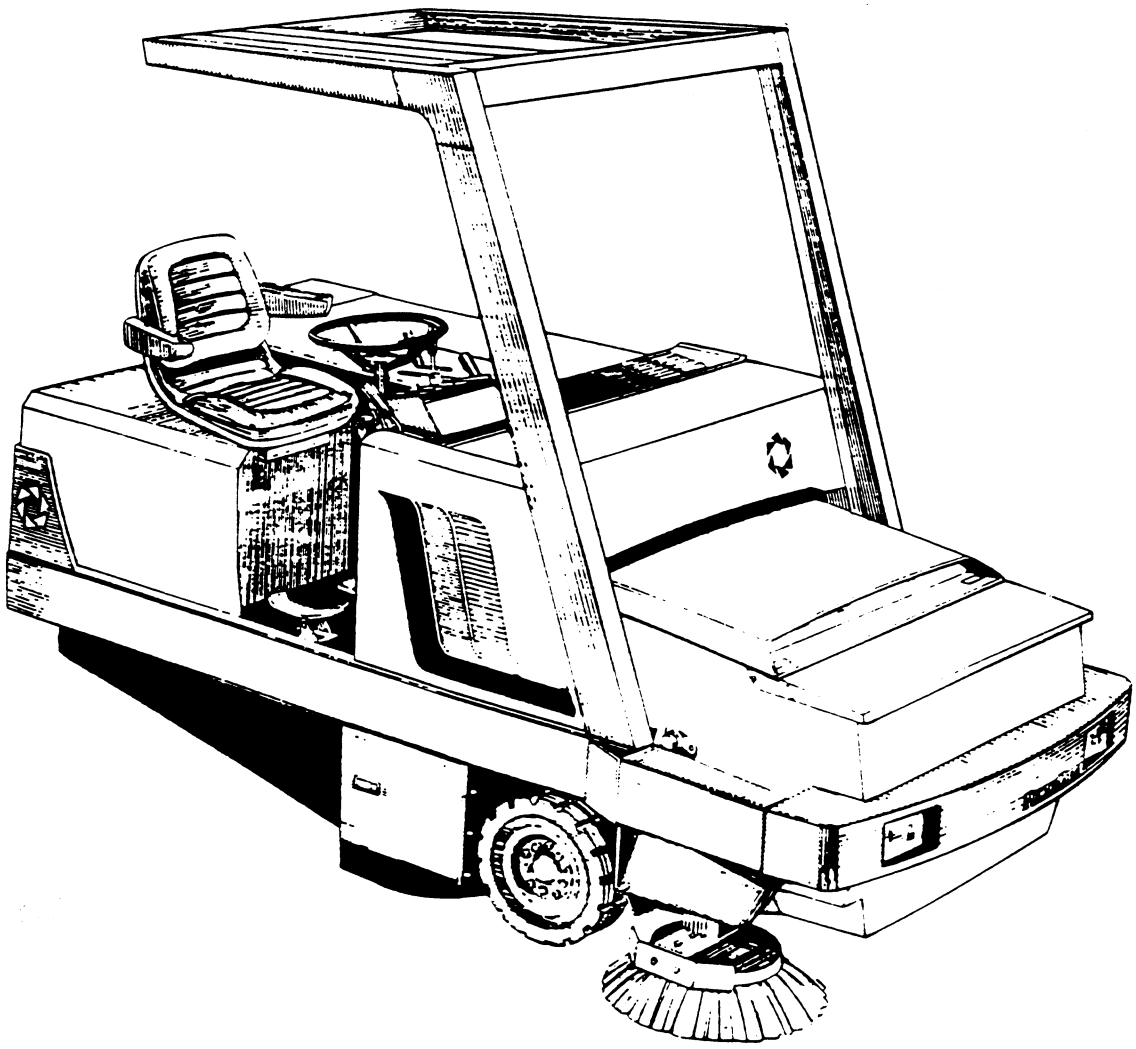
78/88

PowerBoss™ Sweeper

OPERATION & MAINTENANCE MANUAL



AAR Brooks & Perkins

Developed with the assistance of

Raleigh, North Carolina

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OPERATION AND MAINTENANCE MANUAL

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WHAT YOU WILL FIND IN THIS MANUAL

Introduction	The Introduction lists the PowerBoss™ sweeper models and summarizes special features which they possess.
Safety	The Safety section provides information and rules for the safe operation and maintenance of the sweeper.
Specifications	The Specifications section lists key specifications of each model, indicating capacities, capabilities, and other basic information.
Component Descriptions	The Component Description section provides a brief summary of each component or system, including specific descriptions where applicable.
Operation	The Operation section explains the basic controls and accessory controls on PowerBoss ™ sweepers and instructions for operation.
Maintenance	The Maintenance section contains preventive maintenance charts and service instructions for required maintenance tasks.
Troubleshooting	The Troubleshooting section contains a troubleshooting chart to assist you in identifying and correcting problems which may occur during the operation of your equipment.
Parts	The Parts section contains parts lists and exploded views of all machine components.
Options	The Options section contains parts lists and exploded views of all machine options.
Engine	The Engine section contains engine manufacturer's maintenance manual and specification sheets.

Hydraulic Components

The Hydraulic Components section contains manufacturer's specification sheets and maintenance procedures.

Miscellaneous

The Miscellaneous section contains additional information on machine components.

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Introduction

INTRODUCING POWERBOSS™ SWEEPERS

This manual contains information required for the operation and maintenance of the following PowerBoss™ sweepers:

SW 88
SW 78

WARRANTY

See LIMITED PRODUCT WARRANTY at the back of this manual for complete warranty details.

SPECIAL FEATURES

Regardless of the and size sweeper you own or operate, you will enjoy all of the following features:

- rugged one-piece unitized frame
- reliable hydraulic drive with easy-to-service components
- high and effective direct-throw sweeping
- standard or high capacity hoppers with or without dust control
- rear wheel drive/steering for exceptional maneuverability
- four cylinder, liquid-cooled engine
- transverse mid-engine design, providing stability and accessibility for maintenance
- quick-release side broom for quick removal and change
- floating brooms for uneven surfaces

YOUR POWERBOSS™ SWEEPER

Most of the information in this manual applies to both models unless it is otherwise specified. Read this sheet and note the particular features of your PowerBoss ™ Sweeper indicated by checkmarks. Then you can determine which information in this manual **does not** apply to your machine.

MODEL

- ☐ SW 78
- ☐ SW 88

ENGINE

- ☐ gasoline
- ☐ LPG
- ☐ Diesel

HOPPER

- ☐ Manual Lift Out
- ☐ Low Dump
- ☐ Multi-Level High Dump

TIRES

- ☐ Michelin Pneumatic
- ☐ Solid
- ☐ Solid Soft Shoe
- ☐ Solid Nonmarking

SPECIAL FEATURES

- ☐ Power Packer
- ☐ Power Stacker
- ☐ Rotary Trash Relocator
- ☐ Blower Attachment
- ☐ Vacuum Wand Attachment
- ☐ Snow Plow
- ☐ Bucket Attachment
- ☐ Overhead Guard
- ☐ Hopper Dolly
- ☐ Lights
- ☐ Cab
- ☐ Cab Heater
- ☐ Cab Defroster/Fan
- ☐ Windshield Wiper
- ☐ Cab Air Pressurizer
- ☐ Fire in Hopper Indicator
- ☐ Clogged Filter Indicator

MAIN BROOM BRISTLES

- ☐ Nylon
- ☐ ProX
- ☐ ProX and Wire
- ☐ Natural Fiber
- ☐ Pure Nylon
- ☐ Steel
- ☐ Union Fiber & Wire Mix

SAFETY SYMBOLS

Five symbols are used throughout this manual to emphasize various levels of safety information. These symbols and the meaning of each are listed below.

⚠ DANGER — **DANGER:** To warn of immediate hazards which will result in severe personal injury or death.

⚠ WARNING — **WARNING:** To warn of hazards or unsafe practices which could result in severe personal injury or death.

⚠ CAUTION — **CAUTION:** To warn of hazards or unsafe practices which could result in minor personal injury.

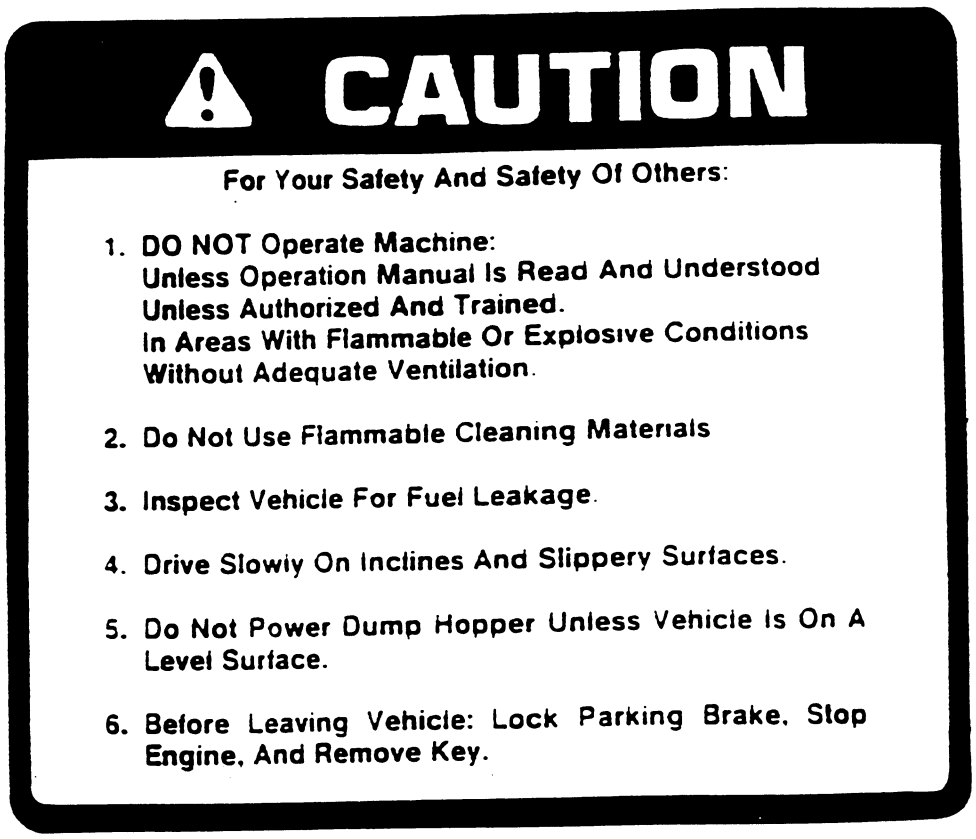
ATTENTION! — **ATTENTION!** To warn of practices which could result in extensive equipment damage.

NOTE — **NOTE:** To direct your attention to important equipment information or special instructions for preventing damage to equipment.

Symbols at the top of the list are the strongest warnings. However, all symbols represent important information which should be observed to protect you and others from harm and injury, and to prevent damage to equipment.

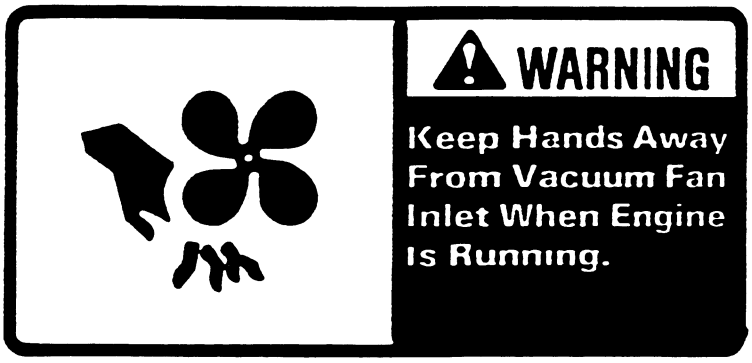
SAFETY DECALS

Decals directly attached to various parts of the sweeper are highly visible safety reminders which should be read and observed. Make sure the decals are replaced if they become illegible or damaged. The decal below is located in the drive compartment. Other decals on your machine appear on the next page.

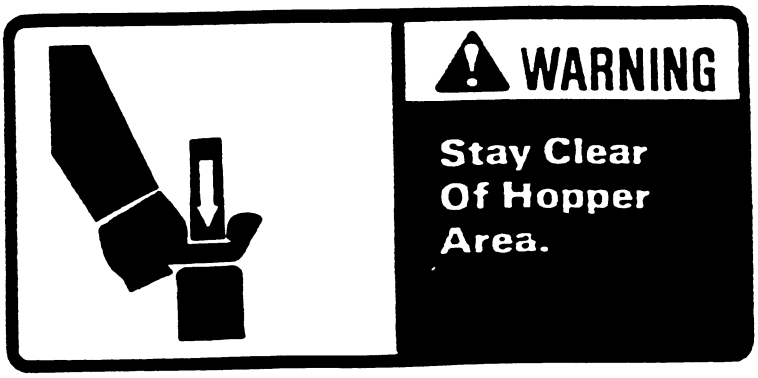


Located at the impeller.

Located at the impeller.



Located on the high dump and low dump hopper.



Located on the high dump hopper.

Located on the shroud of the radiator.

BASIC POWERBOSS™ SAFETY

PowerBoss™ sweepers should never be operated unless: 1. the operator is trained and authorized to operate the equipment and, 2. the equipment is free of malfunctions. Malfunctioning equipment should be removed from service.

⚠ DANGER

1. Keep cigarettes, matches, and all other flame sources away from the sweeper. Gasoline, LP gas, and diesel fuel are highly flammable. Lead acid batteries are equally dangerous due to the highly explosive hydrogen gas they emit.

⚠ WARNING

1. Before starting the engine, make sure that:
   - You are securely seated in the operator's seat.
   - The parking brake is locked.
   - The directional control pedal is in neutral.
   - The throttle is in idle.
   - Hydraulic controls are in OFF position.

2. During operation:
   - Keep your hands and body clear of moving parts, especially when the hopper or lift arms are partially or fully raised.
   - Make sure others in the area stay clear of the equipment and moving parts.
   - Never attempt to dump debris from a dock or mezzanine. Dump from ground level only.

3. When leaving the sweeper unattended:
   - Place the controls in OFF position.
   - Set the parking brake.
   - Shut off the engine.

4. During cleaning and maintenance:

   - Always stop the engine and set the parking brake before servicing.
   - Never use detergents or cleansers that are flammable or combustible.
   - Never inflate a pneumatic tire without using a safety cage.
   - Do not attempt any impeller adjustment unless you have shut off the engine. Never place your hands near the intake hoses or inlet when the engine is running.
   - With ***high dump models***, always engage the safety arm before getting under the hopper. Do not rely on the hydraulic cylinder to keep the hopper raised.

5. When servicing or repairing the fuel system:

   - Work in a properly ventilated area, do not smoke, or allow an open flame near the fuel system.
   - Never bypass safety components unless you are testing them.
   - Never bypass the fuel filter lock or oil pressure switch, except when testing them (and always reconnect them after testing).
   - Wear gloves to disconnect the tank coupling.

6. Do not operate an LPG powered sweeper when any component in the fuel system is malfunctioning or leaking.

7. Replace any defective safety components before operating the sweeper.

⚠ CAUTION

1. Do not drive with the hopper in the raised position except the few feet necessary to position the hopper over the dumpster or recepticle. Driving with the hopper raised reduces visibility and creates conditions for striking overhead objects, throwing the machine off balance, and other hazards.

2. Travel slowly on grades.

3. Place a block or chock behind the wheels when parking on inclines.

4. Use special care when traveling on wet surfaces.

5. Observe all proper procedures for operation and maintenance of the sweeper, as outlined in this manual.

6. Remain alert at all times to people and equipment in and around your area of operation.

ATTENTION!

1. Do not operate the #2 RTR lever before the #1 light illuminates.

2. Never push or tow a machine faster than specified.

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SPECIFICATIONS
SW 88

FRAME, WEIGHT, DIMENSIONS

Frame	Unitized construction, 3/16" steel plate, reinforced at stress points
Net Weight	2800 lb.
Shipping Weight	3200 lb.
Length	103.56"
Width	60.12"
Height	57.0"
Height with Overhead Guard	87.0"
Height with Cab	83.50"

ENGINE, BATTERY

Battery	Electric start 12 volt, maintenance free
Gasoline and LPG Engine	Liquid cooled, transverse mid-engine design 49 HP, develops 36 HP at governed 2400 RPM
Diesel Engine	Liquid cooled, transverse mid-engine design 46 HP, develops 39 HP at governed 2400 RPM

STEERING, BRAKES, PERFORMANCE

Steering	Drive and steering through rear wheel
Parking Brakes	Mechanical drum brakes on two front wheels
Max. Forward Speed	10 mph
Min. Isle Width Required for U-Turn	114"

FLUID CAPACITIES

Fuel Tank	8 gal.
Radiator	3 qt.
Total Coolant System	6 qt.
Hydraulic Fluid Reservoir	6 gal.

CLEANING COVERAGE, TANK AND HOPPER CAPACITIES

Vacuum System	High speed 9" impeller Two fully enclosed, positive sealed panel filters 120 sq. ft. of filtering area Two electric filter shakers
Total Sweep Path	60"
Main Broom Path	42"
Sweep Coverage	178,000 sq. ft. per hour with 6" overlap (based on 60" path at 7.5 mph)
Hopper Capacity	1,200 lb., 16 cu. ft.

CLEANING COMPONENTS

Main Broom	Cylindrical, one-piece, disposable, 14" diameter x 42" long
Side Broom	Rotary, one-piece, disposable, 26" diameter

HYDRAULICS

Wheel Motor	Char-Lynn 4000 Series 15 cu. in. per rev. displacement High torque, low speed Protected by 4000 psi relief valves
Broom Motors	Char-Lynn H Series Gerotor, high torque, low speed
Propulsion Pump	Cessna Variable Displacement Piston Pump 1.24 cu. in. per rev. displacement Protected by 4000 psi relief valves
Accessories Pump	Cessna gear pump .84 cu. in. per rev. displacement Protected by 2200 psi relief valve
Directional Control Valve	Cessna
System Filter	Donaldson 10 micron spin-on with filter condition indicator
Heat Exchanger	One-piece tubular coil

SPECIFICATIONS
SW 78

FRAME, WEIGHT, DIMENSIONS

Frame	Unitized construction, 3/16" steel plate; reinforced at stress points
Net Weight	2700 lb.
Shipping Weight	3100 lb.
Length	103.56"
Width	54.12"
Height	57.0"
Height with Overhead Guard	87.0"
Height with Cab	83.50"

ENGINE, BATTERY

Battery	Electric start 12 volt, maintenance free
Gasoline and LPG Engine	Liquid cooled, transverse mid-engine design 38 HP, develops 29 HP at governed 2400 RPM

STEERING, BRAKES, PERFORMANCE

Steering	Drive and steering through rear wheel
Parking Brakes	Mechanical drum brakes on two front wheels
Max. Forward Speed	8 mph
Min. Isle Width Required for U-Turn	108"

FLUID CAPACITIES

Fuel Tank	8 gal.
Radiator	3 qt.
Total Coolant System	6 qt.
Hydraulic Fluid Reservoir	6 gal.

CLEANING COVERAGE, TANK AND HOPPER CAPACITIES

Vacuum System	High speed 9" impeller Two fully enclosed positive sealed panel filters 100 sq. ft. of filtering area Two electric filter shakers
Total Sweep Path	54"
Main Broom Path	36"
Sweep Coverage	158,400 sq. ft. per hour with 6" overlap (based on 54" path at 7.5 mph with 6" overlap)
Hopper Capacity	1,000 lb., 14 cu. ft.

CLEANING COMPONENTS

Main Broom	Cylindrical, one-piece, disposable, 14" diameter x 36" long
Side Broom	Rotary, one-piece, disposable, 26" diameter

HYDRAULICS

Wheel Motor	Char-Lynn 2000 Series 18.7 cu. in. per rev. displacement High torque, low speed Protected by 3000 psi relief valves
Broom Motors	Char-Lynn H Series Gerotor, high torque, low speed
Propulsion Pump	Cessna Variable Displacement Piston Pump 1.24 cu. in. per rev. displacement Protected by 3000 psi relief valve
Accessories Pump	Cessna gear pump .66 cu. in. per rev. displacement Protected by 1500 psi relief valve
Directional Control Valve	Cessna
System Filter	Donaldson 10 micron spin-on with filter condition indicator
Heat Exchanger	One-piece tubular coil

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Component Descriptions

THE ENGINE

Engines are:

- 4-cylinder.
- liquid cooled.
- electrically started, and
- transverse, mid-engine designed.

Standard gasoline engines for 88 series are 49 HP. They develop 36 HP at governed 2400 RPM.

Standard gasoline engines for 78 series are 38 HP. They develop 29 HP at governed 2400 RPM.

Standard diesel engines are 46 HP. They develop 46 HP at governed 2400 RPM.

Additional Information

For additional detailed information about the engine on your sweeper, refer to the vendor's engine manual furnished with this manual. In it you will find information on the following components:

- carburetor
- alternator
- governor
- fuel pump
- starter
- points and plugs
- fan belt
- water pump
- distributor

THE AIR INTAKE SYSTEM

Air Intake System

Engines are equipped with a dry cartridge type air filter with a rubber dust cup in the housing. The filters are accessible for easy removal and cleaning.

All engines have two-stage Donaldson filters.

THE ELECTRICAL SYSTEM

Battery

The battery is a 12-volt, 325 cold cranking amp, maintenance free battery.

Fuses

The fuses which protect the circuit are located in four fuse holders on the instrument control panel. Below is a chart showing left-to-right location of fuses and their purpose.

Fuses

As viewed left to right from the operator's seat:

30 AMP -	Main Fuse
20 AMP -	Filter Shaker Motors, Horn, Fuel Gauge, Option Connector
15 AMP -	Oil Pressure Gauge, Water Temperature Gauge, Hour Meter
15 AMP -	Headlights, Taillights, Gauge Lights

Instruments

Gauges and indicator lights include an ammeter, hour meter, fuel gauge, oil pressure gauge, and water temperature indicator. For descriptions of these basic instruments and various accessory instruments, refer to the controls section of this manual.

THE FUEL SYSTEM

Engines receive fuel from an 8-gallon capacity tank. Fuel is received through inline, disposable filters. Fuel supply is monitored by a fuel gauge. Fuel system characteristics of gasoline, LPG, and diesel engines are listed below.

Gasoline

Major fuel system components for gasoline-fueled engines are:

- fuel tank
- fuel filter
- mechanical fuel pump
- carburetor
- manually operated carburetor choke

Liquid Propane Gas (LPG)

Major fuel system components for LPG-fueled engines are:

- fuel tank
- pressure relief valve/fuel filter
- electric lock off valve
- combination water heated vaporizer and primary regulator
- combination carburetor and secondary regulator

Diesel

Major fuel system components for diesel-fueled engines are:

- fuel tank
- fuel water trap
- fuel filter
- fuel lift pump
- fuel injection pump
- fuel injectors

THE COOLANT SYSTEM

Engine coolant is stored in a three quart capacity radiator and circulates through hoses and engine block which bring the total system capacity to six quarts.

A spring-loaded valve in the radiator pressure cap, designed to open at 14 psi, closes the outlet to the overflow pipe.

THE LUBRICATION SYSTEM

Grease fittings supply lubrication to:

- impeller bearing housing
- steering gear box
- steering link arm
- steering fork assembly
- pillow blocks supporting dump arms

For detailed information on lubrication requirements and the lubrication points and grease fittings, refer to the Maintenance section of this manual.

THE HYDRAULICS SYSTEM

Hydraulic fluid is pumped from an eight-gallon capacity reservoir. The fluid passes through a 100 mesh suction strainer into supply lines which circulate fluid through two systems: the propulsion system and the accessory system. Fluid returns through a heat exchanger and a filter equipped with a condition gauge.

Propelling System

The major component of the propelling system is a variable displacement piston pump protected by relief valves. The pump sends fluid to drive the wheel motor which controls the forward and reverse speed of the machine, as well as dynamic breaking.

Accessories System

The major component of the accessories system is a gear pump. The gear pump, protected by a relief valve, sends fluid through a control valve to raise and lower hopper, to rotate hopper (on high dump models), and to drive brooms, brushes, and other accessories.

Brooms are driven by gerotor-type high torque, low speed motors. Hopper is raised, lowered, and rotated (on multi-level high dump) by hydraulic cylinders.

THE VACUUM SYSTEM

Impeller and Belts

The vacuum system operates from three basic components:

- a high speed 9" impeller, belt-driven off the engine
- 2 gripnotch belts

Filters and Shakers

SW models have two fully enclosed, positive sealed, quick-change filters providing 100 sq. ft. of filtering area and two electric shakers for cleaning the filters.

SWEEP COMPONENTS

Main Broom

The main broom has the following features:

- one-piece, cylindrical, and disposable
- runs at constant RPM
- can be changed in less than five minutes
- is raised and lowered from operator compartment
- floats for uneven surfaces
- adjusts for pressure and wear

Side Broom

A rotary one-piece disposable side broom on SW models can be quick changed in seconds without tools, is bumper protected, and adjustable for angle, pressure, and wear.

Skirts

Skirts on the bottom of each broom door and at the back of the broom chamber help contain the dust inside the sweeping and vacuuming compartment.

Capabilities

Sweep paths and coverages are listed by model in the Specifications section of this manual.

HOPPERS

SW	SW hoppers are constructed of 12 GA steel and come with either powered floor level dump or multi-level high dump.
	All machines are equipped with a frame seal and side seals to contain dust and fine debris within the hopper.
Rotary Trash Relocator	The rotary trash relocator (RTR) on high dump models increases the debris-holding capacity of the hopper, extending the sweeping time before dumping. By rotating the hopper about halfway through the dump rotation, the debris at the lip of the hopper moves to the front wall, leaving the entrance area clear to receive and hold more debris.

STEERING, BRAKES, AND TIRES

Steering	PowerBoss™ sweepers are designed with standard cam and lever steering through the rear wheel.
Brakes	PowerBoss™ sweepers are equipped with a parking brake, mechanically operated by a cable which connects to drum brakes on the two front wheels.
Tires	PowerBoss™ sweepers use an interchangeable, two-piece, bolt-together cast rim for mounting solid tires. For more detailed information related to dimensions and pressure requirements, refer to the Specifications and Maintenance sections of this manual.

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Operation

BASIC OPERATING CONTROLS*

IGNITION SWITCH

The four position ignition switch is used to start the engine. ***To start gasoline-powered machines***, turn the key to START position, then release.

To start diesel-powered machines, turn the key to ON position and wait 15 seconds. Then turn the key to START position and release. Repeat if necessary.

HORN

The horn is activated by pressing the horn button located on the right side of the instrument panel.

FUEL LEVEL GAUGE

The fuel level gauge indicates the amount of fuel remaining in the tank.

AMMETER

The ammeter indicates the charging current which is being sent to the battery by the alternator. It also indicates a discharge of current being used by the sweeper when the alternator is not charging.

HOUR METER

The hour meter records the number of hours the machine has been operated, providing a helpful guide for performing routine maintenance tasks.

ENGINE CHOKE KNOB

The choke knob on gasoline-powered machines is connected to a cable which controls the engine choke.

- Pull the knob out for aid in colding starting the engine.
- Push the knob in after the engine starts.

STOP CABLE

The stop cable serves the same purpose on the diesel engine as the choke knob on the gasoline engine.

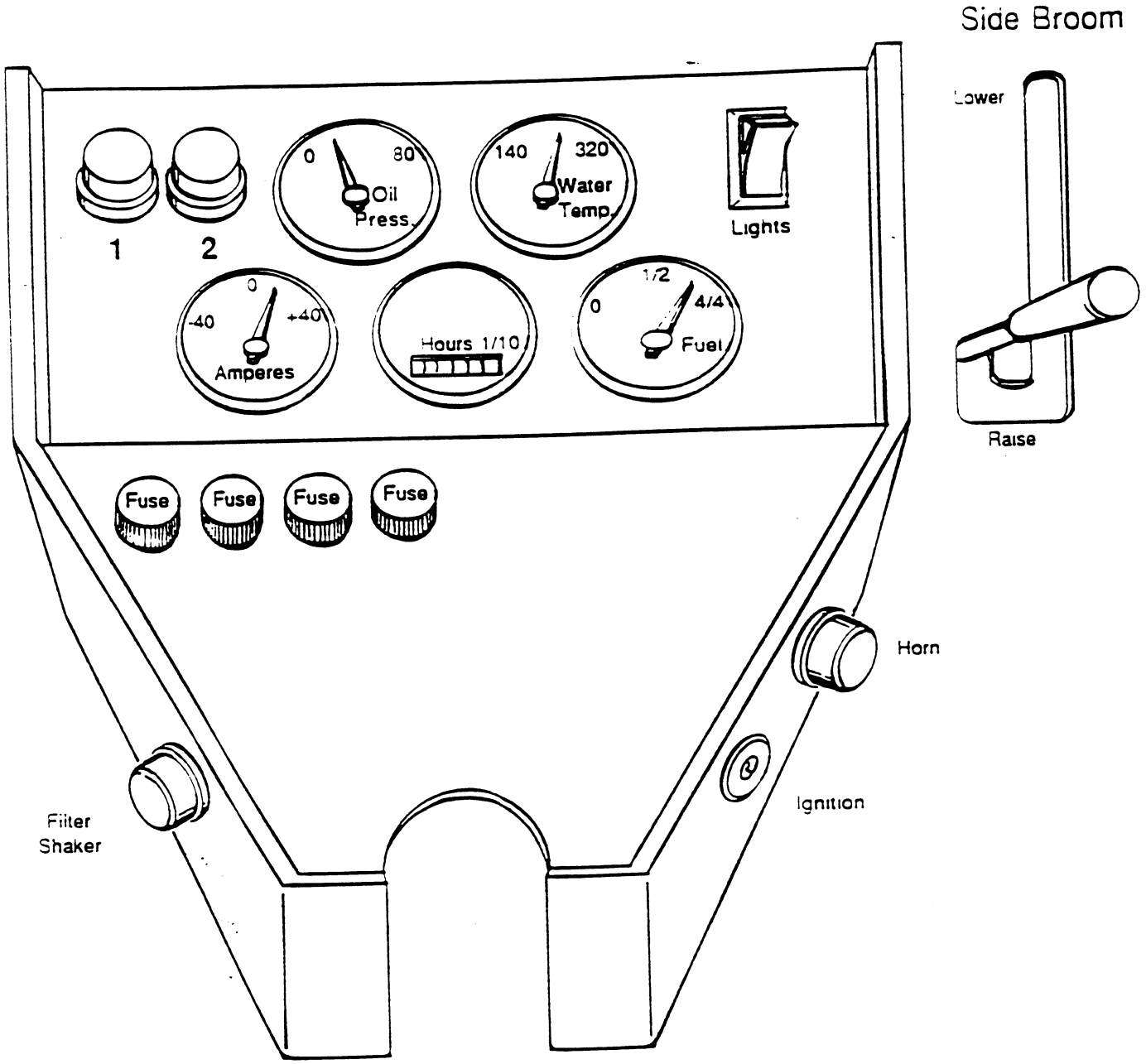
- When the stop cable knob is pulled out, the fuel pump is disconnected. The stop cable knob should be pulled out only after turning off the key switch, to prevent running down the battery.
- After the engine starts, push the stop cable knob in.

ENGINE OIL PRESSURE

The engine oil pressure gauge ranges from 0 psi to 60 psi. A reading below 7 psi indicates problems which may result in damage to the machine.

* Refer to the control drawings on the following pages.

Basic Operating Controls



ENGINE COOLANT TEMPERATURE GAUGE

The engine coolant temperature gauge registers the temperature of engine coolant. Temperatures above 210° F indicate an overheating engine.

THROTTLE

The throttle adjusts the engine speed from idle to the operating speed.

- The throttle should be in the IDLE position when starting the engine and immediately before shutdown.
- Full throttle position should be used during operation to insure proper broom speed and dust control.

DIRECTIONAL CONTROL PEDAL

The directional control pedal controls the speed and direction of the machine. It is also used for slowing the machine or stopping.

- To propel the machine forward, apply pressure to the front of the pedal, increasing pressure to increase speed.
- To propel the machine backward, apply pressure to the rear of the pedal.
- To slow or stop the machine, move foot pedal into neutral.
- For quick stops or emergency stops move foot pedal past neutral into opposite position.

The sweeper is equipped with a speed limiter, a stop under the pedal which can be raised to reduce maximum speed.

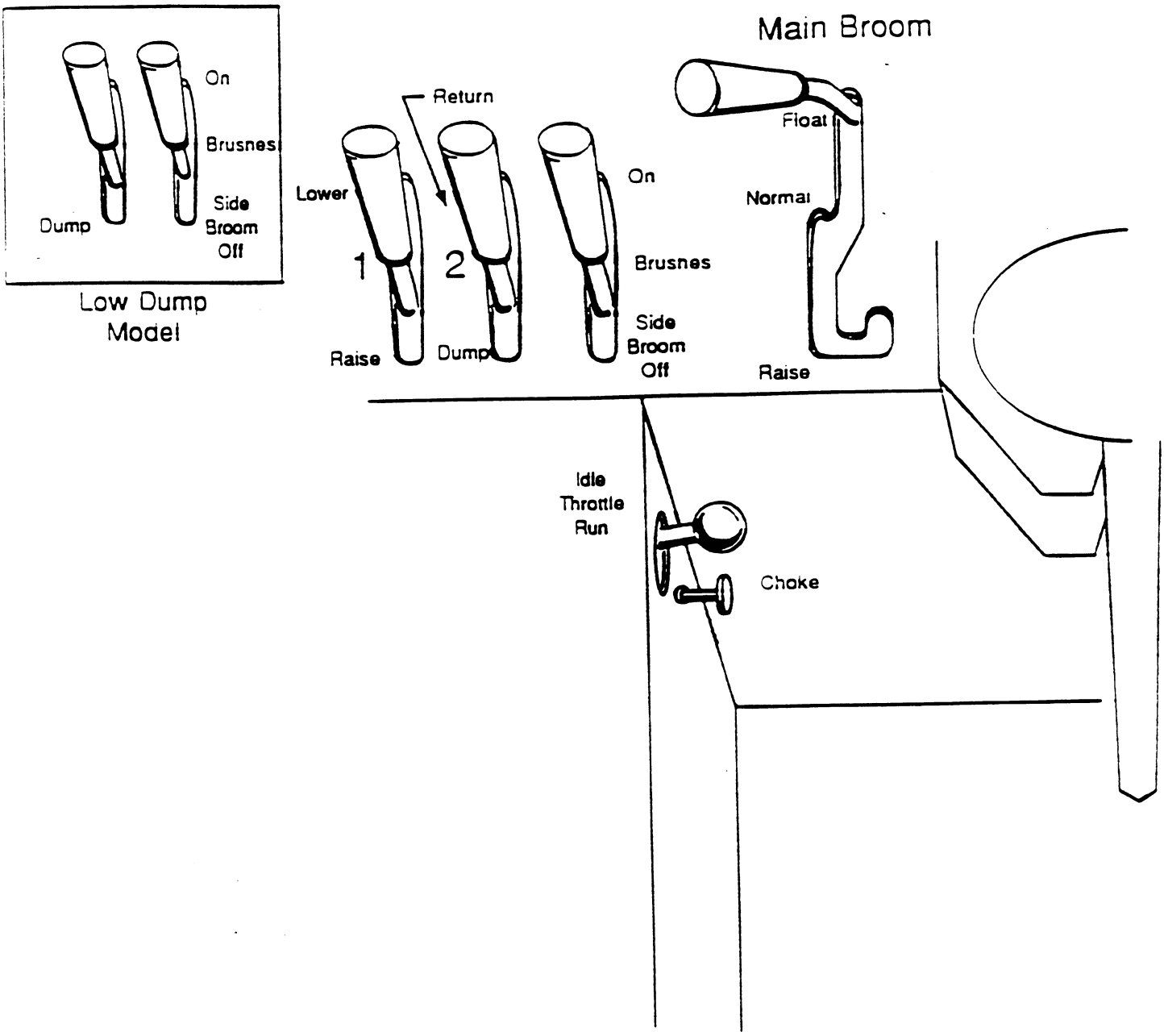
PARKING BRAKE

The mechanical drum brakes on the two front wheels are used primarily for parking the machine and are operated by the brake pedal. Chock wheels if machine is parked on an incline.

NOTE: The directional control pedal is used to slow and stop during normal operation.

- To engage the brakes, press down on the pedal.
- To lock the brakes, tilt the pedal forward.
- To release the brakes, apply pressure to the back of the pedal and release.

Sweeping Controls



SWEEPING CONTROLS

BROOM CONTROL LEVER

The broom and brush control lever to the left of the main broom handle activates the brooms.

NOTE: Even though brooms are rotating each can be lowered independently.

When sweeping:

- To activate the main and side brooms, push this lever to the ON position.
- To activate the main broom only, pull this lever to the SIDE BROOM OFF position.
- The center (straight up) position is the OFF position.

MAIN BROOM HANDLE

The main broom handle to the immediate left of the instrument panel raises and lowers the main broom.

- For normal sweeping, position the handle at NORMAL on the handle slot.
- For extremely uneven floors, position the handle at FLOAT on the handle slot.

NOTE: Extensive use of the float position reduces broom life.

- When not sweeping, position and lock the handle at RAISE on the handle slot.

SIDE BROOM HANDLE

The side broom handle to the right of the instrument panel raises and lowers the side broom.

- When not sweeping, the side broom should remain in the raised position.
- To lower the broom, position the handle at LOWER in the handle slot.
- To raise the broom, position the handle at RAISE in the handle slot.

DEBRIS HOPPER DUMP CONTROLS

HOPPER FILTER SHAKER BUTTON

This button is used to activate the filter shakers prior to dumping or as needed for cleaning the dust control filters. Hold the button in approximately 15 - 20 seconds, or as long as necessary to clean the filters.

MANUAL LIFT OUT MODELS

Two handles on top of the hopper are used to manually lift the hopper off the support brackets which attach it to the frame.

LOW DUMP MODELS

The left lever on the front control panel is used to raise and dump the hopper.

- To raise the hopper to dump position, pull back the lever marked DUMP from its center off position until the hopper raises to dump position.
- To lower the hopper after dumping, return the lever to its center off position.

⚠ **CAUTION:** Do not leave the hopper in RAISE position for an extended period of time.

HIGH DUMP MODELS

The two far left levers on the front control panel are used to raise the hopper to any height up to 60" and dump it.

NOTE: Levers are spring loaded to a center off position.

- To raise the hopper, pull back Lever 1 to the RAISE position and hold until the hopper raises to the proper height for the dumpster or container.
- To empty debris, pull back Lever 2 to the DUMP position to rotate the hopper forward and empty the debris.
- To rotate the hopper back, push Lever 2 forward to the RETURN position until the hopper rotates and stops.
- To lower the hopper, push Lever 1 forward to the LOWER position until the hopper stops.

ROTARY TRASH RELOCATOR (RTR)

Rotary Trash Relocator (RTR) is a standard feature on high-dump models. Its purpose is to increase the holding capacity of the debris hopper to make dumping the hopper necessary less frequently.

OPERATING PROCEDURES*

PRE-OPERATION CHECKS

Prior to starting the engine, check the following:

1. Engine oil level
2. Engine coolant level
3. Fuel level
4. Hydraulic fluid level
5. Brakes, steering, and directional controls
6. The floor beneath the machine for leak spots

Fluid levels should be correct. Brakes, steering, and directional controls should be functioning properly. Hoses, lines, and tanks should be free of damage and leaks.

STARTING

⚠ **WARNING**: Before cranking the engine, seat yourself in the operator's seat and make sure the parking brake is locked.

1. Make sure the directional control pedal is in neutral position.
2. Make sure the throttle is in idle position.
3. ***Gasoline-Powered***: Turn the key to START position, then release. If the engine is cold, pull out the choke knob, turn the key to START, then release. When the engine is running smoothly, push in the choke knob.

   Diesel-Powered: Be sure engine stop knob is pushed in. Turn the key to START position and wait 15 - 20 seconds. Then turn the key to START POSITION and release.

NOTE for both gasoline and diesel-powered engines: If the engine fails to start, do not continue cranking for over ten seconds. Allow the starter motor to cool between attempts.

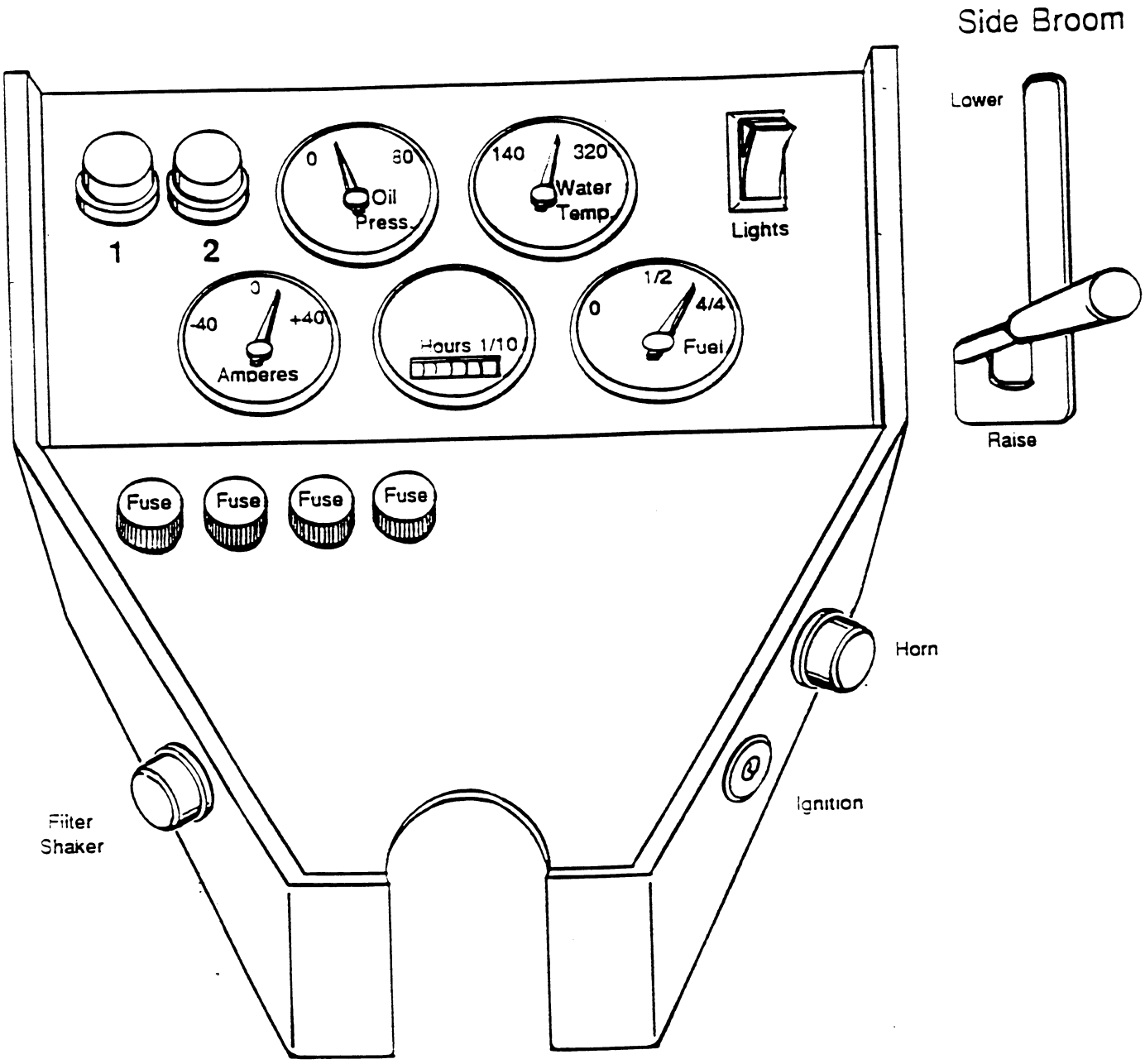
4. Allow the engine to warm up approximately two minutes.
5. Move the throttle from IDLE to RUN.
6. Unlock the parking brake.
7. Move the machine forward or backward as follows:
   - Forward: Apply pressure to the front of the directional control pedal, increasing pressure to increase speed.
   - Reverse: Apply pressure to the rear of the pedal, increasing pressure to increase speed.

SLOWING AND STOPPING

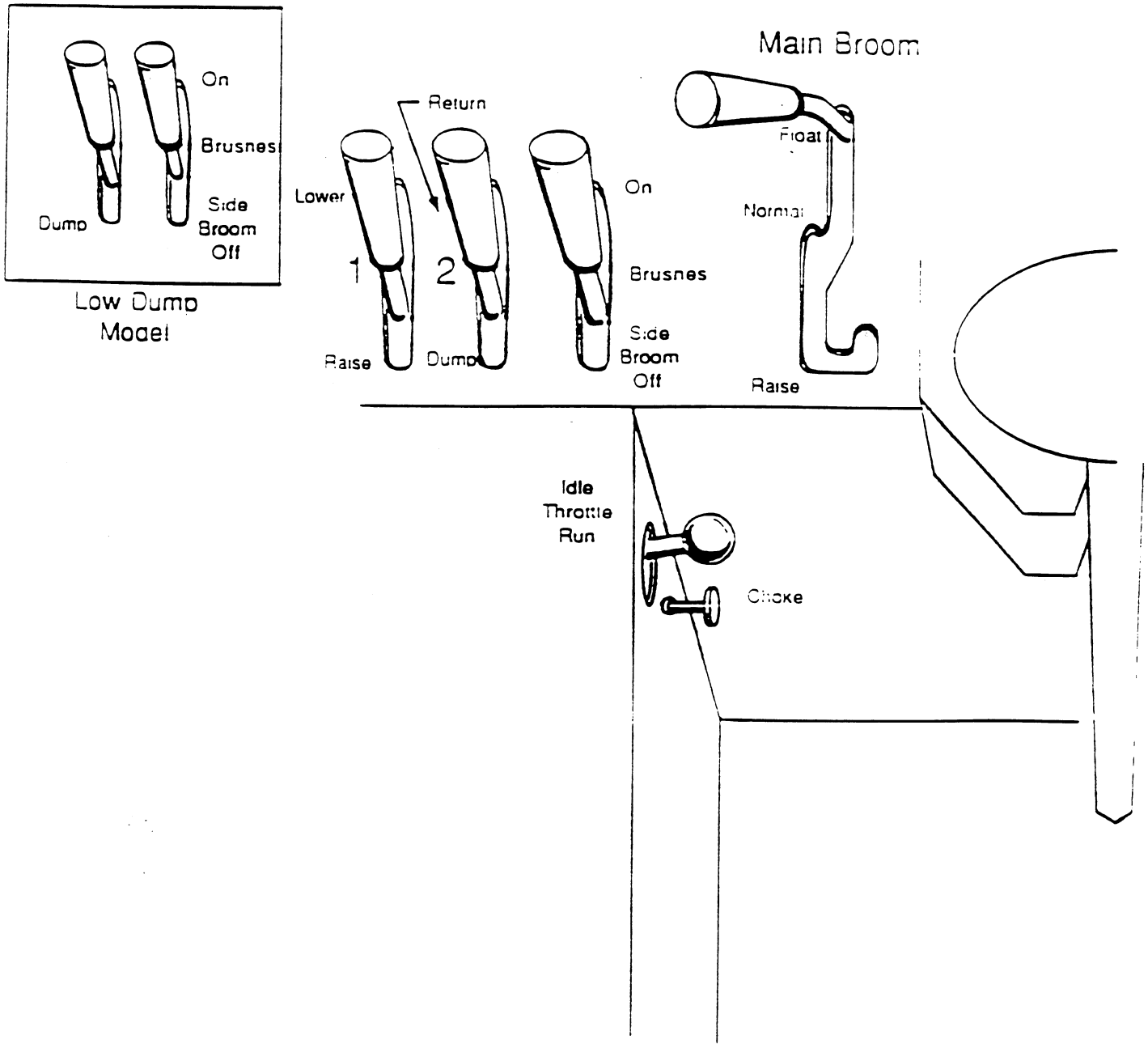
1. Allow the directional control pedal to move into neutral. The machine will slow and coast to a stop.

* Refer to the control drawings on the following pages.

Basic Operating Controls



Sweeping Controls



OPERATING ON GRADES

1. Always travel slowly.
2. Exercise extreme caution when traveling across or turning on grades.

SWEEPING

1. Lower the brooms.
   - Lower the main broom by positioning the main broom handle at NORMAL on the handle slot.
   - When sweeping extremely uneven floors, position the main broom handle at FLOAT on the handle slot.
   - Lower the side broom by positioning the side broom handle at LOWER in the handle slot.
2. Activate the broom motors.
   - Activate the main broom motor by pulling the broom and brush control lever to the SIDE BROOM OFF position.
   - Activate both main and side broom motors by pushing the broom and brush control lever to the ON position.
3. Drive the machine over the area to be swept.

EMPTYING THE HOPPER

Manual Lift-Out Models

1. Grasp the handles on top of the hopper.
2. Lift the hopper straight up (about 3") until the support brackets clear the frame.
3. Move the hopper back and dump it out.

NOTE: If the debris in the hopper is too heavy, the hopper can be rotated and partially dumped to make it lighter.

Low Dump Models

1. Drive the machine to the dumping area.

NOTE: Broom control lever must be in center off position.

⚠ **WARNING:** Never attempt to dump debris off a dock or mezzanine. Dump it onto ground surface only.

3. Push the throttle to the IDLE position.
4. Pull back the lever marked DUMP from its center off position until the hopper raises and locks in dump position. Debris will empty onto floor.
5. With the hopper in the raised position, press the filter shaker button for 10 to 30 seconds to shake the dust from the hopper filter(s).

6. Use the directional control pedal to slowly back the machine a distance of about five feet.

⚠ WARNING: It is unsafe to travel an extended distance with the hopper raised. Travel only the distance necessary to clear the debris area.

⚠ WARNING: Never place your hands or other body parts under a raised or partially raised hopper unless the safety arm is in place.

7. Use the directional control pedal to stop the machine, then release the DUMP lever to return it to its center off position.

8. Pull the throttle back to FAST and resume sweeping.

High Dump Models

1. Drive the machine to the dumping area.

2. Use the directional control pedal to position the machine so that the space between the machine and the container or dumpster is adequate to raise the hopper.

NOTE: Broom control lever must be in center off position.

3. Reduce the engine speed.

4. Pull back Lever 1 to RAISE position and hold until the bottom of the hopper is high enough to clear the top of the container.

⚠ WARNING: Never place your hands or other body parts near the lift arms when the hopper is operating.

5. Use the directional control pedal to slowly and carefully move the machine forward until the hopper is properly positioned to dump debris into the container.

⚠ CAUTION: It is unsafe to travel an extended distance with the hopper raised. Travel only the distance necessary to position the hopper.

6. At this point, shake filters for 20 - 30 seconds. Pull back Lever 2 to DUMP position to rotate the hopper forward and empty the debris.

7. After hopper empties, push Lever 2 forward to RETURN position until the hopper rotates and stops.

8. Slowly back machine away from dumpster approximately 5 ft.

9. Push Lever 1 forward to the LOWER position until the hopper stops.

)TARY
:ATOR

1. Use the directional control pedal to stop the machine on a level surface.

2. Move the throttle to IDLE position.

NOTE: As you complete Steps three and four, observe the two red lights labeled 1 and 2 in the upper left corner of the control panel.

- Light 1 illuminates when the hopper reaches the minimum height required to use the RTR feature.

- Light 2 illuminates when the hopper reaches the rotation stop point.

3. Pull back Lever 1 to the RAISE position and hold until Light 1 illuminates, then release.

⚠ **WARNING**: Make sure no one is in the area under or around the hopper.

4. Pull back Lever 2 to DUMP position and hold until Light 2 illuminates, then release.

NOTE: This rotates the hopper, causing debris to move from the rear entrance to the front wall of the hopper. Rotating beyond this point will cause debris to be dumped from the hopper.

5. Push Lever 2 forward to RETURN position until the hopper rotates back and stops.

6. Push Lever 1 forward to the LOWER position until the hopper returns to the normal operating position.

7. Move the throttle back to RUN and resume sweeping.

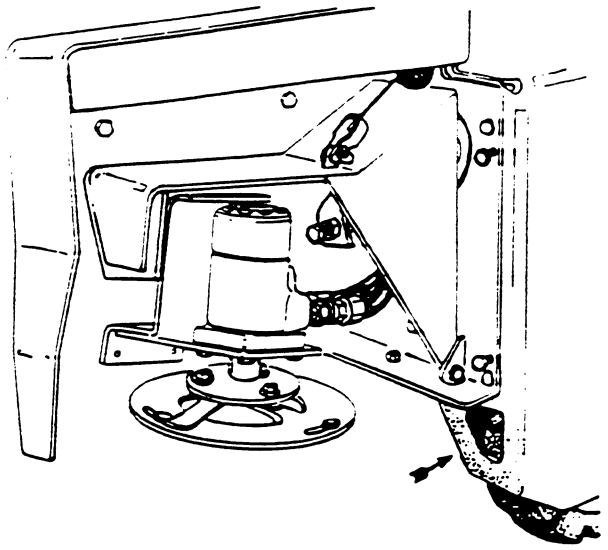
TRANSPORTING THE MACHINE

Loading

1. Position the machine on the transport vehicle or trailer and apply the parking brake.

2. Tie the machine down using the tie down holes in the frame behind both front wheels and eye bolts located at rear of frame.

NOTE: Attach the tie downs to the frame only.



Pushing

1. Push the machine from the front or rear using bumpers only.

ATTENTION! Do not tow or push the machine a distance of more than .5 miles or faster than one mile per hour. Exceeding these restrictions may cause damage to the hydraulic system. If towing will exceed the above restrictions, the rear wheel must be raised or supported by a dolly.

USING THE ACCESSORIES

Accessory switches are labeled as listed below. Locations are indicated in parenthesis.

Safety Lights
(Top rear of machine or bottom side of overhead guard)

The hazard lamp comes on and goes off with the ignition switch.

To receive warm air from the heater assembly, open the heater valve in the engine compartment, then turn the blower switch to the desired speed setting.

The blower blows debris from hard-to-reach areas into the path of the sweeper. To activate the blower, flip the lever on the impeller assembly where the hose attaches.

To activate the fan, flip the switch toggle.

cab

To use headlights, taillights, and the brush spot light (when f equipped), flip the rocker switch.

rs To use the windshield wipers, turn the switch on.

Cab pressurizer is controlled using the three-speed switch.

The fire in hopper lamp lights when temperature in the hopper reaches 135°. This is an unsafe condition which demands immediate attention.

The clogged filter lamp lights when dust filters become clogged and excessively restrict vacuum air flow.

TABLE OF CONTENTS
Maintenance

INTRODUCTION

Regular maintenance on your sweeper results in better cleaning, faster cleaning, and a prolonged service life for the equipment and components. This section contains the following information to help you give your sweeper the maintenance attention it requires:

- A Preventive Maintenance Chart
- Service Instructions for Required Maintenance Tasks

Because it is extremely important to your safety, you will see the following WARNING repeated throughout this section:

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

HOURS)		SERVICE
200	500	(BY MAINTENANCE AREA)
		ENGINE
X		Pressure wash engine.
		For additional maintenance requirements, refer to the engine manual furnished with this manual.
		AIR INTAKE AND EXHAUST SYSTEMS
		Empty rubber dust cup of air filter element.
		Clean air filter. NOTE: Clean more often in dusty conditions.
	X	Replace air filter.
		ELECTRICAL SYSTEM
		Check electrolyte level in battery cells and fill as needed.
X		Clean battery top.
		COOLANT SYSTEM
		Check coolant level and fill as needed.
		Inspect radiator fins and clean as needed.
		Blow out radiator fins.
	X	Drain and flush coolant system.

PREVENTIVE MAINTENANCE CHART

FREQUENCY (IN HOURS)					SERVICE (BY MAINTENANCE AREA)
Daily	50	100	200	500	
					HYDRAULIC FLUID
X					Check hydraulic reservoir gauge and fill as needed.
		X			Blow off or pressure wash cooling coil.
				X	Replace breather cap filter element.
				X	Replace hydraulic fluid and filter.
X					Check functioning of directional control pedal and adjust as needed.
				X	Clean hydraulic fluid strainer in reservoir.
					SWEEPING COMPONENTS
X					Inspect brooms for wear and remove strings and debris from bristles and drive assembly.
	X				Inspect broom skirts for wear and adjust or replace as needed.
	X				Rotate main broom end-to-end.
	X				Perform main broom adjustment test and adjust as needed.
X					Inspect the side broom for wear and adjust as needed.
					Replace main and side brooms as needed.

HOURS)		SERVICE
200	500	(BY MAINTENANCE AREA)
		HOPPER
		Check hopper filters and clean or replace as needed.
		Check hopper clearance from floor and adjust as needed.
		Inspect the hopper flaps for wear or damage and replace as needed.
		Inspect hopper side and frame seals for wear or damage. Adjust or replace as needed.
	X	Lubricate the pillow blocks supporting the dump mechanism.
		STEERING
	X	Lubricate steering gear box.
	X	Lubricate steering link arm.
	X	Lubricate steering fork assembly.
	X	Check steering gear box for wear and adjust as needed.
		PARKING BRAKE
X		Check for proper functioning and adjust as needed.

FREQUENCY (IN HOURS)					SERVICE
Daily	50	100	200	500	(BY MAINTENANCE AREA)
					TIRES
X					Visually inspect for wear and damage. Repair or replace as needed.
			X		Check pneumatic tires for proper air pressure. Adjust inflation as needed.
					MISCELLANEOUS
				X	Inspect latches and hinges. Tighten and lubricate as needed.
			X		Check anti-static drag chain on rear wall of broom chamber for damage or excessive wear. Replace as needed.
				X	Check side broom lift cable, and brake cable for wear.
					IMPELLER
		X			Lubricate.
		X			Check belt tension and alignment.

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quirements and service instructions for your sweeper engine are outlined in the
f this Maintenance section:

take and Exhaust Systems
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System
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nance tasks are listed with their recommended frequencies on the Preventive
art in this manual. Important additional maintenance requirements and
explained in the engine manual which comes with your machine.

NG **Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.**

AIR INTAKE AND EXHAUST SYSTEMS

To keep the air intake and exhaust systems operating efficiently:

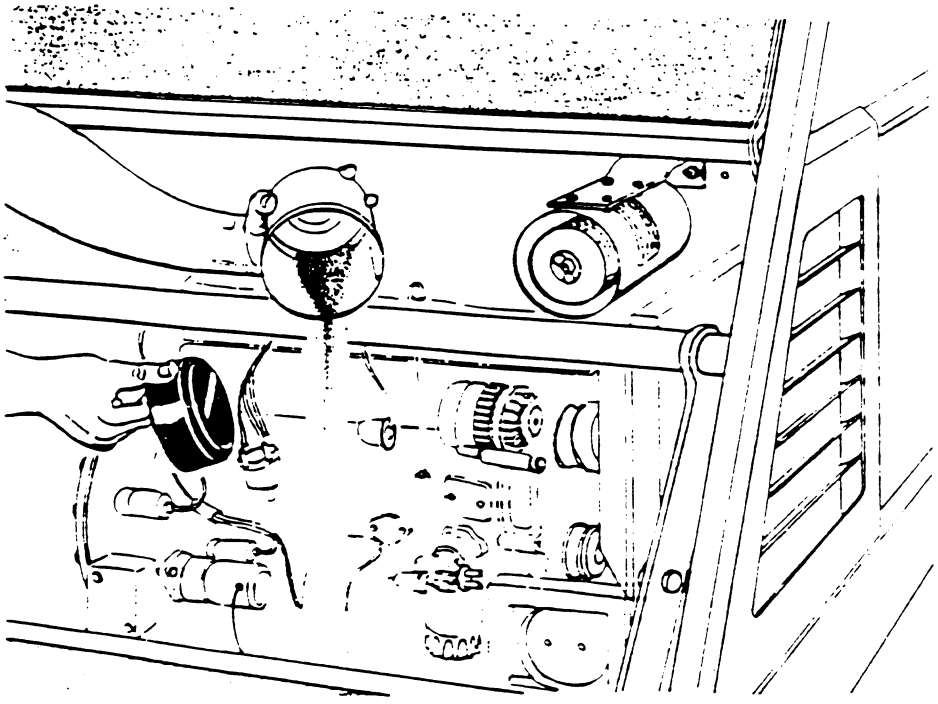
- Empty the rubber dust cup of the air filter element daily.
- Clean the engine air filter every 50 hours of operation. **NOTE:** Clean more frequently in dusty conditions.
- Replace the air filter every 500 hours of operation or as required.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

AIR FILTER REMOVAL

1. Turn off the engine and set the parking brake.
2. Lift the engine cover.



Locate the air filter and unscrew the ring clamp.

Remove the dust cup.

Pull the rubber plug out of the dust cup and empty the contents.

Unscrew the wing nut.

Pull the air filter out of its housing.

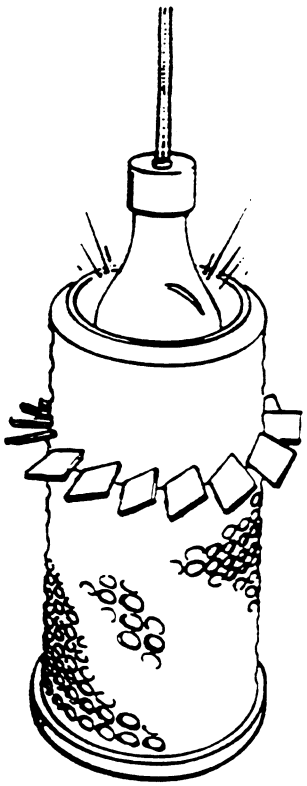
FILTER CLEANING

Once you have removed the air filter, empty the dust cup and clean the interior of the air filter housing.

Use an air hose to blow out the air filter. Air pressure should be 100 psi or less.

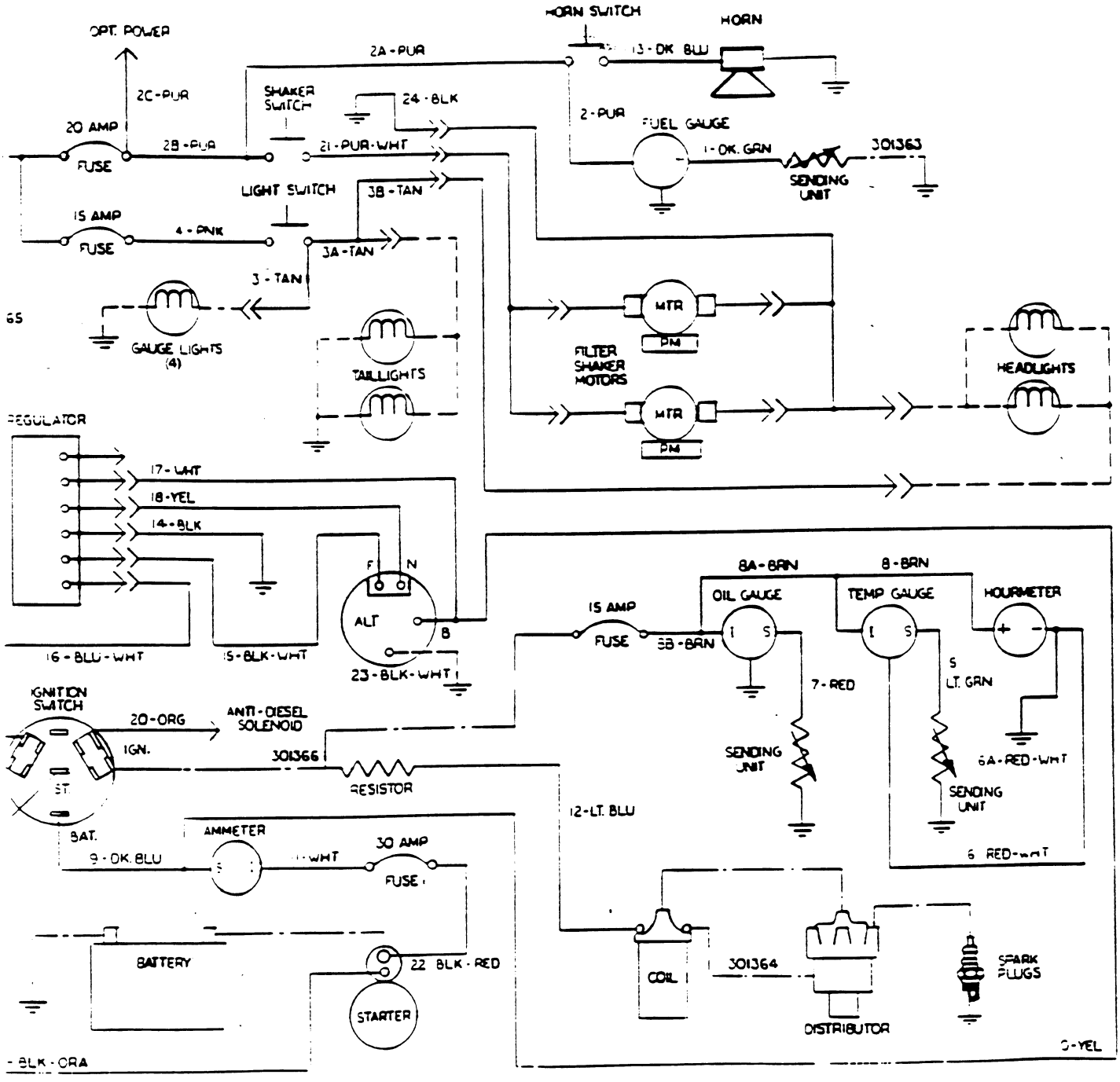
FILTER INSPECTION

After you clean the air filter, check it for holes by passing a light bulb inside it. If you detect so much as a pin-hole, the filter should be replaced.



AIR FILTER INSTALLATION

1. Wipe out the air cleaner housing with a damp cloth. Be sure all dirt is removed.
2. Install the cleaned or replacement filters so that fins are at the far end of the housing. Be careful not to damage the fins.
3. Replace the wing nut and tighten it.
4. Replace the rubber plug in the dust cap.
5. Replace dust cup being sure embossed word "top" on cup is positioned correctly (up).
6. Tighten the ring clamp.
7. Check condition of intake hoses and clamps.
8. Close the engine cover.



POWERBOSS ELECTRICAL SCHEMATIC
LOW DUMP - GAS - ALL MODELS

To keep the electrical system in good condition, the following maintenance is required:

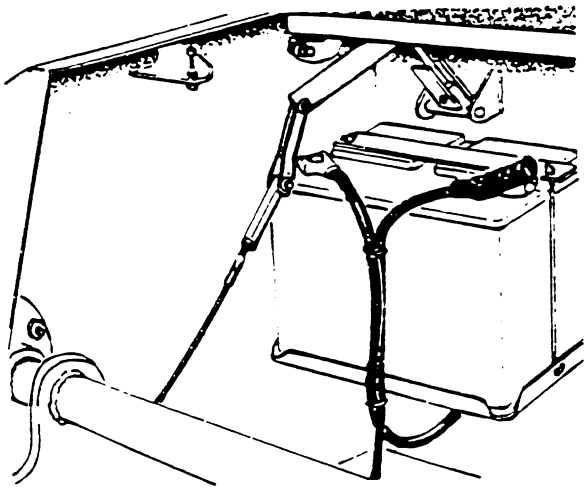
- Check the electrolyte level in each of the battery cells every 100 hours of operation and replenish as needed.
- Clean the battery posts and cover after 200 hours of operation.
- Use the color-coded wiring harness and the electrical schematic provided in this section to assist you with troubleshooting, testing, and diagnosis.
- Replace fuses as needed.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

BATTERY CLEANING

1. Combine baking soda and water in a strong solution.



2. Brush the solution over the battery top, including terminals and cable clamps. Make sure the solution does not enter the battery.

3. Using a wire brush, clean the terminal posts and cable clamps.

4. Apply a thin coating of vaseline to the terminals and cable clamps.

BATTERY REPLACEMENT

⚠ **CAUTION:** Remove the negative battery cable before you remove the positive battery cable. This is done to prevent accidental electrical shorting which can result in personal injury.

1. Disconnect the negative (-) cable and then the positive (+) cable.

2. Remove the battery.

3. Install new battery.

4. Connect the positive (+) battery cable first, then the negative (-) cable.

FUSE REPLACEMENT

1. Remove the blown fuse by turning the fuse holder cap counterclockwise.

2. Insert the correct amperage fuse into the fuse holder cap.

3. Install the fuse holder cap by turning the cap clockwise.

NOTE: Remember to reposition the rubber ring under the fuse holder cap.

To keep ***gasoline engines*** in good condition:

- Fill the fuel tank at the end of each day to prevent condensation from forming in the fuel tank. Use clean gasoline of at least 85 octane.
- Replace the fuel filter every 500 hours of use.

NOTE: The PowerBoss™ uses an in-line fuel filter located in front of the fuel pump.

To keep ***LPG engines*** in good condition:

- Inspect the fuel tanks each time they are refilled. Tanks with broken protecting rings, dents or gauges should be replaced.
- Inspect tank valves for paint, dirt, or other debris in valve openings.
- Check for frosting on or near LPG components. If frosting occurs, locate the suspected leak by applying soapy water to components which may be leaking and watch for bubbles. Repair or replace any defective parts.
- Check the fuel filter lock for proper operation as outlined in the service instructions which follow.

To keep ***Kubota diesel engines*** in good condition:

- Drain the fuel water trap daily.
- Change the fuel filter element and clean the trap after every 400 hours of operation.
- Prime the fuel system after changing the filter elements, servicing fuel system components, or running out of fuel.

To keep ***Perkins diesel engines*** in good condition:

- Clean the water trap after every 100 hours of operation.
- Replace the fuel filter element after each 400 hours of operation.
- Prime the fuel system after changing the filter elements, servicing fuel system components, or running out of fuel.

For additional information on the carburetor and fuel pump, refer to the engine service manual furnished with this manual.

⚠ WARNING: Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

⚠ WARNING: Never operate an LPG powered sweeper when any component in the fuel system is malfunctioning or leaking.

⚠ WARNING: Never bypass safety components unless you are testing them.

⚠ WARNING: Replace any defective safety components before operating the sweeper.

⚠ WARNING: During repair or servicing of the fuel system, work in a properly ventilated area and do not smoke or allow an open flame near the fuel system.

⚠ WARNING: When disconnecting the tank coupling, always wear gloves. LPG fuel can freeze bare hands.

⚠ WARNING: Under no circumstances should the fuel filter lock or the oil pressure switch be bypassed, except when testing them. After testing, always reconnect them. Bypassing the fuel filter lock or the oil pressure switch after testing creates a potential fire hazard.

CHECKING THE LPG FUEL FILTER LOCK

1. Start the engine. Then remove the wire going to the solenoid section of the fuel filter lock. The solenoid should close, shutting off the fuel supply and stopping the engine.
   - If the engine continues to operate, the fuel filter lock should be replaced.
   - If the engine stops, the fuel filter lock is operating properly.
2. With the engine stopped, let the machine stand while the LPG tank valve is open and the wire is removed from the fuel filter lock. After 10 minutes, try the starter motor.
   - If the engine starts or fires, this indicates a fuel leak has occurred. Replace the fuel filter lock immediately.
   - If the engine simply turns over, this indicates the fuel filter lock is operating correctly.

DRAINING THE KUBOTA WATER TRAP

1. Loosen the knob on the bottom of the trap unit.
2. Wait for the water to drain and watch for the diesel fuel which will follow it.
3. When the diesel fuel begins to drain, tighten the drain knob.

REPLACING THE KUBOTA FUEL FILTER ELEMENT

1. Open the top and side engine access doors.
2. Loosen the vent plug and open the water trap to drain the fuel.
3. Remove the filter element and the trap from the filter head.
4. Remove the water trap bowl from the element and clean it.
5. Lubricate the O-ring and spin the bowl onto a new filter element.
6. Lubricate the O-ring and spin the new filter element, with the clean bowl, onto the filter head.
7. Bleed the fuel lines as explained under Priming the Kubota Fuel System.

PRIMING THE KUBOTA FUEL SYSTEM

1. Fill the fuel tank.
2. Open the top and side engine access doors.
3. Open the air vent at the top of the fuel injection pump.
4. Start the engine, operate it for one minute, then stop it. Or, operate the starter motor every ten seconds until a stream of fuel beings to flow from the vent.

CLEANING THE PERKINS WATER TRAP

1. Lift the engine hood.
2. Clean the outside of the water trap thoroughly.
3. Remove the retaining bolt from the center of the water trap head.
4. Remove the bowl and clean it in cleaning fluid.

NOTE: Do not use gasoline to clean the bowl.

5. Refill the bowl with clean fuel.
6. Position and hold the water trap bowl under the trap head and secure it with the retaining bolt.
7. Bleed the fuel system as outlined under Priming the Perkins Diesel Fuel System.

REPLACING THE PERKINS FUEL FILTER ELEMENT

NOTE: The Perkins diesel fuel filter element is replaced using the same procedures as outlined under replacing the Kubota Fuel Filter Element.

PRIMING THE PERKINS FUEL SYSTEM

1. Locate the fuel pipe on top of the fuel filter cover and unscrew it two or three turns.

NOTE: Do not confuse this pipe with the fuel return pipe to the tank.

2. Locate the hydraulic head locking screw. (It is on the side of the fuel injection pump body.)

3. Loosen the fuel injection pump air vent screws on the governor housing.

4. Use the lever of the fuel lift pump to prime the fuel system.

NOTE: If you are unable to operate the priming lever, turn the engine a complete revolution until fuel bleeds from the vent points free of air bubbles.

5. Tighten connections as follows: first the filter cover fuel pipe, then the fuel injection pump head locking screw, then the governor air vent screws.

6. Loosen the pipe union nut at the inlet of the fuel injection pump.

7. Use the lever on the lift pump to prime the system.

8. When fuel without air bubbles bleeds around the threads, retighten the pipe union.

NOTE: Hand priming may take four or five minutes, but the entire process should be completed with care. Otherwise, the engine may fail to start.

9. Loosen the unions located at the injector ends of the high pressure fuel pipes.

10. Put the accelerator in the full-open position. Make sure the stop control is in the RUN position.

11. Use the starter motor to rotate the engine until fuel oil without air bubbles flows from the fuel pipes. This may require up to 60 seconds of rotation, depending upon rotation speed and the effectiveness of the bleeding operation just outlined.

12. Secure the unions on the fuel pipe and start the engine.

NOTE: If the engine starts but stops after a few minutes, repeat the bleeding process and check for leaks and weak connections.

The normal operating temperature of the engine is 180° - 200°. Abnormally high operating temperatures and overflow loss commonly indicate the radiator is clogged with rust and sludge or radiator fins are clogged with dirt. In this situation, you may want to use the reverse flow flushing procedure listed below. Reverse flow flushing is performed after the radiator has been flushed with a cleaning compound.

The following maintenance is required to keep the coolant system operating efficiently:

- Check the coolant level each day.
- Drain and flush the coolant system every 500 hours of operation.
- Inspect the radiator fins for cleanliness every 50 hours of operation. Blow out the radiator fins if clogged.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

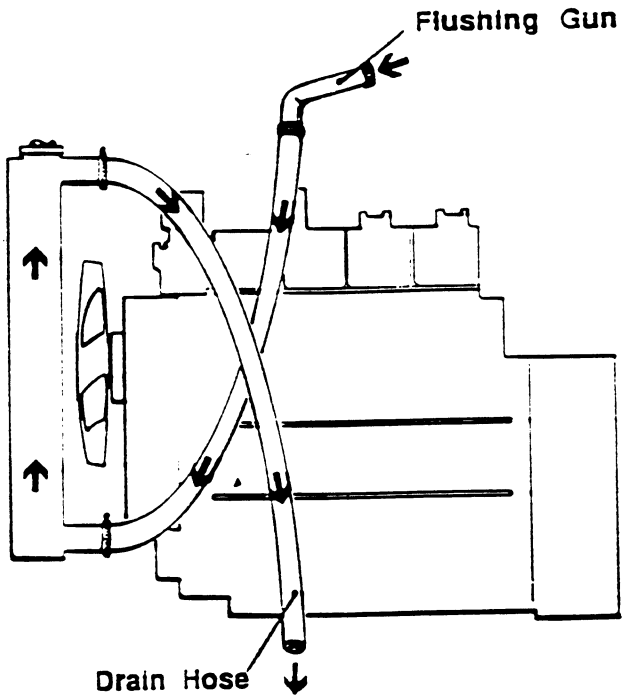
BLOWING OUT RADIATOR FINS

NOTE: Make sure the radiator is cool before blowing out the radiator fins with compressed air.

REVERSE FLOW FLUSHING

1. At the engine, disconnect the hoses.
2. Make sure the radiator cap is on tight.
3. Using a hose clamp, clamp a flushing gun onto the lower hose.
4. Turn on the water and fill the radiator.
5. To keep from damaging the radiator, apply air pressure slowly and carefully.
6. Shut off the air pressure, refill the radiator with water, and reapply the air pressure. You will need to repeat these steps until water flushed from the radiator runs out clear.

7. Inspect and clean the radiator cap.
8. Inspect and reconnect the hoses.
9. Refill the radiator with coolant.



NOTE: Use a 50/50 mixture of water and an anti-freeze with an ethylene glycol base.

LUBRICATION

Lubrication on PowerBoss™ sweepers requires the following:

- Check the engine oil level each day.
- Replace engine oil and filter every 200 hours, or more frequently in extremely dusty operating environments.
- Use oil which meets API SD or SE specifications, and which is suited to seasonal temperatures. (Refer to charts below.)
- Follow the recommended lubrication schedule for bearings, grease fittings, and other key lubrication points.

Gasoline and LPG Engines: Use any SD or SE rated oil meeting API specifications and suited to seasonal temperatures.

Temperature	SAE Viscosity
Below 0° F (Below -17° C)	SW-20, SW-30
0 to 75° F (0 to 24 ° C)	SW-30, 10W, 10W-30, 10W-40, 20W-20, 20W-40
Above 75° F (Above 24° C)	10W-50, 20W-50

Diesel Engines: Use only CD or CE rated oil. Multigrade oil should meet single grade requirements for seasonal temperatures.

Temperature	SAE Viscosity
Below 0° F (Below -17° C)	5W, 5W-20, 5W-30
0 to 32° F (-17° to 0° C)	10W, 10W-30, 10W-40
32° to75° F (0° to 24° C)	20W, 10W-30, 10W-40
Above 75° F (Above 24° C)	30, 10W-30, 10W-40

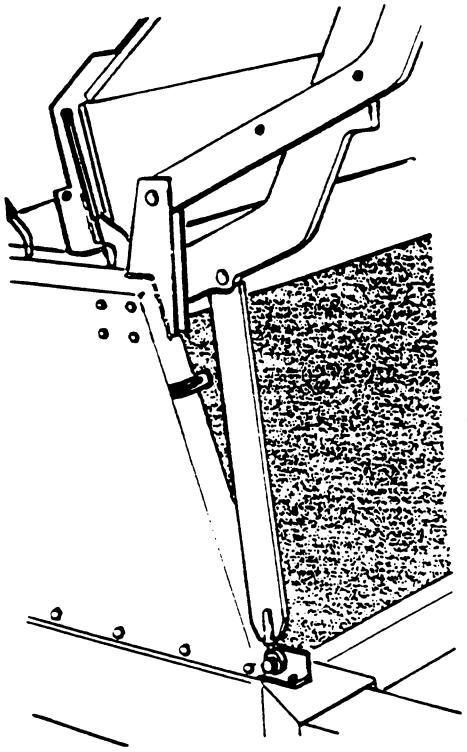
⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

CHANGING ENGINE OIL

NOTE: The engine oil drain plug is located at the bottom of the engine pan.

1. **Low Dump Models:** Remove the hopper and place the drain pan beneath the plug in the engine pan.

   High Dump Models: Raise the hopper and engage the safety arm.



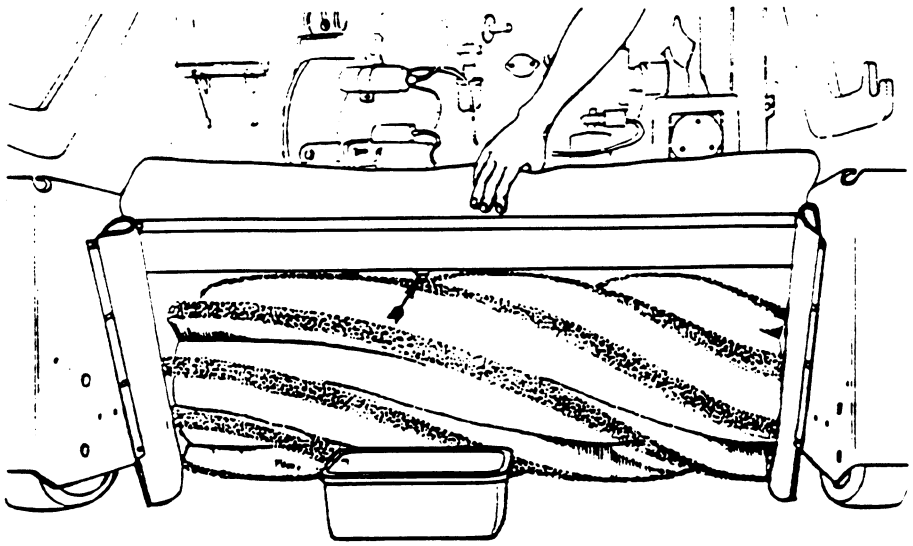
⚠ WARNING: Never place your hands or body parts under a raised or partially raised hopper unless the safety arm is in place.

2. Remove the drain plug and allow oil to drain into the pan.

3. Replace the drain plug.

4. Remove the used oil filter and replace with a new one.

5. Remove the engine oil cap, add oil in the amounts listed in engine manual, then secure the cap.

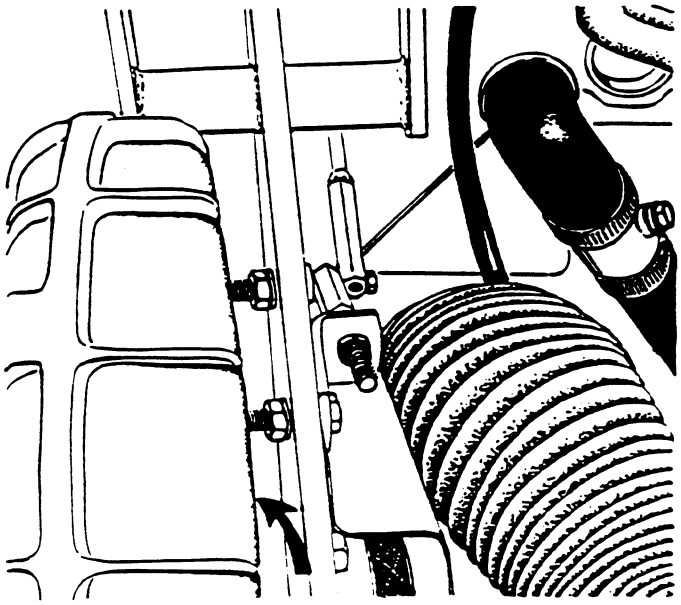


LUBRICATION POINTS

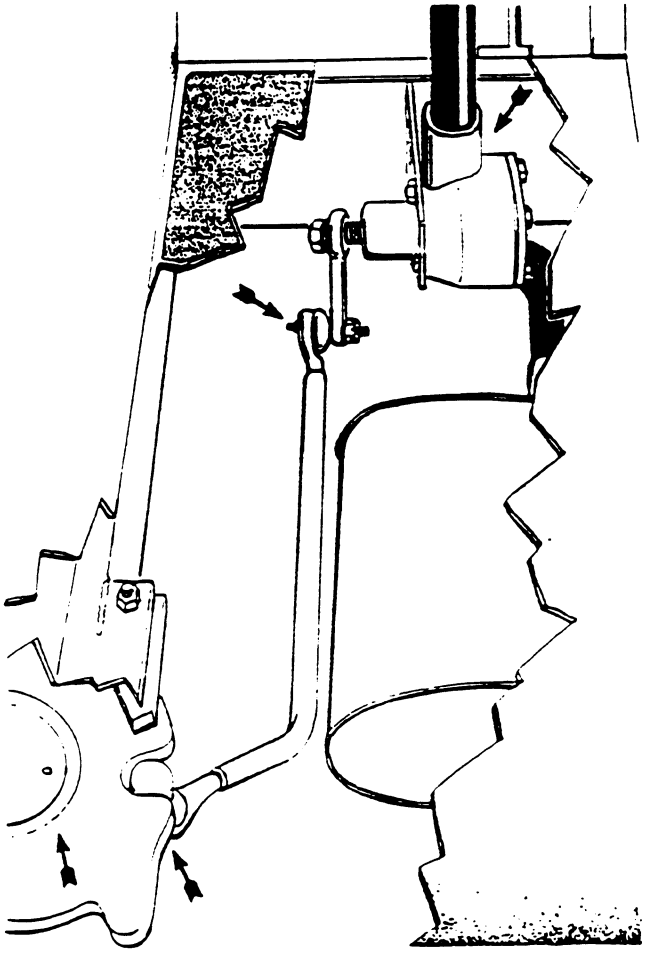
The chart on the next page outlines additional lubrication requirements for PowerBoss™ sweepers. Refer to the chart for assistance in locating key lubrication points.

LUBRICATION CHART

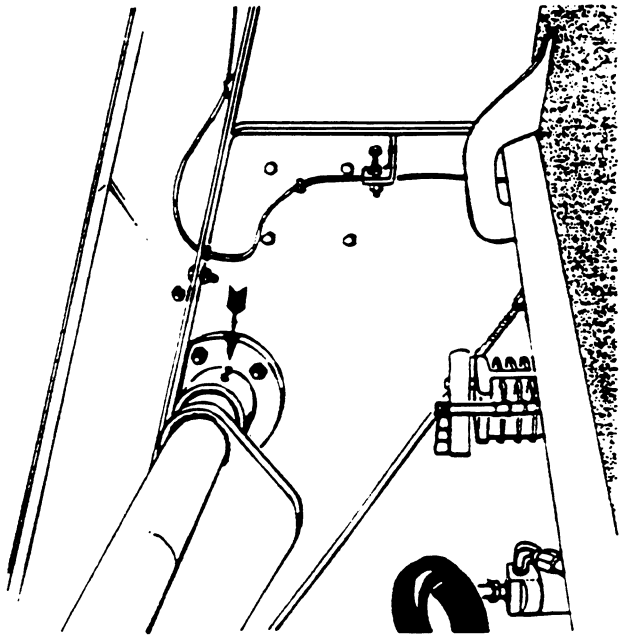
Lubrication	Type of Lubrication	Frequency (In Hours)
Impeller Bearing Housing 88 (2 fittings) 78 (1 fitting)	Lubriplate EMB or Chevron SR1 #2	100



Lubrication	Type of Lubrication	Frequency (in Hours)
Steering Gear Box. (1 fitting) Steering Link Arm. (2 fitting) Steering Fork Assembly (1 fitting)	Lithium Grease	500



Lubrication	Type of Lubrication	Frequency (in Hours)
Pillow Block Supporting Dump Mechanism (2 fittings)	Lithium Grease	500



Hood Latches and Hinges	Oil	500

To keep the hydraulics system in good condition, the following maintenance is required:

- Check the sight gauge of the hydraulic fluid reservoir daily and fill the reservoir as needed.
- Blow off and pressure wash the cooling coil (located at the exit port of the impeller fan) every 100 hours of operation.
- Replace the filler/breather cartridge every 500 hours.
- Change the hydraulic fluid and filter every 500 hours of operation.
- Check the functioning of the directional control pedal periodically and adjust the neutral setting position and the speed limiter if needed.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

FILLING THE FLUID RESERVOIR

NOTE: The reservoir is located inside the machine and is accessible through the top side door. When the machine is cool and the hopper is in the lowered position, the sight gauge on the face of the reservoir should be two-thirds full.

1. Remove the filler/breather cartridge located on top of reservoir.
2. Fill the reservoir two thirds full with fluid that meets the viscosity specifications indicated below, then replace the filler cap.

NOTE. Do not use transmission fluid in place of hydraulic fluid.

Hydraulic Fluid Viscosity Specifications

SUS @ 100° F	404-445
SUS @ 210° F	78-84

MAINTAINING COOLING COIL EFFICIENCY

The cooling coil is located at the exit port of the impeller fan and utilizes exhausted impeller air to cool the hydraulic fluid. To maintain its efficiency, periodically blow off the cooling coil with compressed air and pressure wash the cooling coil every 100 hours of operation.

CHANGING THE HYDRAULIC FLUID

1. Turn off the engine and engage the parking brake.
2. Place a drain pan on the floor below the reservoir.
3. Remove the drain plug located on the bottom rear of the reservoir and allow the fluid to drain.
4. Discard the fluid, then replace and retighten the drain plug.
5. Remove the filler/breather cap located on top of the reservoir and fill the reservoir with approved hydraulic fluid.

NOTE: This will require six gallons of fluid.

6. Check the sight gauge to insure the proper two-thirds level is achieved.
7. Install a new filler/breather cartridge.
8. Check the drain plug for leakage.

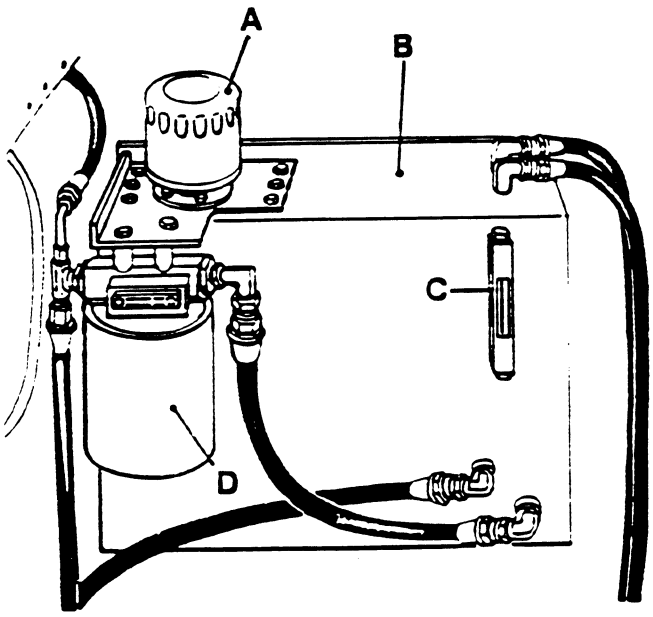
A - Filler/Breather Cartridge

B - Hydraulic Reservoir

C - Hydraulic Level Sight Gauge

D - Hydraulic Filter

E - Hydraulic Filter Condition Indicator



CHANGING THE HYDRAULIC FLUID FILTER

1. Turn off the engine and engage the parking brake.
2. Unthread the oil filter cartridge from the mount and discard.
3. Apply a thin coating of fluid to the seal of a new filter element.
4. Thread onto the mount and hand tighten.
5. Tighten an additional one-half turn beyond hand tight.

NOTE: Do not overtighten.

6. Start the machine, shut it off, then check for leakage.

ADJUSTING THE DIRECTIONAL CONTROL RETURN SPRING

You may encounter "creeping" problems from time to time. Creeping means the machine moves backward or forward when the forward/reverse pedal is in neutral. A grinding noise when the engine is shut down is also an indicator that the directional control return spring needs adjusting. If this occurs, perform the procedure which follows.

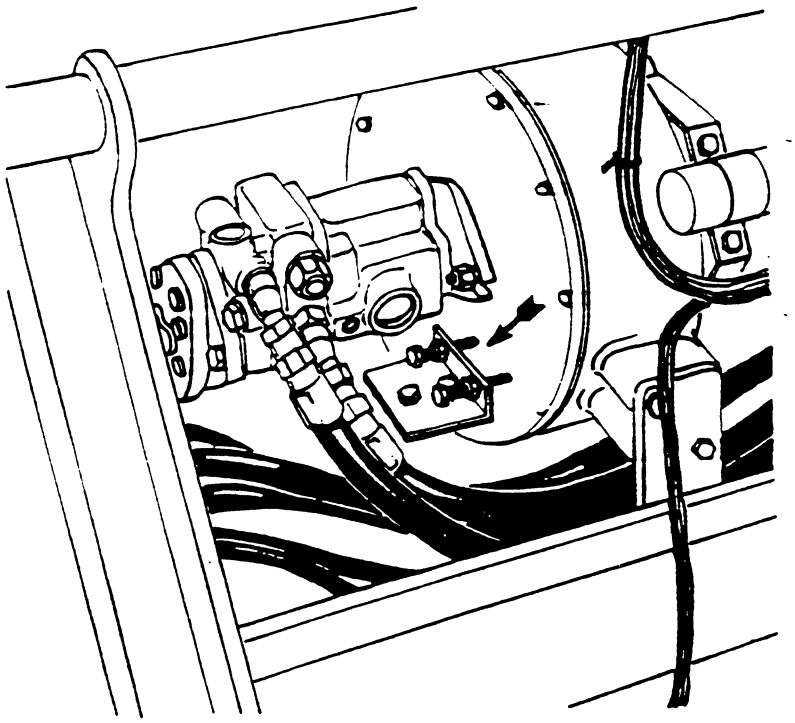
1. On low dump models, remove the hopper. On high dump models, raise and engage hopper safety arm.

⚠ **CAUTION:** For maintenance on high dump models, do not rely on the hydraulic cylinder to keep the hopper raised. Always engage the safety arm before going under the hopper.

2. Turn off engine, engage parking brake, and chock both wheels.
3. Jack the rear of the machine so that the rear tire just clears the floor. Use two jack stands to support the machine. DO NOT USE JACK ALONE TO HOLD THE MACHINE UP.
4. If an assistant is not available to watch the rear wheel, use a mirror to allow you to see the rear wheel.

(Continued on next page.)

5. Locate the forward/reverse adjustment bracket mounted beneath the pump on the pump mounting plate.



6. Slightly loosen the bolt on the center of the bracket.

7. Now loosen the locking nut on each of the adjusting bolts on the side of the bracket closest to the pump mounting plate.

8. From the operator's seat, start the engine and run at half throttle.

9. Turn the adjusting bolts while watching the rear wheel. Continue to adjust until the rear wheel does not turn in either direction.

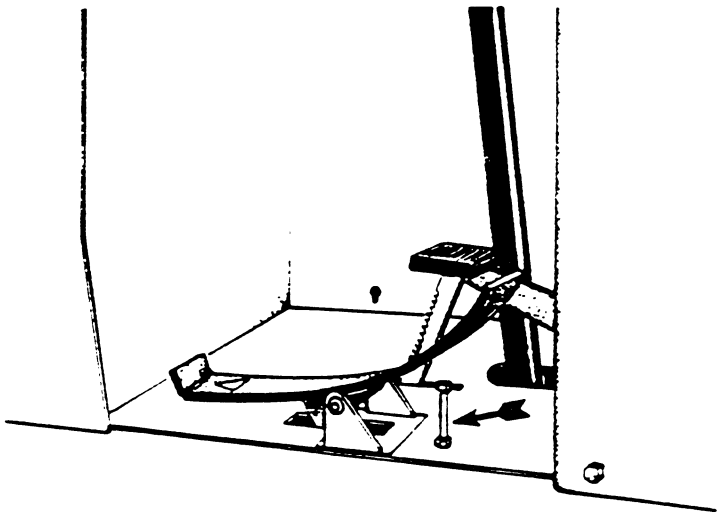
10. Fully open throttle. Push the directional control pedal forward and backward to be sure pump stays in neutral. Check wheel again and adjust as needed until the wheel remains motionless.

11. Retighten all the locking nuts and the bolts.

12. Turn engine off and lower the machine to the floor.

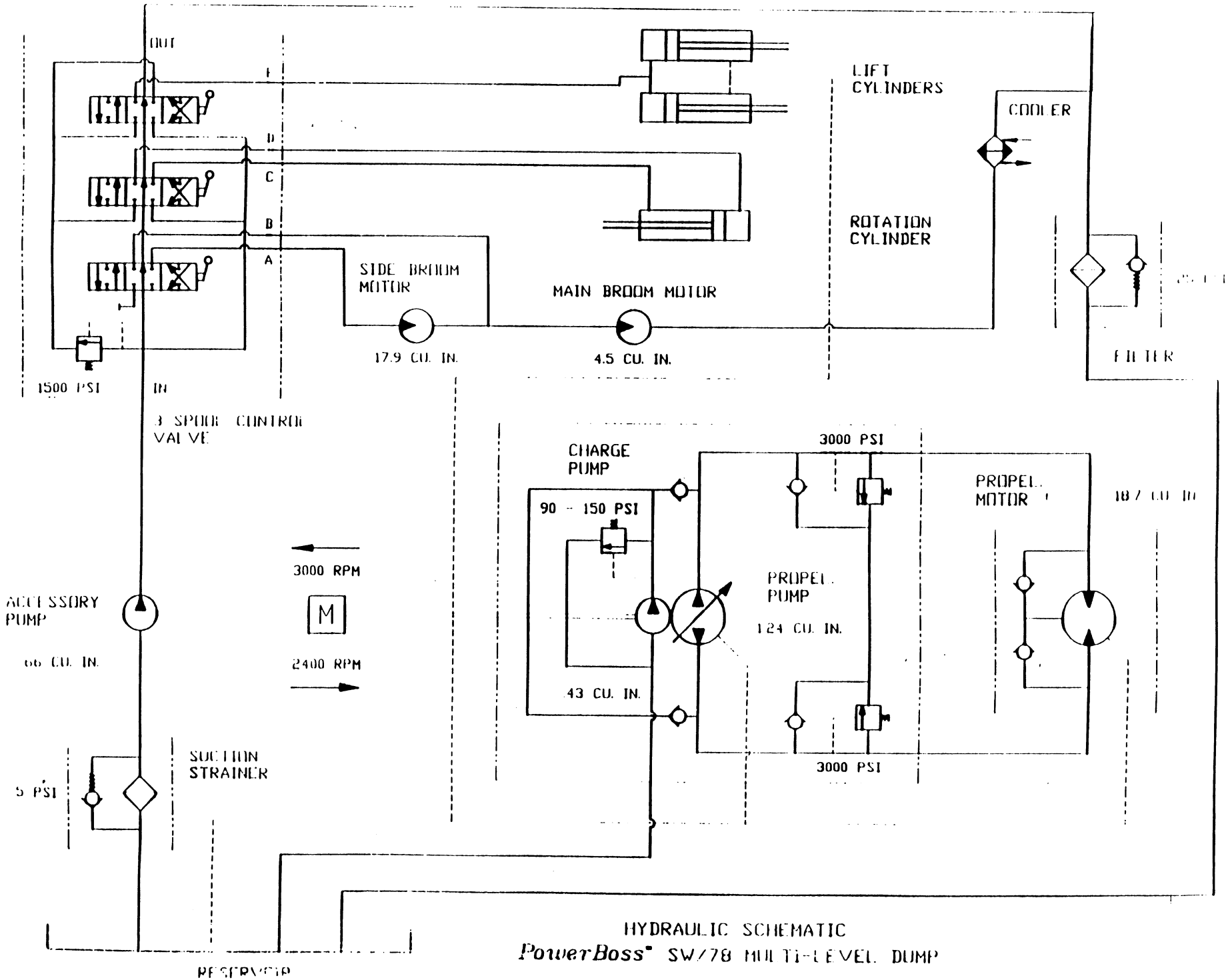
ADJUSTING MACHINE SPEED

To limit the speed of the machine, simply reposition the speed limiter, a bolt underneath the directional control pedal which can be moved in or out. Be sure that the directional control pdeal contacts the speed limiter bolt before the pump control arm hits the pump stop.



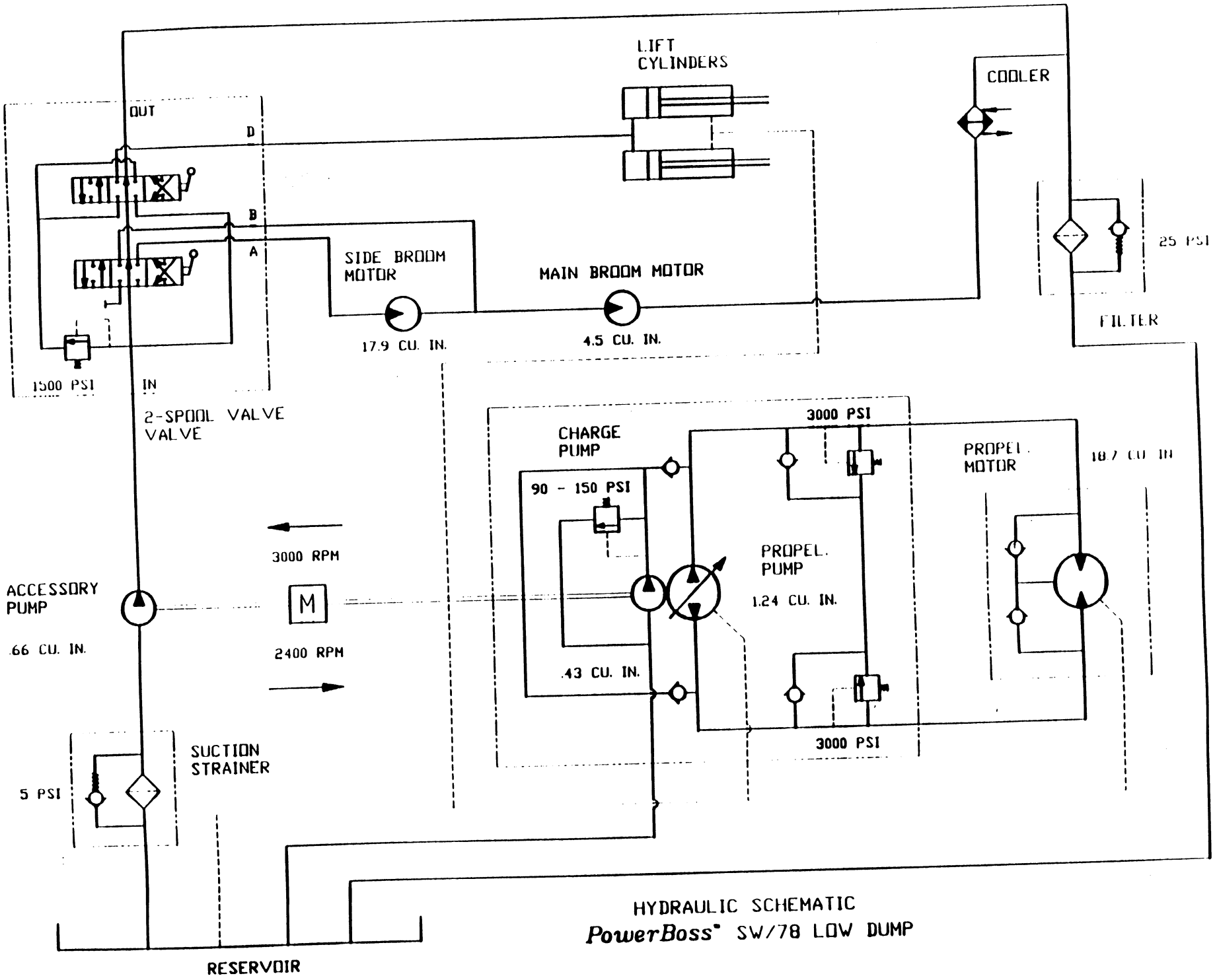
HYDRAULIC SCHEMATICS

Use the schematics which follow to assist you in troubleshooting and maintaining the hydraulics system of the sweeper.



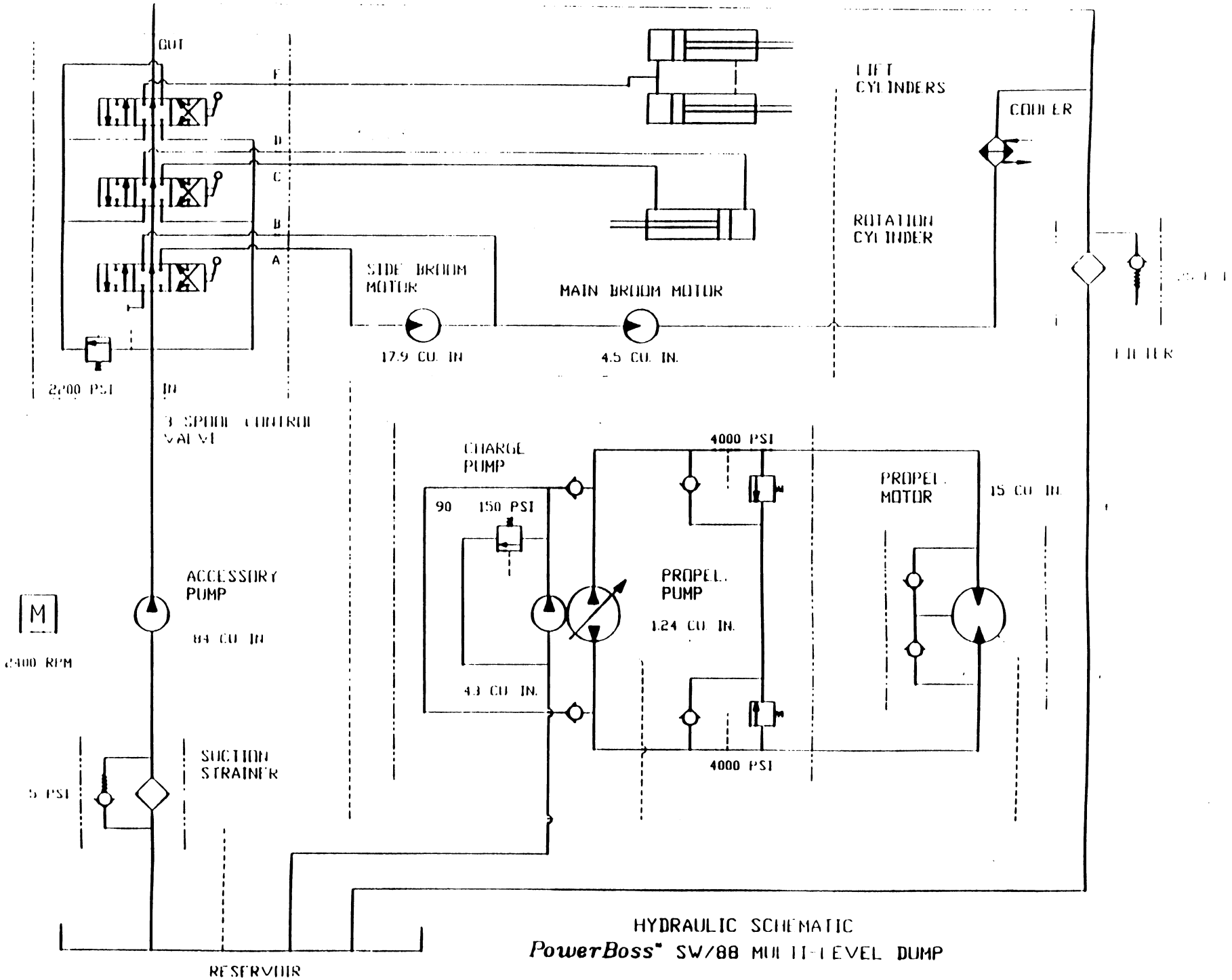
HYDRAULIC SCHEMATIC

PowerBoss® SW/78 MULTI-LEVEL DUMP



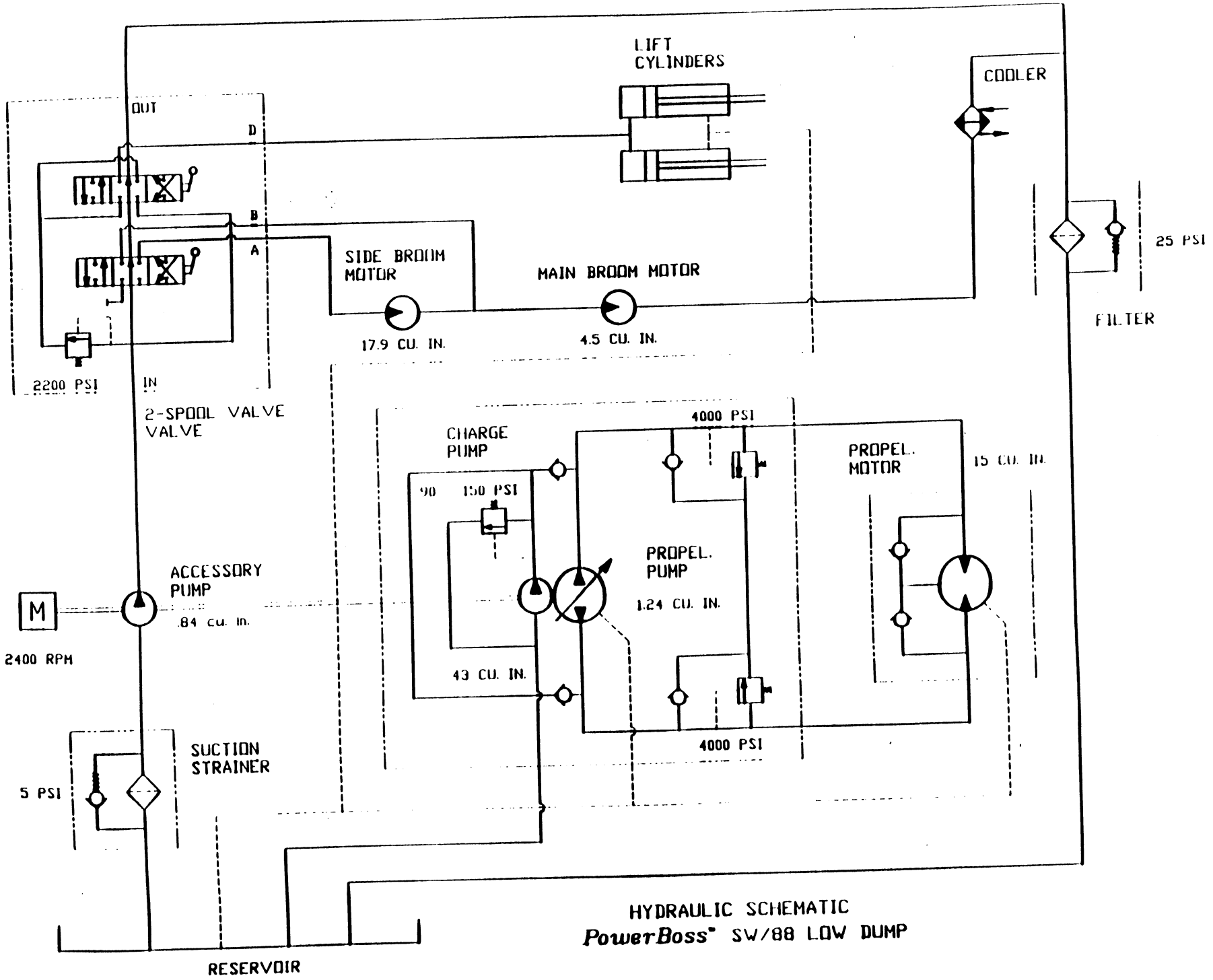
HYDRAULIC SCHEMATIC

PowerBoss® SW/78 LOW DUMP



HYDRAULIC SCHEMATIC

PowerBoss™ SW/88 MULTI-LEVEL DUMP



HYDRAULIC SCHEMATIC

PowerBoss® SW/88 LOW DUMP

VACUUM SYSTEM

To keep the vacuum system in good condition, you will need to perform the following maintenance:

- Check the tension of impeller belts after every 50 hours of operation and tighten the belts as needed. On 78 models, dual belts are used between the engine and auxiliary hydraulic pump. If one belt breaks, both belts must be replaced, so be sure to purchase a matched set.
- After every 100 hours of operation, check to make sure the bottom pulley is aligned with the pulley on the engine. If pulleys are not properly aligned, belts cannot properly function.
- Lubricate impeller bearing housings after every 100 hours of operation: 88 models have two housings, 78 models have one.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

⚠ CAUTION: If the engine must be started for test purposes, do not put your hands near intake hoses or openings or near the impeller or belts.

BELT TENSIONING

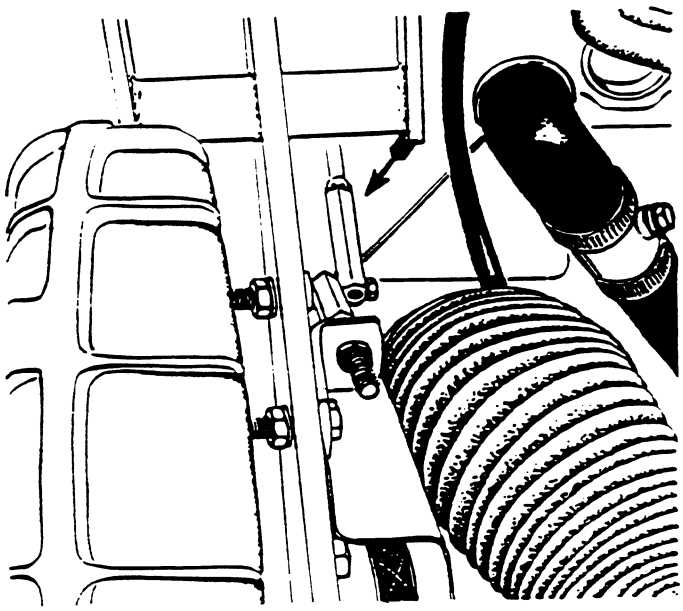
Engine to Jackshaft Belt
88 Models

1. Locate the impeller belt tensioning bar bolted to the engine block.
2. Locate the threaded adjustment rod attached to the tensioning bar.
3. Loosen the nut on the threaded rod closest to the engine.

(Continued on next page.)

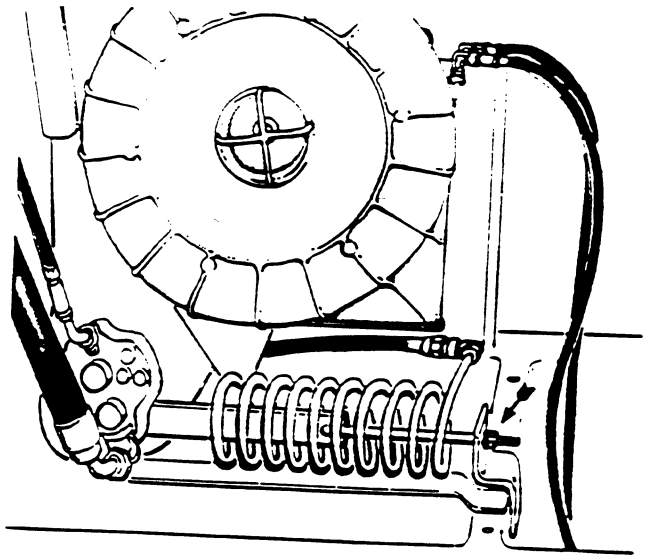
4. With this nut loosened, place a wrench on the nut located on the threaded rod on the opposite side of the tensioning bar. Tighten or loosen the belt as needed using this nut.

5. After the adjustment is complete, retighten the first nut.



Engine to Jackshaft Belt
78 Models

1. Locate the tensioning rod (it runs through the cooling coil).
2. Loosen the nut closest to the cooling coil.
3. With this nut loosened, place a wrench on the nut located on the opposite side of the bracket. Tighten or loosen the belt as needed using this nut.
4. After the adjustment is complete, retighten the first nut.



Jackshaft to Impeller Belt
88 and 78 Models

1. Locate the impeller belt tensioning bracket on the back side of the impeller.

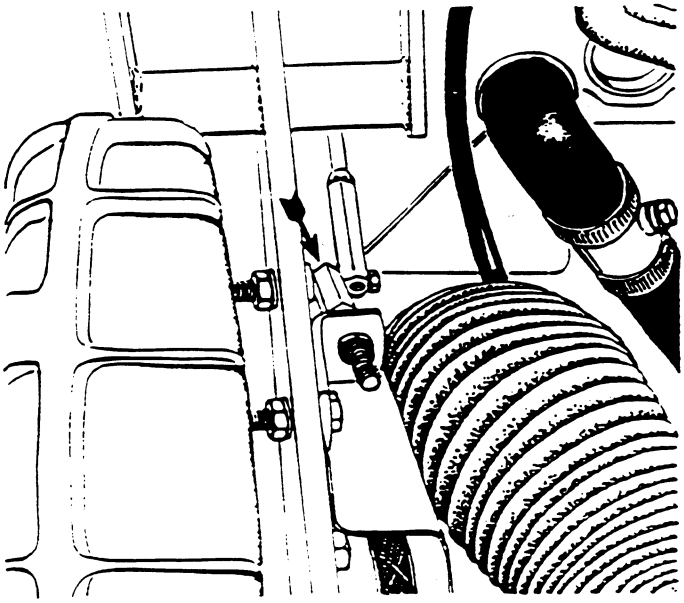
2. Slightly loosen the nut and bolt securing this bracket (about one turn).

3. Locate the threaded adjusting rod that runs through this bracket and loosen the nut directly on top of the bracket and threaded onto the rod.

4. With this nut loosened, place a wrench on the nut directly below the adjustment bracket on the threaded rod. Tighten or loosen the belt as needed using this nut.

5. After the adjustment is complete, retighten the nut on top of the bracket.

6. Retighten the nut and bolt that attach the impeller belt tensioning bracket.



PULLEY REALIGNMENT

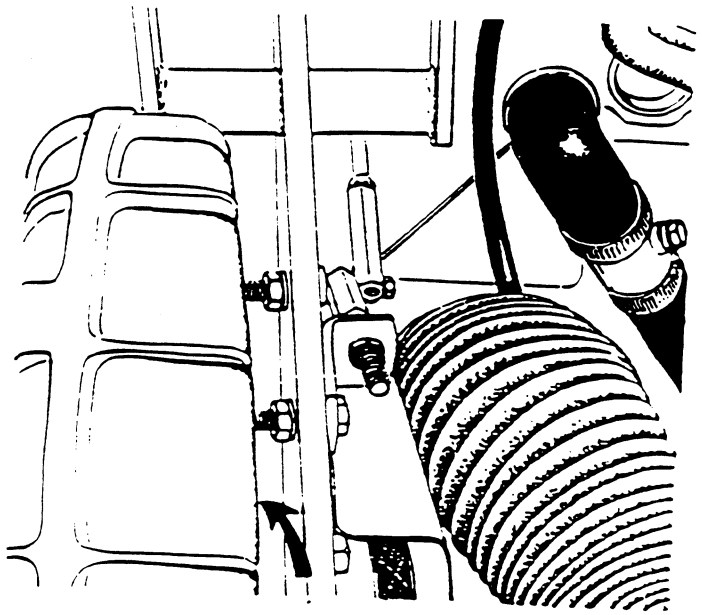
1. Check pulley alignment by placing a straight edge against and between the two pulleys. The straight edge should lie flat against the outer surface of both pulleys. If a gap between pulley and straight edge is evident at either end, an adjustment is needed.

2. You can bring the impeller pulley and jackshaft pulley into alignment by adding washers onto the impeller pivot mount. The jackshaft pulley and the engine pulley can be brought into alignment by sliding the impeller mounting bracket in its mounting slots.

LUBRICATION OF IMPELLER BEARING HOUSINGS

1. Grease bearing housing with Lubriplate EMB or Chevron SR1 #2.

ATTENTION! Be careful not to overfill the housings. This will cause grease to be thrown onto the belts and pulleys which drive the impeller. Any excess grease expelled from these bearings should be wiped away.



SWEEP COMPONENTS

The following maintenance is required to assure maximum cleaning efficiency and service life of sweep components:

- Inspect brooms daily for wear. Remove any strings, wires, or other debris entangled in the bristles or drive assembly.
- After every 50 hours of operation:
  - Inspect broom skirts for wear and replace as needed.
  - Rotate the main broom end-to-end.
  - Perform the main broom adjustment test and adjust as needed.
  - Inspect the side broom for proper angle and contact and adjust as needed.
- Perform taper adjustment when the main broom adjustment test indicates it is necessary.
- Replace main broom when bristles wear to a length of 1". Replace side broom when bristles wear to a length of 3".

SERVICE INSTRUCTIONS

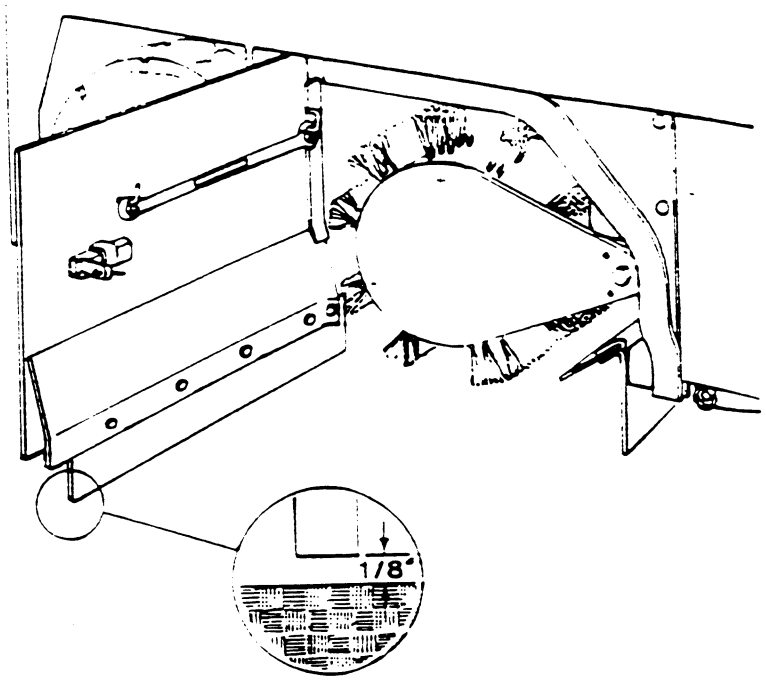
⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

BROOM DOOR FLAP INSPECTION

NOTE: Perform this inspection when the machine is parked on a level surface.

1. Turn the machine off and lock the parking brake.
2. Inspect broom door flaps for wear and damage. Flap clearance should be 1/8" above the floor.
3. Worn and damaged flaps should be replaced immediately to maintain proper dust control.

(See illustration, next page.)



BROOM DOOR FLAP REPLACEMENT AND ADJUSTMENT

The flaps are attached to the broom doors by a retainer bar and hex bolts and nuts. To remove the flaps, remove nuts and bolts and retainer bar. To adjust flaps, loosen nuts and bolts, slide flap up or down as needed. Retighten nuts and bolts.

MAIN BROOM ADJUSTMENT TEST

NOTE: Perform this adjustment on a flat, smooth test surface.

1. Drive the machine onto the test surface with the main broom in the RAISED position.
2. Set the parking brake and position the main broom handle in NORMAL position.
3. Push the broom control lever to ON position to activate the broom motor and open throttle to full RPM.
4. Allow about 45 seconds for the broom to operate, then deactivate the broom motor and raise the broom.

NOTE. Test time will vary according to the test surface used.

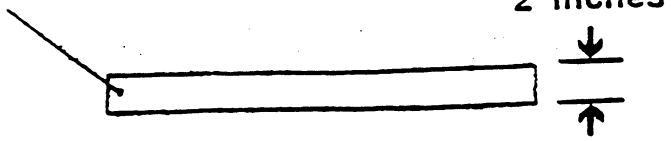
(Continued on next page.)

5. Drive the machine clear of the test site.

6. Examine the polished pattern made by the broom on the test area.

NOTE: A rectangular shape the length of the main broom, 2" wide, indicates the main broom is properly adjusted. A pattern smaller than 2" indicates need for lower adjustment. A pattern wider than 2" indicates a need for higher adjustment. If pattern is tapered from end to end instead of rectangular, see Taper Adjustment on the next page.

Main Broom Test Pattern

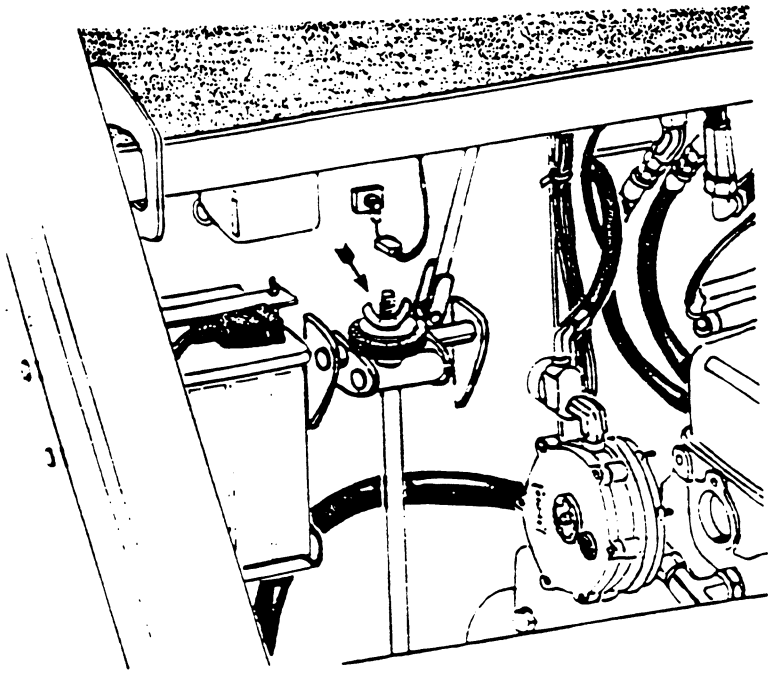


MAIN BROOM ADJUSTMENT

1. Turn the machine off and lock the parking brake.

2. Position the main broom lever in the full FLOAT position.

NOTE: The adjustment knob is located under the engine cover immediately beside the battery on the firewall.



3. Turn the broom adjusting knob clockwise one-eighth turn to free wingnut.

4. Turn the wingnut counterclockwise to allow space for adjustment.

5. Make a lower or higher adjustment with the knob as required.

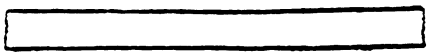
6. Retighten the wingnut.

7. Repeat the main broom adjustment test to see that the broom is properly adjusted.

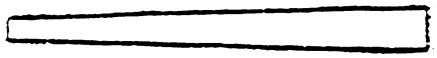
MAIN BROOM TAPER ADJUSTMENT

NOTE: It is not usually necessary to perform this adjustment. However, if the main broom adjustment test shows a pattern that is tapered in length (one end is wider than the other), perform the procedures which follow.

(Continued on next page.)

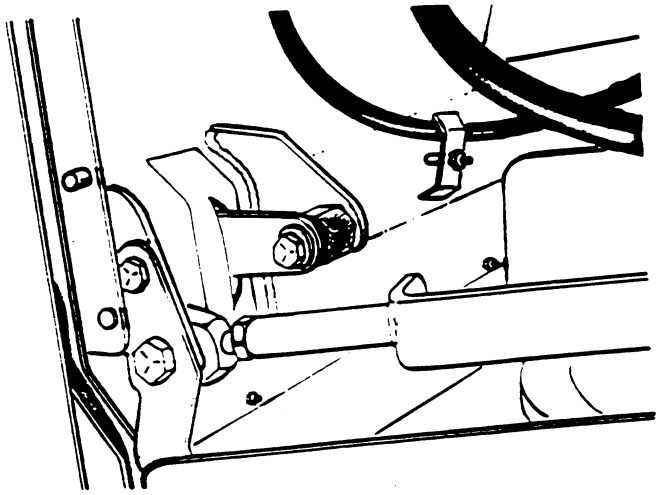


Correct Taper Pattern



Incorrect Taper Pattern

1. Locate the hex-shaped adjustment bar on the left rear wall of the broom chamber underneath the machine.



2. Loosen the locking bolt on the right side of the hex bar.

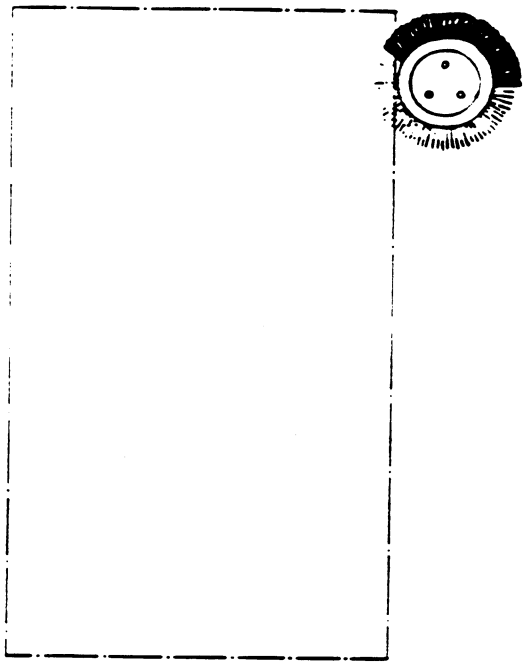
3. Grasp the hex bar with a wrench and rotate it to raise or lower the left end of the main broom. (The right end of the main broom remains fixed. All adjustments affect the left end of the broom.)

4. After adjustment, retighten the bolt.

5. Repeat the main broom adjustment test to see that the broom is properly adjusted.

SIDE BROOM ADJUSTMENT INSPECTION

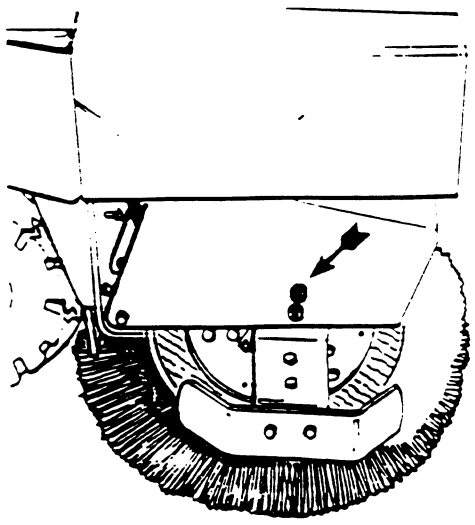
Inspect the side broom for proper angle and contact with the floor. Optimum side broom angle is 6°. Proper contact is achieved when the bristles contact the floor from 3:00 to 10:00 as shown in drawing.



SIDE BROOM HEIGHT (WEAR) ADJUSTMENT

1. Stop the engine and lock the parking brake.
2. Position the side broom handle in LOWER position.
3. Loosen the side broom adjusting nuts located on the exterior of the side broom arm assembly.

(Continued on next page.)

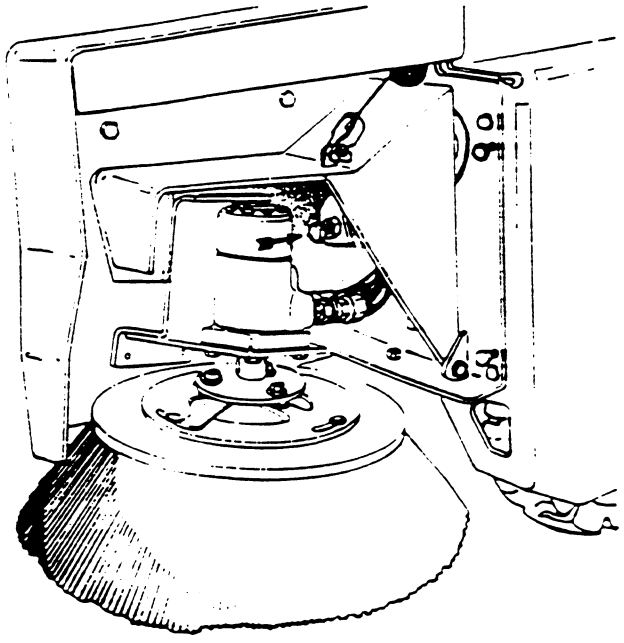


4. Adjust the side broom height by sliding the broom assembly up or down until proper floor contact is made.

5. After adjustment, tighten the adjusting nut.

SIDE BROOM ANGLE ADJUSTMENT

NOTE: This adjustment is controlled by a bolt located on the inside of the side broom arm assembly. By turning this bolt, the angle at which the bristles contact the floor can be changed. The optimum angle is 6°.

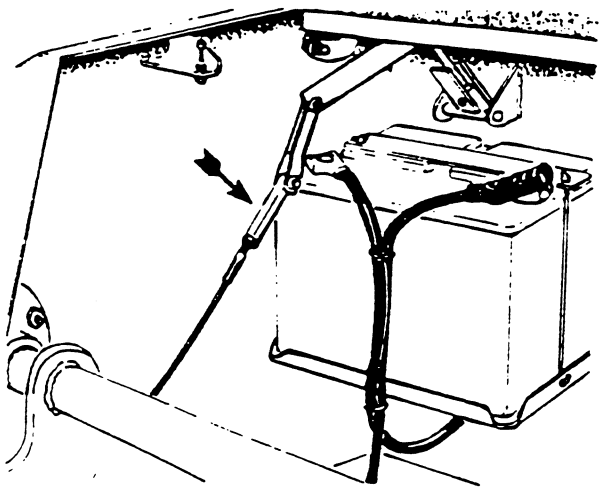


SIDE BROOM LIFT CABLE ADJUSTMENT

This adjustment is made at the hex-shaped adjustment bar attached to the side broom lift lever in the engine compartment. It controls the height of the side broom when raised.

On high dump models, this adjustment must be performed with the hopper fully lowered.

1. Pull the side broom lever into the raised position.
2. Loosen the locknut on the hex bar.



3. Turn the cable in or out of the hex bar as necessary to set the side broom in the maximum raised position.
4. Secure the cable adjustment by tightening the locknut against the hex bar.

MAIN BROOM REPLACEMENT

1. Turn the engine off and lock the parking brake.
2. Push the main broom control lever to the NORMAL position.
3. Open the left broom chamber door (the door opposite the driver's side).
4. Using the wrench stored inside the broom chamber door, remove the hex bolt on the main broom idler mount.
5. Pull the main broom idler mount straight out to remove.

6. Grasp the main broom by the plastic drive hub. Pull the main broom straight out and clear of the broom chamber.

7. At this point, depending on broom condition, you can either rotate the old broom end-for-end and re-install it or you can install a new broom. In either case, you need to slide the main broom into the broom chamber and align the broom with the metal drive hub located at the far side of the broom chamber.

   If a worn broom is being replaced, it may be easier to install the new broom by first adjusting the broom arms up, to better match the position of the drive hub with the hub on the new broom.

8. Once the broom is started onto the drive hubs, rotate the broom counterclockwise while pushing lightly against the broom.

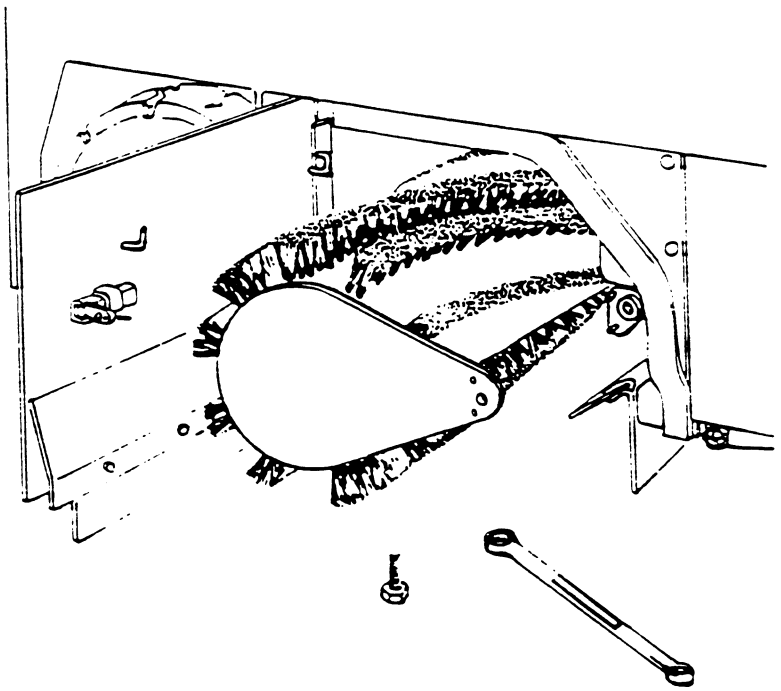
9. Once the broom is fully engaged, replace the idler hub while aligning the seats in the idler hub with the broom's drive hub ears.

10. Install the retaining bolt into position and tighten with the wrench.

11. Return the wrench to its storage hooks on the inside of the broom chamber door.

12. Close and latch the left broom door.

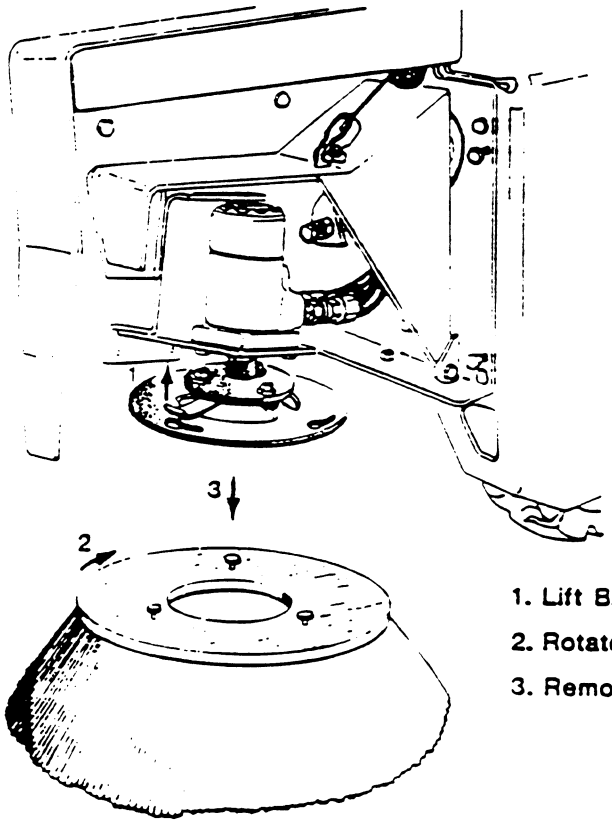
13. Perform a main broom adjustment test and adjust as needed.



SIDE BROOM REPLACEMENT

NOTE: The side broom features a quick release mechanism which enables the operator to remove the brush in seconds.

1. Raise the side broom and lock in RAISE position.
2. Turn the side broom by hand until the brush retainer bar is accessible.
3. Lift the bar and turn the broom clockwise (about one eighth of a turn) until the lock pins in the broom disengage from the drive plate.
4. Install the new broom by positioning three drive pins into the pilot holes of the drive plate.
5. Lift and rotate the broom until the broom retainer bar springs into the locked position.
6. Check to make sure all three drive lugs are properly engaged.



1. Lift Brush Retainer
2. Rotate Brush
3. Remove Brush

HOPPERS

The following maintenance is required to assure maximum cleaning capacity of hoppers and tanks:

- Check hopper filters and clean or replace as needed.
- Check hopper clearance from floor and adjust as needed.
- Inspect hopper flaps daily for wear and damage and replace when needed.
- Lubricate the dump mechanism every 500 hours of service.

SERVICE INSTRUCTIONS

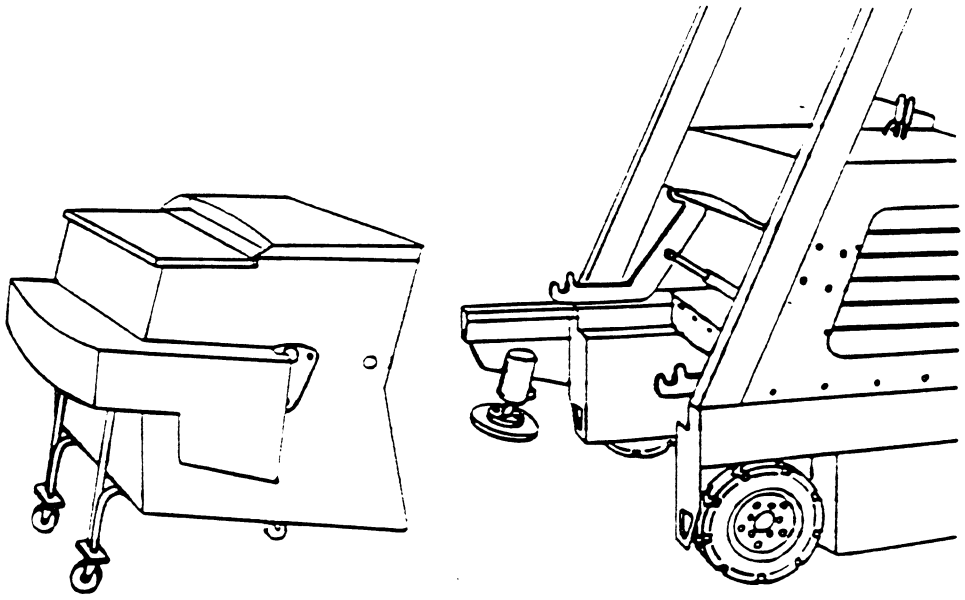
⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

LOW DUMP HOPPER REMOVAL AND REPLACEMENT

The hopper must be removed on low dump models for service and maintenance. You will need a low dump hopper dolly for this procedure. To remove:

1. Park the machine on a level surface and engage the parking brake.
2. Adjust the throttle to just above idle.
3. Raise the hopper to full dump height and lock it into the raised position.
4. Turn engine off.
5. Insert the hook on top of the dolly into the opening between the bottom of the sweeper's bumper and the hopper. Position it near the center of the bumper.

NOTE: The dolly should stay attached in this position when released.



6. Return the dump lever to its center off position to lower the hopper.
7. Push down on the dump arms until the ends of the dump arms are lower than the hopper lift brackets.
8. Disconnect the wire connection at rear of hopper.
9. Grab bumper and pull the hopper straight out away from machine.

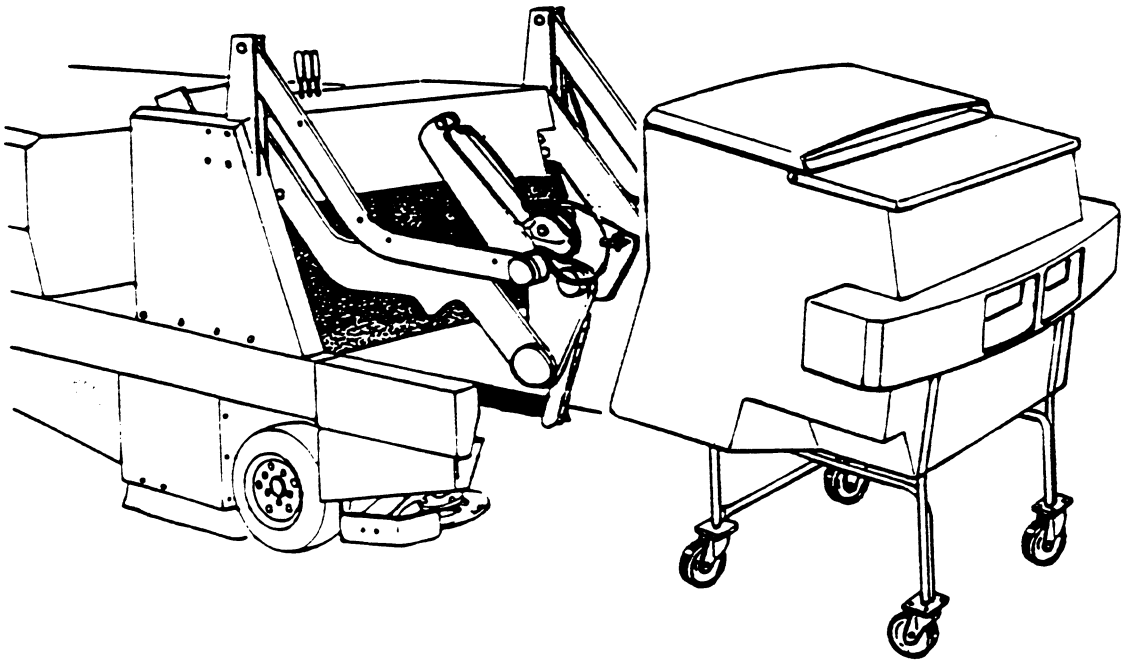
To replace:

1. Make sure the ends of the dump arms are lower than hopper lift brackets.
2. Roll the hopper between lift arms.
3. Be sure the hopper stop bars are positioned immediately above the dump arm flanges located at the rear of the dump arms.
4. Align the hopper lift brackets with the hook openings located at the front of the lift arms.
5. Start the engine and lift the dump arms slowly. When lift arms engage hopper lift brackets, lift the hopper all the way up.
6. Pull dump lever back to lock hopper in the raised position. Remove dolly.
7. Lower hopper.

HIGH DUMP HOPPER REMOVAL AND REPLACEMENT

It is not usually necessary to remove or replace the hopper on high dump models. However, if it becomes necessary for maintenance or to install an option, use the following procedure to remove:

1. Park the machine on a level surface and engage the parking brake.
2. Raise the hopper and position the high dump hopper dolly, a platform truck or similar four wheeled cart under the hopper.
3. Set the hopper down on the truck and turn the engine off.
4. Cycle the rotation control handle (#2) in both positions to relieve any residual hydraulic pressure.
5. Remove two tee-handled retainers located on both sides of the hopper inside the dump door.
6. Disconnect the wire connections at the right side of the hopper.
7. While spreading dump arms slightly to clear mounting pins, roll the hopper away from machine.



To replace:

1. Position the hopper on the dolly so as to align the mounting pins in the sides of the hopper with the rotation mounts on the arms. Lift arms should be positioned about 1/3 of way up.

2. Engage lift arm rotation plates with three mounting pins on each side of the hopper.

NOTE: The right rotation plate may have to be repositioned hydraulically to engage pins.

3. Attach the tee-handled spindle through the hopper mount hole and into the lift arms.

NOTE: Rotation mounts have holes that must engage bolt heads on side of hopper prior to threading in spindles.

4. Start the machine and lift hopper.

5. Drive the truck away from the hopper dolly or cart.

6. Lower hopper.

7. Engage wire connections at right side of hopper.

FILTER REMOVAL

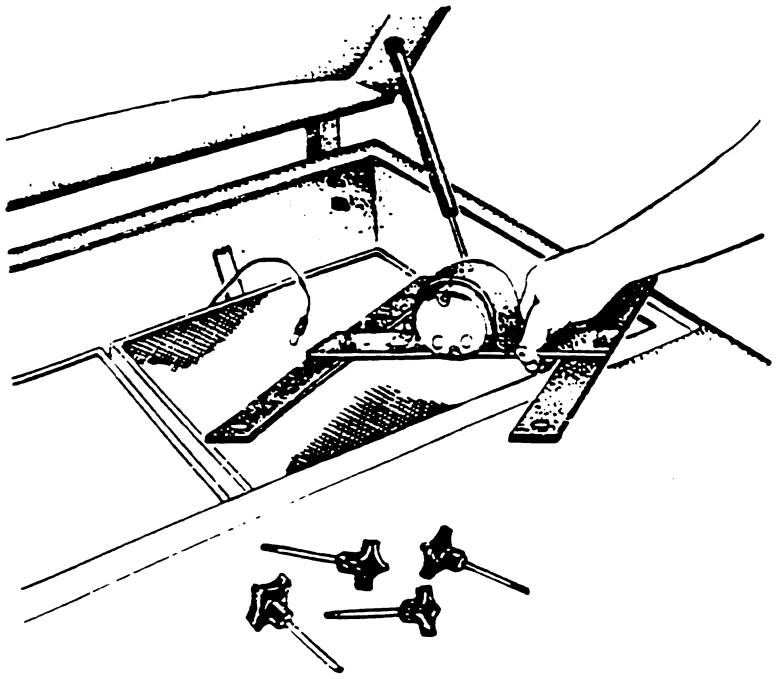
1. Release the two latches on the hopper cover and raise cover.

2. Disconnect the wire harness leading to the filter shaker motor(s).

3. Unscrew the four knobs securing the shaker motor mount to the hopper.

4. Remove the shaker motor assembly.

5. Lift out the panel filter.



FILTER CLEANING

Filters are permanent type paper element filters. They may be vacuumed, blown out with compressed air, tapped against the floor, or washed with soap and water.

1. If blown out with compressed air, use 100 psi or less.

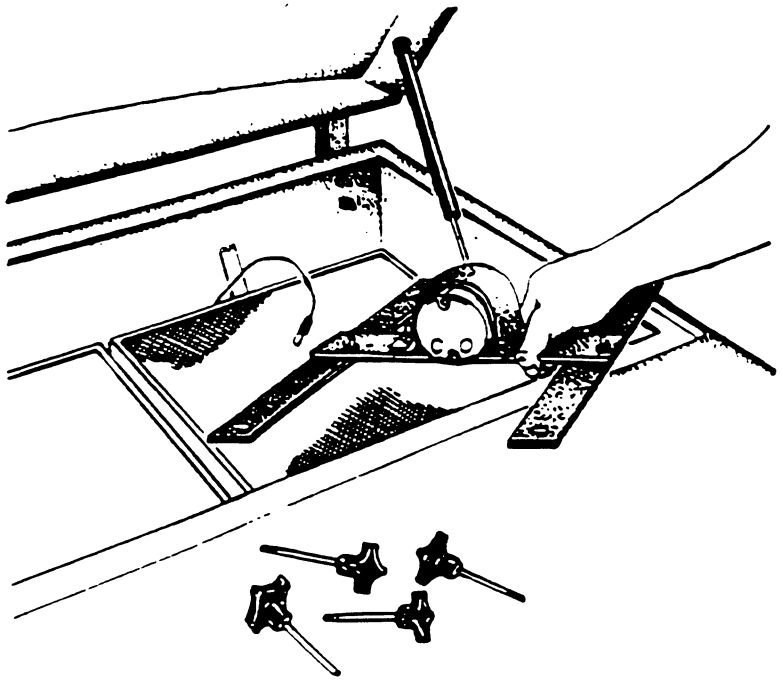
NOTE: Filters may be blown out while installed or removed.

2. If washed with soap and water, use 40 psi water pressure or less.

NOTE: Make sure filters are thoroughly dried while standing on their sides before installing them in the hopper. Do not install or use a wet filter.

FILTER REPLACEMENT

1. Insert the panel filter.
2. Install the shaker motor assembly.
3. Install and tighten the four filter retaining knobs.
4. Hook the wire harness to the filter shaker motor.
5. Close the hopper cover and secure the latches.



HOPPER FLOOR CLEARANCE AND DUMP ADJUSTMENTS

In order to perform properly, the hopper (on both low and high dump models) must maintain a distance of 3-1/2" from the floor to the rear hopper entrance lip. The front of the hopper should be adjusted so that the front bumper aligns with the hopper frame where the two meet. When properly adjusted, the front edge of the hopper will be 5" to 6" from the floor.

Low Dump Models:

1. Park the machine on a level surface, shut off the engine, and engage the parking brake.

2. Adjust the two hex bolt stops, located on the frame under the middle of the lift arms, so that the hopper lip is about 3-1/2" from the floor. This is a coarse adjustment.

NOTE: A 3 to 4 foot length of dressed 2 x 4 lumber set on edge works well for this measurement.

3. Use the set screws located in the lift arm flanges located at the rear of each lift arm as a fine adjustment to achieve the 3-1/2" clearance.

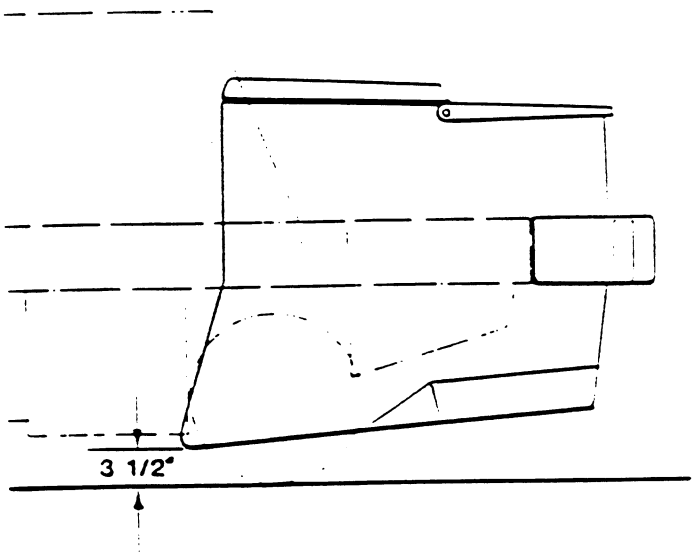
4. Check the floor clearance on each side of the hopper to see that it is level from side to side.

NOTE: If after the initial adjustment the bumper is lower or higher than the frame, raise or lower the hex bolt stops until it is level with the frame. Then readjust the set screws to restore the 3-1/2" floor clearance.

NOTE: A balanced adjustment of both of these sets of screws is required to achieve correct hopper position.

5. After adjustment, check that hopper vacuum seal still contacts and seals against rear of hopper. If not, readjust hopper seal.

6. Lower the hopper.



ADJUSTING MAXIMUM HOPPER DUMP ANGLE

Low Dump Models

NOTE: By observing the cylinder strokes, you can determine if maximum stroke (maximum hopper dump angle) is being achieved and then make necessary adjustments. Unpainted exposed portion of the cylinder rods when hopper is down indicates a loss of stroke.

1. With the hopper lowered, with correct floor clearance, note the amount of unpainted cylinder that does not return into the cylinder bodies.

2. If more than 1/8" of unpainted cylinder rod is exposed on both cylinders, then the hopper dump angle can be increased by the following:

3. Start the engine, raise the hopper and lock the lift lever in full RAISE position.

4. Turn off the engine.

5. Loosen the set screw on each of the cylinder clevises and adjust each side alternately. With a tapered punch, rotate the cylinder rod to thread it out of the clevis a distance equal to the length of exposed rod on the cylinder observed when the hopper was down.

6. Tighten the set screws.

7. Lower the hopper.

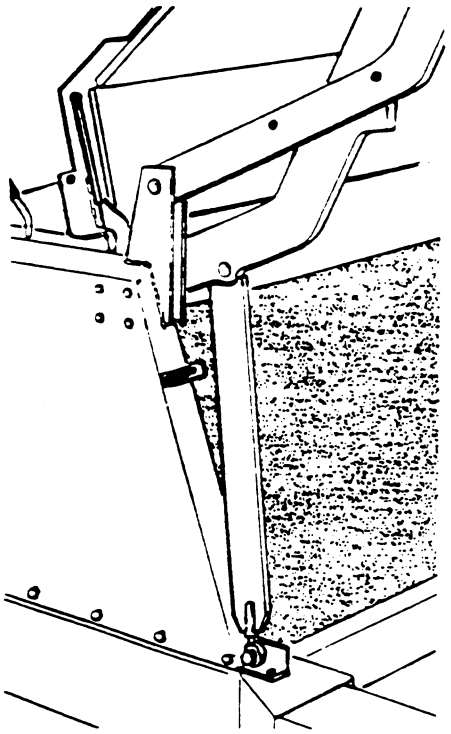
8. Check to see that both lift arms rest on the hex bolt stops and are not held off the stops by the retracted cylinders.

9. Raise the hopper to ensure that both the cylinders reach their extended positions at the same time. If not, screw in the clevis on the longer cylinder to match the other cylinder's extended length.

High Dump Models

1. Park the machine on a level surface, shut off the engine, and engage the parking brake.

⚠ CAUTION: Do not rely upon hydraulic cylinders to keep hopper raised for maintenance on high dump models. Always engage the safety arm before getting under the hopper.



2. Adjust the lift arm stop bolts located on top of the wheel wells as low as possible while still allowing the side broom assembly to clear the lift arms when the hopper is in normal position. Be sure that both lift arms contact the stop bolts at the same time.

NOTE: This may involve raising and lowering the hopper several times.

3. After adjustment, with the hopper down, use the two adjustable stops located on the rotation plates on both sides of the hopper to establish 3-1/2" clearance between the rear hopper entrance lip and and the floor.

NOTE. The stop on the driver's side is located immediately below the cylinder rod end and is threaded into the cylinder mount arm. The stop on the left side is located directly above the arm rotation plate.

(Continued on next page.)

4. After the 3-1/2" clearance is established, make sure both stops make contact simultaneously. The lower front edge of the hopper should be 5" - 6" from the floor. A balanced adjustment of both sets of adjustment bolts is required to correctly adjust the hopper in the lowered position. If the bumper is lower than the frame, after the hopper is correctly adjusted, loosen the bumper attachment bolts and reposition the front bumper.

5. Next, raise the hopper and rotate fully.

6. Turn the engine off.

⚠ **CAUTION:** Do not rely upon hydraulic cylinders to keep hopper raised for maintenance on high dump models. Always engage safety arm before getting under the hopper.

7. Adjust the stops on the hopper mounts on each side of hopper so that clearance between the lift arms and the cut outs in bumper is 1/4" maximum.

8. Loosen the locking set screw in the bottom side of the rotation cylinder rod end.

9. Using the hole in the cylinder rod, turn the rod to adjust cylinder extended length to match hopper rotation stops.

10. Tighten the set screw.

11. Rotate the hopper back, remove the safety arm, and lower the hopper.

HOPPER VACUUM GASKET MOUNT ADJUSTMENT

1. With hopper in normal position, observe contact between back of hopper and gasket. If complete seal is not maintained, remove low dump hopper or raise high dump hopper.

⚠ **CAUTION:** Do not rely on hydraulic cylinders to keep the hopper raised for maintenance on high dump models. Always engage the safety arm before getting under the hopper.

2. Loosen mounting bolts in gasket mount. Move assembly toward hopper. Tigthen bolts. Test and repeat if necessary.

HOPPER FLAP REPLACEMENT

Flaps located at the entrance lip of the hopper, and on the sides of the hopper, must be replaced when worn or damaged. The flap panels may be replaced separately.

1. Park the machine on a level surface and engage the parking brake.

2. Raise (high dump models) or remove (low dump models) the hopper.

⚠ **CAUTION:** Do not rely on hydraulic cylinders to keep the hopper raised for maintenance on high dump models. Always engage the safety arm before getting under the hopper.

3. Turn off the engine.

4. Remove the flap retaining angle and worn or damaged flaps.

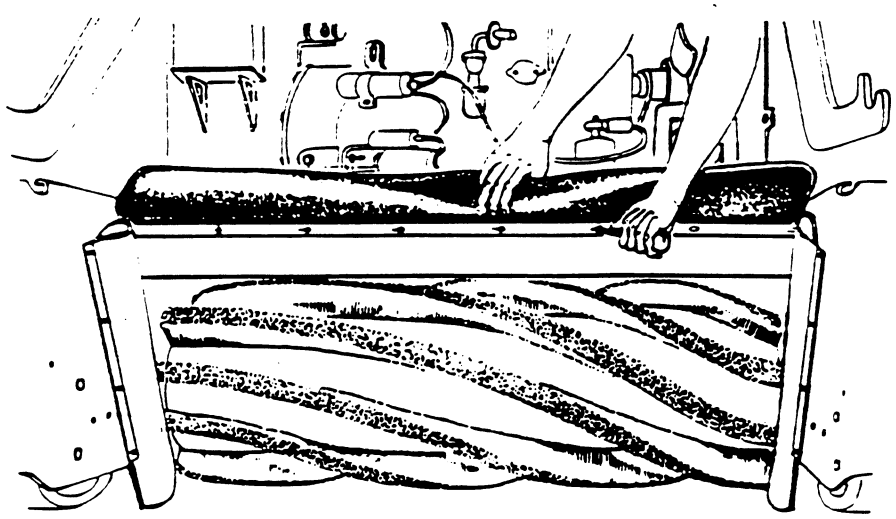
5. Install new flaps.

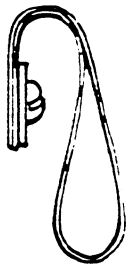
6. Replace the retaining angle.

HOPPER/FRAME SEAL REPLACEMENT

Front Frame Seal

The hopper frame seal bolts to the front edge of the engine pan. Install a new seal by folding it in half to align holes. Doubled edge with holes goes on bottom. Support the seal straight up while bolting the retainer bar in place. The seal should fall over the retainer bar after installation. Be certain that the seal edges are aligned to prevent twisting of the seal.





Side Frame Seals

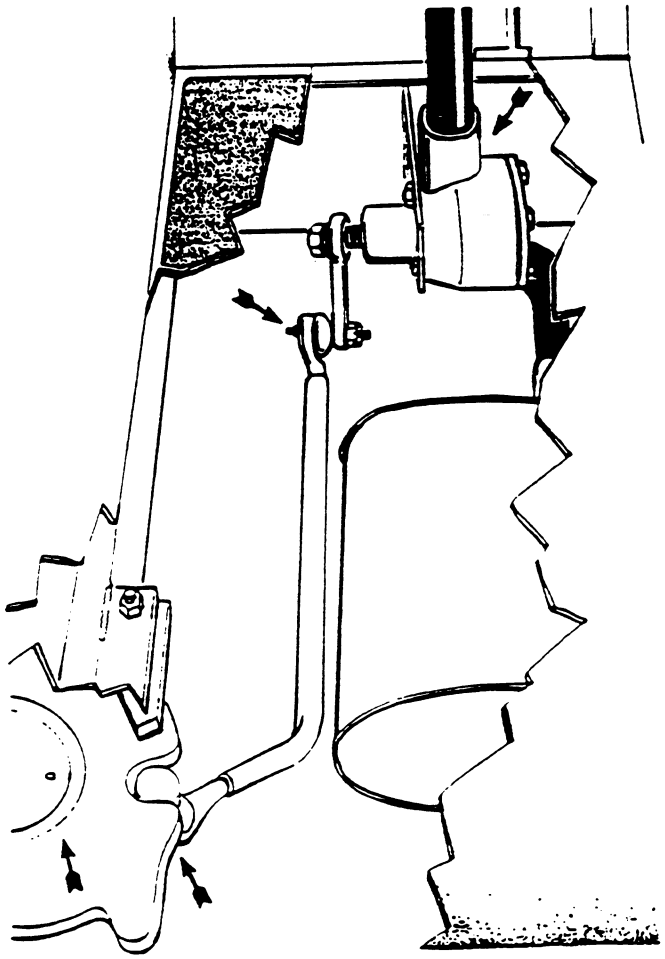
The side frame seals should clear the floor by at least 1/8".

If the bottom of a side seal measures 1/2" or more above the floor, readjust it or replace it by removing the bolts on the inside of the frame wheel wells, installing a new seal, and securing it with the bolts. The double edge with the holes goes toward the front.

To keep steering mechanisms safe and efficient, perform the following maintenance:

- Lubricate the grease points on the steering gear box, steering link arm, and steering fork assembly after every 200 hours of operation.
- Check the steering gear box for wear and adjust as needed.

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.



PARKING BRAKE

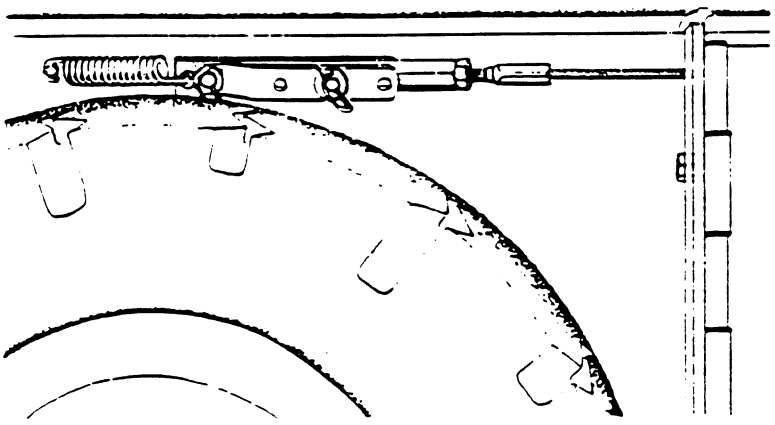
The parking brake on the sweeper is a set of mechanical drum brakes operated by a cable from the foot pedal. To keep the parking brake functioning safely and efficiently, check to see that it works properly and perform the adjustment explained below when necessary.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

PARKING BRAKE ADJUSTMENT

1. Locate the parking brake cable in the top of the left wheel well opening.
2. Loosen the locking nut located against the hex bar.
3. Thread the cable end as far into the hex bar as needed.
4. If threads are not sufficient for adjustment, move the cable bars to the next adjusting hole on the hex bar.
5. Retighten the locking nut against the hex bar. This adjusts both sets of brake shoes.
6. Test brakes. Readjust if necessary.



PowerBoss™ sweepers use an interchangeable, two-piece, bolt-together cast rim for mounting solid tires. Michelin pneumatic tires require a special three-piece rim. Tire maintenance requires the following:

- Visually inspect tires every day for wear and damage.
- Check pneumatic tires for proper air pressure after every 200 hours of operation.

SERVICE INSTRUCTIONS

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

INFLATION

Inflate Michelin pneumatic tires to 145 psi.

CHANGING SOLID TIRES

NOTE: The procedures which follow apply to solid tires only.

1. Remove tire from venicle by removing the five inner lug nuts.
2. Remove the five flathead bolts and nuts.
3. Press the tire from rim.
4. Press the large rim half into the new tire.
5. Mount the small rim half and secure with flathead bolts.
6. Reinstall tire on machine.

CHANGING PNEUMATIC TIRES

Since procedures for changing Michelin tires must be performed in a safety cage and require special tools, we recommend you have these tires changed by a professional tire dealer.

- Each machine is equipped with an anti-static drag chain bolted to the back wall of the broom chamber. This should remain in contact with the floor at all times. Inspect the chain every 200 hours. Replace if at least one link does not drag the surface of the floor.
- Latches and hinges should be inspected after every 500 hours of use. Retighten and oil if necessary.
- Inspect cables for wear every 500 hours.

⚠ WARNING Never attempt to perform any service on the equipment or components until the engine is OFF, the parking brake is LOCKED, and the wheels are CHOCKED.

TABLE OF CONTENTS
Troubleshooting

PROBLEM	CAUSE	SOLUTION
BASIC MACHINE OPERATING PROBLEMS		
Engine will not start or runs roughly after start.	Battery dead	Recharge or replace battery.
	Machine out of fuel	Refuel.
	Fuel filter plugged	Clean or replace filter.
	Fuel line broken or obstructed	Blow fuel line out with compressed air.
	Fuel line connection loose	Tighten connection.
	Dirty air filter	Clean or replace air filter. (see Service/Repair Section.)
	Problems with spark plugs, ignition points, ignition coil, ignition switch, carburetor, regulator, wiring harness	Review engine manual at back of this book for maintenance and troubleshooting procedures.
NOTE: On machines using LPG Fuel, also check the following:	Tank valve not fully opened	Open the valve slowly.
	Fuel tank type does not match fuel supply	Use the correct tank type for the fuel supply.
	Fuel tank and lines are frosting up	Open shut-off valve slowly to 1/4 open; start.
	Defective oil press switch or solenoid shut off	Replace.
Engine overheats.	Low coolant level.	Supply coolant.
	Clogged radiator.	Flush radiator.
	Loose fan belt.	Tighten belt.
	Defective thermostat.	Replace thermostat.

NOTE: If coolant loss has not occurred, check for malfunction of the temperature sending unit.

PROBLEM	CAUSE	SOLUTION
PowerBoss™ moves slowly or does not move.	Parking brake on	Release brake.
	Directional pedal linkage jammed, damaged, or not adjusted properly	Clear jam or adjust linkage.
	Tires skidding from contact with oil or grease	Clean tires or drive through a solvent absorbing substance.
	Wheels jammed	Clear jam.
	Low hydraulic oil level	Add oil.
	Hydraulic oil temperature too high and too thin caused by excessive load, climbing, high environment temperatures or worn pump	Use the proper weight of oil for the operation conditions; check pump.
	Damaged or worn pump drive coupling	Replace.
	Other problems with the hydraulics system: pump failure, motor failure, relief valve leaking or stuck open	See Hydraulics System Problems in this section.
PowerBoss™ creeps in neutral.	Directional pedal return spring out of adjustment	Perform the adjustment procedure.
SWEEPING PROBLEMS		
Brushes do not turn or turn very slowly.	Hydraulic system problem: - motor - control valve - gear pump - relief valve	See Hydraulics System Problems in this section.
Little or no vacuum in brush compartment.	Filters clogged	Clean filters.
	Leak or clog in hose from impeller	Repair leaks; clear constructions or replace hose.
	Impeller belt slipping due to grease on belt or looseness	Clean grease from belt or tighten. Re-size if too large.
	Impeller belt worn	Replace belt.
	Impeller failure	Check and repair.

PROBLEM	CAUSE	SOLUTION
Loss of dust control.	Debris in nose or impeller inlet	Clean.
	Broom skirts or seals worn	Replace.
	Skirt clearance from floor exceeds 1/8"	Adjust clearance.
	Dust filter clogged	Clean filters.
	Filter seals worn or missing	Replace.
	Impeller belts worn	Replace.
	Impeller belts slipping due to grease on belts or looseness	Clean or tighten.
	Poor seal with vacuum gasket at hopper	Visually check and adjust, if necessary.
Sweeper unit leaving debris.	Hopper full	Dump hopper.
	Broom(s) out of adjustment	Adjust.
	Broom bristles worn	Check broom for wear and adjustment.
	Poor performance of broom drive mechanism	Check for jam in broom chamber.
	Broom lift arms hung up with debris	Clear out debris.
	Hopper flaps damaged or missing	Replace or adjust clearance.
	Hopper out of adjustment	Check hopper floor clearance.
	Filters clogged	Clean filters.
Hopper does not raise or lower.	Hydraulics system problem: - control valve - gear pump - lift cylinder - relief valve	See Hydraulics System Problems in this section.
	Hopper arms binding	Lubricate or adjust arm linkage.

PROBLEM	CAUSE	SOLUTION
Hopper does not rotate or rotates slowly.	Hopper load too heavy	Dump more frequently.
	Hydraulics system problem: - control valve - gear pump - lift cylinder - relief valve	See Hydraulics System Problems in this section.

HYDRAULIC SYSTEM PROBLEMS

Hopper lift cylinder failure.	Line to cylinder leaking	Tighten fittings or replace hose.
	Piston seals leaking	Replace seals.
	Bent piston rod	Replace rod.
Hydraulic control valve failure.	Misaligned control linkage	Align.
	Foreign matter in spool bore	Remove spool and clean bore.
	Valve seals leaking	Replace seals.
	O-rings leaking	Replace O-rings.
	Relief valve stuck open	Clean or replace relief valve.
Hydraulic motor failure.	Motor leaking	Replace seals.
	Drive link malfunction	Replace drive link.
	Gerotor worn	Replace gerotor set.
	Output shaft malfunction	Replace output shaft and bearings.

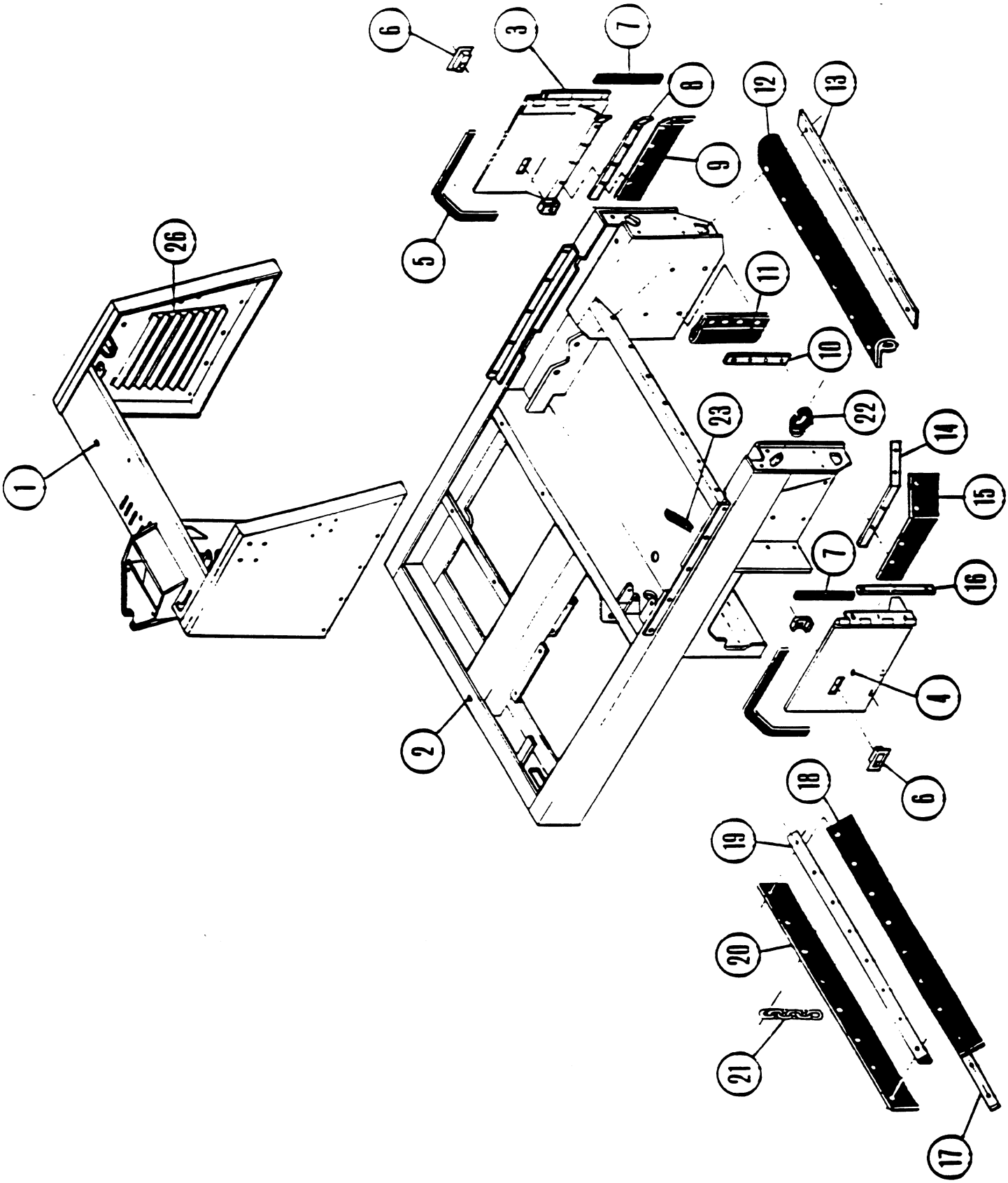
PROBLEM	CAUSE	SOLUTION
Hydraulic gear pump failure.	Pump leaking	Replace seals
	Gears worn or scored	Rebuild pump.
	Relief valve stuck	Clean or replace (at control valve).
	Oil supply low	Check and fill.
	Oil strainer clogged	Replace strainer (inside reservoir).
	Incorrect oil	Use recommended viscosity oil.
	Damage due to entry of air into hydraulic system	Maintain correct hydraulic oil level in reservoir. Keep suction hose fittings tight.
Hydraulic variable displacement pump failure	Pump leaking	Replace seals.
	Relief valve(s) stuck	Clean or replace relief valve(s).
	Drive coupling malfunction	Replace coupling.
	Control linkage out of adjustment	Check to see if linkage is binding or unfastened.
	Charge pump gears worn or scored	Replace defective gears.
	Damage due to entry of air into hydraulic system	Maintain correct hydraulic oil level in reservoir. Keep suction hose fittings tight.
Hydraulic system noisy.	Air in system	Check oil level in reservoir; check for loose connections or leaks
	Relief valve dirty or damaged.	Clean or replace.
	Loose suction line	Tighten fittings.
	Clogged section filter or pump inlet line.	Replace filter, clear line; change oil in reservoir if dirty and flush system.
	Internal pump or motor damage	Inspect and repair.

TABLE OF CONTENTS
Parts

TO ORDER PARTS AND SUPPLIES

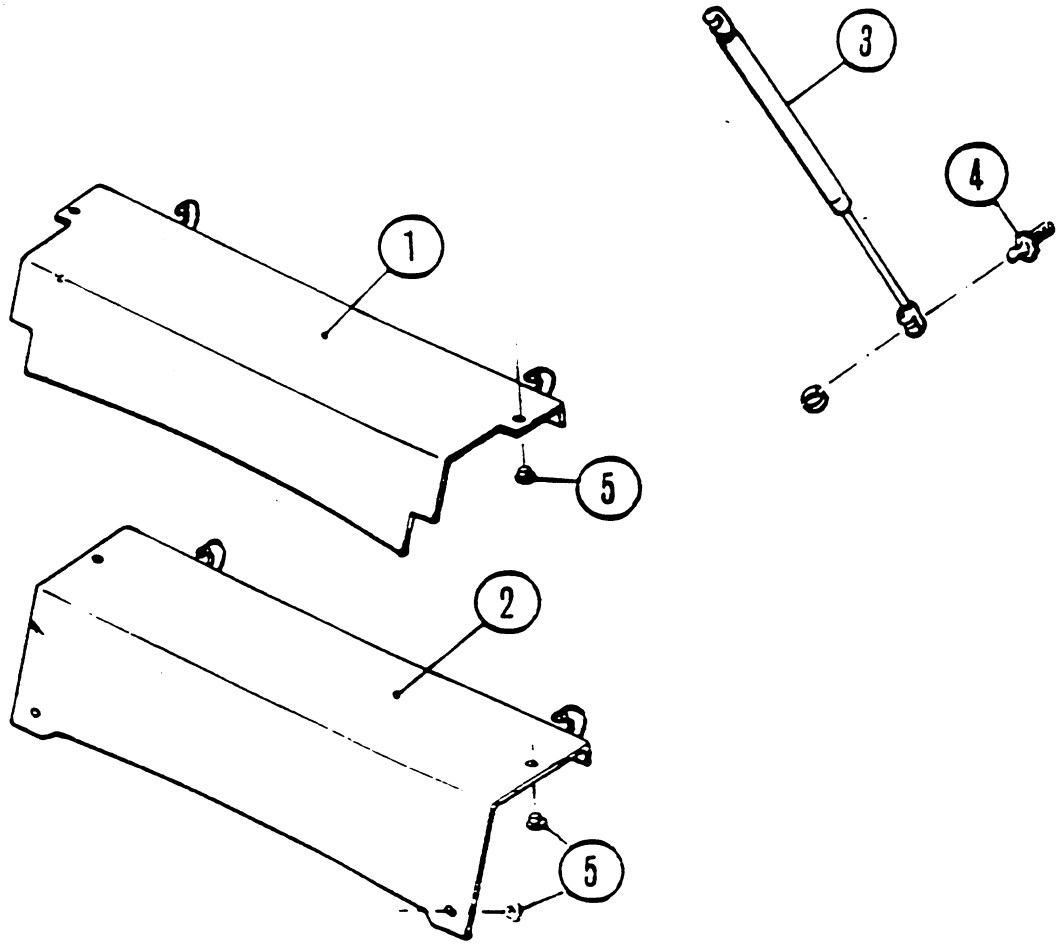
The components and parts used in your PowerBoss™ sweeper are selected for quality, performance and safety. Use only AAR Brooks & Perkins parts and supplies to repair and maintain your machine.

To order parts and supplies, contact your distributor.



FRAME

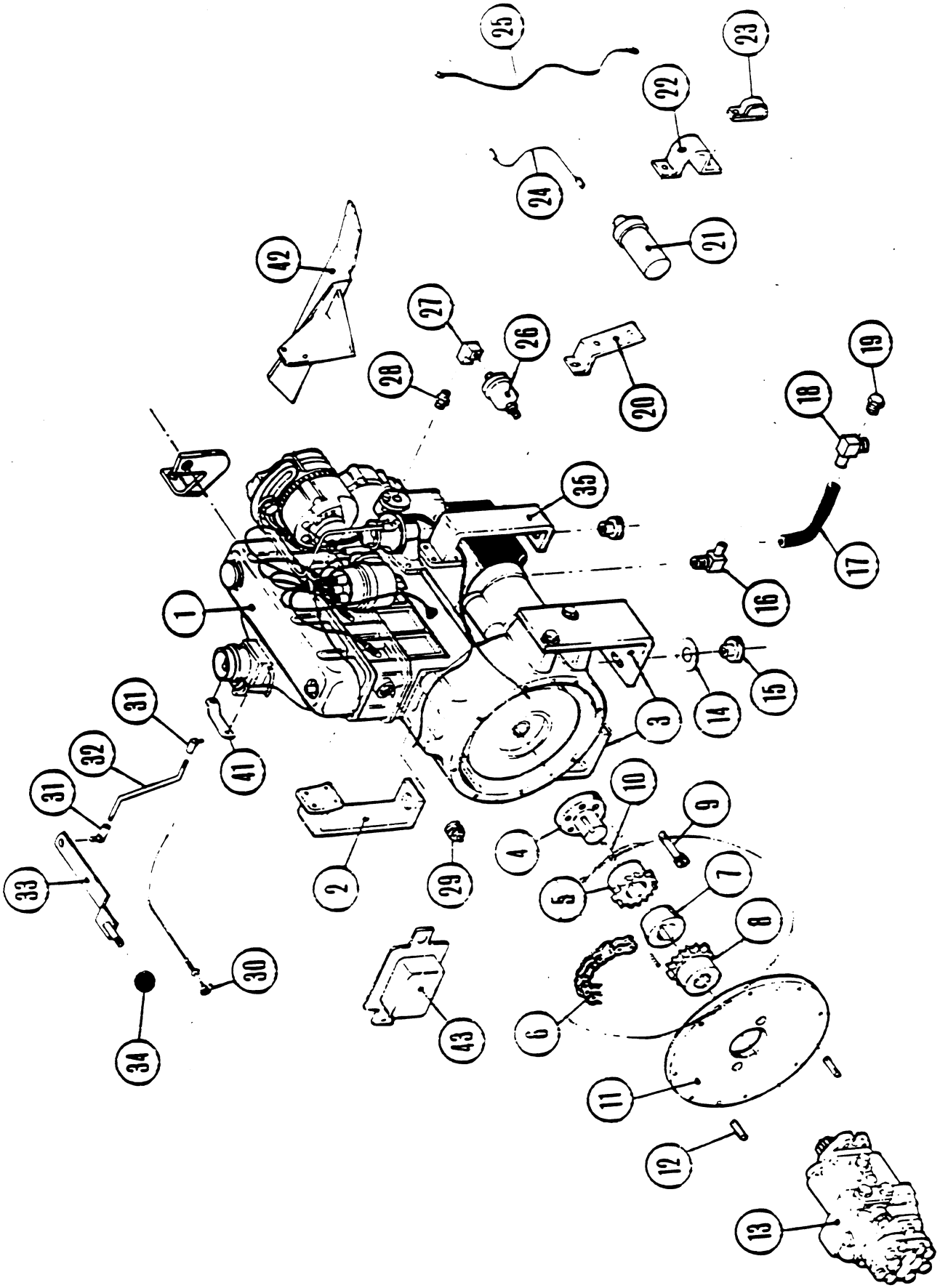
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300269 300833	300270 300831	Assembly - Lintel Painted (Low Dump) Assembly - Lintel Painted (High Dump)
2	300238	300218	Assembly - Frame Painted
3	300242		Assembly - Broom Door Left (Painted)
4	300241		Assembly - Broom Door Right (Painted)
5	300549		Gasket - Main Broom Door
6	300380		Assembly - Latch
7	301488		Gasket - Broom Door Front
8	300057		Retainer - Left Hand Broom Door
9	300159		Flap - Left Broom Door
10	300150		Retainer - Seal Side Painted
11	300397		Seal - Hopper Side
12	300190	300180	Seal - Hopper Frame
13	300949	300206	Strap - Hopper Frame
14	300056		Retainer - Flap Right Painted
15	300158		Flap - Right Broom Door
16	300888		Spacer - Broom Door Painted
17	300951	300204	Strap - Skirt Painted
18	300192	300181	Skirt - Inner
19	301020	301016	Angle - Skirt Painted
20	300191	300179	Skirt - Outer
21	301648		Chain - Grounding
22	301168		Edging - Curb Broom
23	301163		Edging Frame Right Side
24	300193		Gasket - Hopper Air Outlet (Not Shown)
25	301497		Assembly Basket Mount LD (Not Shown)
26	303150		Assembly - Radiator Grille - Pntd



ENGINE COVERS

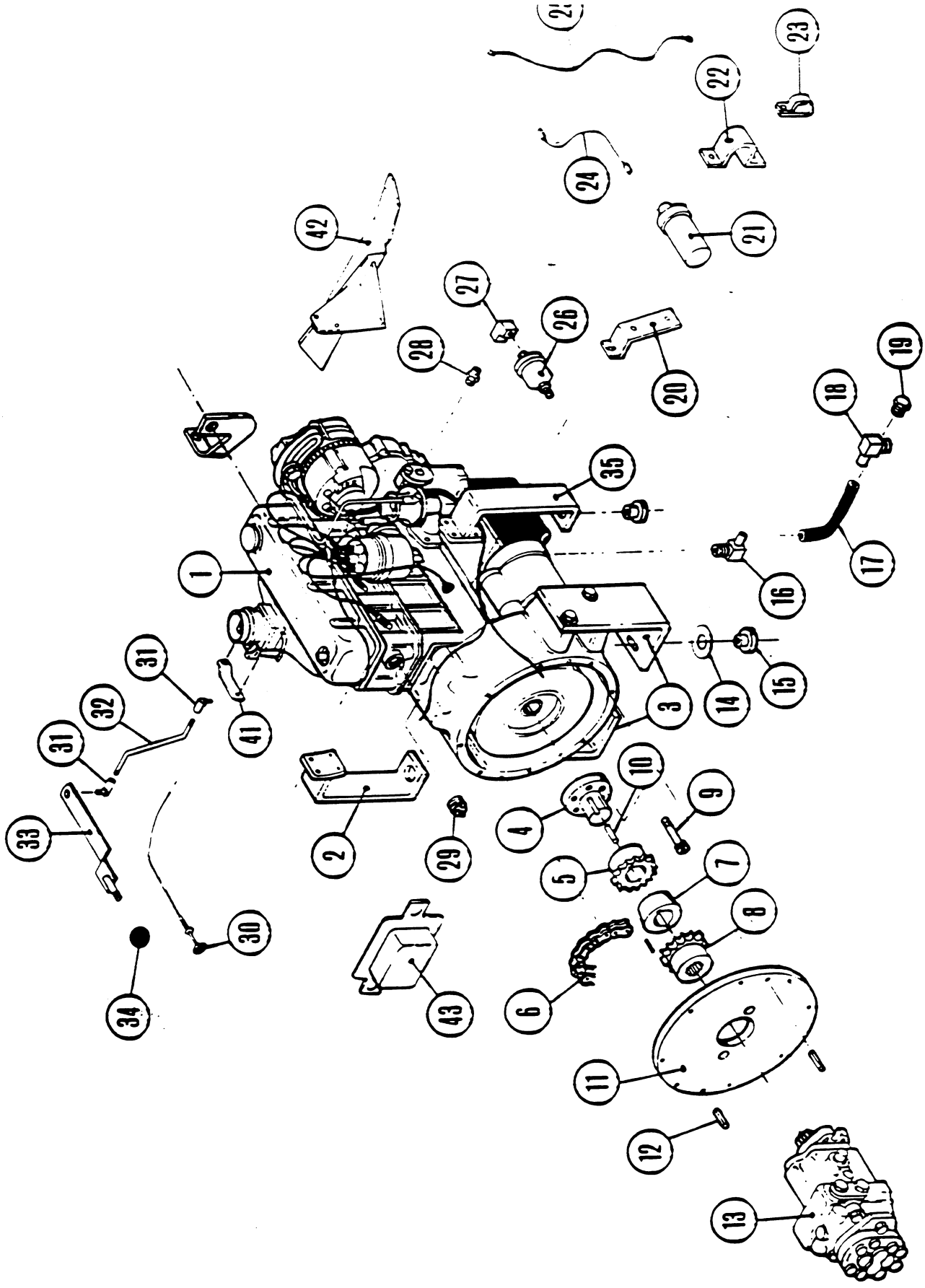
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	301211	301505	Assembly - Engine Cover HD Pntd
2	300992	301502	Assembly - Engine Cover LD Pntd
3	300375		Gas Spring - Cover
4	300376		Stud-Ball Gas Spring
5	300526		Bumper - Rubber Engine Cover

*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



NISSAN ENGINE

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	301873 301869		Engine - Nissan A12 Engine - Nissan A15
2	301324		Mount - Engine Side Nissan
3	301323		Mount - Engine Rear Nissan
4	301265		Adaptor - Pump Drive Nissan
5,6,7,8	302655		Assembly - Drive Sprocket Complete
9	400014		Screw - Socket Head Cap
10	301718		Key - 1/4 Sq x .88
11	300679		Assembly - Pump Mounting
12	400191		Pin Roll 5/16 x 1.00
13	300423	302712	Assembly - Pump
14	400091		Washer - Fender 1/2
15	300464		Mount - Isolation
16	400190		Fitting - 90 El - 1/2 Tube to 3/8 NPT
17	301716		Hose - Oil Drain
18	400190		Fitting - 90 El 1/2 Tube to 3/8 NPT
19	400194		Fitting - Pipe Plug 3/8 NPT - Socket
20	301399		Bracket - Coil Mount Nissan
21	302294		Coil Nissan
22	302117		Coil Mount Nissan
23	301158		Clamp - Cable 3/4
24	301364		Assembly - Wiring Harness Coil
25	301362		Assembly - Wiring Harness Engine Ground
26	300387		Sender Oil Pressure
27	301719		Fitting Nipple 1/8 NPT
28	301720		Fitting 90 El 1/8 NPT
29	301441		Sender - Temp Nissan
30	301424		Cable - Choke Nissan IND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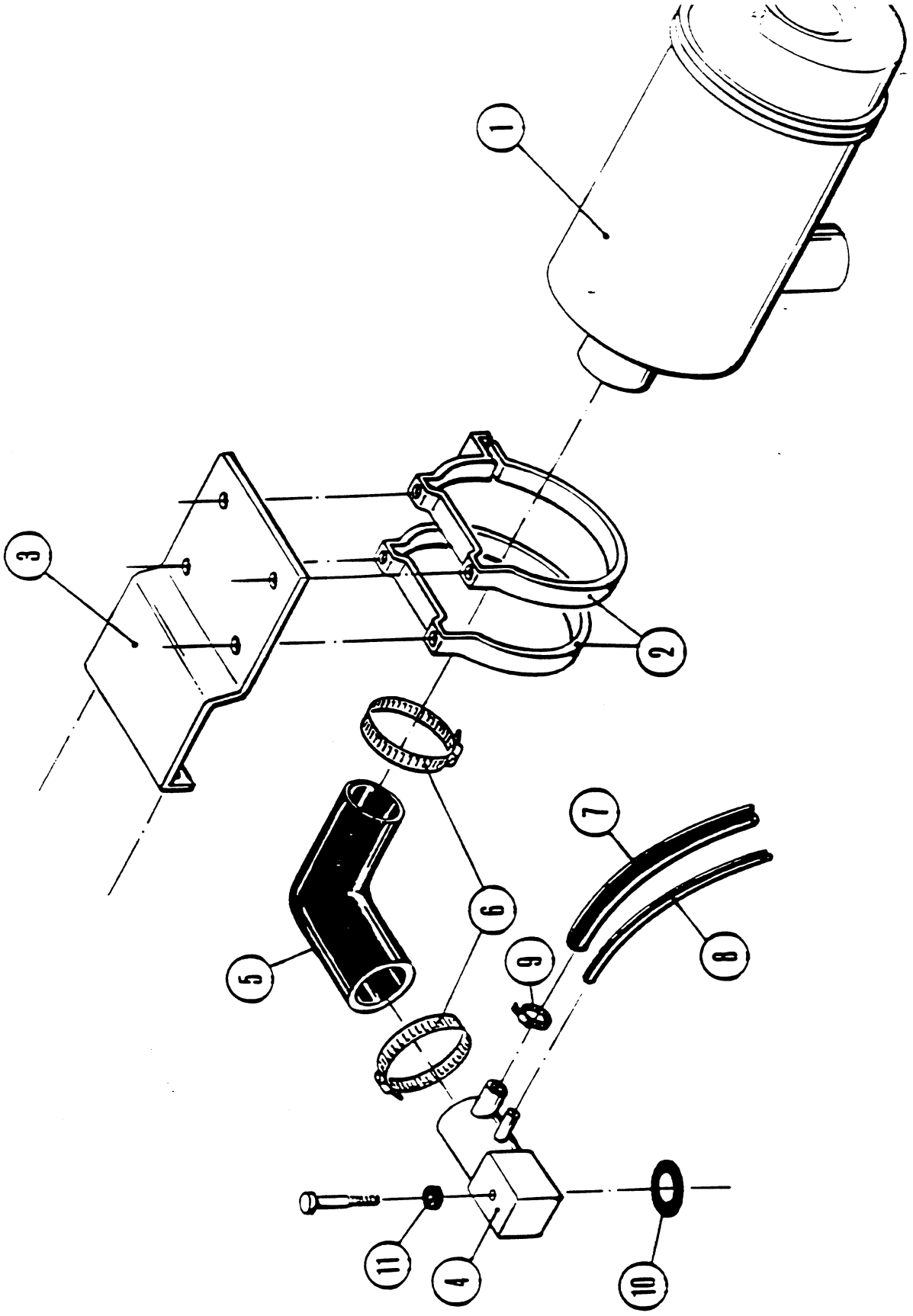
NISSAN ENGINE (cont.)

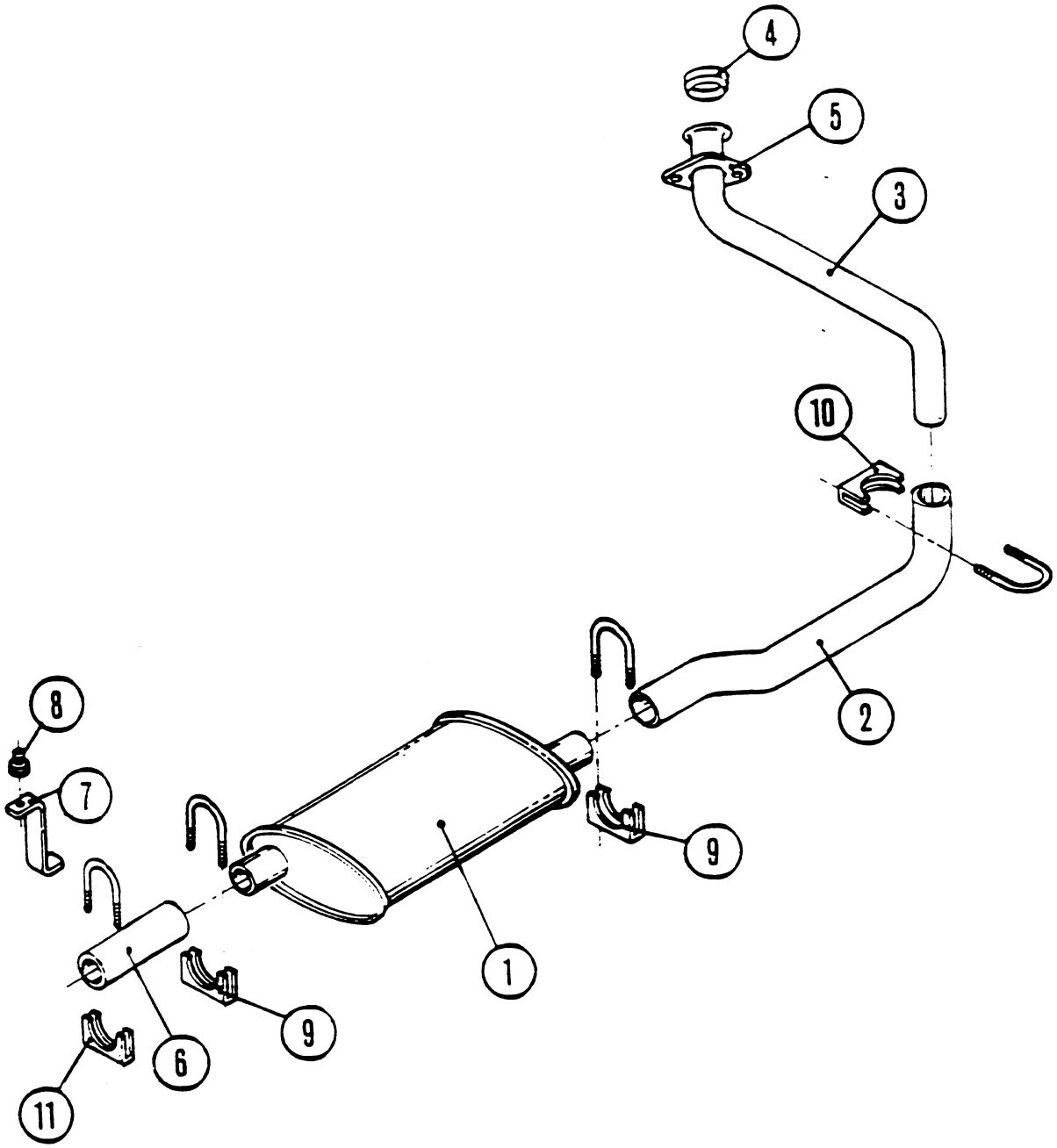
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
31	301199		Assembly - Ball Joint - 1/4
32	301395		Rod - Throttle Nissan
33	301468		Assembly - Throttle Lever Nissan
34	300563		Knob
35	301431		Assembly - Engine Mount Front Nissan
36	302292		Regulator - Voltage Nissan (Not Shown)
37	302293		Resistor Ballast Nissan (Not Shown)
38	302296		Fan - Nissan (Not Shown)
39	302121		Spacer Fan - Nissan (Not Shown)
40	302081		Kit - Tune Up Nissan (Not Shown)
41	301450		Throttle Arm
42	302167		Assembly - Hose Guard
43	302292		Voltage Regulator - Nissan

*When no numbers appear in this column, the parts number for the 78 Series is the same as that for the 88 Series.



DONALDSON AIR CLEANER

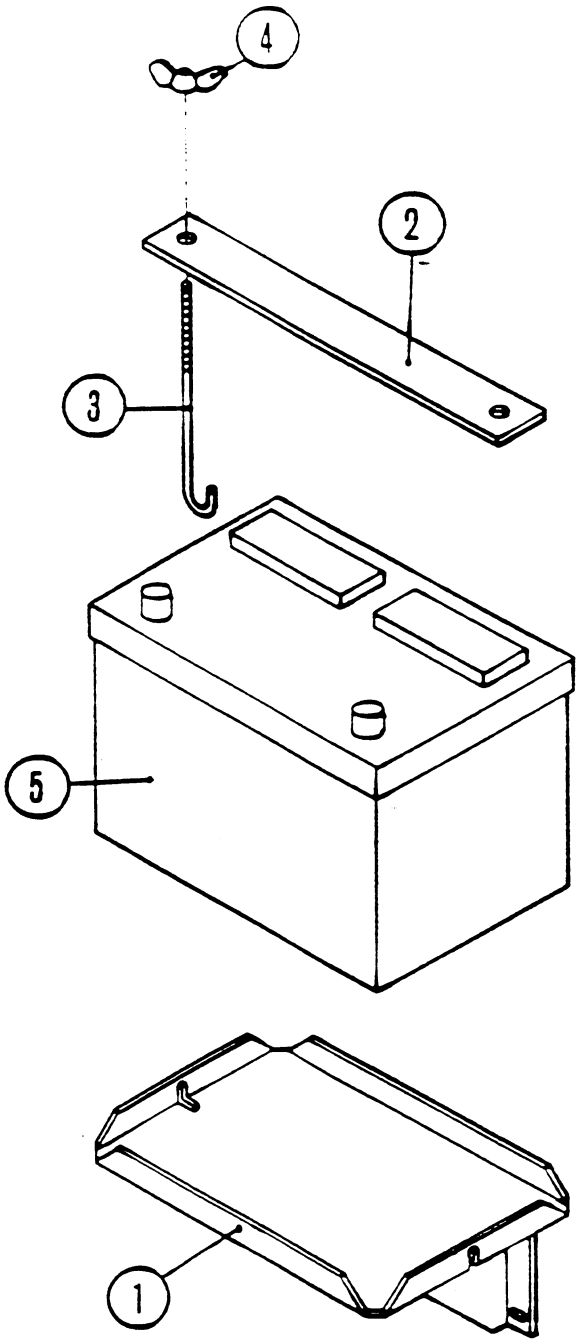
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300395	Air Cleaner - Donaldson
2	300459	Band - Mtg Air Cleaner
3	302401	Mnt HD Air Cleaner
4	302478	Assembly - Air Cleaner Manif Nissan Gas
5	300396	Adap - 90° El Rubber
6	300336	Clamp - Hose 2 1/2" NOM
7	301714	Hose - Crankcase Vent
8	301715	Hose - Vac Line Gov
9	302144	Clamp - Hose 1/2" NOM
10	302473	O-Ring - Carb
11	302249	Spacer - Nylon 1/4" ID x 1/4" Thk



EXHAUST SYSTEM

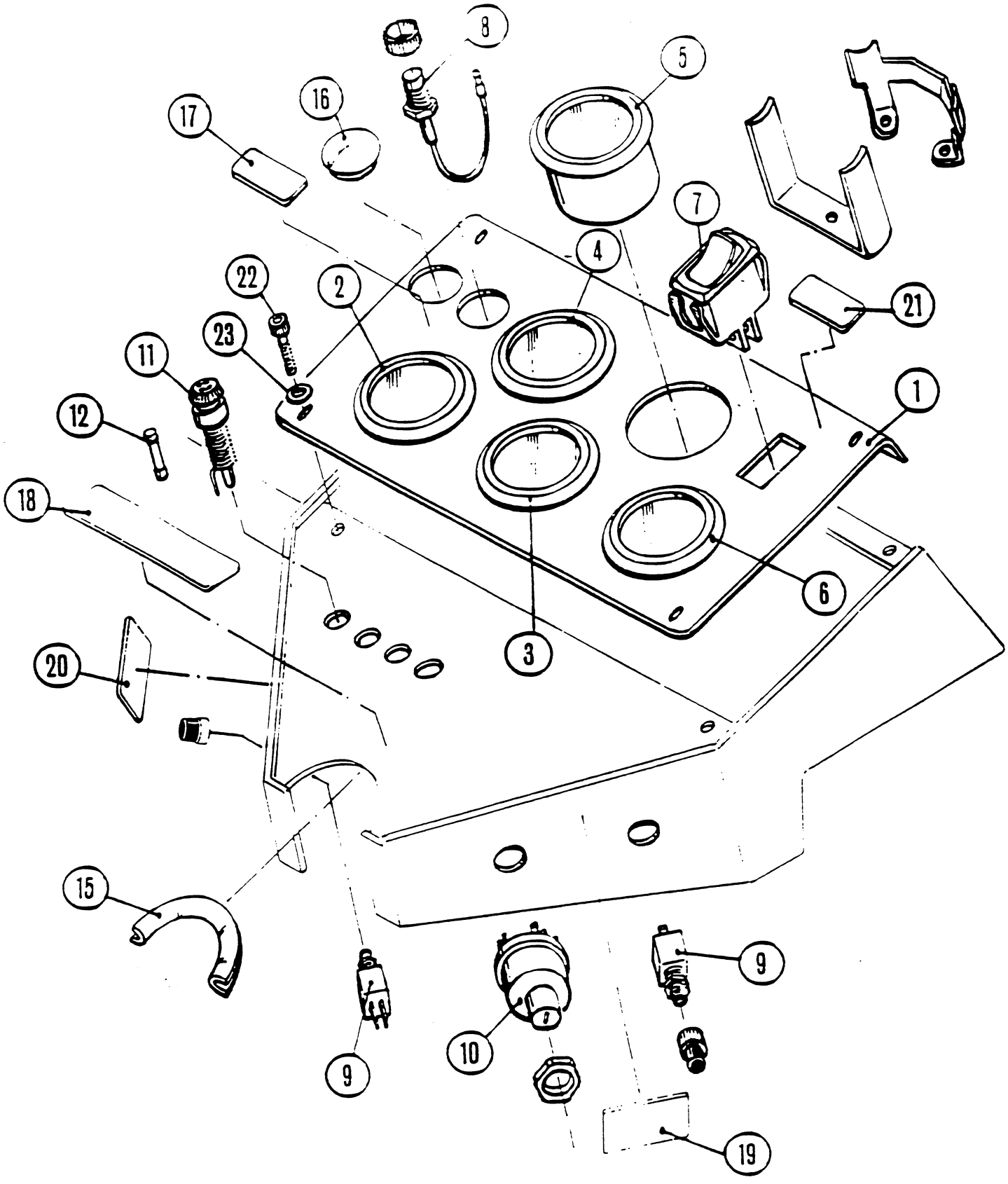
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300539		Muffler
2	301371	302468	Tube - Exhaust Intermediate
3	301369	302467	Tube - Exhaust Manifold Nissan
4	301583		Doughnut - Exhaust Nissan
5	301586		Collar Exhaust Nissan
6	300538		Tube Exhaust Tail
7	300944		Support - Muffler
8	300465		Mount Insulation
9	301640		Clamp Exhaust 1 3/4
10	303118		Clamp Exhaust
11	300540		Clamp Exhaust

*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.


4
2
3
5
1

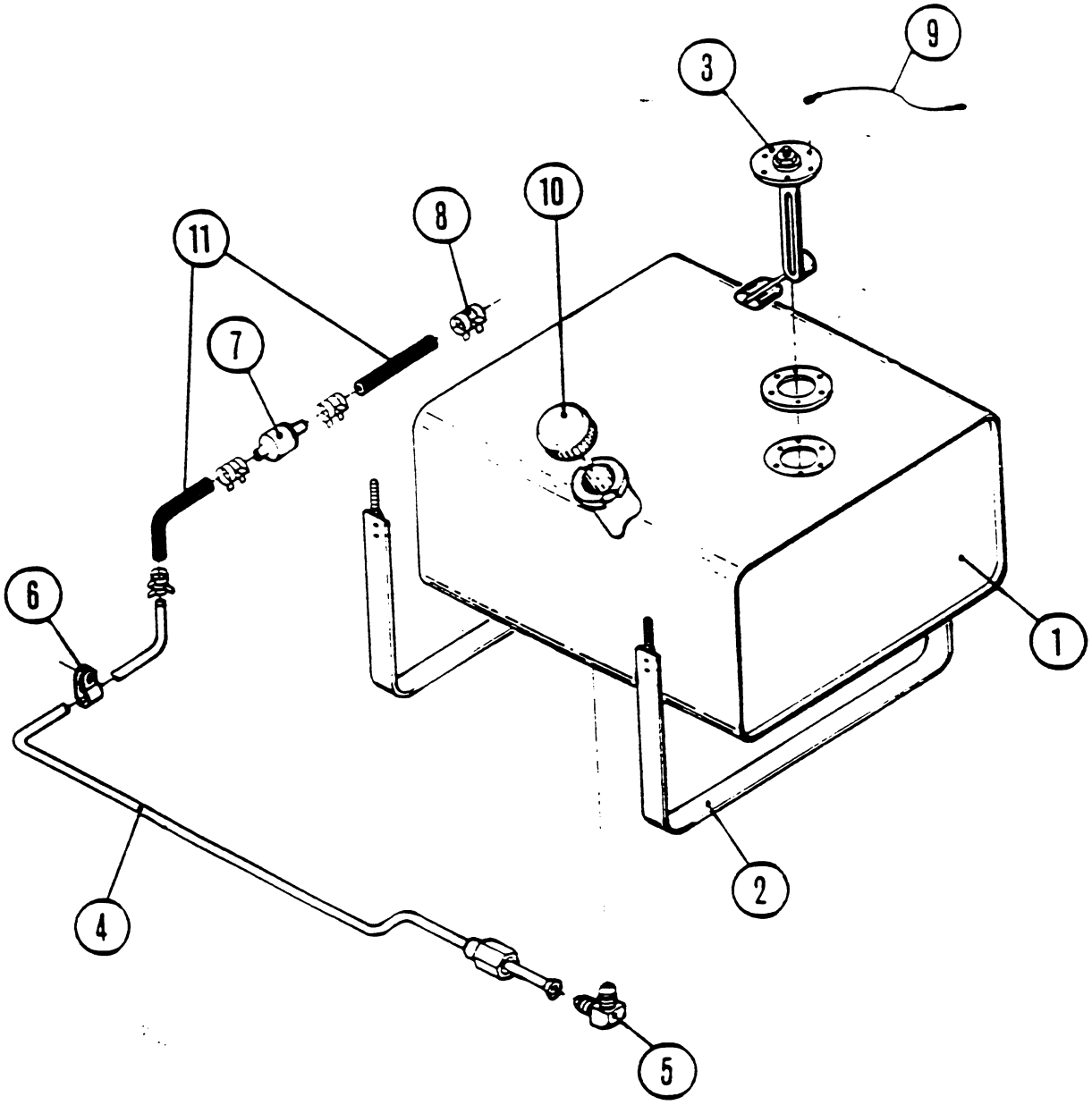
BATTERY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300210	Assembly - Battery Mount
2	301076	Hold Down - Battery
3	301079	Rod - Battery Tie Down
4	400085	Nut - Wing 1/4 - 20
5	300440 300448	Battery Gas Engine Battery Diesel Engine
6	301384	Assembly - Battery Cable Positive (Not Shown)
7	301385	Assembly - Battery Cable Negative (Not Shown)



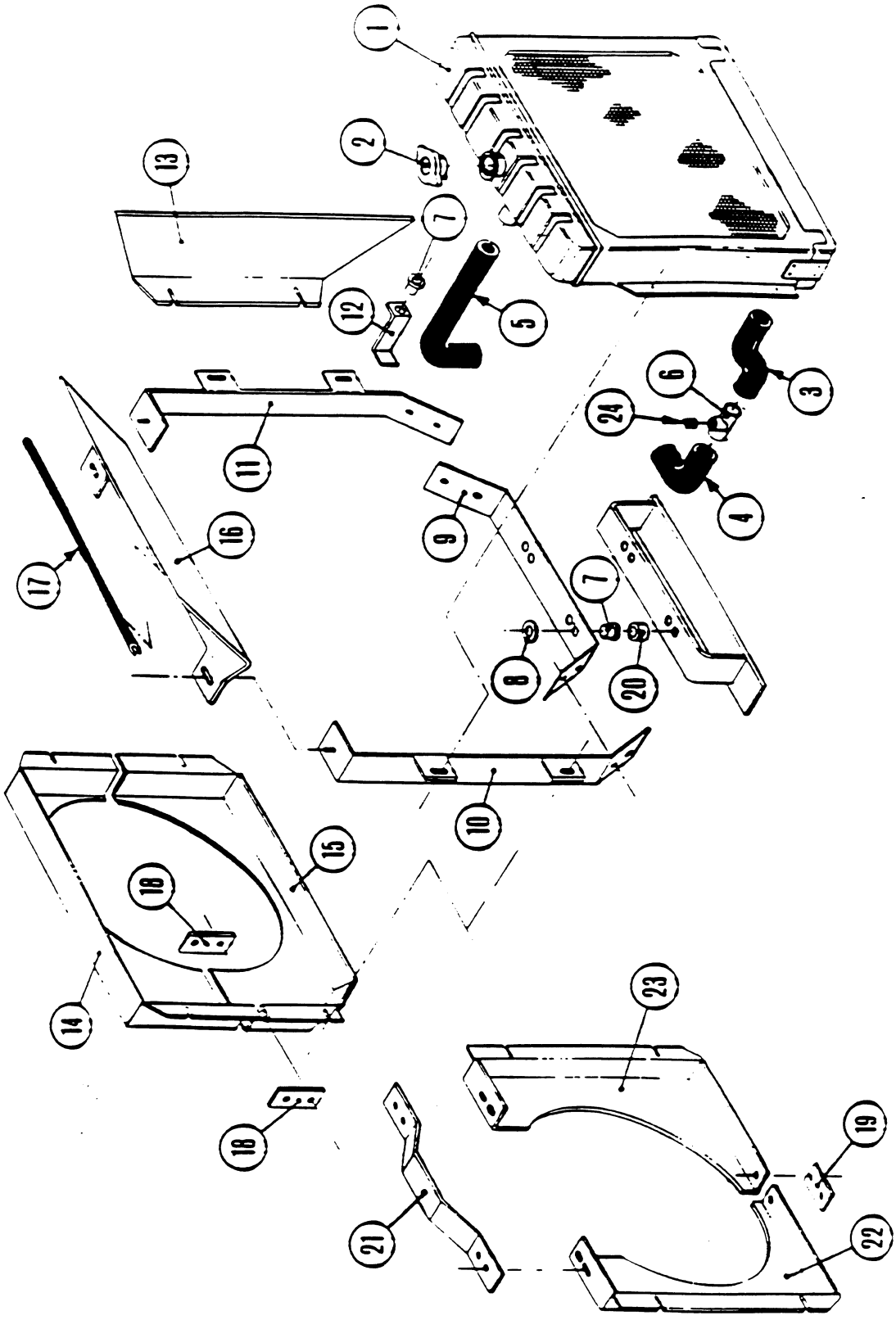
INSTRUMENT PANEL

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300860	Panel - Instrument Pntd
2	300381	Gauge - Ammeter
3	300382	Gauge - Fuel
4	300383	Gauge - Oil Pressure
5	300384	Gauge - Water Temperature
6	300385	Gauge - Hour Meter
7	300442	Switch - Rocker Lights
8	301553	Light -Trash Relocator
9	300441	Switch - Momentary
10	300443	Switch - Ignition
11	300444	Fuse Holder
12	300445	Fuse - 30 Amp
13	300446	Fuse - 15 Amp (Not Shown)
14	300447	Fuse - 20 Amp (Not Shown)
15	301165	Edging - Steering Column
16	301669	Plug - Instrument Panel
17	302517	Decal - RTR Lights
18	302522	Decal - Fuse
19	302525	Decal - Horn
20	302520	Decal - Filter Shaker
21	302524	Decal - Light Opt
22	400048	SCR - SCH #10 - 32 x .75
23	400104	Washer - Lock #10 SPUT



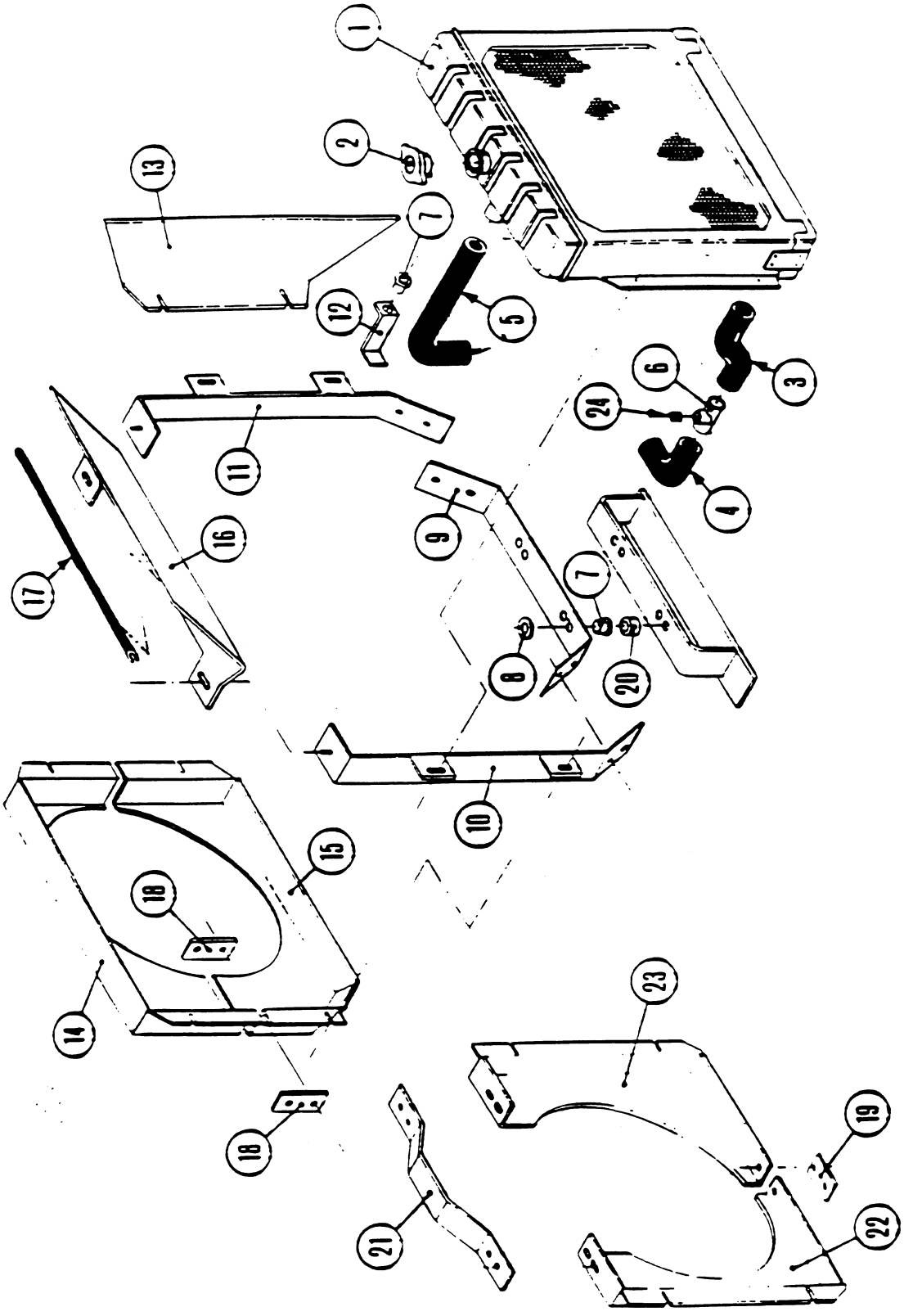
FUEL SYSTEM

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301023	Assembly - Tank Fuel
2	300757	Assembly Strap Fuel Tank
3	300388	Assembly - Fuel Sender
4	301561	Assembly - Fuel Line
5	400183	Fitting - Gasoline
6	301558	Clamp - Fuel Line
7	300417	Filter - Fuel (Not on Diesel)
8	302338	Clamp (Not on Diesel)
9	301363	Wire - Ground
10	300393	Cap - Gas Tank
11	302085	Hose (SP) (Not on Diesel)



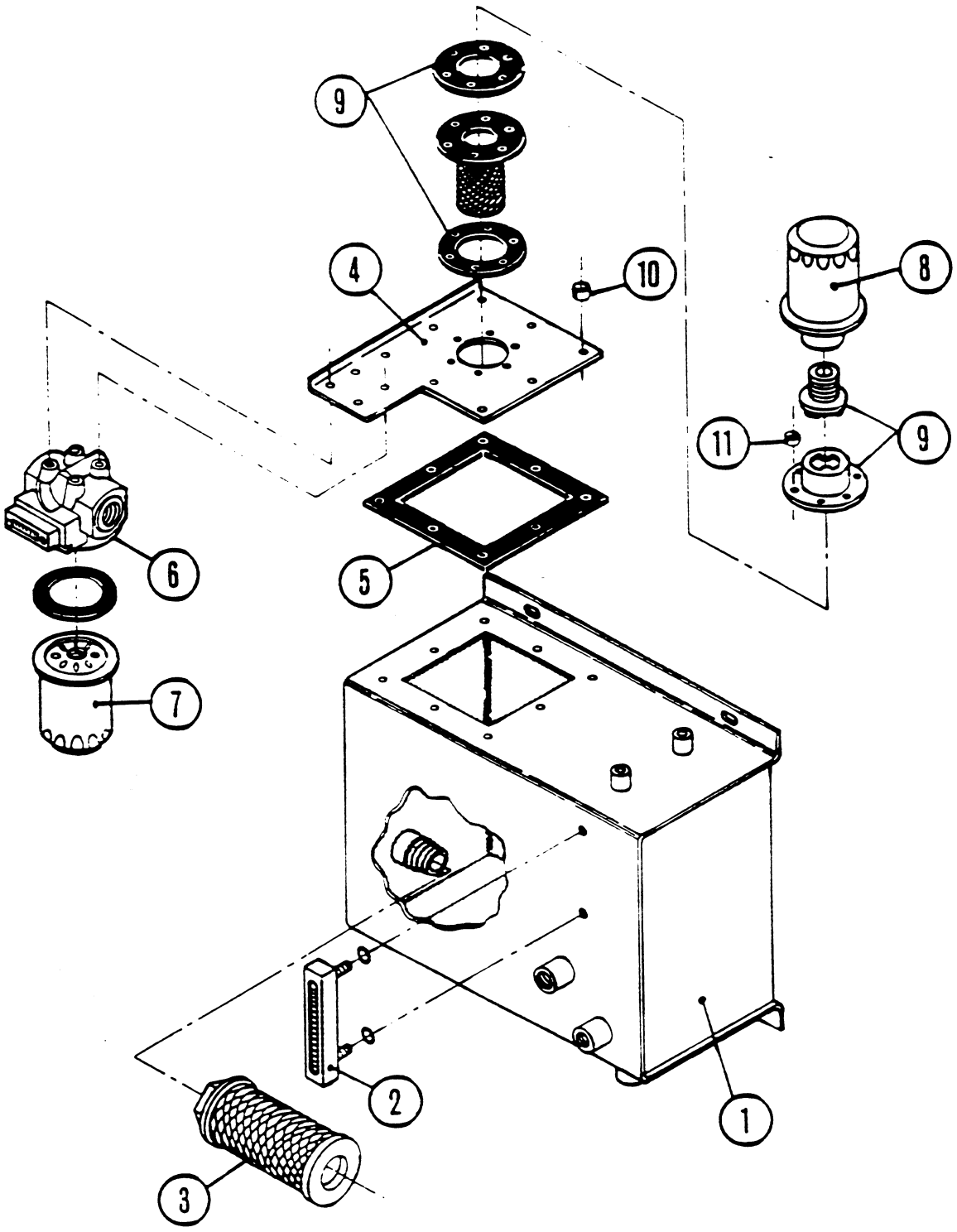
NISSAN RADIATORS, SHROUDS, AND MOUNTS

NISSAN ITEM NUMBER	PART NUMBER	DESCRIPTION	NISSAN ME (88 MODELS ONLY) PART NUMBER	DESCRIPTION
1	302101	Rad- 3 Core	301995	Rad- Heavy Duty
2	300420	Cap	300420	Cap
3	300534	Hose - Rad Lower	300534	Hose - Rad Lower
4	303115	Hose - 90° El	303115	Hose - 90° El
5	300533	Hose - Rad Upper	300533	Hose - Rad Upper
6	302457	Assy - Coolant Tap	302457	Assy - Coolant Tap
7	300465	Mount - Isolation	300465	Mount - Isolation
8	400092	Washer - Fender	400092	Washer - Fender
9	302110	Brckt- Lower Rad Mnt	302173	Assy - ME Rad Mnt
10	302112	Assy - Rad Mnt Front	-----	-----
11	302114	Assy - Rad Mnt Rear	-----	-----
12	300893	Mount - Rad	302173	Bracket - Rad
13	301815	Deflector - Side Rad	302177	Deflector - Side Rad
14	301404	Shroud - Fan Top	302181	Shroud - Rad Top and Bottom
15	301407	Shroud Fan Btm	302181	Shroud - Rad Top and Bottom
16	301813	Dflct- Air Top - Rad	302179	Deflector - Air Top Rad
17	301563	Edging - Dflct Rad Top	301835	Edging - Dflct Rad
18	301264	Plate Fan Shroud	301264	Plate Fan Shroud
19	-----	-----	-----	-----
20	-----	-----	-----	-----
21	-----	-----	-----	-----
22	-----	-----	-----	-----
23	-----	-----	-----	-----
24	400256	Fitting - Plug 1/4 NPT	400256	Fitting - Plug 1/4 NPT



FORD RADIATORS. SHROUDS. AND MOUNTS

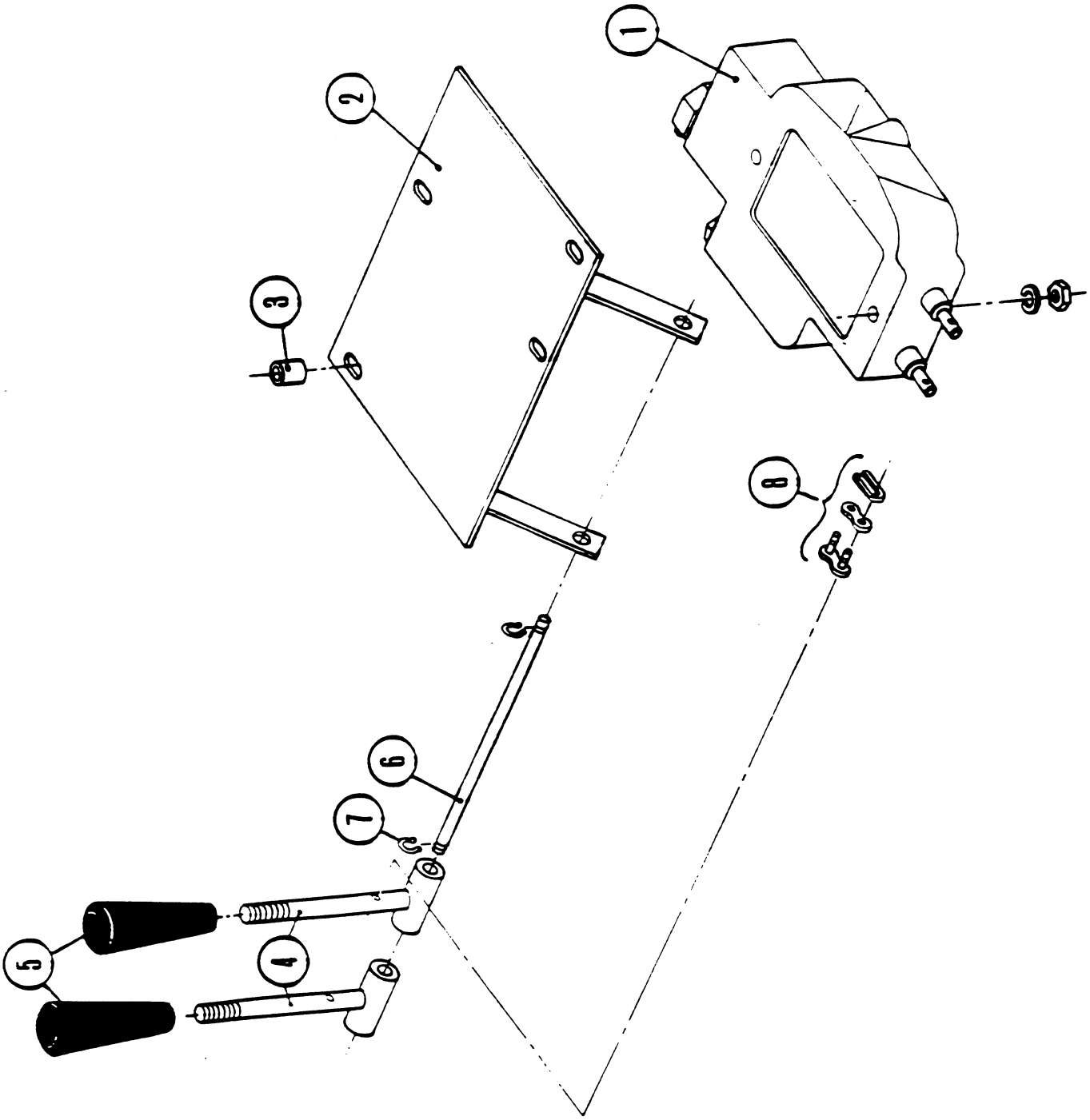
FORD ITEM NUMBER	PART NUMBER	DESCRIPTION	FORD ME (88 MODELS ONLY) PART NUMBER	DESCRIPTION
1	302101	Rad - 3 core	301995	Rad - Heavy Duty
2	300420	Cap	300420	Cap
3	300533	Hose - Rad Upper	300533	Hose - Rad Upper
4	303125	Hose - Rad Lower	303125	Hose - Rad Upper
5	300533	Hose - Rad - Upper	303126	Hose - Rad - Upper
6	302457	Assy - Coolant Tap	302457	Assy - Coolant Tap
7	300465	Mount - Isolation	300465	Mount - Isolation
8	400092	Washer - Fender	400092	Washer - Fender
9	302110	Brcktt - Lower Rad Mnt	302173	Assy - Rad Mount
10	302112	Assy - Rad Mnt Front	----	-----
11	302114	Assy - Rad Mnt Rear	-----	-----
12	300893	Mnt - Rad	303039	Bracket - Rad
13	301815	Deflector - Side Rad	302177	Deflector - Side Rad
14	-----	-----	303070	Assy Shrd Rad Top and Bottom
15	-----	-----	303070	Assy Shrd Rad Top and Bottom
16	301813	Deflector - Air Top Rad	303178	Deflector - Air Rad
17	301563	Edging - Dflctr Rad Top	302105	Edging - Deflector Rad
18	301264	Plate Fan Shroud	302946	Plate - Fan Shroud
19	301264	Plate Fan Shroud	-----	-----
20	-----	-----	302953	Spacer - Rad Mnt
21	301959	Strap - Rad Shroud	-----	-----
22	301958	Shroud - Fan Front	-----	-----
23	301960	Shroud - Fan Rear	-----	-----
24	400256	Fitting - Plug 1/4 NPT	400256	Fitting - Plug 1/4 NPT



HYDRAULIC RESERVOIR

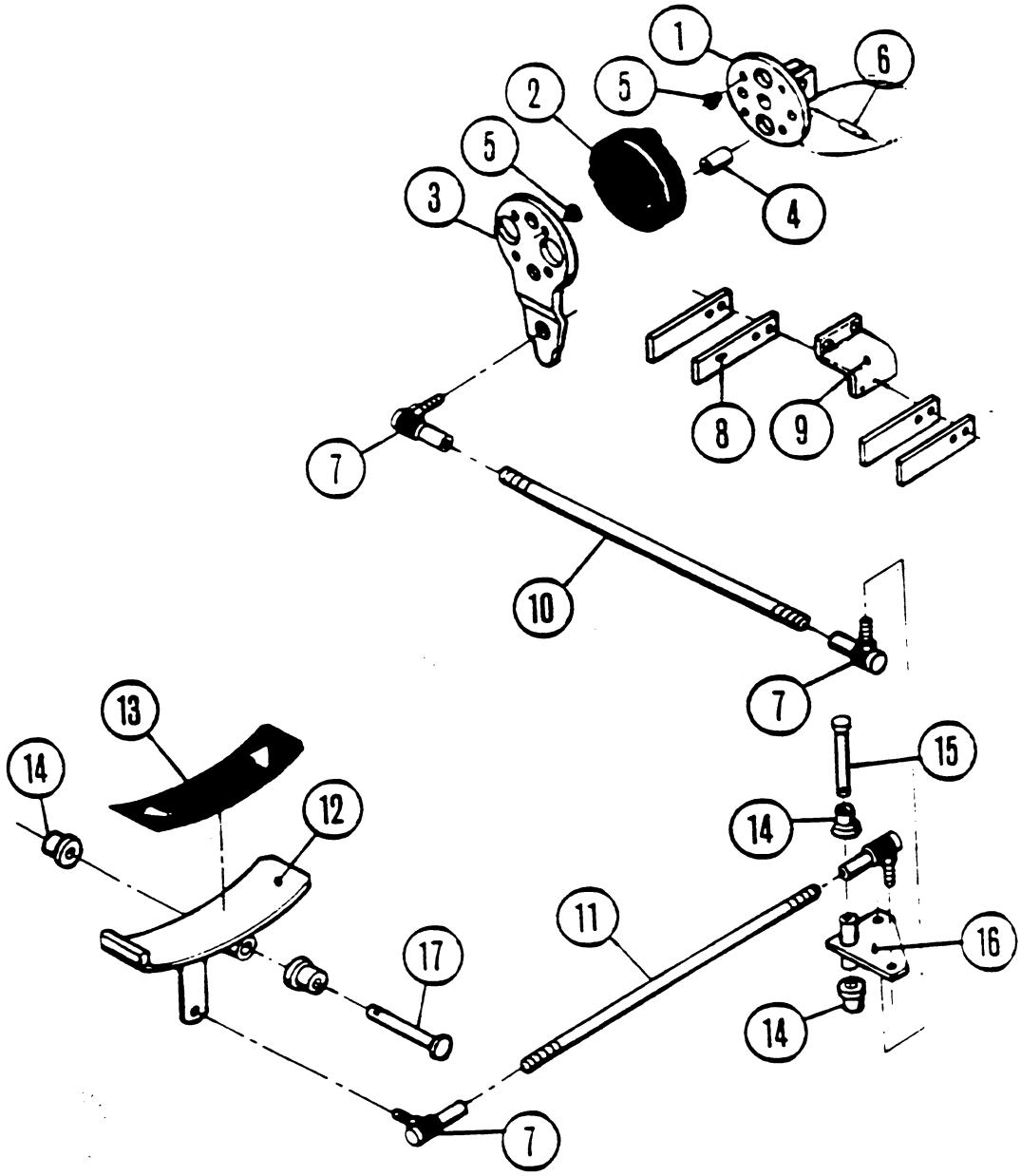
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78	
1	300001		Assembly - Reservoir Hydraulic
2	300366		Gage - Level Hydraulic Reservoir
3	300360		Strainer - Hydraulic Reservoir
4	300020	302372	Cover - Reservoir
5	300007		Gasket - Hydraulic Reservoir
6	300358		Assembly - Hydraulic Filter
7	300359		Filter Hydraulic
8	302053		Breather - Filter
9	300378		Assembly - Filter/Breather
10	302249		Spacer - Nylon
11	302248		Spacer - Nylon

*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



HYDRAULIC VALVE

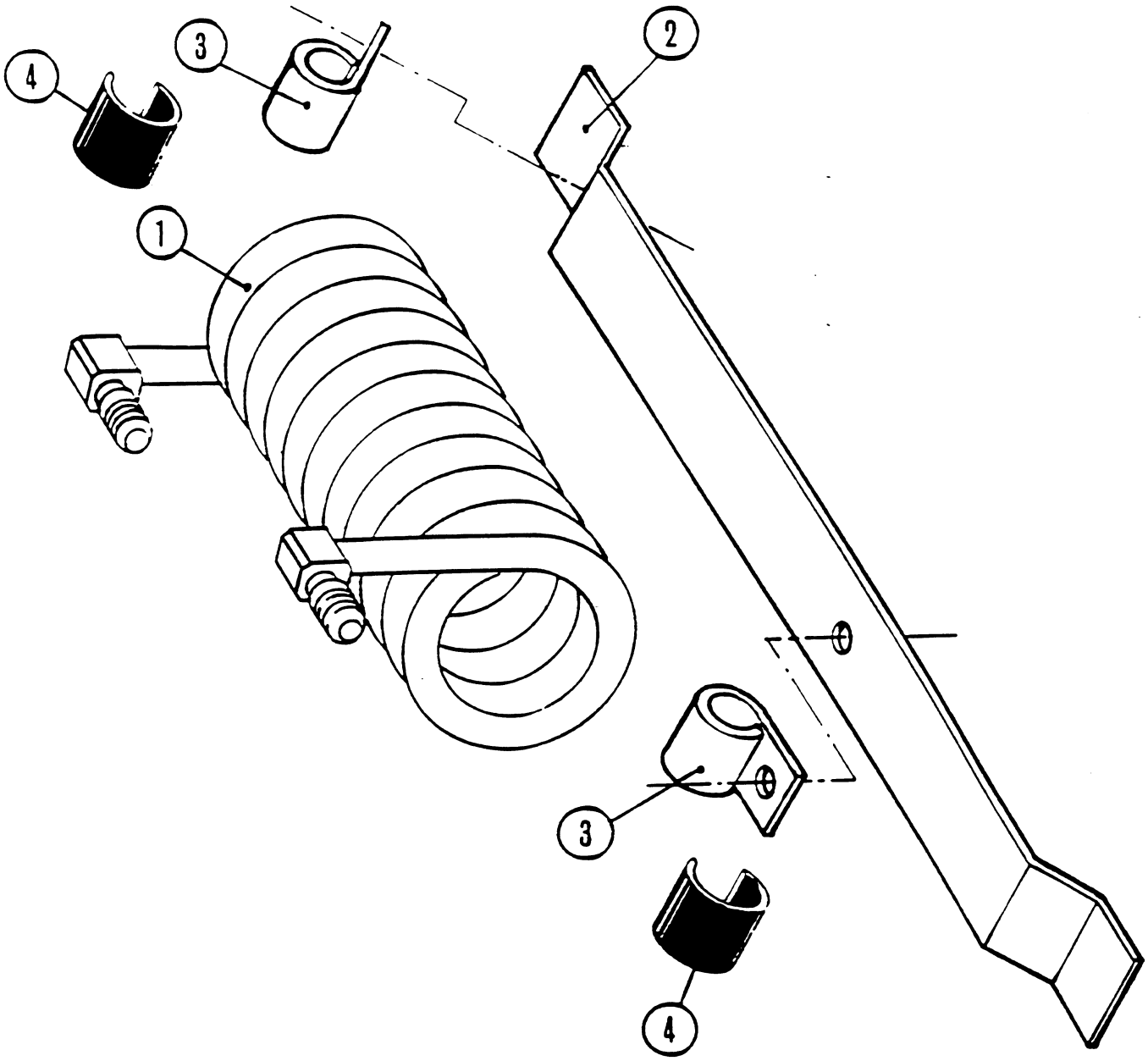
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300357 300356	Assembly - Hydraulic Valve All SW High Dump Units 3-Spool All SW Low Dump Units 2 -Spool
2	300743	Assembly - Mount Valve
3	300883	Spacer - Control Valve
4	300070	Assembly - Lever
5	300558	Knob - Main Broom, Curb Broom, Squeegee
6	300884	Rod - Pivot Control Valve
7	300547	Assembly - Connecting Link



DIRECTIONAL CONTROL

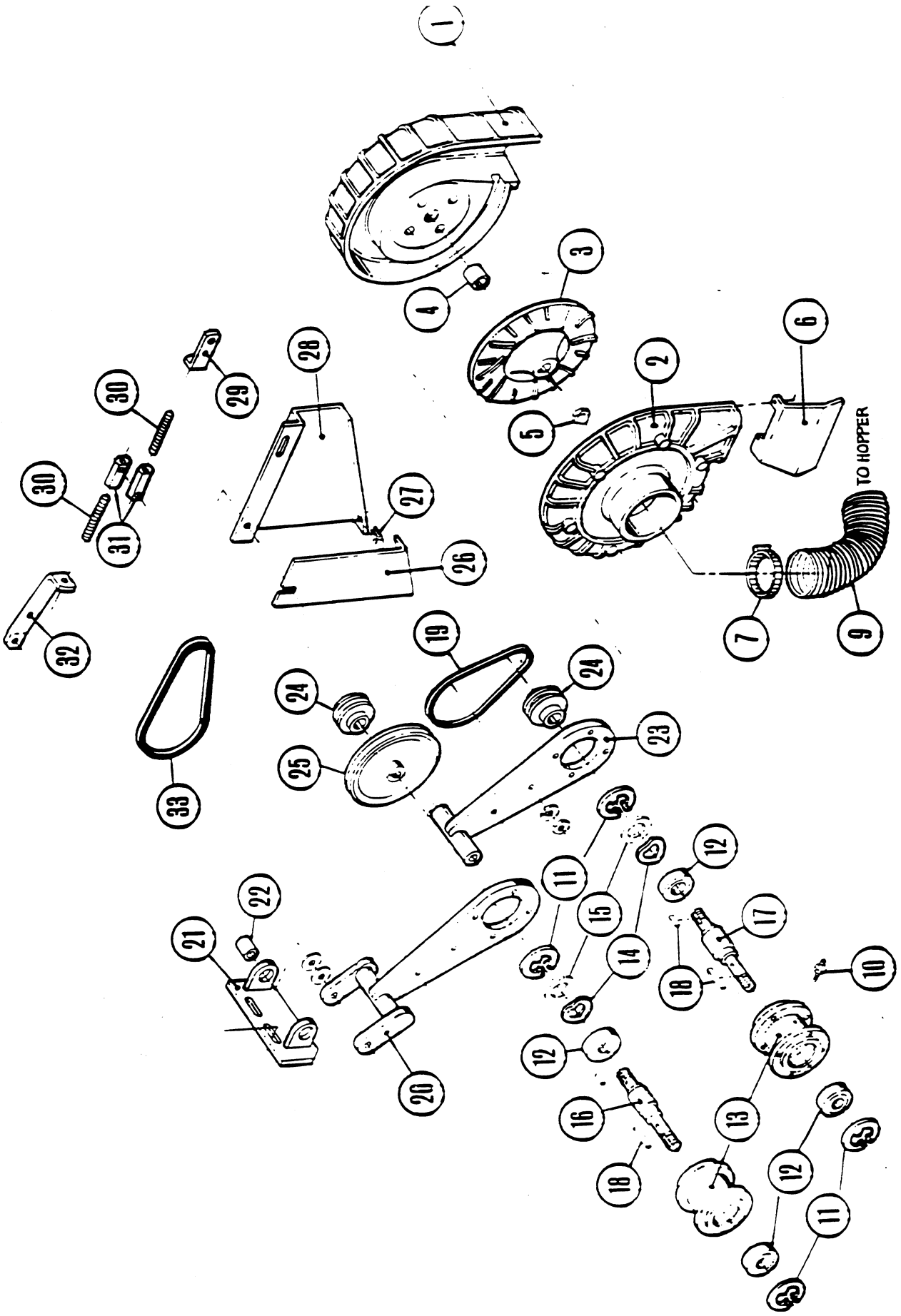
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	301544		Assembly - Disc Fwd/Rev
2	301507		Coupling Ring
3	301542		Arm - Fwd/Rev
4	300339		Sleeve, Squeegee Fwd/Rev
5	300526		Bumper - Rubber Engine Cover
6	400127		Pin - Roll 1/4 x 1.50
7	300461		Assembly - Ball Joint 3/8
8	300543		Spring - Return Directional Control
9	300872		Bracket - Adjustment Fwd/Rev
10	300030	302357	Rod - Fwd/Rev
11	300029		Rod - Fwd/Rev
12	300737		Assembly - Pedal Fwd/Rev
13	300544		Pad - Foot Pedal
14	300414		Bushing Plastic Main Broom
15	400115		Pin- Clevis 3/8 x 3.00
16	300053		Assembly - Arm Intermediate
17	400114		Pin - Clevis 3/8 x 4.00

*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



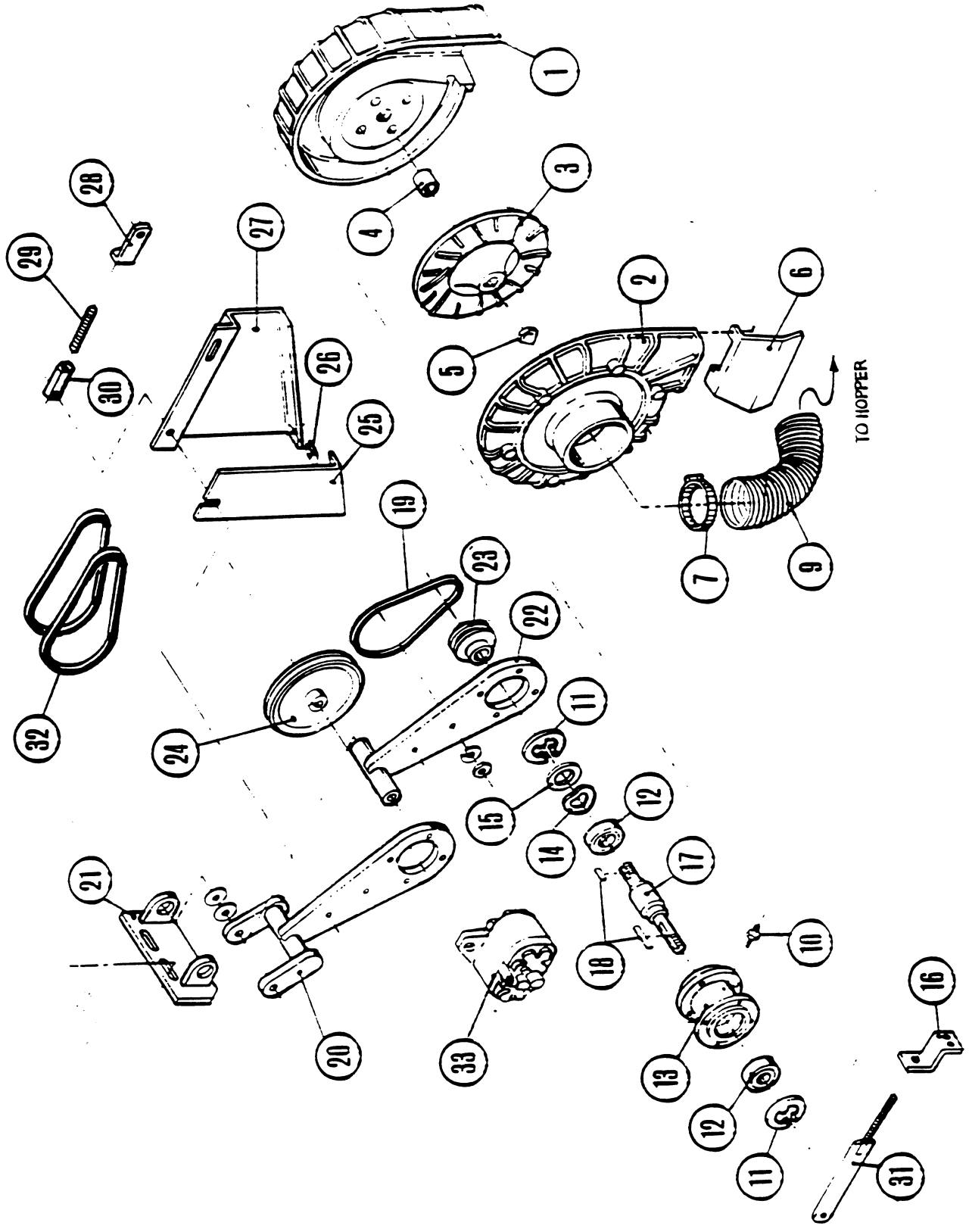
COOLING COIL

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300541	Coil Cooling
2	300906	Mount Cooling Coil
3	301158	Clamp - Cable 3/4
4	301597	Retainer - Rubber



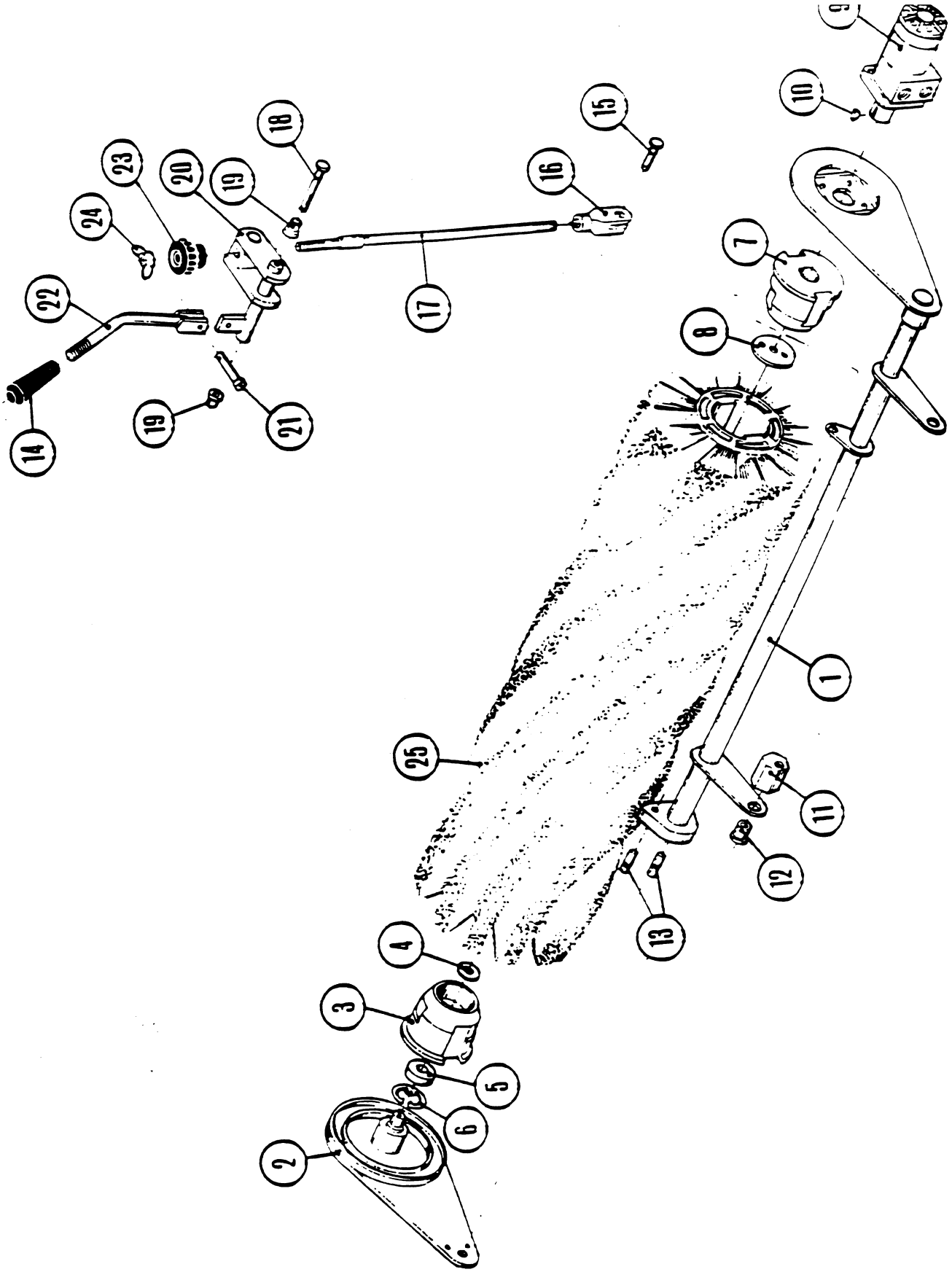
38 SERIES IMPELLER

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301027	Assembly - Shroud Inner
2	300139	Shroud Outer
3	300133	Impeller
4	300902	Spacer - Impeller
5	400062	Nut - Acorn 1/2 - 20
6	300908	Deflector - Impeller
7	300351	Clamp - Hose 4" Diameter
8	301388	Cover - Impeller Bearing (Not Shown)
9	300350	Hose - Impeller to Hopper
10	400012	Fitting - Grease 3/16
11	300474	Ring - Retainer Interior
12	300468	Bearing - Ball
13	300186	Housing - Bearing Impeller
14	300476	Washer - Wave
15	301330	Spacer - Flat Impeller
16	301354	Shaft - Impeller
17	300185	Shaft - Impeller
18	300344	Key 1/8 Square x .75
19	300348	Belt - V
20	301349	Assembly - Impeller Pulley Mount
21	300692	Assembly - Pivot Mount Impeller
22	301331	Spacer - Impeller Mount
23	301229	Assembly - Impeller Arm
24	300346	Pulley - Impeller
25	301313	Pulley - Impeller
26	301344	Cover - Impeller
27	301146	Clipnut
28	301341	Guard - Impeller Belt
29	301439	Bracket - Impeller Adjustment
30	301393	Rod - Impeller Adjustment
31	300202	Bar - Cable Adjustment
32	301438 303035 302907 302992	Bar - Impeller Adjustment Nissan Bar - Impeller Adustment Ford Bar - Impeller Adjustment Kubota Bar - Impeller Adjustment Perkins
33	300347	Belt - V



78 SERIES IMPELLER

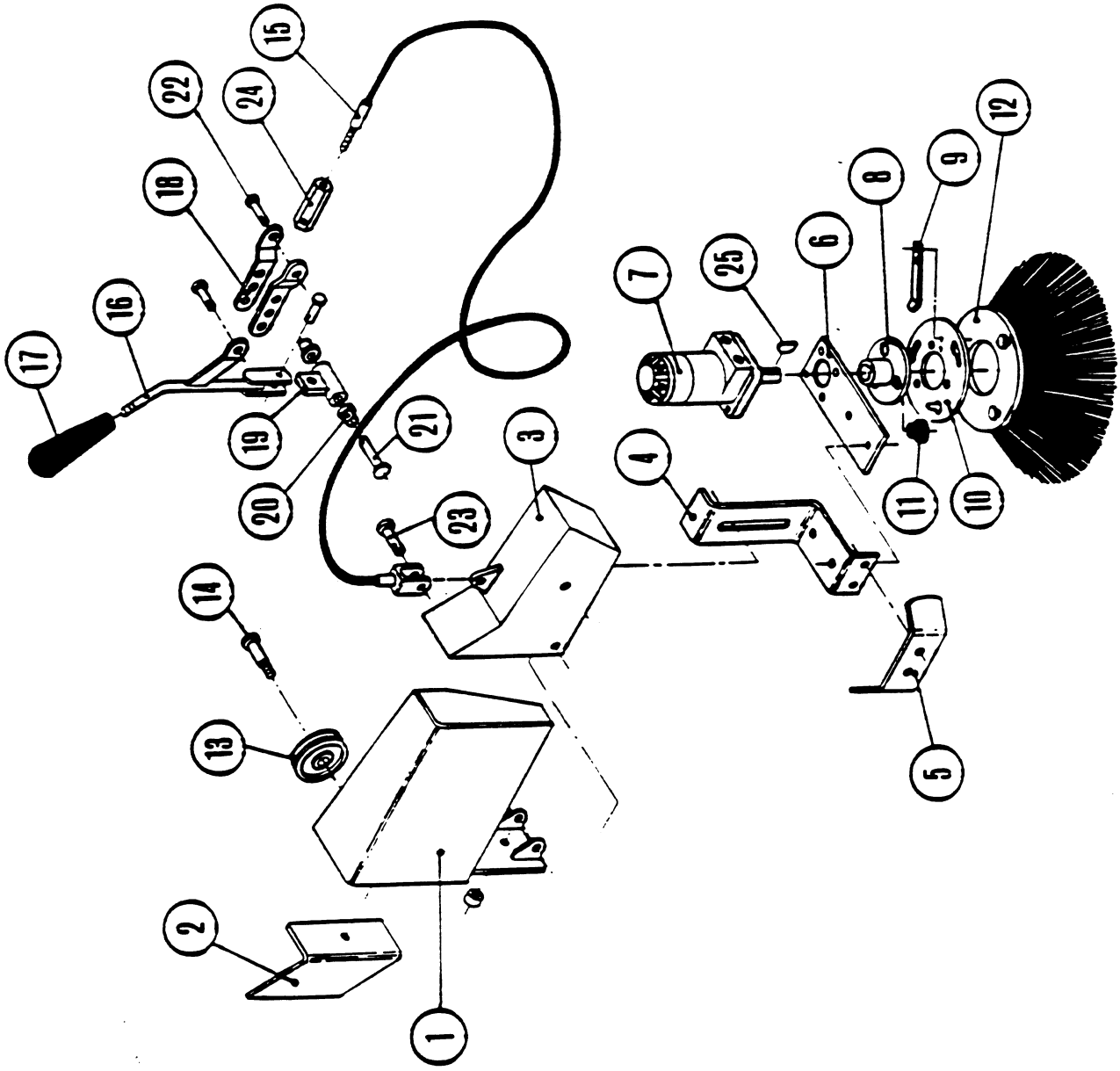
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301027	Assembly - Shroud Inner
2	300139	Shroud Outer
3	300133	Impeller
4	300902	Spacer - Impeller
5	400062	Nut - Acorn 1/2 - 20
6	300908	Deflector - Impeller
7	300351	Clamp - Hose 4-inch Diameter
8	301388	Cover - Impeller Bearing (Not Shown)
9	300350	Hose - Impeller to Hopper
10	400012	Fitting - Grease 3/16
11	300474	Ring - Retainer Interior
12	300468	Bearing - Ball
13	300186	Housing - Bearing Impeller
14	300476	Washer - Wave
15	301330	Spacer - Flat Impeller
16	302459	Bracket - Belt Tension
17	300185	Shaft - Impeller
18	300344	Key 1/8 Square x .75
19	300348	Belt - V
20	301349	Assembly - Impeller Pulley Mount
21	300692	Assembly - Pivot Mount Impeller
22	302327	Assembly - Impeller Arm
23	300346	Pulley - Impeller
24	302209	Pulley - Impeller
25	301344	Cover - Impeller
26	301146	Clipnut
27	301341	Guard - Impeller Belt
28	301439	Bracket - Impeller Adjustment
29	301393	Rod - Impeller Adjustment
30	300202	Cable Adjustment
31	302458	Assembly Belt Tension Bar
32	302347	Belt - V
33	~~302047~~	Pump - Auxiliary



MAIN BROOM

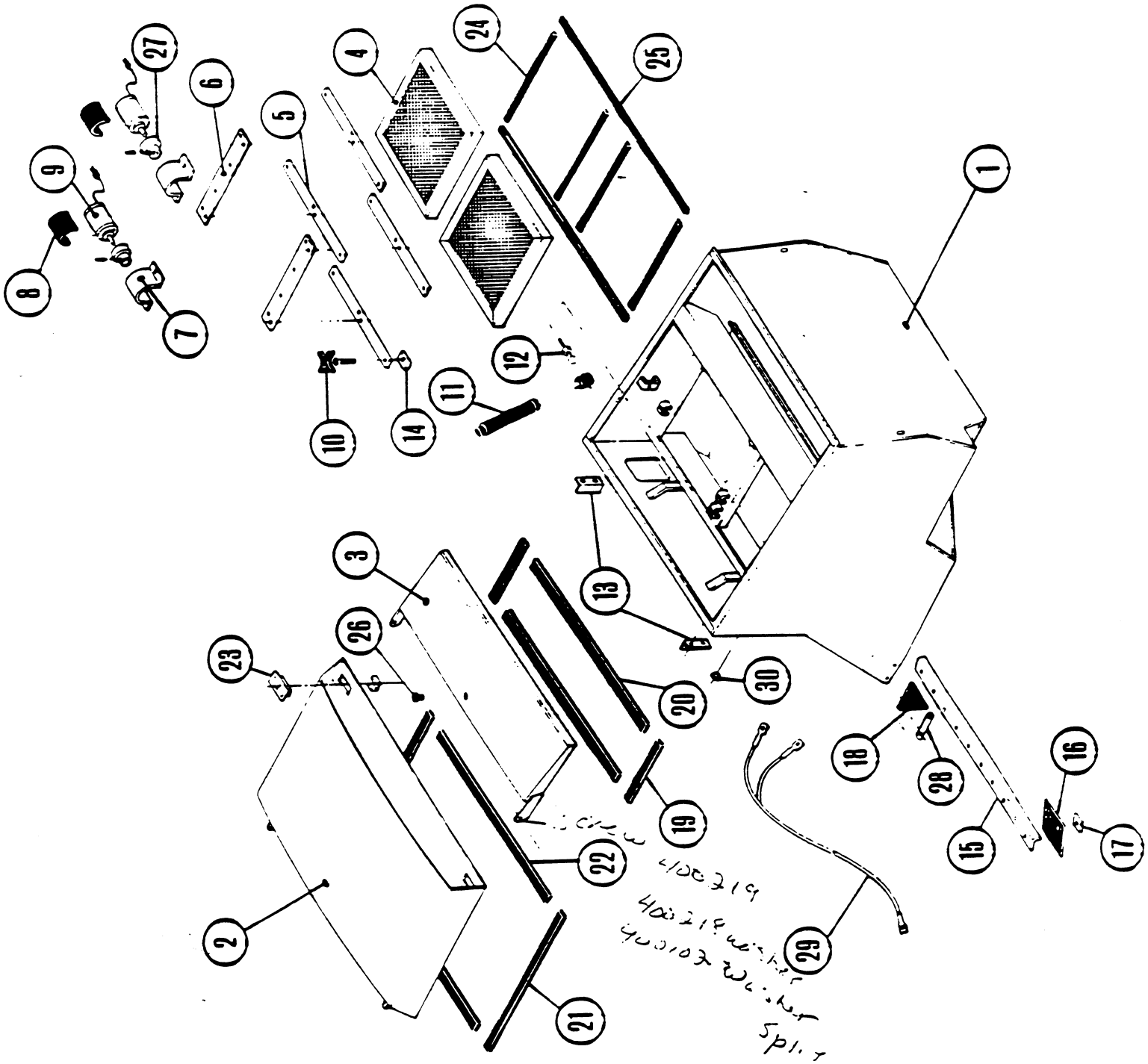
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300018	300006	Assembly - Mount Main Broom
2	300005		Assembly - Arm Broom Idler
3	301051		Hub - Broom Idler
4	400091		Washer Fender 1/2
5	300469		Bearing Ball #205 PP
6	300475		Ring - Retainer Internal 2.06
7	301050		Hub - Main Broom Drive
8	301285		Retainer - Drive Hub
9	301442		Motor - Hydraulic
10	302082		Key - Hydraulic Motor
11	300064		Block Adjustment Main Broom
12	300432		Bushing - Bronze Flanged
13	300021		Pin - Dowel .38 Dia x 1.25
14	300558		Knob - Main Broom, Curb Broom, Squeegee
15	400117		Pin - Clevis 3/8 x 1.12
16	301447		Clevis - Main Broom & Brake
17	300858		Rod - Main Broom Lift
18	400113		Pin - Clevis 3/8 x 6.12
19	300414		Bushing - Plastic Main Broom
20	300088		Assembly - Arm Broom Lift
21	400117		Pin - Clevis 3/8 x 1.12
22	300675		Assembly - Lever Main Broom Lift
23	300352		Knob - Main Broom Lift Adjustment
24	400084		Wing Nut
25			Main Broom Options
	300315	300314	Nylon
	300313	300312	Proex
	300303	300302	Proex & Wire
	300325	300324	Union Fiber & Wire
	300301	300326	Wire
	300317	300316	Patrol Brush
	300321	300320	Hi-Density Union Fiber & Wire
	300305	300304	Hi-Density Nylon

*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



SIDE BROOM

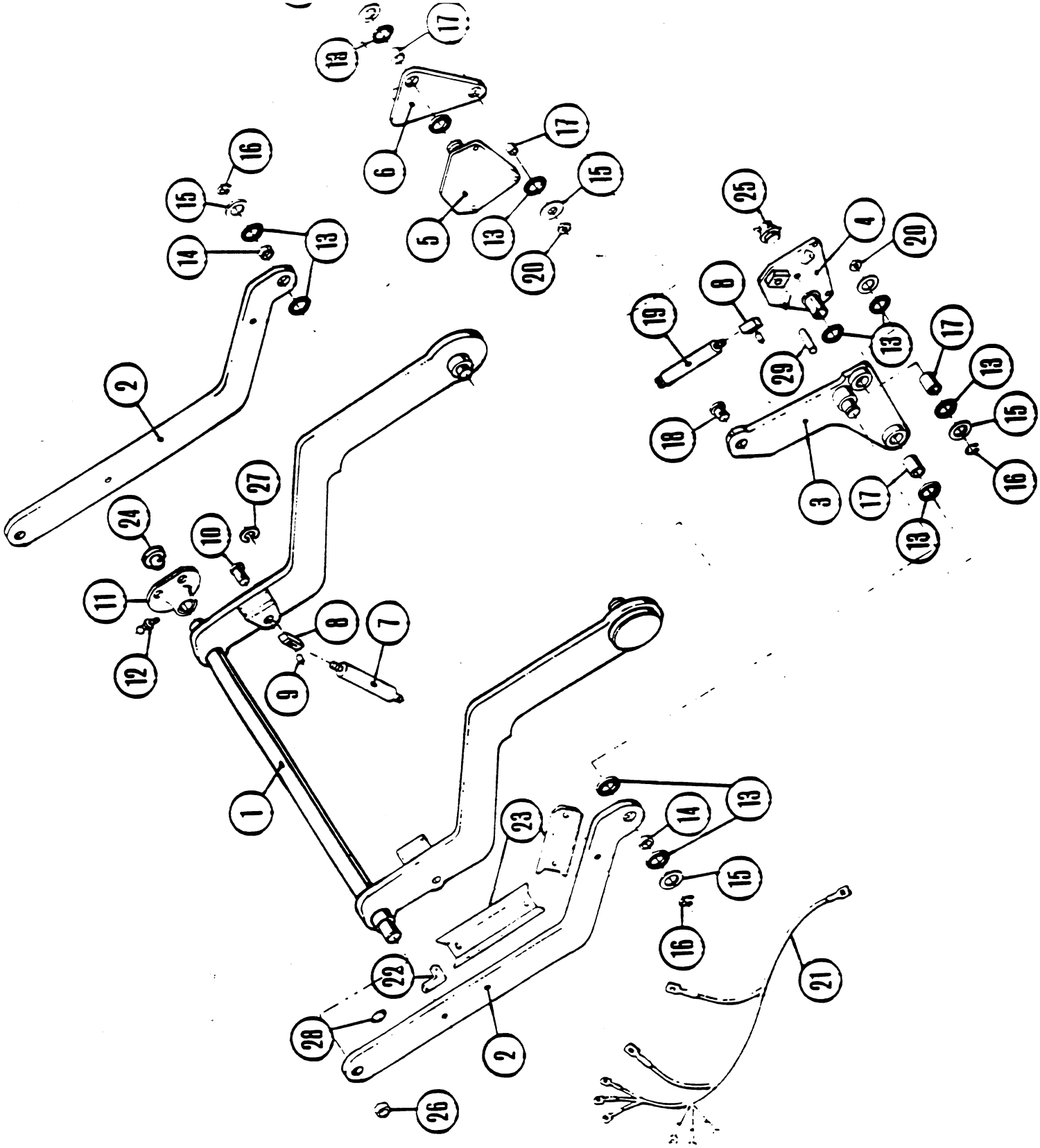
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301676 300985	Assembly - Bracket Curb Broom Mounting (High Dump) Assembly - Bracket Curb Broom Mounting (Low Dump)
2	300959	Guard - Frame
3	300929	Assembly - Arm Curb Broom
4	300054	Bracket - Curb Broom
5	300055	Guard Curb Broom
6	300956	Plate Mounting Curb Broom
7	301560	Motor - Hydraulic Curb Broom
8	300875	Assembly - Dr Hub Sc Brsh Pntd
9	302058	Bar Brush Retainer
10	301262	Plate Gimbal Scrub Brush
11	300465	Rubber Isolator
12	300307 300309	Side Broom (Poly) Side Broom (Nylon)
13	300368	Pulley Plastic
14	400051	Screw - Hex Head Screw 5/16 x .50
15	300342	Cable Curb Broom
16	300682	Assembly - Lift Lever Curb Broom
17	300558	Knob - Main Broom, Curb Broom, Squeegee
18	300203	Bar Cable
19	300036	Assembly - Pivot Lift Lever
20	300414	Bushing - Plastic Main Broom
21	400115	Pin Clevis 3/8 x 3.00
22	400135	Pin Clevis 5/16 x 1.25
23	400118	Pin Clevis 5/16 x .88
24	300202	Bar Cable Adjustment
25	302082	Key - Hydraulic Motor (Curb Broom)



HOPPER

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300125	300099	Assembly - Hopper
2	300769	300767	Assembly - Hood Hopper
3	300121	300114	Assembly - Lid Hopper
4	300391	300390	Filter - Dust Control
5	300919	300921	Bar - Filter Retainer
6	300917		Mount - Filter Shaker
7	300915		Retainer Shaker
8	300904		Mount Neoprene Shaker (Motor)
9	300424		Motor - Shaker Filter
10	300353		Knob - Clamping Filter Retainer
11	300375		Gas - Spring Cover
12	300376		Stud - Ball Gas Spring
13	300946		Hinge - Hopper Cover
14	301155		Clipnut - 5/16 - 18
15	300188	300205	Angle - Flap Hopper
16	300195	300194	Flap Hopper Front
17	301146		Clipnut - 1/4 - 20
18	300151		Flap Hopper Side
19	300662		Gasket - Lid Short
20	300555		Gasket - Lid Long
21	300429		Gasket - Hood Short
22	300428		Gasket - Hood Long
23	300380		Assembly Latch #HTL81
24	300449		Gasket - Filter Dust Short
25	300418	300419	Gasket - Filter Dust Long
26	300526		Bumper Rubber Engine Cover
27	301053		Weight - Eccentric
28	302146		Backing - Hopper Side Corner
29	302033 301368		Wiring Harness - High Dump Wiring Harness - Low Dump
30	301668		Strain Relief

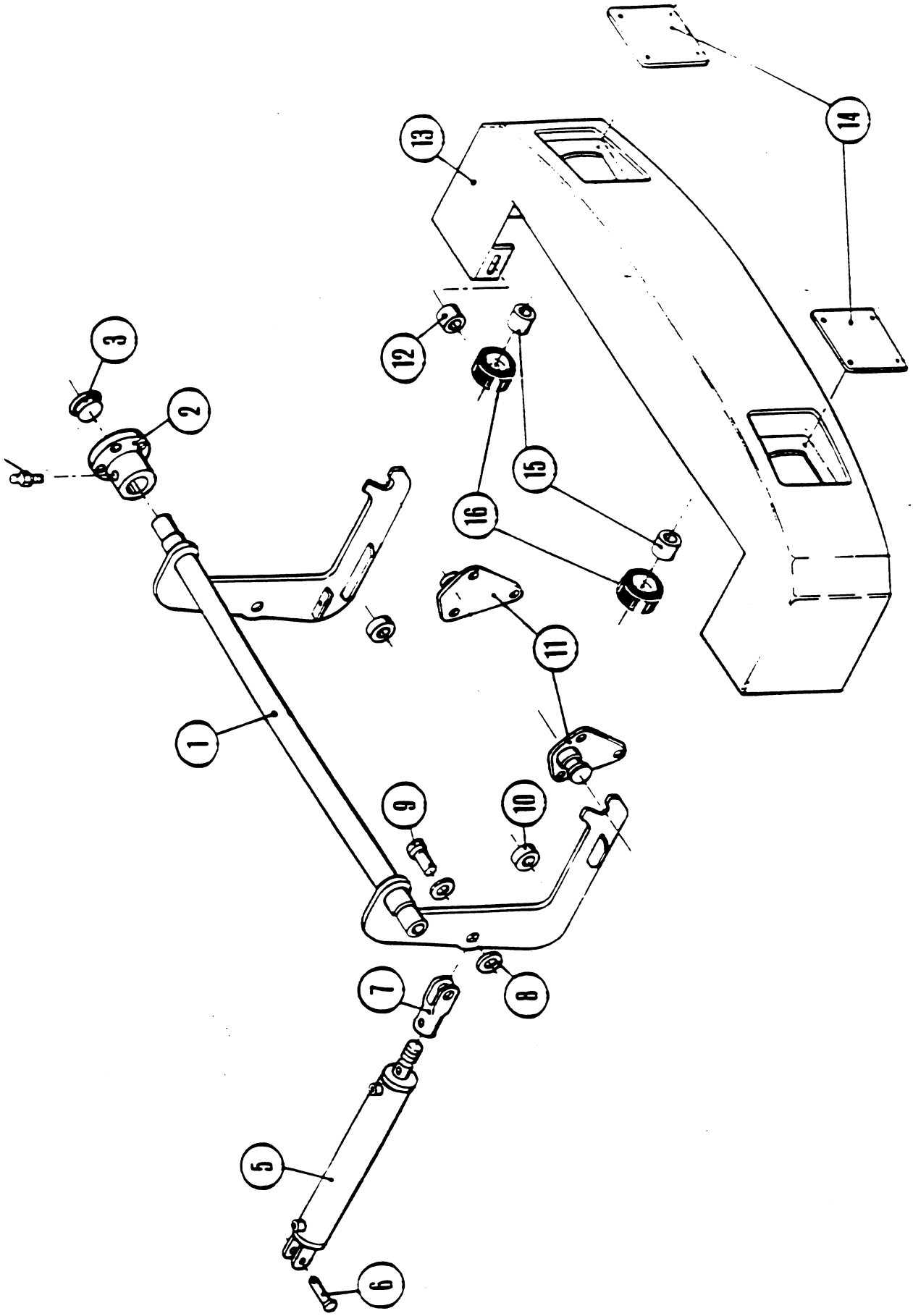
*When no number appears in this column, the part number for the 78 Series is the same as that for the 88 Series.



HIGH DUMP ARM ASSEMBLY

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300824	300822	Assembly - Arm
2	300829		Lift Arm - Secondary
3	300809		Assembly - Arm Rotating Cylinder Mount
4	300697		Assembly - Rotation Mount - RH
5	300711		Assembly - Rotation Mount - LH
6	300713		Assembly - Arm Rotation Plate
7	300426		Cylinder - Hydraulic Lift
8	300229		Rod End - Scrub Cylinder
9	300552		Bushing - 1 ID x 1.24 OD x 1.50
10	302013		Pin Upper Cylinder Mount
11	301075		Assembly - Dump Arm Mount
12	400012		Fitting - Grease 3/16
13	400177		Thrust Bearing
14	300836		Bearing - 2.8 OD x 2.00 ID x .75
15	300879		Washer - HD 3.25 OD x 1.00 ID
16	301709		Ring - Retainer Exterior Extension
17	300840		Bearing - 2.18 OD x 2.00 ID x 1.50
18	301996		Pin - Rotating Cylinder Outer
19	300407		Cylinder - Hydraulic Rotation
20	400076		Nut Hex Jam Slotted
21	302030		Wiring Harness HD
22	302037		Bracket - Upper Switch
23	301711		Clip - Hydraulic Hose HD
24	301420		Spacer Dump Arm
25	301712		Assembly - Retainer HD
26	300837		Bearing
27	301998		Ring Retaining
28	301665		Grommet
29	301997		Pin - Rotation Cylinder

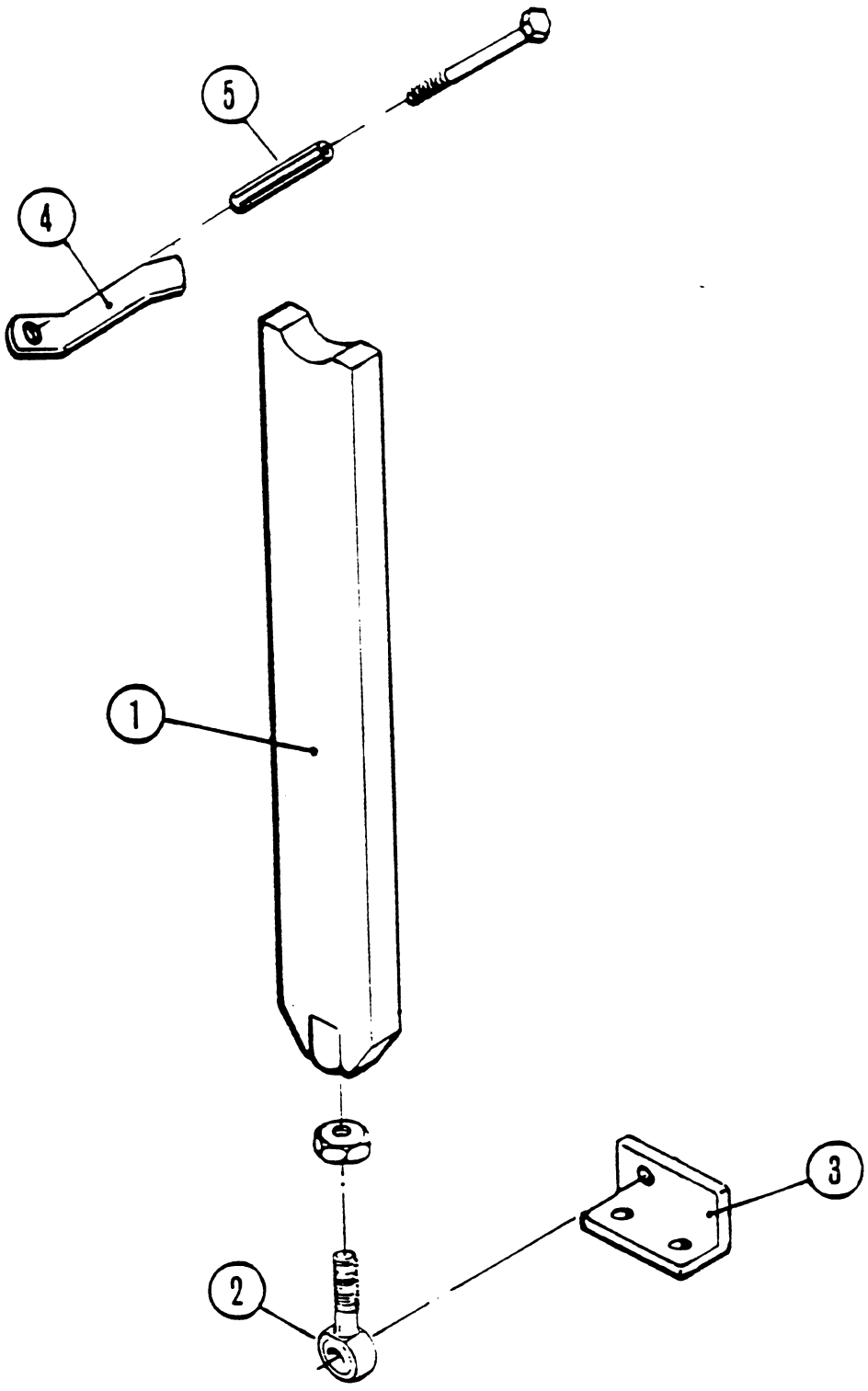
*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



BUMPERS AND LOW DUMP ARM ASSEMBLY

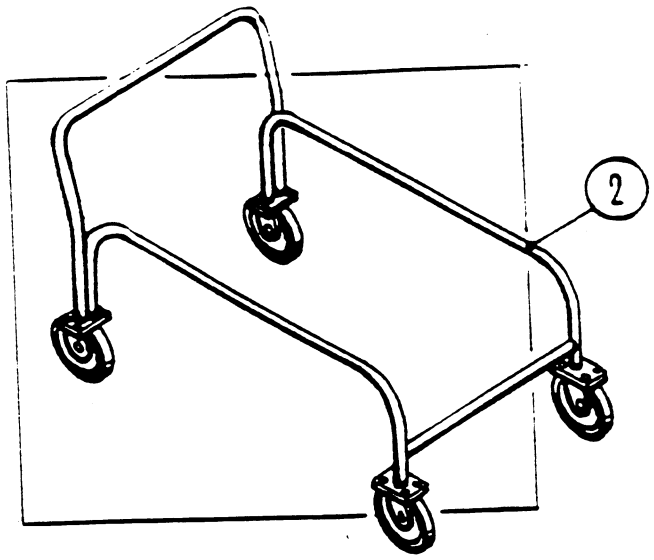
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300294	300104	Assembly - Lift Arm (Low Dump)
2	301075		Mount - Dump Arm
3	301420		Spacer - Dump Arm Mount
4	400012		Fitting Grease 3/16
5	300068		Cylinder - Hydraulic (Low Dump)
6	400110		Pin - Clevis 7/8 x 2.00
7	301370		Cylinder - Clevis (Low Dump)
8	301416		Spacer - Lift Cyliner - Clevis
9	400107		Pin - Clevis 1.00 x 2.62
10	300028		Bar - Stop Hopper
11	300096		Assembly - Lift Bracket Hopper
12	302603		Spacer - Bumper (Low Dump Only)
13	301042 300747 301897 301899	301038 301031	Assembly - Bumper Front (High Dump) Assembly - Bumper Front (Low Dump) Assembly - Bumper Front (High Dump) ME Assembly - Bumper Front (Low Dump) ME
14	301662		Headlight Filler
15	301085		Spacer - Front Bumper
16	300338		Bumper - Rubber

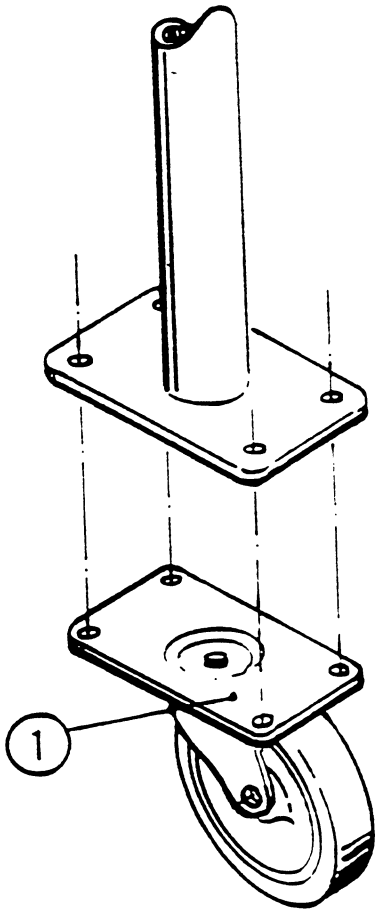
*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.

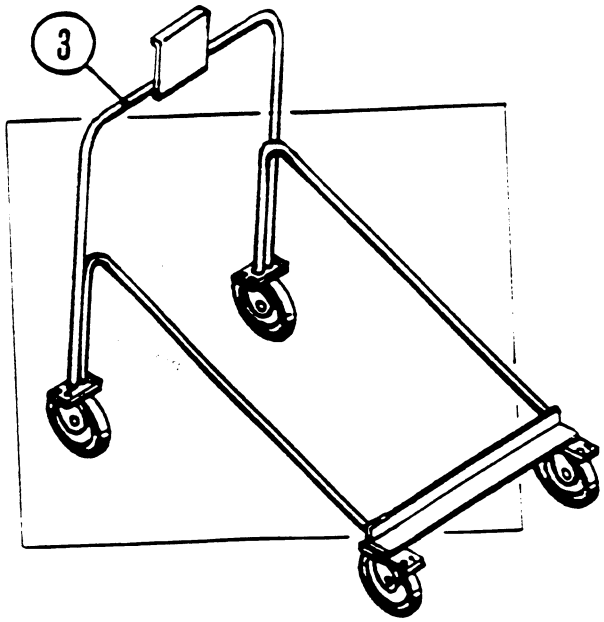


HIGH DUMP SAFETY ARM

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302042	Assembly Safety Arm Pntd
2	300457	Ball Joint - 5/8" - 18
3	302045	Bracket - HD Safety Arm Pntd
4	302076	Ret - HD Safety Arm Pntd
5	302077	Hose - HD Safety Arm Pntd

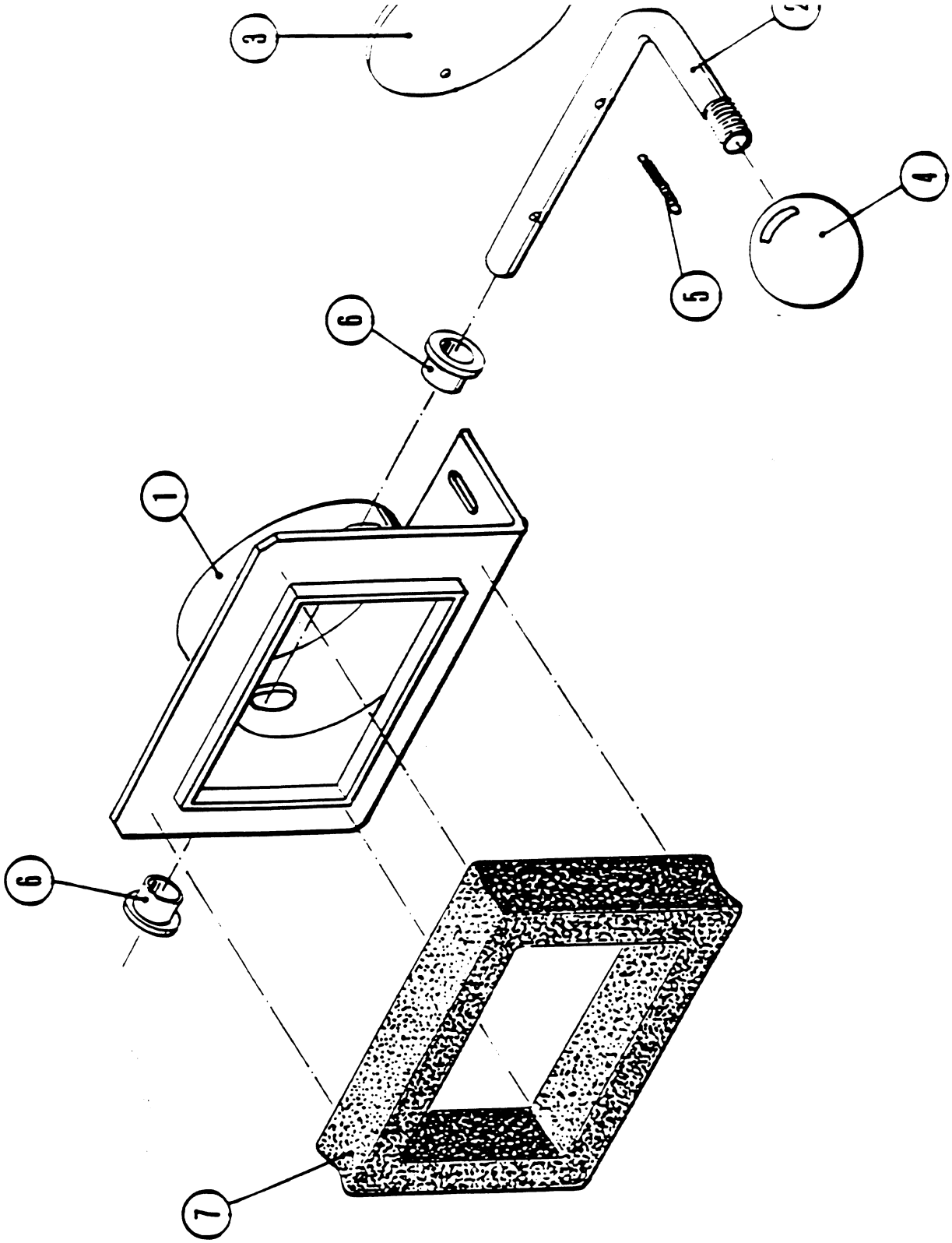






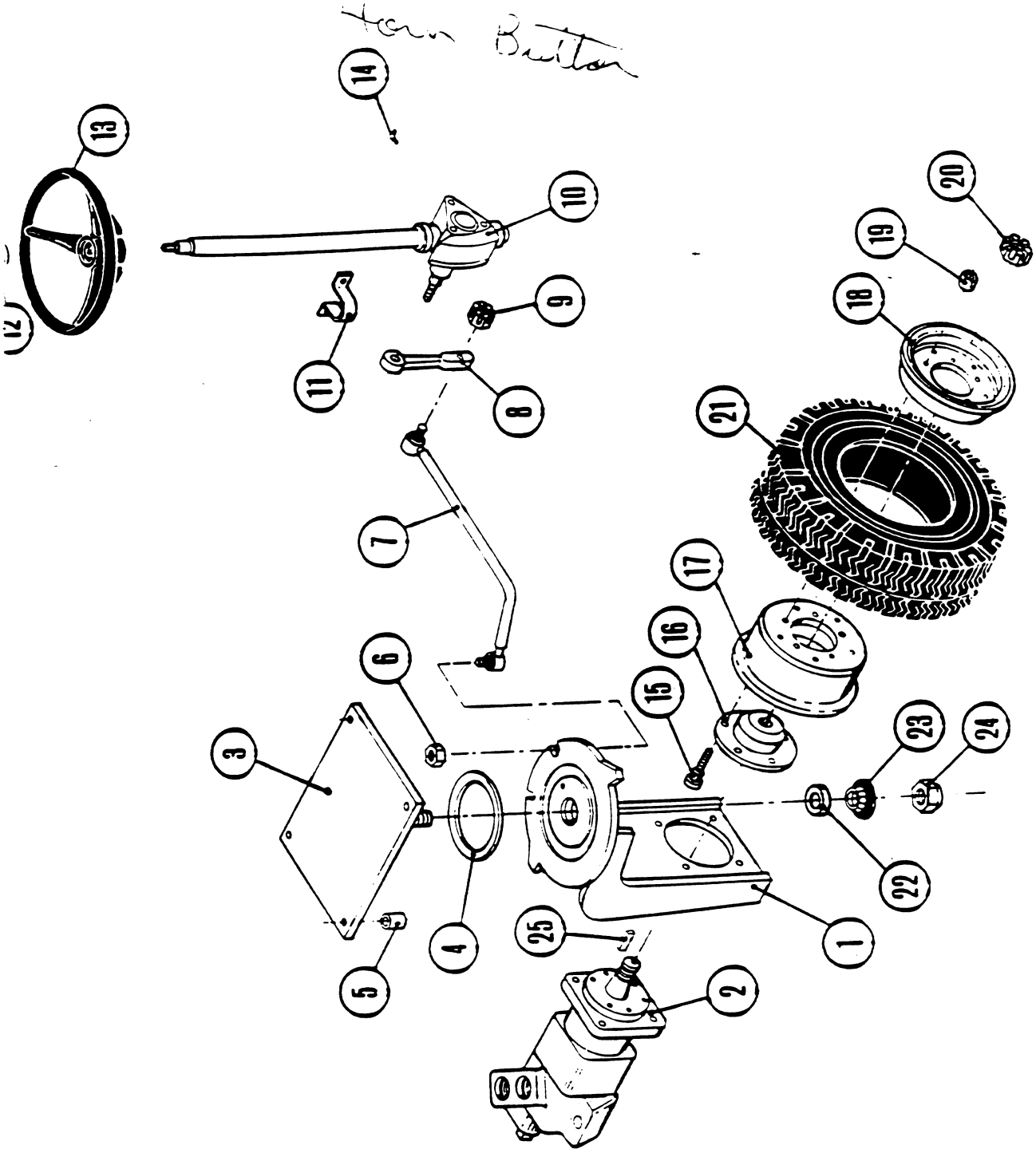
DOLLIES

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301321	Caster - Swivel 4.00 Diameter
2	302012 302011	Assembly - Hopper Dolly Grp HD Assembly Hopper Dolly HD Pntd
3	301701 301314	Assembly - Hopper Dolly Grp LD Assembly - Hopper Dolly LD Pntd



LOW DUMP HOPPER SHUTOFF

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300050	Assembly - Gasket Mount Pntd
2	301418	Rod - Hopper Shutoff Pltd
3	301498	Damper - Hopper Shutoff
4	300563	Knob
5	301713	Spring - Extension Damper
6	300414	Bushing - Plastic
7	300193	Gasket - Hopper Air Outlet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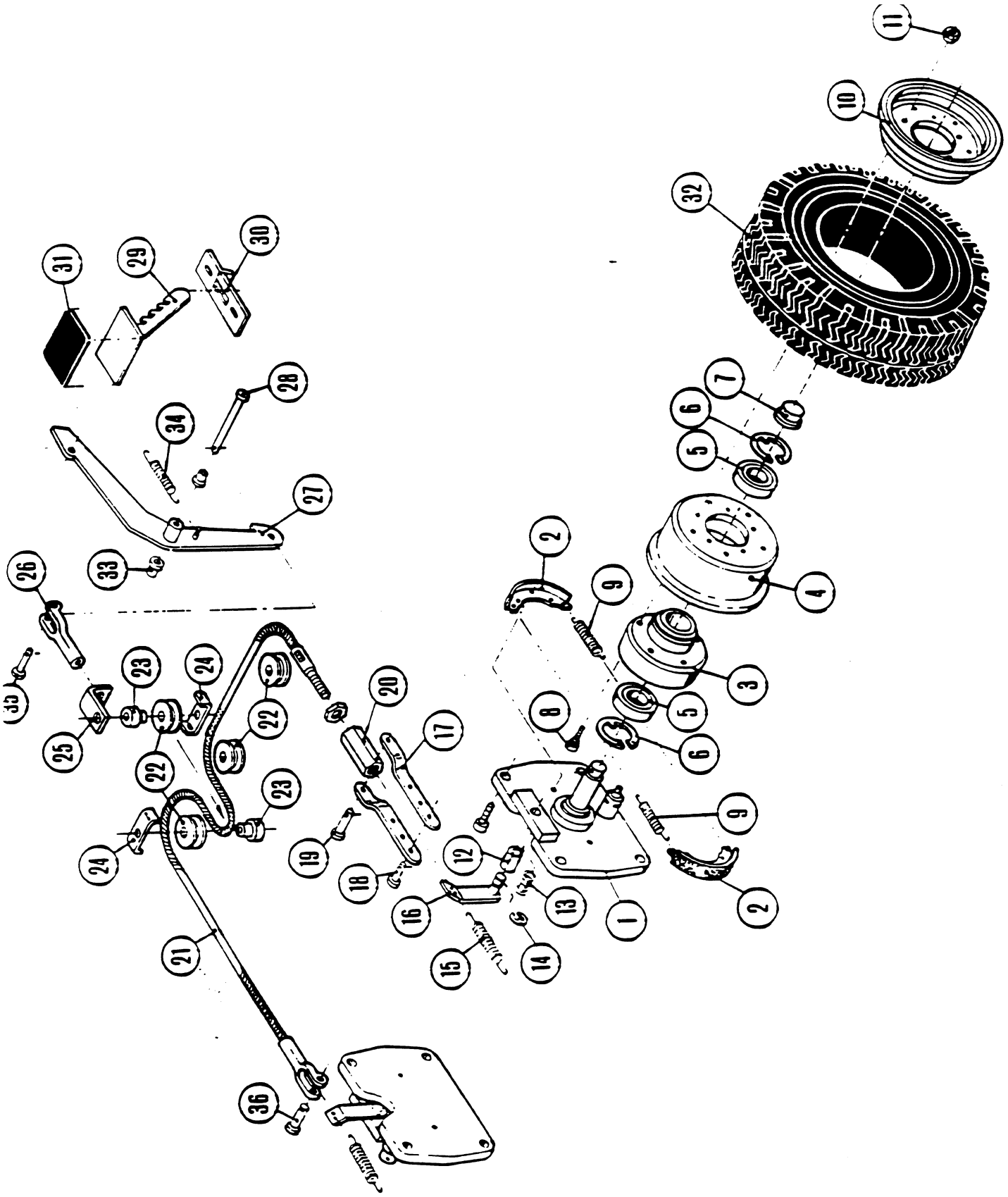
STEERING

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300208	300296	Assembly - Steering Fork
2	301533	301534	Motor - Hydraulic
3	300153		Assembly - Fork Pivot
4	300472		Bearing Thrust
5	301440		Spacer Main Broom
6	400188		Nut - Hex Jam Half 1/2 - 20
7	301013		Assembly - Steering Link
8	300215		Arm - Steering
9	400223		Nut - Hex Slotted 1/2 - 20 SP
10	300374		Assembly - Steering Gear
11	300228		Bracket Steering
12	300373		Cap - Steering Wheel
13	300372		Wheel - Steering
14	400205		Fitting - Grease 65 el 1/4 NPT
15	300415		Stud - Wheel Hub
16	301014	301018	Hub - Rear Wheel
17	300211		Rim - Inner
18	300408		Rim - Outer
19	300411		Nut - Wheel Lug
20	400224	400223	Nut - Hex Slotted 1 1/4 - 18 x .62
21	301525 301526		Assembly - Tire (Solid) Assembly - Tire (Pneumatic)
22	300470		Bearing - Tapered Roller Cup
23	300471		Bearing - Tapered Roller Cone
24	400083		Jam Nut - Lock Half Height 1 1/4 - 12
25	302122		Key Hydraulic Motor - 4000 Series

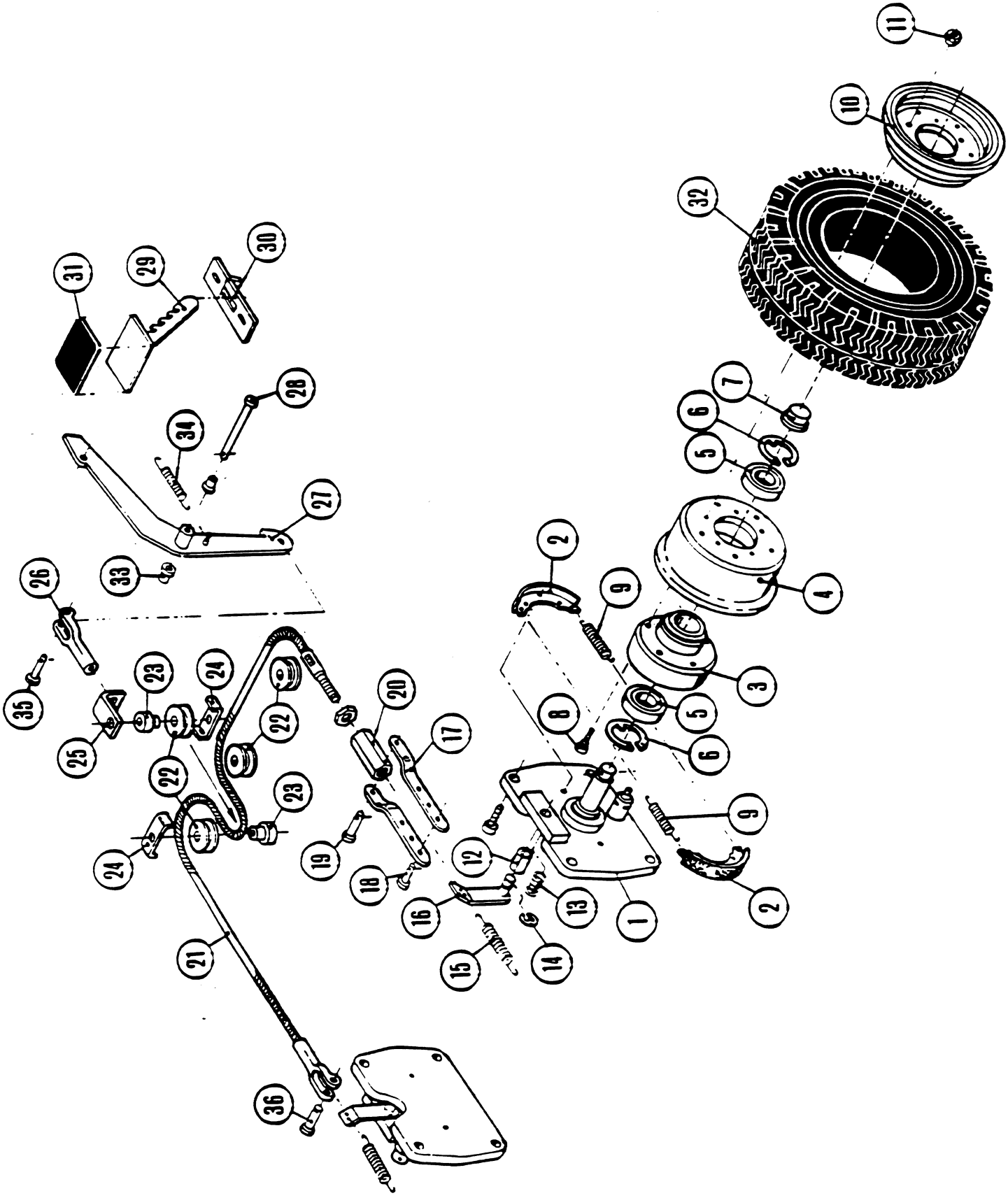
Key
302137

*When no numbers appear in this column, the parts number for the 78 Series is the same as that for the 88 Series.



AXLE, BRAKES AND WHEEL

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300852		Assembly - Front Axle
2	300523		Shoe - Brake with Lining
3	300787		Hub - Front Wheel
4	300211		Rim - Front Wheel
5	300467		Bearing - Ball 2.44 x 1.18 ID
6	300473		Ring - Retainer Internal
7	300369		Cap - Hub
8	300415		Stud - Wheel Hub
9	301519		Spring Extension Brake Shoe
10	300408		Rim Outer
11	300411		Nut - Wheel Lug
12	300410		Bushing - 1.00 OD x .87 ID
13	301518		Spring - Compression Brake Shoe
14	300484		Ring - Retainer Extension .87
15	301517		Spring - Extension Brake Lever
16	300870		Assembly - Brake Lever
17	300203		Bar - Cable
18	400118		Pin - Clevis 5/16 x .88
19	400185		Pin - Clevis 5/16 x 1.25
20	300202		Bar - Cable Adjustment
21	300412	300486	Cable Brake
22	300367		Pulley - Brake
23	300035		Spacer - Brake Pulley
24	300209		Retainer - Cable
25	300955		Bracket - Brake Pulley
26	300462		Clevis - Cablecraft AC-218
27	300132		Assembly - Brake Arm
28	400115		Pin - Clevis 3/8 x 3.00



AXLE, BRAKES AND WHEEL (cont.)

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
29	301216		Assembly - Brake Pedal Lock
30	300058		Assembly - Brake Lock
31	300413		Pad Brake Pedal
32	300370 300371		Tire - Solid Tire - Pneumatic
33	300414		Bushing - Plastic Main Broom
34	301522		Spring Extension Brake Arm
35	400116		Pin - Clevis 3/8 x 1.25
36	400118		Pin - Clevis 5/16 x .88

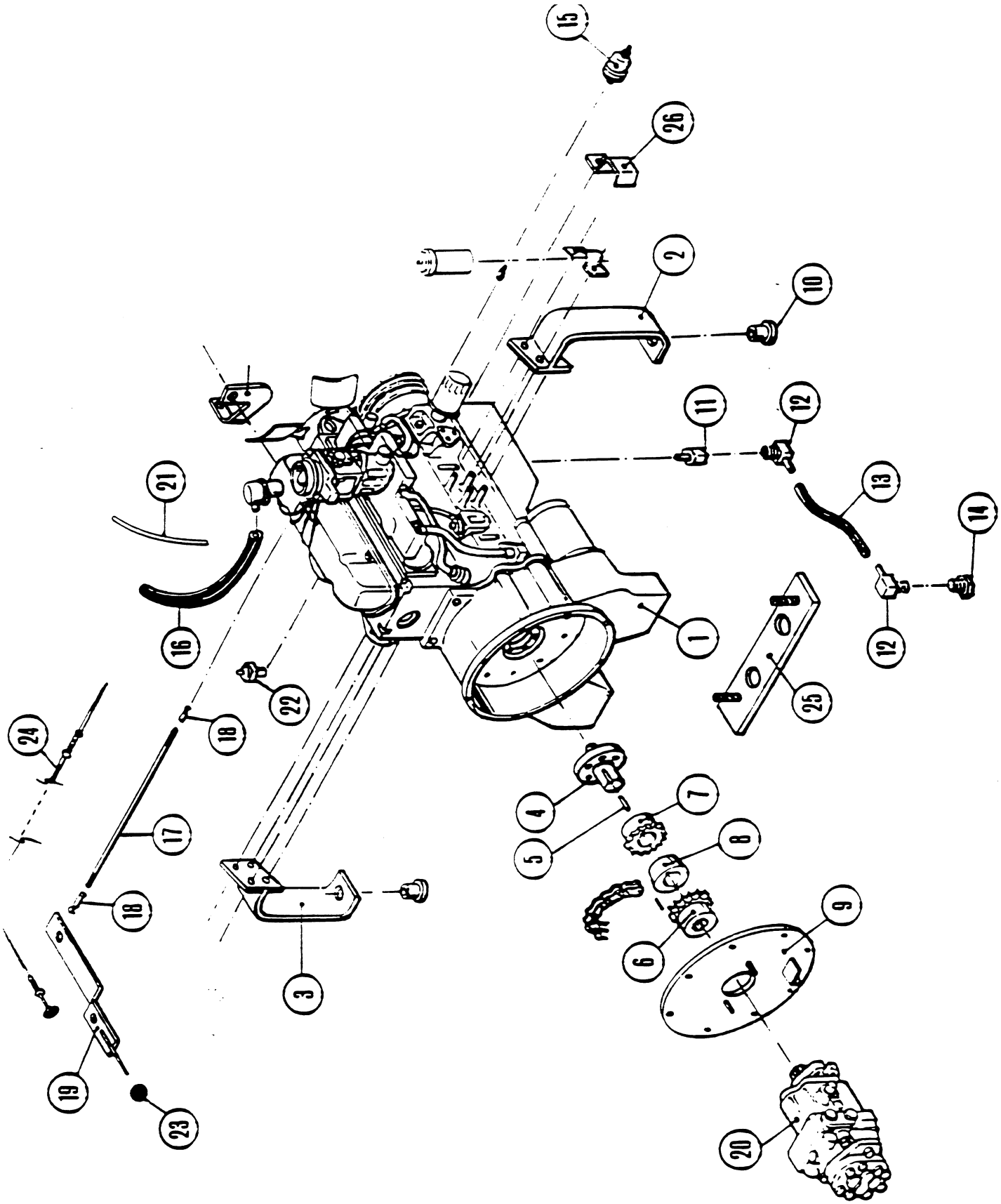
*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.

TABLE OF CONTENTS
Options

TO ORDER PARTS AND SUPPLIES

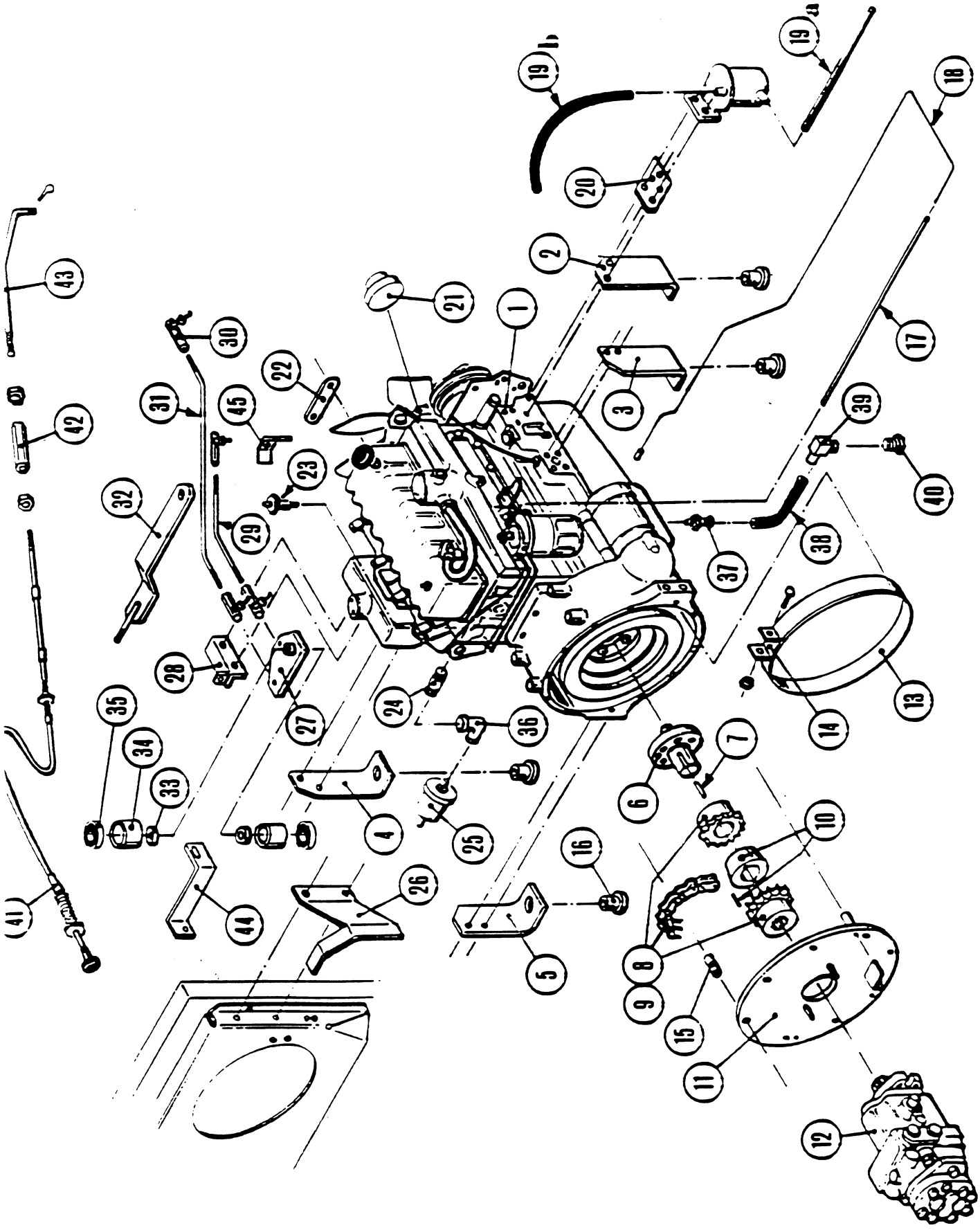
The components and parts used in your PowerBoss™ sweeper are selected for quality, performance and safety. Use only AAR Brooks & Perkins parts and supplies to repair and maintain your machine.

To order parts and supplies, contact your distributor.



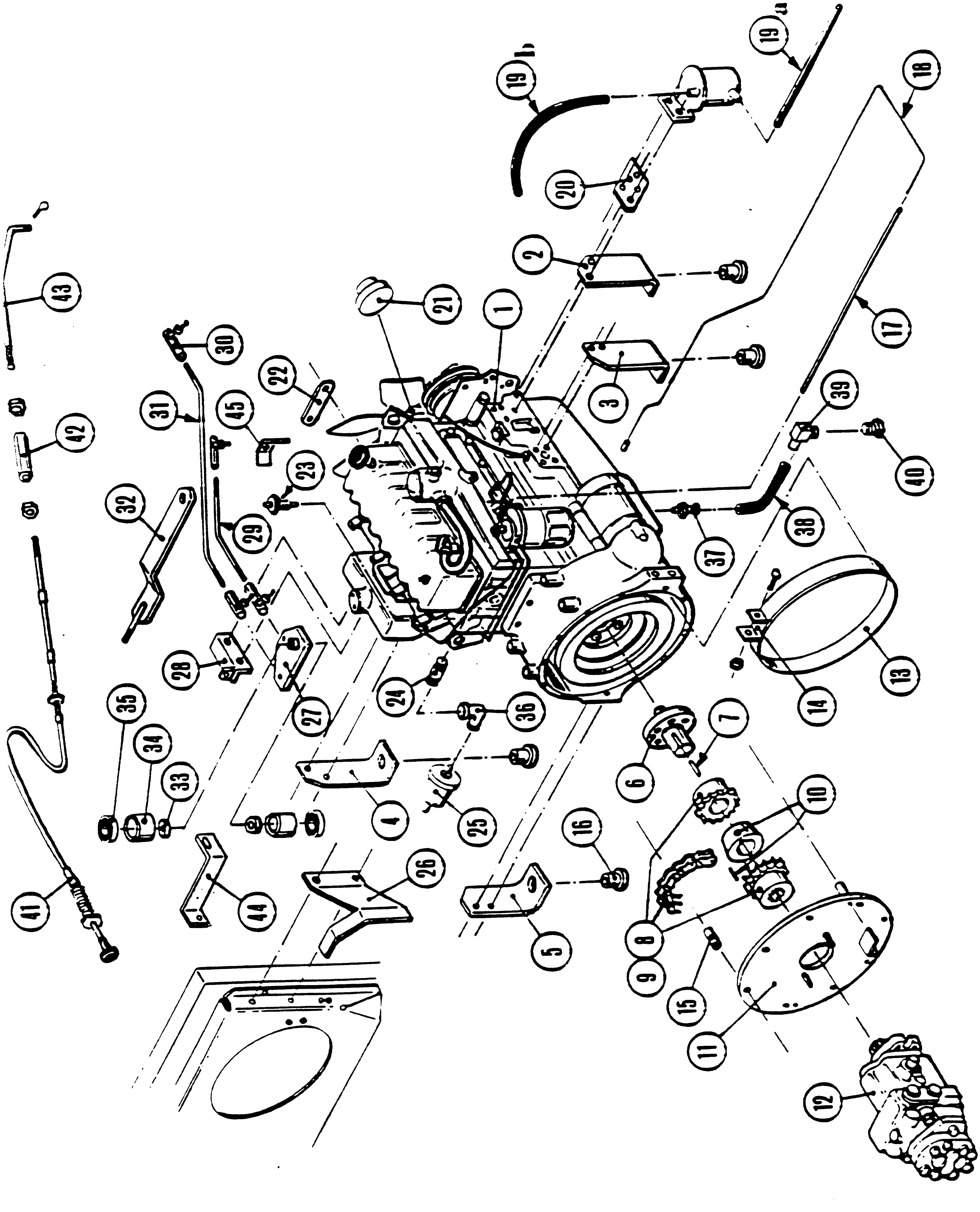
FORD GAS ENGINE

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301865	Assembly Engine Ford Gas
2	300722	Assembly - Engine Mnt Frt Ford
3	300724	Assembly - Engine Mnt Rear Ford
4	300954	Adap - Pump Drive Ford
5	301718	Key - 1/4" Sq x .88 Lg
6,7,8	302655	Assembly - Drive Sprocket Complete
9	300679	Assembly - Pump Mtg Plate Pntd
10	300464	Mnt Isolation
11	303094	Ftg - Adap 1/2 - 20 to 3/8" NPT
12	400190	Ftg - 90° El 1/2" Tube to 3/8" NPT
13	301716	Hose - Oil Drain
14	400194	Ftg - Pipe Plug 3/8" NPT - Socket
15	300387	Sender - Oil Pressure
16	301716	Hose - Oil Drain
17	301856	Rod - Throttle Pltd Ford
18	301459	Assembly - Ball Joint #10 - 32
19	301468	Assembly - Throttle Lever Pltd
20	303015	Assembly - Pump VD & Aux Comb
21	303097	Hose - Vacuum Line Governor - Ford
22	300386	Sender - Temp Ford
23	300563	Knob - Ball Throttle
24	301858	Cable - Choke Ford
25	301853	Assembly - Engine Mount Flywheel Ford
26	303036	Bracket - Radiator Hose Mount Ford



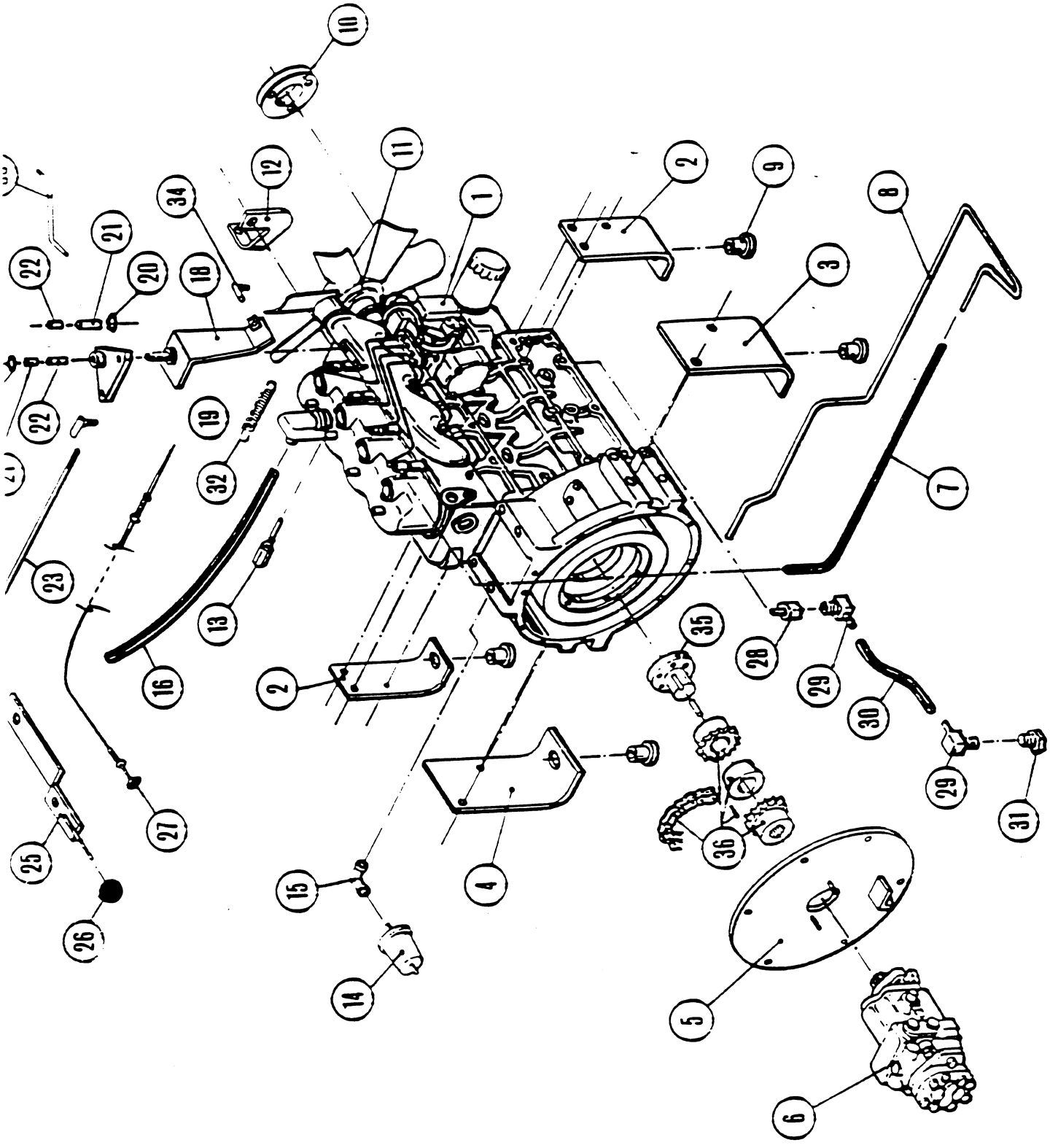
PERKINS DIESEL ENGINE

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302745	Engine - Diesel Perkins
2	302979	Mnt - Engine Lt Frt
3	302981	Mnt - Engine Rt Frt
4	302978	Mnt - Engine Lt Rear
5	302980	Mnt - Engine Rt Rear
6	302971	Adap - Pump Drive Perkins
7	301718	Key - 1/4" Sq x .88 Lg
8	302655	Assy - Sprocket Driven & Drive Comp
9	302558	Assy - Sprocket Driven & Drive Comp
10	300531	Bushing - Tapered Ret
11	303101	Assy - Pump Mtg Plate Perkins
12	303015	Assy - Pump VD & Aux Comp
13	303098	Coupling - Flywheel Perkins
14	303099	Brkt - Flywheel Coupling Perkins
15	302994	Spacer - Pump Mtg Plate Perkins
16	300464	Mnt - Isolation
17	303107	Hose - Fuel Return Line Diesel
18	303006	Tube - Fuel Return Line Diesel
19A	302931	Hose - H_20 Sep Perkins (Inlet)
19B	303107	Hose - H_20 Sep Perkins (Outlet)
20	302989	Mnt - H_20 Sep Perkins
21	302970	Spacer - Fan Perkins
22	302993	Brkt - Hose Ret Perkins
23	302904	Sender - Temp Diesel
24	303105	Ftg - Nipple 1/8" NPT x 2.00 Lg
25	300387	Sender - Oil Pressure
26	303122	Guard - Alternator Belt Perkins
27	302985	Assy - Bellcrank Pivot Diesel Perkins
28	302987	Assy - Bellcrank Mnt Diesel Perkins



PERKINS DIESEL ENGINE (cont.)

ITEM NUMBER	PART NUMBER	DESCRIPTION
29	302976	Rod - Throttle Short Perkins
30	301199	Assy - Ball Joint 1/4 - 28
31	302991	Rod - Throttle Linkage Perkins
32	302846	Assy - Throttle Lever Diesel
33	300430	Bushing - Self-Lubricating
34	300339	Sleeve - Squeegee
35	400178	Thrust Bearing - Laminated
36	301720	Ftg - 90° El 1/8" NPT
37	302969	Ftg - Oil Drain Diesel Perkins
38	303106	Hose - Oil Drain Perkins
39	400190	Ftg - 90° El 1/2" Tube to 3/8" NPT
40	400194	Ftg - Pipe Plug 3/8" NPT - Socket
41	301427	Cable - Stop Diesel
42	303110	Bar - Stop Cable Adj Perkins
43	302990	Rod - Stop Cable Ext Perkins
44	302992	Brkt - Imp Mnt Perkins
45	302340	Clip - Hyd Hose Case Drain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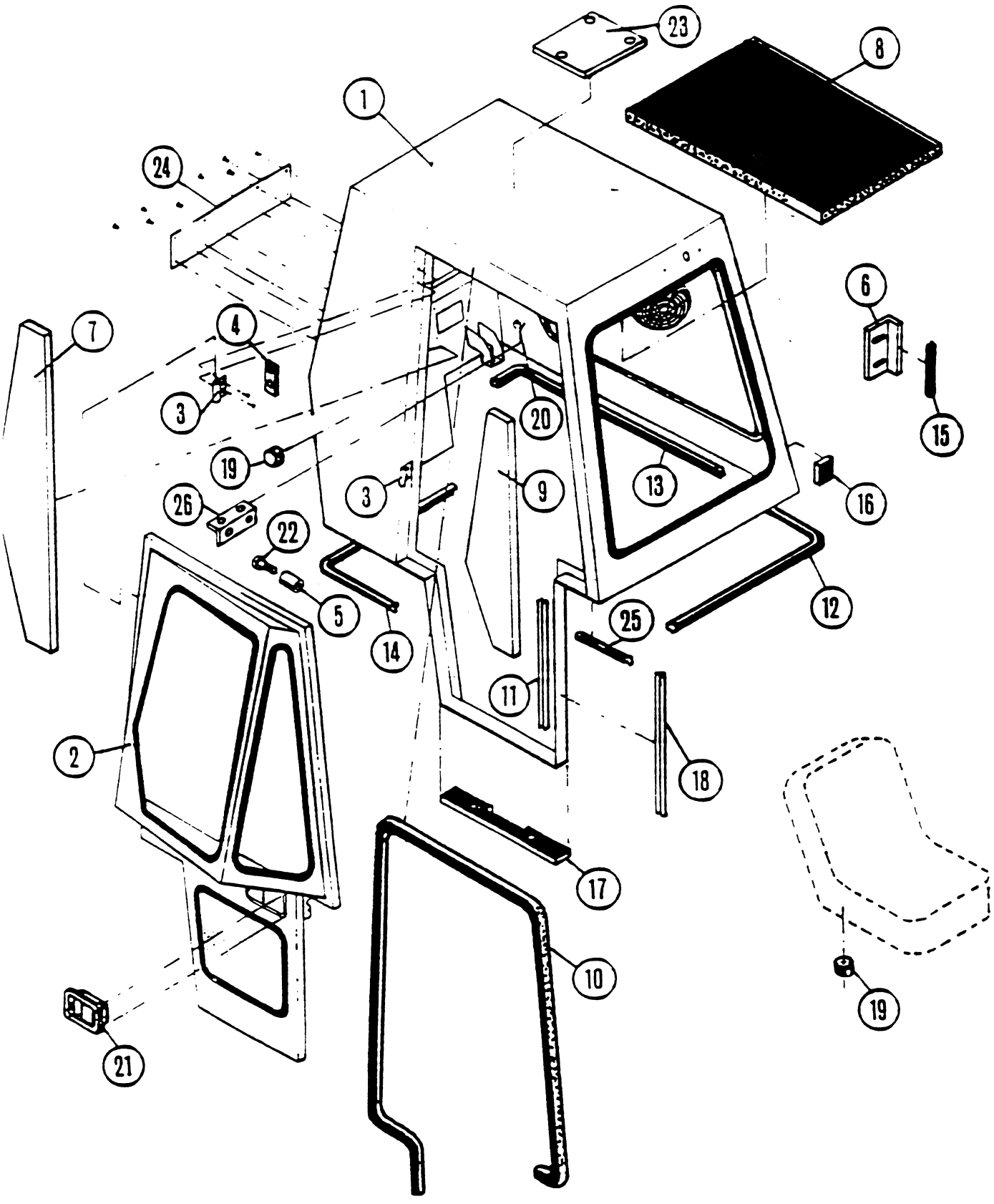
KUBOTA DIESEL ENGINE

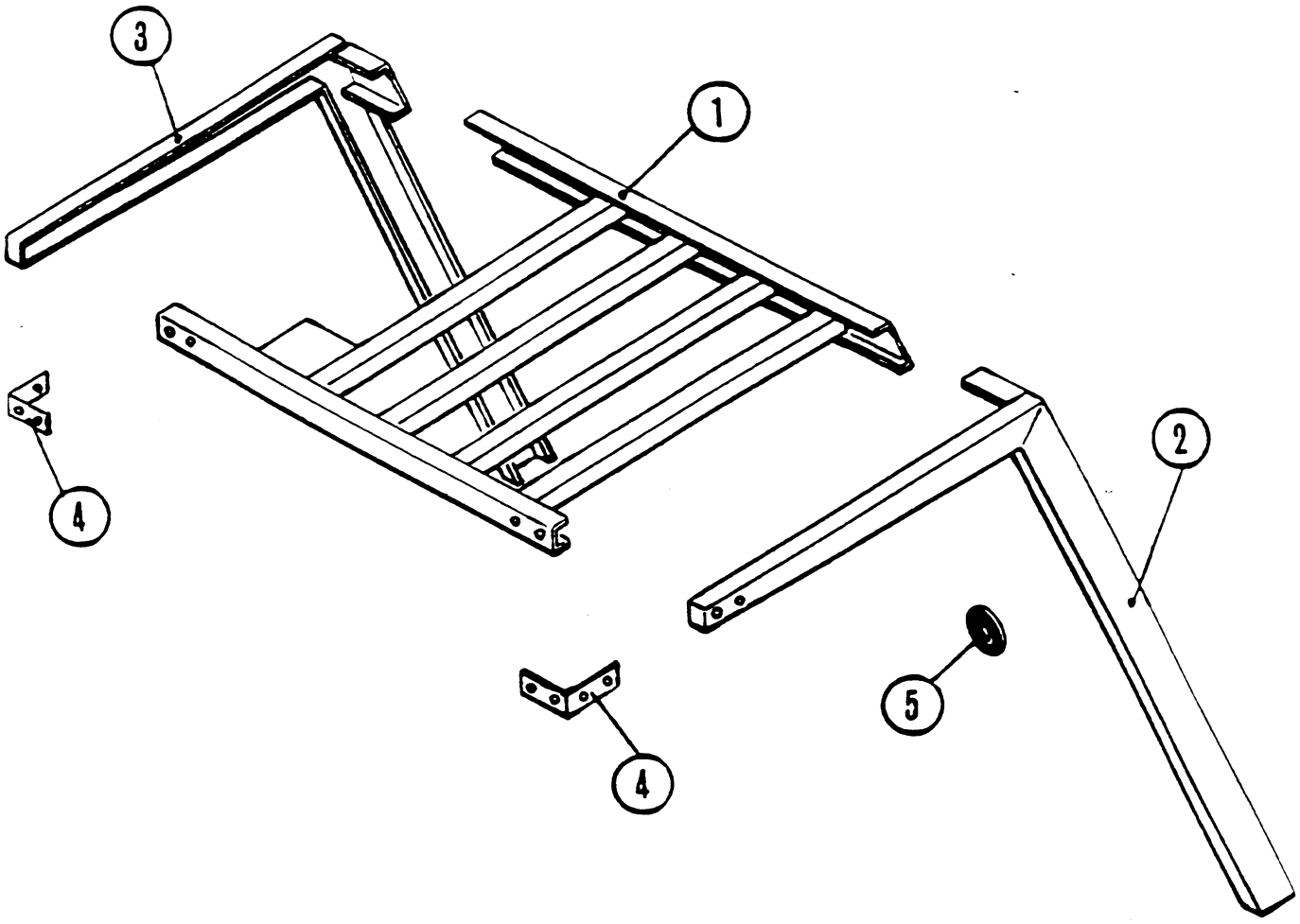
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	300439	Engine - Diesel Kubota
2	301885	Mnt - Engine Frt Diesel Kubota
3	301883	Mnt - Engine F/W Frt Diesel Kubota
4	301881	Mnt - Engine F/W Frt Diesel Kubota
5	301134	Assembly - Pump Mtg Plate Kubota
6	303015	Assembly - Pump VD & Aux Comp
7	303008	Hose - Fuel Return Line Kubota
8	303006	Tube - Fuel Return Line Diesel
9	300464	Mnt - Isolation
10	302801	Pulley - Engine Kubota
11	302906	Spacer - Fan
12	302907	Brkt - Imp Adj Kubota
13	302904	Sender - Temp Diesel
14	300387	Sender - Oil Pressure
15	301720	Ftg - 90° El 1/8" NPT
16	303014	Hose - Crankcase Vent Kubota
17	303011	Assembly - Bellcrank Diesel Kubota
18	302783	Assembly - Bellcrank Mnt Kubota
19	302780	Assembly - Bellcrank Pivot Kubota
20	400178	Brg - Fiberglide .531 ID x 1.00 OD
21	300339	Sleeve - Sq
22	300430	Bushing - Self - Lub .499 ID x .594 OD
23	302790	Rod - Throttle Long Kubota
24	301199	Assembly - Ball Joint 1/4 - 28
25	302846	Assembly - Throttle Lever Diesel
26	300563	Knob - Ball 1.00 Diameter
27	301427	Cable - Imp & Stop Diesel
28	302905	Fitting - Oil Pan Drain Kubota
29	400190	Fitting - 90° El 1/2" Tube to 3/8" NPT
30	303013	Hose - Oil Drain Kubota
31	400194	Ftg - Pipe Plug 3/8" NPT Socket
32	302935	Spring - Throttle Return
33	302791	Rod - Throttle Short Kubota
34	301459	Assembly - Ball Joint 10-32
35	302799	Adaptor - Pump Drive
36	302655	Assembly - Drive Sprocket Complete



CAB

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302916	Assy - Cab Frame
2	302908	Assy - Door Cab
3	302877	Assy - Hinge
4	302875	Spacer - Cab Option
5	302857	Striker - Latch Cab
6	302882	Plate - Cab Filler
7	302895	Insulation Cab Door
8	302888	Insulation - Cab Roof
9	302887	Insulation - Cab Door
10	302919	Seal - Cab Door
11	302922	Seal - Cab Door Post
12	302923	Seal - Cab - Bottom Front
13	302924	Seal- Cab Bottom Left Hand
14	302925	Seal - Cab Bottom Rear
15	302926	Seal - Cab Filler Plate
16	302928	Gasket - Frame Short
17	302929	Seal - Cab Foot Plate
18	302927	Gasket - Cab Frame
19	302482	Bumper - Seat Mount
20	300465	Mount - Isolation
21	302301	Latch - Cab
22	302932	Bolt - Cab Latch
23	303152	Plate - Cab Light Cover
24	303153	Plate - Cab Pressurizer
25	303141	Gasket - Cab Frame Lintel
26	303293	Bracket - Sup Sub Seat Mount

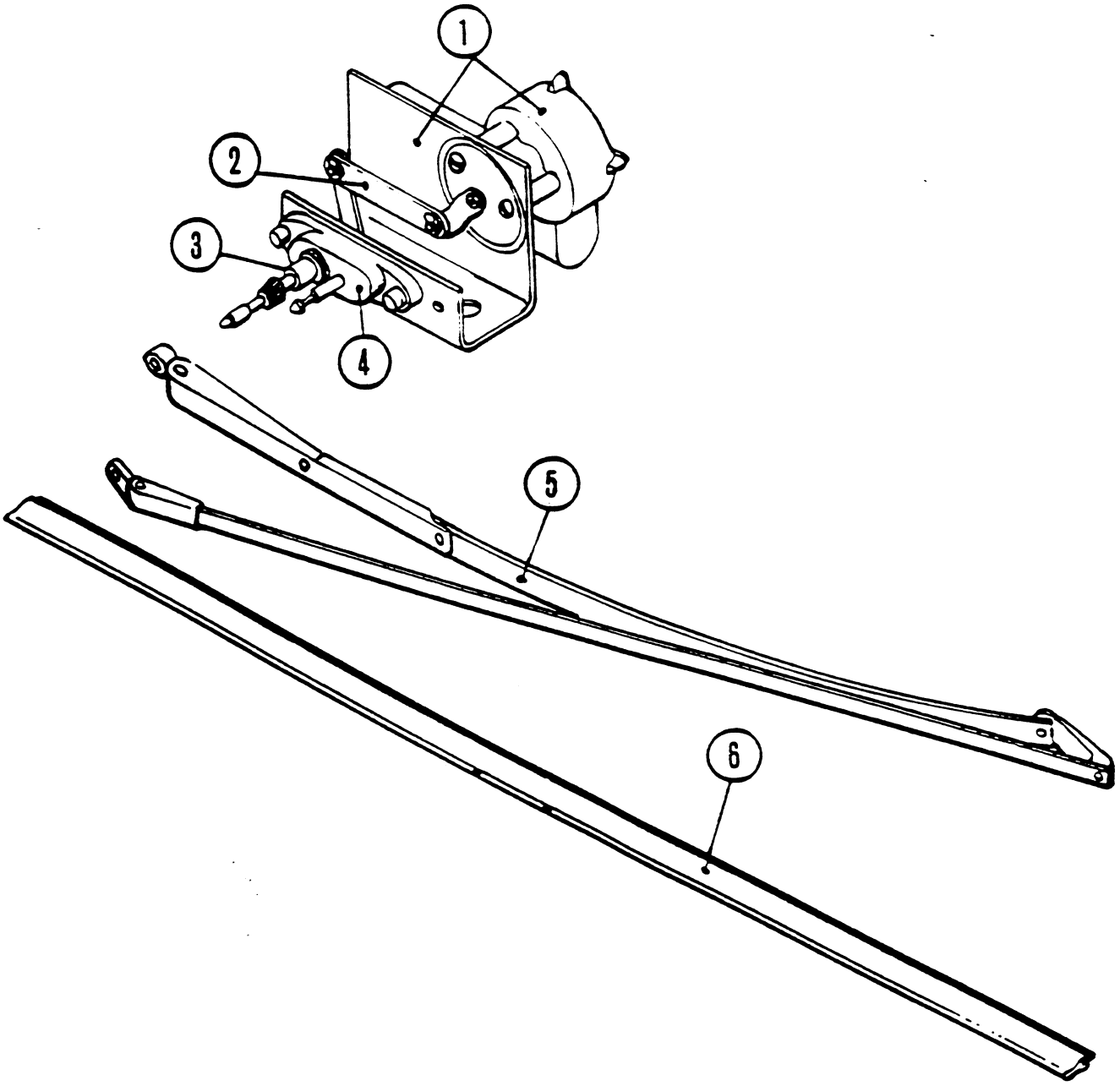
*When no number appears in this columns, the parts number for the 78 Series is the same as that for the 88 Series.



OVERHEAD GUARD

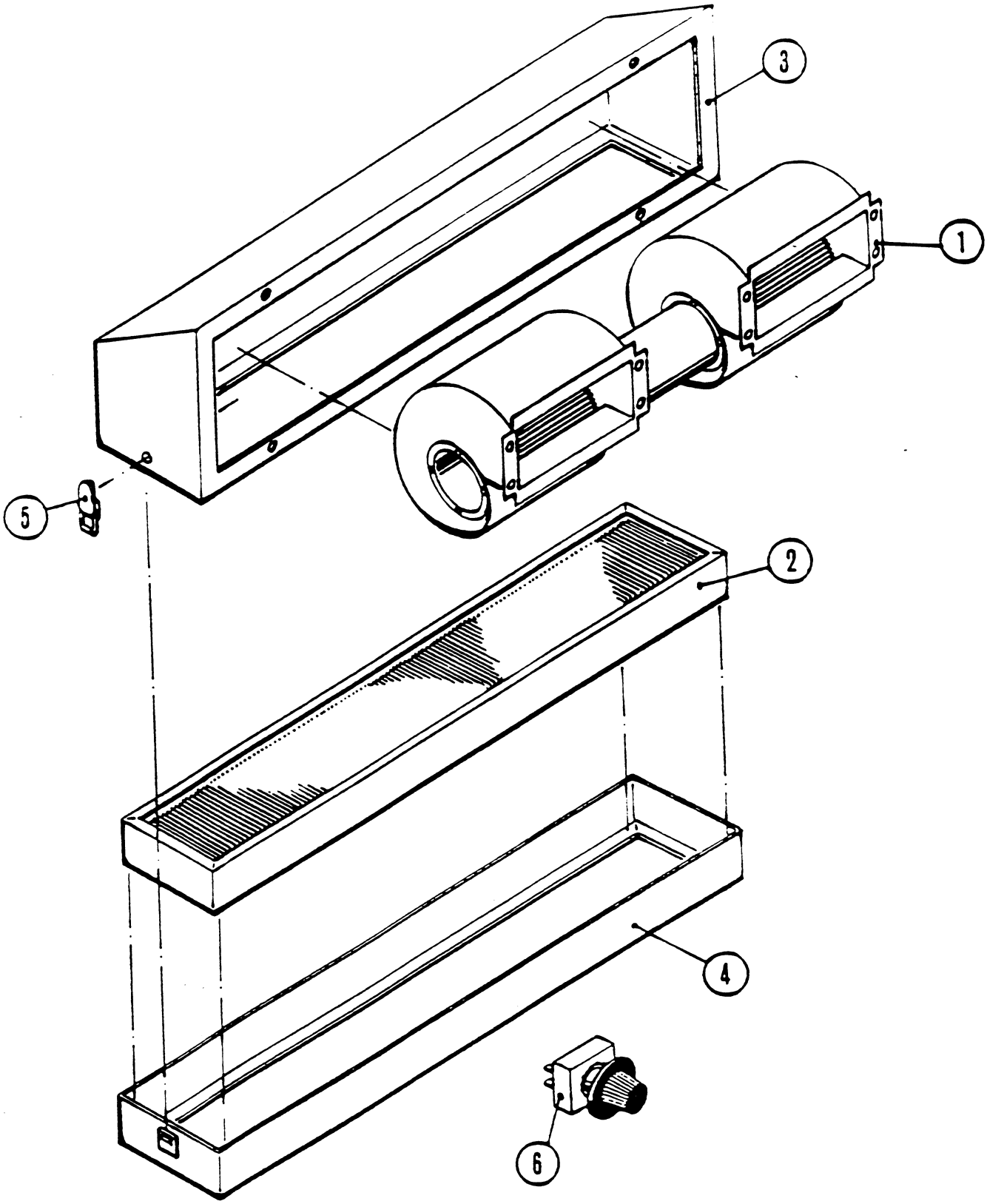
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	300785	300784	Assembly - Top Overhead Guard Pntd
2	300763		Assembly - Side RH Overhead Guard Pntd
3	300762		Assembly - Side LH Overhead Guard Pntd
4	302708		Bracket Corner - Overhead Guard Pntd
5	400203		Washer - Neoprene .41 ID x 2.00 OD

*When no number appears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



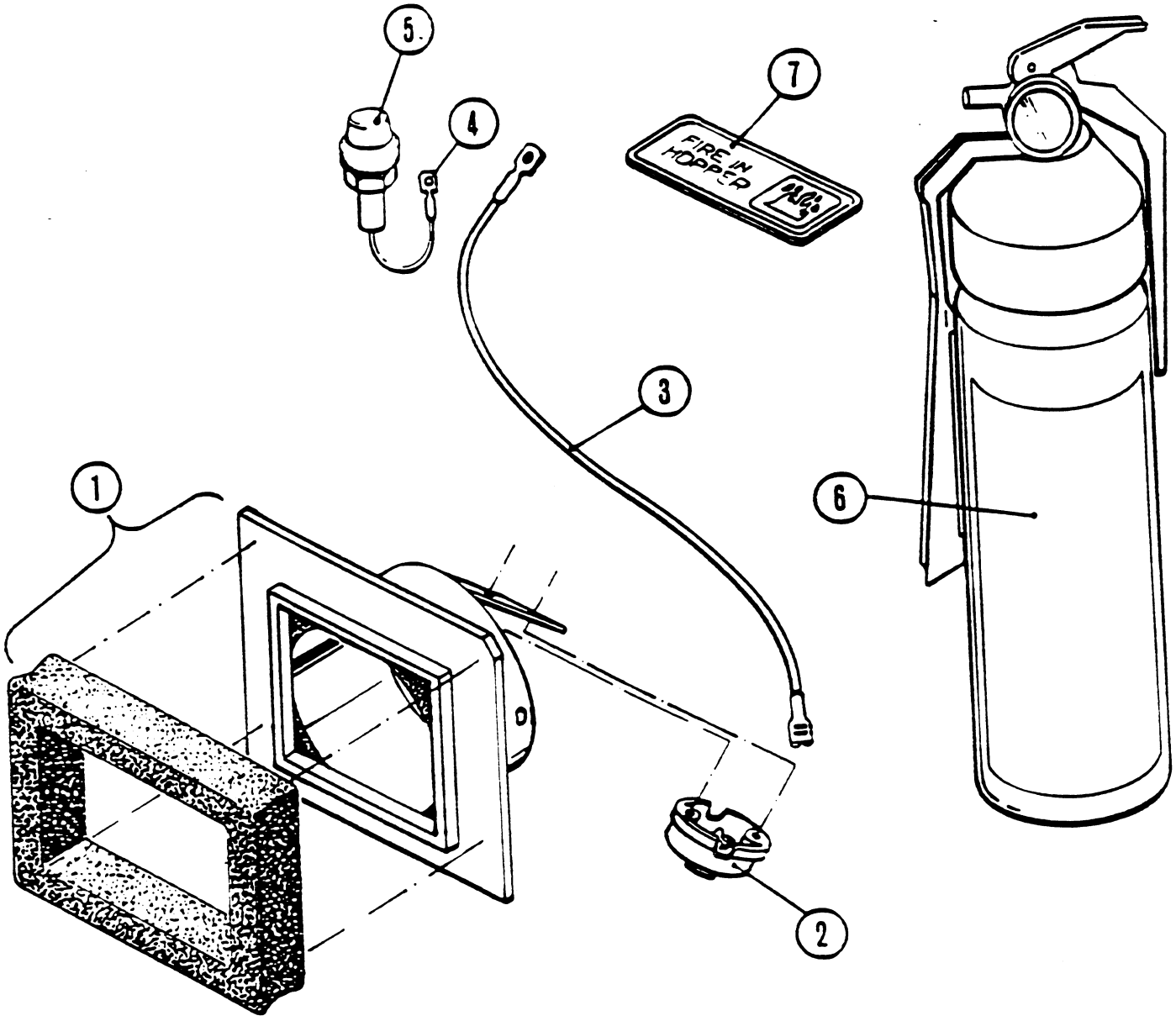
HEATER/DEFROSTER

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302495	Heater Cab Option
2	303303	Ftg - Tee 3/8 NPT
3	303304	Ftg- Nipple 3/8
4	303302	Ftg- Reducer 3/8 NPT x 1/4 NPT
5	302144	Clamp - Hose #6
6	303251	Bracket - Heater Mnt



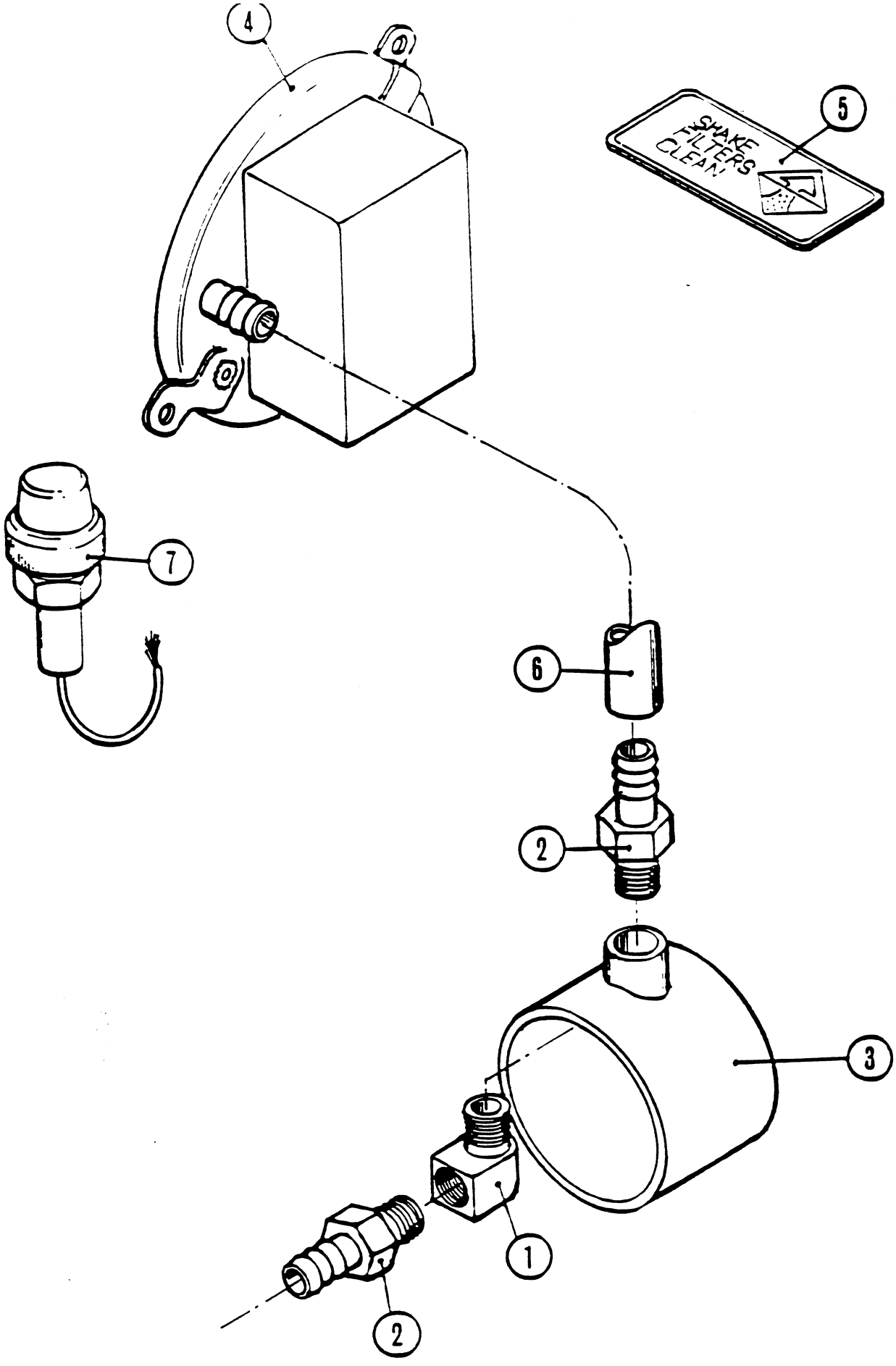
PRESSURIZER

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302934	Pressurizer - Cab
2	302936	Filter - Pressurizer
3	303509	Assembly - Housing Cab Pressurizer
4	303512	Assembly - Filter Retainer Cab Pressurizer
5	303513	Latch - Cab Pressurizer
6	303072	Switch - 3 - Speed



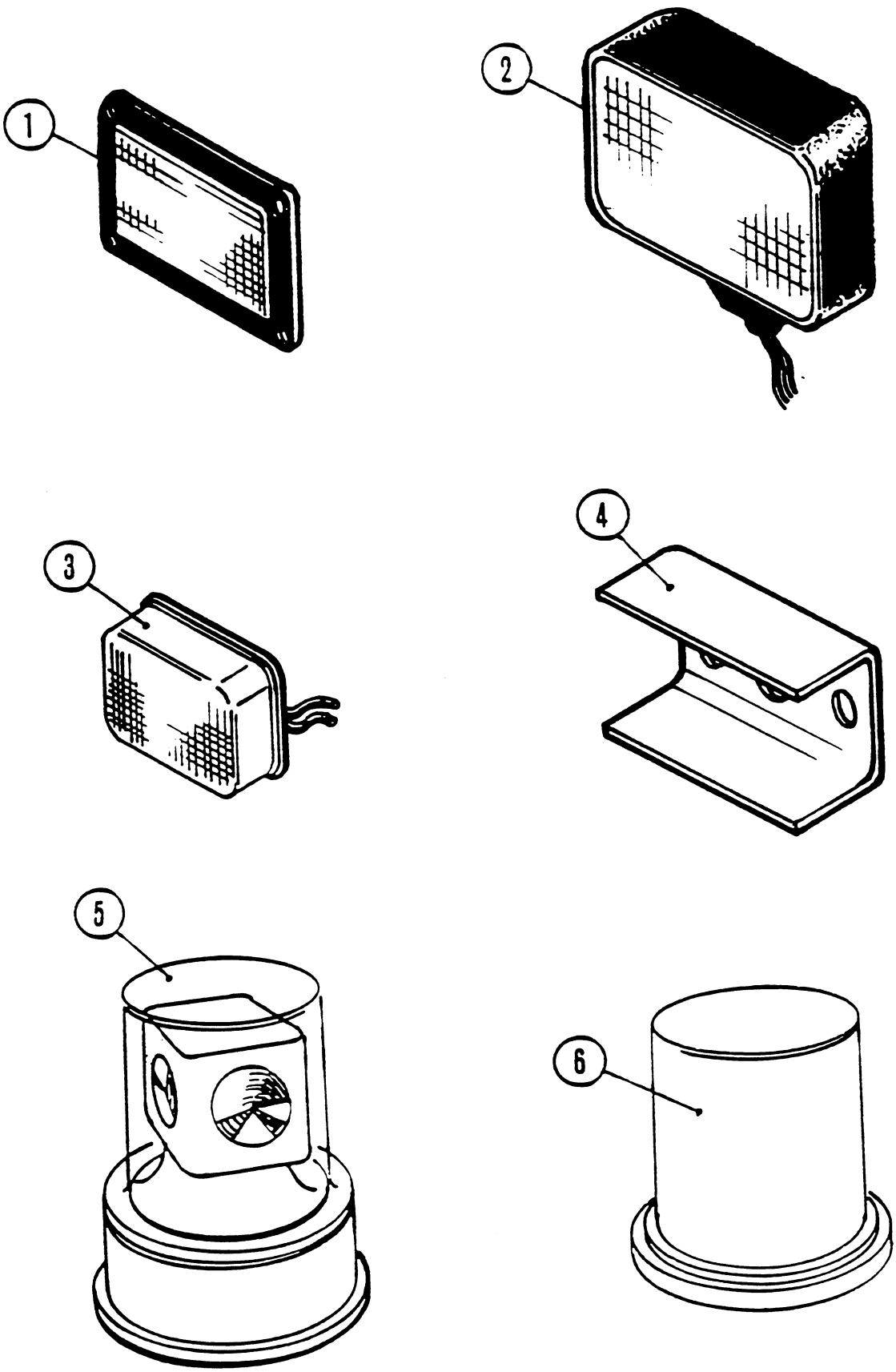
HOPPER FIRE INDICATOR

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	303083	Assy - Gask Mnt Fire Sensor
2	403003	Sensor - Fire
3	303580	Kit - Hopper Fire Warning Wiring
4	302462	Terminal - Male Snap Plug
5	301553	Light - Trasn Relocator
6	302769	Extinguisher - Fire
7	302521	Decal - Fire Option



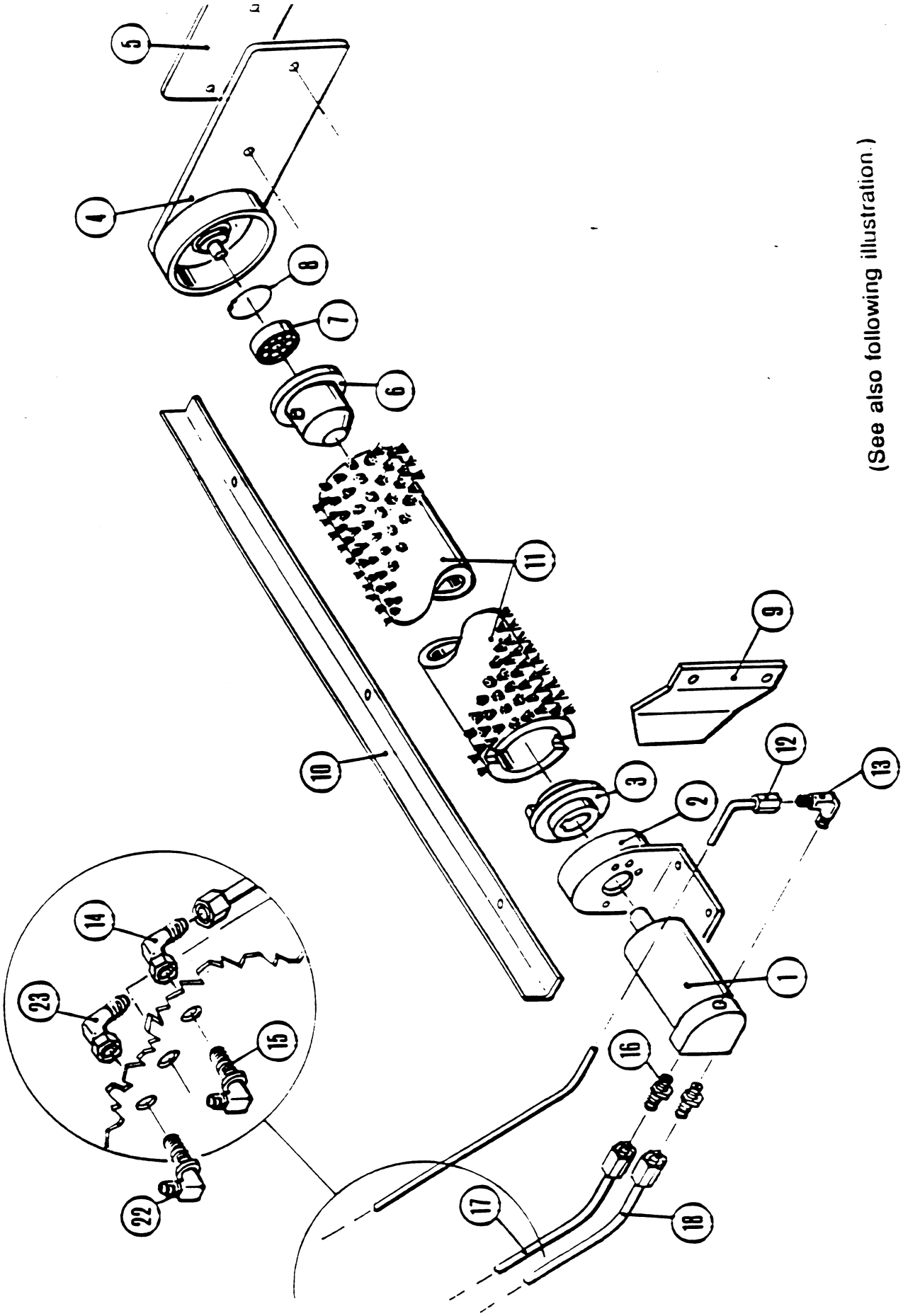
CLOGGED FILTER INDICATOR

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	400260	Ftg - 90° El 1/4 NPT x 1/4 NPT
2	400261	Ftg - Hose Barb 3/8 NPT x 5/16 Hose
3	303515	Assembly - Clogged Filter Mount
4	303327	Vacuum - Switch
5	302518	Decal - Filter (Dirty)
6	303516	Hose - Clogged Filter
7	301553	Light - RTR



LIGHT OPTIONS

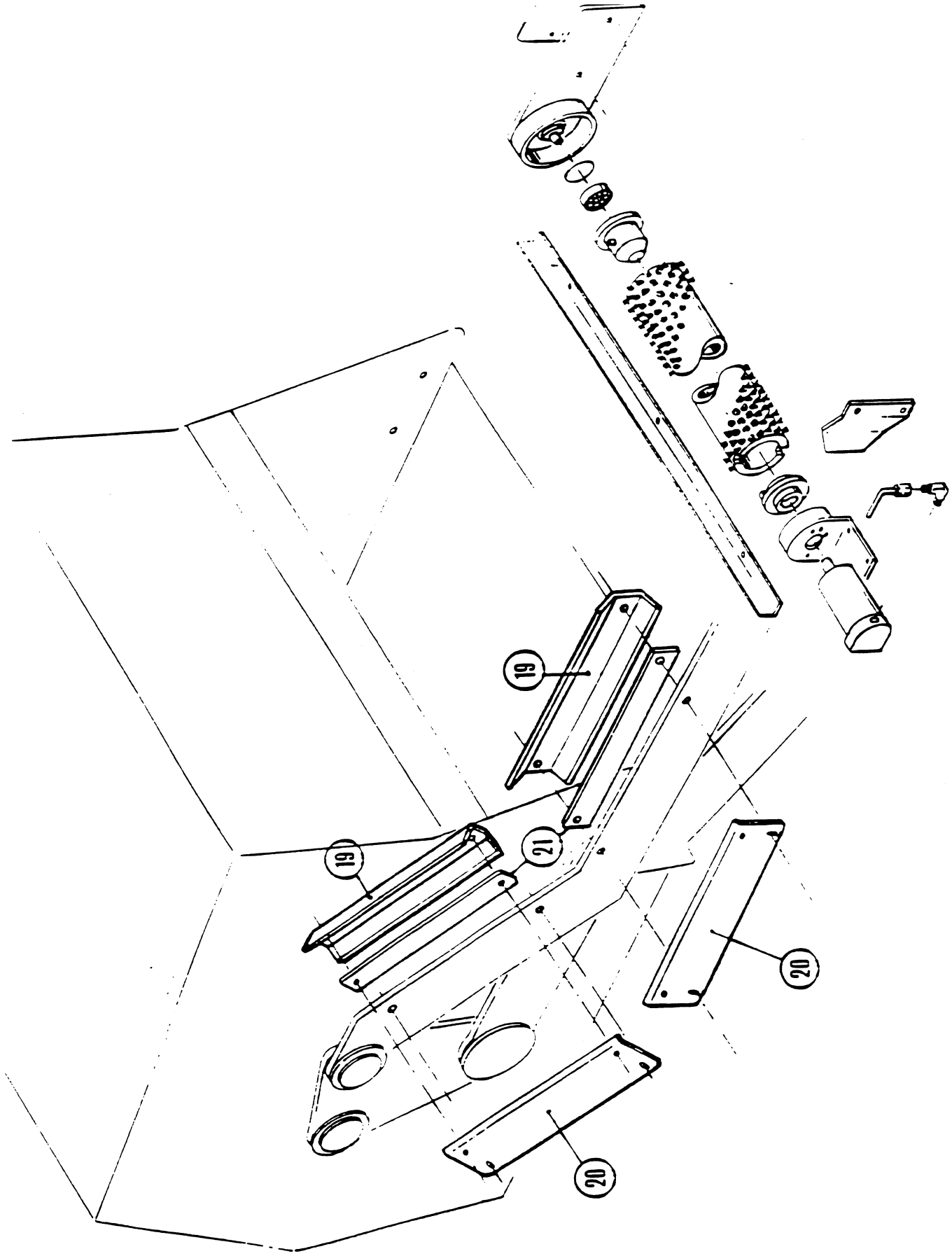
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	301359	Headlight Flush Mount
2	301360	Headlight Stud Mount
3	303204	Light Tail/Combination
4	303206	Bracket Tail Light Guard
5	302654	Light Emergency Rotating Amber
	302626	Light Emergency Rotating Blue
	301347	Light Emergency Rotating Red
6	301816	Light Emergency Flasher Red
	302627	Light Emergency Flasher Amber
	302628	Light Emergency Flasher Blue
	302630	Light Safety Blue Strobe
	302629	Light Safety Red Strobe
	301817	Light Safety Amber Strobe



(See also following illustration.)

POWER PACKER HIGH DUMP ASSEMBLY

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78	
1	303041		Motor - Hydraulic Power Packer
2	303042		Assembly - Drive Mnt Power Packer
3	303048		Assembly - Drive Hub
4	303044		Assembly - Idler Mnt
5	303046		Spacer - Idler Mnt
6	302806		Idler - Power Packer
7	303058		Bearing - 1.57 OD x .669 ID
8	303059		Ring - Ret Int 1.575
9	303060		Guard - Motor
10	303070	303071	Guard - Broom
11	303062	303063	Broom - Power Packer
12	303061		Assembly - Case Drain Tube Complete
13	303052		Ftg - 90° El 3/8 - 24 to #3
14	303065		Ftg - Swivel 90° #4
15	303154		Ftg - 90° Bulkhead #4
16	303050		Ftg - STR 9/16 - 18 to #6
17	303162		Assembly - Inlet Tube Hydraulic Motor Power Packer
18	303163		Assembly - Outlet Tube Hydraulic Motor Power Packer
19	301711		Clip - Hydraulic Hose Pntd
20	303170		Brkt - Hyd Hose Power Packer
21	303171		Bar - Hydraulic Hose Retainer
22	303051		Ftg 90° Bulkhead #6
23	303065		Ftg Swivel 90° #6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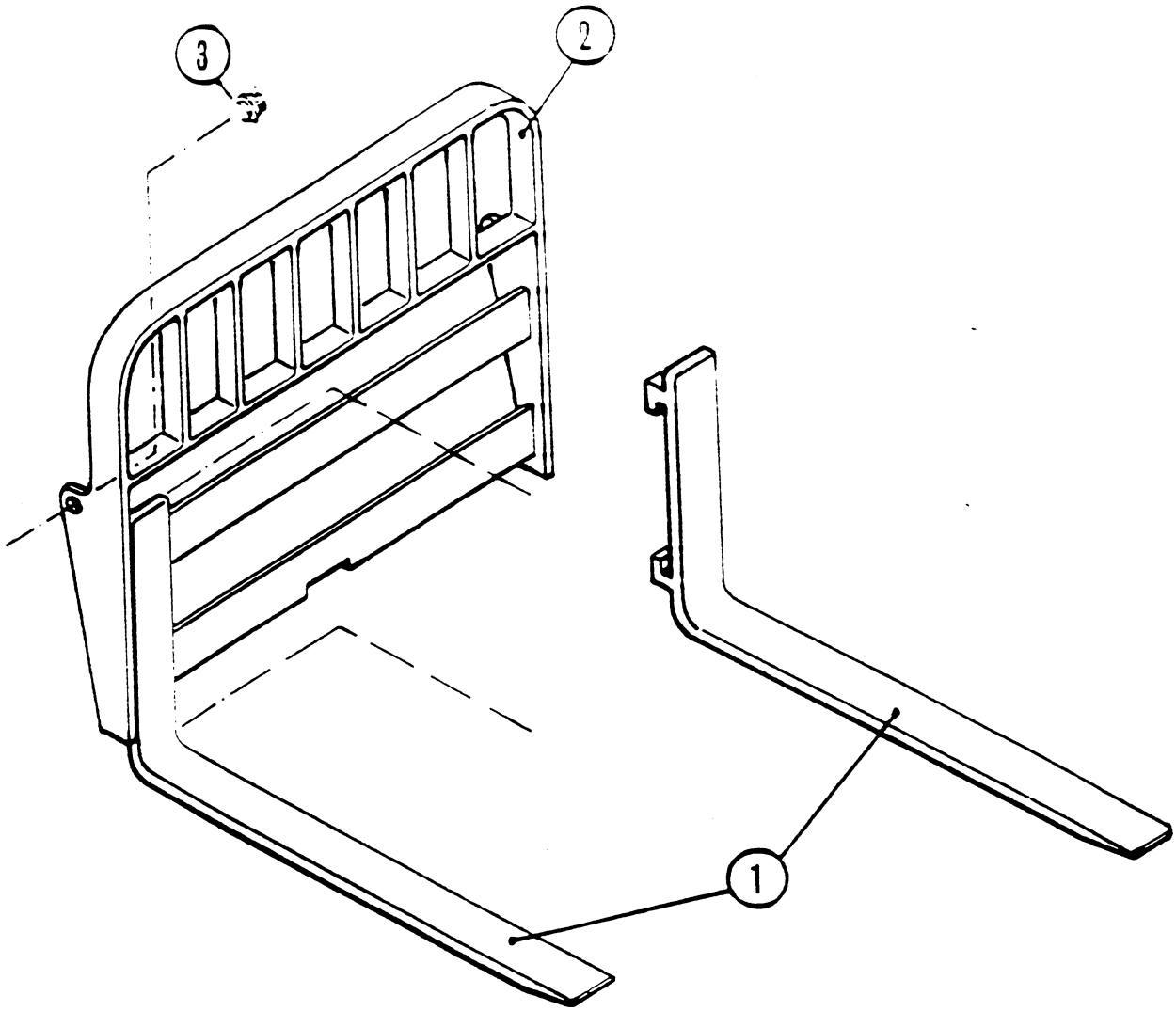
POWER PACKER HIGH DUMP ASSEMBLY (cont.)

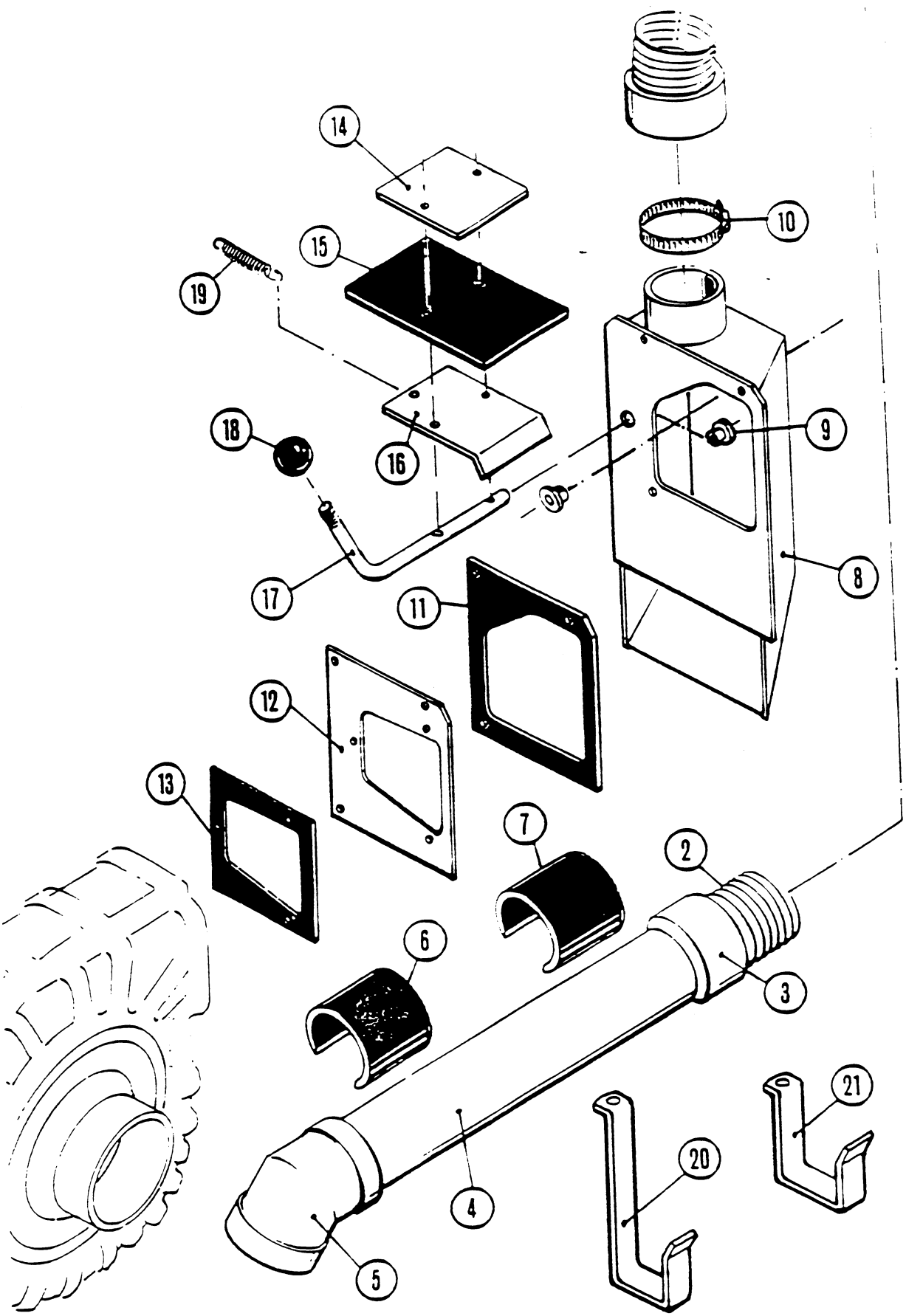
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78	
1	303041		Motor - Hydraulic Power Packer
2	303042		Assembly - Drive Mnt Power Packer
3	303048		Assembly - Drive Hub
4	303044		Assembly - Idler Mnt
5	303046		Spacer - Idler Mnt
6	302806		Idler - Power Packer
7	303058		Bearing - 1.57 OD x .669 ID
8	303059		Ring - Ret Int 1.575
9	303060		Guard - Motor
10	303070	303071	Guard - Broom
11	303062	303063	Broom - Power Packer
12	303061		Assembly - Case Drain Tube Complete
13	303052		Ftg - 90° El 3/8 - 24 to #3
14	303065		Ftg - Swivel 90° #4
15	303154		Ftg - 90° Bulkhead #4
16	303050		Ftg - STR 9/16 - 18 to #6
17	303162		Assembly - Inlet Tube Hydraulic Motor Power Packer
18	303163		Assembly - Outlet Tube Hydraulic Motor Power Packer
19	301711		Clip - Hydraulic Hose Pntd
20	303170		Brkt - Hyd Hose Power Packer
21	303171		Bar - Hydraulic Hose Retainer
22	303051		Ftg 90° Bulkhead #6
23	303065		Ftg Swivel 90° #6


3
2
1

POWERSTACK GROUP

ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	301925		Assembly - Fork Lift Tine Pntd
2	301934	301941	Assembly - Fork Lift Pntd
3	301920		Retainer - Fork Lift

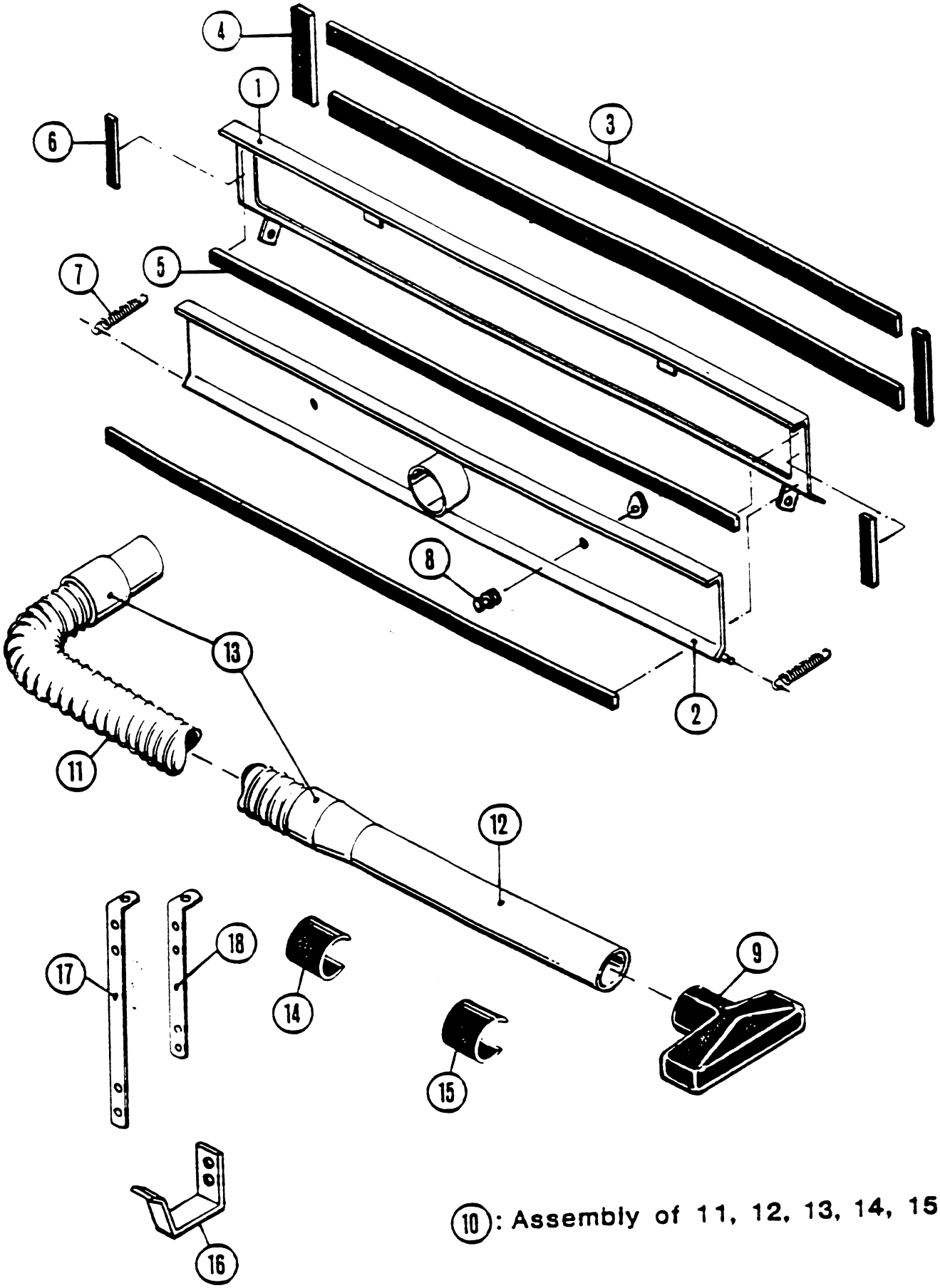
*When no numbers appear in this column, the parts number for the 78 Series is the same as that for the 88 Series.



(1): Assembly of 2, 3, 4, 5, 6, 7

BLOWER OPTION

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302337	Assembly- Blower Wand
2	302329	Hose - 2 1/2" ID Tuff-Lite Blower Opt
3	302203	Cuff 2 1/2" ID Tuff-Lite Blower Opt
4	302330	Pipe - 2" Nom Diameter PVC Blower Opt
5	302331	El 45° -2" Nom Diameter Blower Opt
6	302333	Sheet - Anti-Slip Pad Sm
7	302332	Sheet - Anti-Slip Pad Lg
8	302213	Assy - Manif Blower Pntd
9	300414	Bushing - Plastic Mn Brn
10	300336	Clamp - Hose 2 1/2" Nom
11	302223	Gskt - Frt Plate Blower
12	302221	Plate - Frt Blower
13	302220	Gskt - Blower Imp
14	302226	Plate - Gasket Ret Blower Pntd
15	302225	Gskt - Blower Shut-Off
16	302224	Plate - Blower Shut-Off Pltd
17	301418	Rod-Hopper Shut-Off
18	300563	Knob-Ball Pltd
19	302228	Spring Extension Blower
20	302529	Bracket Hose Ret - Blower Opt Short
21	302530	Bracket Hose Ret. - Blower Opt Long

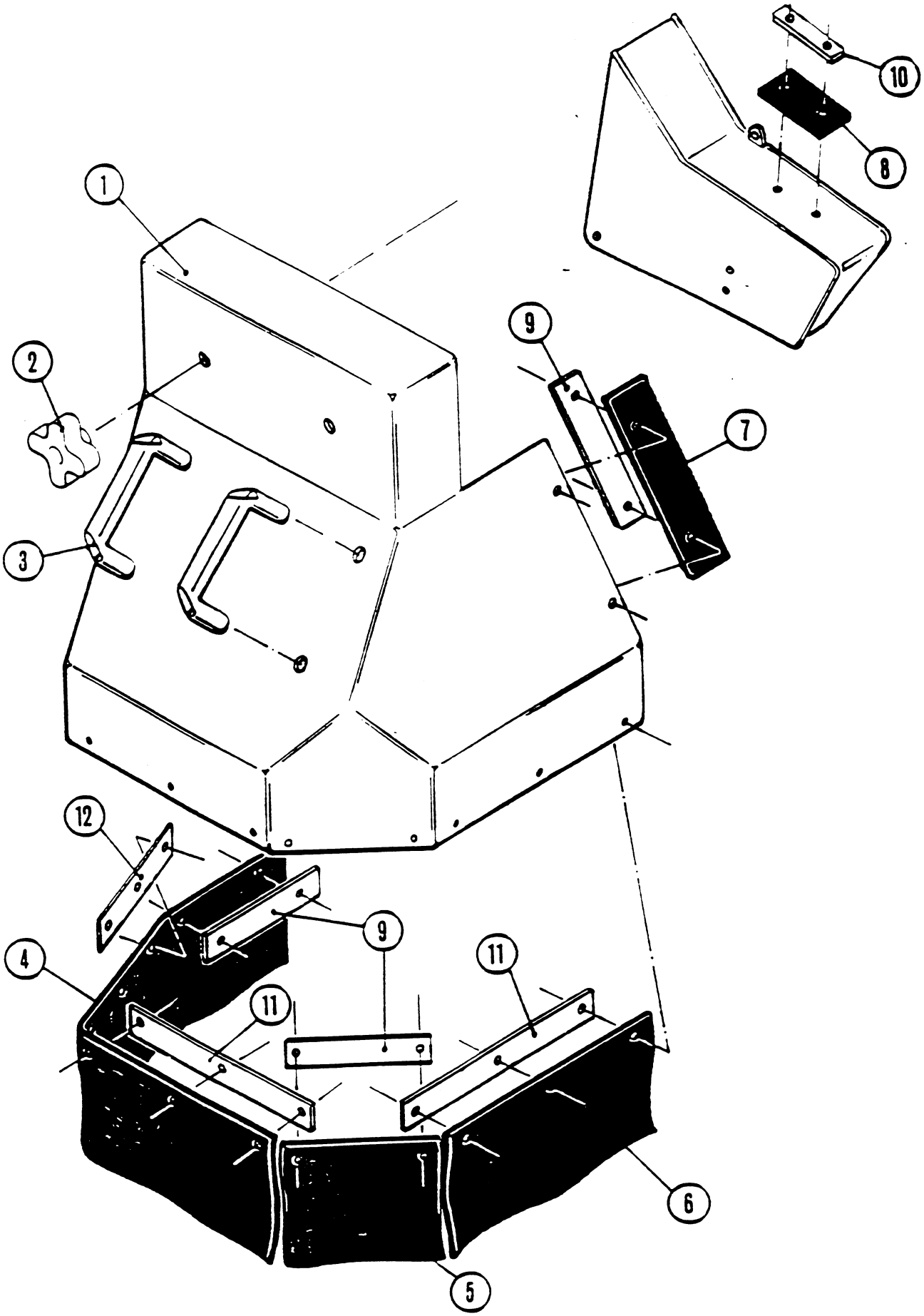


(10): Assembly of 11, 12, 13, 14, 15

VACUUM WAND

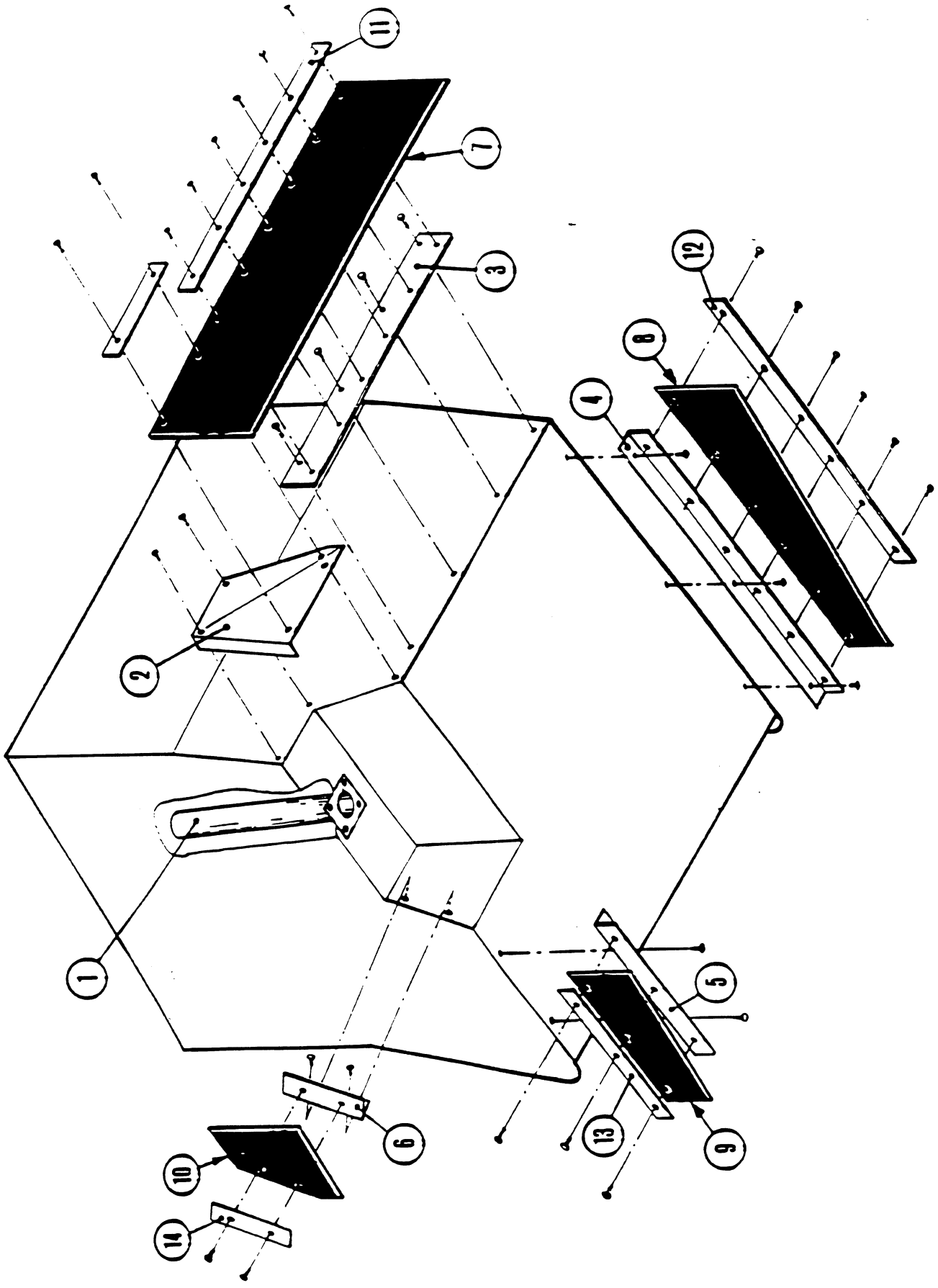
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	302309	302418	Assembly - Mount Vacuum Wand Pntd
2	302305	302416	Assembly - Door Vacuum Wand Pntd
3	302449	302450	Gasket - Vacuum Wand Opt
4	303139		Gasket - Vacuum Wand Mnt Sht
5	302316	302415	Gasket - Door Vacuum Wand Long
6	302315		Gasket - Door Vacuum Wand Short
7	302448		Spg - Vacuum Wand Opt
8	302324		Latch - Vacuum Wand Opt
9	303139		Nozzle - Vacuum Wand Opt
10	302336	302451	Assembly - Vacuum Wand Opt
11	302334	302329	Hose - 2 1/2" ID Tuff-Lite
12	302335		Pipe - 2" Nom Dia PVC
13	302293		Cuff - 2 1/2" ID Tuff-Lite
14	302332		Sheet - Anti-Slip Pad Large
15	302333		Sheet - Anti-Slip Pad Short
16	302314		Bracket Hose Retainer
17	303433		Bar Hose Retainer Long
18	303434		Bar Hose Retainer Short

*When no number apppears in this column, the parts number for the 78 Series is the same as that for the 88 Series.



VACUUMIZED CURB BROOM
(HOOD DETAIL)

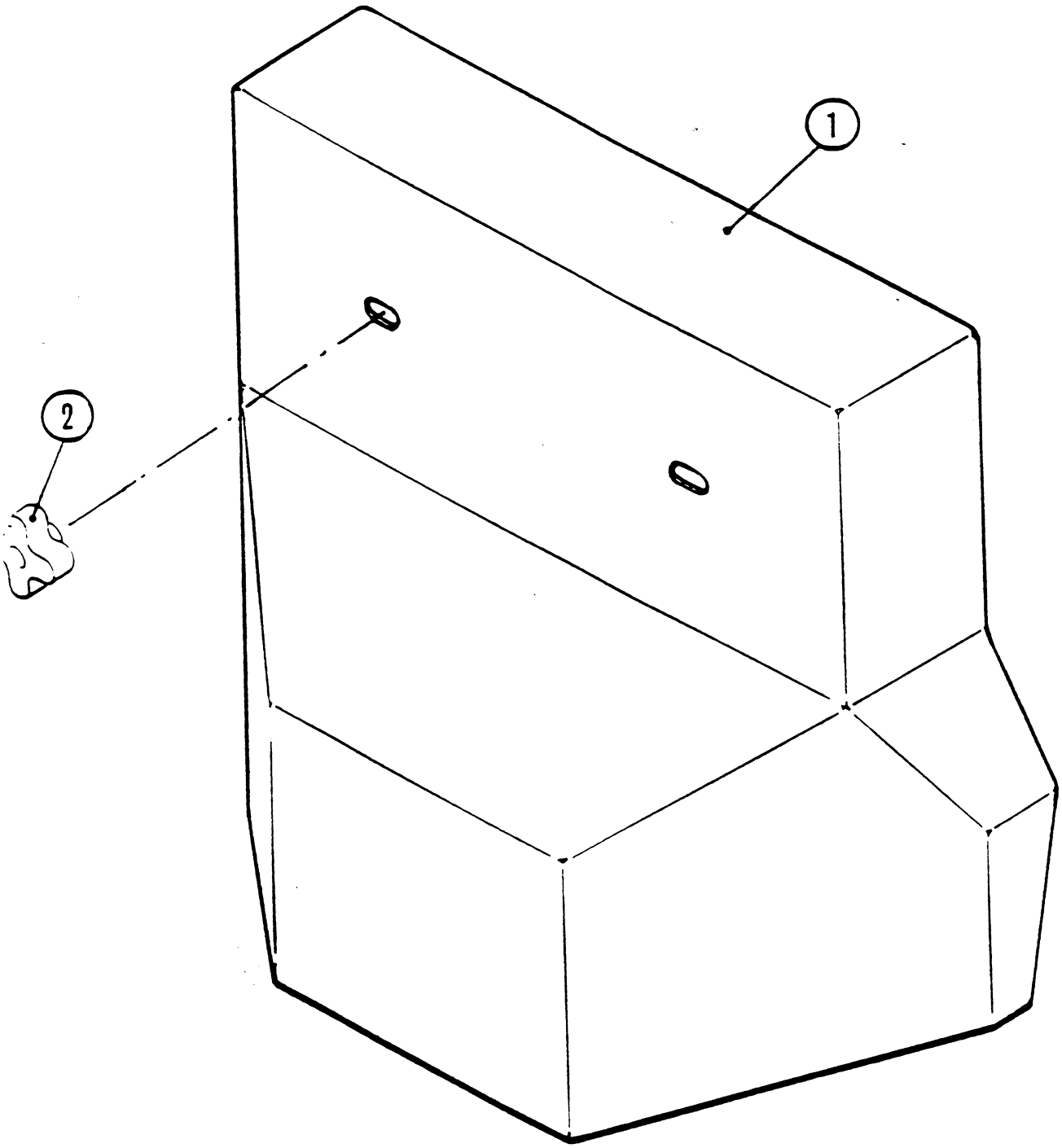
ITEM NUMBER	PART NUMBER	DESCRIPTION
1	303260	Assy - VS Brm Hood Pntd
2	303179	Knob - Alum Hand
3	301297	Handles - Plastic
4	303281	Flap - VS Brm Hood
5	303283	Flap - VS Brm Hood Frt Corner
6	303282	Flap - VS Brm Hood Frt
7	303284	Flap - VS Brm Hood Top Frt
8	303285 303286	Flap - VS Brm Arm HD Flap - VS Brm Arm LD
9	303277	Strap - VS Brm Hood Pltd
10	303290 303277	Strap - VS Brm Arm Flap SPT (Low Dump Only) Strap - VS Brm Hood Pltd (High Dump Only)
11	303275	Strap - VS Brm Hood Frt & Side
12	303276	Strap - VS Brm Hood Back Cor



VACUUMIZED CURB BROOM
(HOPPER DETAIL)

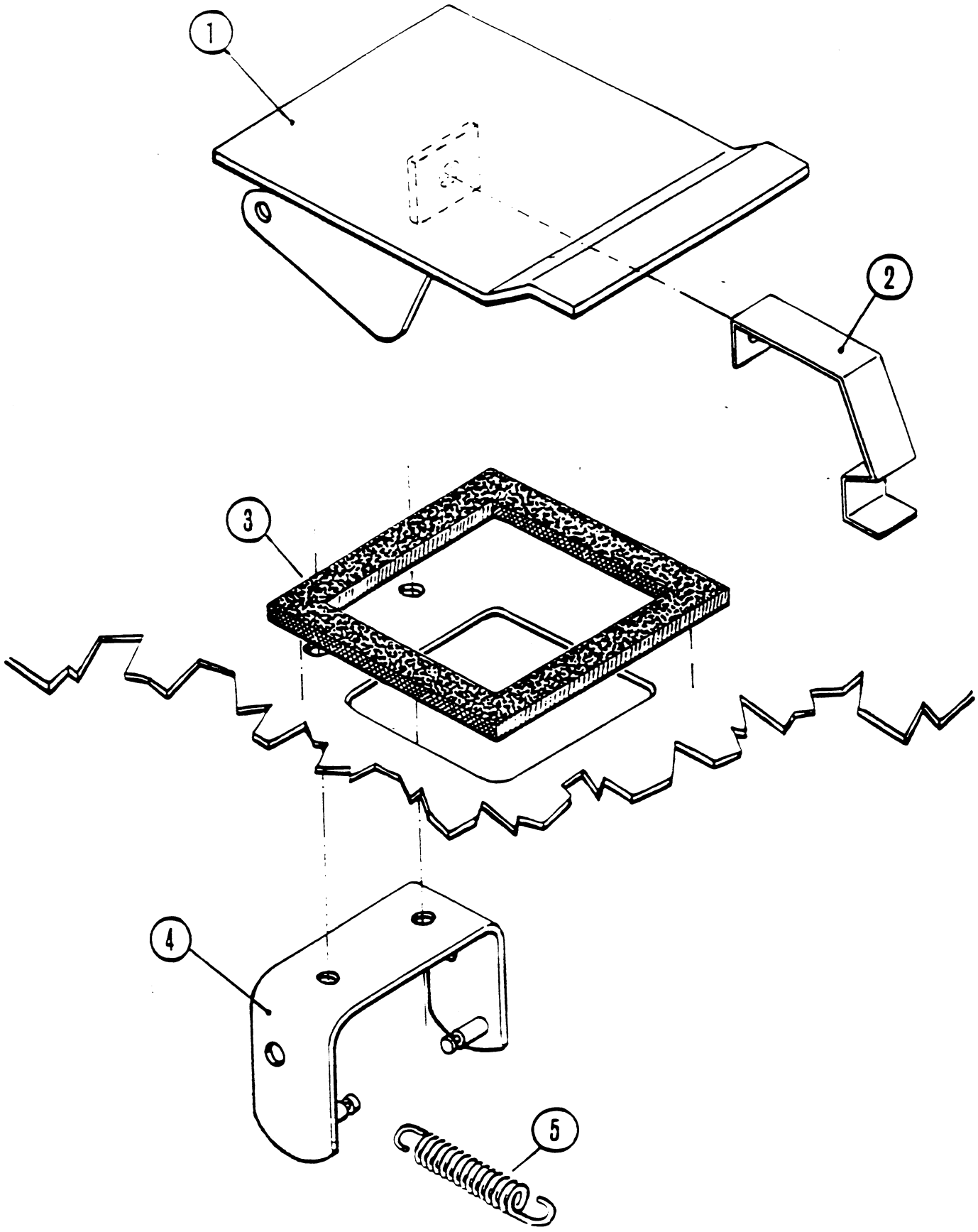
ITEM NUMBER	PART NUMBER		DESCRIPTION
	Series 88	Series 78*	
1	303265		Assembly - VS Brm Tube Hopper
2	303268		Plate - VS Brm Hopper Frt
3	303269	303287	Bar - VS Brm Hopper Frt
4	303271		Bar - VS Brm Hopper Left Side
5	303311 303270		Bar - VS Brm Hopper Right Side (New) Bar - VS Brm Hopper Right Side (Old)
6	303566		Bar - VS Brm Hopper Cut-Out
7	303278		Flap - VS Brm Hopper Frt
8	303279		Flap - VS Brm Hopper Left Side
9	303313 303280		Flap - VS Brm Hopper Right Side (New) Flap - VS Brm Hopper Right Side (Old)
10	303567		Flap - VS Brm Hopper Cut-Out
11	303272	303288	Strap - VS Brm Hopper Frt & Left Side Strap - VS Brm Hopper Frt
12	303272		Strap - VS Brm Hopper Frt & Left Side
13	303312 303274		Strap - VS Brm Hopper Right Side (New) Strap - VS Brm Hopper Right Side (Old)
14	303273		Strap - VS Brm Hopper Frt Sht

*When no number appears in this columns, the parts number for the 78 Series is the same as that for the 88 Series.


1
2

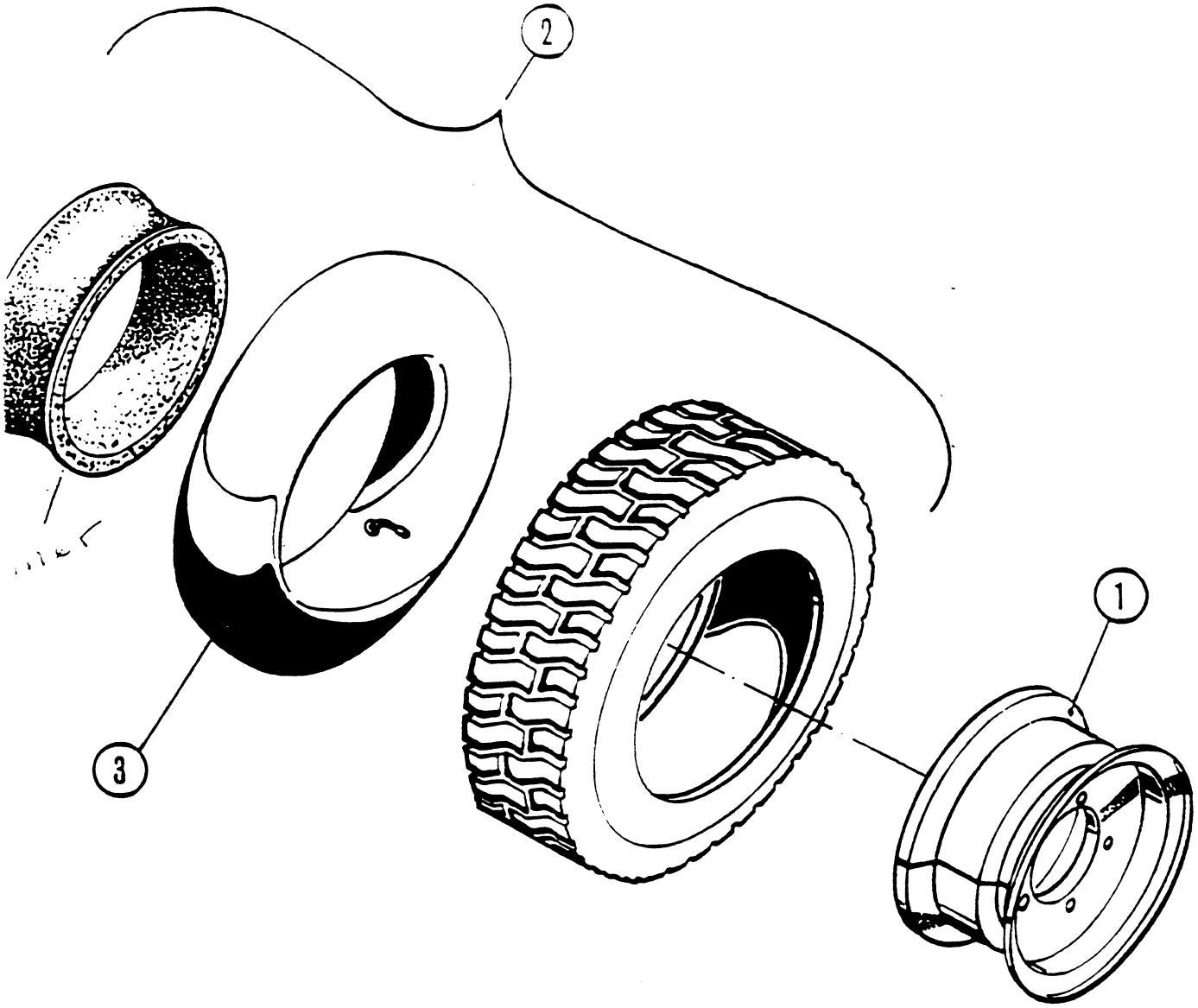
HEAVY DUTY CURB BROOM GUARD

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	303119	Assembly - HD CB Guard Pntd
2	303179	Knob - Alum Hand



WET SWEEP BYPASS

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302273	Assembly - Cover W/Swp
2	302312	Latch - Wet/Sweep Pltd
3	302317	Gasket - Wet/Sweep
4	302269	Assembly - Mounting Bracket Wet/Sweep Pntd
5	302229	Spring - Ext Wet/Sweep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1
3

MICHELIN TIRE ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	302734	Rim - Radial Tire
2	302735	Assembly - Tire Michelin Radial — Liner comes w/ Tire. Not Separate
3	302736	Tube - Tire Michelin (SP)