

POP[®]
Model
MCS 5000
Remote Mandrel
Collection System

I n s t r u c t i o n M a n u a l

SAFETY INSTRUCTIONS

ATTENTION!

**TO INSURE PROPER FUNCTIONING AND SAFE OPERATION
READ THIS MANUAL CAREFULLY BEFORE ATTEMPTING TO
OPERATE THIS TOOL.**

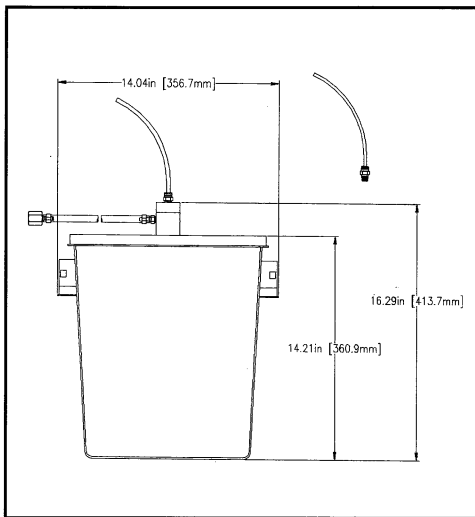
1. Always wear **eye protection** when operating the MCS5000.
2. **Do not operate the Mandrel Collection System (MCS) with the cover off.** Removal of the MCS cover while connected to the air supply greatly increases the noise level. Extended exposure may impair hearing.
3. **Do not remove the Deflector Plate from the Vacuum Transducer.** This plate reduces the force of the spent mandrel as it is expelled into the collection bucket. Removal could result in personal injury or damage to the collection container.
4. **Disconnect the system from the air supply** when not in use for an extended period of time or before proceeding with any maintenance procedures.
5. Monitor the amount of spent mandrels in the collection bucket. **Exceeding the maximum fill line dramatically increases the weigh of the bucket** and could cause injury when lifting. If the collection bucket is over-filled remove excess mandrels before attempting to lift bucket.
6. **Do not remove the Collector Unit Assembly (transducer) when the MCS is connected to the air supply.**
7. Inspect the system at regular intervals for damage and proper function. **Replace damaged parts immediately. Do not connect a damaged system to an air supply.**
8. **Use only genuine Pop brand replacement parts.**

DESCRIPTION

The MCS5000 is a remote vacuum operated Mandrel Collection System used to collect spent mandrels for 1/8", 5/32" and 3/16" diameter rivets. The MCS5000 can be used with any compatible POP® brand rivet tool. A tool adaptor kit is required to connect the MCS5000 to the rivet tool. The system is supplied with two 15 ft. lengths of collection hose and mandrels may be collected up to 15 feet away from the tool.

PACKED IN CARTON

Part Number	Part Name	Data
MCS5000	Mandrel Collection System with Transducer Assembly	Fully assembled
PRT5250-99	Mandrel Hose Fitting	Use with 1/8" diameter Rivet (marked 3/16)
PRT5250-98	Mandrel Hose Fitting - Installed	Use with 5/32" and 3/16 " Rivets (marked 1/4)
MCS5000-13	Mandrel Collection Hose	3/16" O.D. Parker Parflex NR-3-024
MCS5000-14	Mandrel Collection Hose	1/4" O.D. Parker Parflex NR-4-035
PRT5200-Air	Air Supply Hose Assembly	6 feet long
	Silencer Container	



WEIGHT: 4.8 lbs. (2.18 Kg.)
HEIGHT: 16.29 in. (414 mm)
WIDTH: 14.04 in. (357 mm)
OPERATING PRESSURE: 90 PSIG (6.1 bar or KgF/cm²) max.
FLOW RATE:
 small mandrel hose - 2.2 SCFM (.062 cu. m)
 large mandrel hose - 3.4 SCFM (.096 cu. m)
VACUUM PRESSURE: 21 in. Hg. (53 cm Hg.) min. at hose
AIR CONSUMPTION: 12 SCFM (.34 cu. m)
CAPACITY: 8500 Spent Mandrels

THEORY OF OPERATION

The MCS5000 is a vacuum operated mandrel collection system. An air supply hose is connected at the side of a vacuum transducer with an open center passage. When the air supply is connected a strong air flow is created through the center passage. When one end of the mandrel collection hose is connected to the negative pressure side of the vacuum transducer and the other end to the rear of the rivet tool a strong vacuum is created at the tool nosepiece.

When a rivet is inserted into the nosepiece it is held in the tool by vacuum. After the rivet is set and the tool jaws have released the broken mandrel it is propelled through the tool, the collection hose and the vacuum transducer and into the collection container where it strikes a hardened steel deflector plate before falling into the container. Because the vacuum generator is located at the collection container there is no safety hazard if the mandrel collection hose is disconnected.

Air from the positive pressure side of the vacuum transducer is exhausted into the collection container and passes through sound absorbing foam before exiting. For safety reasons the transducer is located at the collection container rather than the tool.

INSTALLATION

CAUTION

Do not connect to air supply until all tool parts are properly installed and ready for operation.

AIR SUPPLY REQUIREMENTS

1. Use only a **dry filtered air supply regulated to 70-90 PSIG (5 - 6 BAR). A minimum of 12.0 SCFM is required.**
2. When using a rivet tool with the MCS5000 , **a separate air supply should be used for each device.** If both the rivet tool and the MCS5000 must be connected to the same air supply, a minimum of 1/4" I.D. air supply hose is required to provide adequate volume.

PREPARING FOR OPERATION

1. Attach the air supply hose to the side of the Vacuum Transducer. Do not connect to air supply until other set up steps are completed.
2. Attach a Mandrel Hose Fitting (brass fitting with red ring) to the top of the Vacuum Transducer. **Mandrel Hose Fittings should be wrench-tightened.** The red ring on the end of the Mandrel Hose Fitting is marked with the collection hose size: the smaller 3/16 SMC fitting is for 1/8" diameter rivets, the 1/4 SMC fitting is for both 5/32" and 3/16" diameter rivets.
3. Insert one end of the selected Mandrel Collection Hose into the Mandrel Hose Fitting. Gently push until the hose is securely in place. To remove the collection hose from the fitting, gently push in on the red ring to release the hose from the self-gripping adapter.
4. Insert the opposite end of the Mandrel Collection Hose into the adapter assembly on the rivet tool. Gently push until the hose is securely in place.

AVAILABLE TOOL ADAPTERS

Tool Model	Part Number
PRG510	MCS5000-510
RG540	MCS5000-540
PRT5200	MCS5000-5200
PRT5250	MCS5000-5250
PRT5600	MCS5000-5600

Please specify part number when ordering Tool Adapters from POP Fasteners.

5. The collection hose on the MCS5000 should can be cut to eliminate excess length and for maximum efficiency. **Allow a 12" minimum radius on all curves in the hose.** The Mandrel Collection System has been rated for a collection hose of 15' or shorter and a maximum 6' rise from the tube insert. **The shorter the tube and the lower the rise, the more efficiently the system will operate.**
6. The first 6" to 12" of collection hose connected to the rivet tool and the MCS5000 should be kept as straight as possible. It may be necessary to provide hose supports.
7. Attach the air supply hose on the MCS5000 Mandrel Collection System to the air supply to begin operation.

CARE AND MAINTENANCE

AIR SUPPLY REQUIREMENTS

1. Use only a **dry filtered air supply regulated to 70-90 PSIG (5 - 6 BAR)**. **A minimum of 12.0 SCFM is required. No oiler is required or recommended on the air supply.**
2. **Do not cover the air exhaust hole in the top of the collector cover.**

ROUTINE MAINTENANCE

1. Inspect the system and air supply hose for damage daily. Replace damaged parts immediately.
2. Frequently inspect the ends of the mandrel collection hose and cut off frayed ends. Be sure hose ends are pushed in securely. Maintain a minimum 12" radius on all curves.
3. Cut off or replace kinked hoses. Replacement hoses are available from Pop Fasteners in standard 15 ft. lengths or by the foot.
4. Empty the collection bucket frequently. Do not allow the mandrels to rise above the maximum fill line. Steel mandrels at the maximum fill line will weigh approximately 40 lbs. (18 Kg.).
5. Clean the vacuum transducer inside when vacuum pressure is below 21 in. Hg. (53 cm Hg.).
6. Periodically clean the inside of the collection bucket with soap and water to restore clarity.

SERVICE PROCEDURES

CAUTION
DISCONNECT THE SYSTEM FROM THE AIR SUPPLY BEFORE
PERFORMING ANY SERVICE PROCEDURES

1. CLEARING MANDREL JAMS

Mandrel jams occur because: the tool has dirt and oil build-up, there is a kink or insufficient radius in the Mandrel Collection Hose, there is insufficient vacuum due to an air leak, low air pressure or dirt in the vacuum transducer or a bent mandrel could not pass through the collection hose. Most hose mandrel jams can be easily cleared if detected early.

- a. Remove the Mandrel Collection Hose from one or both ends of the system and straighten the hose to allow mandrels to slide out one end. If mandrel ends overlap one another it may be necessary to tap the side of the hose lightly or flex it to release the jam. If mandrels jam in the hose frequently look for a vacuum leak or clean the transducer. If the inside of the hose is rough or scratched replace the hose. If the hose has a kink cut off the kinked portion or replace the hose.
- b. Inspect the radius of the Mandrel Collection Hose. A minimum 12" radius is required. Make the hose as straight as possible within 12" of the tool and collection unit.
- c. If the mandrel jam is at one of the hose fittings look for an obstruction and be sure fittings are tightened.
- d. Be sure that each time a rivet is set the mandrel leaves the tool. If mandrels are exiting the tool two or more at a time the inside of the tool mandrel passage and/or the Jaws, Jaw Case and Jaw Pusher should be cleaned.

2. CLEANING THE VACUUM TRANSDUCER

- a. Remove the four screws from the Housing Cap of the Vacuum Transducer and remove the Cap.
- b. Remove the Vacuum Sleeve Insert (two pieces) from the housing. This can be done easily by inserting a wire hook into the center hole and pulling upward.
- c. Clean both the inside of the housing and the Vacuum Sleeve Insert parts to remove oil and dirt deposits. Air dry. Do not use solvent on "O"-ring seals.
- d. Reinstall the Vacuum Sleeve Insert and housing cap.

3. SERVICING THE AIR SUPPLY HOSE

Periodically inspect the air hose for normal wear and tear. To replace a damaged hose:

- a. Disconnect hose from air supply.
- b. Disconnect the air supply hose from the side of the Vacuum Transducer.
- c. Repair as necessary.
- d. Check the 'O-clamps' and fittings at either end of the hose. Remove and replace as necessary.
- e. Reconnect the hose to the Vacuum Transducer. Securely tighten with a wrench.

Replacement Air Hose Parts are available from POP Fasteners.

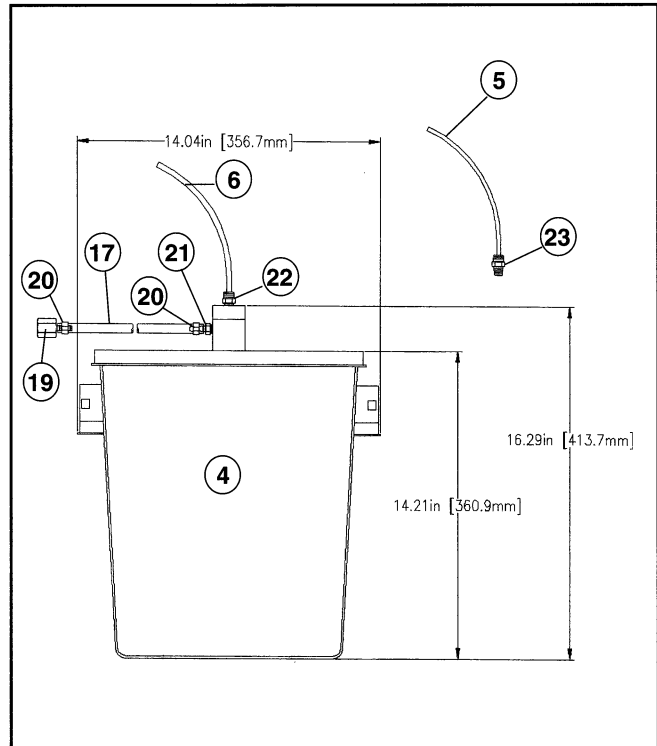
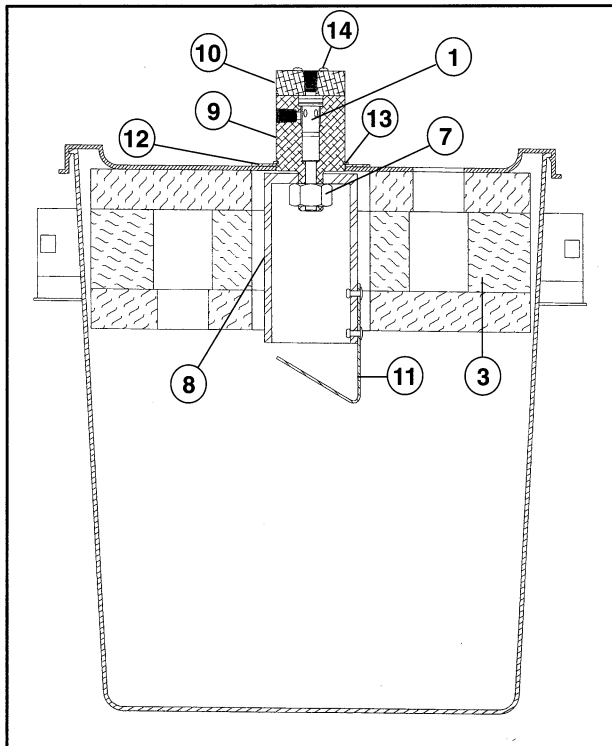
TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	CORRECTIVE ACTION
1. Mandrels jamming in Mandrel Collection Hose — Poor vacuum on tool end of hose.	<ul style="list-style-type: none"> 1. Loose hose connection. 2. Sharp curve or kink in hose. 3. Low air pressure, sudden pressure drops or insufficient volume. 4. Dirty vacuum transducer. 	<ul style="list-style-type: none"> Check and secure. Maintain 12" radius minimum (replace kinked hose). Set pressure at 85 psi - 12 SCFM minimum required. Clean vacuum transducer — filter air supply.
2. Mandrels jamming in Mandrel Collection Hose — Poor vacuum at top of vacuum transducer.	<ul style="list-style-type: none"> 1. Low air pressure, sudden pressure drops or insufficient volume. 2. Dirty vacuum transducer. 	<ul style="list-style-type: none"> Set pressure at 85 psi - 12 SCFM minimum required. Clean vacuum transducer — filter air supply.
3. Mandrels jamming in tool.	<ul style="list-style-type: none"> 1. Dirt buildup in tool jaw area. 2. Bent mandrel stuck in passage of tool. 	<ul style="list-style-type: none"> Clean Jaws, Jaw Guide and Jaw Pusher. Refer to tool manual for Service Procedure.

MCS5000 PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.
1	MCS100-28	Vacuum Sleeve Insert	1
2	MCS5000-7	Collector Unit Assembly 1, 7-14	1
3	MCS5000-8	Muffler Assembly*	1
4	MCS5000-9	Labelled Container	1
5	MCS5000-13	Mandrel Collection Hose - 1/8" rivets - 15 ft.	1
6	MCS5000-14	Mandrel Hose - 5/32" & 3/16" rivets - 15 ft.	1
7	MCS5000-17	Nut 5/8 - 18	1
8	MCS5000-18	Rivet Shield	1
9	MCS5000-19	Vacuum Transducer Housing	1
10	MCS5000-20	Housing Cap	1
11	MCS5000-22	Deflector Plate	1
12	MCS5000-26	Top Plate	1
13	MCS5000-27	Retaining Ring	1
14	MCS5000-28	Screw	4
15	MCS5000-29	Maximum Fill Label (not shown)	2
16	MCS5000-30	Warning Label (not shown)	1
17	PRG540-39	Air Line - 6' Length	1
19	PRG540-40	Hose Connector (Female)	1
20	PRG540-45	Air Line "O" Clamp	2
21	PRT5200-90	Air Line Fitting	1
22	PRT5250-98	Hose Fitting - 5/32" & 3/16" rivets	1
23	PRT5250-99	Hose Fitting - 1/8" rivets	1

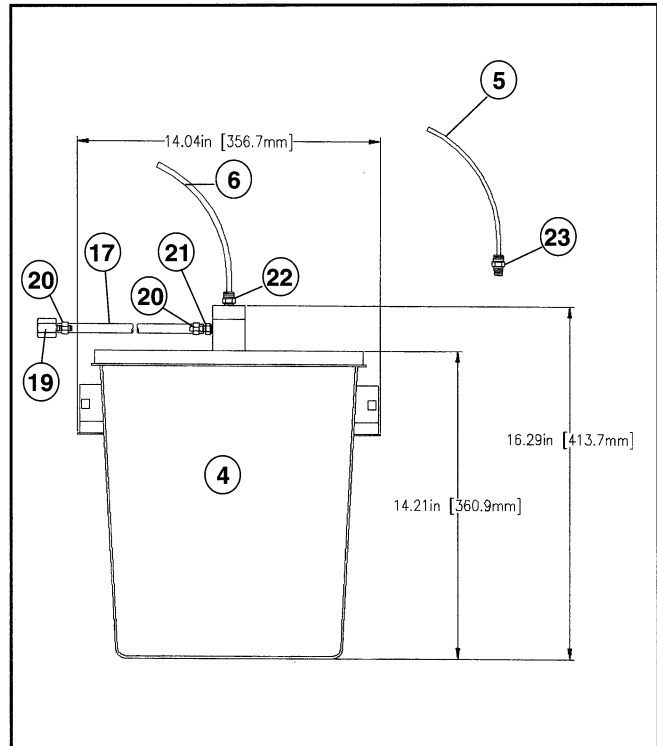
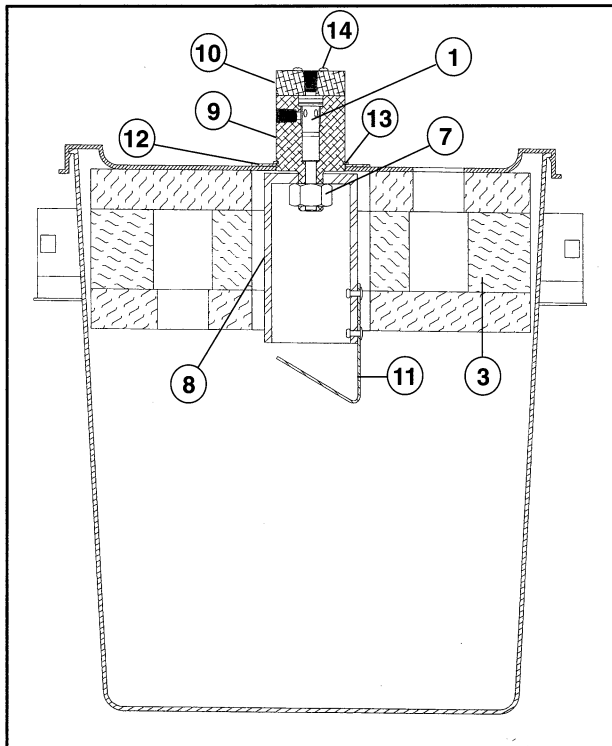
*Consists of Items 1 and 7-14.



MCS5000 PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.
1	MCS100-28	Vacuum Sleeve Insert	1
2	MCS5000-7	Collector Unit Assembly 1, 7-14	1
3	MCS5000-8	Muffler Assembly*	1
4	MCS5000-9	Labelled Container	1
5	MCS5000-13	Mandrel Collection Hose - 1/8" rivets - 15 ft.	1
6	MCS5000-14	Mandrel Hose - 5/32" & 3/16" rivets - 15 ft.	1
7	MCS5000-17	Nut 5/8 - 18	1
8	MCS5000-18	Rivet Shield	1
9	MCS5000-19	Vacuum Transducer Housing	1
10	MCS5000-20	Housing Cap	1
11	MCS5000-22	Deflector Plate	1
12	MCS5000-26	Top Plate	1
13	MCS5000-27	Retaining Ring	1
14	MCS5000-28	Screw	4
15	MCS5000-29	Maximum Fill Label (not shown)	2
16	MCS5000-30	Warning Label (not shown)	1
17	PRG540-39	Air Line - 6' Length	1
19	PRG540-40	Hose Connector (Female)	1
20	PRG540-45	Air Line "O" Clamp	2
21	PRT5200-90	Air Line Fitting	1
22	PRT5250-98	Hose Fitting - 5/32" & 3/16" rivets	1
23	PRT5250-99	Hose Fitting - 1/8" rivets	1

*Consists of Items 1 and 7-14.



**Emhart Fastening Technologies
Industrial Division**

Headquarters:

510 River Road
Shelton, CT 06484
Tel. (203) 924-9341
Fax (203) 925-3109

California Office & Warehouse

Barranca Parkway, Suite 202
Irvine, CA 92714
Tel. (714) 552-8516
Fax (714) 552-8579

Canadian Office & Warehouse

3545 Thimens Boulevard
St. Laurent, Quebec H4R 1V5
Tel. (514) 333-8080
Fax (514) 338-3829

Emhart
INDUSTRIAL

A  **BLACK & DECKER** COMPANY