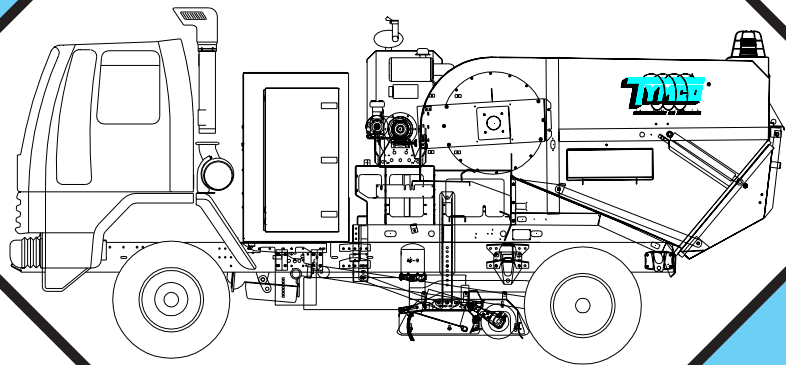
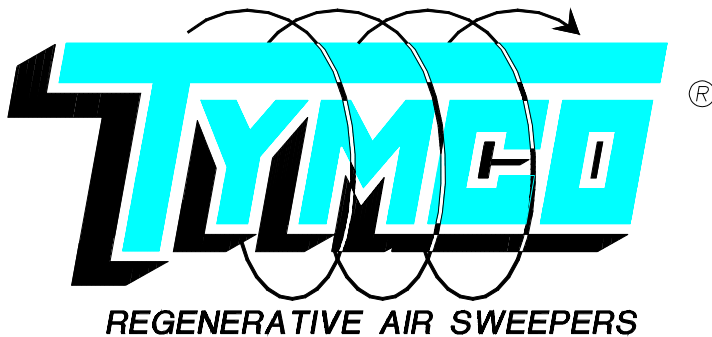


DUSTLESS
SWEEPING
TECHNOLOGY
DST-6



MODEL 600



OPERATOR'S
MANUAL

2008

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CONGRATULATIONS

You have just purchased the finest AIR SWEEPER produced. Yet, for all of its advanced engineering, in spite of all the skills that have gone into it — your sweeper is only as good as its operator.

**TYMCO REGENERATIVE AIR SWEEPER
MODEL DST-6
(Dustless Sweeping Technology)**

SOLD & SERVICED BY:

NOTE: Do not destroy any part of this manual. It contains pertinent information on parts, operation and maintenance of your TYMCO REGENERATIVE AIR SWEEPER and truck chassis.

An informed operator will do a better job. Make sure he/she has an opportunity to study this manual.

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2008 EDITION

INTRODUCTION

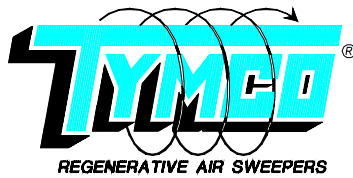
To insure proper understanding of operation, cleaning and maintenance of your TYMCO REGENERATIVE AIR SWEEPER, it is necessary that this Operator's Manual and the Service & Parts Manual be read and studied from cover to cover by the Operator. A full understanding of this equipment will help the operator achieve the results expected of this machine.

Though, seemingly, a very simple machine, the TYMCO REGENERATIVE AIR SWEEPER utilizes air instead of conventional rotary brushes, brooms and conveyers. Aerodynamic problems that arise in the REGENERATIVE AIR SWEEPER are not as easily identified and, therefore, necessitates a complete understanding of the machine.

The TYMCO REGENERATIVE AIR SWEEPER is designed to maintain cleaner surfaces at higher speeds and at lower cost. The performance capability of this truly modern machine is only limited by the initiative of those responsible for its operation. There are many different conditions found in sweeping, and we believe it impossible to answer all of the problems here. Most important in the operation and maintenance of this machine, is that it should be KEPT CLEAN.

The Operator's Manual includes the necessary checks, operating and adjustment procedures needed by the operator from day to day. For any specific adjustment, problem, or maintenance checks not explained in this manual, please refer to the Service & Parts Manual.

KEEP OUR STREAMS AND RIVERS CLEAN — PICK IT UP WITH YOUR TYMCO



Operating Procedure Guidelines

Complete Sweeper Inspection

- Check Auxiliary Engine Oil and Coolant
- Check for Seal leaks
- Check Warning and Work Lights
- Inspect Pick-Up Head
- Check Gutter Broom
- Adjust Mirrors
- Fill Fuel Tank
- Fill Water System

Sweeper Start-Up Procedures

1. Start Rear Engine (Must be in idle)
2. Turn on Warning Lights
3. Turn on Water System
4. Lower Pick-Up Head
5. Pull Sweeper forward to tuck Pick-Up Head Curtains
6. Throttle up Auxiliary Engine RPM to desired levels
7. Lower Gutter Broom(s)
8. Begin sweeping
9. **DO NOT BACK UP WITH PICK-UP HEAD DOWN.** Throttle down, raise head then back up. (Optional Reverse Pick-Up Head Chains allow you to back up with the head down.)

CNG Option Start-Up

1. *Slowly open fuel service valve on each CNG fuel tank, if not already open.*
 2. *Slowly open fuel shutoff valves 1/4 turn.*
 3. *Start engine and idle for five minutes to allow time for warm-up before engaging transmission.*
 4. *Start auxiliary engine and idle for five minutes to allow time for warm-up before raising RPM.*
- NOTE: This procedure supplements the sweeper Start-Up Procedure above. Read and comply with both.**

Leaf Pressure Bleeder Procedures

- Closed for heavy debris such as Sand, Gravel, Dirt; Etc. (Use BAH when necessary)
- Open 100% when sweeping light debris such as Leaves, Paper Cups, Etc.
- Adjust opening 25% to 75% for mixed debris

Sweeper Shutdown Procedures

1. Lower Auxiliary Engine RPM to idle speed (1000 RPM)
2. Raise Gutter Brooms - (Must hold switch in the up position to fully retract gutter broom)
3. Raise Pick-Up Head - (Must hold switch to retract to the travel position)
4. Turn off Water System
5. Turn off Warning Lights
6. Turn off Auxiliary Engine

CNG Option Shutdown

1. *Bring all sweeper components to their stowed position.*
 2. *Lower engine RPM to idle on both engines for a minimum of 3 minutes to allow engine to cool down.*
 3. *Ignition switches may now be turned off.*
- NOTE: If sweeper is to be parked in an enclosed area, close both 1/4 turn fuel shutoff valves and allow engines to run until both shut down due to fuel starvation, then close the service valve on each CNG tank. This procedure supplements the sweeper Shutdown Procedure above. Read and comply with both.**

Wash Out Procedures (DAILY)

- Clean Hopper Screens
- Clean out Hopper
- Clean out Dust Separator
- Clean under Pick-Up Head
- Wash exterior of Sweeper and Chassis
- Wash off Radiators

Parking Procedures

- Raise Hopper and lower on 2x4 Wood Blocks - Do not close rear door (Model 210 - 435)
- Leave Hopper Door and Inspection Door(s) open (All Model 600s)

TYMCO REGENERATIVE AIR SWEEPER INSPECTION AND REPETITIVE TASK SCHEDULE

INSPECT	MODEL			
	600	500X	435	210
GUTTER BROOM(S) FOR IMPACT DAMAGE/WEAR	D	D	D	D
PICK-UP HEAD BLAST ORIFICE FOR LODGED FOREIGN MAT'L/ADJUSTMENT	D	D	D	D
PICK-UP HEAD TURNING VANES FOR WEAR/FOREIGN MATERIAL	100 HRS	100 HRS	100 HRS	100 HRS
PICK-UP HEAD SKID PLATES FOR WEAR AND IMPACT DAMAGE	D	D	D	D
PICK-UP HEAD CURTAINS FOR WEAR/DAMAGE	D	D	D	D
PRESSURE AND SUCTION HOSES FOR WEAR	100 HRS	100 HRS	100 HRS	100 HRS
HYDRAULIC SYSTEM FOR PLUMBING OR COMPONENT LEAKAGE	D	D	D	D
WATER PUMP OIL LEVEL (IF APPLICABLE)	D	D	D	D
WATER FILLER HOSE FILTER SCREEN	D	D	N/A	N/A
WATER PUMP SUCTION HOSE PRE-FILTER	D	D	D	D
ALL HOPPER AND TRANSITION SEALS FOR WEAR/DAMAGE	D	D	D	D
HOPPER SCREEN FOR DAMAGE	D	D	D	D
DUST SEPARATOR LINER FOR WEAR/DAMAGE	D	D	N/A	N/A
DUST SEPARATOR DOOR CLOSED BEFORE OPERATING	D	D	N/A	N/A
BLOWER WHEEL FOR WEAR/DAMAGE	100 HRS	100 HRS	100 HRS	100 HRS
ACCESSIBLE AREAS OF BLOWER HOUSING LINER FOR WEAR/DAMAGE	100 HRS	100 HRS	100 HRS	100 HRS
BLOWER LIP FOR WEAR/DAMAGE	100 HRS	100 HRS	100 HRS	100 HRS
ENGINE AIR INTAKE FILTER RESTRICTION INDICATORS	D	D	D	D
MOUNT TRUCK TIRES	D	D	D	D

PERFORM	MODEL			
	600	500X	435	210
ADJUSTMENT OF GUTTER BROOM(S)	A/R	A/R	A/R	A/R
CLEANING OF GUTTER BROOM TORQUE MOTOR SHAFT AREA	D	D	D	D
ROTATE PRESSURE AND SUCTION HOSES 1/4 TURN	75 HRS	75 HRS	75 HRS	75 HRS
CHECK OF HYDRAULIC TANK FLUID LEVEL	D	D	D	D
CHANGE OF HYDRAULIC SYSTEM FILTER	100 HRS	100 HRS	100 HRS	100 HRS
TANK BREATHER FILTER	N/A	100 HRS	N/A	N/A
RETURN LINE FILTER - RESTRICTION INDICATOR	N/A	100 HRS	N/A	N/A
CHARGE LOOP FILTER - RESTRICTION INDICATOR	N/A	100 HRS	N/A	N/A
HYDRAULIC SYSTEM OIL CHANGE NOTE: INITIAL CHANGE AT 100 HRS	1000 HRS	1000 HRS	1000 HRS	1000 HRS
CHANGE OF WATER PUMP OIL (IF APPLICABLE)	150 HRS	150 HRS	150 HRS	150 HRS
CLEANING OF SPRAY NOZZLE TIPS AND SCREENS	A/R	A/R	A/R	A/R
DRAIN WATER TANK	D	D	D	D
CLEANING OF HOPPER AND DUST SEPARATOR CHAMBER	D	D	D	D
AUXILIARY ENGINE FLUID LEVEL CK.	D	D	D	D
WASHDOWN OF ENGINE RADIATOR(S)	D	D	D	D
FUNCTIONAL TEST SWEEPER LIGHTS	D	D	D	D
FUNCTIONAL TEST OF TRUCK BRAKES	D	D	D	D
FUNCTIONAL TEST OF TRUCK LIGHTS	D	D	D	D
MOUNT TRUCK FLUID LEVEL CHECK	D	D	D	D

D = DAILY
HRS = HOURLY INTERVALS
A/R = AS REQUIRED



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THE TYMCO REGENERATIVE AIR SYSTEM

DESCRIPTION

The blower generates a constant blast of high velocity air that is directed down the pressure side of the machine and into the pick-up head. Blast air travels across the pick-up head, picking up normal debris and refuse in its path and sending it up the suction side of the machine.

At the same time the blower is directing pressure on the pressure side, it is taking air from inside the hopper, creating a suction; and consequently, it pulls debris up into the hopper. The debris is deposited into the hopper while dusty air passes through the screen to a multipass, centrifugal dust separator. The fines are then deposited back into the hopper through the skimmer slot. Air, containing very fine dust, passes through the filters to remove any remaining dust particles before entering into the blower and repeating its cycle.

The unique REGENERATIVE AIR SWEEPER uses both the blower exhaust and vacuum, resulting in more energy to do your work. Since the blower is used to push and pull, restriction due to clogging or modification to any of the air passages will greatly affect the machines performance. In other words, PRESSURE FOR THE BLAST depends on ample volume of air through the suction; SUCTION depends on the discharge of air from the blast orifice.

Another point to consider is the fact that a very small air leak at the dump door, inspection doors, hand hose door, or suction hose will often cause a dusty condition. If the leak is severe enough, air will have a slower velocity and performance will be lowered.

**DO NOT ALLOW EVEN A SMALL AIR LEAK
CLEAN FRESH AIR DRAWN IN WILL BE DISCHARGED AS DUST**

TYMCO REGENERATIVE AIR SWEEPER CAPABILITIES

We at TYMCO honestly believe that government officials, contractors and all personnel directly responsible for the performance and maintenance of equipment in their charge are concerned with all phases of their operation.

Sweepers are one of the most controversial pieces of equipment with reference to operating cost, performance, and maintenance. The general public does not realize the problems and depends on people knowledgeable in this area. You, therefore, the person responsible for the performance and maintenance of your Sweeper should use your knowledge and experience to achieve the results expected.

The TYMCO REGENERATIVE AIR SWEEPER can achieve your anticipated results while keeping cost at a minimum. However, to realize the full potentials of the TYMCO REGENERATIVE AIR SWEEPER, *YOU MUST UNDERSTAND ITS CAPABILITIES AND ADHERE CLOSELY TO OPERATING AND JOB FUNCTIONS FOR WHICH IT WAS DESIGNED.*

It is a fact that a licensed driver can operate this equipment; however, we strongly recommend that the same driver operate it daily. It is proven that ability on the equipment is increased with experience. We suggest that every operator thoroughly read and study the manual to make sure that he understands the operation before ever attempting to operate the Sweeper. It is very important that every new operator be given this opportunity and that he does not rely solely on methods of previous operators.

A TYMCO REGENERATIVE AIR SWEEPER can be expected to clean normal debris that may accumulate on streets, parking lots, and other flat paved surfaces. Using the machine for more than it was originally designed will cause excessive wear and failure to achieve the desired results.

This Sweeper is not a Vacuum Cleaner. Cleaning is actually done by a stream of high velocity air the full width of the pick-up head. A blower furnishes both pressure and suction. Air pressure from the blower passes over the surface being swept within the pick-up head, blows up debris in its path, and the suction pulls it into the hopper, where it is separated. Air continues on into the blower and the cycle is repeated.

The TYMCO REGENERATIVE AIR SWEEPER is not intended nor is it expected to replace a shovel crew or a front end loader. An inspection at the dump site, however, may reveal that there are rocks and large objects in the hopper. This is due to air currents in the TYMCO REGENERATIVE AIR SYSTEM having the potential to pick up various large objects and retain them. The mixture of light debris will sometimes boost the large objects into the air stream and carry them into the hopper. Objects such as cans, bottles, glass, paper, leaves and light stringy refuse or normal daily accumulation of debris are easily picked up by the Sweeper's unique REGENERATIVE AIR SYSTEM.


We can not say what blower RPM or truck speed at which you can achieve your Sweeper's full capabilities because of the various types of sweeping encountered. However, engine RPM should not exceed 2000. For parking lot sweeping consisting of paper, broken glass, cans, leaves, etc., engine RPM can be reduced as desired. The Sweeper can be operated at truck speeds up to 10 MPH without changing blower RPM. The above limits are intended for smooth wide open spaces that are sparsely scattered with debris. Slower truck speeds are advisable for curb and gutter work or where there are many obstacles. This prevents damage and wear to pick-up head and gutter broom. Faster speeds may be necessary under your particular conditions. However, you may expect considerably more wear, not only by the hour as a result of more coverage, but also by the mile. The heat generated at higher speeds will result in softening of the materials in contact with the surface. We would advise consideration of these facts before allowing high speed operation, overloading and machine neglect.

**SAVE FUEL, REDUCE NOISE, WEAR AND DUST.
OPERATE AT THE LOWEST POSSIBLE R.P.M. TO ADEQUATELY DO THE JOB.**

TYMCO MODEL DST-6 INTRODUCTION

The TYMCO MODEL DST-6 is a closed loop air sweeper, therefore it is important that all doors and components attached to the hopper have rubber seals for proper sweeper operation. All hopper doors must be completely closed for proper sweeper function. It is important that the operator become familiar with all seal areas used on the sweeper and keep them in good repair.

DST-6 SWEEPER OPERATION

WARNING!  Operator must use all standard safety precautions and observe all warning decals to avoid serious injury when working around the sweeper.

All DST-6 Sweepers have an auxiliary electric hydraulic pump for running hydraulic components without having to start the auxiliary engine. A switch on the sweeper control panel switches sweeper from engine to auxiliary hydraulic system. The auxiliary engine will not start if this switch is not properly reset.

A. DST-6 PRE-START CHECK LIST

Only personnel trained for operating the Model DST-6 using proper safety procedures should be allowed to perform sweeper inspection.

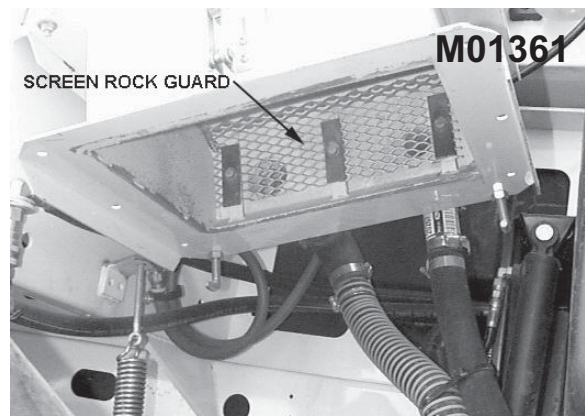
1. Check truck and auxiliary engine oil levels.
2. Check radiator fluid levels, make sure radiator core fins are clean.
3. Check filter restriction indicator on both engines.
4. Check all tires for proper air pressure.
5. Check all truck lights for proper function.
6. Check sweeper hydraulic fluid level and color. Fluid should be clear not milky.
7. Check DST-6 air compressor oil level, do not over fill sump!
8. Check that sweeper dust separator inside the sweeper hopper is clean.

NOTE: Always close separator door before closing the dump door!

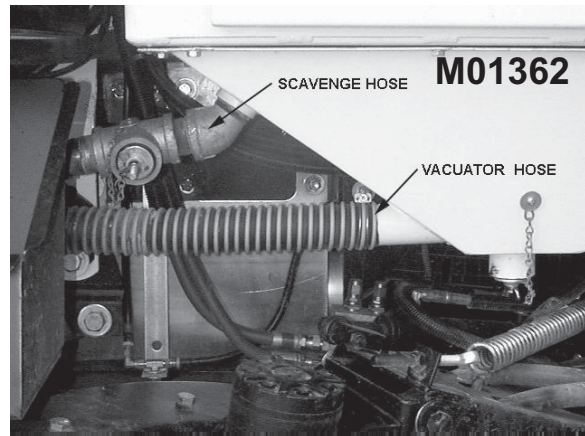
CAUTION:  Never sweep with separator door open or improperly closed or severe blower damage and component wear will result.

9. Check condition of the sweeper hopper rubber seals, especially the inspection door seals on both sides of the hopper, the dump door seal and the rear hand hose door seal. Also inspect the condition of the 14" pressure and suction hoses as well as the condition of the 8" DST transfer hose from the pressure ring to box inlet.
10. Unlatch the sweeper suction transition and inspect hose to make sure it is free of any debris.

11. With suction transition removed, check the vacuator manifold screen rock guard for any obstruction and clear if necessary. Close vacuator manifold ball valve. See Photo M01361.

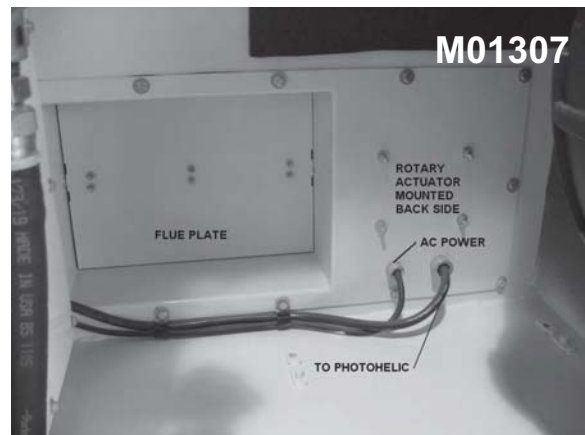


12. Operator should make sure the vacuator hose and scavenge hose are clear and free flowing before beginning to sweep. Both cleanout ports expansion plugs must be reinstalled. See Photo M01362.



13. Check flue plate operation. Open the large access door, switch the sweeper ignition to run position and turn on the dustless switch found at the control panel. Flue plate should open all the way. Turn off dustless switch and the flue plate should close. (Photo M01307)

NOTE: The flue plate takes 45 seconds to travel from full closed to full open. If the flue plate fails to move, make sure service switch on the side of heat box is on (green light next to switch indicates on).



14. With the pick-up head in raised position, check blast orifice gap underneath head and remove any rocks or obstructions. For best sweeping, a severely worn or damaged blast orifice must be repaired. Check skid plates for proper setting and inspect for wear. Skid plates may be rotated from side to side to even out wear on the carbide runners.

15. It is important to check the pick-up head curtains for excessive wear. DST sweepers will not perform dustless if the pick-up head seal curtains are worn out.

16. Inspect the condition of the gutter broom bristles, replace if bristles are shorter than 6".

CAUTION! Using incorrect gutter broom bristles or bristles that are too short can lead to expensive pick-up head repairs, especially when sweeping the curb or badly overlaid streets.

The smaller diameter of a worn broom causes operator to ride in on curb allowing the pick-up head skid plate to fall into the gutter causing the pick-up head to be dragged unevenly on the road surface which quickly wears the pick-up head seal curtains and can cause wear to the bottom sheet metal panel of the pick-up head.

17. When filling the sweeper dust control system water tank, make sure the drain valve is closed. If the sweeper is equipped with a water system air purge option, make sure the manual actuated valve is set to sweep position when the system is not being purged.

18. Check fuel tank level and top off if necessary.

B. DST-6 SWEEPER RUNNING CHECKS

Use the auxiliary hydraulic system to lower the pick-up head before cranking the auxiliary engine. This will prevent dust from blowing out from under the pick-up head when auxiliary engine is started.

1. Start the auxiliary engine and allow to run, set RPM at 1800. Turn on the DC mode switch. Observe the pressure gauge on the sweeper console to climb to 95-100 PSI and stop. Turn on the filter purge switch 15-17 seconds after turning on the purge switch a loud popping sound should occur indicating the DST-6 filter purge system is working.

NOTE: A safety interlock system requires the large access door to be closed before the purge system will discharge. (Photo M01363)



2. A Minihelic filter restriction indicator gauge is located next to the pressure gauge. Restriction readings below 6" water column indicate good filters. Readings of 6" to 8" should be pulsed down below 6". To pulse filters, stop forward travel and allow pulse to purge the system 5 to 15 minutes before proceeding to sweep. (Photo M01376)

NOTE: Sweeper may not sweep dustless if filter restriction is 9" or above!

Readings above 9" may require operator to remove and wash the 4 large filters to reduce filter restriction down into the sweepable range.



3. After the sweeper has run for several minutes, check the photohelic gauge face located on the DST-6 filter box just behind the Left-hand driver seat. The black indicator needle should be between the two red set point needles. (Photo M01314)



4. Check the gutter brooms for proper function. Back off the gutter broom eyebolt for more down pressure and reach if needed.
5. If unit is equipped with a BAH (Broom Assist Head), check broom pattern and reset if necessary. See *Broom Assist Daily Service* under *Pick-Up Head* section for instructions to set the broom pattern.
6. Turn on the water system and check all spray nozzles for correct spray pattern, especially the hollow cone hopper water nozzle for water output.

SWEEPING OPERATION - DST-6

The DST-6 has been designed to sweep in two separate operational modes, the dustless mode option where the sweeper performs with very little blow-out of dust around the pick-up head and a standard sweeping mode for sweeping in wet weather or any other condition not requiring dustless operation.

A. DUSTLESS MODE OPERATION:

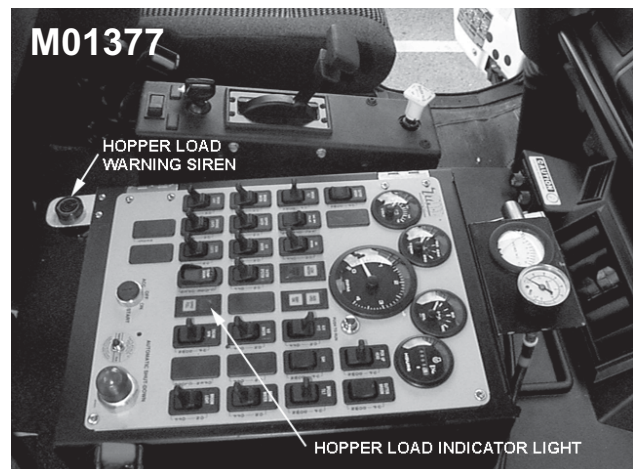
Drive sweeper to street location, using the auxiliary hydraulic system (AHS), lower the pick-up head and pull sweeper forward to seat the pick-up head rubber seal curtains. Switch off AHS switch, switch on the DC mode switch and start the auxiliary engine. Set Engine at 1800 RPM and observe pressure gauge at the top of the control panel. When the needle reads 95-100 PSI, switch on the purge switch. Turn on the water system main switch and hopper water switch. Sweeper is ready for operation in dustless mode. Turn on the appropriate gutter brooms and water nozzles.

CAUTION! Do not back up sweeper with the pick-up head or gutter brooms in down position or severe damage may occur!

While sweeping, monitor filter condition by observing the filter restriction gauge at the top of the console next to the pressure gauge. If the sweeper starts making excessive dust and restriction indicator needle is above 8", stop forward travel and throttle down to 1400 RPM. Allow the unit to pulse filters for five minutes. This should reduce filter restriction and allow the sweeper to resume sweeping.

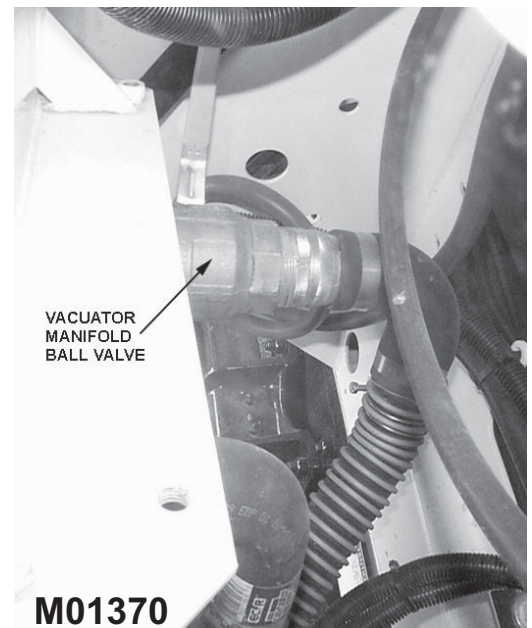
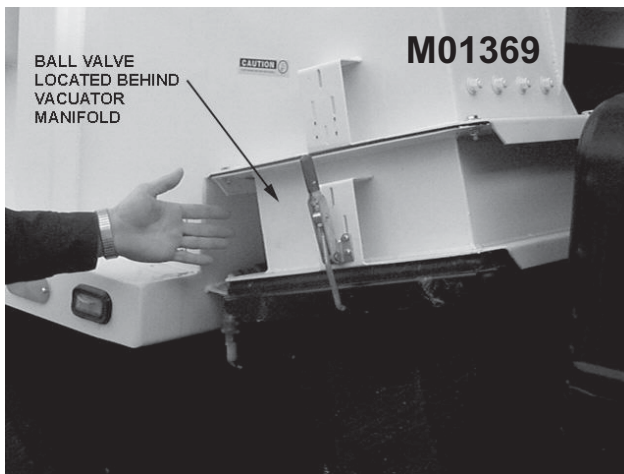
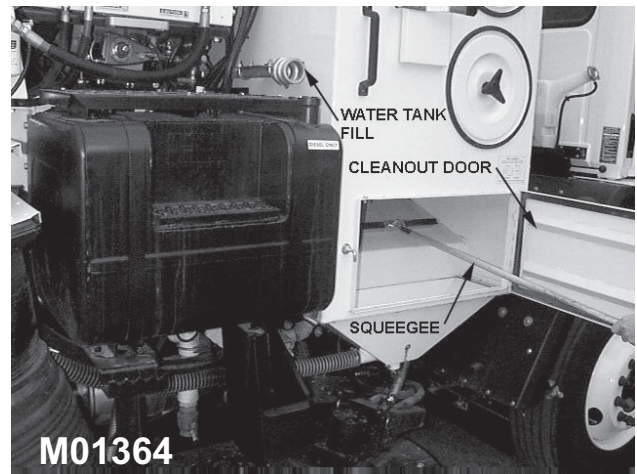
Continue to sweep until route is cleaned or hopper load indicator light and siren come on. **Do Not overload and overfill the hopper.** Dump the unit when the hopper load indicator comes on! Overfilling the hopper will cause severe wear damage to the blower and blower housing components. (See M01377)

At the dump site, completely empty the hopper by opening and closing the dump door several times. Next, open left side inspection door and raise separator door using the pull cable. Slam the separator door closed by pulling out cable handle

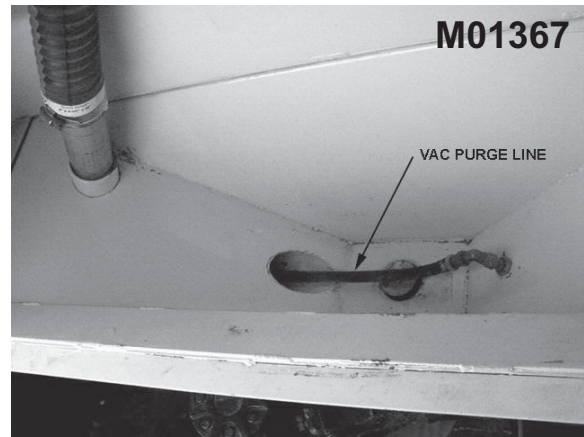


and releasing allowing separator door to slam closed. Do this several times to knock any debris from the separator door skimmer slot.

Check the dustless box load by opening the cleanout door on the right-hand side of the dustless box. Use a squeegee to pull any debris in the box down into the vacuuation bin. (See Photo M01364) Install the half shutter plate (stored in the cab) (Photos M01365 & M01366) and open the ball valve on the vacuuation manifold which allows the operator to draw dust into the large sweeper hopper (Photos M01369 & M01370). With the pick-up head down, throttle up the sweeper and allow the hopper vacuum to empty the vacuuation bin.



A **VAC PURGE** switch on the console aids the cleaning of the vacuator bin by blowing high pressure air into the vacuation hose inlet. (Photo M01367) This procedure may have to be repeated several times to empty the vacuator bin.



B. STANDARD MODE OPERATION:

The standard mode operation allows the sweeper to sweep in continuously wet conditions (light rain or after flusher truck, etc.) where the dustless function is not required. The DST-6 flue plate closes and very little exhaust air goes through the DST-6 box. For standard mode, use the same procedures described previously, except **DO NOT** turn on DC mode switch or purge switch.

CAUTION! Do Not attempt to open the DST-6 box large access door with sweeper in the standard mode. High static pressure is created when the flue plate is closed and the sweeper auxiliary engine is running. The high pressure will blow the access door open quickly and potentially cause injury to anyone struck by the door.



DAILY SWEEPER WASHDOWN PROCEDURE:

A. HOPPER CLEANING

As a rule, the sweeper must be thoroughly washed out after each shift. A four nozzle deluge system is provided requiring a high volume water source such as a fire hydrant. Attach a hydrant hose to the hopper deluge connector and open hydrant. Let water run for 60 seconds with the door closed. Using the auxiliary hydraulic system gradually step the dump door open approximately 4" to 6" at a time, allowing 20 to 30 seconds at each step for flushing until the door is fully opened. (Photo M01368)



Using the cable and handle provided at the left side inspection door, open the separator door and lock in the second cable bead position. Step the dump door closed as when opening. Failure to open the separator door when washing out the hopper can cause debris to collect in the separator chamber, inhibiting the separator to spin out dust, therefore causing rapid wear of the blower housing components.

After using the hopper deluge system, a hand held high volume/high pressure hose should be used to remove any debris left by the hopper deluge.

B. DST-6 COMPONENTS

Uncouple the suction transition and using the hand held wash hose, wash out the suction tube leading from the pick-up head to the hopper inlet. The vacuator manifold rock screen must also be washed clean.

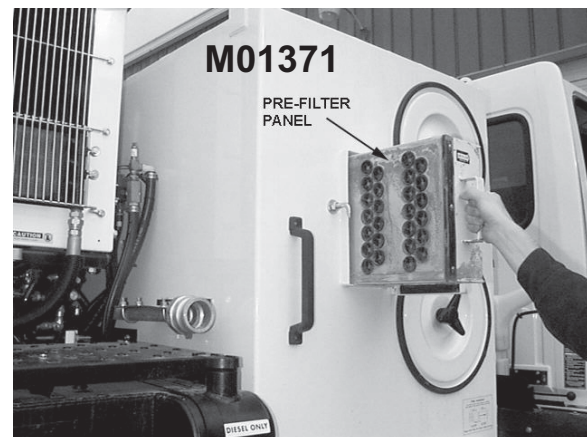
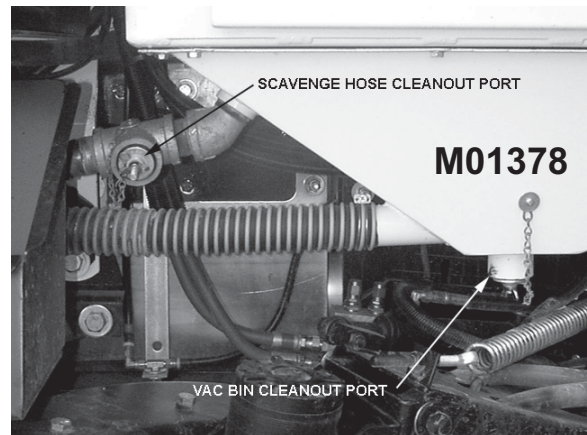
Remove the cleanout plugs from the vacuator bin and the scavenge hose cleanout tee (Photo M01378). Back flush the vacuator hose and scavenge hose observing water running out the cleanout ports. Close the vacuator manifold ball valve once the vacuator hose has been washed out. (Photos M01369 & M01370)

Remove the pre-filter panel from the DST-6 box and thoroughly clean making certain to remove all dirt and grass debris from the small tubes on the panel face. Clean out the scavenge bin which is the area in the DST-6 box just under the pre-filter. The scavenge hose must be flushed out and clear before reinstalling pre-cleaner. (Photo M01371)

C. DST-6 FILTERS

The DST-6 uses special filters to clean the exhaust air before it is released into the atmosphere. The filters utilize a PTFE membrane which gives the filter good release characteristics as well as protection from water damage. The filters are actually waterproof and can be washed by low pressure hose and returned to the sweeper without drying. Should mud dry on the filters, soak the filter until the mud softens, then wash off with low pressure water hose. (Photo M01372)

The filter PTFE membrane is fragile and over-servicing the filter can cause the PTFE membrane to fail. Care should always be used when handling the filter as the PTFE



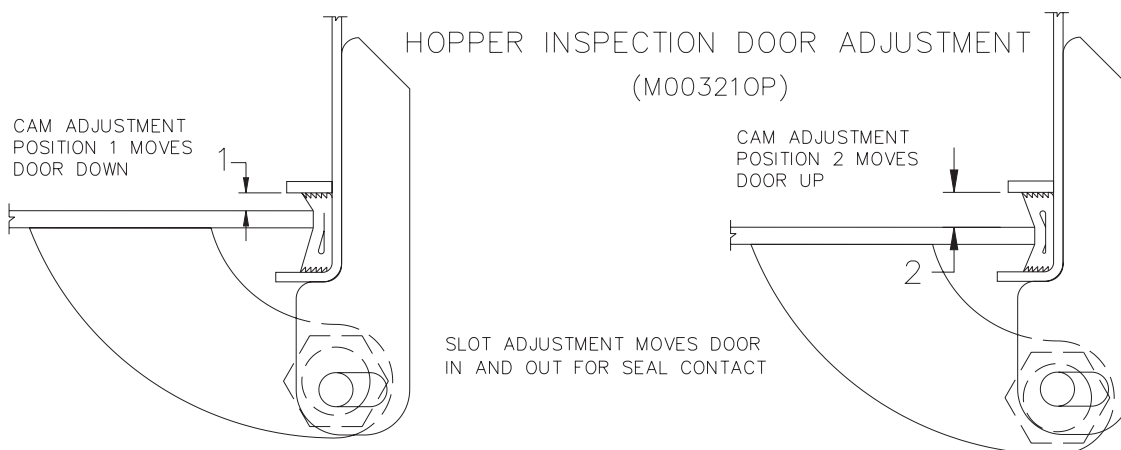
membrane is on the exterior side of the filter and can be easily scraped off. Use care not to drop the filter or otherwise damage the filter's metal ends.

ROUTINE MAINTENANCE

A. HOPPER SEALS

Even a small seal leak can reduce sweeper efficiency, operator should be diligent by inspecting sweeper seal condition daily! To check seal, slip a small piece of paper, such as a dollar bill, between the door seal and jam. Latch the door and pull on the paper. The paper should be clamped between the door seal and jam very tightly indicating a good seal. Do this at all four corners and in the middle of the door to make sure there is a good seal all around.

1. Inspection Door Seal - See below for proper setting and adjustment of inspection door.



Refer to Drawing M00321OP. Each inspection door should be airtight. Normally, once a door has been adjusted, simply replacing a torn or worn seal usually solves most problems. However, if needed, adjust door by loosening the bolts and rotating eccentric cam for up and down alignment and adjust slots for in and out to make contact with the seal all the way around the door. Add service life to door seals by leaving doors open when sweeper is parked and not in use.

2. Hand Hose Door Seal - The optional hand hose shutter door must be closed when sweeping. Leaving the hand hose attachment connected to the hopper will cause poor performance and excessive dust when sweeping. Adjust "J" bolt in to tighten door for better seal.
3. Dump Door Seal - The large dump door of the TYMCO Model DST-6 uses a large rubber seal glued into the dump door channel of the hopper. Add service life to the dump door seal by leaving the door partially open when the sweeper is parked and not in use.
4. Transition Seal - Two replaceable transitions adapt the sweeper's square hopper openings to the round suction and pressure hoses leading to the pick-up head. A rubber sealing gasket is used to produce an airtight fit between the transition and the hopper opening.

The pressure transition is bolted on for safety and the suction transition has a quick disconnect design for easy access and cleaning. Longer service life of the transition can be obtained by rotating the transition 180 degrees once a month for more even wear.

B. GUTTER BROOM

The TYMCO Model 600 gutter broom is extremely durable, but should be checked daily for bristle setting and wear. Only trained personnel should be allowed to service the gutter broom while exercising caution and obeying all warning decals.

1. Down Pressure Setting - As the gutter broom bristles wear, the gutter broom counterbalance spring must be adjusted by backing off the spring eyebolt. When new bristles are installed the spring must be re-tensioned or rapid wear will result from the broom being too heavy. The gutter broom may not extend to the curb if spring is not re-tensioned after installing new bristle segments. Furthermore, the broom components may be damaged due to the broom dragging too heavy and impacting the curb or other rigid object rather than floating over them as when spring is tensioned correctly.
2. Torque Motor Shaft - The torque motor shaft rotates at about 100 RPM and should be inspected several times daily for wire, string, cassette tape, etc. which may get wrapped around during operation. Remove as soon as discovered to prevent end shaft seal failure which can cause severe damage to the gutter broom torque motor.
3. Bristle Replacement - Use only TYMCO replacement segments for highest quality performance and best bristle wear life. New segments have 14" bristle exposure. Replace bristles when worn down to 6" exposure. Each TYMCO gutter broom requires four bristle segments, and when newly installed, the broom diameter is approximately 43". Using the gutter broom with severely worn bristles will cause damage to the gutter broom components such as the disc, hub and torque motor.
4. Tilt Angles - Consult the TYMCO Parts & Service Manual for details on setting tilt angles. An optional hydraulic tilt system is available and allows operator to tilt broom up and down in the curb using a toggle switch located on the sweeper control panel.

C. PICK-UP HEAD

Refer to *Service and Maintenance* in the *Pick-Up Head Section* of this manual or the detailed service information found in the TYMCO Parts & Service manual. Operator must use care when driving sweeper not to damage the low positioned pick-up head. Cutting corners can cause extensive damage to the pick-up head as well as to the truck driveline components. **Do Not** back up the sweeper with the pick-up head in down position!

1. Skid Plate Setting - The pick-up head assembly rides on symmetrical, bolt-on skid plates using long lasting runners with carbide inserts. The skid plates may be adjusted for various types of debris (See Dwgs M00771 & M00743) and should be rotated from one side to the other for extended service life. The skid plate position is set regardless of curtain length and is not used to compensate for seal curtain wear. Skid plates are set to sweep a particular type of debris and locked in position by tightening all skid plate bolts.

NOTE: Do Not lower skid plates when new seal curtains are installed on bottom of the pick-up head!

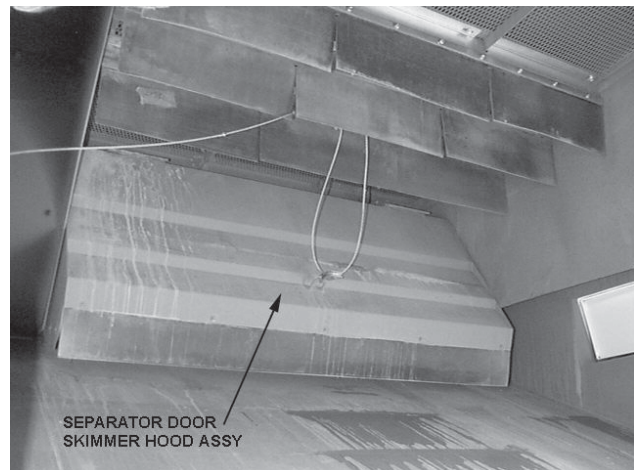
2. Flotation Springs - To prevent rapid wear of the skid plate runners, the pick-up head is suspended by four flotation springs. The flotation springs also serve to absorb hard impacts from irregular street surfaces, broken curbs, etc. Failure to keep flotation springs properly tensioned will result in premature skid plate runner wear and possible damage to the pick-up head components. Detailed drawings M00772 & M00744 in the *pick-up head section* show how to set the pick-up head spring tension.
3. Seal Curtains - Located on the bottom of the pick-up head are rubber curtains which serve to seal the air stream of the regenerative sweeper beneath the pick-up head, as it channels the air and entrained debris to the suction nozzle. These curtains must be replaced regularly for proper sweeper performance. Faster sweeping speeds result in faster wear to the curtains due to the increased friction caused by the increased speed. **The curtains should be replaced as a set for best sweeping performance.** Refer to the Parts & Service Manual for detailed replacement procedure.

Operator should inspect the condition of the blast orifice gap. An incorrect blast orifice gap will cause poor sweeping performance. **Always replace the blast orifice curtain when changing the pick-up head seal curtains.**

4. Turning Vanes - Directional turning vanes are located inside the ring used to connect the pressure tube to the top of the pick-up head. These vanes should be inspected once weekly for any debris such as paper and grass. Excessive amounts of debris found on turning vanes will cause poor sweeping and indicates separator door or hopper screen problem.

D. SEPARATOR

The centrifugal separator in the forward most area of the hopper is the most important component of the regenerative air sweeper system as it cleans the air stream of recirculated dust thus protecting the blower and blower housing components from excessive and rapid wear. The separator must be cleaned daily, inspected after washing and examined for any rubber liner wear. The operator is solely responsible for the separator care and maintenance. (Photo M01373)



M01373

The separator skimmer slot must be examined and cleaned of any deposits which will block the skimmer slot and prevent dust from being spun out of the air stream. Rapid blower wear will result if separator is not serviced properly!

1. Proper Closing Procedure - Do not close the separator door if the hopper raker plate is in the full forward position (dump door closed). Open dump door so that the raker plate is about half way down the hopper floor, then allow the separator door to slam closed by releasing the separator door cable from its locked open position.

ATTENTION: The separator door will hang on raker plate and not close properly if raker plate is not retracted causing rapid wear of the blower housing components.

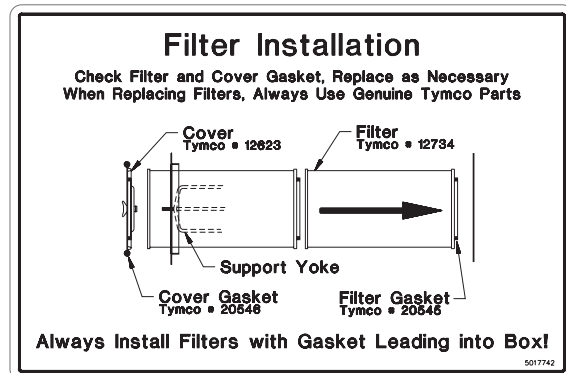
2. Hopper Screen - The hopper screen must be inspected for wear holes or weld failures which would allow large debris to pass from the hopper into the centrifugal dust separator. Large debris will cause rapid wear of the blower housing components and would quickly blind over the pressure turning vanes inhibiting proper sweeper performance.

E. DST-6 FILTERS

Four large PTFE filters are used by the DST-6 to clean the exhaust air of the smallest particulate dust. Care should always be taken when handling these filters as the external PTFE membrane is easily damaged. These filters are washable, however, only low pressure water spray should be used to clean the filter media. **DO NOT** drop or bounce the filter against the ground as this will deform the metal ends and possibly damage the filter media.

1. Shop Air Pulse - The DST-6 has provision to attach **REGULATED** shop air. This allows the filters to be pulsed for cleaning without running the sweeper auxiliary engine. Shop air must be regulated to 100 PSI MAX. in order to prevent damage to the filter PTFE media. The sweeper ignition key must be on and the pulse switch on for pulse timer control to cycle the pulse system. Using this system regularly will help extend the filter service life by ridding the filter media of stubborn dust deposits.
2. Gasket Integrity - The operator or service technician should inspect the filter seal gasket and access door gasket each time the filters are removed from the DST-6 box. Damaged or torn seals will allow dust to bypass the filter media and dirty exhaust air will result. Seal gaskets can be replaced, new gasket must be re-glued to the end of the filter.

NOTE: Decal on the filter side of the DST-6 box shows correct way to install filters. Decal also gives replacement part numbers for filter seals.



3. Media Integrity - Replacement of the filter with any other filter than the Donaldson Torit **TORIT-TEX®** PTFE filter will void sweeper performance warranty!! The filter media is composed of a polyester substrate which provides the backing for a PTFE surface membrane. The PTFE membrane can be easily damaged and should be handled with care when servicing or cleaning. Any hole found in the media requires filter to be replaced. White stringy material hanging off the filter is an indication of PTFE membrane failure. Filter restriction will increase as more PTFE membrane is lost from substrate. The DST-6 sweeper dustless performance greatly



decreases as filter restriction approaches 8" to 9" water column. If restriction cannot be reduced by cleaning and pulsing, filters should be replaced.

F. DST-6 Filter Box Cleaning

The DST-6 Filter Box provides a collection area for the dust pulsed off the filters. Once a month, the filter box should be inspected and cleaned. Remove all four filters from the box. Wash dust from the box walls and floor. Open access door on opposite side and direct water through filter purge ports to clean opposite wall and around pre-cleaner area.

1. Pressure Taps - Four static pressure sensing taps are found inside the DST-6 box, two are located in the dust collection box, one is in the pre-cleaner chamber and one is in the cleaner air exhaust area and is reached through the access door.

Proper operation of the DST-6 requires these static pressure taps be inspected and kept clean. Remove pressure sensing lines at bulkhead fittings and use compressed air to back blow through static pressure taps. An assistant should be able to hear the air if static pressure tap is clear.

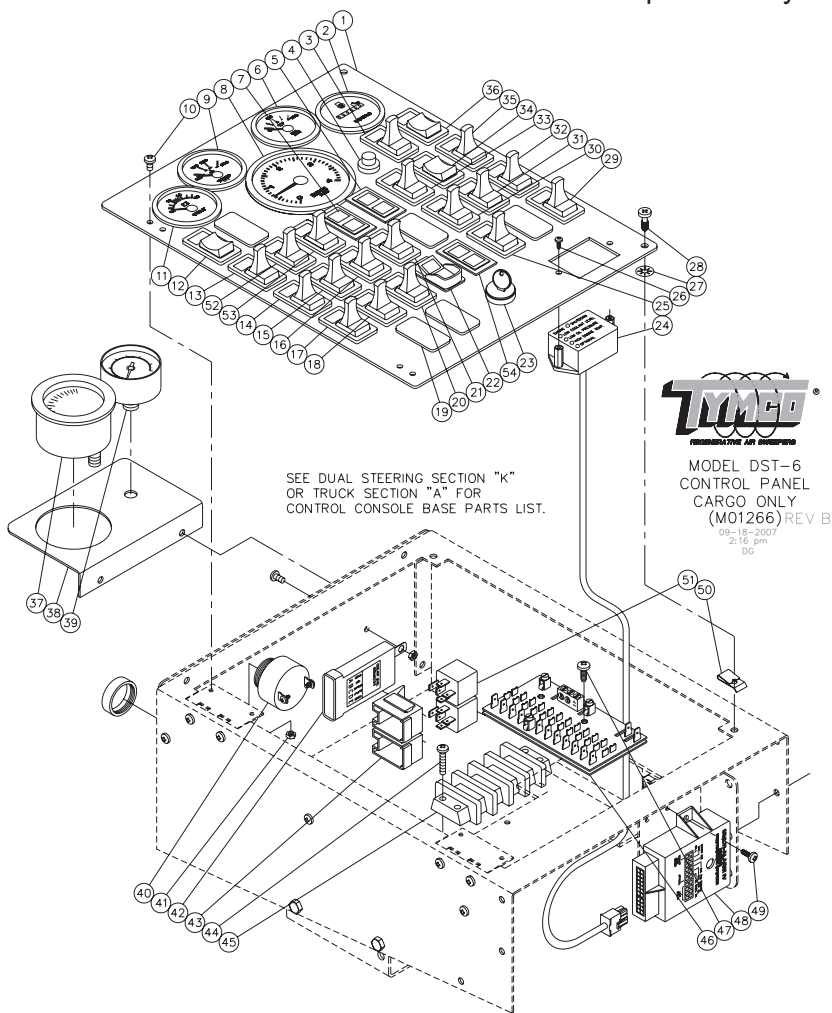
G. AIR COMPRESSOR

The Bendix Air Compressor, belt driven on the end of the sweeper PTO assembly, is critical for the proper pulsing of the DST-6 filters. Proper service and maintenance is critical. Should a problem develop, take the unit to a local authorized Bendix Dealer. Should the compressor need replacement, a Bendix re-manufactured compressor will be provided with full OEM warranty.

NOTE: For tracking purposes, the re-manufactured compressor will have a different Bendix part number than the OEM compressor, but the compressors will be identical.

CONTROL CONSOLE MODEL DST-6

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. 600 Control Panel w/Decal (Punched) 2. Gauge - Hour Meter 3. Switch - Pick-Up Head 4. Switch - Aux. Hyd. Sys. Run Button 5. Pilot Lamp Assy - Aux. Hyd./BAH On 6. Gauge - Engine Oil Pressure 7. Pilot Lamp Assy - Low Water/Pump On 8. Gauge - Tachometer 9. Gauge - Water Temperature 10. Screw - #10-32 x 3/8 Pan Head 11. Gauge - Voltage Meter 12. Switch - Gutter Broom (LH) 13. Switch - Gutter Broom Tilt (LH) 14. Switch - Gutter Broom Water (LH) 15. Switch - Hopper Water 16. Switch - High Output Water (LH) 17. Switch - Gutter Broom Light (LH) 18. Switch - Warning Lights 19. Blank - Control Panel 20. Switch - Work Lights 21. Switch - Water System 22. Switch - Dump Door 23. Switch - Ignition (Sweeper) 24. Display - Shutdown Module 25. Switch - Engine RPM 26. Screw - #6-32 x 3/8 Phillips Pan Head 27. Retainer - #12 Passivated | <ol style="list-style-type: none"> 28. Screw - #12 Quick Open Captive 29. Switch - Gutter Broom Light (RH) 30. Switch - High Output Water (RH) 31. Switch - Pick-up Head Water 32. Switch - Gutter Broom Water (RH) 33. Switch - Auxiliary Hydraulic 34. Switch - BAH 35. Switch - Gutter Broom Tilt (RH) 36. Switch - Gutter Broom (RH) 37. Gauge - Minihelic II - 0-10 IN. 38. Gauge Mount 39. Gauge - Air Pressure - 0-250 PSI 40. Mini Siren - Hopper Load 41. Nut - 10-32 KEPT 42. Liquid Level Sensor Control Module 43. Wire Harness - Liquid Level Sensor 44. Screw - #10-32 x 1 Pan Head 45. 2 Pole Terminal Strip 46. Fuse Panel - ATO 47. Screw - #10-24 x 3/4 Type F 48. Module - Shutdown 49. Screw - #10-24 x 1/2 Taptite Pan Head 50. Receptacle - #12 Clip-On Type J 51. Relay - 12 VDC SPDT 52. Switch - DST Mode 53. Switch - Filter Purge 54. Pilot Lamp Assembly - Blank/Hopper Full |
|---|---|



HOPPER ASSEMBLY

The TYMCO Model 600 hopper has a volumetric area of 7.3 cubic yards and is subjected to the most severe working conditions of any area on the sweeper. The worst enemy of the hopper assembly is - CORROSION! To prevent the hopper from rusting,,it should be thoroughly washed at the end of each shift. It should be pointed out that even a small rust-through area on the hopper will have dramatic effect on the sweeper's pick up capability. The hopper is the vessel from which the blower draws air, thus creating the vacuum necessary to lift debris from the pavement. Even a small seal leak diminishes this vacuum tremendously.

A. DUMP OPERATION & CLEAN OUT-To dump the hopper, use the following procedures:

1. Back into area for dumping. **NOTE:** Make certain pick-up head is in UP position before backing sweeper or serious damage could occur.
2. Start sweeper auxiliary engine and let idle.
3. Actuate dump toggle switch located on left side of sweeper just above the left fender and work hopper door back and forth several times to fully discharge load.
4. Assure that separator door remains closed and latched throughout dumping procedure and prior to returning to sweeping activities. End plates on skimmer hood should be flush on top of raker plate.

IMPORTANT: The separator door must be slammed closed with raker plate retracted from under skimmer hood. DO NOT open separator door unless the dump door has been opened first, otherwise proper closing will not occur and premature blower wear will result.

WARNING: Use care when dumping sweeper that no one is between dump door and hopper when closing dump door!



5. At end of shift, drive sweeper to wash area; open dump door and inspection doors. Shut off auxiliary engine and open separator door/skimmer hood assembly using draw cable located at left inspection door. Wash out hopper making certain to clean the hopper screen, separator, suction tube and bottom of pick-up head.

B. SERVICE

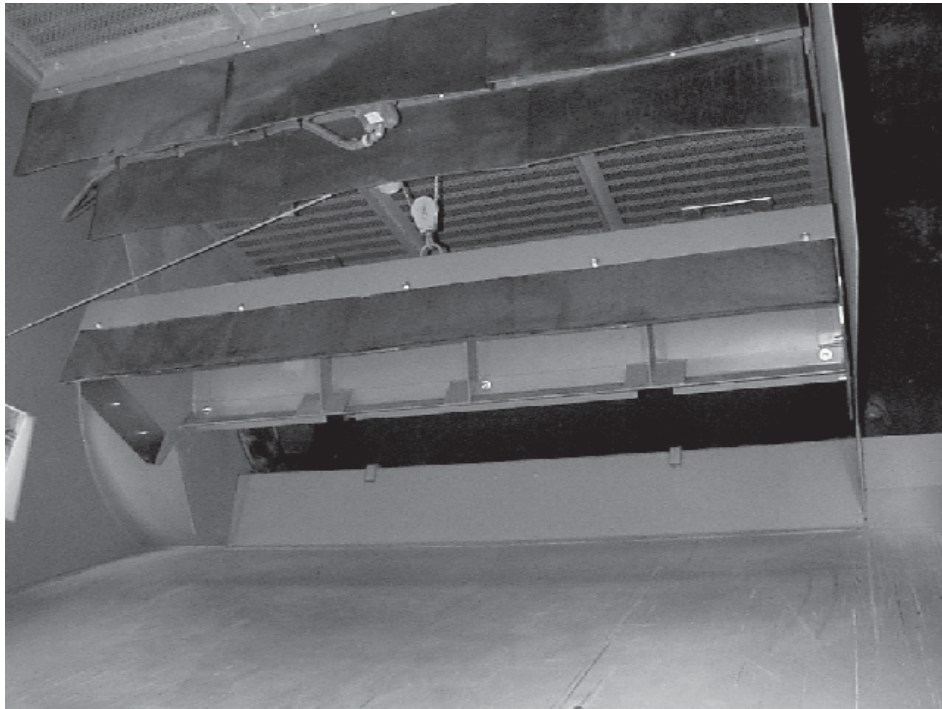
WARNING: Never work in or around hopper with auxiliary engine running. Always shut engine off before servicing and disconnect negative battery cable.



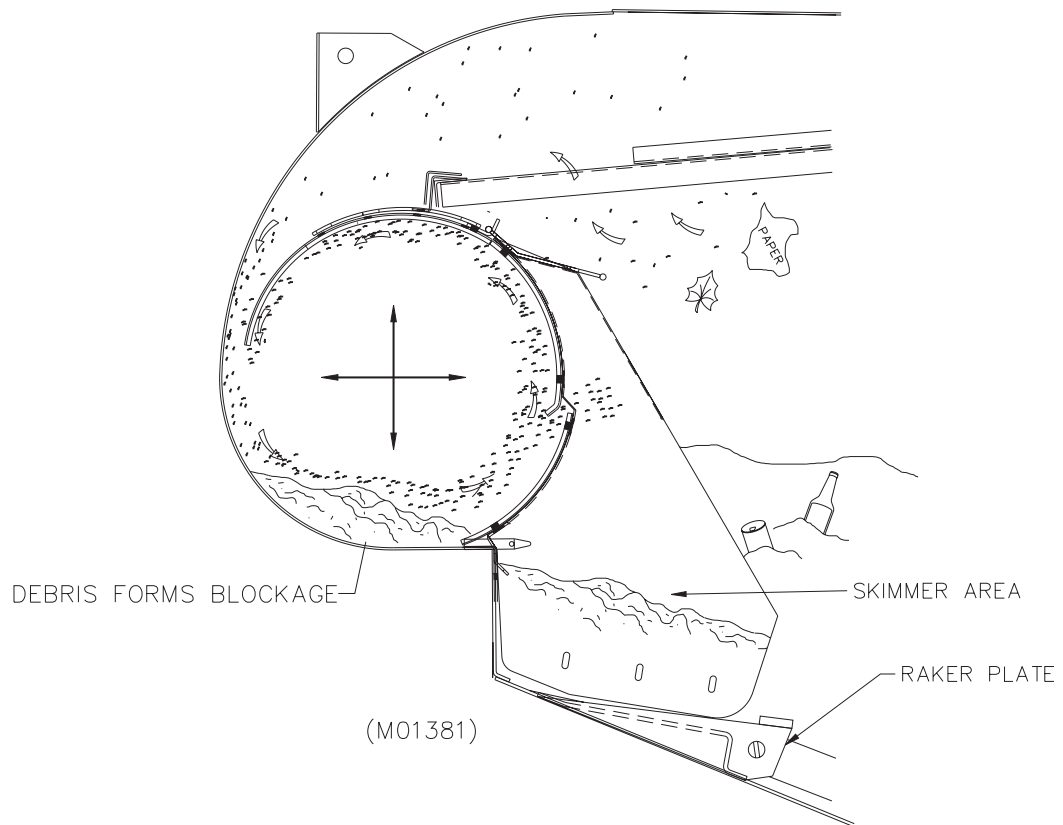
Aside from routinely washing out hopper, the hopper assembly requires very little service.

1. *Separator Assembly* - the separator is a drum-like area found inside the very front of the hopper. Its function is to rid the airstream of dust particles through use of centrifugal force rather than filters. (see Page 8) Service separator daily by using pull cable handle located behind LH inspection door to open separator door and washing interior of separator chamber.

NOTE: Separator door is held in open position by pulling cable stop through key-hole in retainer bracket and sliding up slot and releasing. (See M01373)

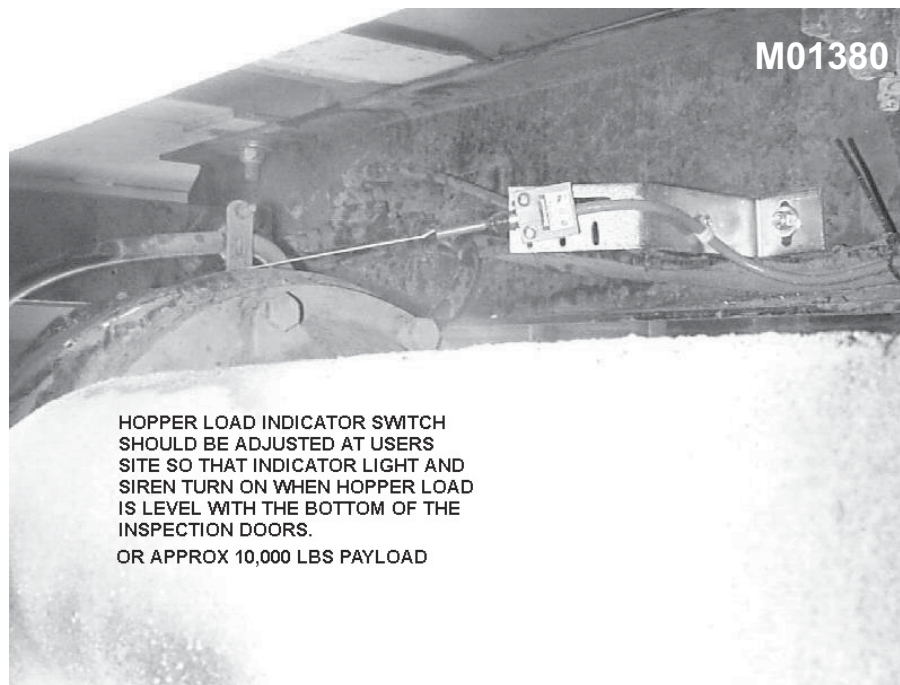


**SEPARATOR DOOR/SKIMMER HOOD IN OPEN POSITION FOR CLEANOUT AND WASHDOWN.
(M01373OP)**

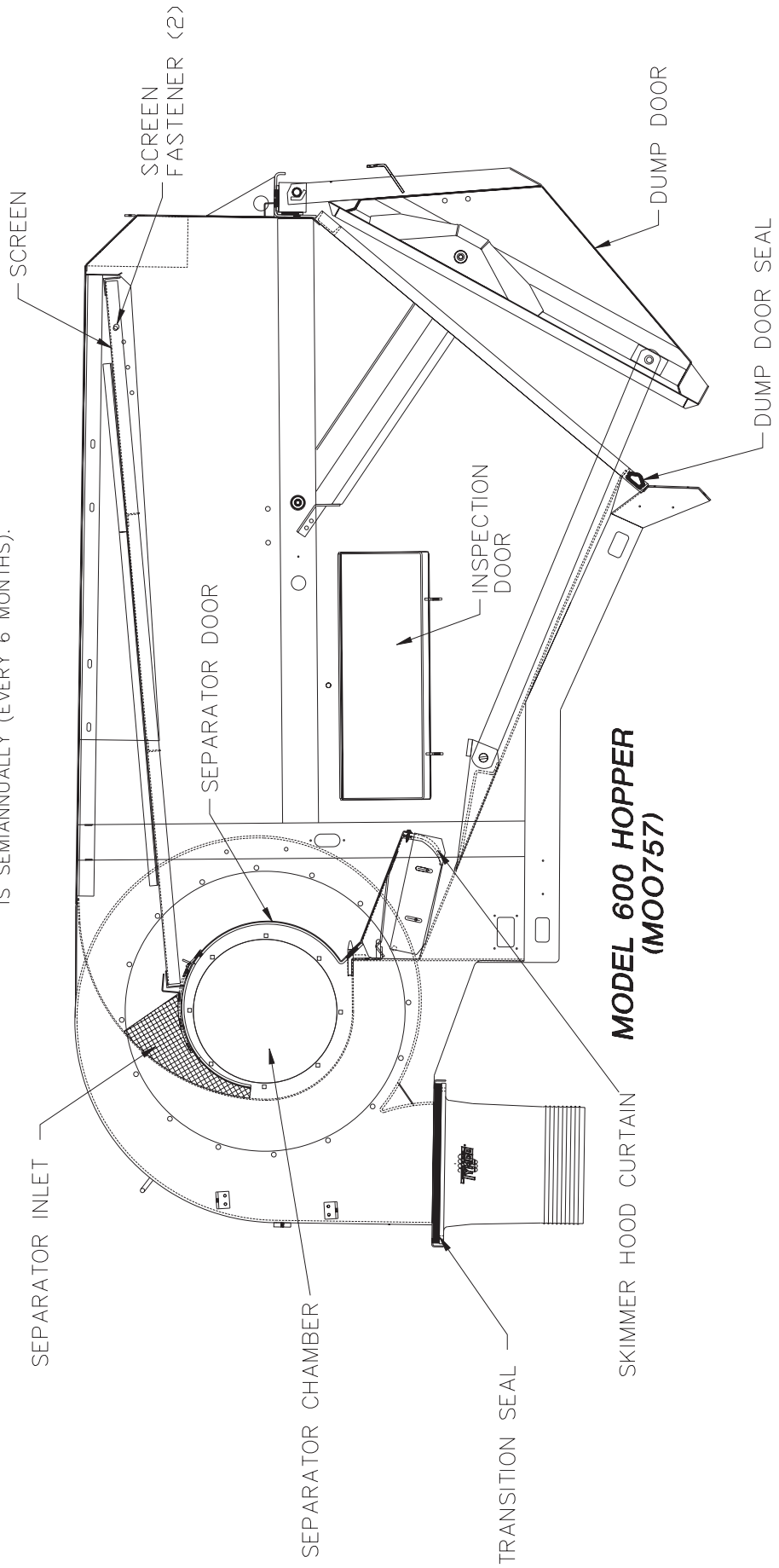


Service separator daily by using pull cable handle located behind left hand inspection door to open separator door and washing interior of separator chamber.

2. Hopper Seals - The hopper must be maintained air tight for the sweeper to perform adequately. Daily inspect the inspection door seal, dump door seal, transition seals and, if hand hose attachment is used, the hand hose door seal. If any section of the seal material is missing, replace the seal. Refer to Page 9 for seal locations.
 3. Hopper Screen - The large screen found inside the hopper is very important for preventing large debris from entering the separator and blower assembly. Inspect the screen daily. If any large holes are found, do not operate sweeper until screen has been repaired or replaced. Refer to Page 9 for screen location. Once every 500 hours the hopper screen should be removed from hopper and area above separator should be cleaned thoroughly. This area is called the separator inlet. If allowed to become stopped up, the sweeper efficiency is drastically reduced. Refer to Page 9 for separator inlet location.
 4. Skimmer hood - Inside the Model 600 hopper is a shielded area attached to the separator door. This shielded area is formed by what is called the Skimmer Hood and is designed to create a void area into which the fine dust removed by the separator skimmer slot can accumulate. The skimmer hood protects the separator skimmer slot from being choked off by debris being deposited in the hopper during operation.
- IMPORTANT:** Always close the separator door before closing the dump door. Opening the dump door retracts the raker plate so that the separator door latches properly when closed.
5. Hopper Load Indicator - See Photo M01380.



NOTE: HOPPER SCREEN MUST BE REMOVED TO CLEAN SEPARATOR INLET AREA. MINIMUM CLEAN OUT INTERVAL FOR SEPARATOR INLET IS SEMIANNUALLY (EVERY 6 MONTHS).



**MODEL 600 HOPPER
(MOO757)**

BLOWER ASSEMBLY

A large turbine type blower is used in the TYMCO Model 600 to generate both the vacuum and pressure air stream with which to sweep. The blower assembly is found on the left side of the sweeper (see Page 3) and is driven by an auxiliary engine through a sheave and belt system.



WARNING: Never insert hand into blower housing for any reason!



WARNING: Always remove ignition key from sweeper control panel and/or disconnect battery ground when working on or near the blower or blower belt.

A. OPERATION

The blower begins to rotate as soon as the auxiliary engine is started. No clutch is used to engage or disengage blower.

To increase blower speed, locate vernier throttle cable on the control console. Turn throttle cable knob counter-clockwise to desired RPM. ***DO NOT JERK THROTTLE KNOB OR DAMAGE TO THROTTLE CABLE WILL RESULT.***

Reverse procedure to decrease blower RPM. Use vernier override button on top of throttle cable knob ***only for emergency shutdowns.***

B. BLOWER RPM SETTING

The Model 600 Turbo Charged Auxiliary Engine uses a sheave ratio of 1.45 to 1 - meaning that the blower RPM is 1.45 times faster than the engine RPM. Blower RPM is therefore set by reading the auxiliary engine tachometer. As a rule, the higher the blower RPM, the heavier the debris which can be picked up providing the sweeper is in good operating condition. However, higher RPM results in faster component wear so engine RPM should be set according to the debris load on the street. The following RPM are recommended:

	ENGINE RPM
Paper, Leaves, Light Trash	1500
Normal Accumulation of Dirt, Sand and Gravel	1600
Heavy Accumulation of Dirt, Sand and Gravel	1800


DO NOT EXCEED 2000 ENGINE RPM WITHOUT FIRST CONSULTING THE FACTORY.

C. SWEEPING SPEEDS

The best sweeping speeds for the TYMCO SWEEPER will be between 1-10 MPH and will be dependent upon how heavy the street curb is loaded. The lighter the curb debris, the faster the sweeper can sweep. However, faster speeds will cause faster wear of the pick-up head curtains and skid plates.


The best all-around results are obtained when moderate blower RPM and moderate sweeping speeds are used. The following speeds are recommended:


	MPH SPEED
Paper, leaves, light trash	1-10
Normal accumulation of dirt, sand and gravel	3-5
Heavy accumulation of dirt, sand and gravel	1-3

CAUTION:  Street sweeping requires a great deal of concentration by the operator to avoid road hazards such as parked cars, pedestrians, chuckholes, etc.

Judge street conditions and operate sweeper at safe speed, regardless of how heavy or light the curb debris.

D. SERVICE

WARNING!  Never work on or around blower assembly or components without removing ignition key from sweeper control panel and/or disconnecting the negative ground from battery.

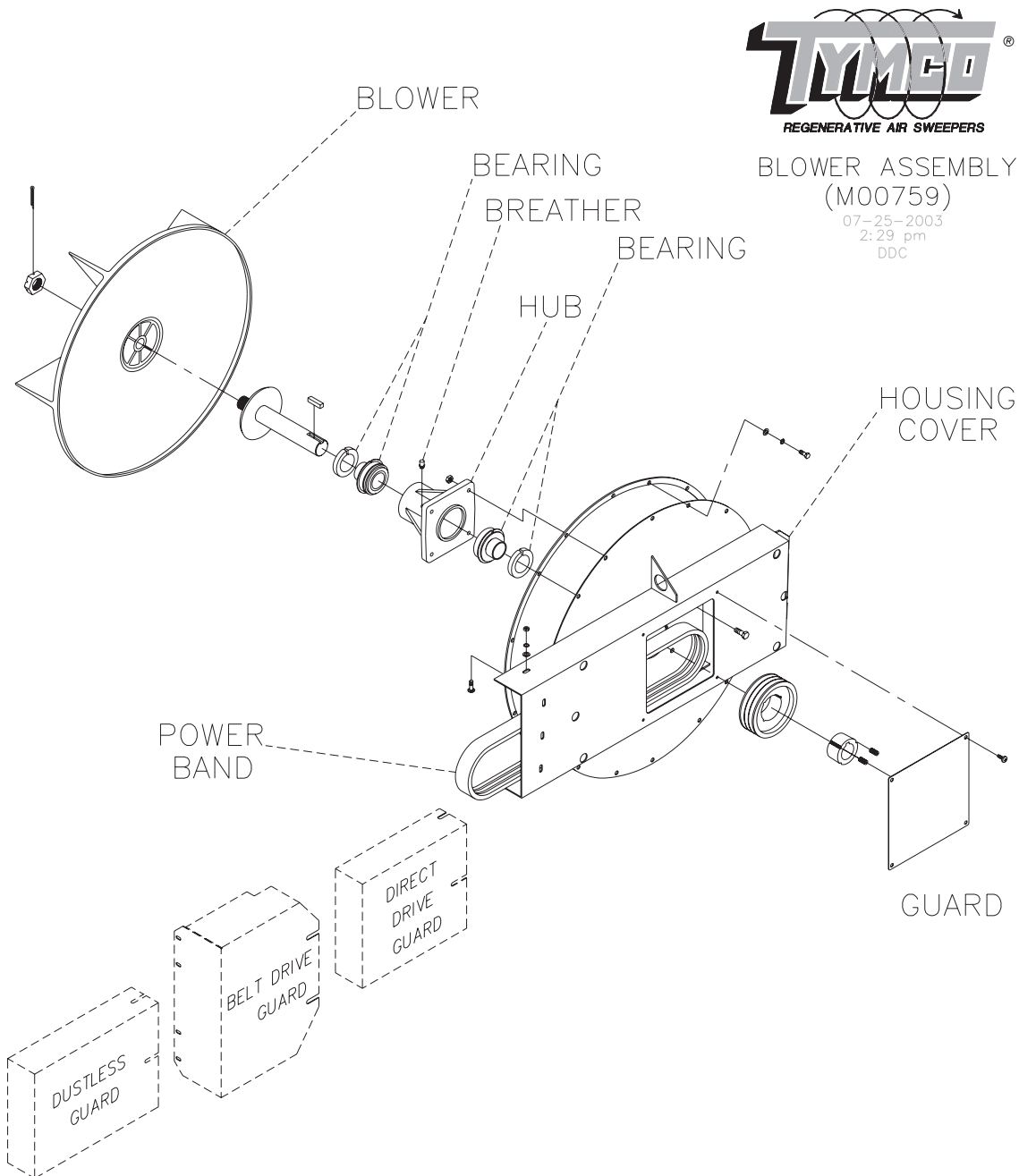
WARNING!  Never reach into blower housing for any reason if blower power band move is still installed.

Periodic servicing of the blower assembly should be performed on the following areas:

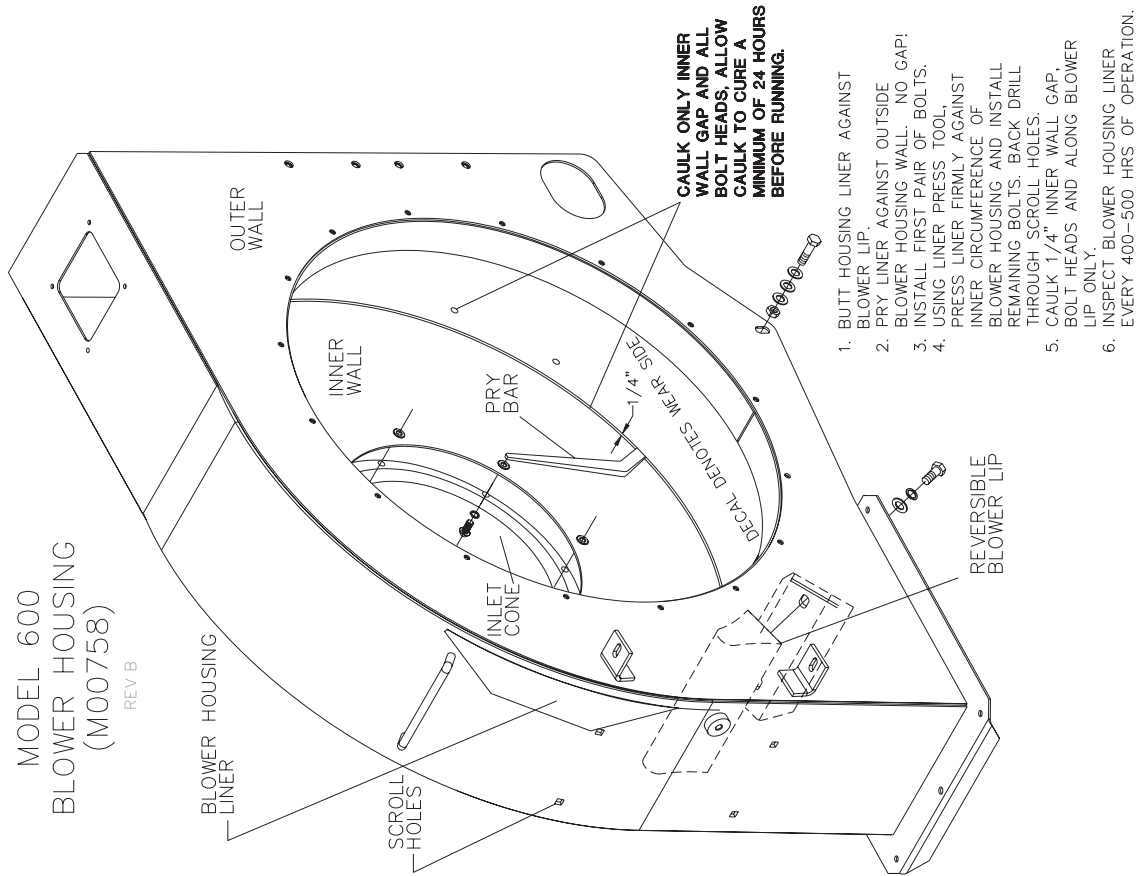
1. **Blower Power Band** - should be retensioned after the initial 10 hours of operation; then every 500 hours. Refer to Service & Parts Manual for proper procedure.
2. **Blower Bearings** - bearings are pressed into an aluminum hub which is bolted to the blower housing cover. These bearings are sealed and no greasing is required. The operator should be made aware of their location and should listen for any unusual noise coming from the blower housing indicating a bearing problem. Sweeper should be serviced immediately when a bearing problem is detected.
3. **Blower Service** - for longer blower life, clean the dust separator daily. (Refer to hopper section of this manual.)

NOTE: A thorough periodic inspection of the blower and blower housing should be performed by a qualified mechanic at maximum intervals of 500 operating hours. This inspection requires removal of the blower assembly.

- A. Blower - Wear on the blower is normal; however, the blower should be replaced when wear begins cutting through the blower paddles.
- B. Blower Housing Liner and Blower Lip - A rubber bolt-in wear liner is used to protect the metal scroll in the blower housing. The liner should be inspected every 500 hours of sweeper operation. The blower liner must be replaced whenever a rubber lined blower is used to replace a plain aluminum blower. The blower lip should be inspected along with the blower housing liner and replaced or repaired if worn.

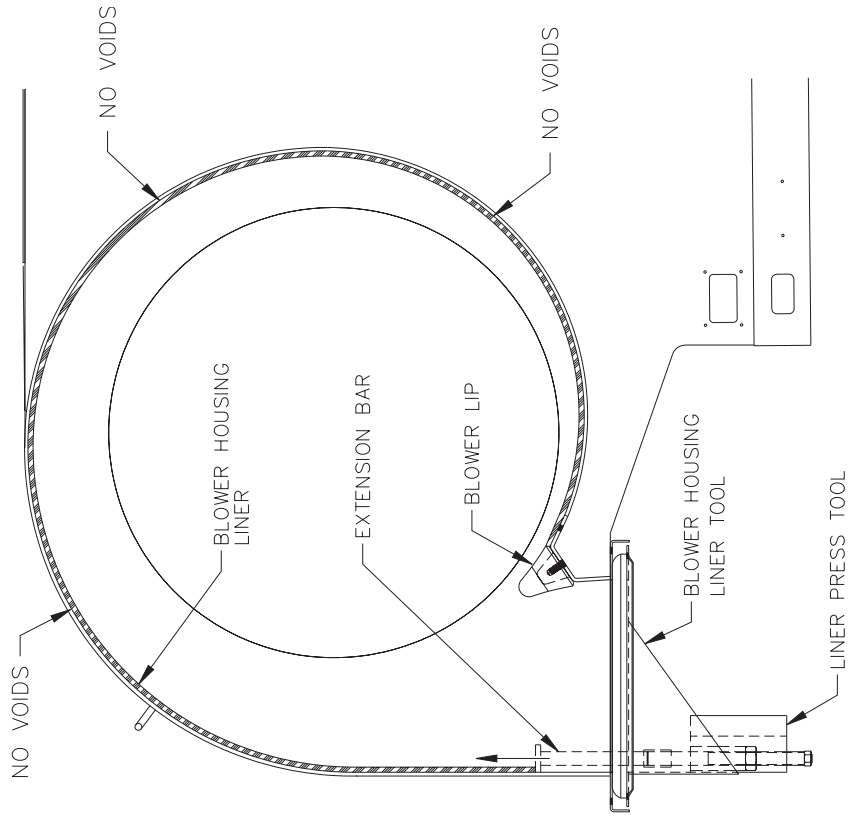


MODEL 600
BLOWER HOUSING
(M00758)
REV B



BLOWER HOUSING LINER
INSTALLATION TOOLS

LINER MUST BE PRESSED INTO HOUSING SCROLL TO ELIMINATE ALL VOID SPACES BEHIND LINER. VOIDS CAUSE PREMATURE WEAR OF LINER.



HYDRAULIC SYSTEM

Proper sweeper operation is dependent upon a properly functioning hydraulic system. Components such as the gutter broom, pick-up head lift assembly and hopper dump are all dependent on the hydraulic system for their proper operation.

The main hydraulic system components to be familiar with are:

1. Hydraulic Reservoir
2. Hydraulic Pump
3. Control Valves

A. HYDRAULIC RESERVOIR

The hydraulic reservoir is located in the center of the sweeper between the auxiliary engine and blower housing (see Page 3). The reservoir oil capacity is 21.5 gallons and the operator must check the oil level daily! The sight gauge is located on the side of the reservoir for easy checking. If the oil level is at the "ADD" mark or below, refill reservoir before operating sweeper. Use only 10W motor oil. **NEVER USE AUTOMATIC TRANSMISSION OR POWER STEERING FLUID IN THE TYMCO HYDRAULIC SYSTEM.**

Located on the hydraulic reservoir are two oil filters. These filters should be changed every 100 hours of sweeper service. The hydraulic oil filter is a spin-on automotive type (TYMCO P/N 5010080).

NOTE: *Drain the break-in oil after initial 100 hours of operation*, then once every 12 months or every 1000 hours, whichever occurs first. Drain plug is located on the bottom of the reservoir.

WARNING: Operator should never check for hydraulic leak using bare hand. High pressure used in system could result in oil being injected into hand causing serious injury. Always turn sweeper off before servicing sweeper.



B. HYDRAULIC PUMPS

Both the BAH and the standard hydraulic pumps are driven by the sweeper auxiliary engine.

C. CONTROL VALVES

1. Standard Hydraulic System

The hydraulic control valve assembly is used to control the flow of oil to the various hydraulic components. The Model 600 valve assembly is located on the left side of the sweeper just below the PTO assembly. The standard valve assembly is made up of four control valve segments attached to a common manifold. The first pair of valves control the gutter brooms, with the second pair controlling the dump door and pick-up head. A fifth or sixth valve will be found if optional hydraulically controlled equipment is ordered on the sweeper.

Separating the first two valves from the rear two valves is a relief valve and a bypass valve. The relief valve reduces the pressure from 2500 PSI to 1500 PSI. Therefore, the primary system pressure of 2500 PSI (set at the pump) is necessary for

gutter broom operation but is reduced to 1500 PSI for the pick-up head and the dump door. The control valves are solenoid actuated meaning that they are shifted from inside the cab by use of electric switches. These switches are located on the sweeper control console panel with the exception of the dump switch which is located externally on the left side of the sweeper just above the fender well.

2. BAH Control Valves

BAH Hydraulic Circuit - Flow from the fixed displacement vane type pump is sent to a single tandem center series control valve mounted on a manifold subplate found on the left-hand side of the sweeper frame just under the blower housing. When the solenoid actuated control valve is not in use, oil passes through the valve and is routed back to a filter manifold and then into the reservoir. When the BAH switch is shifted 'on', electrical current shifts the control valve and opens an electric lock valve (located on the BAH sequence manifold) used to lock the broom in the "UP" position. Oil is diverted by the control valve to the BAH sequence manifold where the pressure differential created as the oil passes through the sequence valve is sent to the base end of the two BAH cylinders causing the broom to be lowered to the pavement. The amount of hydraulic down force exerted on the broom can be increased or decreased by adjusting "in" or "out" the BAH sequence valve adjustment screw. (When the oil is reversed through the circuit, the sequence valve serves as a check valve diverting oil to the rod end of the two BAH cylinders causing the broom to raise.) Once the BAH cylinders are fully retracted, the circuit is dead headed causing the pump relief to blow over at 2500 PSI. Once through the sequence valve, oil flows to torque motor inside the pick-up head on the left-hand side which is directly linked to the broom. Rotational speed of the broom is determined by the output flow of the pump. Maximum flow of the pump is limited to 8 GPM and is achieved at 1900-2000 auxiliary engine RPM which results in a broom speed of 230 RPM. Oil leaving the torque motor returns to the BAH sequence manifold then back to the control valve, back to a filter manifold and then into the reservoir.

BAH Pressure Switch Circuit - A safety circuit designed specifically to protect the BAH pump from overheating is accomplished using a pressure switch located on the left-hand pick-up head lift cylinder rod end port. Should the pick-up head be raised before raising the BAH broom, the pressure switch interrupts current to the BAH control valve and shuts off the system. This prevents the BAH cylinders from shoving the broom forward and jamming it against the back of the blast orifice causing the torque motor to stall. Upon stalling, the BAH pump relief blows over creating heat that if not corrected quickly can burn up the pump. Once the pick-up head is lowered, the pressure switch returns current to the BAH circuit allowing the broom to function normally.

Check this system by lowering the pick-up head and turning on the BAH switch. Raise the head with the BAH switch still on and observe the broom to stop rotation without jamming against the blast orifice. Lower the head and observe the broom to start rotating again.

D. CONTROL VALVE SERVICE

Should the switch fail to activate the component, manual override buttons are provided on top and bottom of each valve segment. Use the following procedure to engage the manual override buttons:

1. Locate valve segment not functioning.
2. Set auxiliary engine RPM at idle.
3. Use a screwdriver or similar device to push manual override button into valve (considerable force must be exerted to overcome springs inside valve).

NOTE: In order to manually override dump door or pick-up head, by-pass valve override button must be depressed at the same time.

4. If component goes in wrong direction or does not activate, push opposite override button.

NOTE: Gutter brooms can only be raised when manually shifting valve. In trying to lower gutter broom manually, bristles will rotate but broom will not lower due to the electric lock valve located on the cylinder.

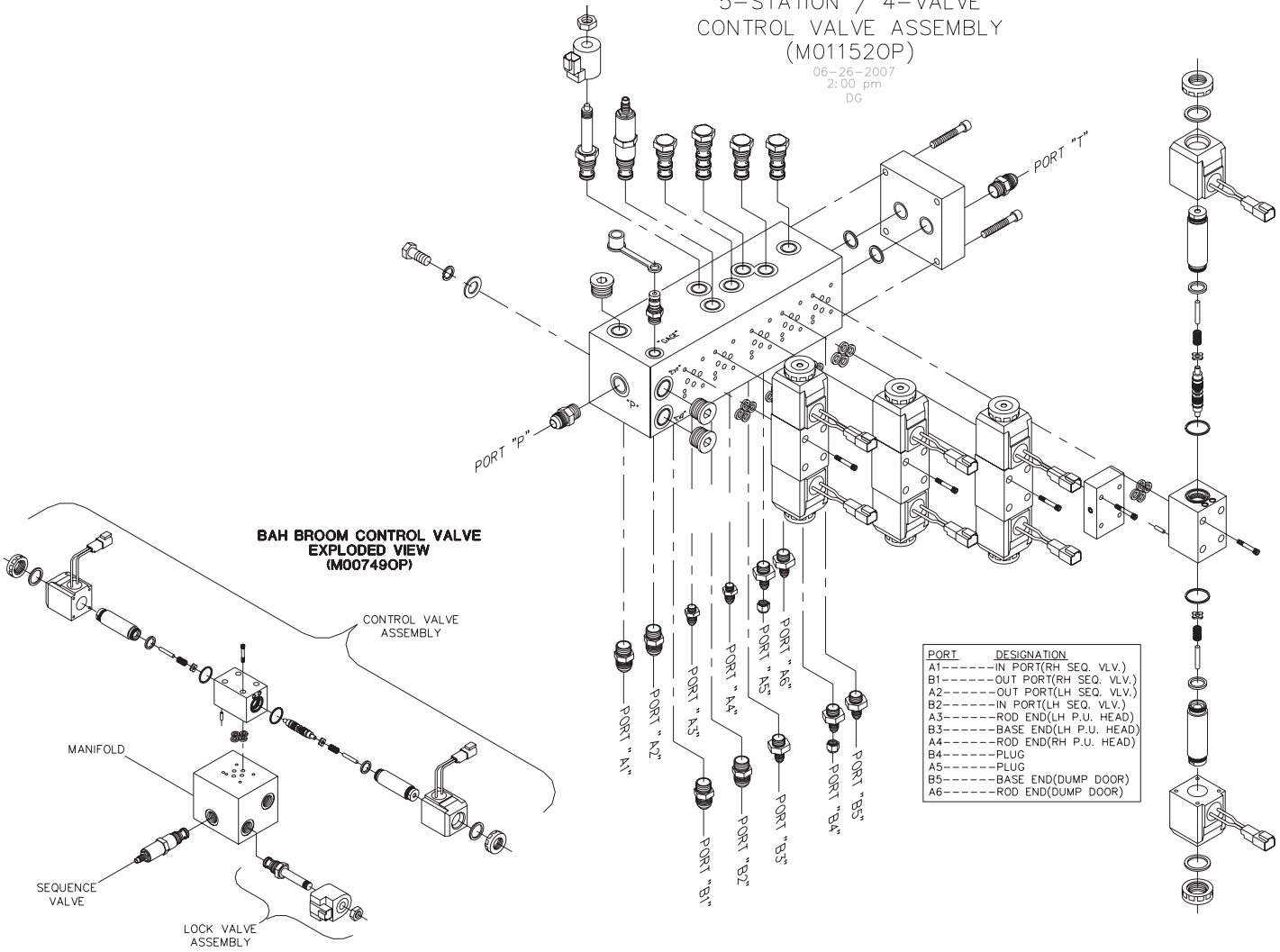
If a valve segment solenoid coil shorts out, it will cause the hydraulic system fuse to blow. The fuse is located at the control console assembly inside the cab (see Page 4) and is a ATO fuse rated at 15 amps. Always replace the fuse with the correct amp fuse or total electrical failure could result!.

To replace solenoid coil, refer to Parts & Service Manual.



5-STATION / 4-VALVE
CONTROL VALVE ASSEMBLY
(M011520P)

06-26-2007
2:00 pm
DG



PORT	DESIGNATION
A1	IN PORT(RH SEQ. VLV.)
B1	OUT PORT(RH SEQ. VLV.)
A2	OUT PORT(LH SEQ. VLV.)
B2	IN PORT(LH SEQ. VLV.)
A3	ROD END(LH P.U. HEAD)
B3	BASE END(LH P.U. HEAD)
A4	ROD END(RH P.U. HEAD)
B4	PLUG
A5	PLUG
B5	BASE END(DUMP DOOR)
A6	ROD END(DUMP DOOR)

POWER UNIT AIR CLEANER MAINTENANCE

Primary Dry Air Cleaner Service Instructions

Proper air cleaner servicing will result in maximum engine protection against the ravages of dust. Proper servicing will save you time and money by increasing filter life and dust cleaning efficiency. Two of the most common problems of air cleaner service are:

- A. **Over Servicing** - New filter elements increase in dust cleaning efficiency as dust builds up on the media. **DON'T BE FOOLED** by filter appearance, it should look dirty. Use a restriction indicator to monitor filter life.
 - B. **Improper Servicing** - Your engine is highly vulnerable to abrasive dust contaminants during the servicing process. The most common cause of engine damage is careless servicing procedures. By following the 7 steps shown, you can avoid unnecessary dust contamination to the engine.
1. Remove the old element as gently as possible to prevent dropping dirt/dust into the housing.
 2. Always carefully clean the inside surface of the housing with a clean damp cloth before putting in a new filter.
 3. Always clean the gasket sealing surfaces of both the top and bottom of housing of hardened dirt ridges.
 4. Check for uneven dirt patterns in your old filter element for valuable clues to dust leakage or gasket sealing problems. A pattern on the element clean side is a sign the filter element was not firmly sealed or that a dust leak exists. Repair any suspicious areas before installing a new filter.
 5. Check the new gasket for flexibility to spring back when pressure is applied and released. A quality gasket is one of the most important parts of the filter.
 6. Make sure the gasket is seating evenly and the sealing surface in the housing is clean. Be sure to use the correct filter model. If the filter element is too short for the housing, it is the wrong model.
 7. Check connections and ducts for air tight fit. Any leaks mean dirt is directly entering your engine.

Important "Don'ts" To Remember About Air Cleaner Servicing

- DON'T** remove element for inspection, any disturbance can cause contamination or leaks in the gasket. Use a restriction indicator and change filter when needed.
- DON'T** try to clean the old filter by rapping to knock out dust. Always replace with a new filter.
- DON'T** judge your element's life by looking at it. A dirty-looking filter may still have plenty of life left. For lowest filter maintenance, follow a restriction gauge.

NEVER leave an air cleaner open longer than necessary. An open air cleaner is a direct entry to your engine. Cover the opening to be sure no debris gets in.

DON'T overlook a worn or damaged gasket. When replacing a gasket, check to be sure no piece of the old gasket remains in the housing. Always replace with a new gasket, never reuse an old one.

NEVER install a dented or punctured element. It will not protect against contamination.

NEVER use a warped or damaged housing cover. It cannot make a proper seal. Also check for damage to the air cleaner housing that could cause a leak.

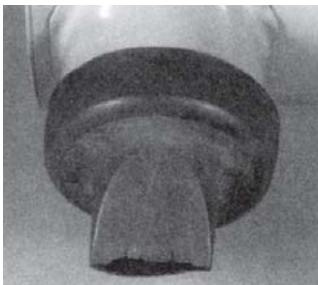
NEVER substitute an incorrect element model number. An improper element prevents a firm seal. Use the dirty element until the correct model filter can be installed.

REPLACEMENT VACUATOR VALVES

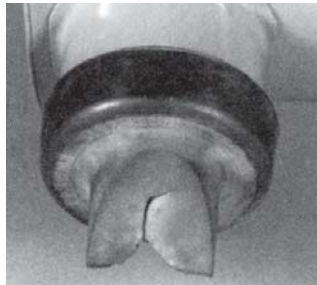
The Vacuator Valve, standard on the majority of Donaldson air cleaners, is an important part of the functionality of the air cleaner. It is an integral part of the pre-cleaning stage on 2-stage air cleaners.

The dust cup, where pre-cleaned dust is collected, is normally under a slight vacuum when the engine is running. The normal engine pulsing of the vacuum causes the Vacuator Valve (located at the lowest point on the dust cup) to open and close. This action automatically expels any collected dust and water. The Vacuator Valve also unloads when the engine is stopped.

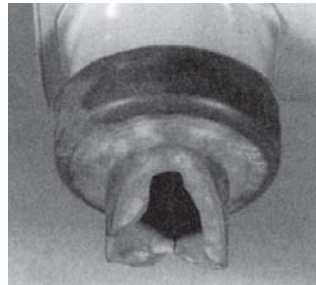
Replace That Damaged Vacuator Valve! If your valve is cracked, torn, remains open or is missing, dust particles that are normally expelled can deposit themselves onto the filter and will shorten air filter service life. **REPLACE IT!**



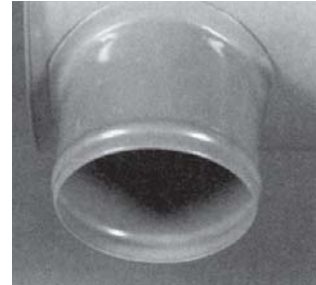
Does it remain open?



Is it cracked?



Is it torn?



Is it missing?

GUTTER BROOM

The Model 600 utilizes a vertical digger design enabling the gutter broom to remove heavy debris from the gutter and transfer it in front of the pick-up head. The gutter broom is also designed such that it will fold under the cab if run into the curb or any other solid object.

The gutter broom is controlled from the inside the cab with an electric toggle switch located on the control console panel. The sweeper auxiliary engine must be running in order for the gutter broom(s) to work. When the toggle switch is engaged in the DOWN position, the gutter broom rotational speed is directly related to the sweeper auxiliary engine RPM. As the engine RPM is increased, gutter broom rotation increases. Maximum gutter broom rotation of 100 RPM is achieved at 2000 RPM engine speed.

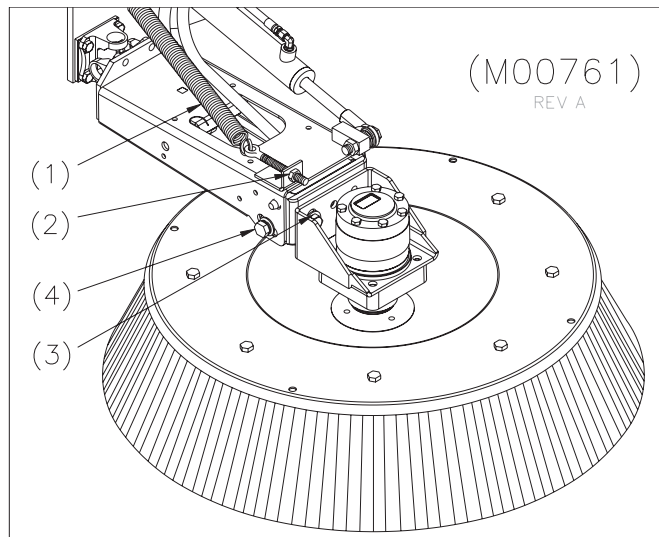
Always use care when gutter broom is down. Never back up with broom down or broom could hang on stationary object resulting in severe damage!



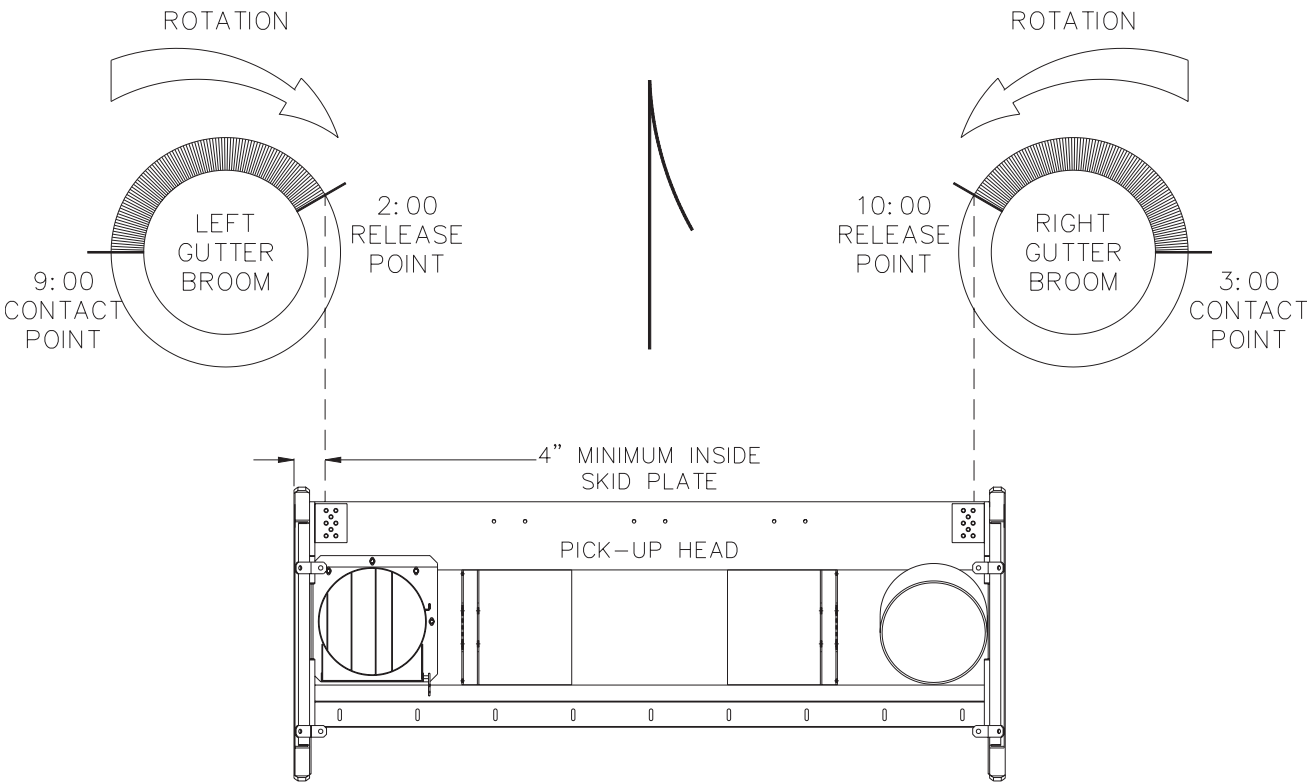
WARNING: Never work on or near rotating gutter broom, never exit cab with gutter broom down and rotating.

A. ADJUSTMENTS

1. **Spring** - a long spring is used to counter-balance the gutter broom assembly (1). As the gutter broom bristles wear out, this spring tension must be reduced by backing off the eye bolt nut (2) used to attach spring to the boom arm. However, when new bristles are installed onto gutter broom, the spring must be re-tensioned to counter the increased weight of the new bristles. Failure to retention the spring eye bolt nut will result in premature wear of the gutter broom bristles. Proper tension of the eye bolt nut for new segments is approximately one-half way up the eye bolt.
2. **Tilt** - there is no established dimension for setting the gutter broom tilt because street curbs and gutters vary from place to place. To tilt the Model 600 gutter broom, located on the end of the boom arm are the wrist and hand. The hand adjustment allows forward tilt; the wrist allows side to side tilt. Both require a 15/16" wrench to release locking bolts. To adjust the hand two bolts are found behind the torque motor (3). Two bolts lock the wrist adjustment: one bolt is found on each side of the wrist bracket (4). When setting the gutter broom tilt, approximate Drawing Page 30 for best results.



NEW BRISTLE CONTACT PATTERN



(M00762)

B. BRISTLE REPLACEMENT

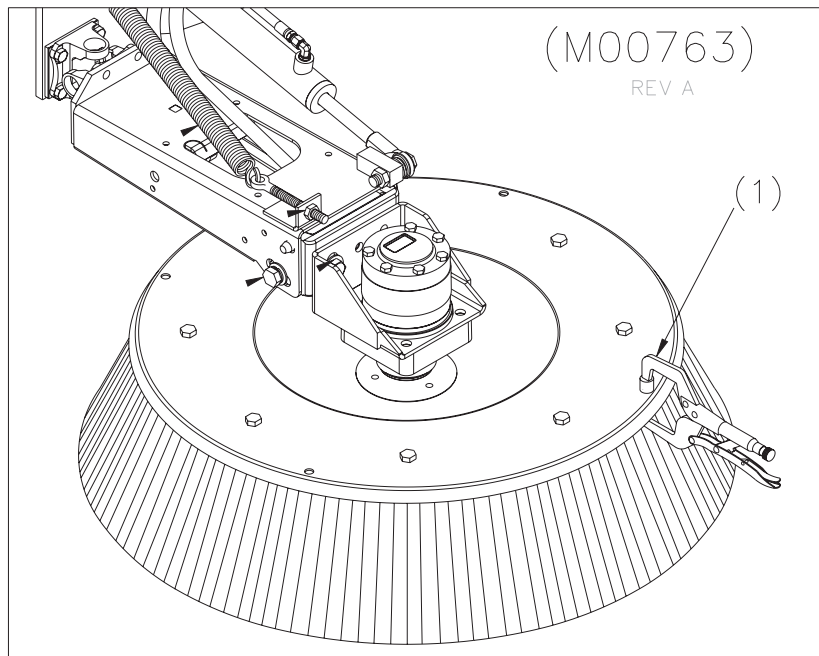
Currently, two types of vertical digger bristles are available from TYMCO, Inc.:

1. Polypropylene
2. Steel

These two types are not interchangeable without replacing the gutter broom spring. Polypropylene bristles (Part No. 500393) require Spring No. 5010232; whereas steel bristles (Part No. 500392) require Spring No. 5010960.

To replace bristles, use the following procedure:

1. Lower gutter broom; turn off sweeper engine.
2. Remove bolts from bristle segments one segment at a time. TYMCO segments use two course threaded 5/8" bolts to lock segment to disc. No nut is used on bottom side. Also, a small 3/8" bolt is used to give support to center of segment. There is a nut used for this center support bolt, make sure it is removed and inserted into new segment.
3. Available for the sweeper (see Section TK - Parts & Service Manual) is a set of segment installation clamps (1) which look similar to vice clamps but the ends have round dowel pins welded on. The pin on the lower jaw of the clamp inserts into the center support hole on the new bristle segment. The pin on the upper jaw inserts into the center support hole on the gutter broom disc. Lock the clamp in place to hold segment which now allows the segment holes to be aligned with the disc holes.



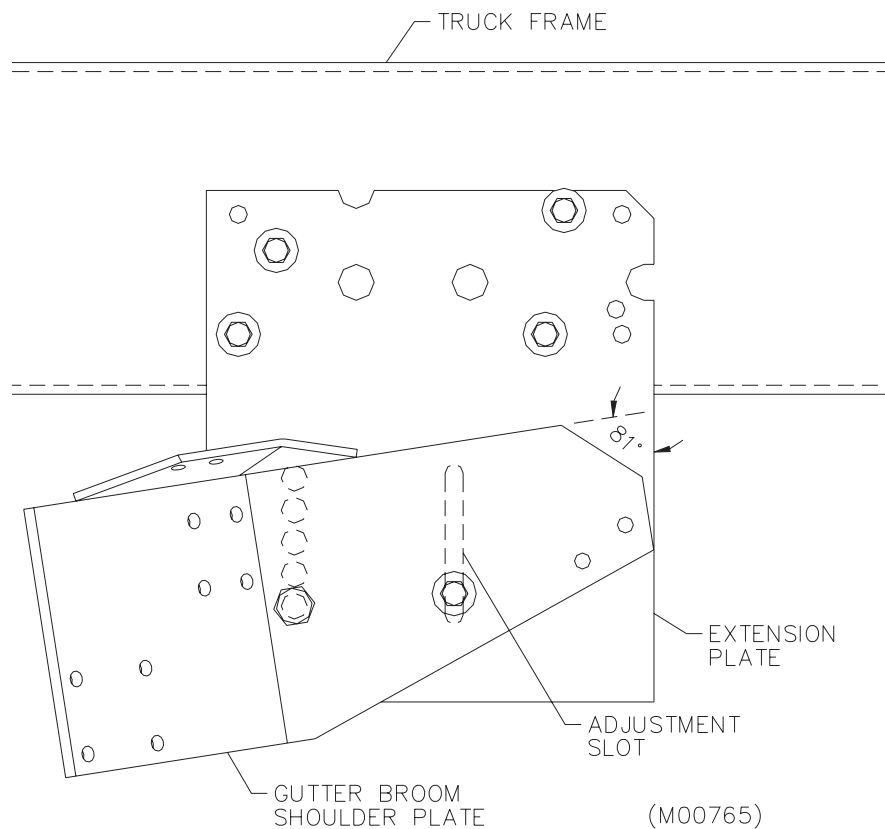
4. Insert 5/8" bolts and thread them into the segment. Do not over tighten bolts or plastic segment may be stripped requiring longer bolts and the use of nuts on bottom.
5. Remove segment clamp and install 3/8" center support bolt.
6. Once all four segments have been installed, check spring tension and tilt setting.

C. SERVICE

1. **Torque Motor Shaft** - routine service of the gutter broom requires daily inspection of the torque motor output shaft. Remove any buildup of grass, string, cassette tape, etc. that has wound around the shaft. Failure to do so will cause rapid failure of the high pressure shaft seal and possible damage to output shaft. If oil is observed to collect in disc, check torque motor hose fitting tightness; if OK, then torque motor high pressure seal must be serviced. Refer to Service & Parts Manual for rebuild procedure.
2. **Shoulder Plate Setting** - the gutter broom mount plate is bolted to the truck chassis extension. The gutter broom mount plate referred to as the shoulder plate is adjusted so that when the hydraulic cylinder retracts the gutter broom it also causes the broom to raise. Should this plate get out of adjustment, the broom may retract but not raise. Two bolts hold this plate in position; one 3/4" bolt requiring a 1-1/8" wrench, and one 1/2" bolt requiring a 3/4" wrench and socket. With the gutter broom in the DOWN position and off, set the shoulder plate as shown in the drawing.

NOTE: If shoulder plate is set with too much forward slope, the gutter broom will hit the bottom of the cab or step when raised.

600 SHOULDER PLATE SETTING



PICK-UP HEAD

The pick-up head is the most important component of the TYMCO MODEL 600 REGENERATIVE AIR SWEEPER. But, because the pick-up head must be dragged on the pavement, it can be seriously damaged by careless operation. Even when the pick-up head is fully raised, it is still close to the pavement and care must be taken not to damage it in transit.

DO NOT:

1. Back up with pick-up head lowered.
2. Raise pick-up head before lowering engine RPM.
3. Increase engine RPM above idle before lowering pick-up head.
4. Forget to raise pick-up head for transit.
5. Drive over speed bumps or divider turtles higher than two inches.
6. Cut corners while in transit.

To lift debris from the ground, a 14" diameter suction nozzle is located on the right side of the pick-up head. The sweeper blower draws air from the hopper creating a vacuum. A flexible tube is then used to connect the hopper vacuum to the pick-up head suction nozzle whereby debris is lifted from the ground and deposited into the hopper. However, because the pick-up head is 87 inches wide some means must be used to move debris across to the suction nozzle. Just as debris is lifted into the hopper by the vacuum generated by the blower, the exhaust air of the blower is used to blow debris over to the suction nozzle. This is done by forcing the blower exhaust air through an elongated pressure nozzle. TYMCO calls this the Blast Orifice. The blast orifice opening is 87 inches long with a 1/4" to 3/4" tapered opening. The blower exhaust air is squeezed through this narrow opening which compresses the air into a powerful jet that is then used to blast debris from the ground, forcing it over to the suction nozzle.

OPERATION

1. Before sweeping, the operator must check that the sweeper is properly prepared. The operator should read the Model 600BAH Operator's Manual to become familiar with all aspects of his duties regarding this sweeper. Read the manual first!!!
2. The auxiliary engine must be running in order to lower the pick-up head, **but do not increase the RPM above idle.**
3. Hold the toggle switch in the down position until the pick-up head cylinders are fully extended. (Rear motor will lug down slightly when cylinders bottom out.) When released, the toggle returns to the neutral position.
4. With the pick-up head fully lowered, pull the truck forward a few feet to fold the pick-up head curtains under into the sweep position. Turn the gutter broom(s) on and increase the auxiliary engine throttle to desired sweeping RPM.
5. The sweeper is now ready for normal operation. Keep the truck transmission shift lever in first gear to keep transmission from cycling between first and second while sweeping. Best sweeping speeds are from 3 to 5 miles per hour; however, curb conditions and street congestion determine at what speed to sweep.
6. The design of the pick-up head allows it to handle most debris normally encountered in the curb without special consideration; however, the operator must remember that

items larger than the 14" diameter suction tube must either be manually picked up or maneuvered around to prevent plugging the suction tube.

7. Light debris such as leaves and paper may have a difficult time getting under the front seal curtain, especially when encountered in large quantities: thus, producing a bull-dozing effect in front of the pick-up head. When encountering such debris, the operator must open the "Pressure Bleeder". The pressure bleeder is a door found on the pick-up head pressure ring on the left-hand top of the pick-up head. It should only be opened when needed and should remain closed when not needed in order to assure maximum performance in normal debris.
8. Sweepers provided with the broom assist head (BAH) give the operator an additional advantage to remove heavy caked-on debris when encountered. To use the pick-up head broom move the toggle switch to the down position. This automatically lowers and turns on the broom. No additional cab controls are necessary for the broom assist as the broom functions automatically once lowered. Rotational speed of the broom is related to auxiliary engine RPM and is non-adjustable.

NOTE: The pick-up head should always be lowered before turning on the broom assist and broom assist should always be turned off before raising the pick-up head!!!

For maximum longevity of the pick-up head broom, the operator should use it only when necessary. When not in use, the operator should always remember to raise the broom assist to prevent it from dragging against the pavement.

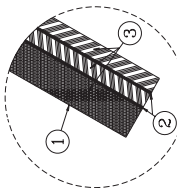
9. When the sweeping operation is nearing completion, raise the gutter broom(s) first and continue sweeping before throttling down auxiliary engine. This makes sure all debris thrown into the street by the gutter broom is picked up before sweeper is shut down.
10. Throttle down auxiliary engine to idle RPM before raising the pick-up head securely against the sweeper upstops. Turn off the warning lights and flashers. The operator should change to the left-hand or legal driving seat at the first safe opportunity for safest transit of the sweeper.

**PICK-UP HEAD MUST BE RAISED FOR TRANSIT!
NEVER BACK SWEEPER WITH PICK-UP HEAD LOWERED UNLESS
EQUIPPED WITH OPTIONAL REVERSE PICK-UP HEAD CHAINS!**

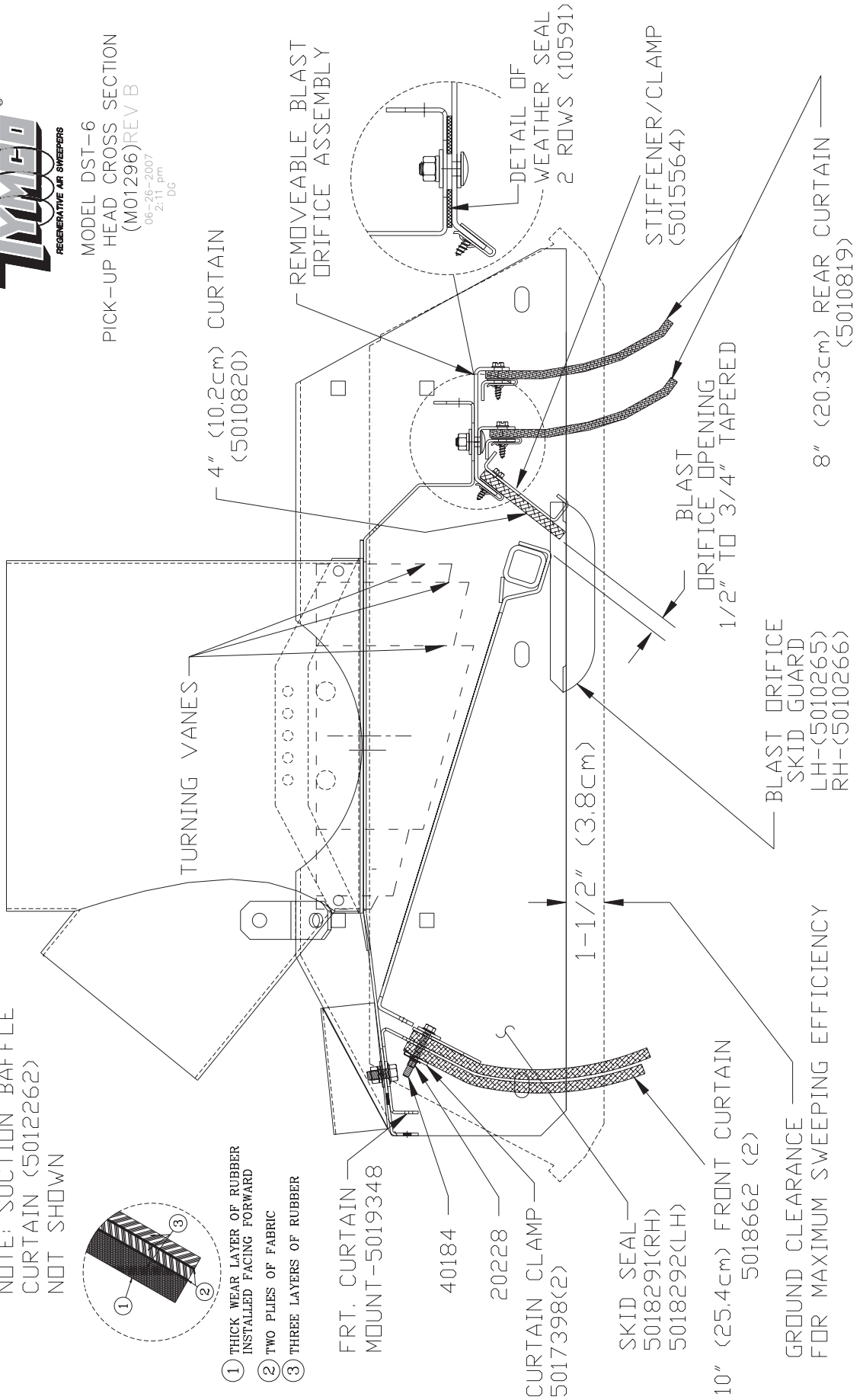


MODEL DST-6
 PICK-UP HEAD CROSS SECTION
 (M01296)REV B
 06-26-2007
 2:11 pm
 DG

NOTE: SUCTION BAFFLE
 CURTAIN (5012262)
 NOT SHOWN



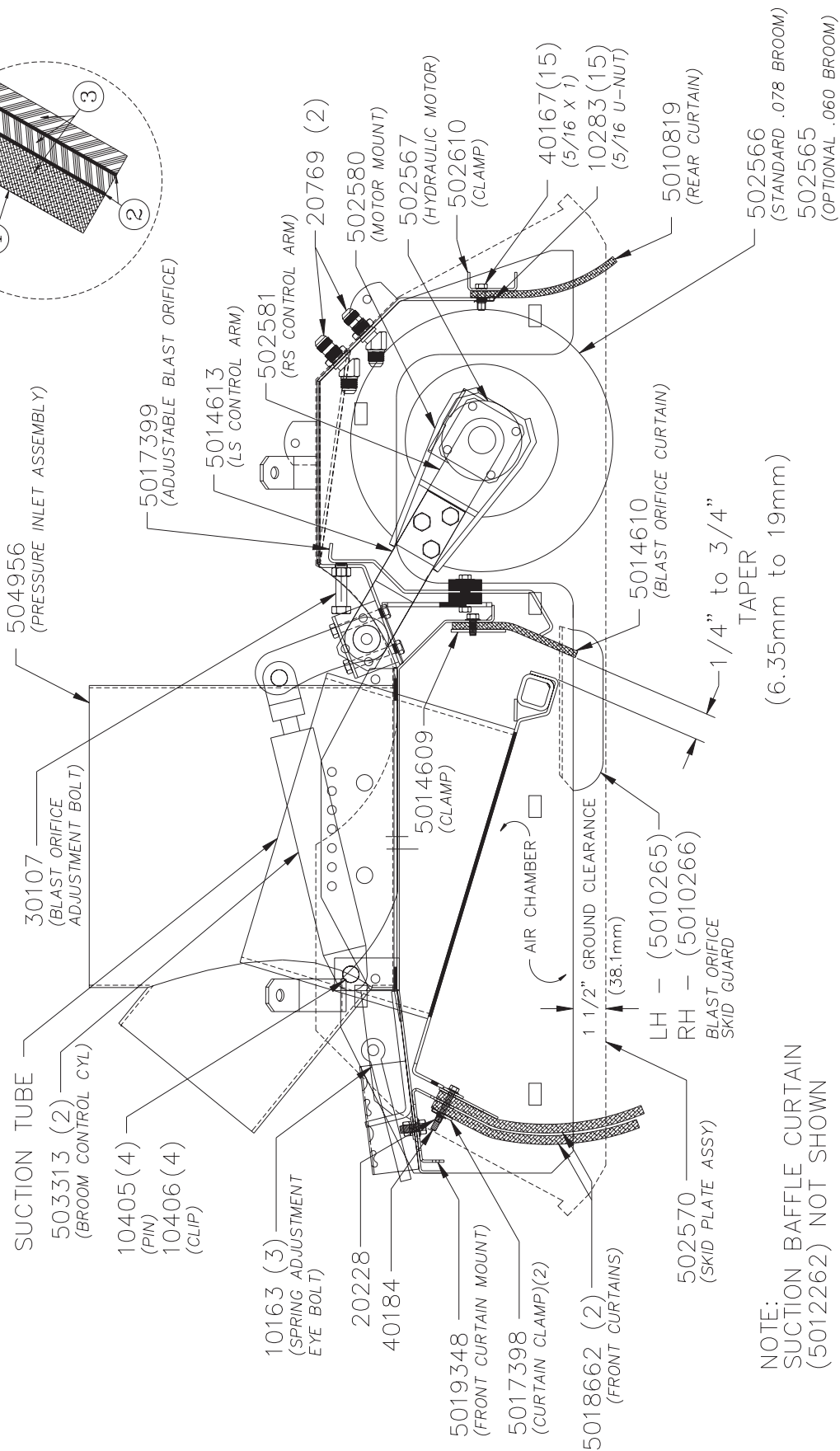
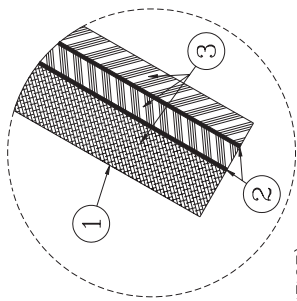
- ① THICK WEAR LAYER OF RUBBER
INSTALLED FACING FORWARD
- ② TWO PLYS OF FABRIC
- ③ THREE LAYERS OF RUBBER



DST-6 BROOM ASSISTED PICK-UP HEAD CROSS-SECTION (M01300)

REV D

- ① THICK WEAR LAYER OF RUBBER
INSTALLED FACING FORWARD
- ② TWO PLYS OF FABRIC
- ③ THREE LAYERS OF RUBBER



NOTE:
SUCTION BAFFLE CURTAIN
(5012262) NOT SHOWN

SERVICE AND MAINTENANCE



WARNING! Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

PICK-UP HEAD SETTING AND ADJUSTMENT

Skid plates - the skid plate setting for the TYMCO REGENERATIVE AIR pick-up head is critical for proper sweeper performance because it determines the relationship of the blast orifice to the pavement. Skid setting becomes even more critical with the broom assist pick-up head. If the skid plates are lowered, this raises the blast orifice further from the road surface making the air blast weaker against the pavement resulting in poor sweeping performance. Also the lower the skid setting, the less reach the BAH broom has beyond the bottom of the skid plates. Therefore, the recommended skid plate setting for the BAH pick-up head is that the rear of the skid be no lower than 2" below the side plate of the pick-up head. (See drawing M01301, Page 41).

With the skid plate is set in the normal debris setting, maximum reach of the broom beyond the bottom edge of the skid plates is 1-1/2 inches. This should be more than enough reach to clean most sweepable road surfaces.

A. Skid Plate Alignment

1. Install skid plates onto pick-up head according to the dimensions given in drawings on Page 41. Tighten only the front and rear bolts. This is not the final step!!
2. With the pick-up head in the UP position, mark the link attached and disconnect the four flotation springs from their chains.
3. Lower the pick-up head onto an even floor surface and pull the sweeper forward to fold under the seal curtains on bottom of the head.
4. Try to rock the head to see if it is setting evenly on the skid plate carbide runners. Go to opposite side and check again. If little or no rocking (less than 3/16"), raise pick-up head, re-attach springs and go to spring adjustment section.
5. If the head rocks (most do), then go to the left hand skid and adjust out the uneven pick-up head by lowering the front or rear of the skid. Do not lower skid more than 1/2" from the normal setting.
6. Once the skid plates are aligned so that the pick-up head rides evenly on the skid plate runners, tighten all skid plate bolts securely. Next, the head flotation springs must be properly adjusted to prevent uneven wear on the runners.

B. Spring Adjustment - Refer to Drawing M01302, Page 42

1. Springs are adjusted each time new curtains are installed or uneven wear of the skid plates is noticed. Improper spring tension will result in premature wear of the skid plate runners and cause everything from poor performance to excessively dusty conditions. Should the skids be observed to wear unevenly, the BAH head incorporates symmetrically designed skid plates which can be rotated from one side to the other; however, this does not correct the cause of the uneven wear. Only the proper spring adjustment will result in proper wear of the skid plate runners.

2. Before beginning to adjust the pick-up head springs, check the four flotation springs (2 per side). Correct spring placement and sizing is critical for proper skid plate runner life. On older units it may be necessary to replace the springs(s) if they have lost their set. Check them by removing all tension, and see if the coils close back completely. If not, then the spring has lost tension and should be replaced. Always refer to your Parts and Service Manual to order the correct spring, making certain to order the correct spring for its location on the head.
3. Spring adjustment is done on a level surface with an empty sweeper. The spring tension is adjusted two ways, by repositioning the spring clevis in various links of the spring chain and by an eye bolt used to attach the spring assembly to the sweeper frame.
4. Each side of the pick-up head has a different spring setting due to the different direction of airflow into and out of the pick-up head. On the left side, air is being exhausted downwards towards the pick-up head driving it against the pavement. So, not only does the spring tension have to counter the weight of the pick-up head but also the downward pressure generated by the air blast from the blower. This also means that the pick-up head spring tension is checked with the pick-up head in the down position and at full blower RPM; however, the spring setting is done with the pick-up head down and blower off. Use the sketches on Page 41 to approximate spring tension on each side of the sweeper.
5. Once the pick-up head has been set to approximate the sketches, lower it and have an assistant throttle engine to sweeping RPM. Observe the head to draw itself down to the pavement. Have the assistant drive forward slowly and observe front of skid runners. If they barely touch the ground and appear to float rather than scrape against the pavement, then the spring tension is good. Same with the rear of the skid. If, however, the skids leave white skid marks on the pavement, then more spring tension is required. If the skids do not seal against the surface, then reduce the spring tension slightly. With the sweeper empty, the pick-up head should feel very light against the pavement and should be easily shifted from side to side as the sweeper is driven slowly forward. This is the proper spring setting because as the sweeper becomes loaded during operation, the load causes the truck chassis to settle lower towards the pick-up head, resulting in a decrease in overall spring tension. The springs are therefore over tensioned slightly to counter for the settling effect of the hopper load.

PICK-UP HEAD DAILY SERVICE

1. Daily Inspections

The pick-up head should be inspected daily or before each shift. The operator should check the following:

- A. Inspect the skid plates for misalignment, unequal wear or any other obvious damage.
- B. Inspect the seal curtains on the bottom of the pick-up head for excessive wear or damage. Because the seal curtains must contain the high velocity air used for sweeping, excessive seal curtain wear or damage can create extremely dusty sweeping conditions.

- C. Look under the pick-up head and inspect the blast orifice curtain for excessive wear or damage. Also, check for any debris jammed in the orifice opening such as rocks, cans or sticks.
- D. Inspect the pressure and suction hoses on either side of the sweeper for wear holes or damage. A temporary field fix can be made using duct tape to patch holes until a new tube is installed. Failure to repair or replace worn hoses will result in excessively dusty sweeping conditions.
- E. At least once a week the pick-up head pressure inlet turning vanes should be inspected for blockage and wear. Do this by lowering the head to the ground. Make sure auxiliary engine is off! Loosen the lower pressure tube clamp and lift the tube off of the pressure inlet ring. If a large build-up of debris is found, then check that the separator door inside the hopper is being properly secured and that the hopper screen mesh does not have any holes worn through. If the turning vanes are severely worn, then the bolt-on replaceable inlet assembly should be replaced in order to maintain sweeper performance.
- F. Check the pick-up head drag links to make sure they are not bent or damaged, repair or replace before using sweeper.
- G. Inspect the pick-up head upstops for damage and repair or replace immediately. A damaged upstop can cause sever damage to the truck drive shaft by allowing the pick-up head to contact the drive shaft when raised.

2. Broom Assist Daily Service

- A. The broom assist contact pattern must be checked by the operator before each shift especially if it has been used extensively. The sweeper should be on a level surface such as a parking lot or shop floor. Lower the pick-up head and pull the sweeper forward slightly to fold under the curtains. Make certain the sweeper is ready for sweeping, (i.e., all doors closed, etc.) and throttle up auxiliary engine. Turn broom assist on and allow the broom to run for approximately one minute to burnish a pattern onto the pavement. Idle the auxiliary engine RPM, raise the broom and then the pick-up head and drive sweeper forward so that the pattern can be checked. The pattern mark should be 1-1/2 to 2 inches wide and fairly even the full width of the broom.

NOTE: Do not mistake the blast orifice pattern for the broom pattern.

- B. Should the broom pattern be lighter on one end or the other, locate the two pivot arm springs on top of the broom assist pick-up head (one on each side), back off the eye bolt of the spring on the light pattern side a few turns but no more than 1/2 inch at a time. Recheck and adjust until pattern is set correctly.

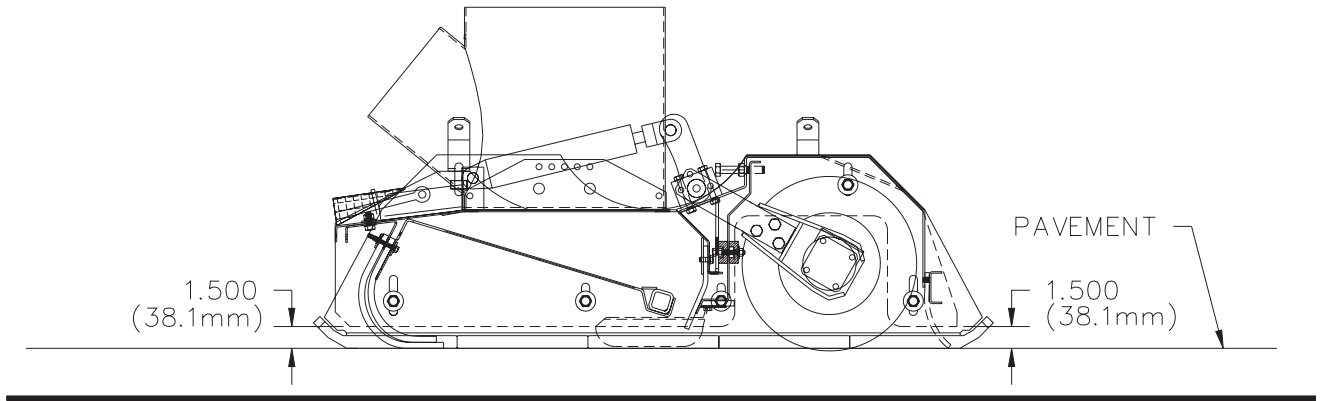
NOTE: BROOM SHOULD BE ROTATED WEEKLY FOR MAXIMUM BROOM SERVICE LIFE.

- C. Pick-up heads with the broom assist should have the broom inspected daily for debris wedged between the front of the broom and the blast orifice flange. The broom should also be inspected for severe coning on either end so that the broom may be rotated before excessive wear is incurred.

- D. At the end of each shift, the operator should clean and wash underneath the pick-up head and remove any mud build-up. Particular care should be given to the area around the broom. Thoroughly clean the area between the broom and back of the blast orifice daily! A build-up of debris and mud in this area can greatly diminish the effectiveness of the broom assist pick-up head.

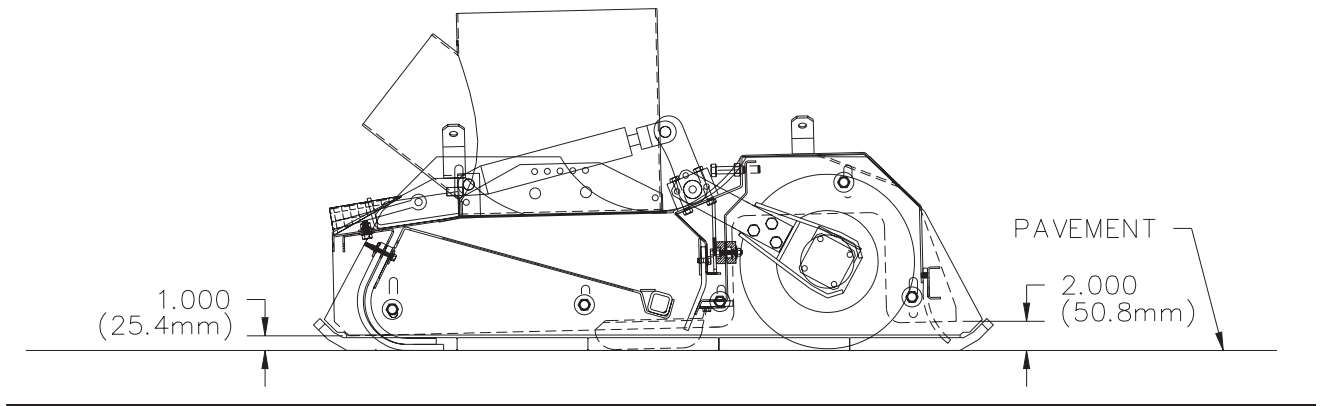
MODEL DST-6 "BAH"

NORMAL DEBRIS PICK-UP HEAD SETTING



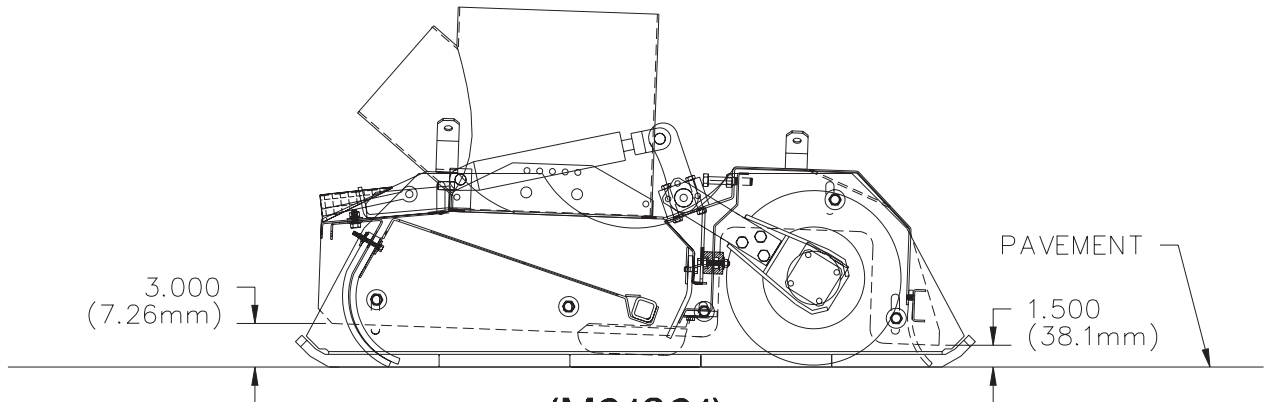
MODEL DST-6 "BAH"

HEAVY DEBRIS PICK-UP HEAD SETTING



MODEL DST-6 "BAH"

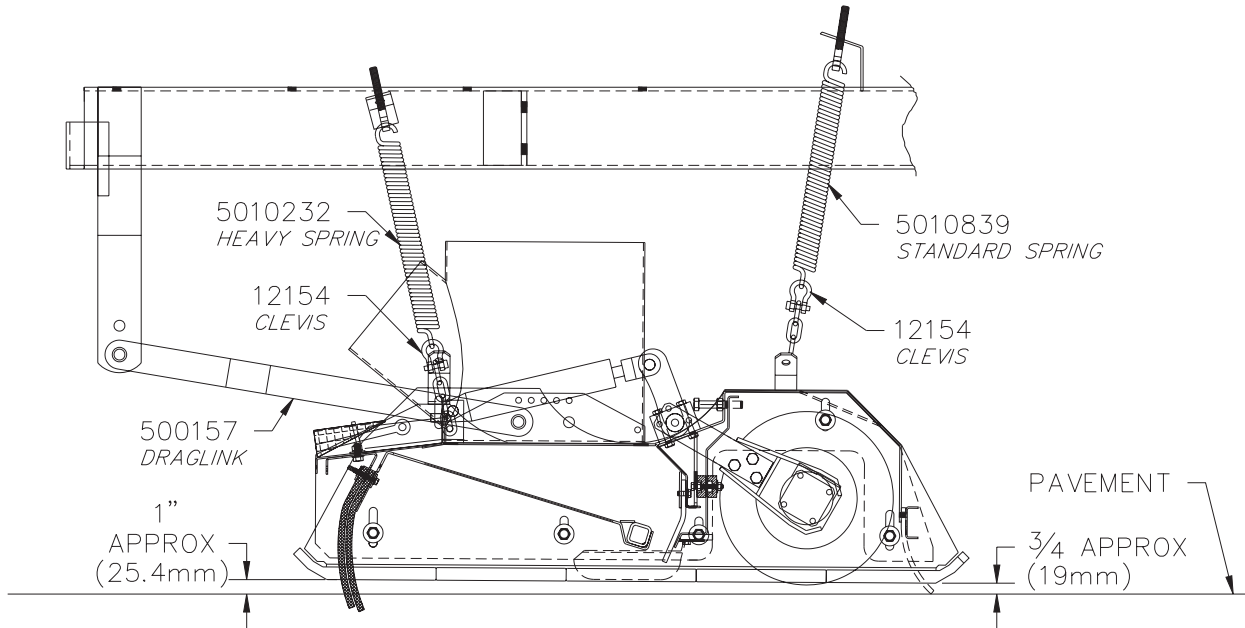
LEAF SWEEPING SETTING



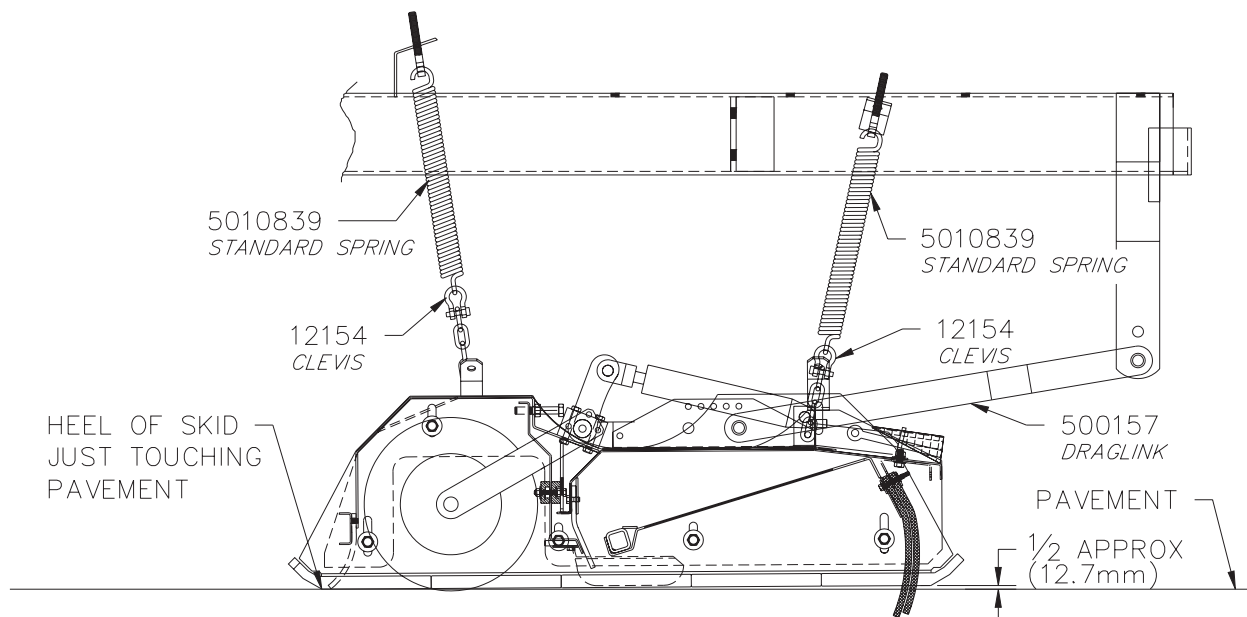
(M01301)

REV A

MODEL DST-6 "BAH"
SPRING SETTING BLOWER SIDE



MODEL DST-6 "BAH"
SPRING SETTING SUCTION SIDE



(M01302)
 REV A

DUST CONTROL (WATER) SYSTEM

The dust control system is designed to control the normal amounts of dust created by the operation of the sweeper under normal sweeping conditions. The dust control system (often referred to as the water system) is only effective when the sweeper is operating properly. Problems such as bad door seals, worn pick-up head curtains, holes in the suction/pressure tubes can cause extremely dusty conditions which cannot be controlled by a properly functioning dust control system. The best method for controlling dusty conditions is frequent sweeping of heavy debris areas.

A. OPERATION

The following procedure is recommended for operation of the TYMCO Model 600 dust control system:

1. Fill water tank. A 220 gallon water tank is standard and is located just below the auxiliary engine. The filler port is located on the top front of the tank. The 2-1/2" fire hose provided with the sweeper attaches to the filler port and is stored in a bin provided on the right side of the sweeper. In the end of the fire hose which attaches to the hydrant is a cone shaped pre-filter. Use care not to loose the filter.

Always bleed the fire hydrant before attaching the fire hose to fill the tank. The tank is full when water is observed to spill from around the suction manifold on top of the tank. The TYMCO tank filling system is an anti-siphon system as water is put into the tank from the filler neck on top of the tank. At end of shift, open drain valve to flush out tank.

2. Controls for the dust control system are located in the cab on the control console panel. To activate system, start sweeper engine, then turn on main water toggle switch which activates the water pump. If the tank contains water, select the desired water distribution switches and water will continue to spray until sweeper engine is shut off, water toggle switch is turned off or water tank is emptied. If water tank is emptied, low water light will come on, meaning that water system has shut off automatically.

B. SERVICE

There are essentially four service areas for the water system:

1. Tank
2. Pre-filter
3. Water pump
4. Spray nozzles

Service these areas routinely according to the following directions:

1. **Water Tank** - The water tank should be flushed at the end of each shift to remove contaminants. Fill tank and then allow to drain.
2. **Pre-Filter** - A pre-filter is located between tank and water pump to remove any contaminants before they reach the pump. The pre-filter has a removable cleanout bowl which should be removed and cleaned once a day. **USE CARE NOT TO LOSE BOWL GASKET WHEN CLEANING OR WATER SYSTEM WILL NOT WORK DUE TO AIR LEAK.**

3. **Water Pump** - The heart of the standard TYMCO water system is an electric pump. This pump puts out 5.0 GPM at 25 PSI. No service is required; however, the pump must be protected from freezing (See Winterization).
4. **Spray Nozzles** - The operator is responsible for keeping the spray nozzle tips clean and spraying.

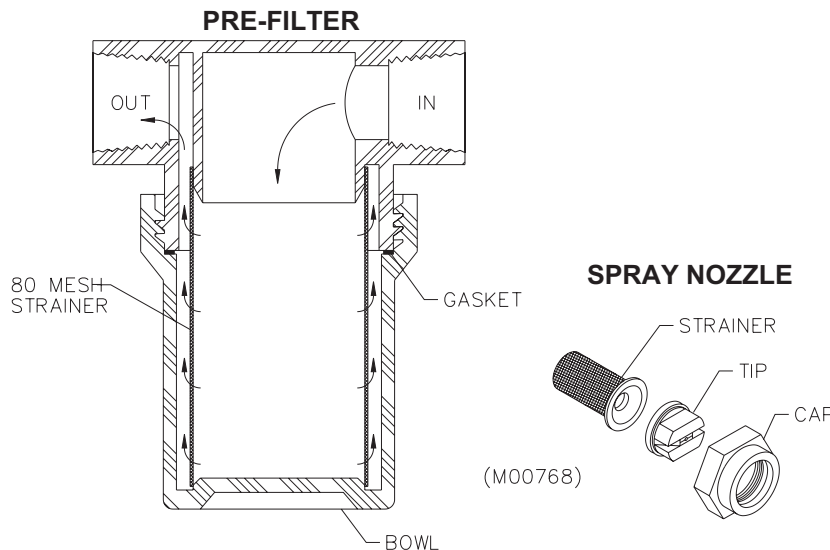
ATTENTION: On the Model 600 it is important to use only the correct output spray tips in order to realize proper water system spray time and pressure.

- a. If a spray nozzle is stopped up, the entire tip assembly must be removed for cleaning. To clean tip, use the edge of a knife or razor to clear tip spray slot. Then grasp the tip between the index finger and thumb with slotted side facing up. Strike tip sharply against a clean, hard surface to dislodge blockage.

DO NOT USE DRILL TO MAKE ORIFICE LARGER!

- b. To re-install tip, insert tip into cap and hand tighten cap to nozzle assembly. Then use pliers, in one hand, to hold tip in desired position, then with other hand, use wrench to tighten cap which locks tip position.

WATER SYSTEM SERVICE AREAS



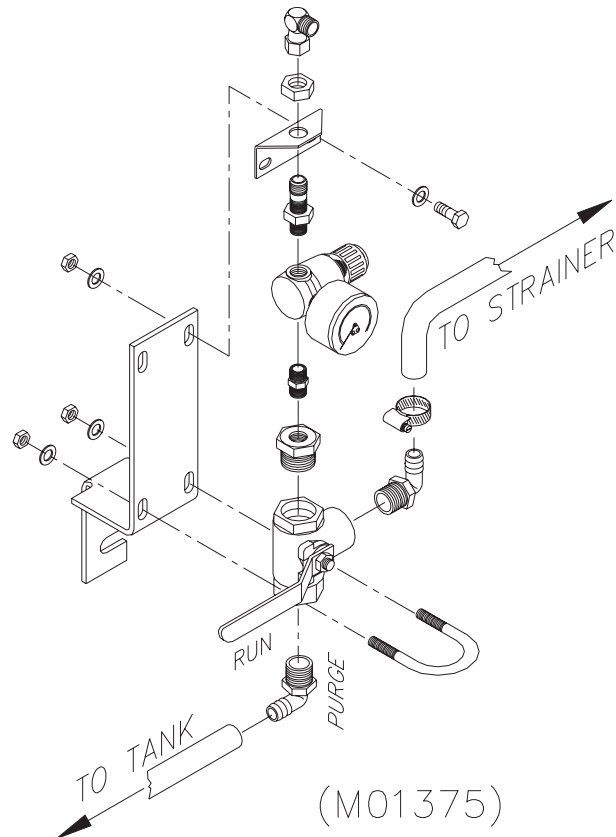
C. WINTERIZATION

To winterize the Model 600 water system, the system should be filled with solution of propylene glycol. Follow procedures outlined below:

1. Disconnect siphon hose from water tank.
2. Submerge hose end into container of propylene glycol.
3. Start auxiliary engine and run at idle. Turn water switch on until propylene glycol is observed to spray from nozzles. Then turn water switch off.
4. Make sure water tank is **DRAINED!**
5. System is now winterized.

D. WATER SYSTEM PURGE

The function of the water system purge is to purge all water from the system in freezing weather. This assembly is mounted to the sweeper left front frame rail. A female quick disconnect is to be supplied by the customer.

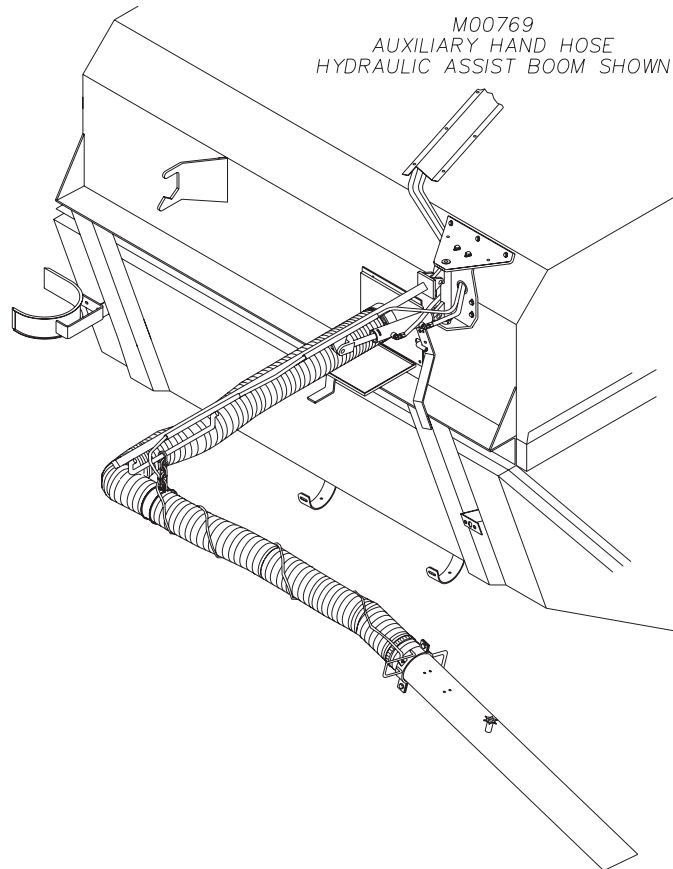


1. Drain the water tank completely. Drain the pre-filter bowl being sure NOT to lose the rubber seal.
2. Start the auxiliary engine and run the water pump with one water switch on (i.e., Pick-Up Head Water) to drain the hoses until the low water light illuminates.
3. Turn off all water system switches and stop the auxiliary engine.
4. Attach a shop air line to the quick disconnect (supplied by customer). Check for maximum **20 PSI** line pressure to prevent damage to water system components. **(Do Not Exceed 20 PSI.)**
5. Slowly rotate valve 90 degrees to the purge position. Turn the ignition to "ON" position but **DO NOT START** engine. Turn on main water switch. Turn on one water switch (i.e. Pick-Up Head Water). Wait until all water is purged then turn off switch. Repeat the process for each system.
6. After all systems are purged, rotate valve back to "RUN" position, remove shop air line and turn ignition off. The water system is now purged.
7. To re-prime, it may be necessary to increase engine speed to 1500 RPM for pump to pick up.

HAND HOSE OPERATION



WARNING: Never direct hand hose nozzle at another person or serious injury may occur.



The optional auxiliary hand hose is designed to clean areas inaccessible to the sweeper, such as shallow catch basins, highway medians, railing, etc. The standard hand hose is a flexible hose with an aluminum 52 inch extension. A shutter plate is placed between the removable suction transition and hopper inlet so that the air suction will be diverted to the hand hose.

OPERATION

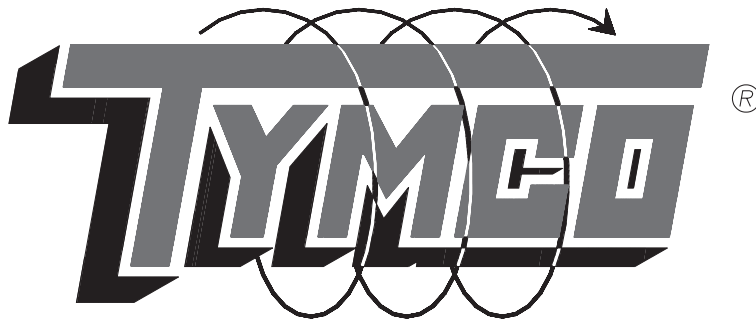
1. **STOP AUXILIARY ENGINE AND REMOVE IGNITION KEY.**
2. Disconnect suction transition located on right side of sweeper from hopper and place shutter plate (normally stored in cab) between transition and hopper suction inlet and latch transition in place.
NOTE: This is done to divert total suction to hand hose hopper inlet. Hand hose suction will be very weak if shutter plate is not installed properly.
3. Open hand hose inlet door on back of hopper.
4. Loosen hand hose storage straps and swing hand hose assembly around until suction inlet contacts door seal. Secure in this position with latch.
5. Start auxiliary engine, lower the pick-up head, and turn on hopper water nozzle.

6. Set RPM. to desired engine speed.

	ENGINE RPM
A. Paper, Leaves, Light Trash	1500
B. Normal Accumulation of Dirt, Sand and Gravel	1600
C. Heavy Accumulation of Dirt, Sand and Gravel	1800

NOTE: *Do not submerge nozzle in liquids or mud; hold slightly above for best results.*

7. Once hand hose operation is complete, turn off hopper water, raise pick-up head and shut down auxiliary engine.
8. Unlatch hand hose assembly from hopper inlet and secure inlet door.
9. Swing hose around to storage position and strap in place.
10. **Remove shutter plate** from hopper transition and store in cab. Latch transition back in normal sweeping position.



REGENERATIVE AIR SWEEPERS

REGENERATIVE AIR SWEEPER WARRANTY

TYMCO REGENERATIVE AIR SWEEPERS are warranted to be free from defective materials and workmanship for a period of 12 months or 1,000 hours from date of delivery and such period being hereinafter referred to as "warranty period". It is the sole obligation of Seller with respect to this warranty period to replace free of charge, F.O.B. Waco, Texas, any part or parts which may prove to be defective due to defective workmanship or materials within the warranty period provided no disarrangement of using unauthorized parts or changes to the machinery be made voluntarily or by incompetency, carelessness, negligence, accident, or need of attention upon the part of purchaser, agents, employees or other parties.

This warranty shall not cover normal maintenance and adjustments, and the same not include nor shall Seller be liable or responsible for material for normal wear and usage for any damages by reason of loss of production, down time or loss of profits or income arising from any reason whatsoever. Seller reserves the right to change the design and construction of said sweeper when in its sole opinion any such change represents an improvement of the sweeper. All outside purchased equipment and accessories are guaranteed only to the extent that the manufacturer's guarantee may apply and are not subject to this warranty nor to any implied warranty.

This warranty is in lieu of all other warranties, expressed or implied. No person is authorized to give any other warranties or to assume any other liability on the Company's behalf unless made in writing by the Company, and no person is authorized to give any warranties or to assume any liabilities on the Seller's behalf unless made in writing by the Seller.

