personal injury and or damage to the equipment.

Safety–Alert Symbol

This is a safety–alert symbol. When you see this symbol on your equipment, be alert to the potential for personal injury. This equipment is designed to be installed and operated as safely as possible...however, hazards do exist.

Signal Words

Signal words are used in conjunction with the safety–alert symbol to identify the severity of the warning.

DANGER..... indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

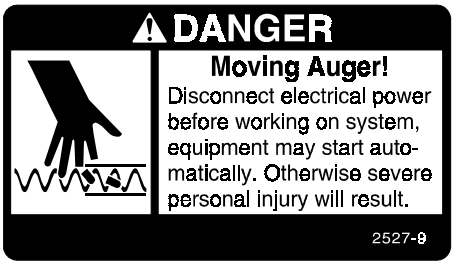
WARNING..... indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

CAUTION..... indicates a hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.

DANGER: Moving Auger

This decal is placed on the Panel Weldment.

Severe personal injury will result, if the electrical power is not disconnected, prior to servicing the equipment.



DANGER: Electrical Hazard

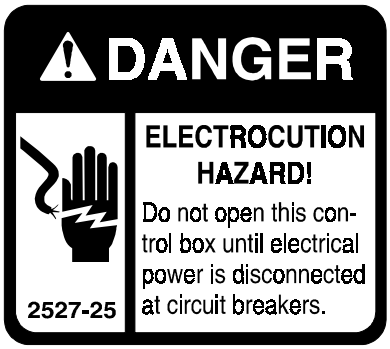
Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.

Ground all electrical equipment for safety.

All electrical wiring must be done by a qualified electrician in accordance with local and national electric codes.

Ground all non-current carrying metal parts to guard against electrical shock.

With the exception of motor overload protection, electrical disconnects and over current protection are not supplied with the equipment.



Caution—Springing Auger

Use caution when working with the Auger—Springing Auger may cause personal injury.

Tools Needed for Installation

1 Regular Screw Driver
2 Locking Pliers
3 Screw-Hook Driver
4 PVC Cleaning Solvent
5 Adequate Electrical Wire
6 Oxy-Acetylene Torch and Brazing Rod
7 Saw to cut PVC
8 Box-End Wrenches
9 File
10 Bolt Cutters or Hacksaw
11 Wire Cutters
12 Drive Ratchet and Sockets
13 1-1/2" Hole Saw
14 PVC Cement
15 Wire Strippers
16 Electrical Drill and Bit
17 Abrasive Drill and Bits
18 Someone to Help

MULTIFLO™ Specifications

The MULTIFLO Feed Delivery System is a closed "loop" system which pulls the auger through the tube. The system is used primarily in nurseries, gestation, and dairy houses. **It is recommended for systems with running times of less than 2 hours per day and no high moisture corn.**

Read all instructions carefully and familiarize yourself with the components before beginning to install the MULTIFLO System. Determine approximate layout of the system--where each component will be placed, how much space it will require, how it will be suspended, and so forth. Be careful to plan the system so that it does not interfere with ventilation, watering systems, or other equipment in the building. **Figure 1** shows some possible MULTIFLO "layouts". These are to be used as examples only.

Auger Info

7961MF Auger is specifically designed for use in MULTIFLO Systems. It differs from standard 7961 Auger used with Model 55 Feeding Systems--the 7961MF Auger contains no factory brazes. MULTIFLO Auger should be connected using an Auger Connector when it is necessary to join sections of the 7961MF Auger. However, the welding or brazing technique is acceptable. Remember, brazing MULTIFLO auger is considerably different than that for other Chore-Time auger systems (see the welding or brazing recommendations in the this manual)

System Specifications

Auger Tube Size: 55 mm. PVC Tube

Elbow Size: 2.12 in. (54 mm) O.D.x 2.00 in.I.D. Hardened steel Elbow w/24 in. (610 mm) center line radius. **The maximum number of elbows allowed for each MULTIFLO loop is 8.**

Auger: 7961MF—for systems 400 feet (122 m) or shorter, auger should be one piece. Maximum length auger for shipment is 400 feet (122 m). It is important to specify length of the system when ordering auger. Auger for longer systems will be sent in most desirable section lengths. Example: for a 450 foot (137 m) MULTIFLO System, it would be better to use two 225 foot (69 m) sections of auger than one 400 foot (122 m) section and one 50 foot (15 m) section. Specify system length and Chore-Time will supply the best available combination of auger. Handle auger carefully. Store flat if it is to be stored for a period of time prior to installation.

Auger Drive: Helical Gear

Power Unit: Standard 1/2 HP, 62 RPM Direct Drive, 230 V., 60 HZ

Power Unit Capacity: 400 Foot (122 m) Effective Length*

System Capacity: 1200 Foot (366 m) Effective Length* (With three Power Units-maximum)

Delivery Capacity:
15 lb./min. (6.8 kg.min.)§ with Model 55 FLEX-AUGER Fill System
18 lb./min. (8.1 kg./min.)§ with Model 75 FLEX-AUGER Fill System
18 lb./min. (8.1 kg./min.)§ with Model HMC FLEX-AUGER Fill System

Feed Types: Ground feeds, crumbles, & pellets up to/including 3/16" dia. x 1/2" long (4.7 x 12.7 mm), not to exceed 18% moisture. **The MULTIFLO system is not recommended for high moisture feeds.**

§based on feed with 40 lb./cu.ft. (64 kg./cu. meter) density.

MUTIFLO Effective Length Calculation

The ***Effective Length** of a MULTIFLO System is calculated as shown below. Before beginning to install the system, determine the EFFECTIVE LENGTH of the system.

Important: You must know the *"Effective Length"* before placing the power units, service section area, and other system components.

Effective Length = Total Feet (meters) of Straight Lengths

Plus

Number of 90° Degrees Elbows X 30' Feet (9.1 M).

EXAMPLE:

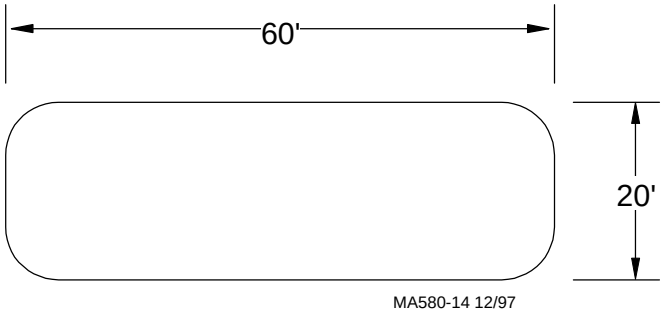


Figure 1. Effective Length Calculation

60' x 2 = 120', 20' x 2 = 40' — giving straight line length of 160'.

4 (elbows) x 30' = 120' — giving elbow length of 120'.

Straight line length (160') + elbow length (120') = EFFECTIVE LENGTH (280').

MULTIFLO Components

Tubes, Elbows

PVC tubes are used to form the main portion of the delivery system. Tube is supplied in 10’ (3 m) sections with an expanded end designed to fit over the end of the next tube for easy installation. PVC couplers are available for fitting tubes together without an expanded end. Steel Elbows are 90 degree units with a compact, 24" (610 mm) center-line radius and have special PVC adapters to cement to tubes and clamp to elbows. Installation combinations for layout of the system are infinite, the layout charts on **pages 14 and 15** gives an example of possible MULTIFLO system designs. ***These are examples only.*** Many other component combinations are possible.

Welding Bridge

The Welding Bridge is used to hold the tubes in place when the Service Section is removed for auger brazing or servicing. It is recommended that the auger Welding Bridge be left in place after installation.

Service Section

To allow access to the auger, a 17" (432 mm) section of auger tube should be removed and replaced with a clear plastic service access cover. During installation, this 17" (432 mm) opening is used to install the auger, in conjunction with a welding bridge and a welding clamp-- both MULTIFLO installation tools. After installation is completed, this service section will allow maintenance and repair to the auger. Additionally, the service sections can be used as a visual aid to the system’s operation.

Side Draw Boot

The Side Draw Boot fits beneath the FLEX-AUGER Control Unit to receive the feed from the FLEX-AUGER Feed Delivery System and introduce it to the MULTIFLO Feed Delivery System. The Side Draw feature controls the amount of feed entering the system--supplying a smooth, steady feed supply to the MULTIFLO line. This Side Draw Boot is Single Directional and should be installed according to direction of Auger travel.

Driver Assembly/Power Unit

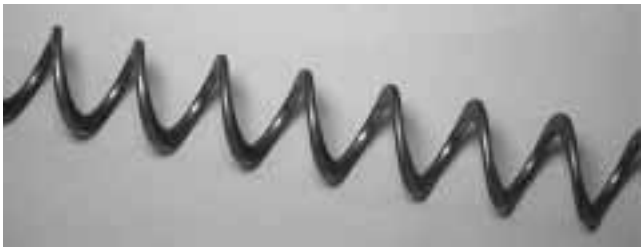
The MULTIFLO Power Units are available in three voltages; 230V-60HZ-1PH, 220V-50HZ-1PH, and 220/380V-50HZ-3PH as direct drive power units. They are rated at 1/2 HP and 62 RPM. They drive the helical gear driver assembly which powers the auger. Each power unit has a maximum capacity of 400 ft. (122 m) effective length* **(see page 9)** with the MULTIFLO System. Three power units may be used in series which gives an effective length* of 1,200 ft. (366 m) for maximum length of the MULTIFLO System.

Sleeve Switch Control

The Sleeve feature of this Switch allows the proximity Switch to be located at the source of the feed. It will sense the level of feed passing in the auger. The Sleeve is rotated initially to match the level of feed provided by the fill system. The Sleeve Switch is supplied with an Override Timer to allow start-up and purging of the MULTIFLO System.

Auger

MULTIFLO Auger circulates around the system delivering feed. Unlike other Chore-Time augers, it is not turned by the power unit but is driven with a helical gear. Therefore, it has some different capabilities and requirements. It is recommended that the auger be connected using an Auger Connector. See the Auger Connector installation section in this manual. An alternate way of connecting the auger is brazing. See the Auger Brazing section in this manual.



MULTIFLO Auger is shipped in lengths up to 400 feet (122 m). Specify length of the system when ordering auger. The MULTIFLO Auger has no brazes as shipped from the factory. Therefore, for systems shorter than 400 feet (122 m), it can be a one-piece auger, with only a connector or braze where the ends are joined following installations. For longer systems, it will be necessary to join sections of auger together but these should be kept to a minimum and it is very important to follow the connecting recommendations in this manual!

Planning the MULTIFLO System

Planning for the MULTIFLO installation should be coordinated with planning for the FLEX-AUGER feed delivery system installation so that the advantages of each system can be used effectively. The diagram in **Example 6** on page 15, shows how a FLEX-AUGER and MULTIFLO loop can work together to fill three rows of feeders. See the FLEX-AUGER operator's manual for information regarding the FLEX-AUGER feed delivery system.

Chains, "S" Hooks, and screw hooks are provided to suspend the system at least every 5' (1.5 m). The elbows should be supported in at least 2 places.

Important: Keep the system as straight and level as possible.

MULTIFLO Boot Placement

The MULTIFLO Side Draw Boot placement is determined by where the FLEX-AUGER feed delivery system is terminated. Installation of the FLEX-AUGER feed delivery system should planned with this in mind. The MULTIFLO Side Draw Boot is one directional.

Important: It is not recommended to place the MULTIFLO Boot directly adjoining an elbow. Try to locate the boot a few feet prior to or after an elbow in the system.

Determine Where to Install Power Units

Note placement of the power units in the examples. **Refer to Page 9**, of this manual, to determine the "***Effective Length***" of the system.

The "*Effective Length*" between Power Units must not exceed 400 feet or 122 meters regardless of the number or position of elbows.

Power Units should be spaced evenly around the system keeping;

1) Single Power Units opposite the boot,

2) Boot approximately centered between two power units in multiple power unit systems (see examples 2 through 4),

3) The "effective Length" per power unit as equal (even) as possible.

If possible, install Power Units in a straight section of tube and not adjacent to an elbow. **See Example 1 on page 14**.

Outlet Drop Size and Placement

A 1-1/2" (38 mm) hole is required at each outlet drop or drop feeder location. The last drop feeder before the control unit should not be more than 3' (1 m) from the control unit.

DO NOT install outlet drops on elbows, feed is required to cushion the auger here. The maximum angle of an outlet drop is 30 degrees.

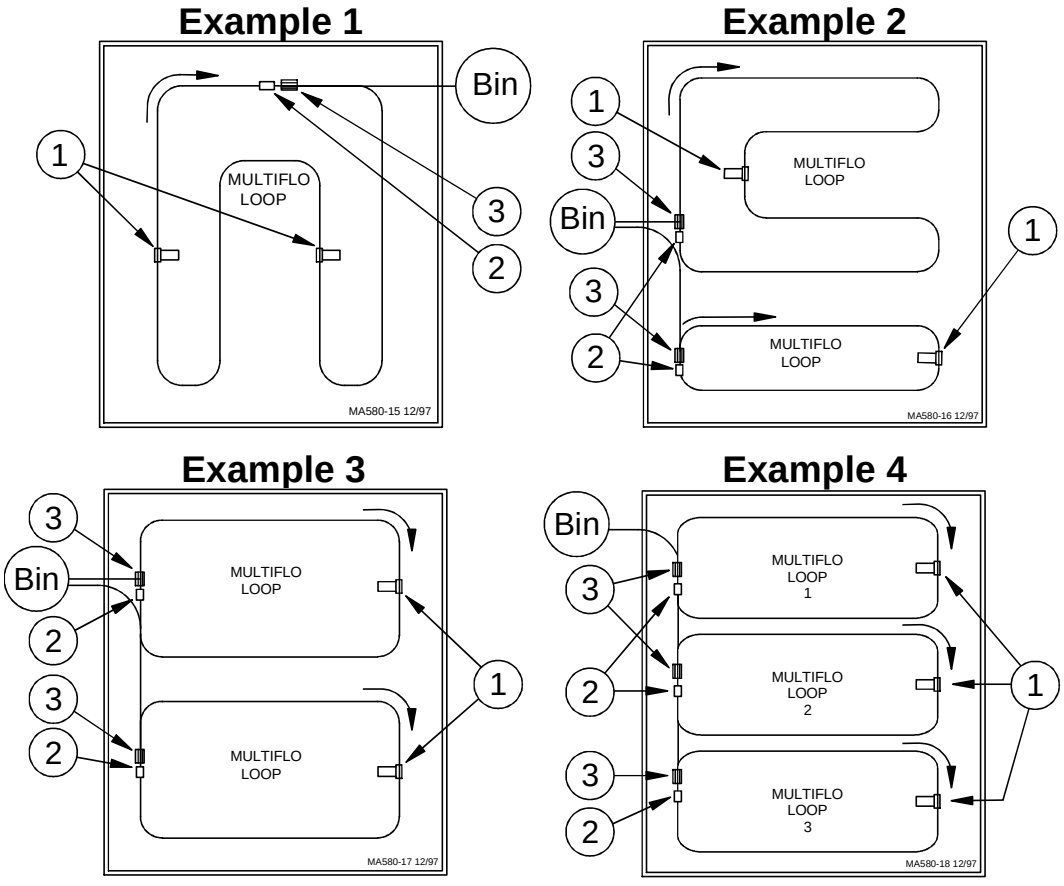
Examples of MULTIFLO System Layout

Example 1 shows a typical MULTIFLO installation. Feed is brought into the building with a FLEX-AUGER Delivery System to the MULTIFLO Boot. Notice how the motors are spaced evenly around the MULTIFLO system.

Example 2 shows a Twin FLEX-AUGER system suppling two different MULTIFLO loops. This system could be used to feed rows of livestock throughout the barn. Notice that two elbows may be directly joined to create a 180 degree turn.

Example 3 shows a FLEX-AUGER Feed Delivery System with a twin boot supplying two similar sized MULTIFLO loops. As with all FLEX-AUGER to MULTIFLO systems, adapter plates were installed on the FLEX-AUGER control units to attach the control units to the MULTIFLO boots. The Adapter Plates are supplied with the MULTIFLO boots.

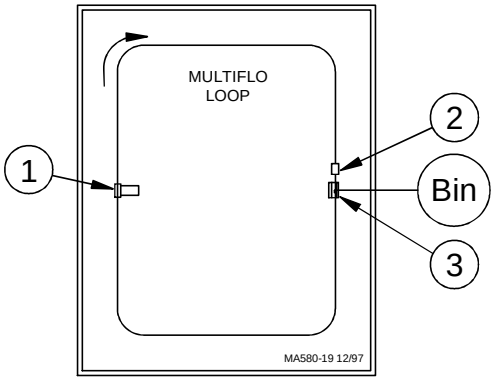
Example 4 shows a FLEX-AUGER Feed Delivery System filling multiple MULTIFLO loops**.** This configuration requires outlet assemblies on the fill system to fill loops 1 and 2 and the fill system control unit would be over loop 3**.**



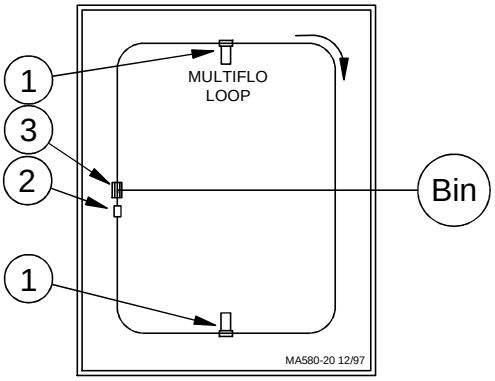
Item	Description
1	Power Unit
2	Level Switch
3	MultiFlo Boot

Diagrams below show possible power unit locations in relation to the FLEX-AUGER fill system.

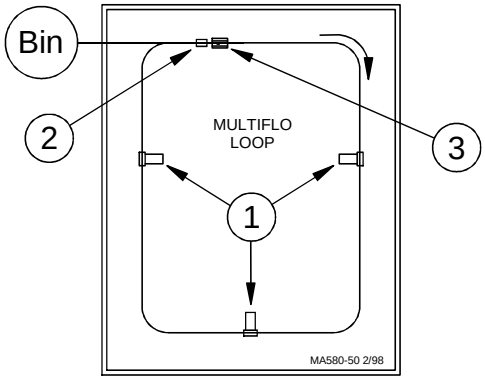
Example 5
One Motor System



Example 6
Two Motor System



Example 7
Three Motor System



Item	Description
1	Power Unit
2	Level Switch
3	MultiFlo Boot

Remember, these are examples only. The MULTIFLO System's versatility will provide almost unlimited combinations of delivery system designs. **Follow these guidelines for placement of components**

MULTIFLO INSTALLATION

Adapter Plate and MULTIFLO Boot

1. Discard the plastic funnel packed with the FLEX-AUGER Control Unit.
2. Attach the Adapter Plate to the bottom of the control unit as shown in **Figure 2 & 3**. The Adapter Plate can be installed so that the MULTIFLO auger tubes can run either in line, or at right angles with the FLEX-AUGER auger tubes.
3. Attach the MULTIFLO boot to the adapter plate with (4) 1/4-20 bolts and nuts.

Note: The arrows on the boot point in the direction that the auger must travel so that the notch in the feed adjustment gate will be at the outgoing end of the boot. The auger should travel left to right, when viewing through the Clean-Out Cover hole.

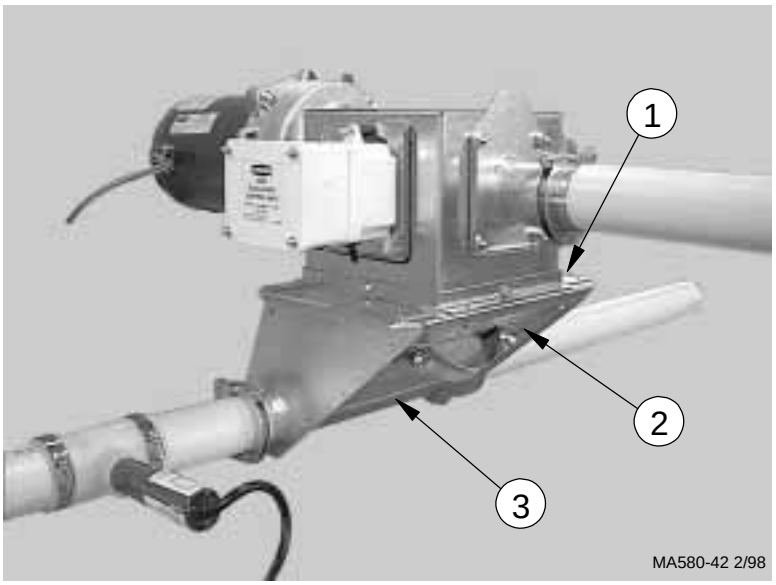


Figure 2. Auger Tubes run at a right angle.

Key	Description
1	Adapter Plate
2	Clean-Out
3	Arrows on Boot

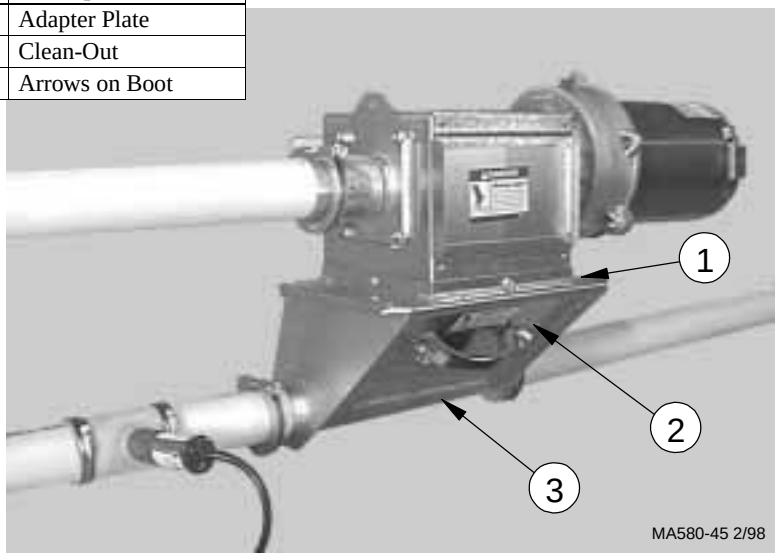


Figure 3. Auger Tubes run in-line.

For FLEX-AUGER Feed Delivery System Installation...

Refer to Chore Time Instruction

MA1000 Model 55, 75, 90 & HMC FLEX-AUGER Feed Delivery Operators Manual.

Auger Tubes and Steel Elbows

Beginning at the MULTIFLO boot, layout the auger tubes and elbows in the approximate location of the system.

Important: The tubes belled end should be the inlet end for the auger travel.

Cut the outlet holes prior to installation of tubes. Dry-fit all tubes before cementing them together to make up the system.

Note: The elbows are made of hardened steel. If required, they may be cut with an abrasive cutoff saw. WEAR PROTECTIVE EYE WEAR WHEN USING AN ABRASIVE CUTOFF SAW! Remove all burrs and rough spots after cutting.

1. Use chain, "S" hooks, and screw hooks supplied to suspend the system. Support the auger tubes a minimum of every 5 ft. (1.5 m). Also, elbows should be supported at least 2 places. Keep the lines as level and straight as possible.

2. Cement the auger tubes using PVC Cement. Follow directions on the container for safe handling of cement.

3. Insert Elbows into system Layout using Elbow Adapters.

   Then cement Adapters to PVC Tube and clamp to Elbow ends using Worm Gear Clamp. If an elbow must be placed near the MULTIFLO Boot, cut a short section of auger tube to fit over the boot outlet tube and the elbow.

Cementing the Auger Tubes

A. Be sure the tube is cut squarely. Remove all burrs from the outside and inside edges of the tubes.

B. During dry-fitting, the tube must enter the expanded end of the next tube when light pressure is applied. DO NOT FORCE THE TUBES.

C. Surfaces to be joined must be clean and free of dirt and grease.

D. Apply cement generously to both the inside of the expanded end of one tube and the outside end of the other tube to be joined. Be sure the cement covers all of the joined areas so there are no bare spots.

E. Quickly join the tubes giving them a twist to bring them into alignment as they are joined. Pay special attention to align outlet holes. Keep the tubes level.

F. Keep pressure on the joint until the cement sets.

G. All uncemented joints exposed to moisture and weather should be caulked and sealed

.

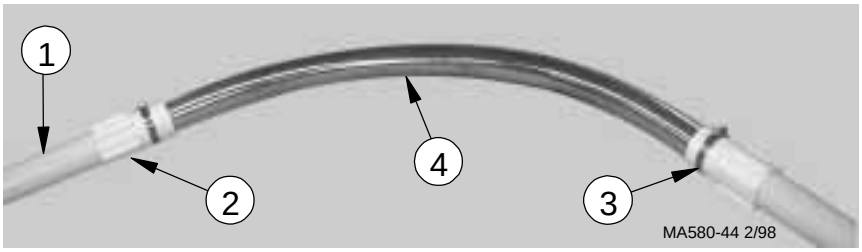


Figure 4. Steel Elbow and Adapters.

Key	Description
1	Auger Tube
2	Elbow Adapter
3	Worm Gear Clamp
4	Steel Elbow

Power Unit and Driver Assembly Installation

See the section on Layout of the System in front of this manual for information on placement of the power unit/driver assembly in the MULTIFLO system.

All Power Unit/Driver Assemblies are factory wired to run clockwise when facing Drive Sprocket with cover removed. This places the motor on the inside of the MULTIFLO Loop — as pictured in prior examples. The Motor/Sprocket rotation is reversible (if desired) to accomodate special installation needs. See motor nameplate for proper wiring to reverse rotation.

1. Suspend the Power Unit/Driver Assembly. Support the unit with chain and "S" hooks.

2. Measure and cut the tube at the required location of the power unit/driver assembly. Insert the tube as far as possible into the driver assembly housing to provide a sturdy, well-sealed fit. Tighten the screws to hold the tube in place. THESE MUST BE TIGHT! **See Figure 5**.

3. Wire the power unit according to wiring connection diagrams in this manual. All electrical wiring should be done by a qualified electrician and must meet local and national electrical codes.

4. Remove the Driver Assembly cover and Gear and Hub Assembly. Be careful not to lose the Dowel Pin or Socket Head Screws. These will be used to reinstall the Gear and Hub Assembly AFTER the auger installation is complete.

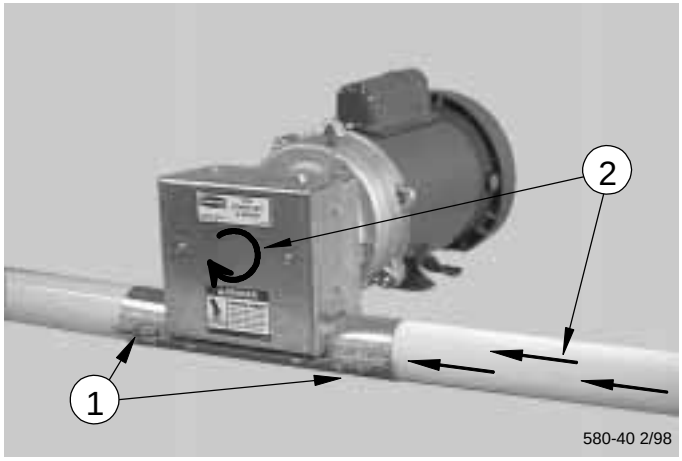


Figure 5. Power Unit and Driver Assembly.

Key	Description
1	Tighten Screws
2	Factory wired direction of travel

Install the Welding Bridge

Cut a 17" (432 mm) section of tube and install the Welding Bridge at the location where the auger will be pushed into the tube.

Select a point in the system where this will be convenient. It is recommended that this be;

A) in a straight run.

B) in a place where it will be convenient to position the auger on the floor about six feet (1.8 m) from the welding bridge so it can be fed into the tube easily. (An aisle, or area away from the livestock is ideal if it is available.)

C) in a visually convenient location to observe system operation once clear service section is installed.

D) (if the system permits) just ahead of the sleeve switch and boot, and just after the last feeder or drop to aid in knowing when system is full or satisfied. **Figure 5a** shows a possible placement of the Welding Bridge in a typical installation. The Welding Bridge attaches to the PVC Tubes with the over-center clamps. IT MUST BE SECURELY ATTACHED BEFORE THE AUGER IS INSTALLED! **Figure 6** shows the Welding Bridge attached to a tube.

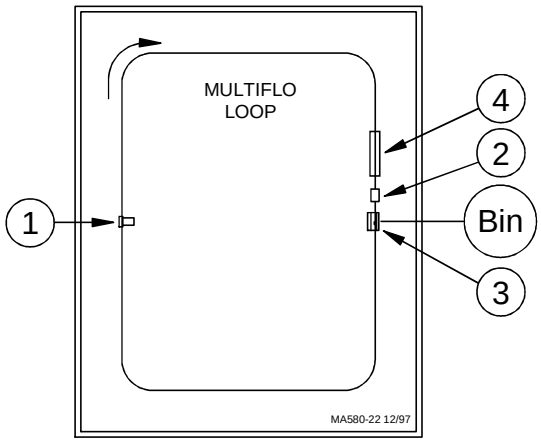


Figure 5a. Placement of the Welding Bridge

Item	Description
1	Power Unit/Driver Assembly
2	Level Switch
3	MultiFlo Boot
4	Welding Bridge/Access Section

Figure 6. Welding Bridge attached to Tube

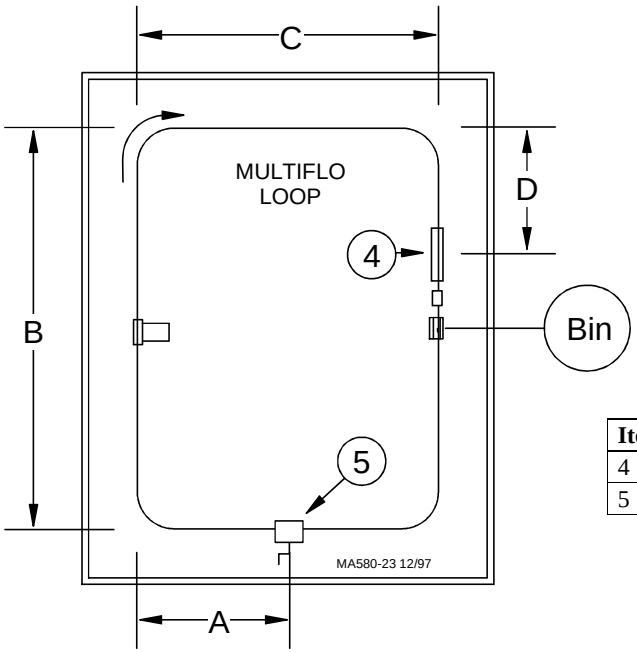
Install Hand Crank Assembly

It is possible to push the auger into the tube for short distances and short runs. For longer systems, though, one or more hand cranks should be installed to crank the auger around the length of the MULTIFLO System. A hand crank will put about 250 feet or 76 meters (Effective Length*) of auger into the system. **For systems over 250 feet** (76 m), it may be necessary to use an additional hand crank. **Figure 7** shows proposed installation of the hand crank(s) in relation to the welding bridge installation.

Important: You must calculate the *_Effective Length_* between the Crank and the Welding Bridge as shown below with points A-D. If this total Effective Length exceeds 250' an additional Hand Crank may be needed.

*Indicates ***_Effective Length_*** of system, as determined by the formula on page 9 of this manual.

Use a sabre saw or hand-held grinder to cut a 1/2" x 5" (13 mm x 125 mm) opening in the middle of the top of the tube where the hand crank will be placed. **See Figure 8**. The gear wheel should be installed in the opening and the two over-center clamps on the bracket hold the crank in place.



Item	Description
4	Welding Bridge/Access Section
5	Hand Crank

Figure 7. Hand crank installation.

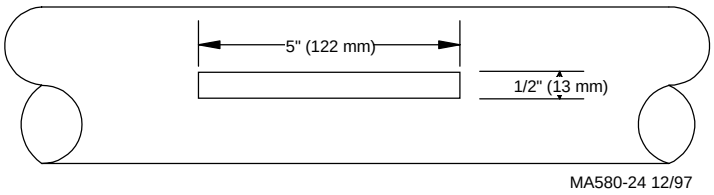


Figure 8. Cut an opening for the hand crank.

Installing the MULTIFLO Auger

Handle the MULTIFLO Auger carefully. Store the auger flat if it is to set for a period of time prior to installation. Do not install an auger that has a kink in it. A kink will cause tube wear and may cause problems at the driver assembly.

1. Prior to installation, position the coil of auger about 6 feet (1.8 m) from the Welding Bridge in the MULTIFLO line. This will allow adequate room for someone to uncoil and "feed" the auger into the tube.

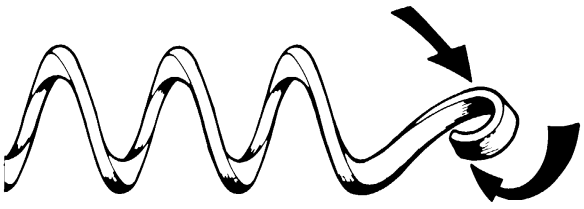
2. Remove all tags and wires from the coil of auger.

3. It is not necessary, but it may be desirable to cut about a 15 degree elbow and clamp it to the end of the MULTIFLO tube where the auger is to be installed.

4. Use a hammer to pound and flatten the end of the auger prior to installation. It should be reshaped so that it will ride down the middle of the tube, with no sharp edges exposed to catch on outlet holes, elbows, or joints in the system. **See Figure 9**.

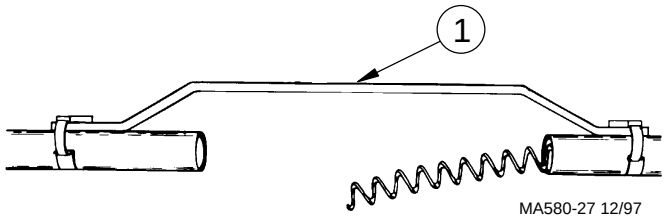
5. Push the auger into the tube using short strokes to prevent distortion of the auger. If the welding bridge is installed at the beginning of a long, straight run it should be possible to push this portion of auger into the system. **See Figure 10**.

6. Use the hand crank as soon as the auger has been pushed to its installed location in the system. Crank the auger through the remainder of the system.



MA580-26 12/97

Figure 9. Shape the Auger



MA580-27 12/97

Figure 10. Auger Installation

Item	Description
1	Welding Bridge

It may be desirable to have assistance during installation of the auger to follow the progress of the auger around the system. Even with the end of the auger bent to ride through the center of the tubes, the auger may catch at tube openings such as the driver assembly, boot, and outlet holes. With the covers off, it is possible to guide the auger through the boot and driver assemblies.

If it is necessary to lengthen the auger, join sections of auger during installation. This can be done easily. With the first section of auger nearly completely installed in the tube, position the next coil of auger, cut tags and prepare to connect the auger with an auger connector or braze/weld the augers as shown in the Auger Brazing section of this manual. If there is any noticeable layover in auger flighting, match ends of auger so they lay flat against each other. Allow the joint to cool and continue installation until auger makes a complete circuit and the "leading" end is back at the Service Area/Welding Bridge site.

7. When the auger has been installed throughout the system, use bolt cutters to cut off any excess auger at the inlet opening. Also, the END OF THE AUGER THAT WAS POUNDED AND SHAPED PRIOR TO INSTALLATION MUST BE REMOVED! Cut any damaged auger at this end, leaving a good representative end of auger for brazing or welding.

8. Stretch the auger 2" per 50’ (50 mm per 15.2 m). For example: if the system has an ACTUAL length of 300’ (91.4 m) of auger, stretch the auger approximately 1’ (305 mm) and cut it at that point.

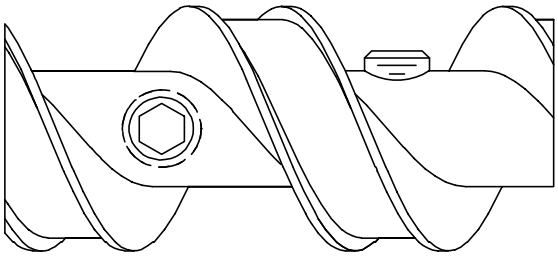
9. Position the auger as shown in the Auger Brazing Section of this manual and join the ends of the auger together.

Auger Connector Installation

The Auger Connector is designed to fasten the ends of the MULTIFLO® Auger together without welding.

Note: The Auger Connector is not to be used with rotating auger.

MULTIFLO® & **ULTRAFLO®** (cage) Auger Connectors may be ordered in lots of (2) under part no. **24961-2**.



MA706.2 3/91

Figure 11. Auger Connector

1. Before Stretching, allow the auger to relax to its free length.
   This can be achieved by pulling each end of the auger out of the auger tube 1 or 2 feet (300 to 600 mm), then allowing it to gradually pull back into tube (without springing).

2. Determine the amount of stretch required and subtract 2 inches (50 mm).

   The amount of stretch required is 2" per 50' (50 mm per 15.2m) of actual Auger length.

   The Auger Connector requires 2-1/4" (57 mm) of auger overlap. This overlap is used as auger stretch AND MUST BE SUBTRACTED BEFORE CUTTING THE AUGER.

For example:
If the system has an ACTUAL length of 300’ (91.4 m) of auger, the required auger stretch is 12" (305 mm). Subtract 2-1/4" (57 mm) due to the overlap of the auger. Therefore the auger must be cut with a 9-3/4 inch (247 mm) gap between the ends when the auger is relaxed. **See Figure 12.**

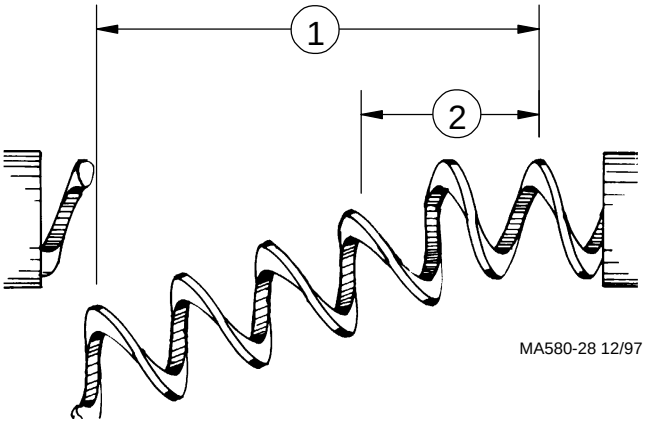


Figure 12. Shape the Auger

Item	Description
1	Required Stretch
2	Auger Connector Length

3. Cut the auger. File the end of the auger smooth so that there are not sharp edges.

4. Screw the Auger Connector into one end of the auger. Remember: If there is any noticeable layover in auger flighting, match the ends of the auger so they lay flat against each other.

5. Untwist the end of the other auger 1-1/2 turns so that when it is threaded onto the Auger Connector it will return to it’s relaxed position. The auger ends must be overlapped--NOT butted, when threaded into the track of the Auger Connector.

6. The end of each auger should be even with one end of the Auger Connector (center the Auger Connector in the joint), as shown.

7. Tighten each set screw until it touches the auger, then tighten an additional 3/4 turn **MAXIMUM**.

   BE CAREFUL NOT TO OVER TIGHTEN THE SETSCREWS AND DEFORM THE AUGER. OVER TIGHTENING THE SETSCREWS MAY CAUSE THE AUGER TO JAM UP IN THE POWER UNITS.

8. File both ends of the auger so they are the same diameter as the rest of the auger. **See Figure 13.**

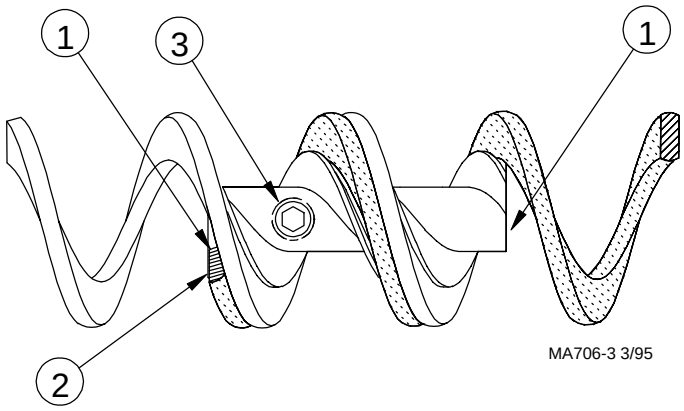


Figure 13. File the Ends of the Auger

Item	Description
1	The Auger Ends must be even with the ends of the Auger Connector
2	File Auger Ends smooth
3	Set Screw

Brazing MULTIFLO Auger

Caution: Do Not Braze Auger Without Eye Protection

Important: Chore-Time recommends using an Auger Connector, but brazing is also acceptable.

The braze is critical in the MULTIFLO system, since this portion of the auger must pass through the helical gear and move freely through the tubes and elbows. FOLLOW THE INSTRUCTIONS CAREFULLY!

1. Thread the ends of the augers to be joined approximately 3/4 turn, or 270 degrees overlap. Make sure that the auger flightings, from the two augers, are leaning in the same direction.

Important: Auger ends must be overlapped--NOT butted, when threaded together.

2. Install the Brazing Clamp at the spot to be joined. **See Figure 14.**

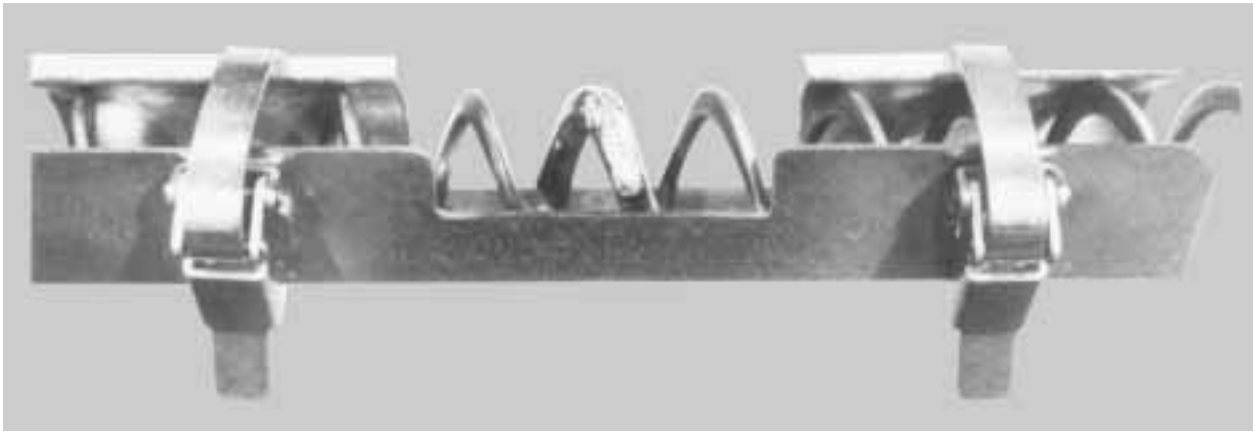


Figure 14. Clamping Auger in Place Using a Brazing Clamp

3. Braze the inside of the joint, joining the surfaces to within 1/8" to 1/4" (3 mm to 6 mm) of each end. THIS IS CRITICAL! **See Figure 15**.

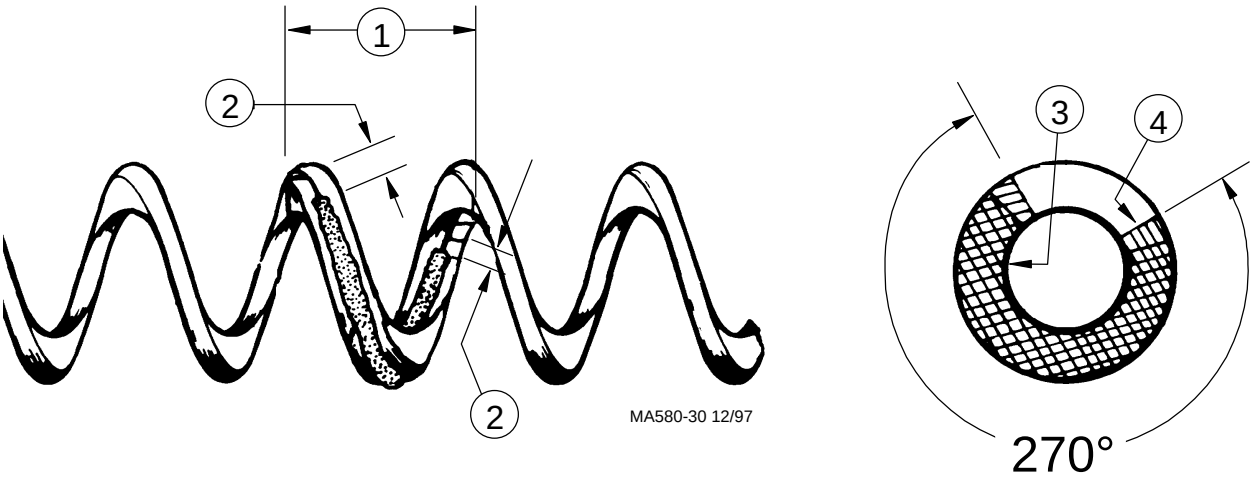


Figure 15. Auger Brazing Information

Item	Description
1	3/4" of Turn
2	Leave 1/4"-3/8" (6-9 mm) Unbrazed
3	Brazed Area
4	Overlap Area

4. Allow the joint to air cool. Then rotate the clamp to expose the outside of the augers.

5. Join the outside surface.Again, leaving 1/8"-1/4" (3- 6 mm) at each end of the auger joint.

6. File smooth. After cooling, file the outside of the joint down to match the outside dimension of the auger....the joined section MUST NOT BE ANY BIGGER IN DIAMETER THAN THE AUGER ITSELF! Remove all slag or sharp spots on the joint.

7. File the ends of the auger smooth so that they will not gouge the tube. Radius the outside corner of each end to allow the auger to move around elbows without snagging.

Install the Service Section Cover

Allow the joint to cool. Remove the brazing clamp and install the Service Area Cover over the opening. **See Figure 16.**

After the cover kit is installed and clamps are tightened, the welding bridge may be removed. However, Chore-Time recommends that the Welding Bridge be left in place for convenience in servicing the auger.

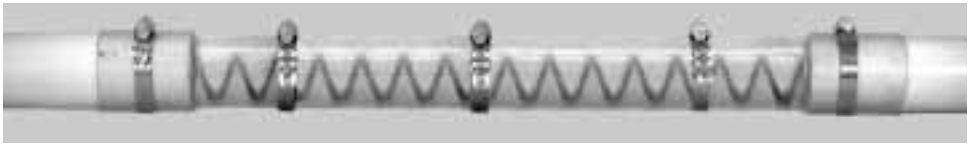
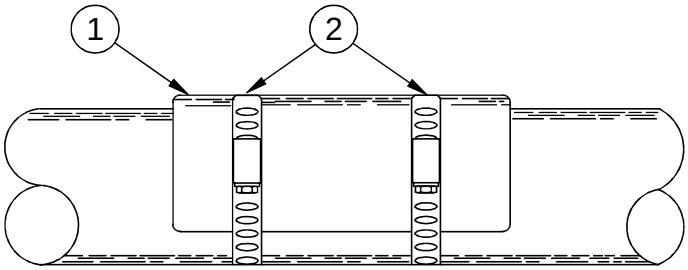


Figure 16. Service Section Cover

Install the Hand Crank Closure

Remove the Hand Crank Assembly (remove all of them if more than one was used) and install the Cover Closure over the tube opening. Note: The Closure and two Clamps are packed with the Hand Crank Assembly. **See Figure 17.**



Item	Description
1	Closure
2	Tube Clamps

Figure 17. Closure Installed on Tube

Install the Boot Clean-Out Cover

After the auger has been installed, place the cannonball in the boot. The cannonball must rest in the notch in the feed Adjustment Gate.

Set the Adjustment Slide Gate all the way up and tighten wing nuts to secure it in place.

Install the clean-out cover as in **Figure 18.**

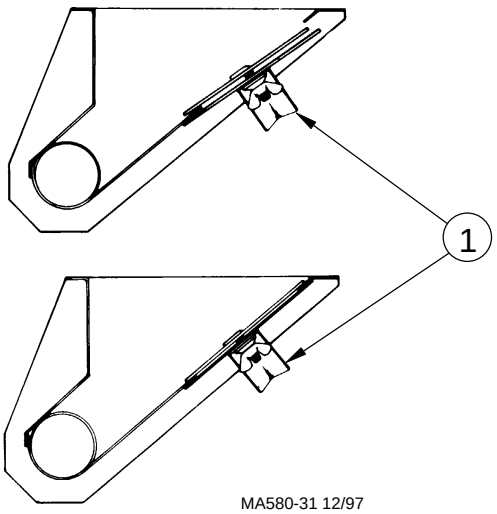
Attach the clean-out cover to the lower boot.

A. Loosen the wing nuts to ends of studs.

B. Start the lower side of clean-out cover over bottom of opening.

C. Slide cover upward as far as possible.

D. Hold cover in this position (be sure cover is flat against the outside of the boot) and tighten wing nuts finger tight.

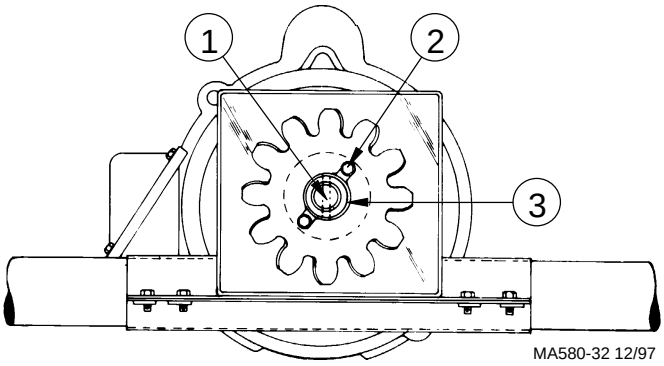


Item	Description
1	Cleanout Cover

Figure 18. Clean-out Cover Installation

Install the Gear Drive and Hub

At the driver assembly, install the hub and pin on the shaft. It is preferable to have the pin in a horizontal position (otherwise it will fall out on the floor and you will have to start over). Bolt the sprocket in place over the pin. The socket head screws must be tight. **See Figure 19**. Install the cover over the driver assembly unit. Repeat the procedure for the second power unit if more than one is used.



Item	Description
1	Pin
2	Socket Head Screws
3	Hub

Figure 19. Clean-out Cover Installation

Wiring The System

Notes for Wiring Diagrams

1. Ground all electrical equipment for safety.

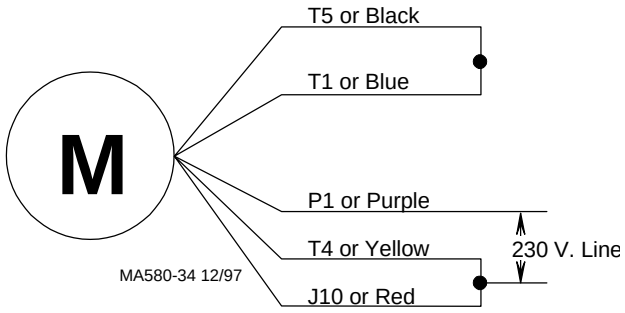
2. All wiring should be done by a qualified electrician in accordance with local and national electrical codes.

3. Wire color coding is shown for pre-wired equipment.
   B—Black; W—White; R—Red.

4. To prevent electrical feedback, use contactor (s) or relay (s) —not supplied:
   • for twin or quad boot installations when Flex-Auger is used with the Multiflex System.
   • contactor is required for 1-1/2 HP Power Unit.

Important: More than one source of electrical power enters the Multiflo Systems shown in this manual. Disconnect all power before servicing any part of the system.

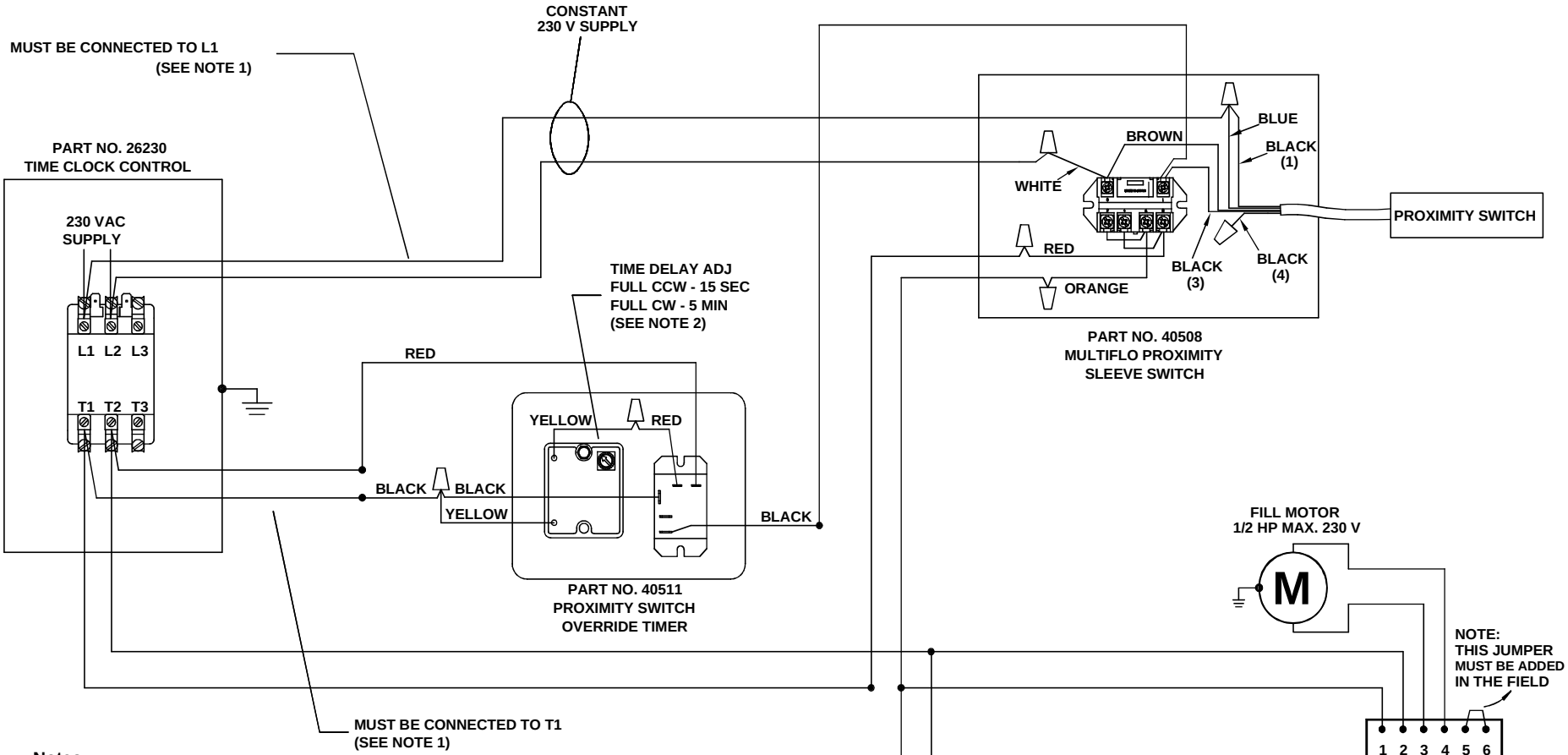
MULTIFLO Motor Wiring



Note: To reverse rotation, interchange Motor Leads J10–Red and T5–Black.

Single Boot Fill System Supplying One MULTIFLO Loop

Using Proximity Sleeve Switch with Override Timer

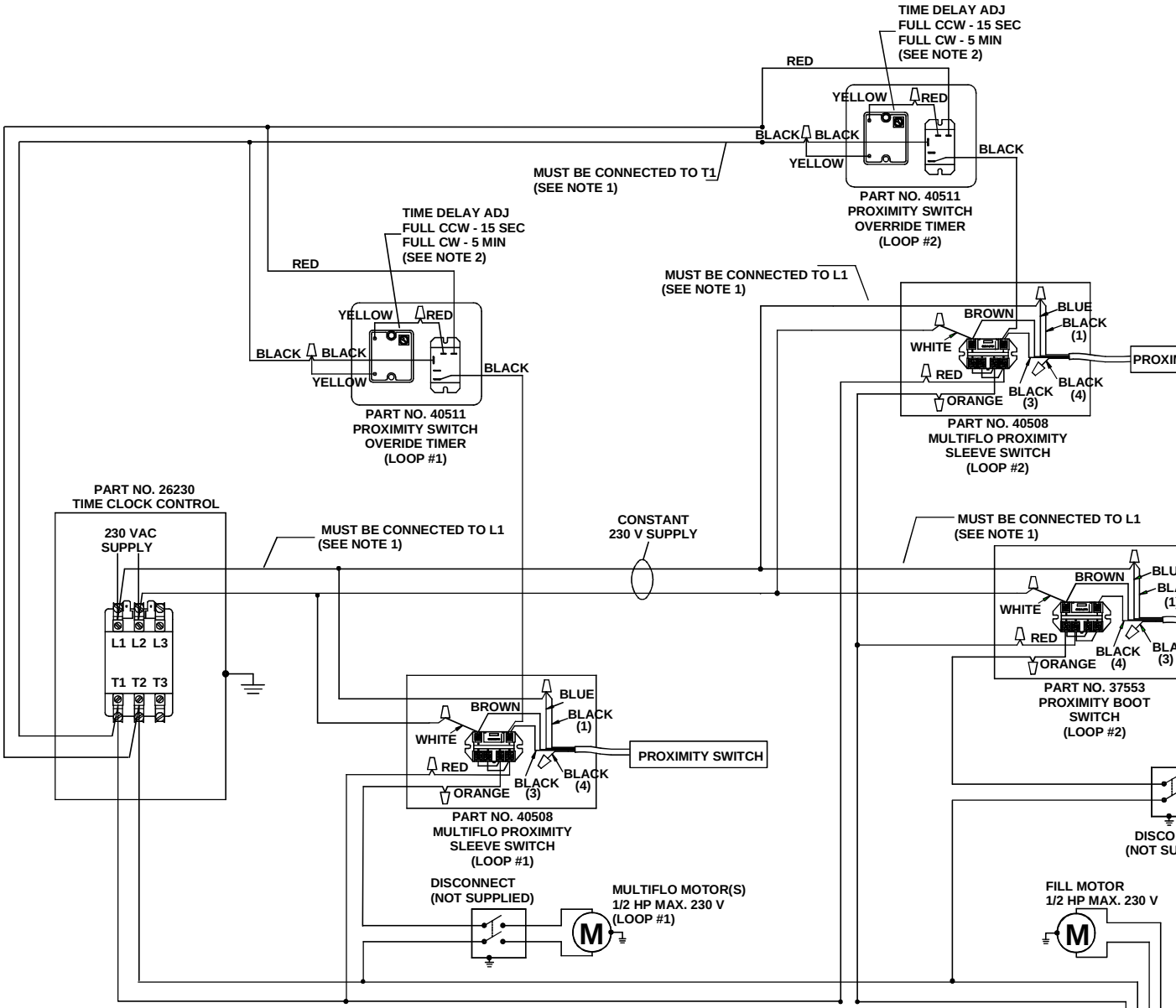


Notes:

1. **Do not cross phase. If you do, there will be a short circuit when the time clock turns on.**
2. **Set appropriate time to allow MULTIFLO LOOP to purge before refilling.**
3. **Disconnect all sources of electrical power supplying the system before opening any electrical enclosure or servicing any equipment.**

Single Boot Fill System Supplying Two MULTIFLO Loops

Using Proximity Sleeve Switch with Override Timer and Proximity Boot Switch



Notes:

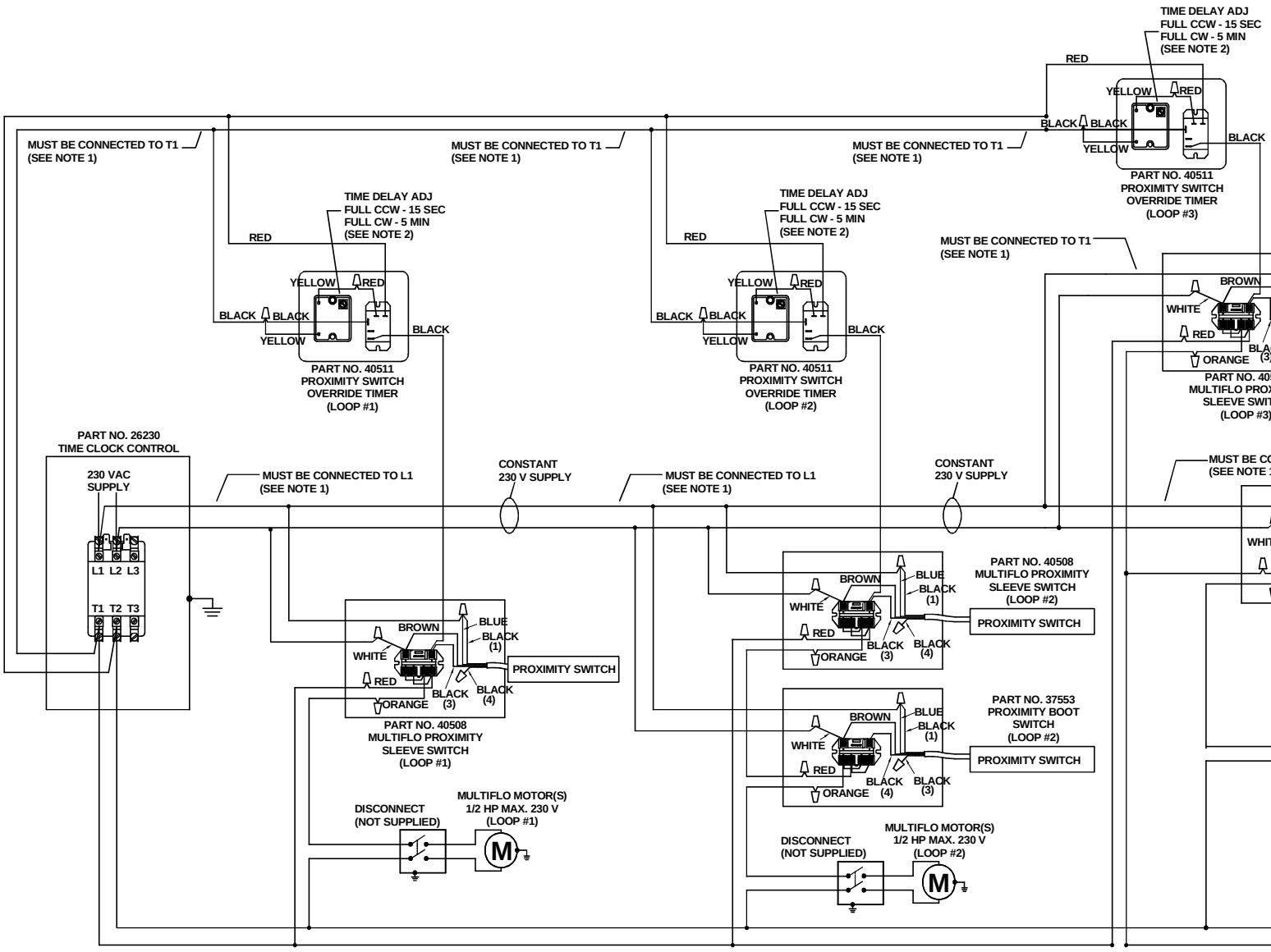
1. **Do not cross phase. If you do, there will be a short circuit when the time clock turns on.**
2. **Set appropriate time to allow MULTIFLO LOOP to purge before refilling.**
3. **Disconnect all sources of electrical power supplying the system before opening any electrical enclosure or servicing any equipment.**

580-52 12/98

6500 CONTRO

Single Boot Fill System Supplying Three MULTIFLO Loops

Using Proximity Sleeve Switch with Override Timer and Proximity Switch



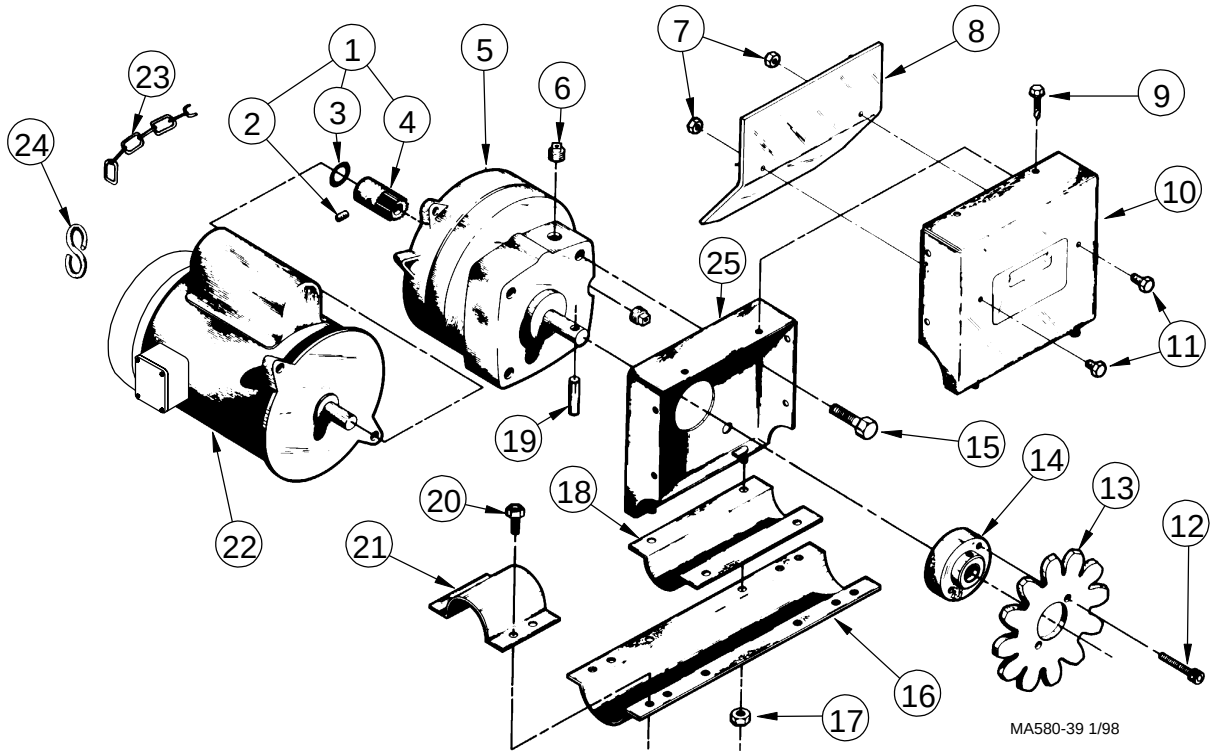
580-53 12/98

Notes:

1. Do not cross phase. If you do, there will be a short circuit when the time clock turns on.
2. Set appropriate time to allow MULTIFLO LOOP to purge before refilling.
3. Disconnect all sources of electrical power supplying the system before opening any electrical enclosure or servicing any equipment.

Power Unit and Driver Assembly

#14750, #28031EUR



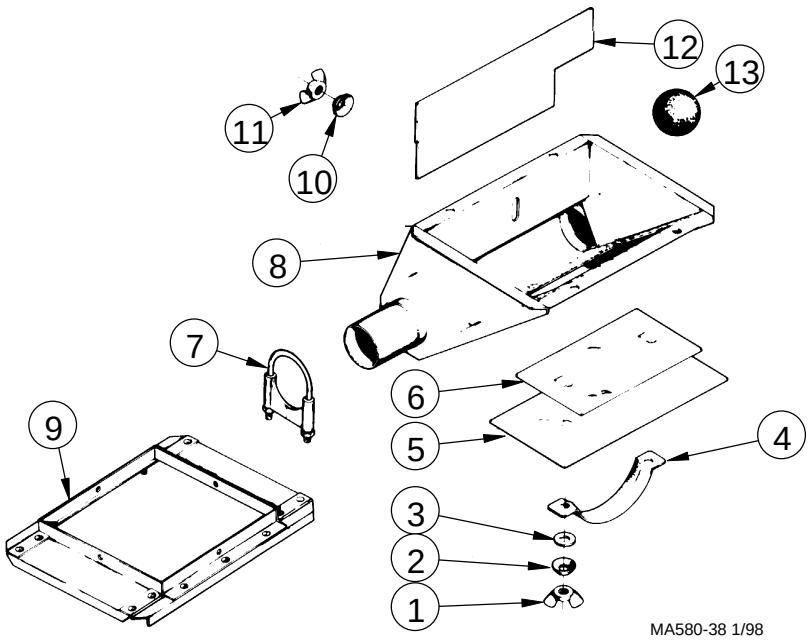
Item	Description	Part No.
1	Pinion Assembly #41013 #41014, #28830EUR	 3249 25836
2	1/4-28x3/16" Setscrew	5929
3	"O" Ring	3209
4	Pinion	3245
5	Gearhead Assembly #41013 #41014, #28830EUR	 3261-9 3261-12
6	Pipe Plug	3516
7	10-24 Lock Nut	1560
8	Auger Brace	24674
9	#10x1/2 Self Drilling Screw	3037
10	Drive Unit Cover	8208
11	10-24x1/2 Hex Head Screw	4416-3
12	5/16-18x7/8 Socket Hd. Cap Screw	6850-1

Item	Description	Part No.
13	MULTIFLO Drive Gear	8463
14	Drive Gear Hub	8213
15	5/16-18x3/4 Hex Head Fastener 5/16 Lockwasher	2046 547
16	Base Connector	8249
17	1/4-20 Locknut	1269
18	Wear Shoe	8210
19	Dowel Pin	8699
20	1/4-20x1/2 Hex Head Fastener	1487
21	End Connector	8211
22	Motor #41013, #41014 #28830EUR	 14750 28031EUR
23	Chain	1302
24	"S" Hook	723
25	Drive Unit Base	8207

Complete Motor and Gearhead Assembly

Part Number	Motor	HP	RPM	Phase	Hz	Voltage
3259-141	#14750	1/2	62	1	60	230
3259-113	#14750	1/4	62	1	50	220
3259-111EUR	#28031EUR	1/2	62	3	50	220/380

MULTIFLO Boot Assembly #14411

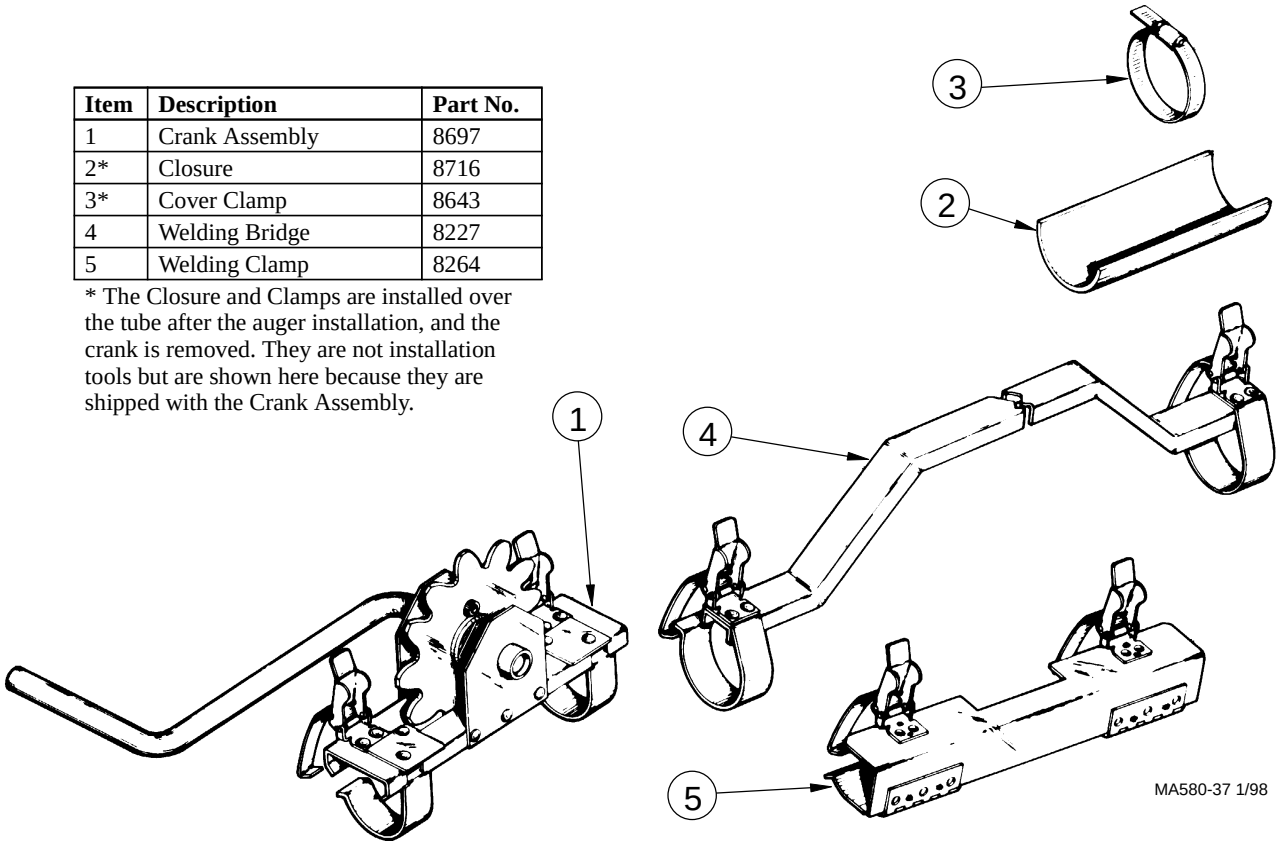


Item	Description	Part No.
1	5/16 Wing Nut	2146
2	5/16-18 Cupped Washer	6192
3	5/16-18 Rubber Washer	6152
4	Handle–included w/ #6301	----
5	Clean–Out Cover	6301
6	Back Plate	6298
7	Tube Clamp	7976
8	Boot Body Weldment	8220
9	Adapter Plate	7856
10	5/16-18 Sealing Washer	8491
11	5/16-18 Wing Nut	2146
12	Adjustment Gate Assembly	8302
13	Cannonball	3621

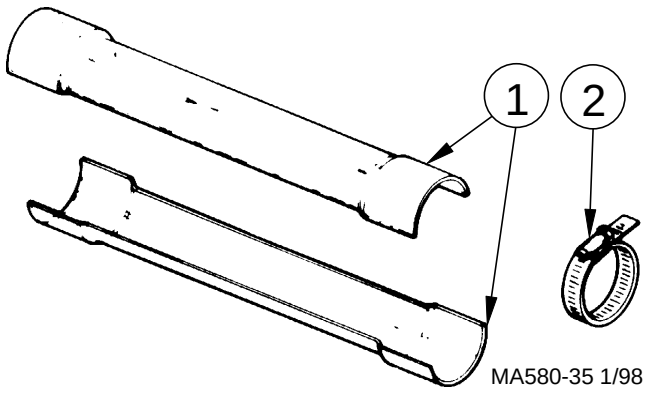
Installation Tools

Item	Description	Part No.
1	Crank Assembly	8697
2*	Closure	8716
3*	Cover Clamp	8643
4	Welding Bridge	8227
5	Welding Clamp	8264

* The Closure and Clamps are installed over the tube after the auger installation, and the crank is removed. They are not installation tools but are shown here because they are shipped with the Crank Assembly.



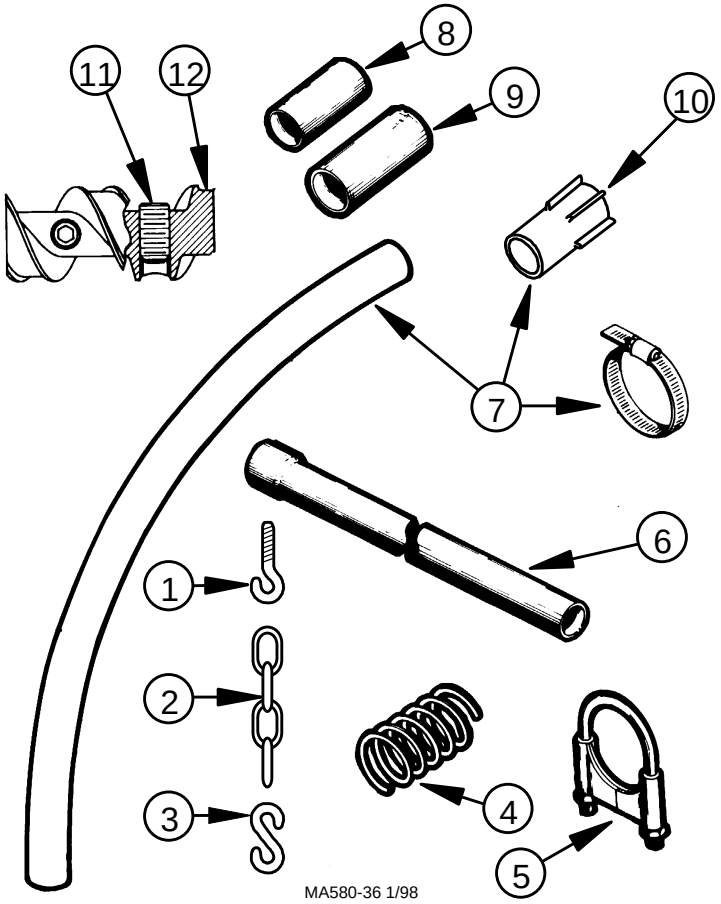
Service Section #8710



Item	Description	Part No.
1	Pair of clear Tube Halves	8711
2	Clamp–5 used	8643

The 8710 Hit includes 8711 (pair of halves) and one 8727 Parts Package (5 clamps)

Line Components



Item	Description	Part No.
1*	Screw Hook	1214
2*	Chain	1302
3*	“S” Hook	723
--	1/2 Pine Cement	6303
4	MULTIFLO Auger	7961MF
5	Tube Clamp	7976
6	10' PVC Tube	7955
7	90° Hardened Steel Elbow with Clamp and Coupler. 90° Hardened Steel Elbow	40507 39204
8	Boot Outlet Coupler	8555
9	Tube Connector	8029
10	PVC Elbow Coupler	39200
11**	Auger Connector	24724
12**	5/16-18x5/8 Set Screw (2 used)	24979

* Components of 6372 Suspension Kit

** (2) Auger Connectors and (4) Setscrews may be ordered under part no. 24961-2. (12) Auger Connectors and (24) Setscrews may be ordered under part no. 24961-12.

Trouble Shooting Guide

MULTIFLO System will not run.

Possible Cause	Suggested Procedure
No power to the system.	Check circuits, fuses, and on–off switches on equipment.
Motor overloaded and stopped.	Check for foreign material in line, push reset button.
System not calling for food.	1. Examine Control Unit Switch and Hopper level Control. 2. Remove Feed if plugged.
Motor defective.	Replace motor.

Motor overloads after running briefly.

Possible Cause	Suggested Procedure
Motor too small.	Use recommended size motor for line length.
Low voltage (motor runs slow and overheats).	Check line voltage at motor, use adequate size wire in circuits.
Foreign object in auger (motor runs, stalls, no feed conveyed).	check auger line, pull auger to remove object.
System overcharged, plugged.	Clean-out system.
Wet feed being conveyed or allowed to stand in tubes.	Clean auger and tube, avoid conveying wet feed or empty line after each feeding.
Motor defective (overheats without load).	Replace motor.

Motor runs, but auger does not run

Possible Cause	Suggested Procedure
Sheared pin in sprocket.	Replace damaged or lost pin.
Broken power unit pinion	1. Examine pinion on motor shaft. 2. Replace BOTH gearhead and pinion if pinion is damaged.
Broken Auger	Repair or replace Auger Flighting

Auger wears holes in straight tubes

Possible Cause	Suggested Procedure
Auger kinked or poorly brazed.	See auger brazing section.
Excessive operating time empty.	Do not allow system to operate empty.

Elbows wear out

Possible Cause	Suggested Procedure
Auger is over stretched.	Lengthen auger.
Auger ran dry.	Do not allow system to operate empty.

Auger runs erratically

Possible Cause	Suggested Procedure
Auger too long.	Shorten auger.
Auger kinked or poorly brazed.	See auger brazing section.
Equipment not installed within the capabilities of system.	Refer to this manual for approved system installations.

Excessive auger vibration and noise

Possible Cause	Suggested Procedure
System operated too often without feed (auger tubes have been scored by auger.	1. Do not allow the system to run empty. 2. Replace tubes. 3. Be sure auger is correct length.
Tube inadequately supported.	Support tubes every 5’ (1.5 m) or closer.
Drive Sprocket worn	Replace Drive Sprocket(s) in Power Unit(s)

Fill system short cycles

Possible Cause	Suggested Procedure
Check for correct RPM of gearhead on fill system.	Install correct RPM of gearhead.
Switch failure causing system to circulate.	Repair or replace malfunctioning switch.
MULTIFLO Boot Feed Gate needs adjustment or is plugged.	Adjust Feed Gate to accommodate fill system delivery (15 - 20 Lbs/min). or check for feed clumps or foreign objects at Feed Gate.

Motor stalls or oscillates

Possible Cause	Suggested Procedure
System overcharged, plugged.	Clean-out system.

This Page
Currently
Not In Use

Revisions to this Manual

Page No.	Description of Change
	Over all update made. Please read manual carefully.

Contact your nearby Chore-Time distributor or representative for additional parts and information.

CTB Inc.
P.O. Box 2000 • Milford, Indiana 46542-2000 • U.S.A.
Phone (219) 658-4101 • Fax (800) 333-4191
E-Mail: ctb@ctbinc.com • Internet: http//www.ctbinc.com

Printed in the U.S.A.