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SERIAL NUMBER LOCATION

Always give your dealer the serial number of your MadVac Vacuum when ordering parts or requesting service or other information.

The serial number plates are located where indicated. Please mark the number in the space provide for easy reference.



SERIAL NUMBER LOCATION

Chassis Serial Number: _____

Engine Serial Number: _____

1 INTRODUCTION

Congratulations on your choice of a MADVAC 61model litter vacuum to complement your litter collection operation. This equipment has been designed and manufactured to meet the needs of a discriminating buyer for the vacuum of litter.

Safe, efficient and trouble free operation of your MADVAC 61model litter vacuum requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained in the Operator's Manual.



This manual is applicable to all the 61model litter vacuum machines built by MADVAC Inc. Use the Table of Contents or Index as a guide when searching for specific information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your MADVAC dealer if you need assistance or information.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the Operator's position and facing in the direction of travel.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety alert symbol means:
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

The safety Alert symbol identifies important safety messages on the machine and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.



Why is SAFETY important to you?

3 Big Reasons: **Accidents Disable and kill**
 Accidents Cost
 Accidents Can Be Avoided

SIGNAL WORDS:

The appropriate signal word for each message has been selected using the following guide-lines:

DANGER-	Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situation, typically for machine components that, for functional purpose, cannot be guarded.
WARNING-	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices
CAUTION-	Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices

SAFETY (continued)

YOU are responsible for the **SAFE** operation and maintenance of your MADVAC . **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the MADVAC be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the machine.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- MADVAC owners must give operating instructions to operators or employees before allowing them to operate the sweeper, and at least annually thereafter per OSHA regulation 1928.57.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- **Think SAFETY! Work SAFELY!**

2.1 GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining adjusting or unplugging the MADVAC .



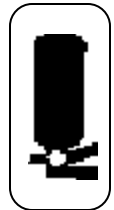
2. Only trained competent persons shall operate the machine. An untrained operator is not qualified to operate the machine.

3. Have a first-aid kit available for use should the need arise and know how to use it.



4. Do not allow riders.

5. Have a fire extinguisher available for use should the need arise and know how to use it.



6. Wear appropriate protective gear. This list includes but is not limited to:

- A hard hat
- Protective boots with slip resistant soles
- Protective goggles
- Heavy gloves
- Hearing protection



7. Place all controls in neutral, stop engine, set park brake, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

8. Review safety related items with all personnel annually.

2.2 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting or unplugging.
2. Do not allow riders on the machine during operation or transport.
3. Install and secure all guards and shields before starting or operating.
4. Stop engine, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
5. Clear the area of all bystanders front and back, especially small children, before starting or emptying the container.
6. Maintain a safe speed when making sharp corners or going over rough, uneven terrain.
7. Clean the lights and the flashing strobe before operating or transporting.
8. Always use warning flashers when operating.
9. Wear appropriate hearing protection when operating for long periods of time.
10. Never operate unit without a collector bag.
11. Use flashers when emptying trash.
12. Review safety instructions with all operators annually.

2.3 MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the MADVAC.
2. Stop engine, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or replacing trash bag.
3. Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.

4. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
5. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments or emptying.
6. Do not attempt any adjustment or maintenance to any system of the Vacuum when the machine is in motion.
7. Make sure that all guards and shields are properly installed and secured before operating the Vacuum.
8. Securely support the machine using blocks or safety stands before working beneath it or changing tires.
9. Store and transfer gasoline, solvents, cleaners or any flammable liquids only in safety standard approved containers.



2.4 TRANSPORT SAFETY

1. Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the MADVAC in the workplace and/or on the road.
2. Always travel at a safe speed. Use caution when making corners or meeting traffic.
3. Make sure with local authority that you got the appropriate immatriculation license for road transportation.
4. Do not allow riders on any part of the machine during either field operation or road and highway travel.
5. Always use hazard warning flashers or the rotating beacon on the MADVAC when transporting unless prohibited by law.

2.5 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion, which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.

2.6 STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Do not leave the keys in the ignition.

2.7 REFUELING SAFETY

1. Handle fuel with care. It is highly flammable.
2. Allow engine to cool for 5 minutes before refueling. Clean up spilled fuel before re-starting engine.
3. Do not refuel the machine while smoking or when near open flame or sparks.
4. Fill fuel tank outdoors.
5. Prevent fires by keeping machine clean of accumulated trash, grease and debris.



2.8 BATTERY SAFETY

1. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.
2. Avoid contact with battery electrolyte: wash off any spilled electrolyte immediately.

3. Wear safety glasses when working near batteries.
4. Do not tip batteries more than 45 degrees, to avoid electrolyte loss.
5. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of electrical system.

2.9 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs are available from your Distributor or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



Figure 1
ROTATING FAN SIGN LOCATION



Figure 2
FIRE HAZARD & NO SMOKING
SIGN LOCATION

REMEMBER - If Safety Signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

4 OPERATION



OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting or unplugging.
2. Do not allow riders on the machine during operation or transport.
3. Install and secure all guards and shields before starting or operating.
4. Stop engine, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
5. Be sure all controls are in neutral before starting.
6. Clear the area of all bystanders front and back, especially small children, before starting.
7. Keep all components clean and in good repair.
8. Maintain a safe speed when making sharp corners or going over rough, uneven terrain.
9. Clean the lights and flashing warning light before operating or transporting.
10. Always use warning flasher light when operating.
12. Review safety instructions with all operators annually.

4.1 TO THE NEW OPERATOR OR OWNER

The MADVAC 61 Litter vacuum is designed to vacuum up a wide variety of trash, debris and other materials from around a variety of obstructions. It has the capability to pick up virtually anything that will fit through the intake tube. Its unique design provides for self-compacting as the trash enters the collecting bag. The 25-foot long hose provides virtually unlimited maneuverability around almost any obstacle. Trash is collected in the container in the back of the machine.

It is the responsibility of the owner or operator to read this manual before starting. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the environment.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your litter collector will provide many years of trouble-free service.

4.2 HOW THE MACHINE WORKS

The MADVAC 61 model is a compact vacuum litter collector especially designed for litter collection.

Litter is picked-up by the vacuum system through a hand-held nozzle. The MADVAC patented straight through suction of the 61 model allows the operator to pick up virtually any litter that fits through the suction nozzle **because no litter passes through the fan**. The airflow of the vacuum system carries the debris into a large container. The collector bag inside the container is air permeable, therefore it retains the trash and lets the air pass through. The clean air then goes through the fan and is expelled.

The 61 model is equipped with a secondary filtration system that consists of large exhaust filter bag that retains the fine particles and dust before the clean air is expelled.

Power for the 61 model is provided by a diesel engine. The vacuum fan is directly mounted on the engine shaft therefore the engine speed controls the amount of vacuum obtained.

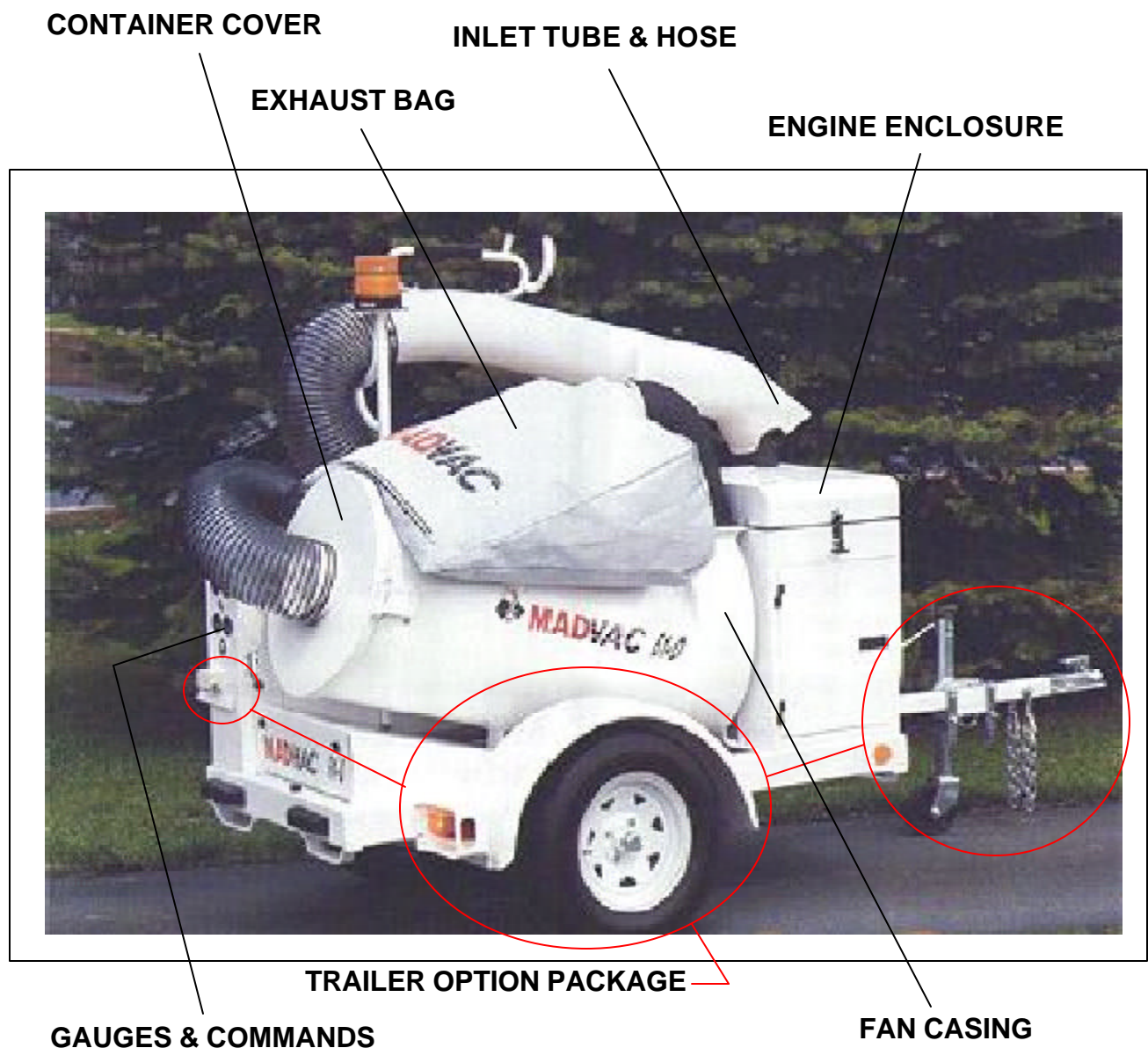


Figure 3
HOW THE MACHINE WORKS

4.3 MACHINE BREAK-IN

Although the machine has been run at the factory, a special inspection procedure has been developed to insure the integrity of the mechanical and engine systems. When using the machine for the first time, follow this procedure.

A. Before Starting:

1. Read the engine and MADVAC Operator's Manuals.

B. At 1/2, 2, 5 and 10 Hours:

1. Check all machine fluid levels: Fuel, coolant, and engine oil. Refuel or top up fluid levels as required.
2. Re-torque wheel bolts if your unit is equipped with a trailer kit.
3. Check for loose hardware. Tighten to specified torque.
4. Check the dust filter bag and clean if required.
5. Lubricate the points defined in the Maintenance section.
6. Then go to the service schedule as defined in the Maintenance section.

C. At 50 Hours:

1. Change the engine oil and filter.
2. Replace with the specified oil and filters.
3. Then go to the oil and filter replacement schedule as defined in the Maintenance section.

4.4 PRE-OPERATION CHECKLIST (Daily Checks)

Efficient and safe operation of the MADVAC requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both personal safety and maintaining the good mechanical condition of the machine that this checklist is followed.

Before operating the MADVAC and each time thereafter, the following areas should be checked off:

1. Check all machine fluid levels: Fuel, coolant, and engine oil. Refuel or top up fluid levels as required.
2. Check the tires and ensure that they are inflated to the specified pressure.
3. Check the trash container. Empty if full.
4. Check the dust filter bag and clean if required.
5. Clean engine air intake filter container cover.
6. Clean the lights and flashing strobe warning light to ensure that other vehicles can see them.
7. Check all lights and flashers to ensure they are functioning properly.

4.5 CONTROLS

Before starting to work, all operators should familiarize themselves with the location and function of the controls. Locate the machine in a large open area to provide unobstructed maneuvering during the training period.

4.5.1 INSTRUMENTS & COMMAND PANEL

An instrument & command panel is located at the back of the machine.

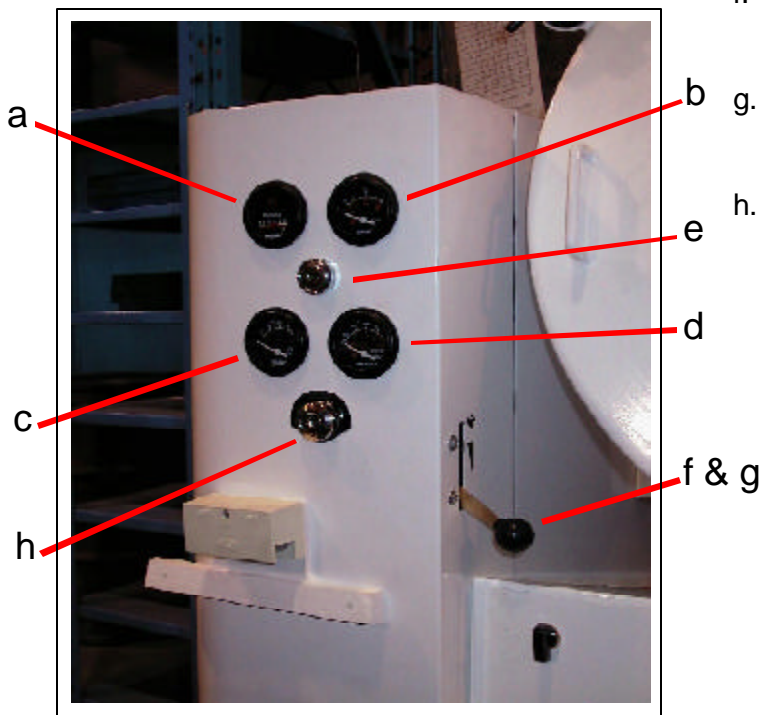


Figure 4
INSTRUMENTS & COMMAND PANEL

- a. **Hour-meter:** Displays the total operating hours of the machine. The hour-meter is electrically powered and runs whenever the ignition switch is on.
- b. **Fuel:** Displays fuel level in the tank.
- c. **Engine Oil Pressure:** Displays the engine oil pressure. The pressure should always remain in the 35 to 60 psi range when operating at rated RPM. Should it drop below that, stop immediately. Determine the cause before resuming operation.

- d. **Engine Coolant Temperature:** (if equipped) Displays the engine coolant temperature. The temperature should always remain in the green band between 190° and 210° F (90° and 100°C) when operating at rated RPM. Should it go over that range, stop immediately and clean the radiator, oil cooler and the space between the radiator and cooler.
- e. **Glow plugs indicator light:** (if equipped) Indicate when the glow plugs are hot enough to start the engine.
- f. Throttle command: Set the revolution of the engine.
- g. Choke command: Set the choke on and off for cold temperature engine start up.
- h. **Ignition Switch:** This 3 position rotary key switch controls the ignition circuit of the machine. In its most counter-clockwise position, the glow plugs are activated, the switch will spring back to the center OFF position when released. Turn clockwise to the first position for RUN to turn the ignition circuit ON. Turn to the next position to engage the starter. This second clockwise position is spring loaded and must be held to engage the starter. Release the key as soon as the engine starts and it will return to the RUN position.

4.5.2 OPERATOR CONTROLS

1. OPERATOR STATION CONTROLS:



Figure 5
CONTAINER LATCH

- f. **Container Latch:** This bungee strap controls the opening of the litter container cover. Pull the strap to release the container latch. Pull again and hook the strap in the latch to close the cover.

4.5.3 ENGINE COMPARTMENT

1. **Engine compartment:** The engine bay can be accessed by 3 different ways;
- Top cover with bungee strap latch
 - Right side door with latch
 - Front door with latch



Figure 6
TOP COVER LATCH



Figure 7
ENGINE COMPARTMENT

4.5.4 FUSE BLOCK

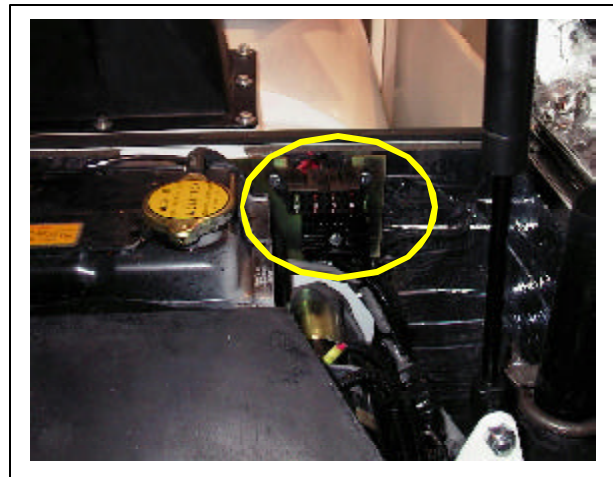


Figure 8
FUSE BLOCK

2. **Fuse Block:** A fuse block for the electrical systems is located inside the engine bay. Open the top engine cover to gain access to the fuse block. Refer to the Maintenance Section and Electrical Schematic for fuse size and circuit definition.

4.6 STARTING

When starting the machine, follow this procedure:

1. Clear the area of bystanders front and rear, especially small children, before starting.
2. Remove all foreign objects from the machine.
6. Pull the throttle lever to its mid range for starting.
4. Turn the ignition switch to the left (counter-clockwise) to activate the glow plugs and hold for 15 seconds to heat the cylinders if the engine is cold.
5. Turn the ignition switch to the START position to engage the starter.
6. Release the key when the engine starts.
7. When the temperature drops below 5°C (40°F), allow 3 to 5 minutes for the machine to warm up before using.
8. Move the throttle to its maximum speed setting when starting to work.
9. New operators or people who haven't operated the unit for a time should always allow time to become familiar with the machine. Select a level, open area, free of obstacles and bystanders to try the controls. Practice starting, become familiar with all controls before going to work.

4.7 STOPPING

When stopping the machine, follow this procedure:

1. Gradually release the speed/direction control lever to its neutral position. The hydrostatic motors on the drive wheels will provide dynamic braking to the unit. When necessary pull up on the brake lever to help stop the machine.
2. Engage the park brake.

3. Move the throttle lever down until the engine is running at low idle.
4. Turn the vacuum control switch OFF.
5. Turn all control switches OFF.
6. Turn the key counter-clockwise to shut off the engine.
7. Remove the ignition key before leaving the machine parked.

4.8 OPERATING

The operator should follow this procedure when operating the machine:

1. Clear the area of bystanders.
2. Review all items on the Pre-Operation Checklist. (Sec. 4.4)
3. Start the machine (See Section 4.6).
4. Proceed to the working area.
5. Turn the water spray on , if required.
6. Move the machine into position.
7. Gather trash.
8. Trash and debris of all types can easily be picked up by the machine. Virtually any debris that can fit into inlet hose will be picked-up.

REMEMBER

Trash does not pass through the fan.

9. The machine can develop sufficient vacuum to draw water into the container and pick up the trash in the water. The water passes through the system and the trash remains in the container.

The container must always be emptied at the end of the day to prevent rusting.

10. Never allow riders on any part of the machine.

11. Gather trash until the container is full. *(try to evaluate the quantity and weight of debris and trash you picked up and stop before the collector bag weight to much for you.)*
12. When the container fills, the machine will gradually lose suction. When trash can no longer be picked up, the container will have to be emptied. Refer to Section 4.10.
13. *(In trailer option)* Always drive at a speed that is appropriate for the terrain and surroundings. Use slow speeds when going over rough terrain, in congested areas or when people are present.
14. *(In trailer option)* When operating on steep inclines go up the slope or down the slope, never across it to prevent roll-over.
15. *(In trailer option)* The unit can go over obstacles up to 6 inches such as curbs. However the operator must always approach them at a slow speed.
16. Daily, use an air nozzle or water hose to flush out the dust exhaust bag filter or more often when they get dirty.

4.10 USING THE 5" DIAMETER WANDERHOSE OPTION



Figure 8
5" Dia. WANDERHOSE OPTION

The Wanderhose has been designed to help clean areas that are not easily reached with a regular or heavy duty 8" Wander hose, such as landfill fullfilled with flowers and under cars.

4.10.1 8" DIAMETER HEAVY DUTY WANDERHOSE OPTION



Figure 8
8" Dia. HEAVY-DUTY WANDERHOSE

The option Wander Hose HD offer the same performance and manovrability of the regular clear hose but a greater durability and life-time.

4.11 EMPTYING THE CONTAINER

When the container is full, follow this procedure to empty:

1. As the container fills with trash, the trash will cover the bottom and sides blocking the flow of air. This will cause the unit to loose suction. When the suction is gone, empty the container.
2. Shut-off the engine.
3. Open the container cover.
4. Pull the collector bag out of the container and empty into a garbage bag or discard as instructed by your supervisor.
5. Replace the collector bag into the container.
6. Close the container access cover.
7. When operating in very dusty conditions, remove and empty the dust cap under the container.
8. Proceed with gathering trash.

4.12 TRANSPORTING

When moving the machine, follow this procedure:

1. Clear the area of bystanders.
2. Clean all lights and reflectors
3. Do not allow riders.
4. Be sure vacuum fan is OFF.
5. Use special care when transporting during times of limited visibility. Be sure that you can be seen by oncoming and overtaking traffic.
6. Never exceed the speed appropriate for the terrain and conditions. Slow down for turns and when traveling over rough terrain

4.13 STORAGE

There are special procedures to follow when placing the MADVAC into storage or preparing to use it again.

4.13.1 PLACING IN STORAGE

After the season's use, inspect all the major systems and components of the machine. Repair or replace all damaged or worn parts at this time to prevent any unnecessary delays at the start of next season.

1. Service and lubricate the machine per the schedule given in the Maintenance Section.
2. Inspect the engine compartment and container. Remove any trash or debris from those areas.
3. Remove the dust cap.
4. Wash the machine, container and dust screen thoroughly with a hose or pressure washer. Be sure to remove all mud, trash and debris to prevent rusting of the underlying parts.
5. Allow the container to drain by removing the dust cap.

6. Place container in its operating position and run the fan for 3 to 5 minutes to dry the system.
7. Install and secure the dust cap.
8. Touch up all paint chips and nicks to prevent rusting. Use a rust preventative paint. This paint is available by the can or in spray.
9. Remove the battery, and store it in a cool, dry area on wooden blocks or a wooden pallet. Charge it monthly to maintain an adequate charge.
10. Check engine coolant concentration, if too low water could freeze and damage the engine. Empty all water tank and drain water lines to prevent freezing.
11. Store the machine inside a building to protect it from the elements. If it cannot be stored inside a building, cover it with a waterproof tarpaulin and tie it down securely.
12. Store the machine away from area of human activity. Do not allow children to play on or around the machine.
13. Block the wheels if stored for a long period of time.

4.13.2 REMOVING FROM STORAGE

When preparing to use the machine at the start of the season, follow this procedure:

1. Remove the tarpaulin.
2. Charge the battery to its specified level and install.
3. Review all items on the Pre-Operation Checklist.
4. Check all fluid levels and top up as required.

5 SERVICE AND MAINTENANCE

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the MADVAC.
2. Follow good shop practices: Keep service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light for the job at hand.
3. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
4. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments or emptying.
5. Do not attempt any adjustment or maintenance to any system of the Vacuum when the machine is in motion.
6. Make sure that all guards and shields are properly installed and secured before operating the Vacuum.
7. Securely support the machine using blocks or safety stands before working beneath it or changing tires.
8. Store and transfer fuel, solvents, cleaners or any flammable liquids only in safety standard approved containers.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease**
Use an SAE multi-purpose high temperature grease or a multi-purpose lithium base grease.
2. **Diesel Fuel**
Use Grade No. 2 fuel, as defined by ASTM Designation D975 for Diesel fuels. When operating in cold ambient temperatures, the use of a mixture of No. 1 and No. 2 is permitted for a short period of time.

Fuel Specifications:

Sulfur Content: Less than 1% by weight, preferably less than 0.5%.

Cloud Point: At least 10°F below lowest expected ambient temperature.

Water and Sediment: Less than 0.1% by weight.

Cetane Number: 40 minimum. In cold weather or high altitudes, 45 to 55 is desirable.

Viscosity: Over 1.3 centistokes at all times to provide adequate lubrication to the fuel system.

Fuel Tank Capacity: 2.6 U.S. gal (10 liters)

3. Engine Coolant

Use a 50:50 mixture of a good commercial grade ethylene-glycol base antifreeze that meets the chemical composition of GM 6038-M. This mixture should be used down to an ambient temperature of -37°C (-34°F). Use 60:40 mixture for temperatures down to -54°C (-65°F). Do not use oil base or alcohol base antifreezes.

Coolant Capacity: 0.74 U.S. gal (2.8 liters).

4. Engine Oil

Use a SAE 10W30 multi-viscosity oil meeting the American Petroleum Institute (API) Classification of CC/CD/CE for most operating conditions. Consult engine manual for unusual operating temperature. Do not mix oil types or viscosities.

Crankcase Capacity: 1.6 U.S. gal (6.0 Liters).

5. Storing Lubricants and Fluids

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all fluids. Store them in an area protected from dust, moisture and other contaminants.

5.1.2 GREASING

Refer to section 5.1.1 for recommended grease. Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Use only a hand-held grease gun for all greasing. An air-powered greasing system can damage the seals on bearings and lead to early failures.
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passage. Replace fitting if necessary.

5.2 MAINTENANCE

5.2.1 ENGINE OIL AND FILTER CHANGING.

1. Review the Operator's Manual for the engine.
2. Allow the engine to cool before changing oil. Hot oil can cause skin burns.
3. Be sure the ignition key is removed.
4. Place a pan under the drain plug.
5. Remove the drain plug and allow oil to drain for 10 minutes.
6. Use a band filter removal tool to remove the engine oil filter.
7. Coat the oil filter gasket with oil before installing
8. Tighten by hand until the filter is snug. Then tighten an additional 1/2 turn to seal. Do not overtighten.
9. Install the engine drain plug.
10. Dispose of the oil in an approved container.

11. Add 6 liter (6 qt. U.S.) of SAE 10W30 or 10W40 motor oil.
12. Run the engine for 1 minute and check for leaks.
13. If leaks are found around the filter, tighten slightly and repeat Step 12.
14. Check engine oil level. Top up as required.

5.2.2 FUEL FILTER

The inline fuel filter located between the tank and the engine should be cleaned every 100 hours or more frequently if required. The filter element should be replaced every 250 hours. Be sure the machine has cooled before servicing.

1. Close the fuel filter lever (1)
2. Remove the filter bowl and rinse the inside with diesel fuel. (2)
3. Take out the element and rinse it with diesel fuel.
4. After cleaning, reinstall the fuel filter keeping out of dust and dirt.
5. Open the fuel filter lever.

(refer to engine operator manual for more details).

5.2.3 AIR CLEANER MAINTENANCE

The air intake system consists of a canister with an engine filter element inside. Cleaning of this element should only be done when the element is dirty and the air restriction indicator is in the red to prevent damage to the filter or seals. When the inner element gets dirty, replace it.

Follow this procedure when maintaining the air cleaner.

1. Clear the area of bystanders.

2. On a daily basis before starting, open the cannister cover and remove any dirt in the cover. Clean the element ONLY when the air restriction indicator is in the red.
3. To clean, remove the cover on the cannister. (Fig. 14)
4. Remove the wing nut holding the filter in place and carefully slide the filter out of the cannister
5. Apply compressed air into the body from the inside with at least one inch clearance between the filter element and the air nozzle. Do not exceed 100 psi (7 kg/cm²) air pressure.
6. If the element is heavily caked with dirt, submerge in an element cleaning solution for 30 minutes. Rinse with clean water and allow to dry for 24 hours.
7. Place a light source inside the element and check for pin hole leaks.
8. If the element or seals are damaged or the paper has a pin hole leak, replace the filter.
9. Clean the inside of the cannister.
10. Check all the air intake system connections. Tighten any loose connections.
11. Install the filter in the cannister. Be sure the seals are seated.
12. Close and secure the cannister cover.

If the unit runs hot or overheats, use a water hose to clean the radiator, oil cooler and specifically the space between the cooler and the radiator. This will provide unrestricted air flow and will lower the engine temperature.

A clean engine runs better, stays cool and eliminates the chance of fire.

5.2.4 CLEANING ENGINE AND COMPARTMENT

Dirt, dust and trash can build up in the engine compartment. Use a water hose or air line to keep the engine and compartment clean. Clean the air intake openings as required to insure that a free flow of outside air is maintained to the engine. Blow out the compartment monthly or more often if operating in very dirty conditions.

6 TROUBLESHOOTING

The MADVAC uses a hydraulically powered fan to evacuate the air from a trash container. A fabric bag in the container collects the trash as it is drawn into the intake tube. It is a simple and effective method to gather trash that requires minimum maintenance.

In the following troubleshooting section, we have listed many of the problems, causes and solutions to the problems which you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this troubleshooting section, please contact your authorized dealer or the factory. Before you call, please have this Operator's Manual and the serial number from your machine ready.

PROBLEM	CAUSE	SOLUTION
Engine won't start.	Starter won't engage.	Battery discharged. Charge battery. Check red emergency stop button Check battery terminals. Clean as required. Check all electrical connections. Clean or replace as required. Check starter. Replace as required. Check relay beside fuse box. Replace as required.
	Starter engages.	Check fuel. Add as required. (Diesel option) Engage glow plug for 20 seconds if engine is cold.
Can't pick up trash.	No vacuum	Trash container full. Empty container as required. Filter is clogged. Clean and wash more often. Obstruction in fan or suction path. Remove obstruction. Ensure machine is OFF and all moving parts are stopped. Container isn't sealed. Close cover Hole in intake tube. Replace intake tube. Intake tube plugged. Clear obstruction from tube. Tube improperly clamped. Tighten clamps

7 SPECIFICATIONS

7.1 MECHANICAL

DIMENSIONS	SKID VERSION	TRAILER VERSION
Width:	39 in. (990 mm) Bumper to bumper	56 in. (1422 mm) Fender to fender
Overall Length:	71 in. (1803 mm) Bumper to bumper	114 in. (2895 mm) Incl. 38 in. tow bar
Overall Height:	62 in. (1574 mm)	74 in. (1879 mm)
Weight:	61-D: 700 lbs. (318 kg) 61-G: 620 lbs. (281 kg) 61-LP: 675 lbs. (306 kg) 61-E: 610 lbs. (277 kg)	900 lbs. (409 kg) 820 lbs. (372 kg) 875 lbs. (397 kg) 810 lbs. (368 kg)

VACUUM

System Type:	Straight-through suction
Power:	Directly from main engine
Vacuum Pump:	Cast alloy centrifugal fan, statically & dynamically balanced. Heavy gauge steel casing, aerodynamic design
Impeller Speed:	0- 3400 RPM (Infinitely variable suction control)
Performance:	Static pressure at closed inlet: 30 in. of water gauge Suction pressure at open inlet: 8 in. of water gauge pressure
Main Hose:	8 in. (203 mm) dia., smooth bore
Container:	Heavy gauge galvanized steel, 60 U.S. gal (226 liters) capacity
Bag:	Spun bonded polyester, Air permeable

POWER

Engine:	61-D: Kubota liquid cooled diesel engine, 13.8 HP gross @ 3000 RPM, 2 cylinders, 29 cu. in. (482 cc) disp. 61-G: Kohler air cooled gasoline engine, 14 Hp gross @ 3600 RPM, single cylinder, 4 strokes, 61-LP: Kohler air cooled liquid propane, 20 Hp gross @ 3600 RPM, 2 cylinders, 4 strokes, 61-E: 7.5 Hp electric motor, 220V/440V single or 3 phase, sealed fan cooled rubber mounted.
Fuel:	61-D: Diesel fuel, 6 U.S. gal. tank 61-G: Gasoline, 6 U.S. gal. tank 61-LP: Propane, 30 Lbs. liquid propane tank
Air Cleaner:	"Donaldson" high capacity two stage cyclonic with restriction dirt ejector.(all models of 61)
Frame/Body:	Fully welded combination of heavy gauge steel sheet and 1/8" thick structural steel frame.(all models of 61)
Tires:	(2) 175/80 R 13, 4 seasons radials (Trailer option)

ELECTRICAL

Safety Switches:	Emergency stop button to shut-down engine.
Gauges:	Hour-meter, ammeter, oil pressure gauge, electric fuel level gauge, and temperature gauge.
Lightings:	Complete signaling package. Road signaling package S.A.E. & C.E. (Trailer option)
Electric System:	40 amp alternator, 12 volts, fused for safety

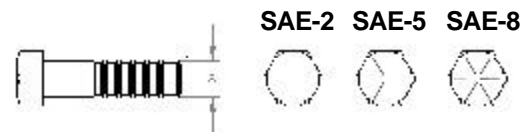
7.2 BOLT TORQUE

CHECKING BOLT TORQUE

The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

ENGLISH TORQUE SPECIFICATIONS

DIAMETRE DU BOULON "A"	SAE 2		TORQUE DE BOULON* SAE 5		SAE 2	
	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970



METRIC TORQUE SPECIFICATIONS

DIAMETRE DU BOULON "A"	TORQUE DES BOULONS			
	8.8		10.9	
	(N.m.)	(lb-ft)	(N.m.)	(lb-ft)
M3	.5	.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markin.

8 PARTS LIST

This manual contains a parts list for your machine. It is divided into major sections which correspond to the groups shown in the Table of Contents and the accompanying illustration.

The first page of each major section lists the contents of that section, each of which consists of exploded views and related tabular listings.

WHEN ORDERING PARTS

Always give your dealer the Model and Serial Number of your machine to assist him in ordering and obtaining the correct parts. Use the exploded view and tabular listing of the area of interest to exactly identify the required part.

USING THE MANUAL

Parts data consists of exploded view illustrations and associated parts list tables which are read as follows:

ITEM

The item number is the identifier number from the illustration. For example, number 3 on an illustration points to a component which is item 3 on the accompanying table.

PART NUMBER

The part number is the four or five digit number by which the component may be identified and ordered from MADVAC International Inc. and its network of dealers.

QUANTITY

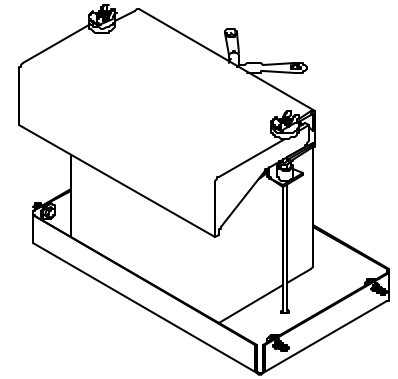
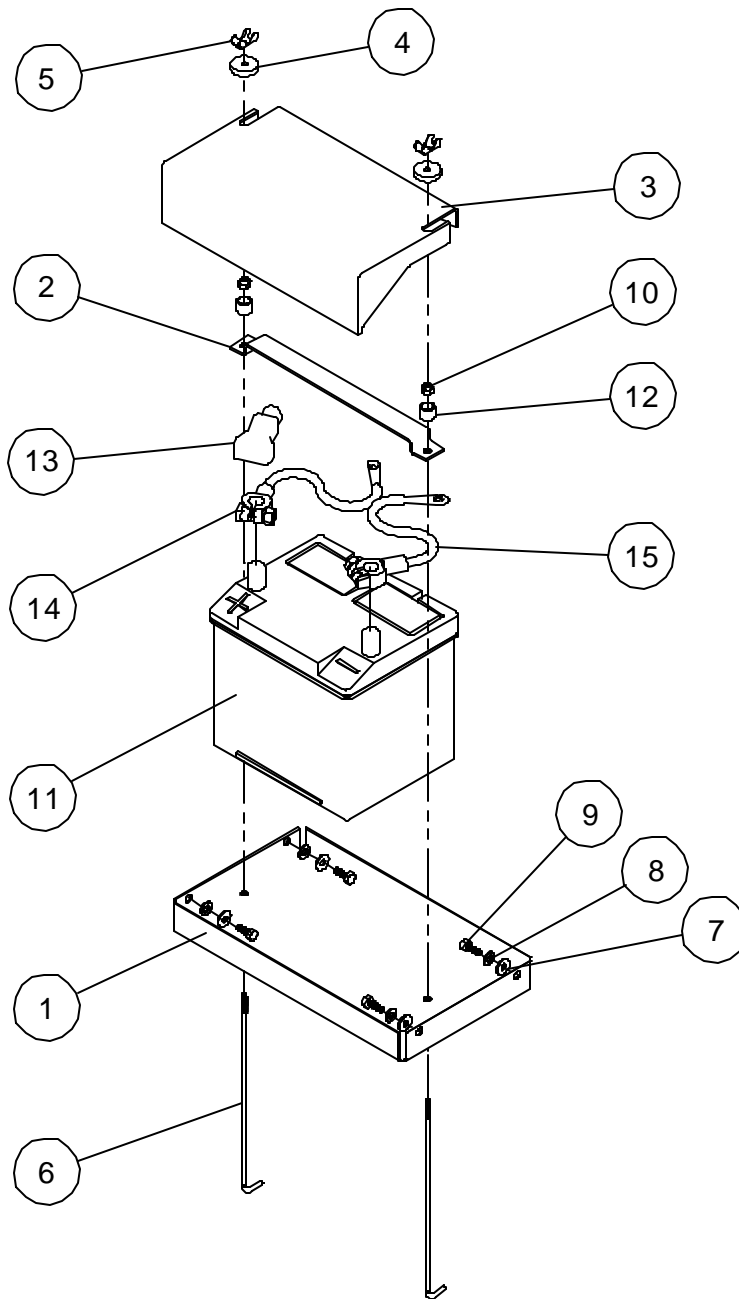
This column shows the quantity of each part used on the component for the model listed on the top. The abbreviation AR means the quantity is as required

Power Pack Parts Drawings Section

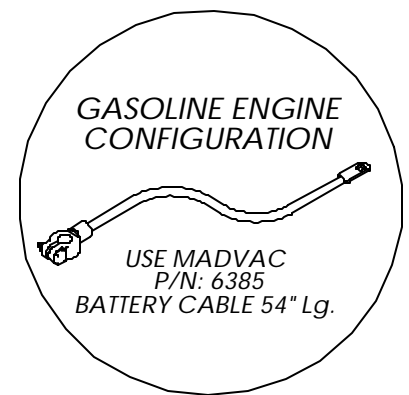
Drawings	Description	Revision	Page
A63611	Battery And Support (First & Second Generation Diesel, Gasoline & Dual Fuel Engine)	A	PP-1
A63613	Diesel And Gasoline Fuel Tank (First & Second Generation Diesel, Gasoline & Dual Fuel Engine)	A	PP-2
A64359	Diesel & Gasoline Fuel Filter (First & Second Generation Diesel, Gasoline & Dual Fuel Engine)	A	PP-3
A64377	Diesel Power Pack (First Generation Diesel Engine)	---	PP-4
A64375	Diesel Engine Components On Frame (First Generation Diesel Engine)	---	PP-5
A64369	Diesel Engine Components (First Generation Diesel Engine)	---	PP-6
A64367	Diesel Engine (First Generation Diesel Engine)	---	PP-7
A64334	Diesel Engine Air Intake (First Generation Diesel Engine)	---	PP-8
A64361	Diesel Engine Muffler (First Generation Diesel Engine)	---	PP-9
A66353	Diesel Engine Electrical Diagram (First Generation Diesel Engine)	---	PP-10
A60024	Diesel Power Pack (Second Generation Diesel Engine)	A	PP-11
A60023	Kubota Engine Components (Second Generation Diesel Engine)	---	PP-12
A60022	Kubota Radiator (Second Generation Diesel Engine)	A	PP-13
A60058	Air Intake System (Second Generation Diesel Engine)	---	PP-14
A60064	LPG Bottle Support (Dual Fuel & Liquid Gas Propane Engine)	---	PP-15
A60045	Electrical Components (Dual Fuel Engine)	---	PP-16
A60103	Dual Fuel Engine (Dual Fuel Engine)	---	PP-17
A60214	Exhaust System For Dual Fuel Engine (Option K61-DF2) (Dual Fuel Engine)	---	PP-18
A60213	Air Intake System For Dual Fuel Engine (Option K61-DF2) (Dual Fuel Engine)	---	PP-19

A63611 - BATTERY AND SUPPORT

BATTERY AND SUPPORT FOR ALL ENGINES & OPTIONS CONFIGURATIONS



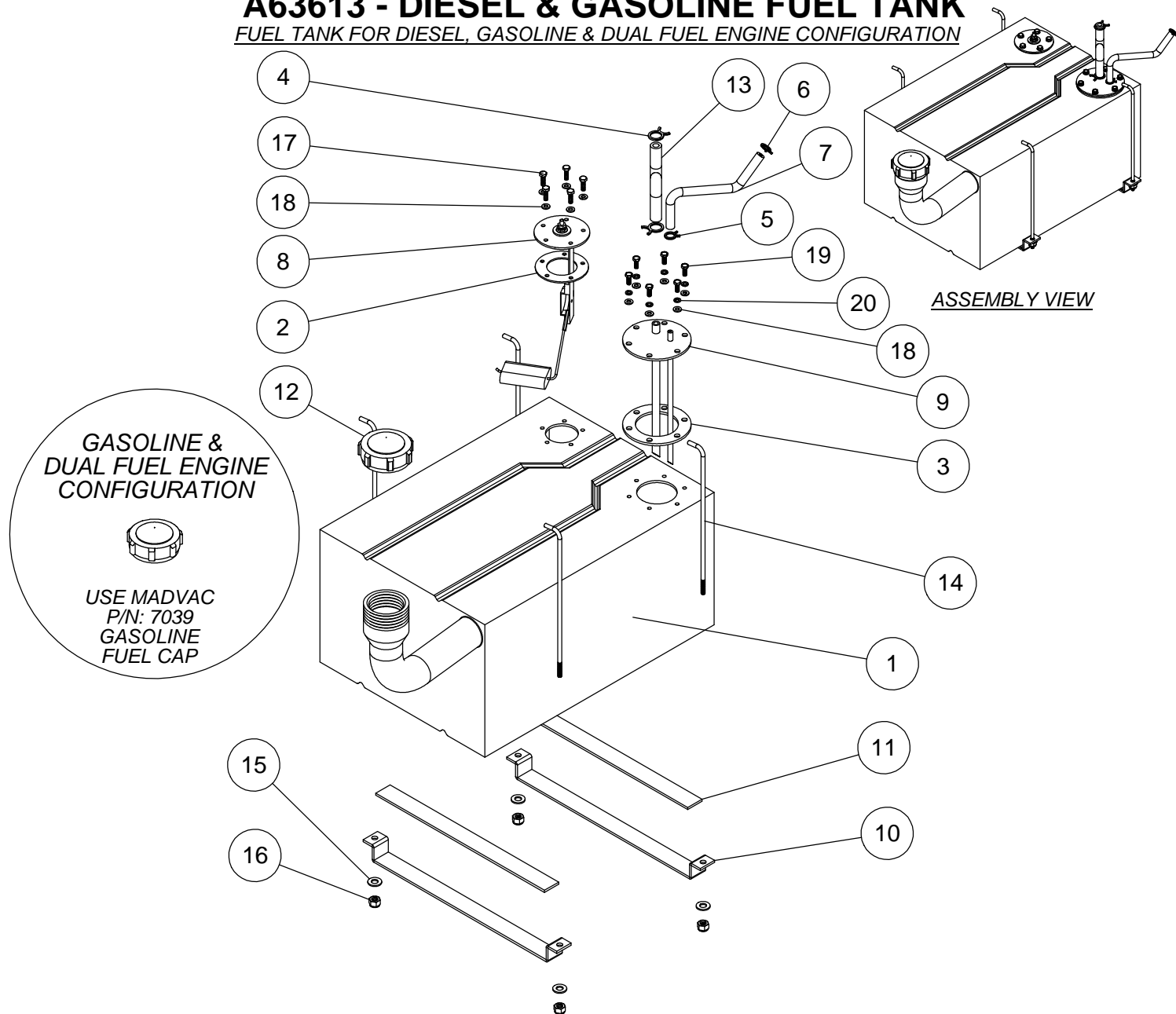
ASSEMBLY VIEW



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62194	BATTERY SUBPLATE	1
2	62267	BATTERY RETAINING BAR	1
3	62518	BATTERY COVER	1
4	(COMES WITH 8329)	INSULATOR RUBBER WASHER (COMES WITH 8329)	2
5	(COMES WITH 8329)	WING NUT (COMES WITH 8329)	2
6	8329	"J" BOLT BATTERY (COMES WITH 8329)	2
7	90004	WASHER Ø 1/4"	4
8	90018	LOCK WASHER Ø 1/4"	4
9	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	4
10	90020	LOCK NUT Ø 1/4" - 20 UNC	2
11	63093	BATTERY	1
12	28171	ARM CYLINDER SPACER	2
13	6369	BATTERY BOOT	1
14	6377	POSITIVE BATTERY CABLE	1
15	62897	NEGATIVE BATTERY CABLE	1

A63613 - DIESEL & GASOLINE FUEL TANK

FUEL TANK FOR DIESEL, GASOLINE & DUAL FUEL ENGINE CONFIGURATION

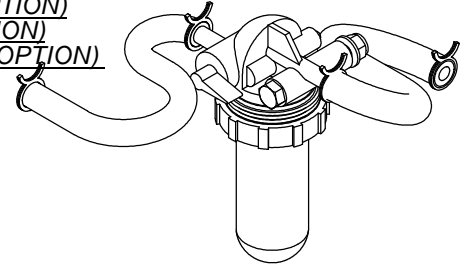


ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62188	FUEL TANK	1
2	17045	GASKET FUEL SENDER	1
3	9619	GASKET TANK LID	1
4	27592	HOSE CLAMP Ø 5/8"	2
5	27662	HOSE CLAMP Ø 9/16"	1
6	27662	HOSE CLAMP Ø 7/16"	1
7	60283	RETURN FUEL LINE (ENGINE TO TANK)	1
8	62401	FUEL SENDER	1
9	62218	TANK LID	1
10	62186	FUEL TANK SUPPORT	2
11	63691	FUEL TANK SUPPORT FOAM TRIM	2
12	9074	DIESEL FUEL CAP	1
13	60282	SUCTION FUEL LINE (TANK TO PUMP)	1
14	62431	FUEL TANK "J" BOLT	4
15	90001	WASHER Ø 5/16"	4
16	90000	LOCK NUT Ø 5/16" - 18 UNC.	4
17	90162	BOLT HEX HEAD 10-32 X 5/8" lg	5
18	90005	WASHER # 10	11
19	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	6
20	90056	LOCK WASHER # 10	6

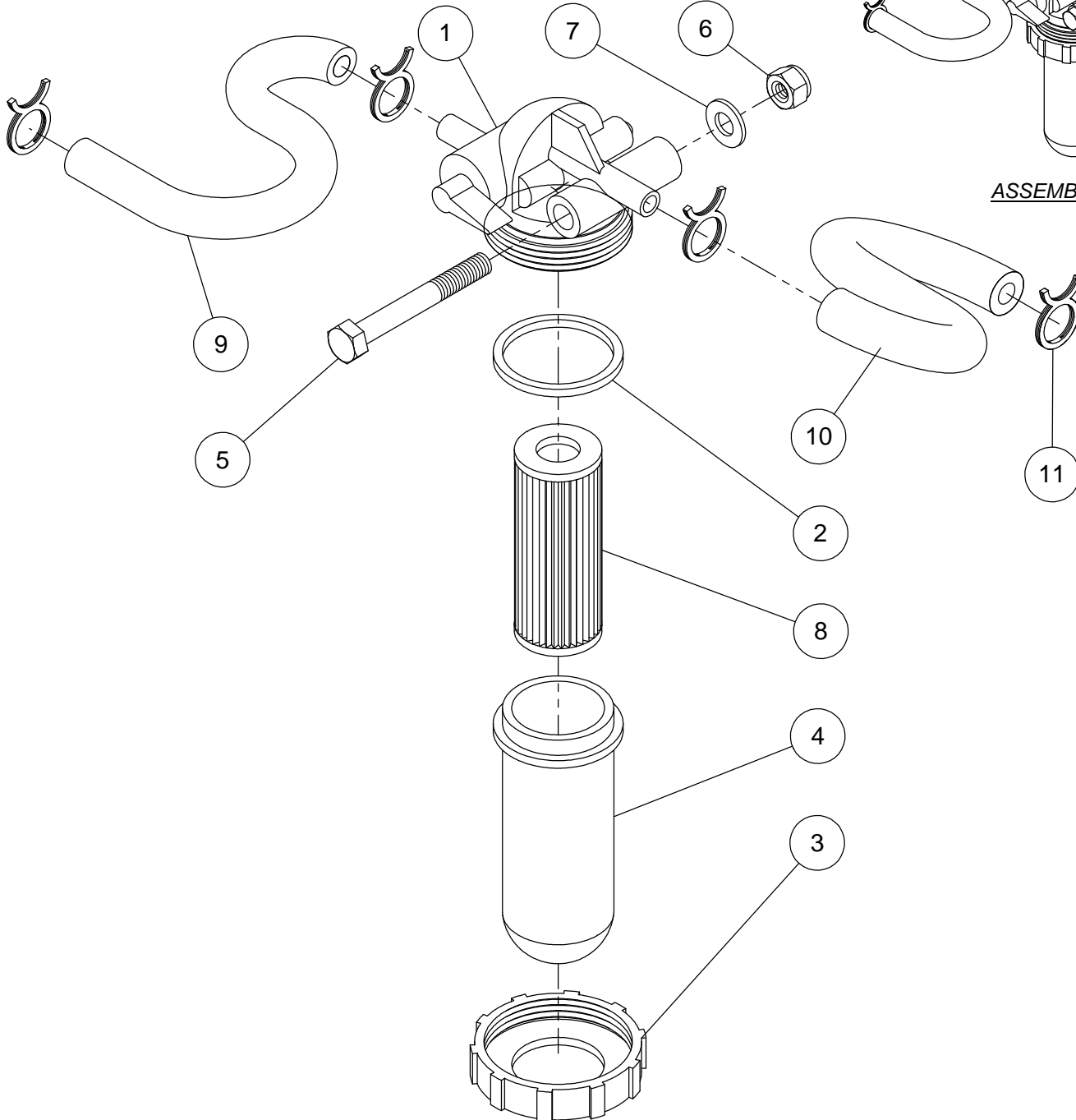
A64359 - DIESEL & GASOLINE FUEL FILTER

DIESEL & GASOLIN FUEL FILTER FOR MODEL 61 EQUIPPED WITH ONE OF THE OPTIONS BELOW: A

- DIESEL ENGINE FIRST GENERATION (61-D OPTION)
- DIESEL ENGINE SECOND GENERATION (61-D2 OPTION)
- GASOLINE ENGINE CONFIGURATION (61-G OPTION)
- GASOLINE & LIQUID PROPANE GAZ ENGINE (61-DF2 OPTION)



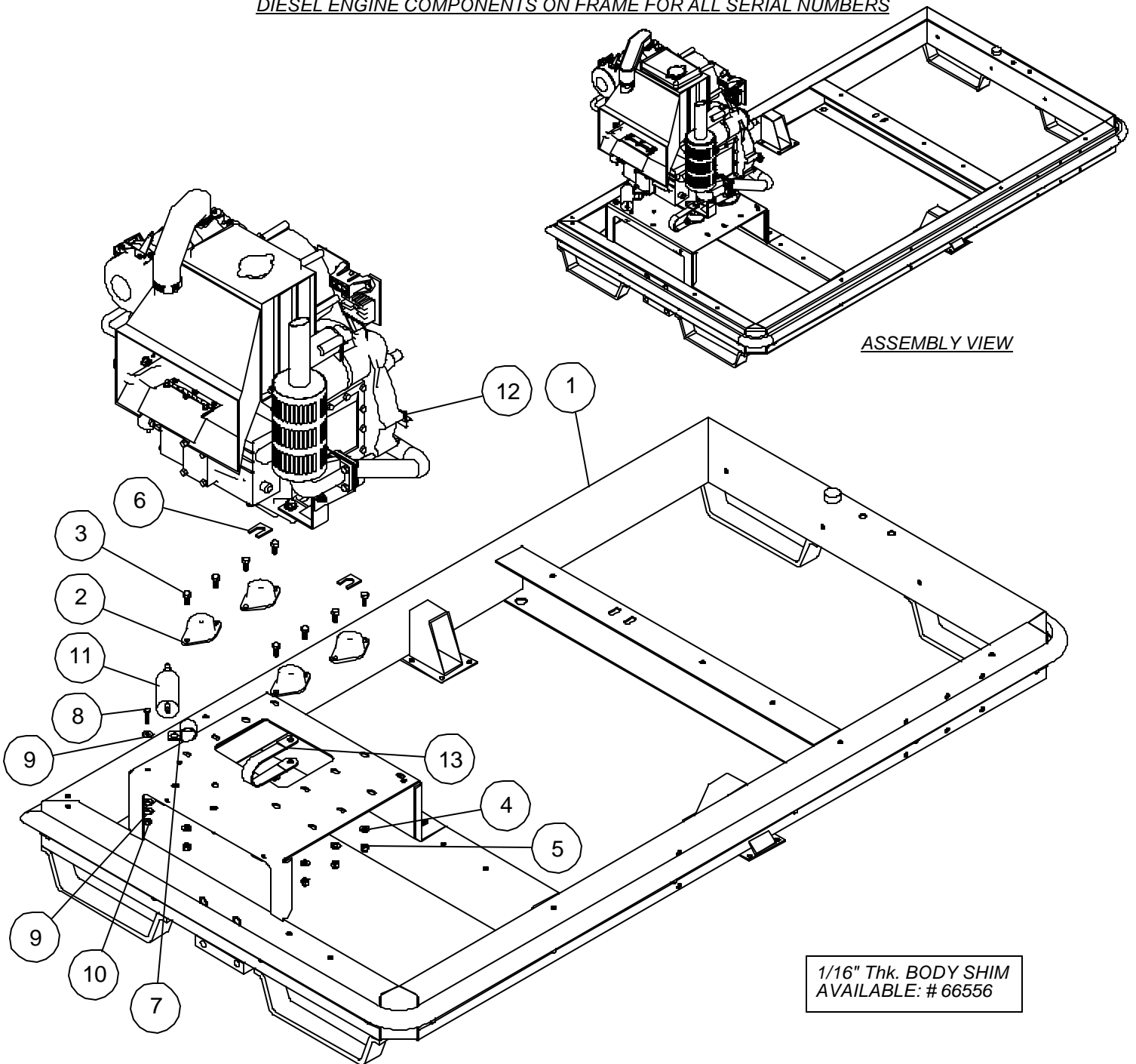
ASSEMBLY VIEW



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62773	FUEL FILTER	1
2	(COMES WITH 62773)	FUEL FILTER SEAL	1
3	(COMES WITH 62773)	FUEL FILTER DONUT	1
4	(COMES WITH 62773)	FUEL FILTER COVER	1
5	90059	BOLT HEX. HEAD Ø 5/16" - 18 UNC. X 2-1/2" Lg.	1
6	90000	LOCK NUT Ø 5/16" - 18 UNC.	1
7	90001	WASHER Ø 5/16"	1
8	62792	KUBOTA FUEL FILTER ELEMENT	1
9	60279	FUEL LINE SUCTION (FUEL FILTER TO INJECTOR)	1
10	60278	FUEL LINE SUCTION (FUEL PUMP TO FUEL FILTER)	1
11	27592	HOSE CLAMP Ø 5/8"	4

A64375 - DIESEL ENGINE COMPONENTS ON FRAME

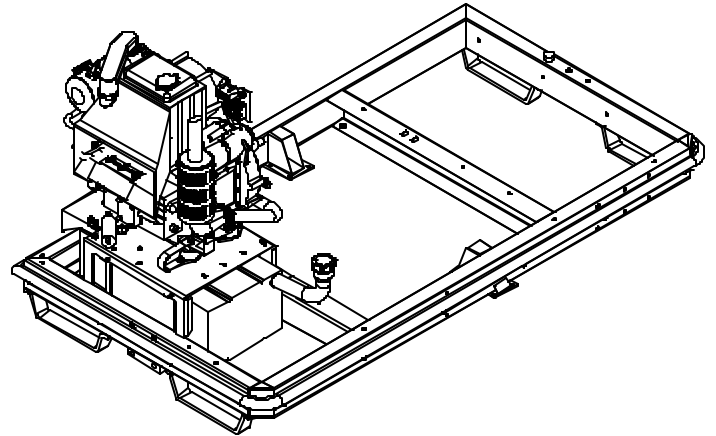
DIESEL ENGINE COMPONENTS ON FRAME FOR ALL SERIAL NUMBERS



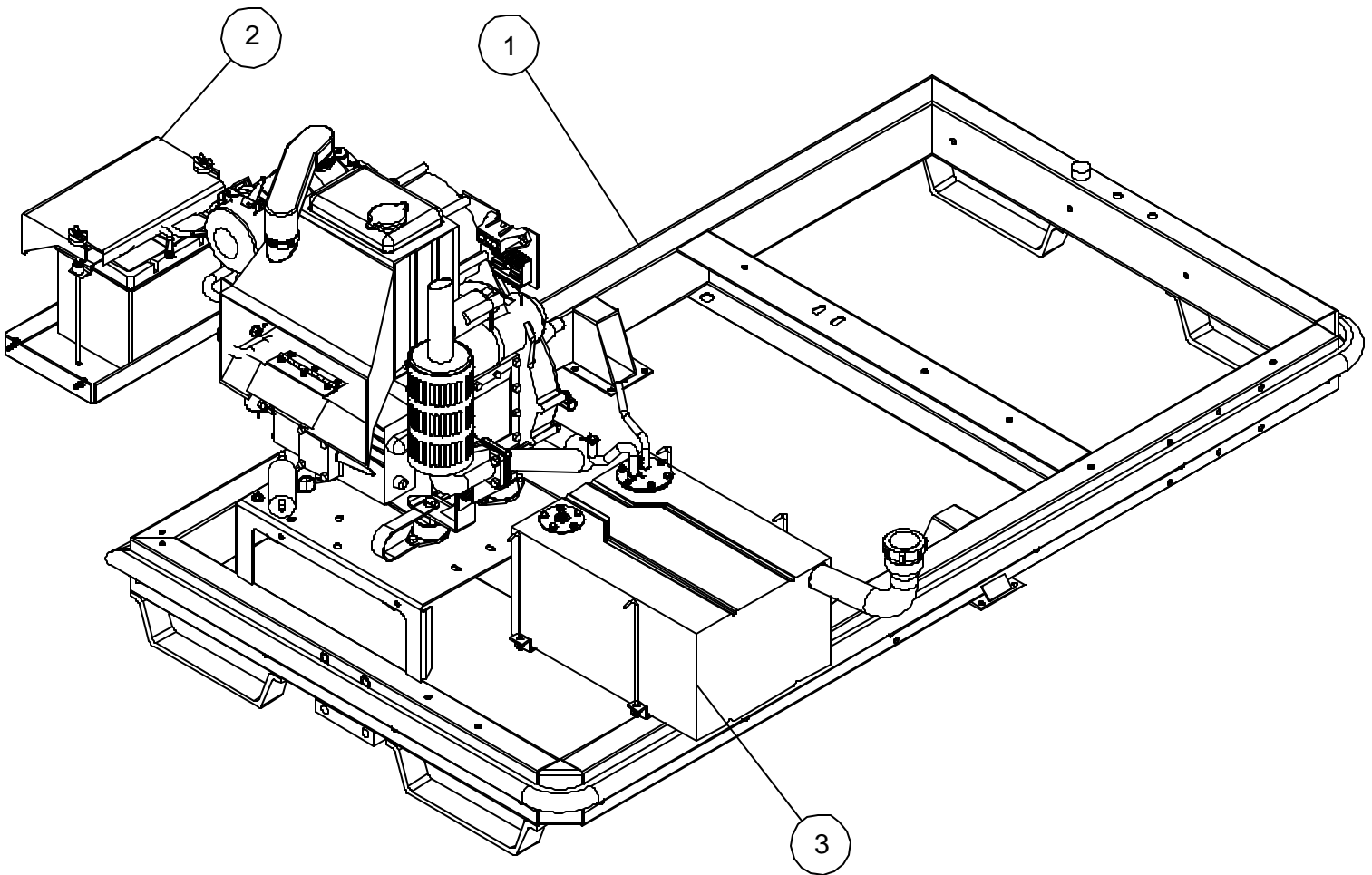
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63638	FRAME	1
2	9031	RUBBERT MOUNT	4
3	90022	BOLT HEX. HEAD Ø 5/16" - 18 UNC. X 3/4" Lg.	8
4	90001	WASHER Ø 5/16"	8
5	90000	LOCK NUT Ø 5/16" - 18 UNC.	8
6	90431	BODDY SHIM 1/8"	2
7	27759	HOSE CLAMP (CL-14)	1
8	90003	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	1
9	90004	WASHER Ø 1/4"	3
10	90020	LOCK NUT Ø 1/4" - 20 UNC	1
11	62358	FUEL PUMP	1
12	(SEE DRAWING A64369)	ENGINE COMPONENTS	1
13	26394	ENGINE GROUND	1

A64377 - DIESEL POWER PACK

DIESEL POWER PACK FOR ALL EQUIPED SERIAL NUMBERS



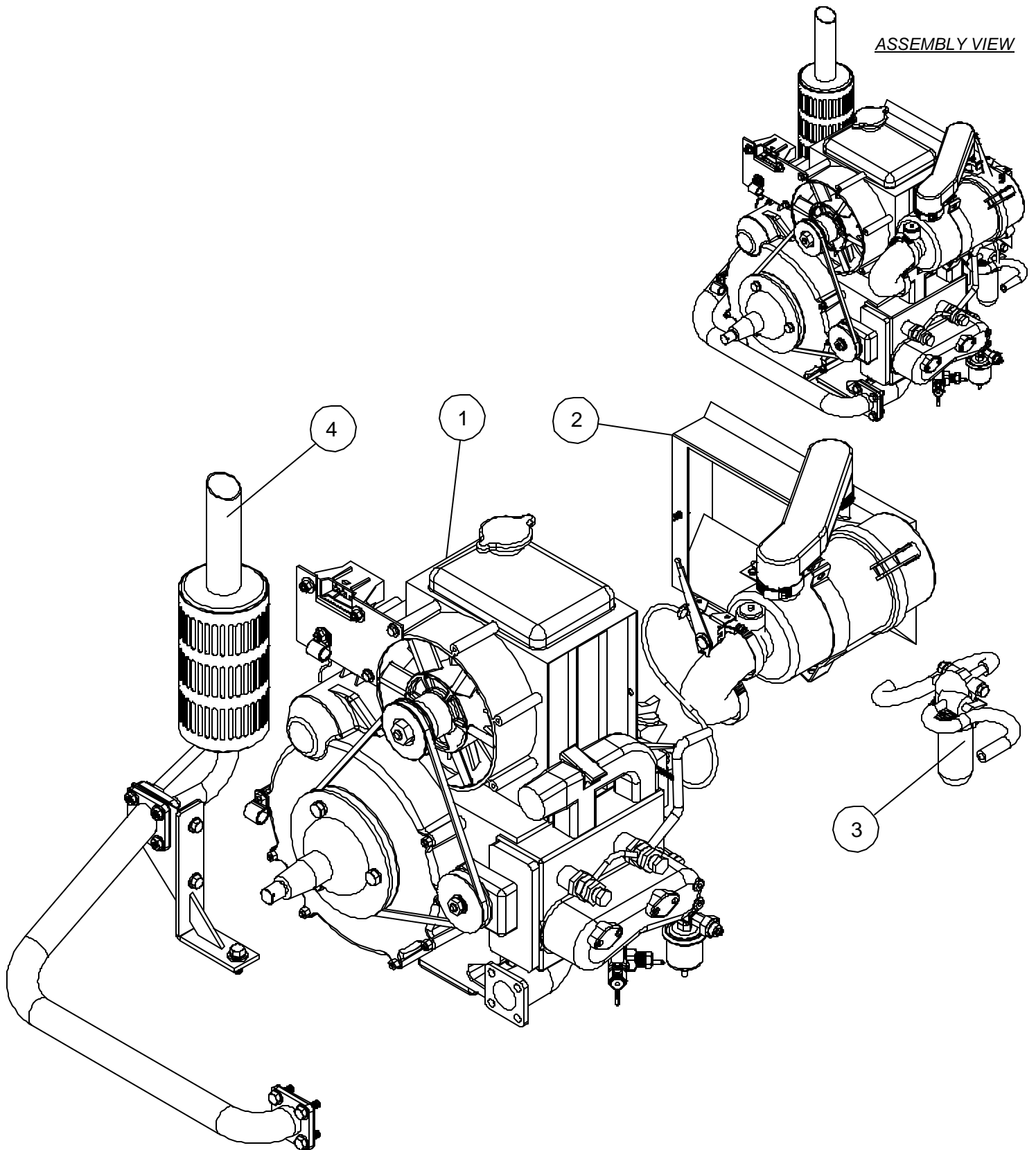
ASSEMBLY VIEW



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A64375)	ENGINE ON FRAME	1
2	(SEE DRAWING A63611)	BATTERY ASSEMBLY	1
3	(SEE DRAWING A63613)	FUEL TANK	1

A64369 - DIESEL ENGINE COMPONENTS

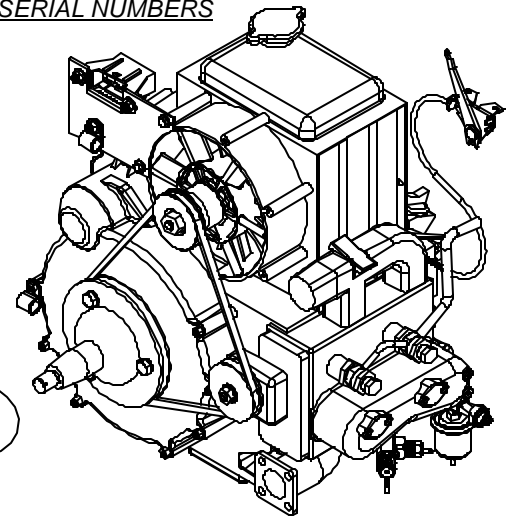
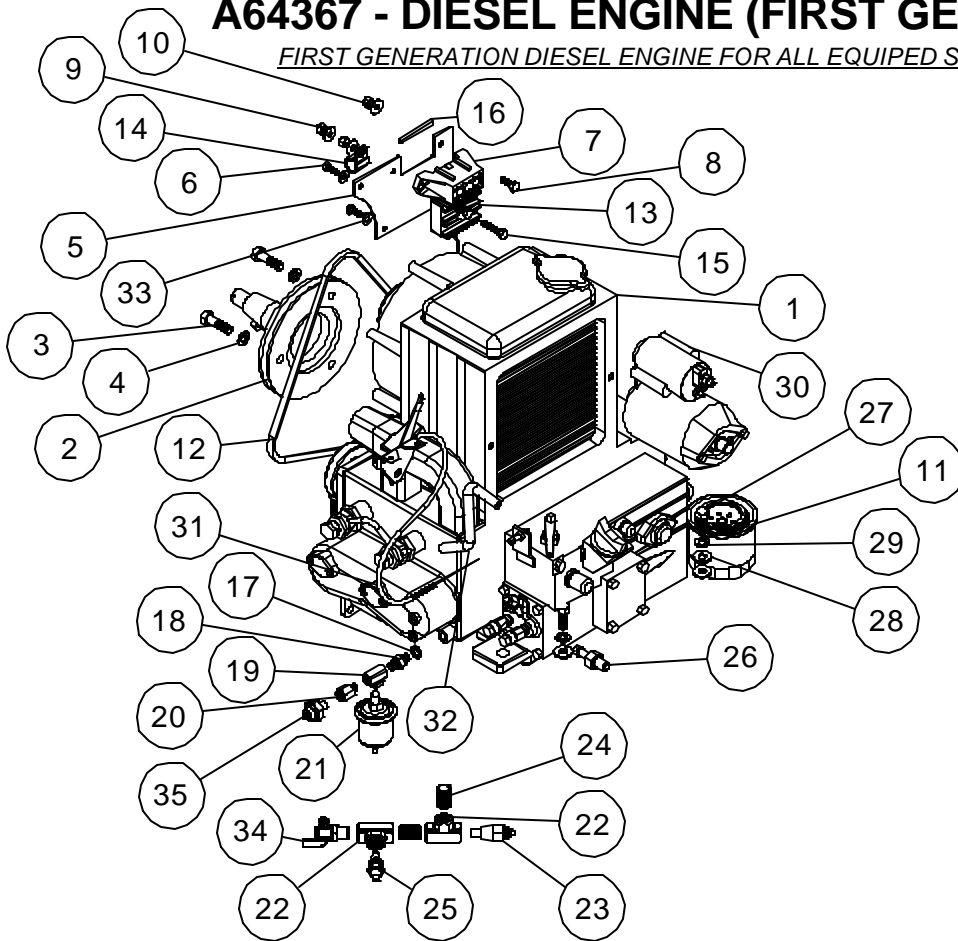
DIESEL ENGINE COMPONENTS FOR ALL EQUIPED SERIAL NUMBERS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A64367)	FIRST GENERATION DIESEL ENGINE	1
2	(SEE DRAWING A64334)	AIR INTAKE SYSTEM	1
3	(SEE DRAWING A64359)	FUEL FILTER ASSEMBLY	1
4	(SEE DRAWING A64361)	MUFFLER	1

A64367 - DIESEL ENGINE (FIRST GENERATION)

FIRST GENERATION DIESEL ENGINE FOR ALL EQUIPED SERIAL NUMBERS



ASSEMBLY VIEW

REPLACEMENT FUSES

10 AMP. #6318
30 AMP. #6334

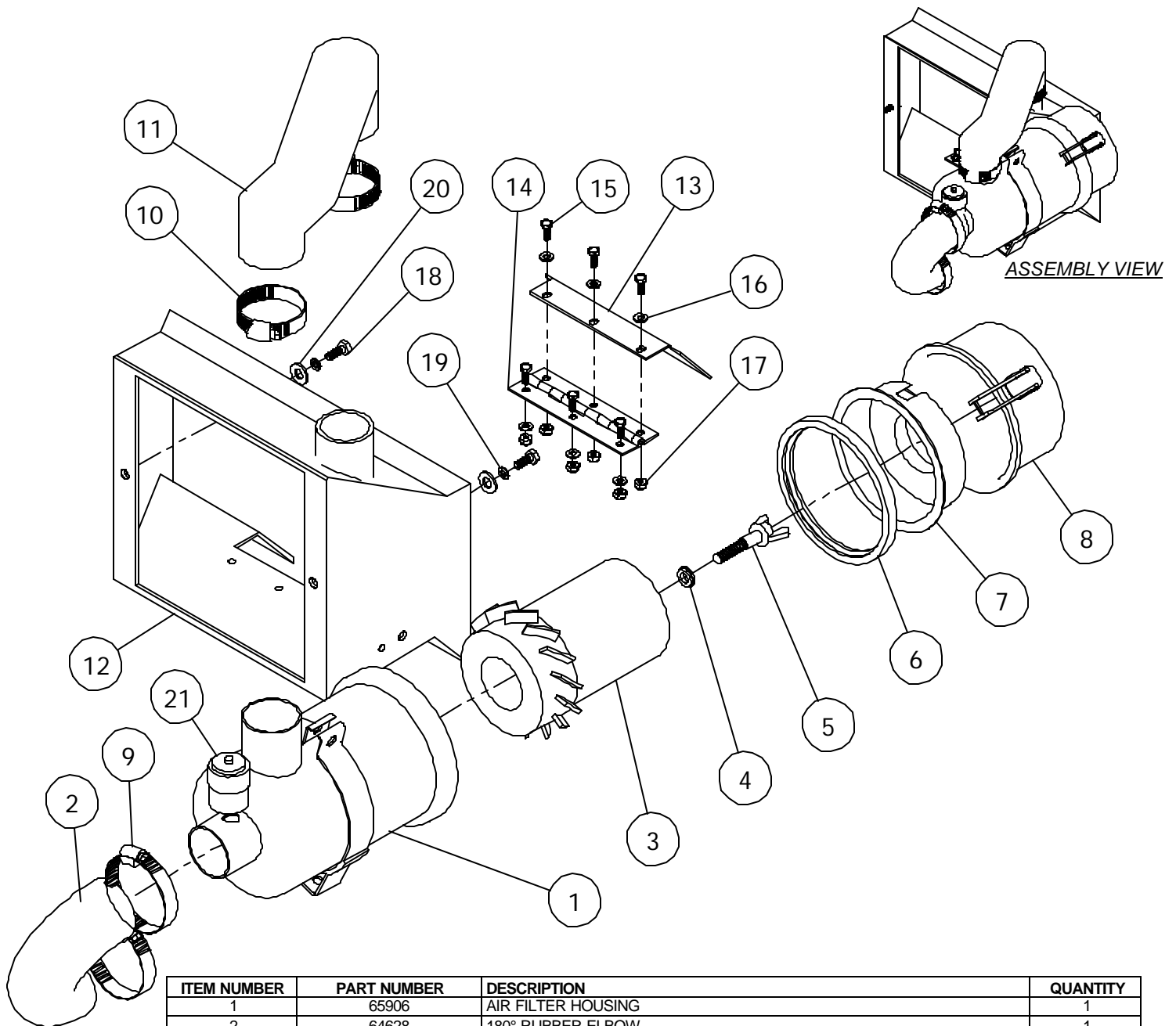
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62356	KUBOTA DIESEL ENGINE	1
2	64456	STUB SHAFT	1
3	(COMES WITH 62356)	BOLT HEX HEAD Ø M10 X 1.5 X 35	3
4	(COMES WITH 62356)	WASHER M10	3
5	62321	FUSE BLOCK SUPPORT	1
6	90703	BOLT HEX. HEAD Ø M6 x 1.0 x 16 mm. Lg.	2
7	6350	FUSE BLOCK	1
8	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	2
9	90020	LOCK NUT Ø 1/4" - 20 UNC	3
10	90004	WASHER Ø 1/4"	3
11	9287	FUEL FILTER ELEMENT	1
12	64458	KUBOTA DIESEL ENGINE BELT	1
13	62763	REGULATOR	1
14	27271	HOSE CLAMP (CL-11)	2
15	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	1
16	64626	TRIM FOR FUSE BLOCK SUPPORT	1
17	25594	HYDRAULIC FITTING "O"-RING WASHER (02)	1
18	25436	HYDRAULIC FITTING STRAIGHT (BSP-02/NPT-02)	1
19	25495	HYDRAULIC FITTING "T" (Female NPT X 3)	1
20	67346	HYDRAULIC FITTING STRAIGHT (FEM BSP-02/NPT-02)	1
21	6559	OIL PRESSURE SENDER	1
22	25592	HYD. FITTING "T" (Female Pipe-06)	2
23	6520	TEMPERATURE SENDER	1
24	25290	HYDRAULIC FITTING STRAIGHT (NPT-06/NPT-06)	2
25	9298	KUBOTA, THERMOSWITCH, SAFETY SHUT DOWN	1
26	62887	OIL FITTING	1
27	90064	HEX BOLT Ø 3/8" - 16 UNC X 1" Lg.	4
28	90066	WASHER Ø 3/8"	5
29	90065	LOCK WASHER Ø3/8	4
30	64464	KUBOTA DIESEL ENGINE STARTER	1
31	62269	THROTTLE & CHOKE CABLE	1
32	63160	RETURN FUEL LINE (ENGINE TO TANK)	1
33	90018	LOCK WASHER Ø 1/4"	2
34	(COMES WITH 62356)	HYDRAULIC HEXHAUST VALVE	1
35	(COMES WITH 62356)	HYDRAULIC PRESSURE SWITCH	1

MadVac Inc.

61 Operator's & Parts Manual
January 2002, Revision: ---

A64334 - DIESEL ENGINE AIR INTAKE

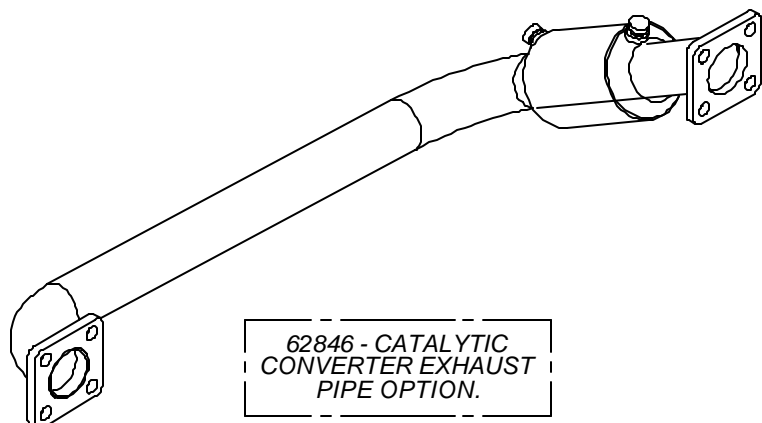
AIR FILTER & HOSES FOR FIRST GENERATION DIESEL ENGINE, ALL SERIAL NUMBERS



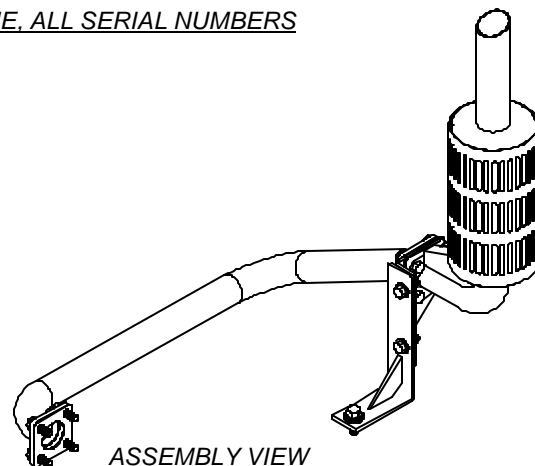
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	65906	AIR FILTER HOUSING	1
2	64628	180° RUBBER ELBOW	1
3	62771	AIR FILTER CARTRIDGE	1
4	(COMES WITH 65906)	AIR FILTER SEAL	1
5	(COMES WITH 65906)	AIR FILTER SCREW	1
6	(COMES WITH 65906)	AIR FILTER RUBBER SEAL	1
7	(COMES WITH 65906)	AIR FILTER END CAP	1
8	(COMES WITH 65906)	AIR FILTER HOUSING CAP	1
9	9554	HOSE CLAMP Ø 2"	2
10	9546	HOSE CLAMP Ø 1 1/2"	2
11	62399	DIESEL AIR CLEANER INTAKE TUBE	1
12	62380	DIESEL AIR INTAKE DUCT	1
13	62528	DIESEL AIR DUCT TRAP	1
14	62534	DIESEL AIR DUCT TRAP HINGE	1
15	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	6
16	90005	WASHER # 10	6
17	90006	LOCK NUT # 10 - 32 UNF	6
18	90703	BOLT HEX. HEAD Ø M6 x 1.0 x 16 mm. Lg.	2
19	90056	LOCK WASHER # 10	2
20	90001	WASHER Ø 5/16"	2
21	8841	AIR CLEANER INDICATOR	1

A64361 - DIESEL ENGINE MUFFLER

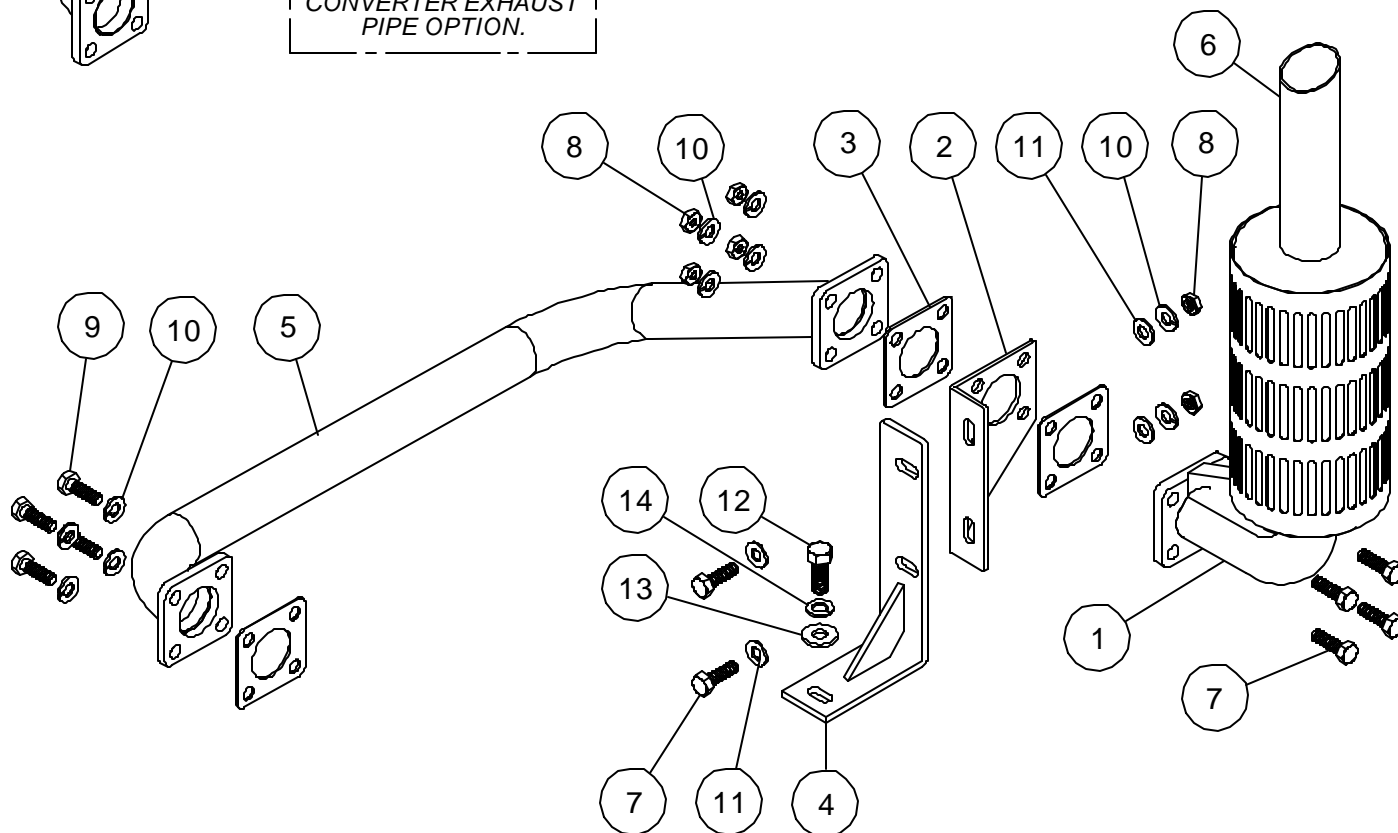
MUFFLER FOR FIRST GENERATION DIESEL ENGINE, ALL SERIAL NUMBERS



62846 - CATALYTIC
CONVERTER EXHAUST
PIPE OPTION.



ASSEMBLY VIEW

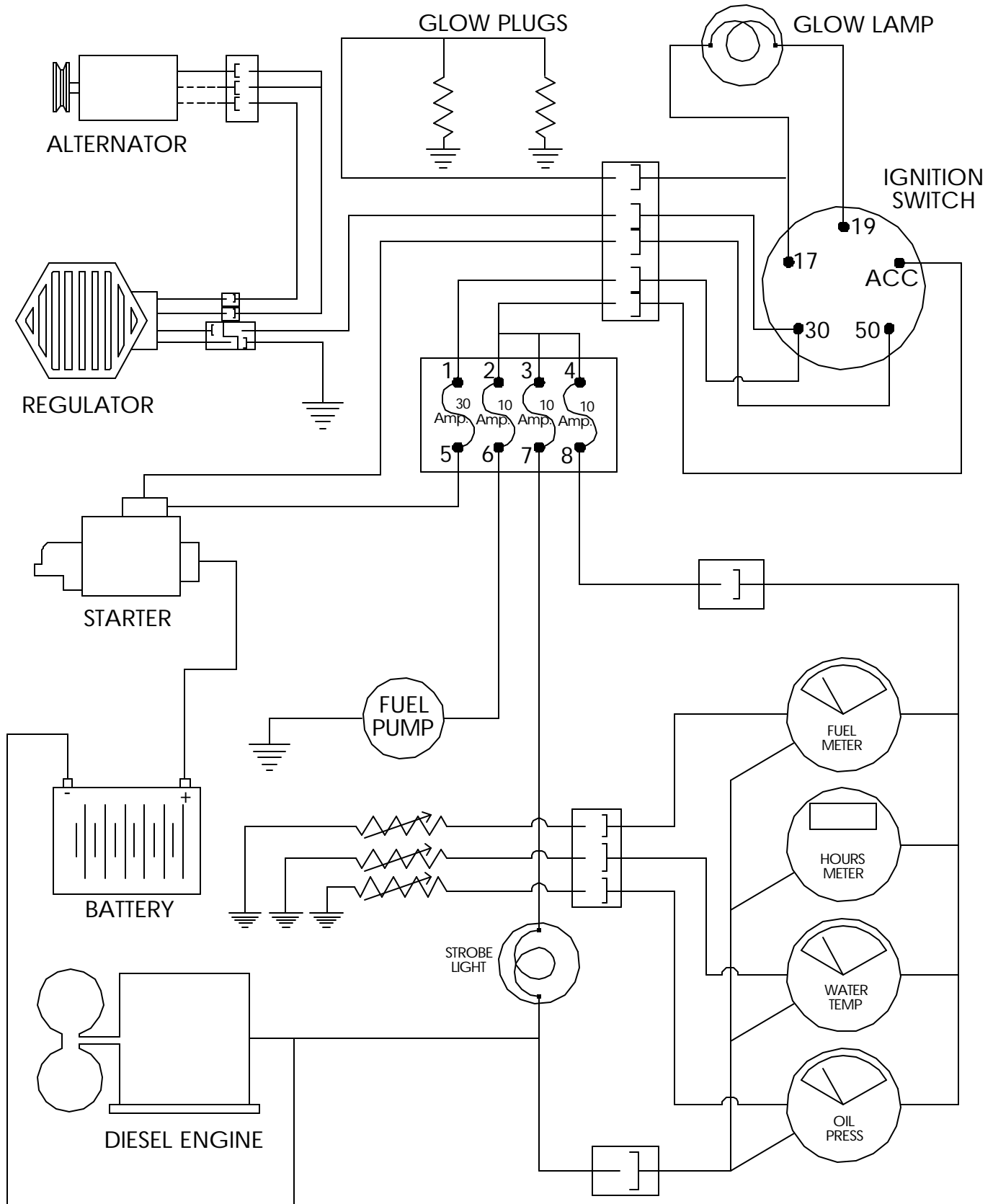


ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62429	MUFFLER	1
2	62232	DIESEL MUFFLER MANIFOLD PIPE JOINT	1
3	64634	MUFFLER GASKET	3
4	62234	DIESEL MUFFLER SUPPORT	1
5	62226	DIESEL EXHAUST MANIFOLD PIPE	1
6	62259	TAIL PIPE	1
7	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	6
8	90269	JUM NUT Ø 5/16" X 18	6
9	90708	BOLT HEX. HEAD Ø M8 - 1.25 X 25 mm. Lg.	4
10	90023	LOCK WASHER Ø 5/16"	10
11	90001	WASHER Ø 5/16"	4
12	90064	HEX BOLT Ø 3/8" - 16 UNC X 1" Lg.	1
13	90066	WASHER Ø 3/8"	1
14	90065	LOCK WASHER Ø3/8	1

A66353 - ELECTRICAL DIAGRAM (DIESEL ENGINE CONFIGURATION)

COMPLETE ELECTRICAL DIAGRAM FOR ALL 61 DIESEL ENGINE SERIAL NUMBERS

63206 - COMPLETE ELECTRICAL WIRES HARNESS

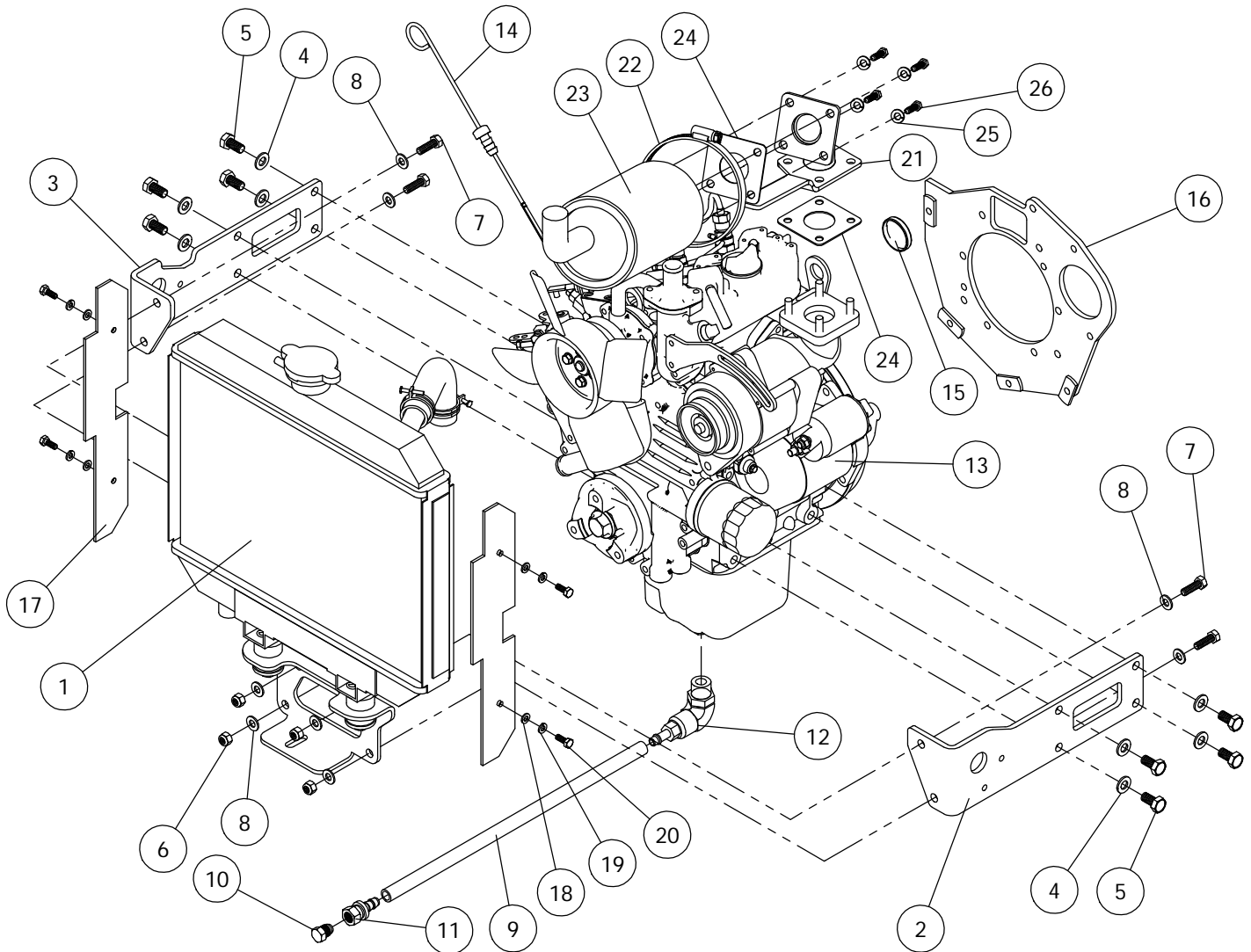


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A60024 - POWER PACK (61-D2 OPTION)

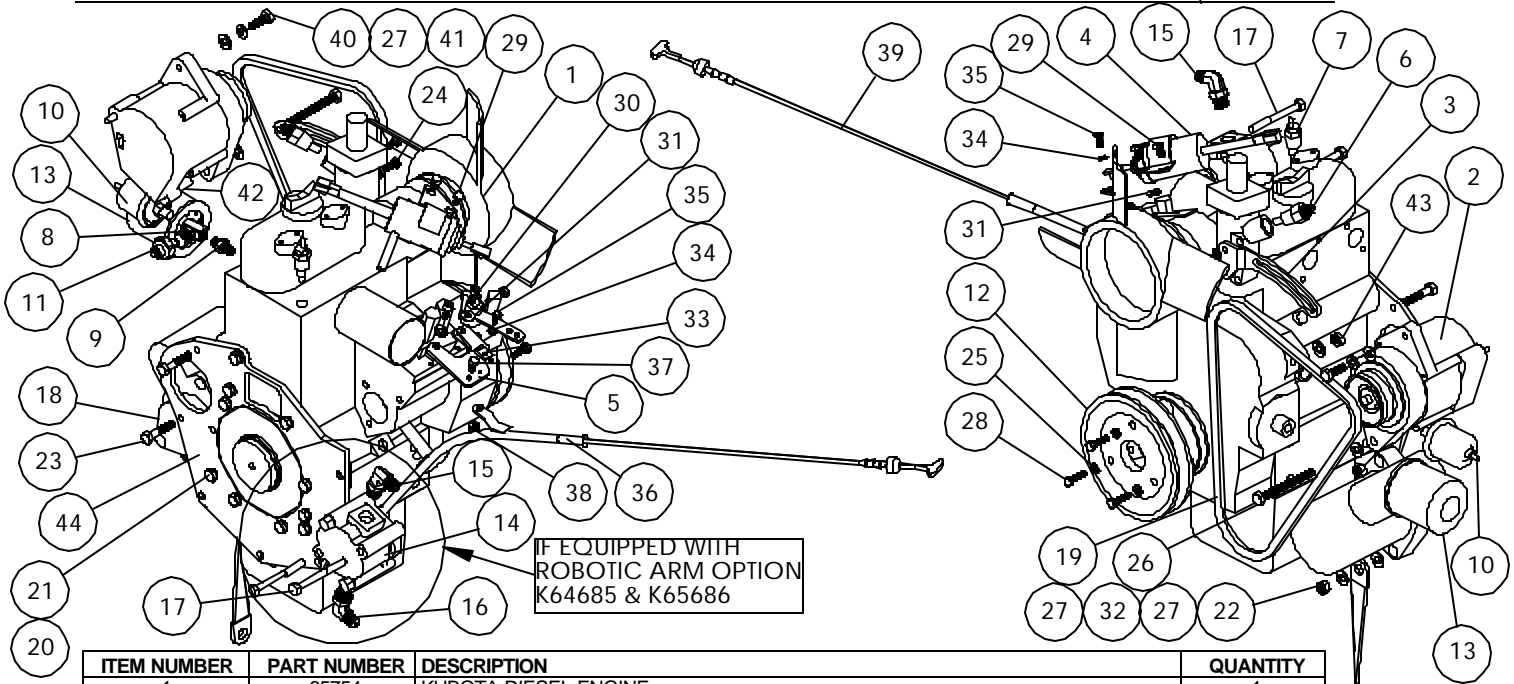
DIESEL POWER PACK & ENGINE MOUNTS FOR 61-D2 OPTION EQUIPPED SERIAL NUMBER



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60022)	RADIATOR ASS'Y	1
2	67255	RIGHT ENGINE MOUNTING PLATE	1
3	64235	LEFT ENGINE MOUNTING PLATE	1
4	90758	WASHER M10	8
5	90118	BOLT HEX HEAD ØM10 X 1.25 X 20mm Lg	8
6	90000	LOCK NUT Ø 5/16" - 18 UNC.	4
7	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	4
8	90001	WASHER Ø 5/16"	8
9	62490	ENGINE OIL DRAIN HOSE	1
10	62342	HYDRAULIC FITTING PLUG MALE (JIC-06 MALE)	1
11	62482	HYD. FITTING STRAIGHT (Female JIC-06/Barb-06)	1
12	64251	ENGINE OIL TANK FITTING ASS'Y	1
13	65754	ENGINE, DIESEL 2 CYL (PS300)	1
14	64332	OIL DIPSTICK	1
15	60231	COVER FUEL CAM SHAFT	1
16	65455	ENGINE PLATE	1
17	64979	RUBBER, RADIATOR SIDE	2
18	90756	WASHER Ø M6 (TYPE B-B)	4
19	90751	LOCK WASHER Ø M6	4
20	90703	BOLT HEX. HEAD Ø M6 x 1.0 x 16 mm. Lg.	4
21	60243	PIPE, SHORT EXHAUST	1
22	8566	CLAMP HOSE 5-1/4"	1
23	60186	MUFFLER	1
24	62595	MUFFLER GASKET	2
25	90018	LOCK WASHER Ø 1/4"	4
26	90003	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	4

A60023 - KUBOTA ENGINE COMPONENTS FOR 61-D2 OPTION

KUBOTA ENGINE COMPONENTS FOR 61-D2 DIESEL ENGINE OPTION & ROBOTIC ARM OPTION (K64685 & K



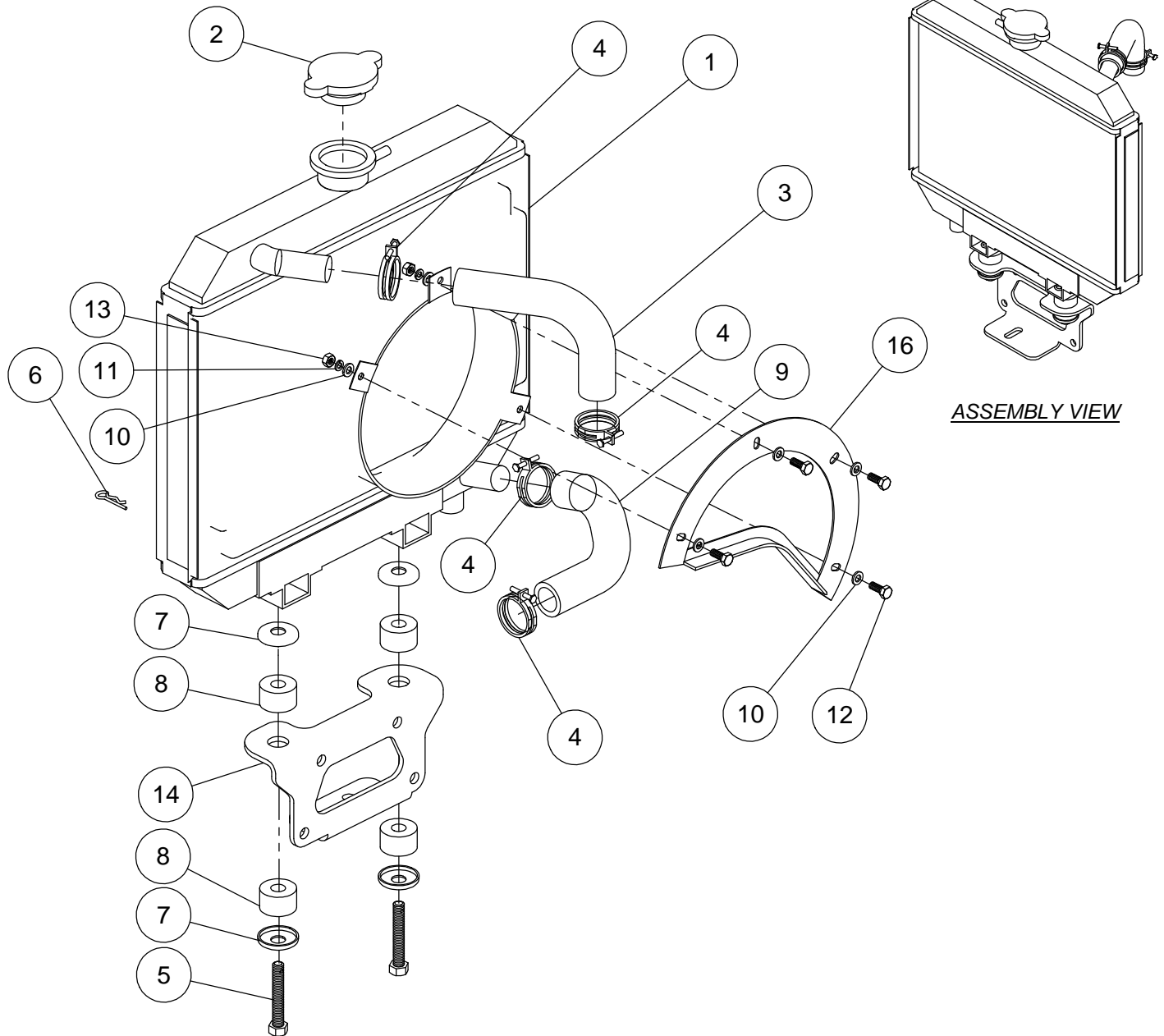
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	65754	KUBOTA DIESEL ENGINE	1
2	66529	ALTERNATOR 40 AMP	1
3	66228	ALTERNATOR BRACKET	1
4	66229	SHUT OFF SOLENOID	1
5	65676	THROTTLE CABLE BRACKET	1
6	6520	TEMPERATURE SENDER	1
7	26378	TEMPERATURE SWITCH	1
8	25495	HYDRAULIC FITTING "T" (Female NPT X 3)	1
9	25436	HYDRAULIC FITTING STRAIGHT (BSP-02/NPT-02)	1
10	6559	OIL PRESSURE SENDER	1
11		OIL PRESSURE SWITCH	1
12	65004	PULLEY HYDRAULIC PUMP	1
13	66060	OIL FILTER	1
14	65909	HYDRAULIC PUMP	1
15	4420	HYD. FITTING 90° (O-Ring Boss-06/JIC-06)	1
16	25454	HYD. FITTING 90° (O-Ring Boss-06/JIC-04)	1
17	90109	BOLT HEX HEAD Ø M8 - 1.25 X 75 mm. Lg.	2
18	66241	STARTER	1
19	66242	BELT	1
20	90752	LOCK WASHER Ø M8	10
21	90707	BOLT HEX. HEAD Ø M8 - 1.25 X 16 mm. Lg.	10
22	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
23	90002	BOLT HEX. HEAD Ø 5/16" - 18 UNC. X 1-1/2" Lg.	2
24	90703	BOLT HEX. HEAD Ø M6 x 1.0 x 16 mm. Lg.	2
25	90751	LOCK WASHER Ø M6	5
26	90113	BOLT HEX HEAD Ø 5/16" - 18 UNC. X 3-1/4" Lg.	1
27	90001	WASHER Ø 5/16"	5
28	90705	BOLT HEX. HEAD Ø M6 - 1.0 X 25 mm. Lg.	3
29	90703	BOLT HEX. HEAD Ø M6 x 1.0 x 12 mm. Lg.	2
30	90120	SOCKET HEAD CAP SCREW Ø M6 X 1.00 X 20 mm. Lg.	2
31	90018	LOCK WASHER Ø 1/4"	2
32	66192	ENGINE GROUND CABLE 13"	1
33	9023	THROTTLE CABLE CLIP	1
34	90056	LOCK WASHER # 10	1
35	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	1
36	66333	OIL GAUGE ASSEMBLY	1
37	90051	BOLT HEX. HEAD Ø 1/4" X 20 UNC. X 1/2" Lg.	1
38	90020	LOCK NUT Ø 1/4" - 20 UNC	1
39	66514	OIL GAUGE TUBE	1
40	90708	BOLT HEX. HEAD Ø M8 - 1.25 X 25 mm. Lg.	1
41	90757	WASHER Ø M8	1
42	65185	ALTERNATOR SHIM	1
43	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1
44	65455	ENGINE PLATE	1

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A60022 - KUBOTA RADIATOR FOR 61-D2 ENGINE (OPTION 61-D2)

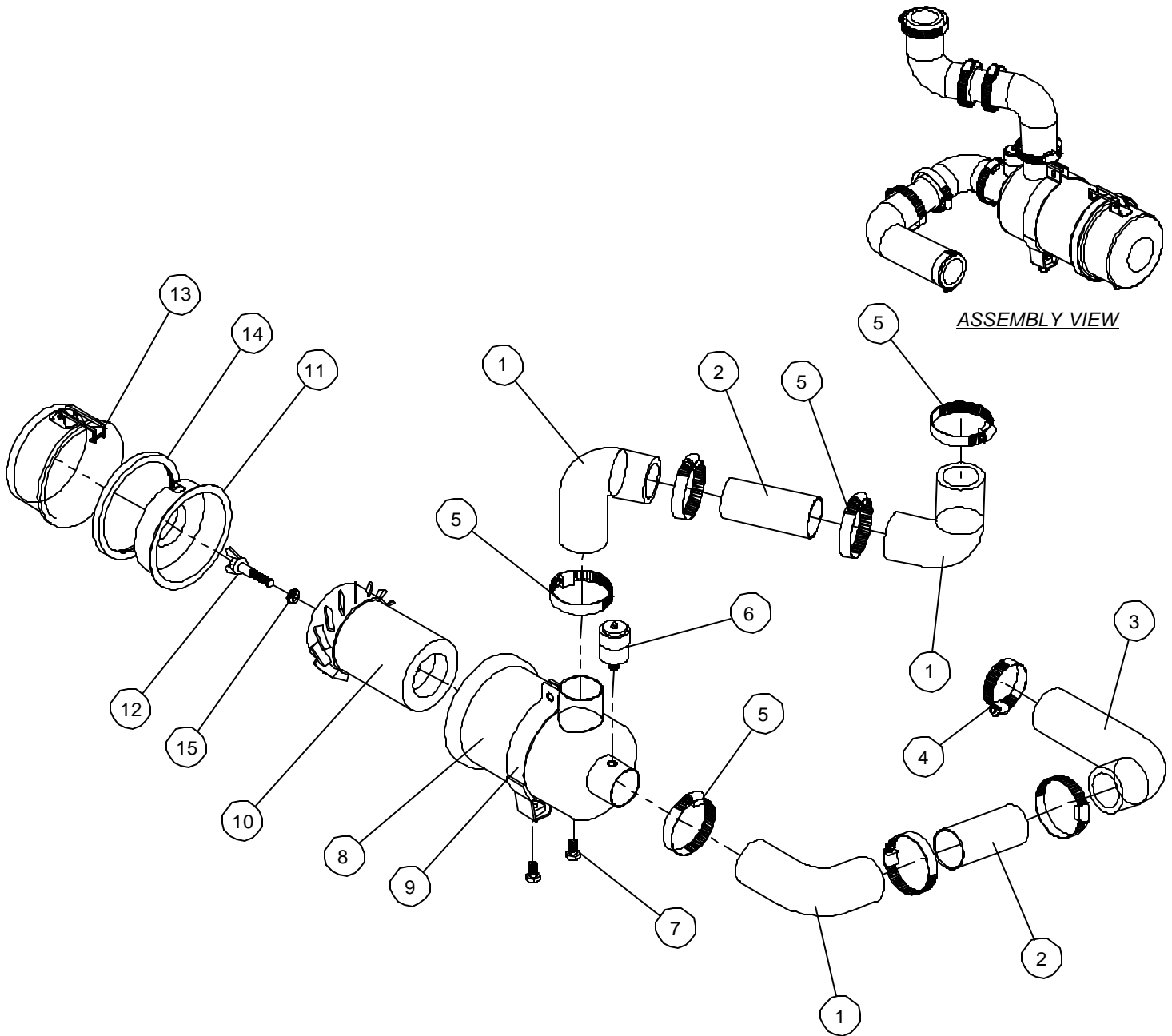
KUBOTA RADIATOR PRE-ASSEMBLY FOR 61-D2 ENGINE CONFIGURATION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	66234	RADIATOR KUBOTA MODEL 482	1
2	66238	RADIATOR CAP	1
3	67778	RADIATOR HOSE (UPPER)	1
4	67780	RADIATOR HOSE CLAMP (WATER PUMP SIDE)	4
5	(COMES WITH 66236)	BOLT HEX HEAD Ø M10 - 1.25 X 60 m.m. Lg. (RADIATOR KIT)	2
6	(COMES WITH 66236)	HAIR PIN (RADIATOR KIT)	2
7	66237	RADIATOR RUBBER MOUNT WASHER(RADIATOR KIT)	4
8	66236	RADIATOR RUPPER MOUNT	4
9	66517	RADIATOR HOSE (LOWER)	1
10	90756	WASHER Ø M6 (TYPE B-B)	8
11	90750	LOCK WASHER Ø M5	4
12	90703	BOLT HEX. HEAD Ø M6 x 1.0 x 16 mm. Lg.	4
13	90734	HEX NUT Ø M6 - 1.0	4
14	60234	SINGLE RUBBER MOUNT SUPPORT	1
15	66239	FAN SHROUD	1
16	66240	FAN GUARD	1

A60058 - AIR INTAKE SYSTEM (61-D2 OPTION)

AIR FILTER, HOUSING & INLET HOSES FOR 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE



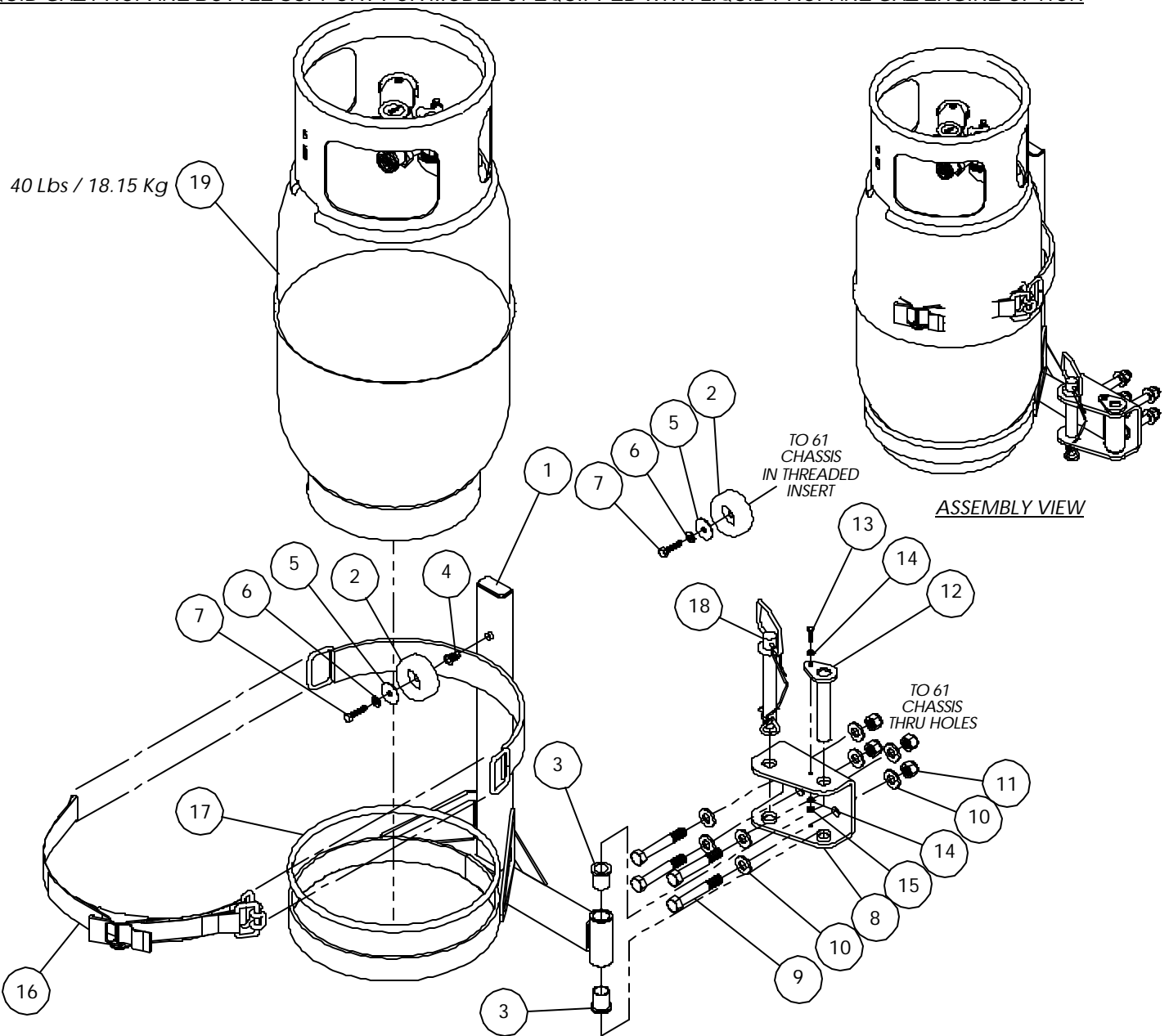
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	66359	INTAKE RUBBER ELBOW SHORT	3
2	66183	AIR FILTER TUBE	2
3	66360	INTAKE RUBBER ELBOW LONG	1
4	9546	HOSE CLAMP Ø 1 1/2"	1
5	9554	HOSE CLAMP Ø 2"	7
6	8841	AIR CLEANER INDICATOR	1
7	90707	BOLT HEX. HEAD Ø M8 - 1.25 X 16 mm. Lg.	2
8	65906	AIR FILTER HOUSING	1
9	(COMES WITH 65906)	AIR FILTER BRACKET	1
10	66049	KUBOTA ENGINE AIR FILTER ELEMENT	1
11	(COMES WITH 65906)	FILTER END CAP	1
12	(COMES WITH 65906)	CARTRIDGE BOLT	1
13	(COMES WITH 65906)	FILTER HOUSING CAP	1
14	(COMES WITH 65906)	RUBBER SEAL GASKET	1
15	(COMES WITH 65906)	RUBBER WASHER	1

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A60064 - LPG BOTTLE SUPPORT (61-LP OPTION)

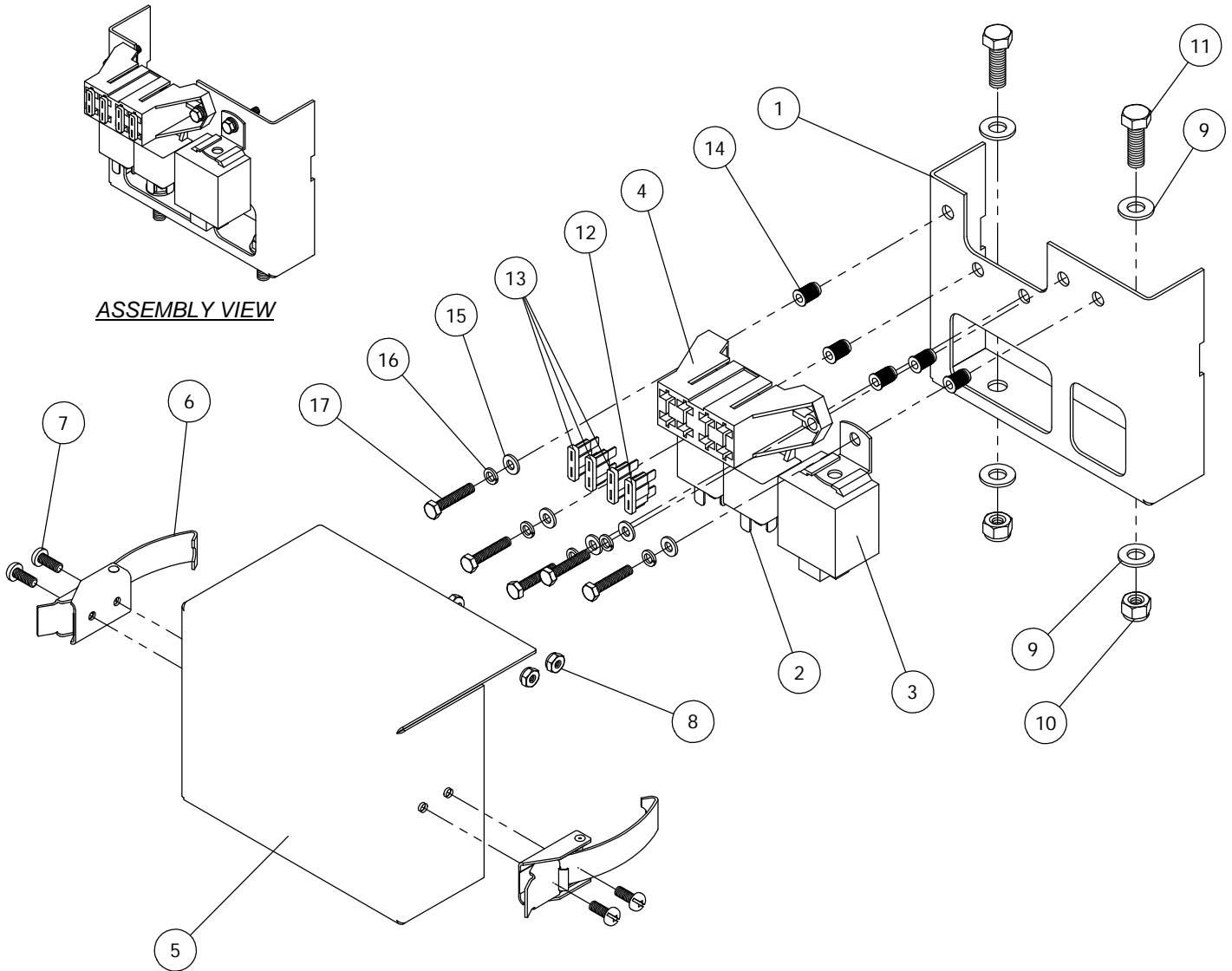
LIQUID GAZ PROPANE BOTTLE SUPPORT FOR MODEL 61 EQUIPPED WITH LIQUID PROPANE GAZ ENGINE OPTION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60075	LPG BOTTLE SUPPORT	1
2	7683	RUBBER BUMPER	2
3	60065	BRONZE BUSHING 3/4 I.D.	2
4	90147	RIV NUT 1/4 - 20 UNC	1
5	90241	WASHER 9/32" X 1-1/4"	2
6	90018	LOCK WASHER Ø 1/4"	2
7	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	2
8	60077	PIVOT, LPG BOTTLE SUPPORT	1
9	90217	BOLT HEX HEAD Ø 1/2" X 13 X 3-1/4" lg	4
10	90441	WASHER Ø 1/2"	8
11	90009	LOCK NUT Ø 1/2" - 13 UNC.	4
12	60076	PIN ASSY, LPG BOTTLE SUPPORT	1
13	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	1
14	90005	WASHER # 10	2
15	90006	LOCK NUT # 10 - 32 UNF	1
16	18001	LPG BOTTLE SUPPORT STRAP	1
17	60073	TRIM, LPG BOTTLE SUPPORT	1
18	80118	HITCH PIN 3/4" X 4 1/2" LG.	1
19	11903	PROPANE TANK	1

A60045 - ELECTRICAL COMPONENTS (OPTION K61-DF2)

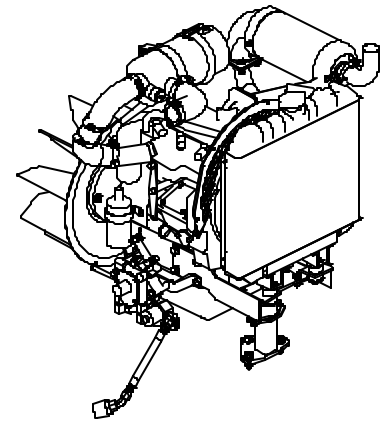
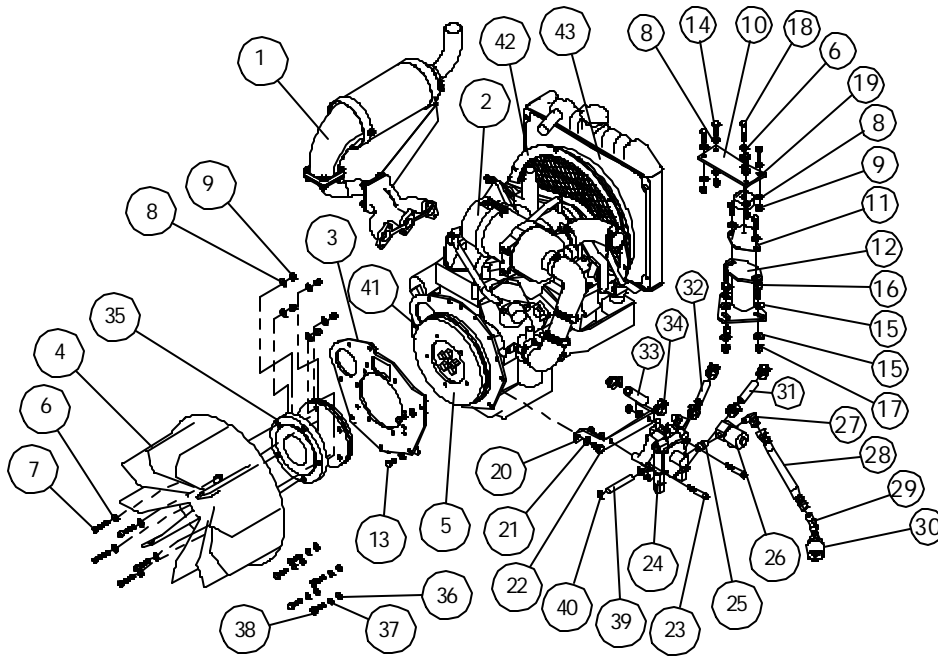
ELECTRICAL FUSES BOX ASSEMBLY FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60044	SUPPORT, FUSE AND RELAY WELDED	1
2	6040	AUTOMOTIVE RELAY	2
3	66231	TIMER SELENOID	1
4	6350	FUSE BLOCK	1
5	60042	COVER, FUSE BOX WELDED	1
6	63885	LATCH WITH SPRING LOCK	2
7	90146	SCREW ROUND HEAD SQUARE DRIVE 10 - 32 UNF. X 1/2" Lg.	4
8	90006	LOCK NUT # 10 - 32 UNF	4
9	90001	WASHER Ø 5/16"	4
10	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
11	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	2
12	6334	FUSE 30 AMPS.	1
13	6326	FUSE 15 AMPS.	3
14	90104	THREADED INSERT # 10 - 32 UNF	5
15	90005	WASHER # 10	5
16	90056	LOCK WASHER # 10	5
17	90039	BOLT HEX. HEAD # 10 - 32 UNC X 1" Lg.	5

A60103 - DUAL FUEL ENGINE (K61-DF2 OPTION)

DUAL FUEL ENGINE ASSEMBLY FOR 61 EQUIPPED WITH OPTION K61-DF2 OPTION



ASSEMBLY VIEW

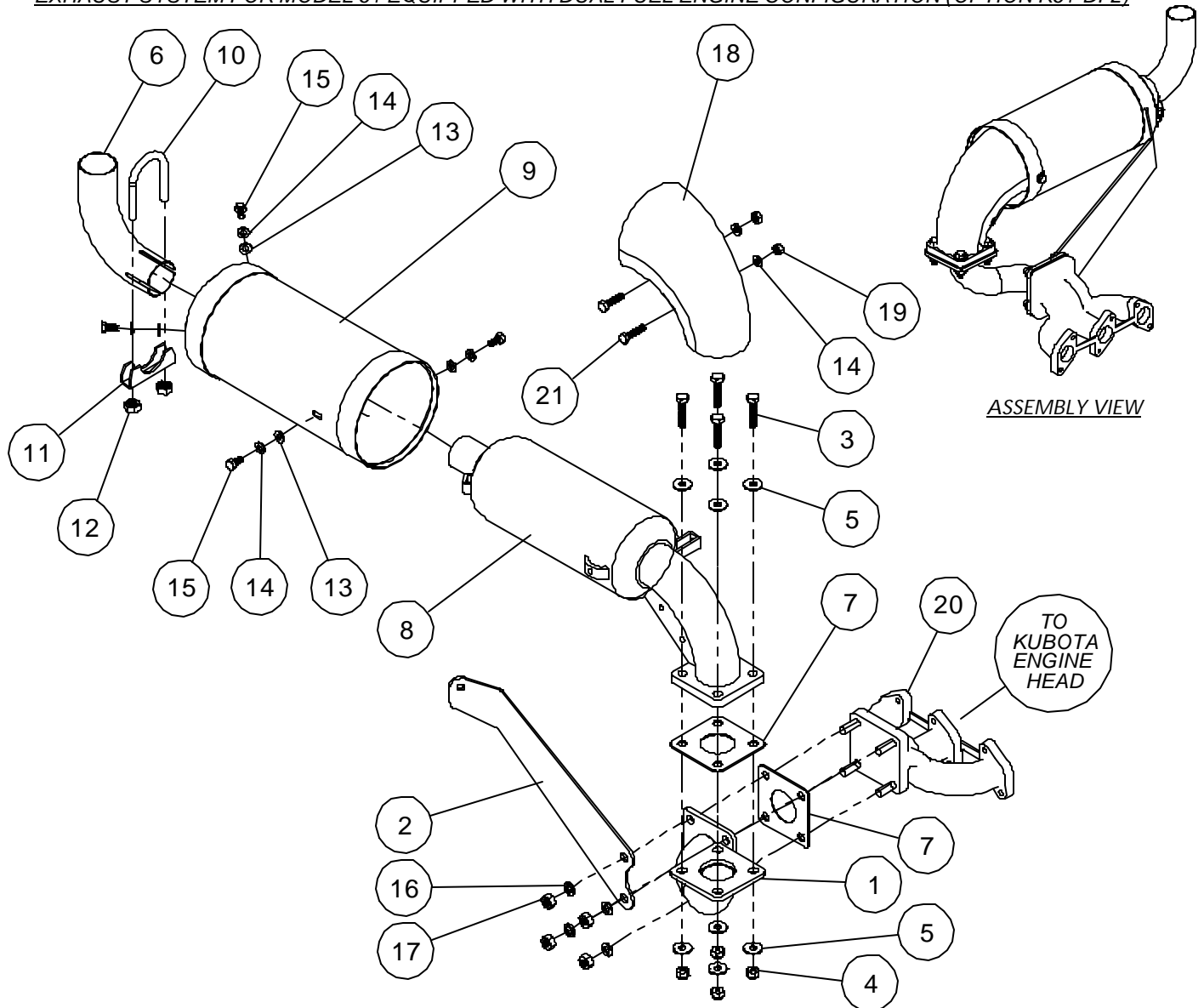
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60214)	EXHAUST SYSTEM FOR DUAL FUEL ENGINE (OPTION K61-DF2)	1
2	(SEE DRAWING A60213)	AIR INTAKE FOR DUAL FUEL ENGINE (OPTION K61-DF2)	2
3	65455	ENGINE PLATE	1
4	65131	FAN CASTING	1
5	(SEE DRAWING A60164)	RADIATOR AND ENGINE FOR DUAL FUEL OPTION	1
6	90023	LOCK WASHER Ø 5/16"	10
7	66635	SOCKET HEAD Ø 5/16" -18 UNC X 1-1/2" . TORQUE:18 lb-ft	5
8	90001	WASHER Ø 5/16"	20
9	90000	LOCK NUT Ø 5/16" - 18 UNC.	13
10	60166	RAD BRACKET JUNCTION PLATE	1
11	9031	RUBBERT MOUNT	1
12	60167	SUPPORT, REAR ENGINE	1
13	90022	BOLT HEX. HEAD Ø 5/16" - 18 UNC. X 3/4" Lg.	4
14	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	6
15	90066	WASHER Ø 3/8"	6
16	90042	BOLT HEX. HEAD Ø 3/8" - 16 UNC. X 1-1/4" Lg.	3
17	90046	LOCK NUT Ø 3/8" - 16 UNC.	3
18	90176	BOLT HEX HEAD 5/16" X 18 X 1-3/4"lg	1
19	64875	THIRD RUBBER MOUNT SHIM #2	1
20	60175	SUPPORT, REGULATOR	1
21	90753	LOCK WASHER Ø M10	3
22	90118	BOLT HEX HEAD ØM10 X 1.25 X 20mm lg	3
23	90181	BOLT HEX HEAD 5/16" X 18 X 2" lg	2
24	(COMES WITH 60164)	KUBOTA DUAL FUEL REGULATOR	1
25	60169	FITTING PROPANE 1/4 NPT STRAIGHT	1
26	60172	INLET REGULATOR SOLENOID	1
27	60170	FITTING PROPANE 90 DEG	1
28	60173	HOSE PROPANE	1
29	60171	FITTING PROPANE 45 DEG	1
30	60063	CONNECTOR PROPANE	1
31	60176	HOSE, INLET REGULATOR WATER	1
32	60177	HOSE, OUTLET REGULATOR WATER	1
33	60178	HOSE, OUTLET REGULATOR FUEL	1
34	9546	HOSE CLAMP Ø 2"	6
35	66631	FAN ADAPTER	1
36	90757	WASHER Ø M8	5
37	90752	LOCK WASHER Ø M8	5
38	66630	BOLT HEX HEAD Ø M8 X 1.25 X 30mm lg.TORQUE:24 lb-ft	5
39	60180	HOSE, REGULATOR VACUUM	1
40	27662	HOSE CLAMP FUEL LINE Ø 7/16"	2
41	60211		1
42	60232	FAN COVER FOR DF-2 ENGINE	1
43	60233	SHROUD FOR FAN COVER DF-752	1

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ROBOTIC ARM Operator's & Parts Manual
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A60214 - EXHAUST SYSTEM FOR DUAL FUEL ENGINE (OPTION K61-DF2)

EXHAUST SYSTEM FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



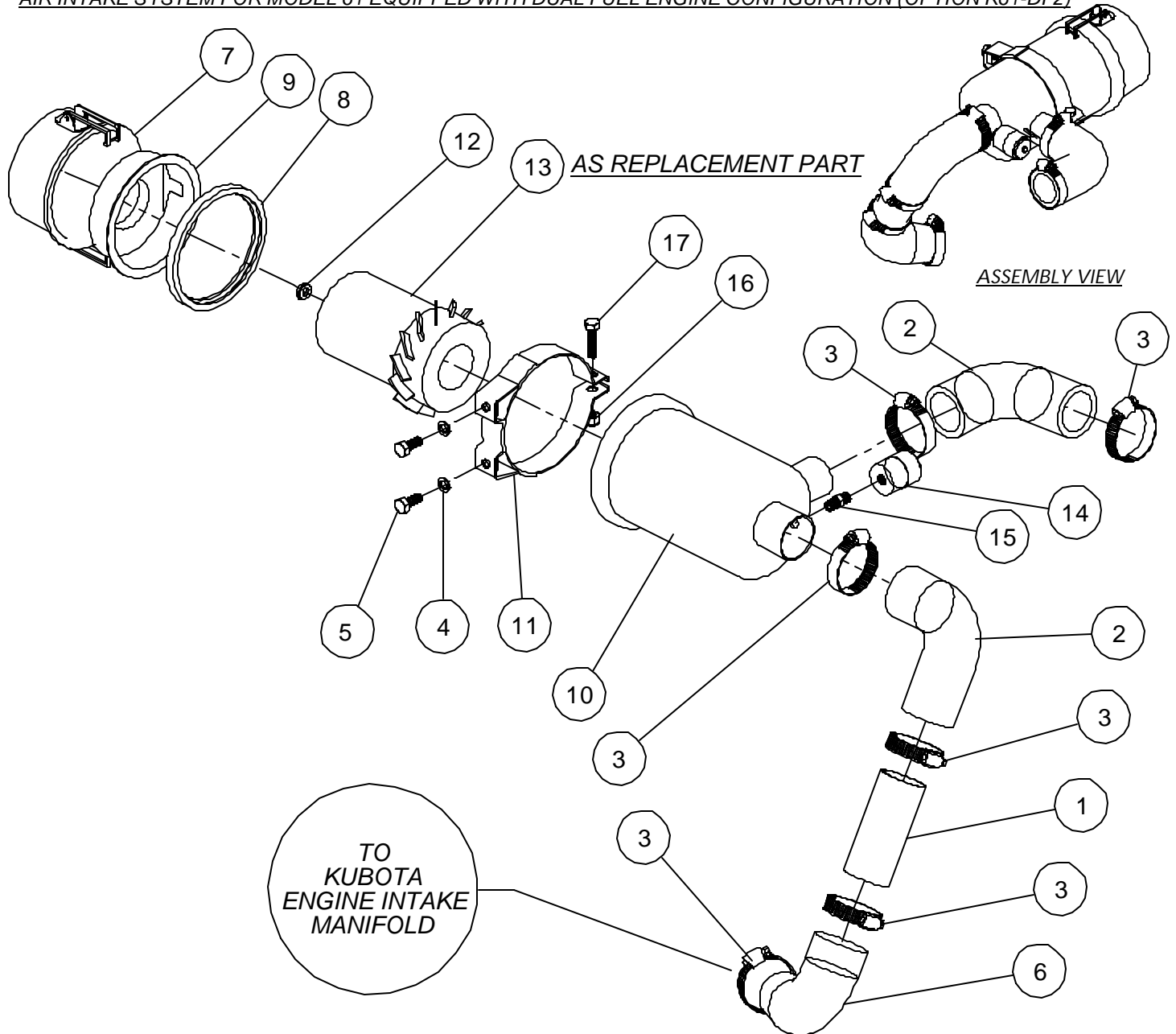
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60105	PROPANE EXHAUST PIPE	1
2	60212	EXHAUST SUPPORT BRACKET	1
3	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	4
4	90020	LOCK NUT Ø 1/4" - 20 UNC	4
5	90004	WASHER Ø 1/4"	8
6	60183	EXHAUST PIPE DEFLECTOR	1
7	62595	MUFFLER GASKET	2
8	(COMES WITH 60164)	MUFFLER	1
9	(COMES WITH 60164)	MUFFLER PROTECTOR	1
10	66872	"U"- BOLT	1
11	(COMES WITH 66872)	"U"- BOLT CLAMP	1
12	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	2
13	90933	WASHER M6	4
14	90751	LOCK WASHER Ø M6	6
15	90115	BOLT HEX. HEAD Ø M6 x 1.0 x 12 mm. Lg.	4
16	90752	LOCK WASHER Ø M8	4
17	90735	HEX NUT Ø M8 - 1.25	4
18	(COMES WITH 60164)	MUFFLER SHEILD	1
19	90734	HEX NUT Ø M6 - 1.0	2
20	(COMES WITH 60164)	EXHAUST MANIFOLD	1
21	90705	BOLT HEX. HEAD Ø M6 - 1.0 X 25 mm. Lg.	2

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A60213 - AIR INTAKE SYSTEM FOR DUAL FUEL ENGINE (OPTION K61-DF2)

AIR INTAKE SYSTEM FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	66183	AIR FILTER TUBE	1
2	66359	INTAKE RUBBER ELBOW SHORT	2
3	9546	HOSE CLAMP Ø 1 1/2"	6
4	90752	LOCK WASHER Ø M8	2
5	90832	BOLT HEX. HEAD Ø M8 - 1.25 X 20 mm. Lg.	2
6	(COMES WITH 60164)	RUBBER ELBOW	1
7	(COMES WITH 65906)	FILTER HOUSING CAP	1
8	(COMES WITH 65906)	RUBBER SEAL GASKET	1
9	(COMES WITH 65906)	FILTER END CAP	1
10	65906	AIR FILTER HOUSING	1
11	(COMES WITH 65906)	AIR FILTER BRACKET	1
12	(COMES WITH 65906)	RUBBER WASHER	1
13	62771	AIR FILTER CARTRIDGE	1
14	8841	AIR CLEANER INDICATOR	1
15	(COMES WITH 8841)	FITTING	1
16	90000	LOCK NUT Ø 5/16" - 18 UNC.	1
17	90174	BOLT HEX HEAD (FULL THREAD) Ø 5/16" X 18 X 1-1/4" lg	1

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Body, Frame & Control Parts Drawings Section

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	<i>(First Generation Gasoline Engine)</i>	---	B-2
A60046 – Control Panel			
	<i>(Second Generation Diesel Engine)</i>	---	B-3
A60230 – Control Panel			
	<i>(Second Gasoline, Dual Fuel & Liquid Gas Propane Engine)</i>	---	B-4
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	<i>(Dual Fuel & Second generation Diesel Engine)</i>	---	B-5
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	<i>(First Generation Diesel Engine)</i>	---	B-15
A63638 – Frame (K61-D Option)			
	<i>(Gasoline & First Generation Diesel Engine)</i>	---	B-16
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	<i>(Dual Fuel & Second Generation Diesel Engine)</i>	---	B-17
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	<i>(Second Generation Diesel & Dual Fuel Engine)</i>	---	B-20

A63662 – Hose Box (K61-D & G Option)
(First Generation Diesel & Gasoline Engine)..... ---B-21

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(Second Generation Diesel & Dual Fuel Engine) ---B-22

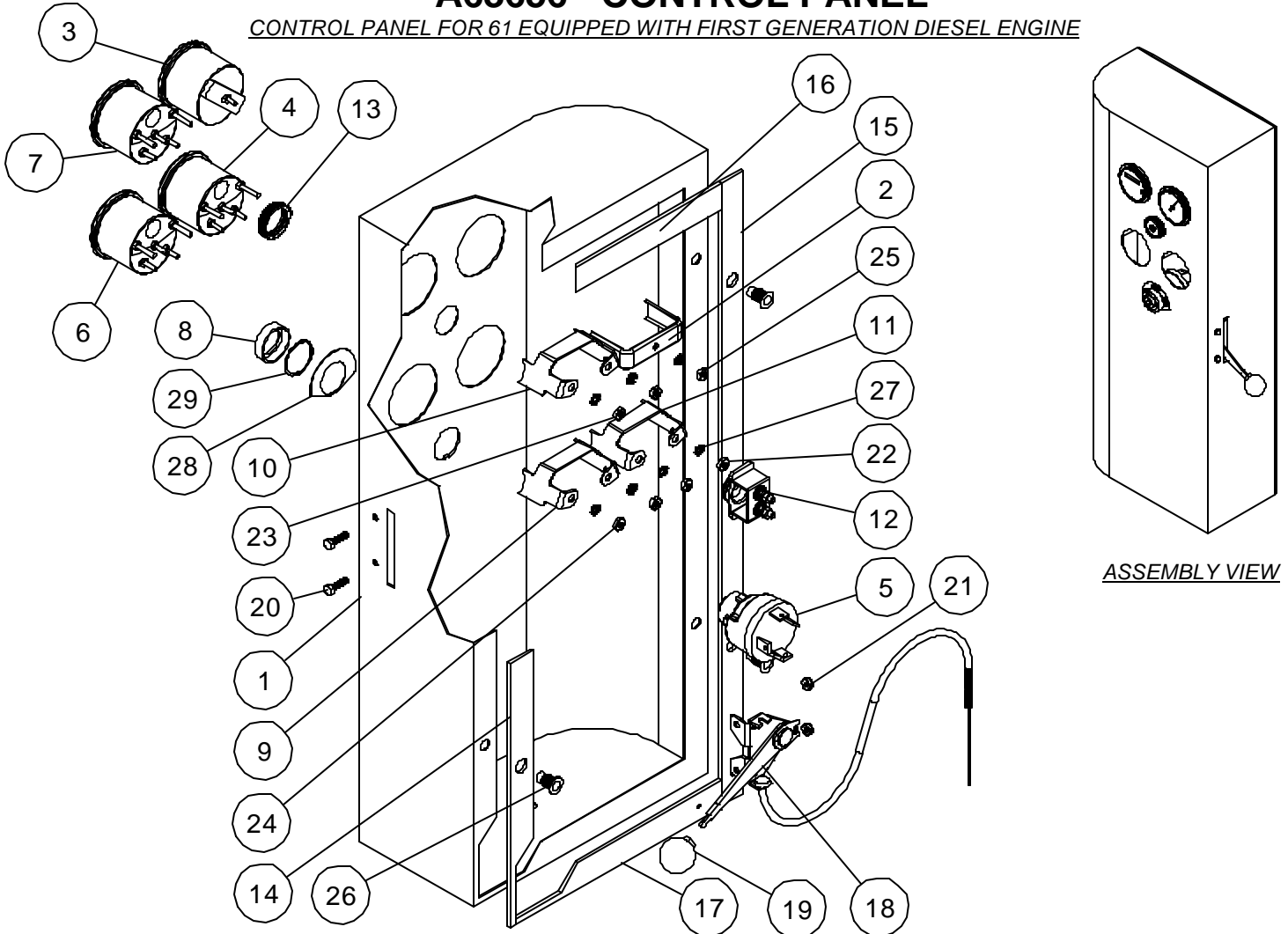
A60246 – Decals Locations (K61-D, G, D2 & DF2 Option)
(Second Generation Diesel & Dual Fuel Engine) ---B-23

A60247 – Decals Kit (K61-D, G, D2 & DF2 Option)
(Second Generation Diesel & Dual Fuel Engine) ---B-24

A60239 – Engine Hood Assembly (K61-D2 Option)
(Second Generation Diesel Engine)..... ---B-25

A63656 - CONTROL PANEL

CONTROL PANEL FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL ENGINE



ASSEMBLY VIEW

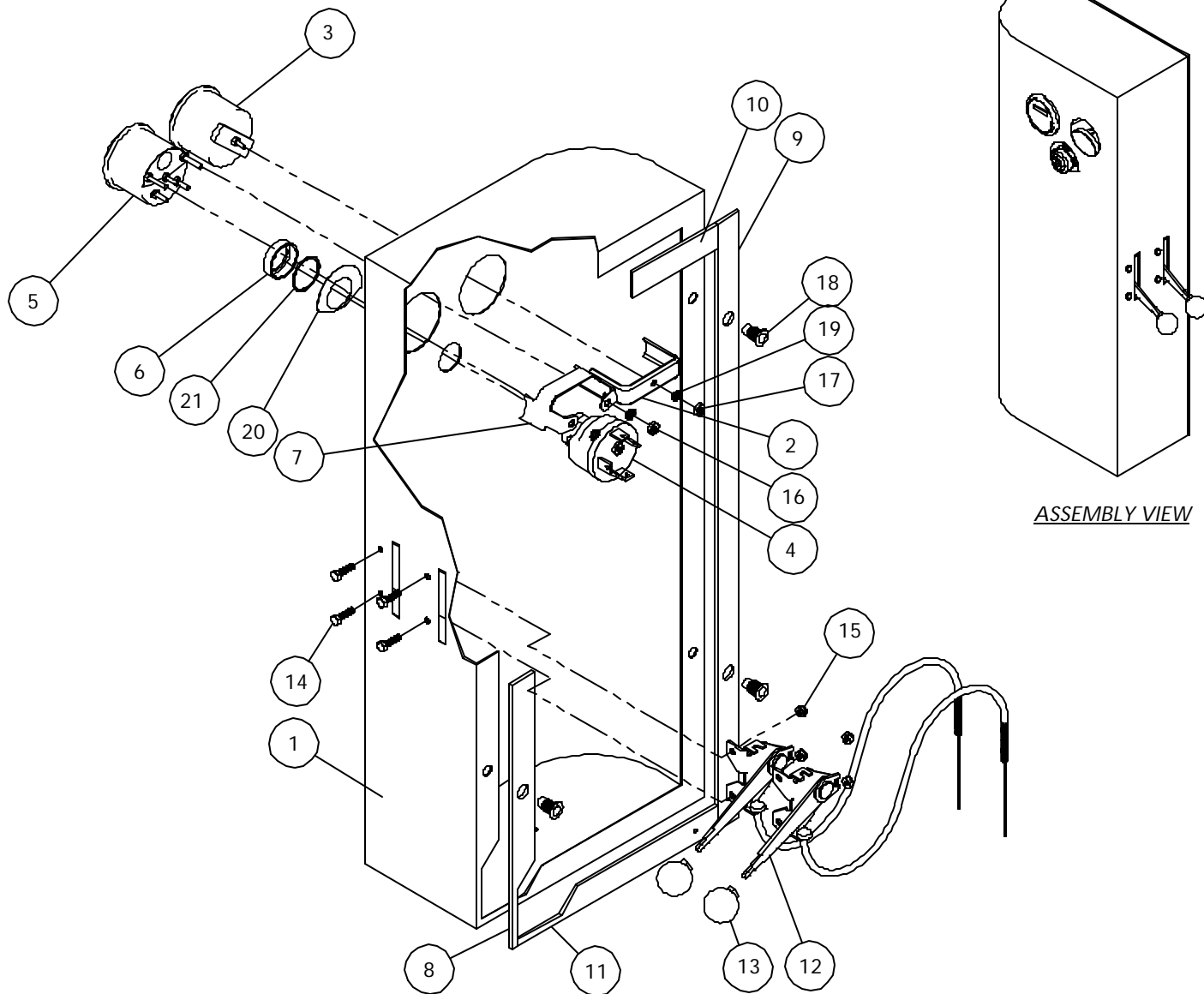
1	62178	CONTROL PANEL	1
2	(COMES WITH 6059)	GAUGE SUPPORT	1
3	6059	HOURLY METER GAUGE	1
4	6557	OIL PRESSURE GAUGE	1
5	65907	IGNITION SWITCH	1
6	6512	WATER TEMPERATURE GAUGE	1
7	6075	FUEL GAUGE	1
8	(COMES WITH 65907)	IGNITION CAP	1
9	(COMES WITH 6512)	GAUGE SUPPORT	1
10	(COMES WITH 6075)	GAUGE SUPPORT	1
11	(COMES WITH 6557)	GAUGE SUPPORT	1
12	64415	GLOW PLUG LIGHT	1
13	(COMES WITH 64415)	GLUW PLUG LIGHT NUT	1
14	64421	CONTROL PANEL FOAM	1
15	64423	CONTROL PANEL FOAM	1
16	64442	CONTROL PANEL FOAM	1
17	64448	CONTROL PANEL FOAM	1
18	62269	THROTTLE & CHOKE CABLE	1
19	8647	KNOB	1
20	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	2
21	90006	LOCK NUT # 10 - 32 UNF	2
22	(COMES WITH 6557)	NUT #10 - 24 UNC	2
23	(COMES WITH 6075)	NUT #10 - 24 UNC	2
24	(COMES WITH 6512)	NUT #10 - 24 UNC	2
25	(COMES WITH 6059)	NUT # 10 - 24 UNC.	1
26	90147	RIV NUT 1/4 - 20 UNC	4
27	90438	TOOTH LOCK WASHER # 8	7
28	(COMES WITH 65907)	POSITION INDICATOR PLATE	1
29	(COMES WITH 65907)	NYLON WASHER	1

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A61023 - CONTROL PANEL

CONTROL PANEL FOR 61 EQUIPPED WITH FIRST GENERATION GASOLINE ENGINE



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62704	CONTROL PANEL (GASOLINE ENGINE)	1
2	(COMES WITH 6059)	GAUGE SUPPORT	1
3	6059	HOURMETER GAUGE	1
4	65907	IGNITION SWITCH	1
5	6075	FUEL GAUGE	1
6	(COME WITH 65907)	IGNITION CAP	1
7	(COMES WITH 6075)	GAUGE SUPPORT	1
8	64421	CONTROL PANEL FOAM	1
9	64423	CONTROL PANEL FOAM	1
10	64442	CONTROL PANEL FOAM	1
11	64448	CONTROL PANEL FOAM	1
12	62269	THROTTLE & CHOKE CABLE	2
13	8647	KNOB	2
14	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	4
15	90006	LOCK NUT # 10 - 32 UNF	4
16	(COMES WITH 6075)	NUT #10 - 24 UNC	2
17	(COMES WITH 6059)	NUT # 10 - 24 UNC.	1
18	90147	RIV NUT 1/4 - 20 UNC	4
19	90438	TOOTH LOCK WASHER # 8	3
20	(COMES WITH 65907)	POSITION INDICATOR PLATE	1
21	(COMES WITH 65907)	NYLON WASHER	1

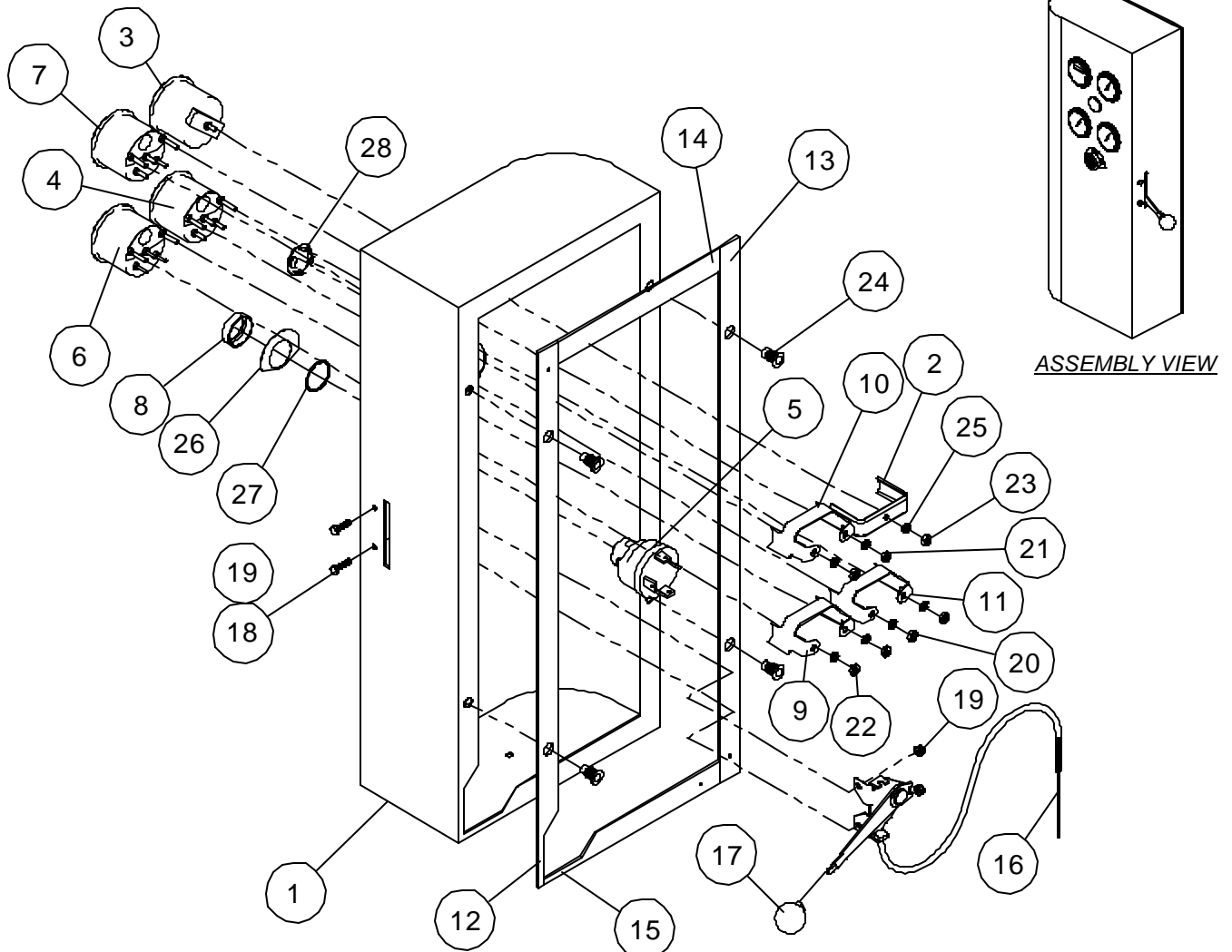
MadVac Inc.

61 Operator's & Parts Manual
May 2002, Revision: ---

A60046 - CONTROL PANEL

Body, Frame & Control Section

CONTROL PANEL FOR 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62178	CONTROL PANEL	1
2	(COMES WITH 6059)	GAUGE SUPPORT	1
3	6059	HOURMETER GAUGE	1
4	6557	OIL PRESSURE GAUGE	1
5	65907	IGNITION SWITCH	1
6	6512	WATER TEMPERATURE GAUGE	1
7	6075	FUEL GAUGE	1
8	(COME WITH 65907)	IGNITION CAP	1
9	(COMES WITH 6512)	GAUGE SUPPORT	1
10	(COMES WITH 6075)	GAUGE SUPPORT	1
11	(COME WITH 6557)	GAUGE SUPPORT	1
12	64421	CONTROL PANEL FOAM	1
13	64423	CONTROL PANEL FOAM	1
14	64442	CONTROL PANEL FOAM	1
15	64448	CONTROL PANEL FOAM	1
16	62269	THROTTLE & CHOKE CABLE	1
17	8647	KNOB	1
18	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	2
19	90006	LOCK NUT # 10 - 32 UNF	2
20	(COME WITH 6557)	NUT #10 - 24 UNC	2
21	(COMES WITH 6075)	NUT #10 - 24 UNC	2
22	(COMES WITH 6512)	NUT #10 - 24 UNC	2
23	(COME WITH 6059)	NUT #10 - 32 UNF	1
24	90147	RIV NUT 1/4 - 20 UNC	4
25	90438	TOOTH LOCK WASHER # 8	7
26	(COMES WITH 65907)	POSITION INDICATOR PLATE	1
27	(COMES WITH 65907)	NYLON WASHER	1
28	64782	NYLON HOLE PLUG	1

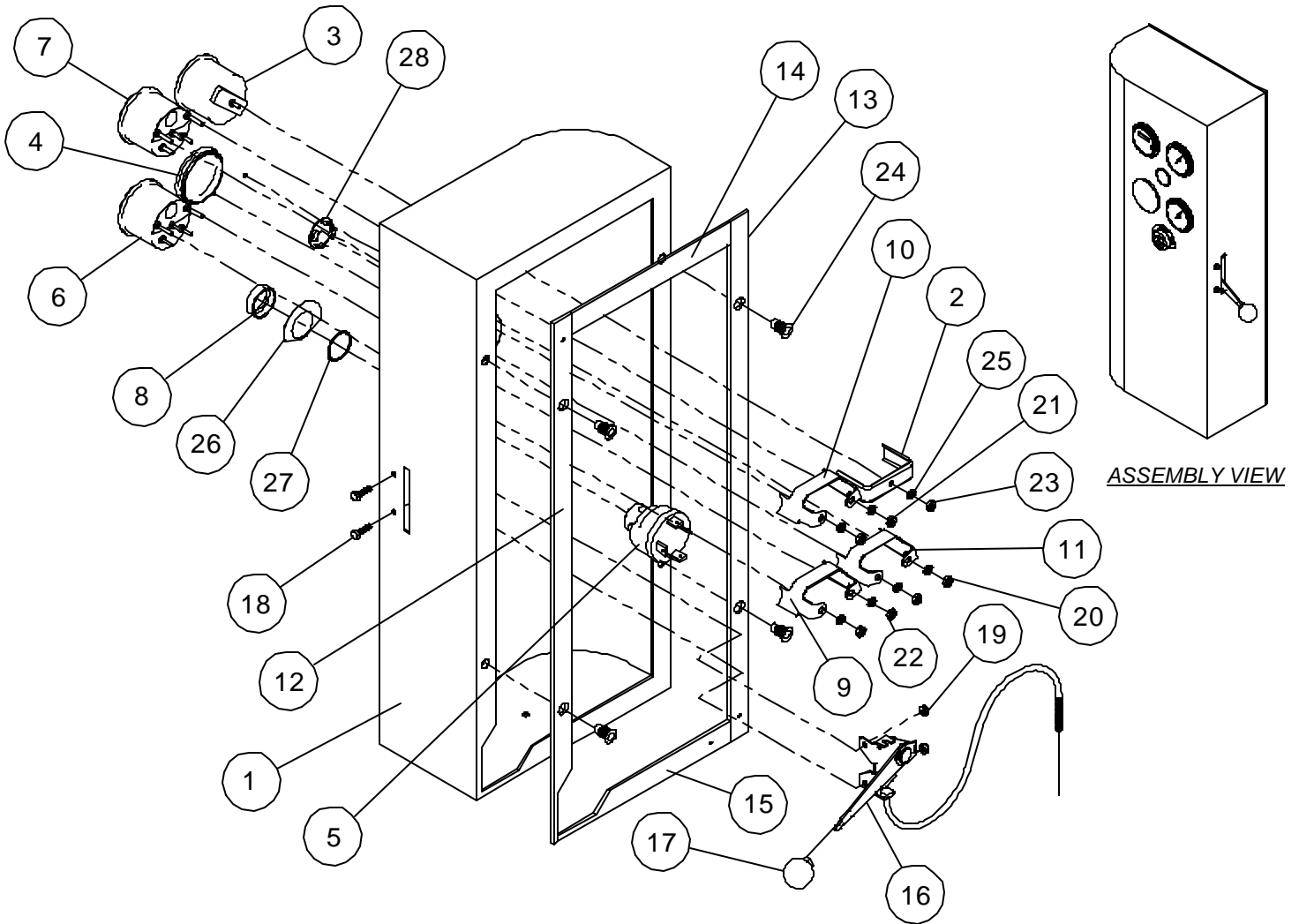
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61 Operator's & Parts Manual
September 2002, Revision: ---

A60230 - CONTROL PANEL

Body, Frame & Control Section

CONTROL PANEL FOR 61 EQUIPPED WITH SECOND GENERATION GASOLINE, LIQUID PROPANE GAS & DUAL FUEL ENGINE



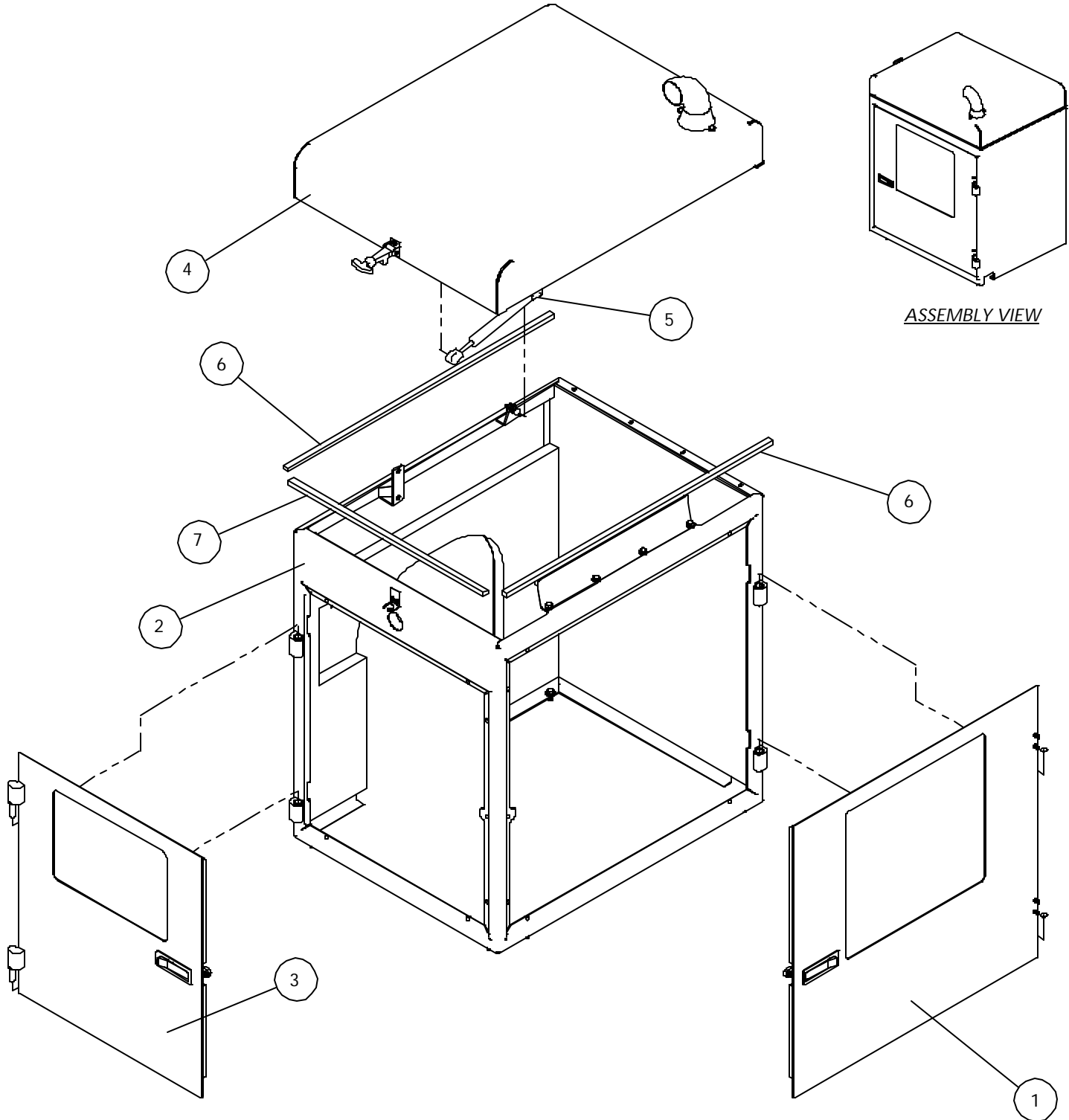
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62178	CONTROL PANEL	1
2	(COMES WITH 6059)	GAUGE SUPPORT	1
3	6059	HOURLMETER GAUGE	1
4	64996	GAUGE PLUG	1
5	65907	IGNITION SWITCH	1
6	6512	WATER TEMPERATURE GAUGE	1
7	6075	FUEL GAUGE	1
8	(COME WITH 65907)	IGNITION CAP	1
9	(COMES WITH 6512)	GAUGE SUPPORT	1
10	(COMES WITH 6075)	GAUGE SUPPORT	1
11	(COME WITH 6557)	GAUGE SUPPORT	1
12	64421	CONTROL PANEL FOAM	1
13	64423	CONTROL PANEL FOAM	1
14	64442	CONTROL PANEL FOAM	1
15	64448	CONTROL PANEL FOAM	1
16	62269	THROTTLE & CHOKE CABLE	1
17	8647	KNOB	1
18	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	2
19	90006	LOCK NUT # 10 - 32 UNF	2
20	(COME WITH 6557)	NUT #10 - 24 UNC	2
21	(COMES WITH 6075)	NUT #10 - 24 UNC	2
22	(COMES WITH 6512)	NUT #10 - 24 UNC	2
23	(COME WITH 6059)	NUT #10 - 32 UNF	1
24	90147	RIV NUT 1/4 - 20 UNC	4
25	90438	TOOTH LOCK WASHER # 8	7
26	(COMES WITH 65907)	POSITION INDICATOR PLATE	1
27	(COMES WITH 65907)	NYLON WASHER	1
28	64782	NYLON HOLE PLUG	1

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61 Operator's & Parts Manual
April 2003, Revision: ---

A60106 - HOOD ASSEMBLY FOR DUAL FUEL ENGINE (OPTION K61-DF2)

HOOD ASSEMBLY FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



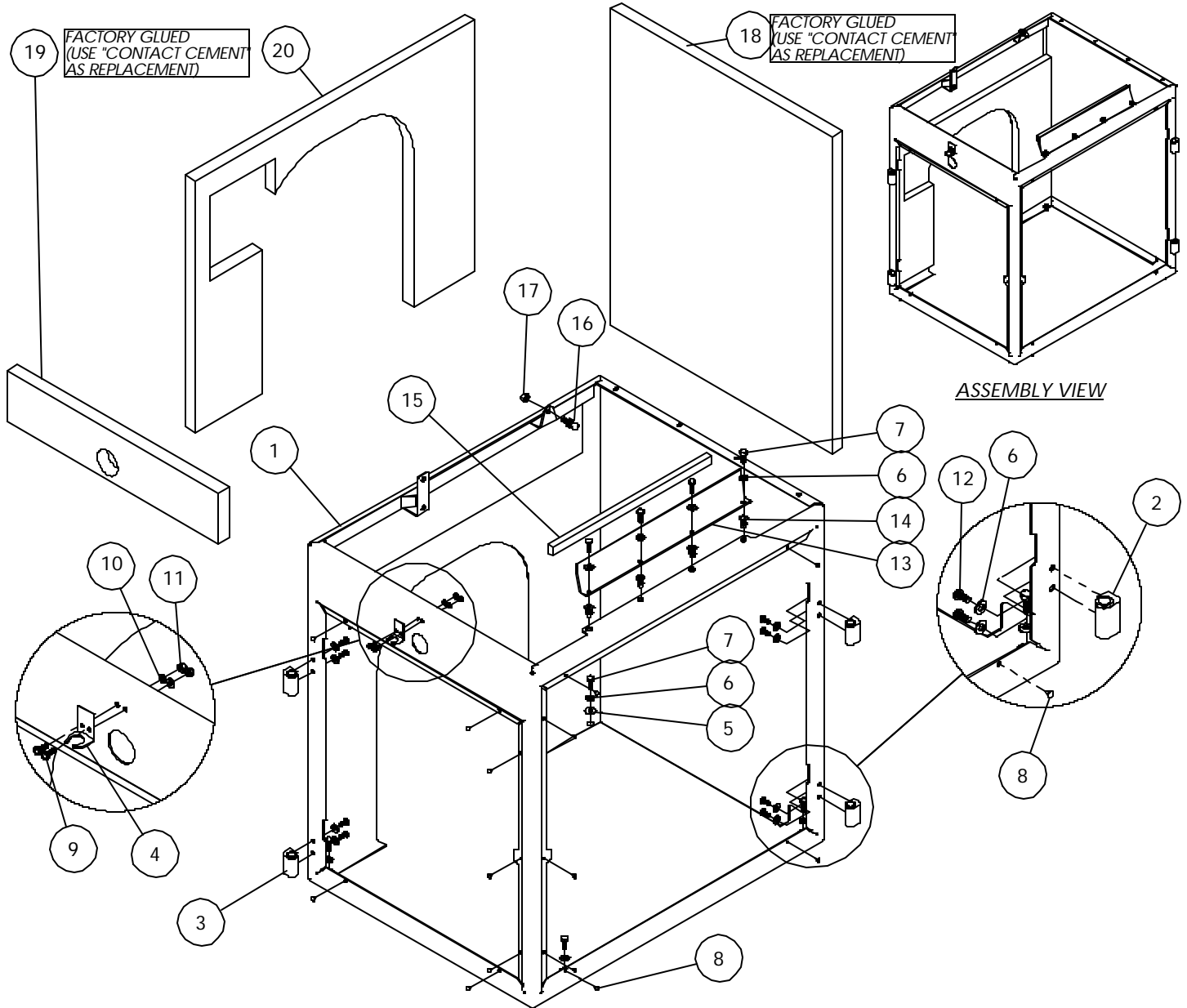
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60109)	FRONT ENGINE ACCESS DOOR	1
2	(SEE DRAWING A60108)	HOOD FRAME	1
3	(SEE DRAWING A60110)	SIDE ENGINE ACCESS DOOR	1
4	(SEE DRAWING A60107)	HOOD COVER	1
5	28087	GAS SPRING	1
6	60144	SEAL, HOOD FRAME #1	2
7	60145	SEAL, HOOD FRAME #2	1

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61 Operator's & Parts Manual
March 2003, Revision: ---

A60108 - HOOD FRAME (OPTION K61-DF2 & D2)

HOOD FRAME FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE & SECOND GENERATION DIESEL ENGINE



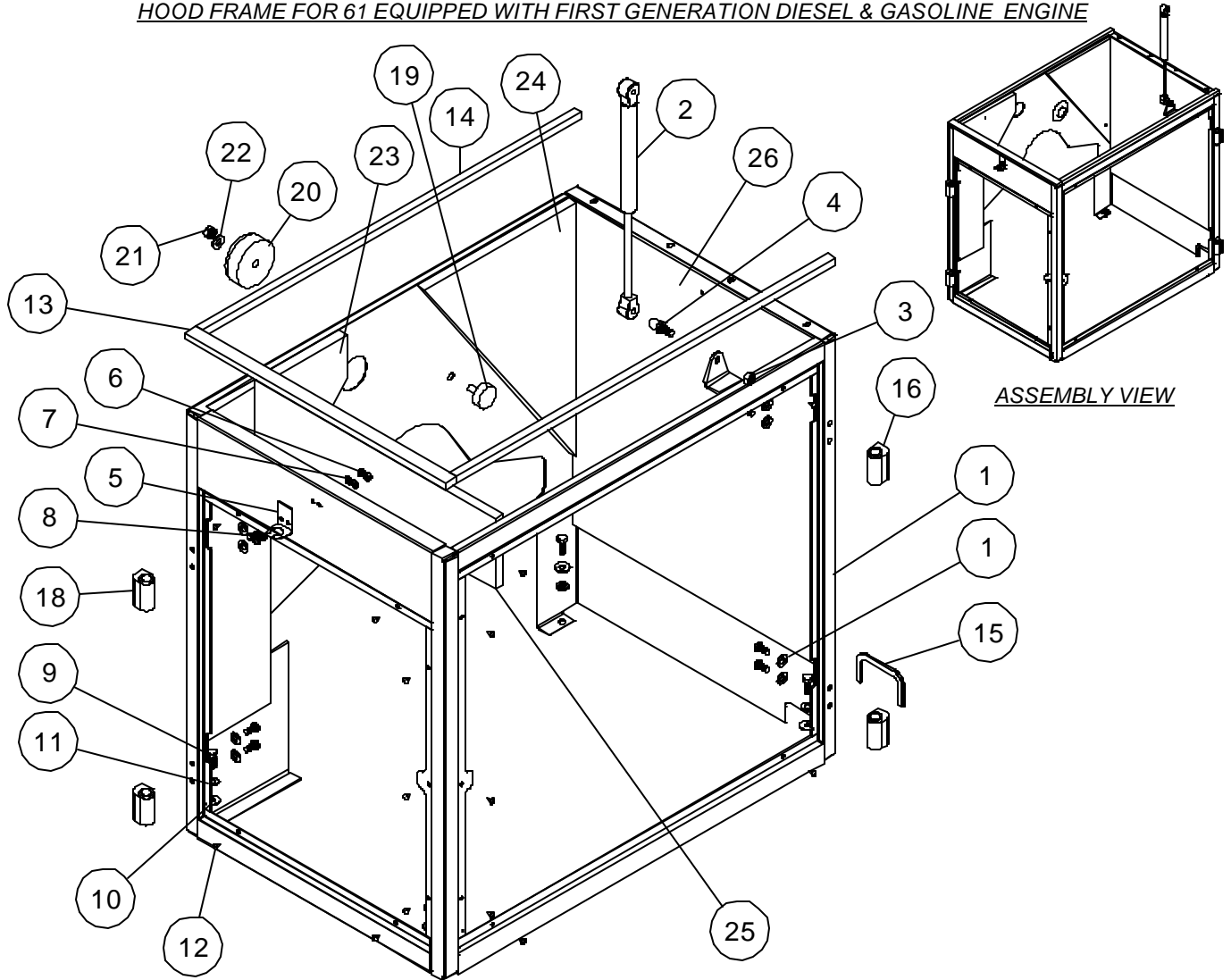
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60111	HOOD FRAME	1
2	66124	FEMALE DOOR HINGE (RIGHT HAND)	2
3	66123	FEMALE DOOR HINGE (LEFT HAND)	2
4	(COMES WITH 78043)	RUBBER CLAMP HOLDER	1
5	90004	WASHER Ø 1/4"	5
6	90018	LOCK WASHER Ø 1/4"	17
7	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	9
8	62935	RUBBER BUMPER	14
9	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	2
10	90005	WASHER # 10	2
11	90006	LOCK NUT # 10 - 32 UNF	2
12	90079	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC. X 5/8" Lg.	8
13	60117	BAFFLE, LOWER RAD	1
14	90147	RIV NUT 1/4 - 20 UNC	4
15	60118	SEAL, RAD	1
16	66120	BALL JOINT FOR 777-7639 & 777-7614	1
17	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1
18	60120	FOAM, HOOD FRAME SIDE	1
19	60119	FOAM, SIDE DOOR UPPER	1
20	60121	FOAM, HOOD FRAME REAR	1

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March 2003, Revision: ---

A63654 - HOOD FRAME

HOOD FRAME FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE



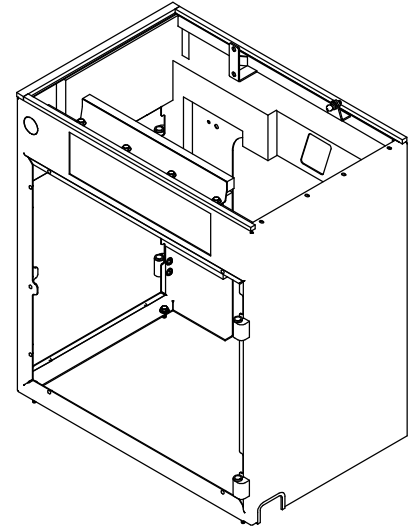
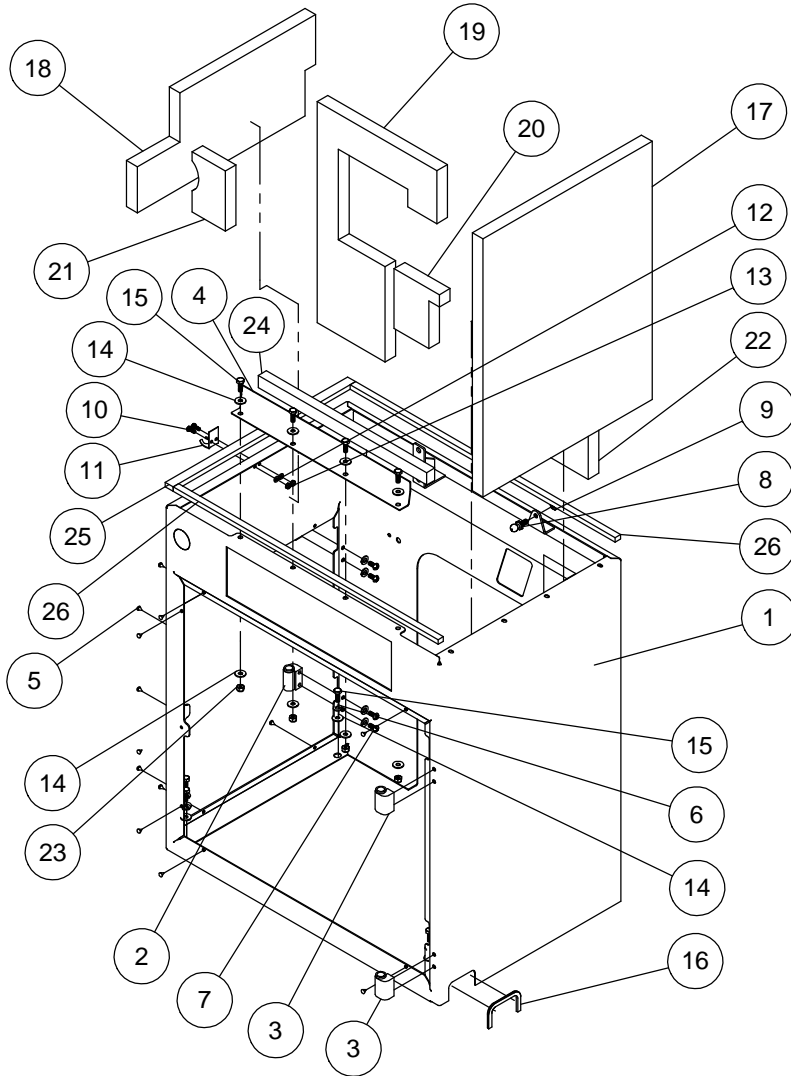
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62129	HOOD FRAME	1
2	28087	GAS SPRING	1
3	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1
4	66120	BALL JOINT FOR 777-7639 & 777-7614	1
5	(COMES WITH 78043)	RUBBER CLAMP HOLDER	1
6	90006	LOCK NUT # 10 - 32 UNF	2
7	90005	WASHER # 10	2
8	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	2
9	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	5
10	90004	WASHER Ø 1/4"	5
11	90018	LOCK WASHER Ø 1/4"	13
12	62935	RUBBER BUMPER	14
13	64650	FOAM TRIM 3/4" X 3/8" X 17-1/8" Lg.	1
14	64669	FOAM TRIM 1/2" X 3/8" X 19-1/8" Lg.	2
15	62714	MOLDING TRIM	1
16	66124	FEMALE DOOR HINGE (RIGHT HAND)	2
17	90079	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC. X 5/8" Lg.	8
18	66123	FEMALE DOOR HINGE (LEFT HAND)	2
19	64480	RUBBER MOUNT (SMALL PART)	1
20	7683	RUBBER BUMPER	1
21	90000	LOCK NUT Ø 5/16" - 18 UNC.	1
22	90001	WASHER Ø 5/16"	1
23	64499	TRIM FOAM BTMM-14C 9-1/2" X 18-1/2"	1
24	64504	TRIM FOAM BTMM-14C 10" X 14-1/2"	1
25	64501	TRIM FOAM BTMM-14C 4" X 15-1/2"	1
26	64502	TRIM FOAM BTMM-14C 16-1/2" X 18-1/2"	1

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April 2002, Revision: A

A60048 - HOOD FRAME (K61-D2 OPTION)

HOOD FRAME FOR 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE



ASSEMBLY VIEW

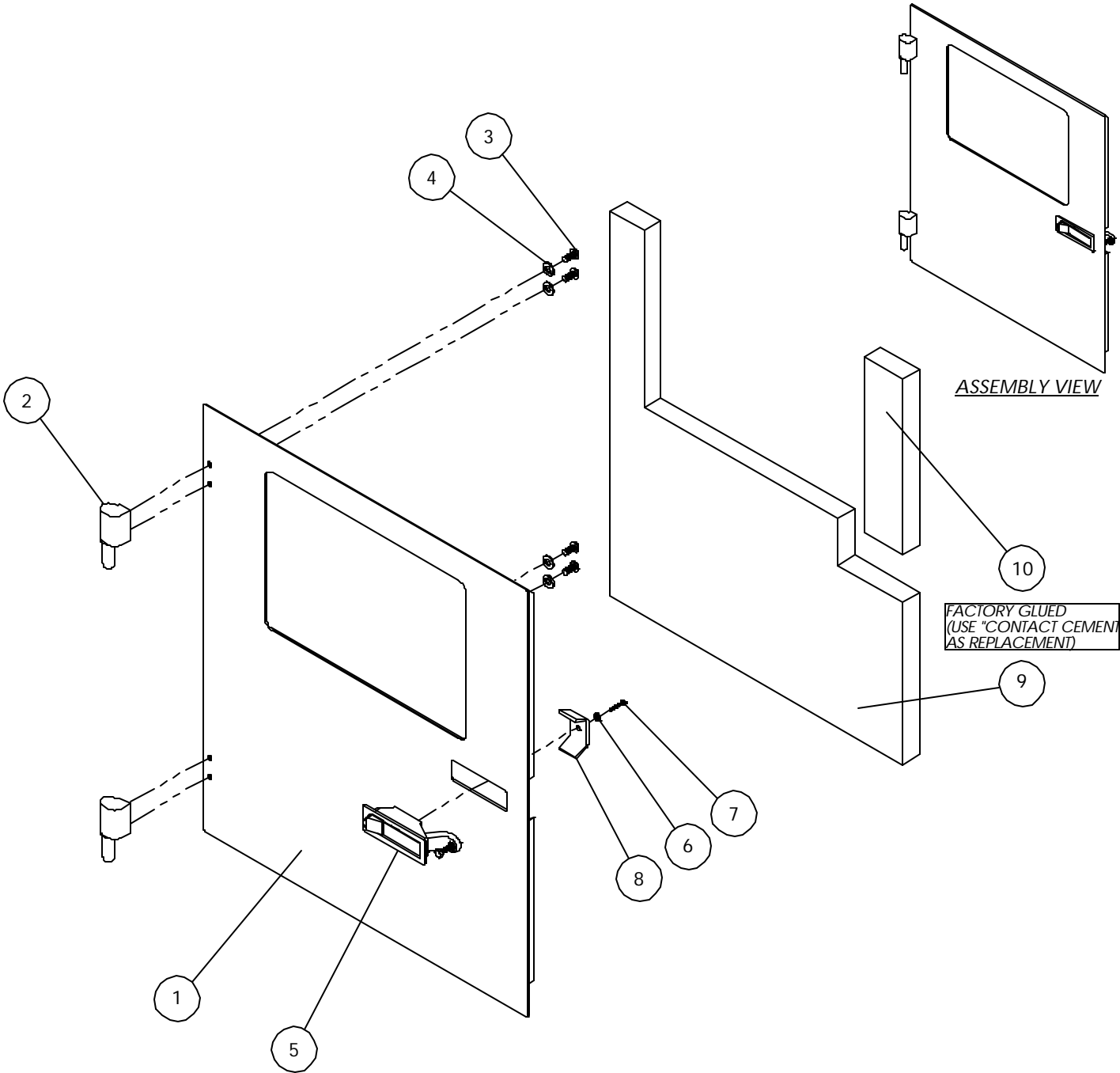
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	64970	HOOD FRAME ASS'Y 61-D2	1
2	66123	FEMALE DOOR HINGE (LEFT HAND)	2
3	66124	FEMALE DOOR HINGE (RIGHT HAND)	2
4	64326	PLATE, UPPER RAD SEAL	1
5	62935	RUBBER BUMPER	14
6	90018	LOCK WASHER Ø 1/4"	13
7	90079	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC. X 5/8" Lg.	8
8	66120	BALL JOINT FOR 777-7639 & 777-7614	1
9	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1
10	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	2
11	(COMES WITH 78043)	RUBBER CLAMP HOLDER	1
12	90005	WASHER # 10	2
13	90006	LOCK NUT # 10 - 32 UNF	2
14	90004	WASHER Ø 1/4"	13
15	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	9
16	62714	MOLDING TRIM	1
17	60051	FOAM, FULL SIDE	1
18	60052	FOAM, HALF SIDE	1
19	60054	FOAM, BACK LEFT	1
20	60055	FOAM, FRONT RIGHT	1
21	60056	FOAM, FRONT LEFT	1
22	60053	FOAM, BACK RIGHT	1
23	90020	LOCK NUT Ø 1/4" - 20 UNC	4
24	64936	SEAL, UPPER RAD	1
25	64650	FOAM TRIM 3/4" X 3/8" X 17-1/8" Lg.	1
26	64669	FOAM TRIM 1/2" X 3/8" X 19-1/8" Lg.	2

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September 2002, Revision: ---

A60110 - SIDE ENGINE DOOR FOR DUAL FUEL ENGINE (OPTION K61-DF2)

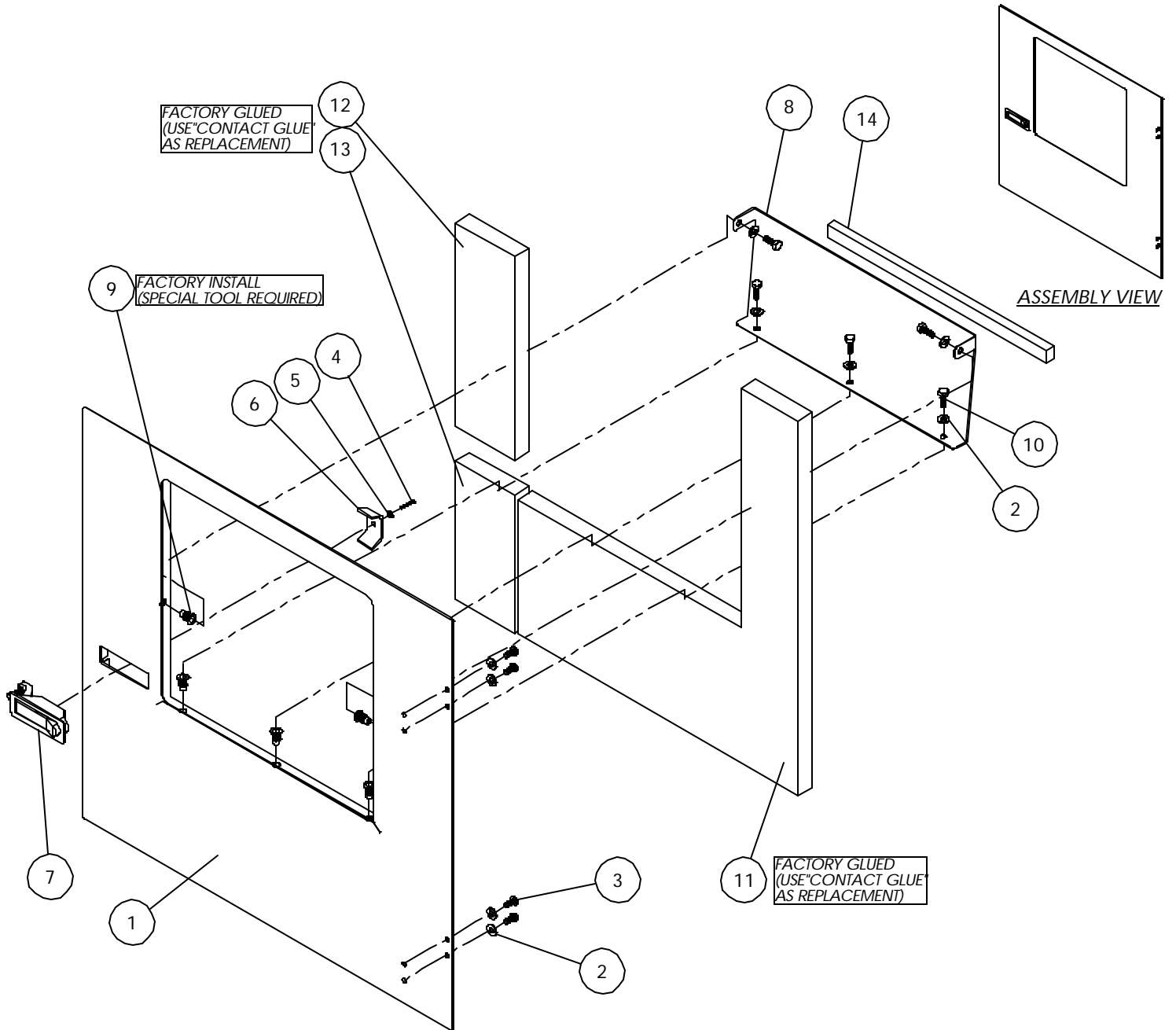
SIDE ENGINE ACCESS DOOR FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60137	HOOD FRAME SIDE DOOR	1
2	66123	MALE DOOR HINGE (LEFT HAND)	2
3	90079	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC. X 5/8" Lg.	4
4	90018	LOCK WASHER Ø 1/4"	4
5	62445	DOOR LATCH	1
6	(COMES WITH 62445)	TOOTH LOCK WASHER #10	1
7	(COMES WITH 62445)	BOLT HEX. HEAD #10 - 32 UNF. X 1/2" Lg	1
8	(COMES WITH 62445)	HOOD DOOR LATCH BRACKET	1
9	60142	FOAM #1, SIDE DOOR	1
10	60143	FOAM #2, SIDE DOOR	1

A60109 - FRONT ENGINE DOOR FOR DUAL FUEL ENGINE (OPTION K61-DF2)

FRONT ENGINE ACCESS DOOR FOR 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



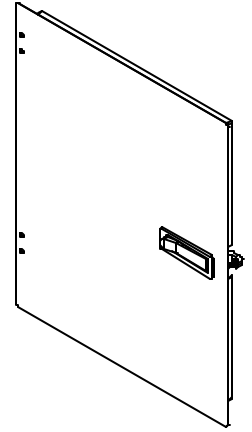
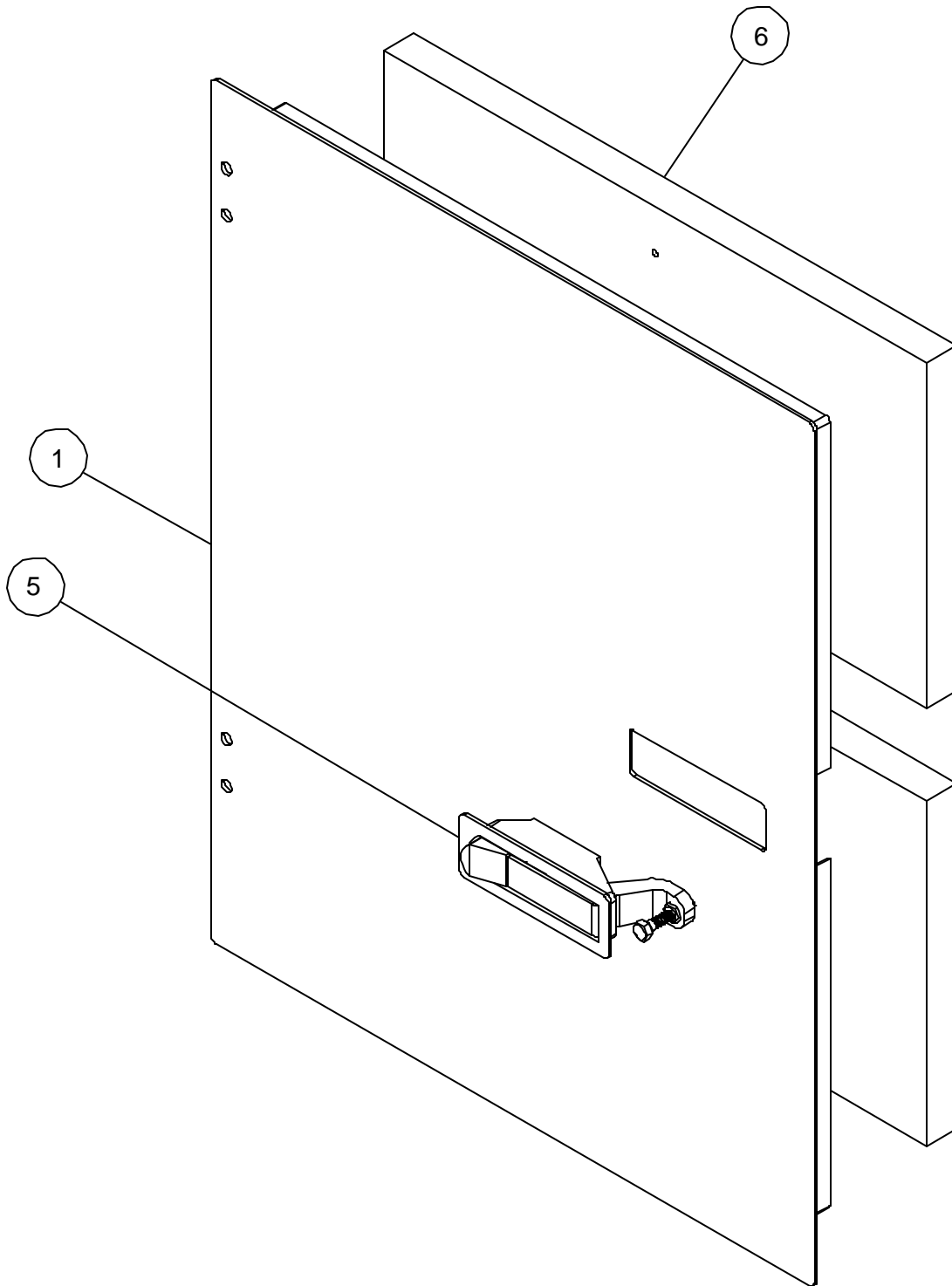
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60127	HOOD FRAME MAIN DOOR	1
2	90018	LOCK WASHER Ø 1/4"	9
3	90079	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC. X 5/8" Lg.	4
4	(COMES WITH 62445)	BOLT HEX. HEAD #10 - 32 UNF. X 1/2" Lg	1
5	(COMES WITH 62445)	TOOTH LOCK WASHER #10	1
6	(COMES WITH 62445)	HOOD DOOR LATCH BRACKET	1
7	62445	DOOR LATCH	1
8	60133	BAFFLE, UPPER RAD	1
9	90147	RIV NUT 1/4 - 20 UNC	5
10	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	5
11	60134	FOAM #1, MAIN DOOR	1
12	60135	FOAM #2, MAIN DOOR	1
13	60136	FOAM #3, MAIN DOOR	1
14	60118	SEAL, RAD	1

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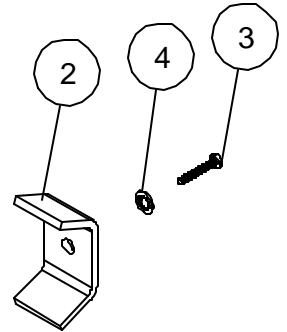
61 Operator's & Parts Manual
March 2003, Revision: ---

A63640 - SIDE DOOR

SIDE DOOR FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL ENGINE



ASSEMBLY VIEW



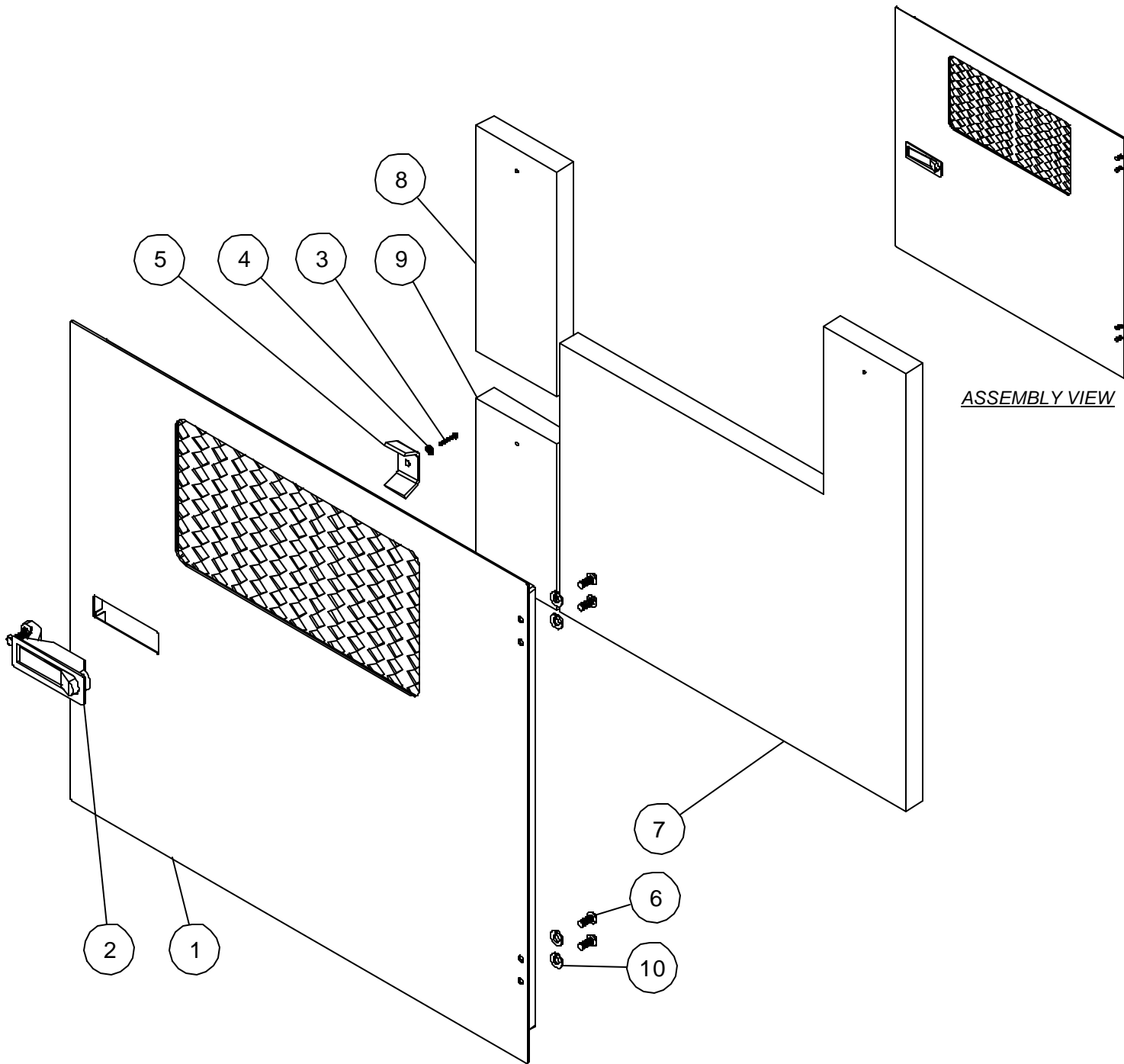
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62127	SIDE DOOR	1
2	(COMES WITH 62445)	HOOD DOOR LATCH BRACKET	1
3	(COMES WITH 62445)	BOLT HEX. HEAD #10 - 32 UNF. X 1/2" Lg	1
4	(COMES WITH 62445)	TOOTH LOCK WASHER #10	1
5	62445	DOOR LATCH	1
6	62155	SIDE DOOR FOAM	1

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61 Operator's & Parts Manual
January 2002, Revision: ---

A63646 - DIESEL AIR INTAKE DOOR

DIESEL AIR INTAKE DOOR FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL ENGINE



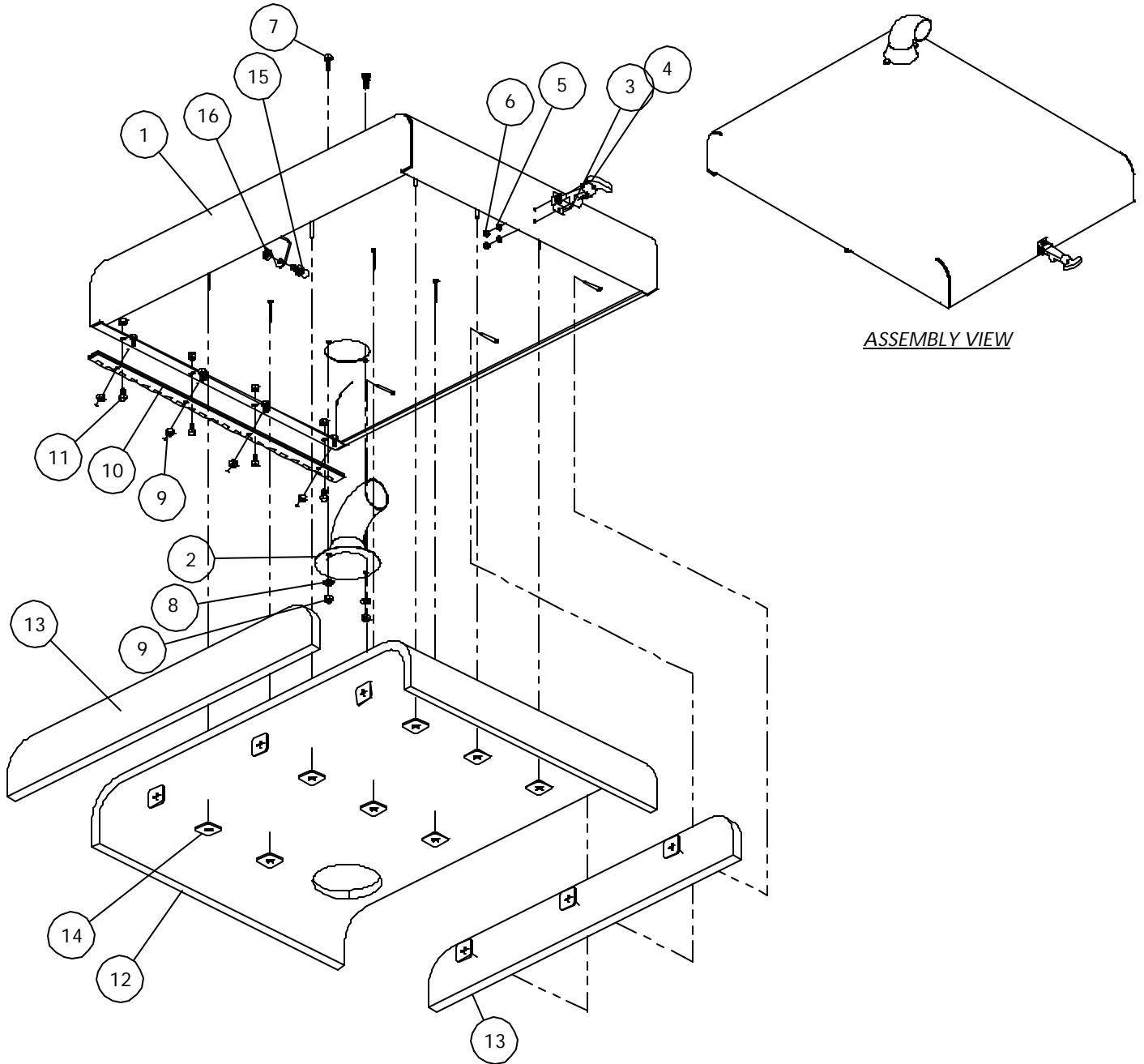
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62137	DIESEL AIR INTAKE DOOR	1
2	62445	DOOR LATCH	1
3	(COMES WITH 62445)	BOLT HEX. HEAD #10 - 32 UNF. X 1/2" Lg	1
4	(COMES WITH 62445)	TOOTH LOCK WASHER #10	1
5	(COMES WITH 62445)	HOOD DOOR LATCH BRACKET	1
6	90079	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC. X 5/8" Lg.	4
7	62154	DIESEL AIR INTAKE DOOR FOAM - 1	1
8	62160	DIESEL AIR INTAKE DOOR FOAM - 2	1
9	62161	DIESEL AIR INTAKE DOOR FOAM - 3	1
10	90018	LOCK WASHER Ø 1/4"	4

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61 Operator's & Parts Manual
January 2002, Revision: ---

A60107 - HOOD COVER FOR DUAL FUEL ENGINE (OPTION K61-DF2)

HOOD COVER FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION 61-DF2)



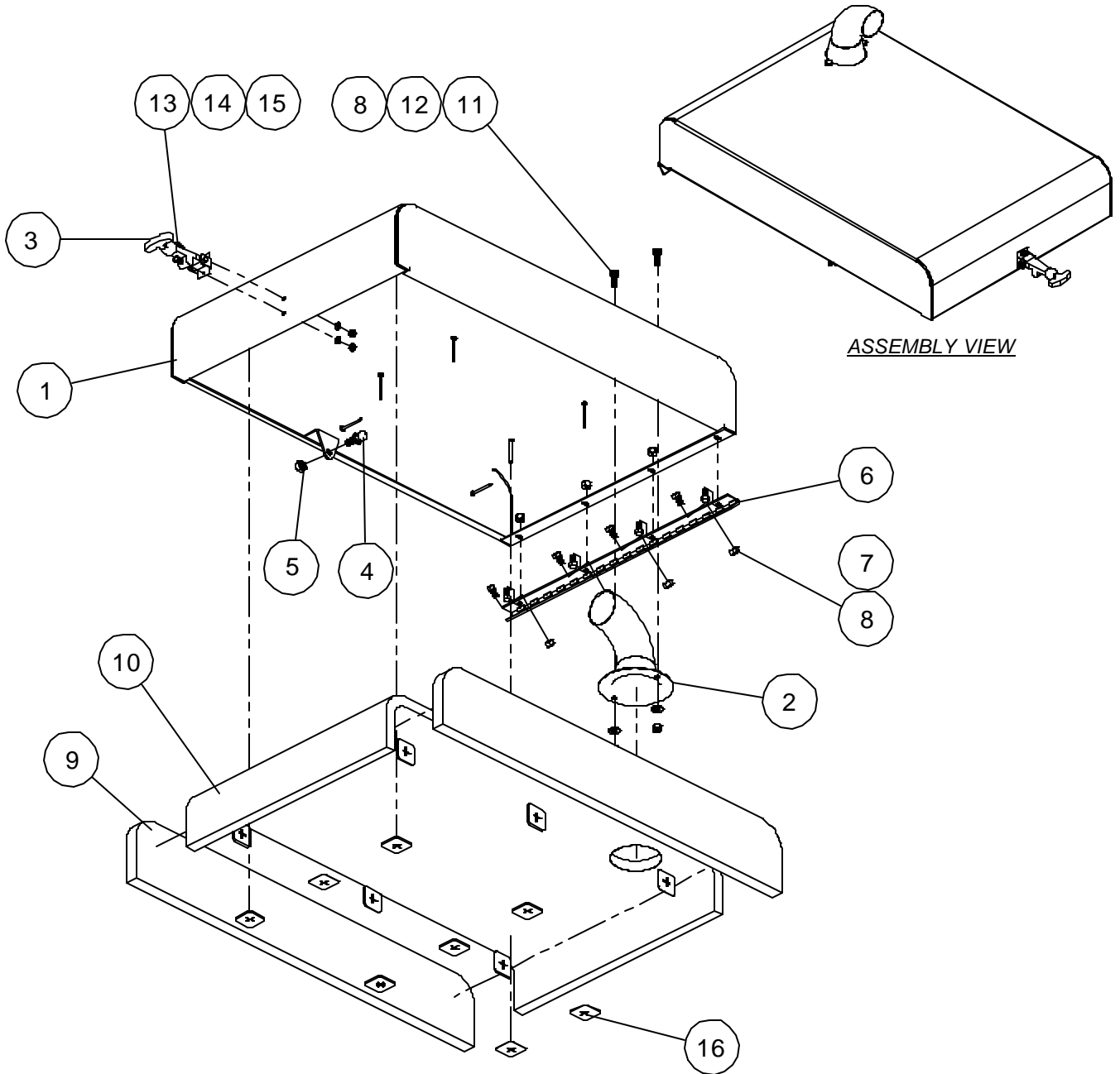
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60122	COVER, HOOD	1
2	62261	TAIL PIPE HOOD COVER PART	1
3	62617	SMALL RUBBER CLAMP	1
4	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	2
5	90005	WASHER # 10	2
6	90006	LOCK NUT # 10 - 32 UNF	2
7	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	2
8	90018	LOCK WASHER Ø 1/4"	2
9	90020	LOCK NUT Ø 1/4" - 20 UNC	10
10	60124	HOOD HINGE	1
11	90051	BOLT HEX. HEAD Ø 1/4" X 20 UNC. X 1/2" Lg.	8
12	60126	FIBERGLASS HOOD TOP 61	1
13	60125	FIBERGLASS HOOD SIDE 61	2
14	17106	WASHER FOR FIBER	14
15	66120	BALL JOINT FOR 777-7639 & 777-7614	1
16	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1

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61 Operator's & Parts Manual
March 2003, Revision: ---

A60047 - HOOD COVER (K61-D2)

HOOD COVER FOR 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE



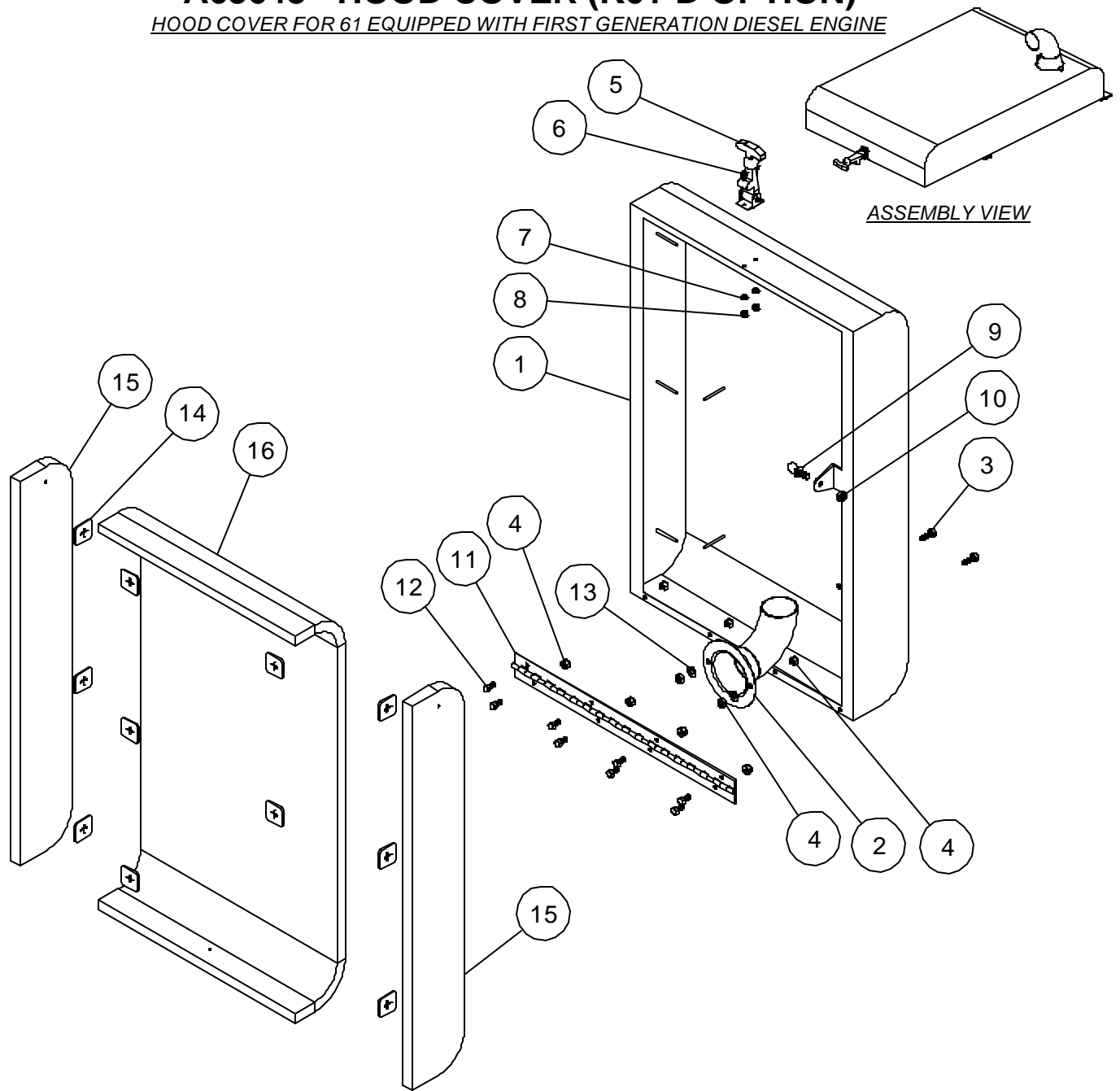
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60039	COVER ASSY, 61-D2 HOOD	1
2	62261	TAIL PIPE HOOD COVER PART	1
3	62617	SMALL RUBBER CLAMP	1
4	66120	BALL JOINT FOR 777-7639 & 777-7614	1
5	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1
6	62135	HOOD HINGE	1
7	90051	BOLT HEX. HEAD Ø 1/4" X 20 UNC. X 1/2" Lg.	8
8	90020	LOCK NUT Ø 1/4" - 20 UNC	10
9	62998	FIBERGLASS HOOD SIDE 61	2
10	62999	FIBERGLASS HOOD TOP 61	1
11	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	2
12	90018	LOCK WASHER Ø 1/4"	2
13	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	2
14	90005	WASHER # 10	2
15	90006	LOCK NUT # 10 - 32 UNF	2
16	17106	WASHER FOR FIBER	14

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61 Operator's & Parts Manual
 Septembre 2002, Revision: ---

A63648 - HOOD COVER (K61-D OPTION)

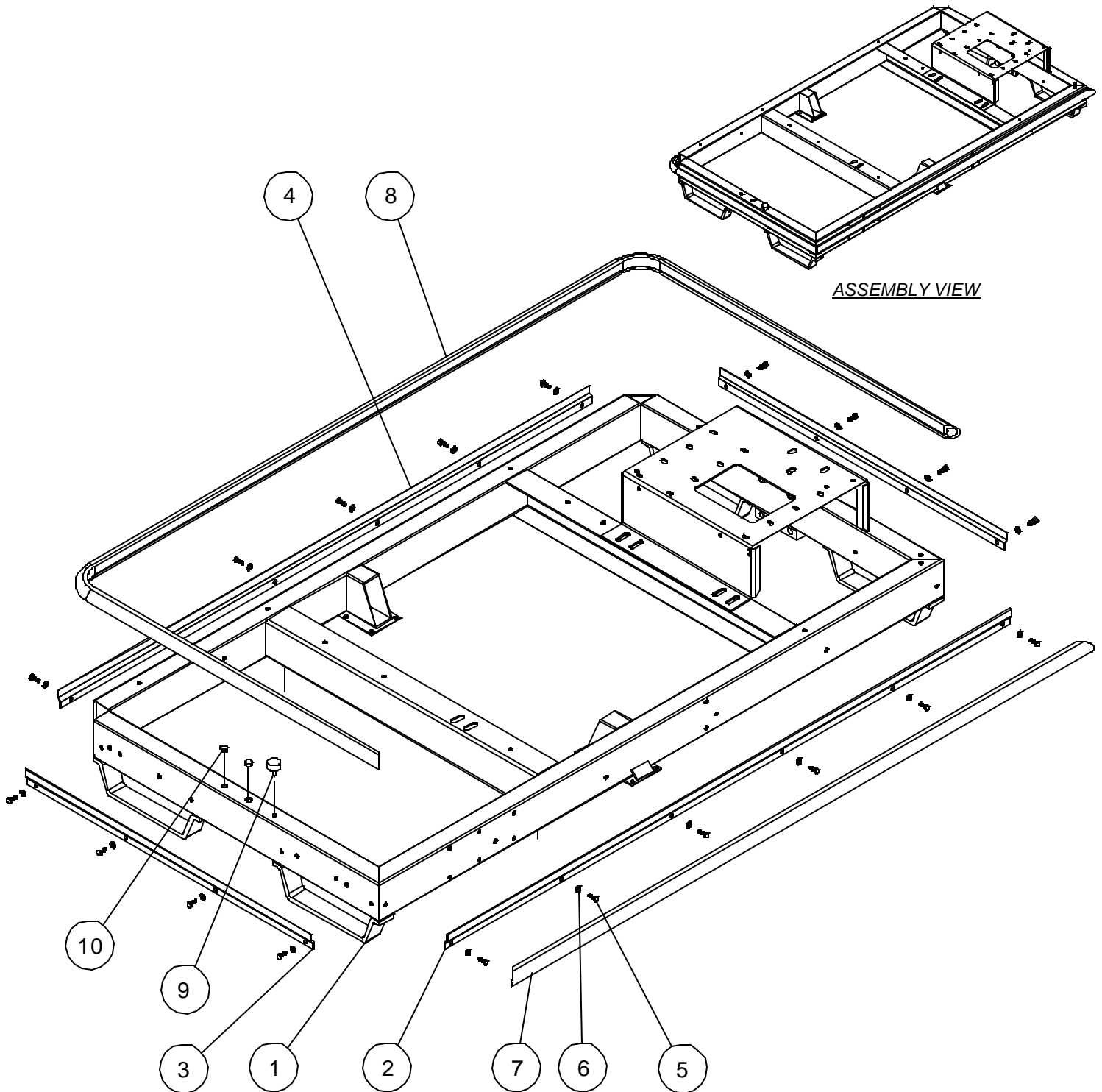
HOOD COVER FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL ENGINE



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62121	HOOD COVER	1
2	62261	TAIL PIPE HOOD COVER PART	1
3	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	2
4	90020	LOCK NUT Ø 1/4" - 20 UNC	10
5	62617	SMALL RUBBER CLAMP	1
6	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	2
7	90005	WASHER # 10	2
8	90006	LOCK NUT # 10 - 32 UNF	2
9	66120	BALL JOINT FOR 777-7639 & 777-7614	1
10	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	1
11	62135	HOOD HINGE	1
12	90051	BOLT HEX. HEAD Ø 1/4" X 20 UNC. X 1/2" Lg.	8
13	90018	LOCK WASHER Ø 1/4"	2
14	17106	WASHER FOR FIBER	11
15	62998	FIBERGLASS HOOD SIDE 61	2
16	62999	FIBERGLASS HOOD TOP 61	1

A63638 - FRAME (61-D OPTION)

FRAME FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE



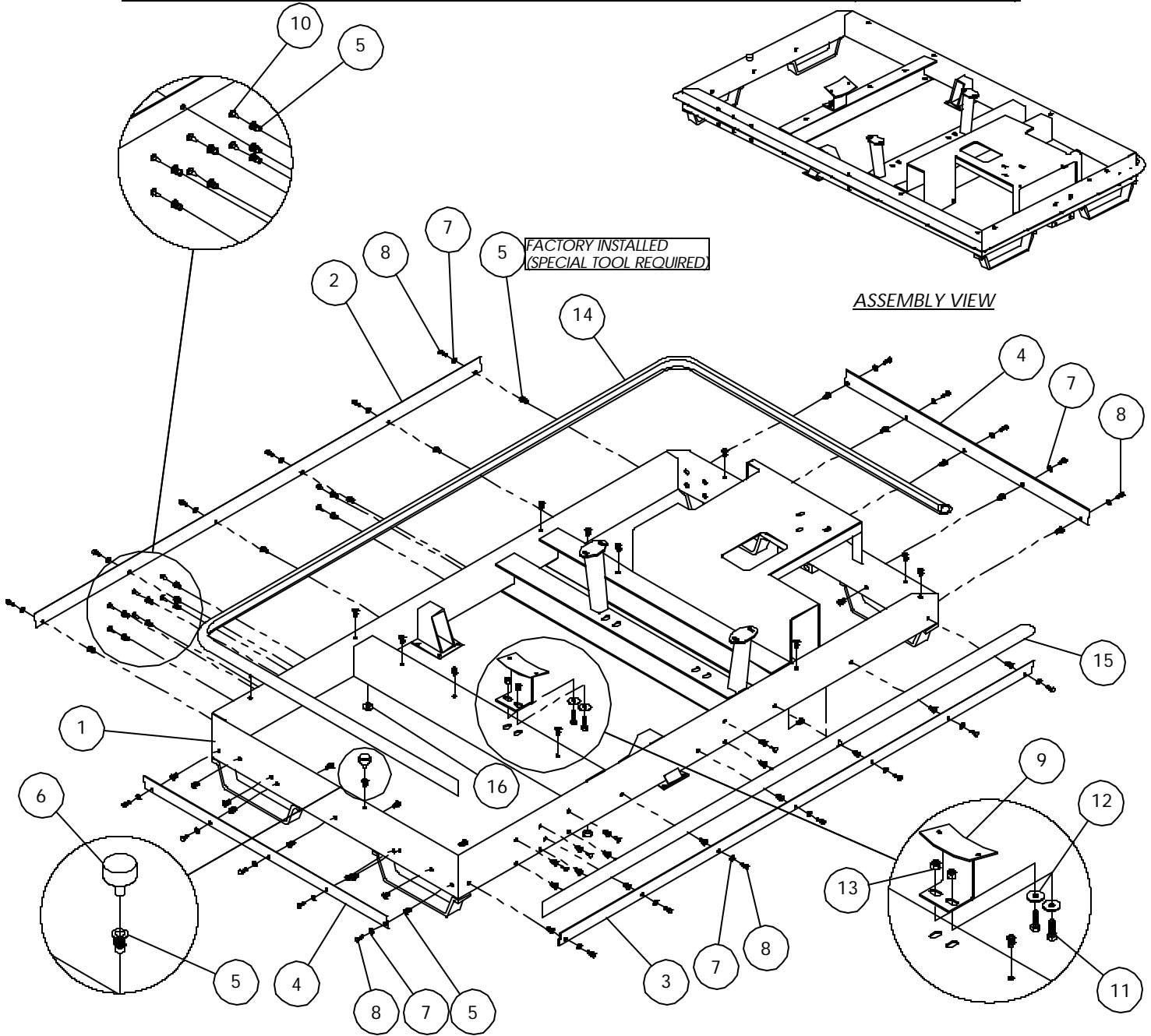
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62097	FRAME	1
2	62627	BUMPER SUPPORT (69" Lg)	1
3	62625	BUMPER SUPPORT (35" Lg)	2
4	62626	BUMPER SUPPORT (65" Lg)	1
5	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	20
6	90018	LOCK WASHER Ø 1/4"	20
7	62895	SHORT BUMPER	1
8	62512	LONG BUMPER	1
9	64472	RUBBER MOUNT	1
10	60229	HOLE PLUG Ø 9/16" WHITE	2

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61 Operator's & Parts Manual
January 2002, Revision: ---

A60146 - FRAME FOR DUAL FUEL ENGINE (OPTION K61-DF2)

FRAME FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60147	FRAME	1
2	60159	BUMPER SUPPORT, RIGHT SIDE	1
3	60160	BUMPER SUPPORT, LEFT SIDE	1
4	60161	BUMPER SUPPORT, FRONT & REAR	2
5	90147	RIV NUT 1/4 - 20 UNC	64
6	64472	RUBBER MOUNT	1
7	90018	LOCK WASHER Ø 1/4"	23
8	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	23
9	62119	CONTAINER SUPPORT	1
10	27617	LINER SNAP PIN	16
11	90042	BOLT HEX. HEAD Ø 3/8" - 16 UNC. X 1-1/4" Lg.	2
12	90034	FLAT WASHER Ø 3/8" TYPE B-B	2
13	90046	LOCK NUT Ø 3/8" - 16 UNC.	2
14	60162	RUBBER BUMPER #1	1
15	60163	RUBBER BUMPER #2	1
16	17656	RUBBER GROMMET Ø 9/16"	2

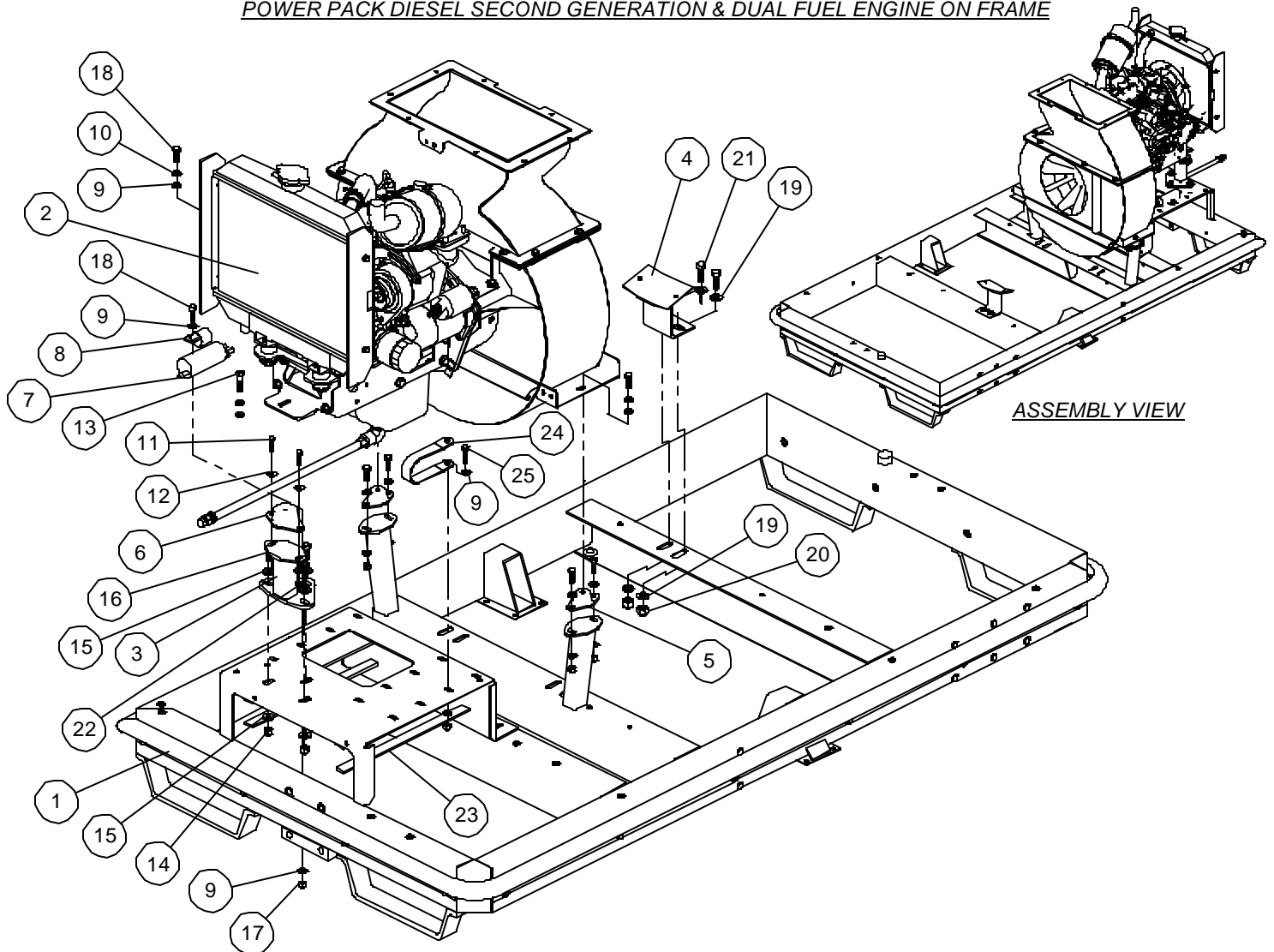
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61 Operator's & Parts Manual

March 2003, Revision: ---

A60040 - POWER PACK ON FRAME (OPTION K61-DF2 & D2)

POWER PACK DIESEL SECOND GENERATION & DUAL FUEL ENGINE ON FRAME



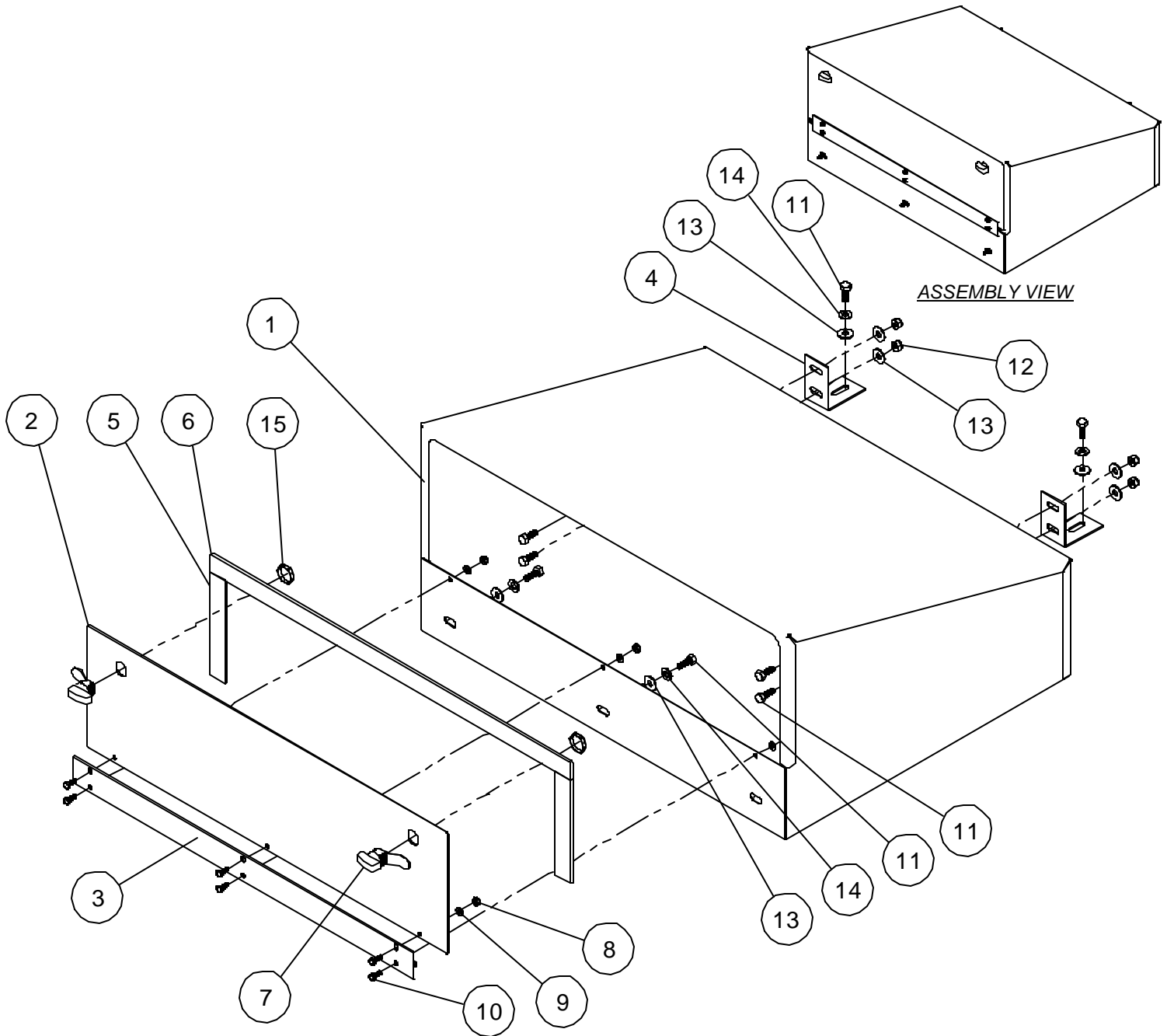
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60235)	FRAME ASS'Y	1
2	(SEE DRAWING A60037)	POWERPACK & VOLUTE ASS'Y	1
3	60167	SUPPORT, REAR ENGINE	1
4	62119	CONTAINER SUPPORT	1
5	65751	ENGINE RUBBER MOUNT	2
6	9031	RUBBERT MOUNT	1
7	62358	FUEL PUMP	1
8	27759	HOSE CLAMP (CL-14)	1
9	90001	WASHER Ø 5/16"	15
10	90023	LOCK WASHER Ø 5/16"	3
11	90003	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	2
12	90004	WASHER Ø 1/4"	4
13	90002	BOLT HEX. HEAD Ø 5/16" - 18 UNC. X 1-1/2" Lg.	1
14	90046	LOCK NUT Ø 3/8" - 16 UNC.	3
15	90066	WASHER Ø 3/8"	6
16	90064	HEX BOLT Ø 3/8" - 16 UNC X 1" Lg.	3
17	90000	LOCK NUT Ø 5/16" - 18 UNC.	6
18	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	7
19	90116	FLAT WASHER Ø 7/16"	4
20	90084	LOCK NUT Ø7/16 14 UNC	2
21	90202	BOLT HEX HEAD Ø 7/16" X 14 X 1-1/4" lg	2
22	90020	LOCK NUT Ø 1/4" - 20 UNC	2
23	64981	RUBBER, FUEL TANK	2
24	26394	ENGINE GROUND	1
25	90174	BOLT HEX HEAD (FULL THREAD) Ø 5/16" X 18 X 1-1/4" lg	1

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May 2003, Revision: ---

A63632 - BAG BOX (K61-D & G OPTION)

BAG BOX FOR 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62196	BAG BOX	1
2	62210	BAG BOX DOOR	1
3	62216	BAG BOX DOOR HINGE	1
4	62496	BAG BOX SUPPORT	2
5	64385	BAG BOX DOOR FOAM TRIM 1" X .125" X 5-7/8" Lg.	2
6	62749	BAG BOX TRIM FOAM 1" X .125" X 23-5/8 Lg.	1
7	8264	BAG BOX DOOR LATCH	2
8	90006	LOCK NUT # 10 - 32 UNF	6
9	90005	WASHER # 10	6
10	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	6
11	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	9
12	90020	LOCK NUT Ø 1/4" - 20 UNC	4
13	90004	WASHER Ø 1/4"	9
14	90018	LOCK WASHER Ø 1/4"	5
15	(COMES WITH 8264)	BAG BOX DOOR LATCH NUT	2

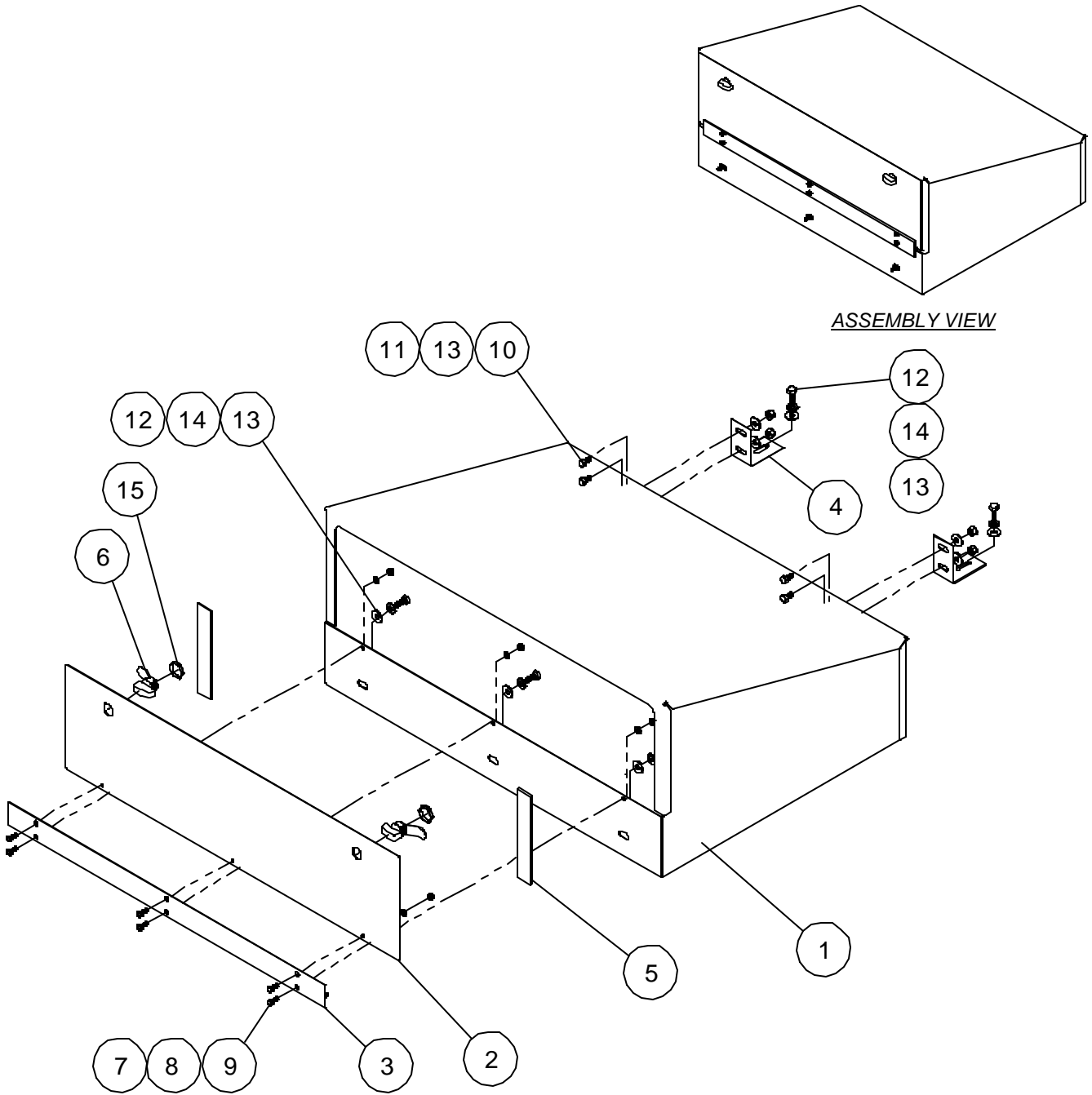
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May 2003, Revision: ---

A60088 - BAG BOX (OPTION K61-DF2 & D2)

BAG BOX ASSEMBLY FOR MODEL 61 WITH DUAL FUEL & SECOND GENERATION DIESEL ENGINE (OPTION K61-DF2)



ASSEMBLY VIEW

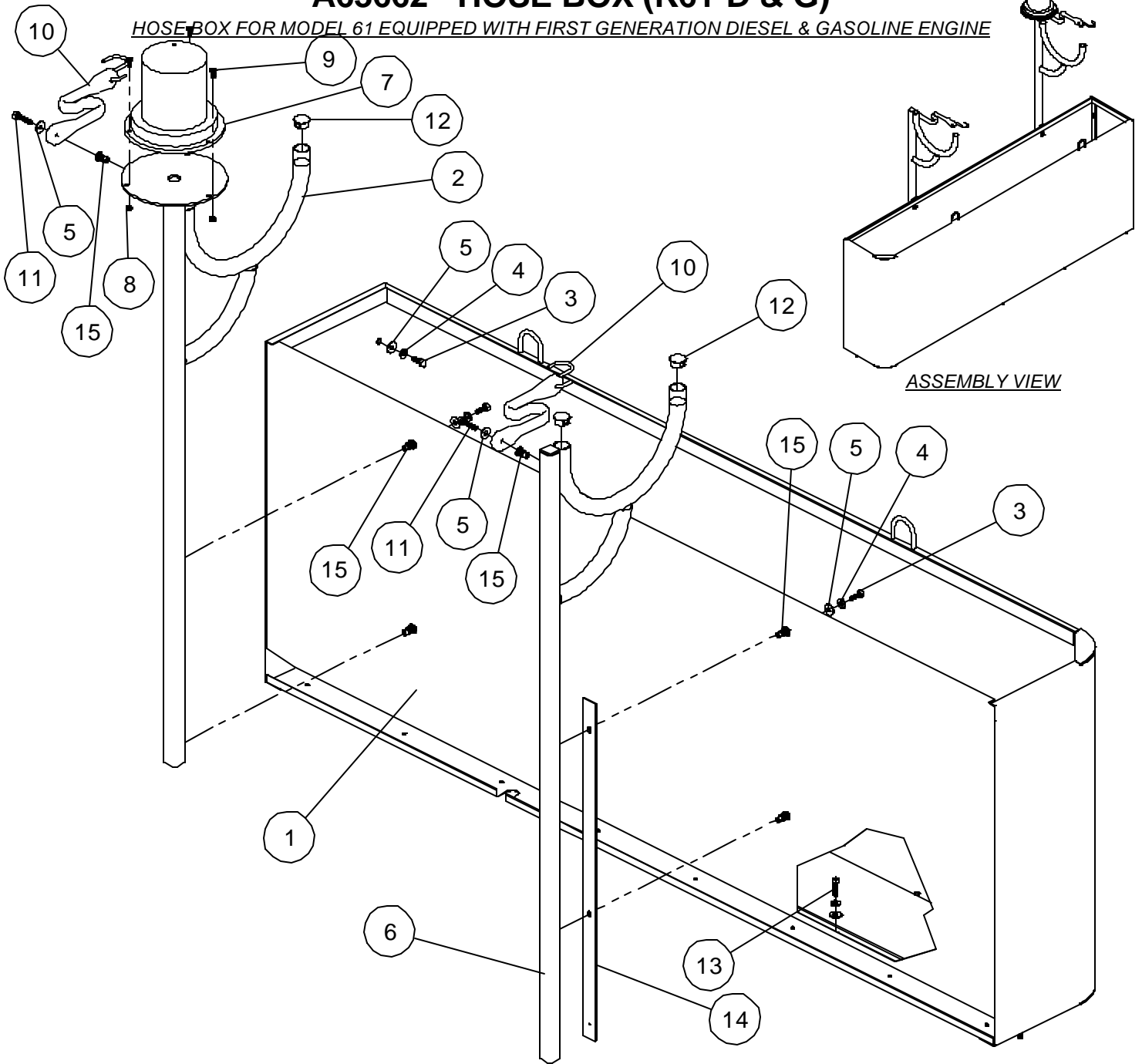
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60089	BAG BOX FRAME	1
2	60092	BAG BOX DOOR	1
3	60093	BAG BOX DOOR HINGE	1
4	62496	BAG BOX SUPPORT	2
5	64385	BAG BOX DOOR FOAM TRIM 1" X .125" X 5-7/8" Lg.	2
6	8264	BAG BOX DOOR LATCH	2
7	90006	LOCK NUT # 10 - 32 UNF	6
8	90005	WASHER # 10	6
9	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	6
10	90051	BOLT HEX. HEAD Ø 1/4" X 20 UNC. X 1/2" Lg.	4
11	90020	LOCK NUT Ø 1/4" - 20 UNC	4
12	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	5
13	90004	WASHER Ø 1/4"	9
14	90018	LOCK WASHER Ø 1/4"	5
15	(COMES WITH 8264)	BAG BOX DOOR LATCH NUT	2

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A63662 - HOSE BOX (K61-D & G)

HOSE BOX FOR MODEL 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62172	HOSE BOX	1
2	62305	NOZZLE & STROBE LIGHT SUPPORT	1
3	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	8
4	90018	LOCK WASHER Ø 1/4"	14
5	90004	WASHER Ø 1/4"	16
6	62180	NOZZLE SUPPORT	1
7	6652	LIGHT FLASHING STROBE	1
8	90006	LOCK NUT # 10 - 32 UNF	3
9	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	3
10	62577	BUNGIE	2
11	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	2
12	27546	HOLE PLUG Ø 7/8"	4
13	90003	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	6
14	66343	TRIM FOAM	1
15	90147	RIV NUT 1/4 - 20 UNC	6

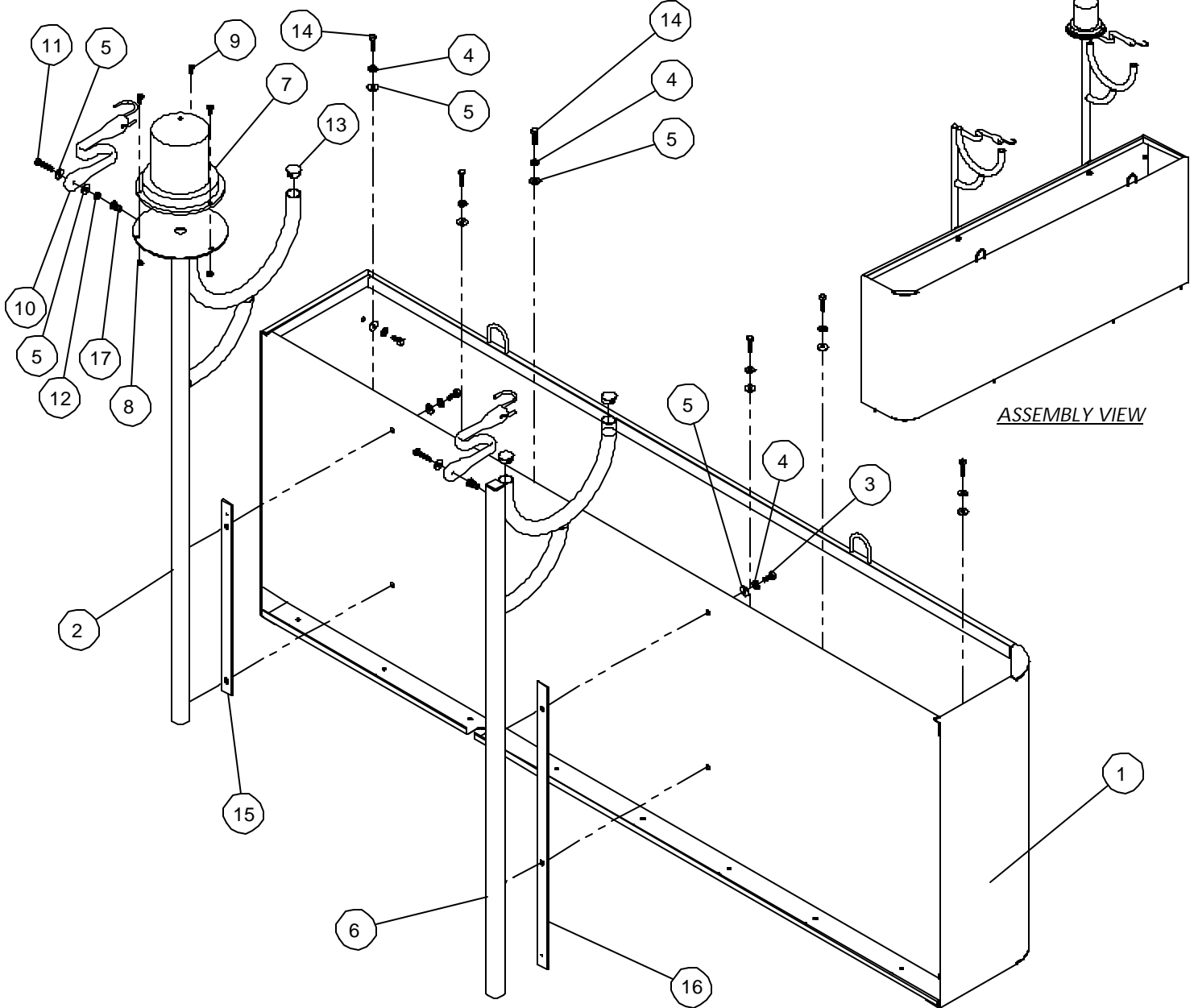
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A60079 - HOSE BOX ASSEMBLY (OPTION K61-DF2)

HOSE BOX ASSEMBLY FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60080	HOSE BOX	1
2	62305	NOZZLE & STROBE LIGHT SUPPORT	1
3	90021	BOLT HEX. HEAD \varnothing 1/4" - 20 UNC. X 3/4" Lg.	8
4	90018	LOCK WASHER \varnothing 1/4"	14
5	90004	WASHER \varnothing 1/4"	17
6	62180	NOZZLE SUPPORT	1
7	6652	LIGHT FLASHING STROBE	1
8	90006	LOCK NUT # 10 - 32 UNF	3
9	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	3
10	62577	BUNGIE	2
11	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	2
12	90017	HEX. NUT \varnothing 1/4" - 20 UNC.	1
13	27546	HOLE PLUG \varnothing 7/8"	3
14	90003	BOLT HEX. HEAD \varnothing 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	6
15	66337	TRIM FOAM	1
16	66343	TRIM FOAM	1
17	90147	RIV NUT 1/4 - 20 UNC	2

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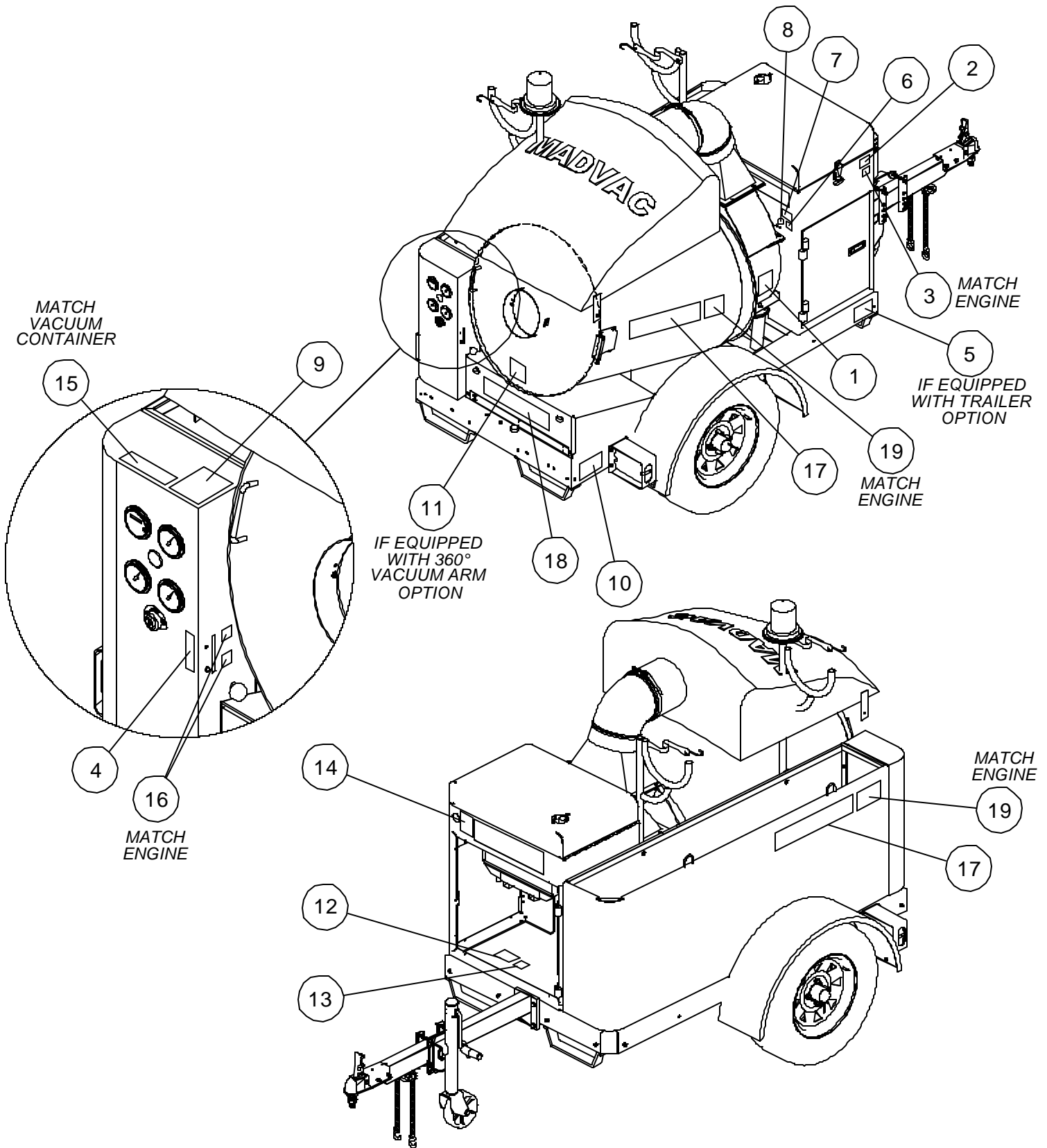
61 Operator's & Parts Manual

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A60246 - DECALS LOCATIONS

DECALS LOCATIONS FOR MODEL 61 EQUIPPED WITH ANY ENGINE CONFIGURATIONS & OPTIONS

DECALS KIT P/N: K62943



A60247 – DECALS KIT (K61-D, G, D2 & DF2 OPTION)

DECALS KIT FOR MODEL 61 EQUIPPED WITH ANY ENGINE CONFIGURATIONS & OPTIONS

DECAL KIT P/N: K62943

MADE IN CANADA

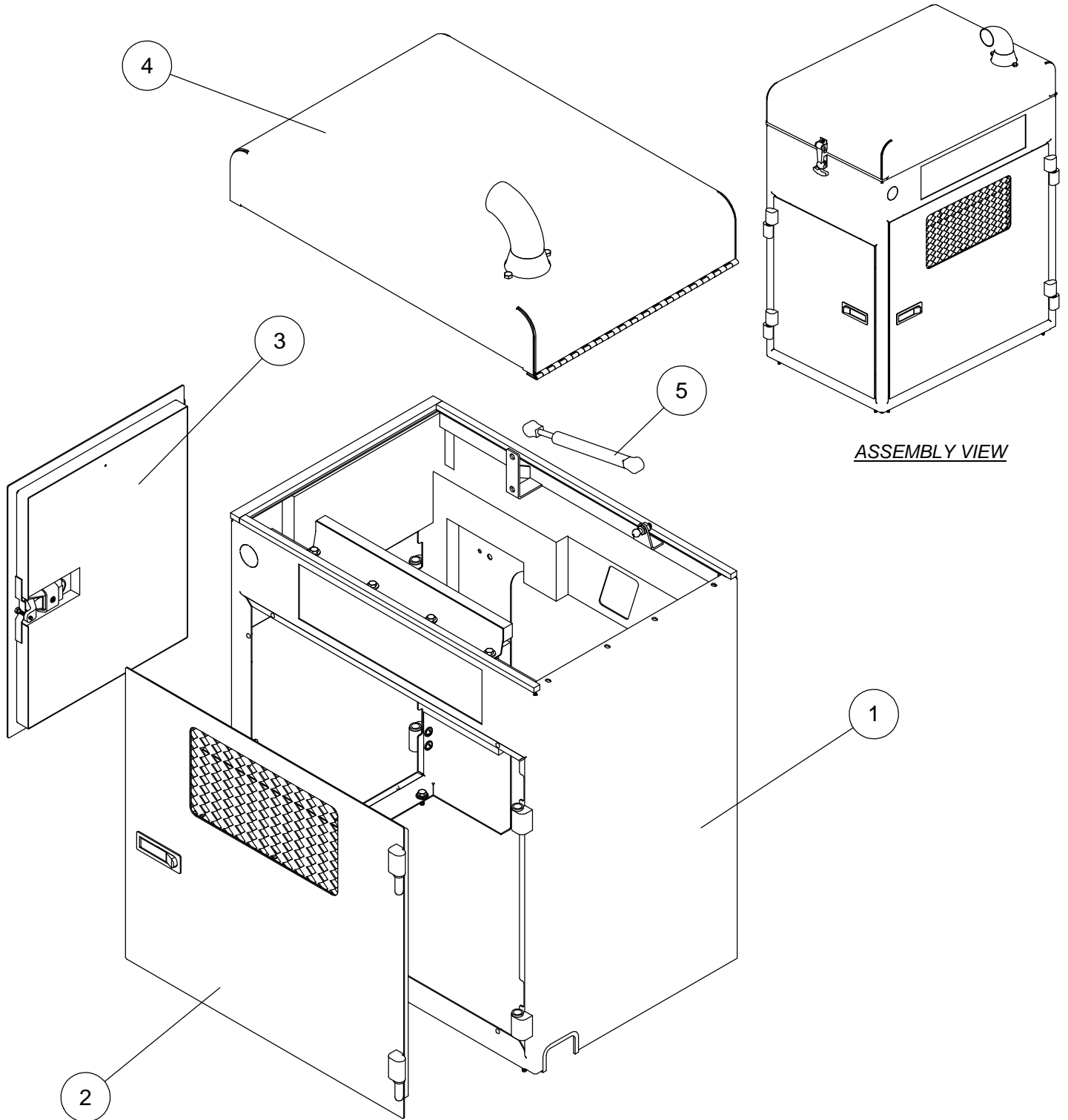
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61-D G D2 LPGE

A60239 - ENGINE HOOD ASSEMBLY (OPTION 61-D2)

ENGINE HOOD ASSEMBLY FOR 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE



ASSEMBLY VIEW

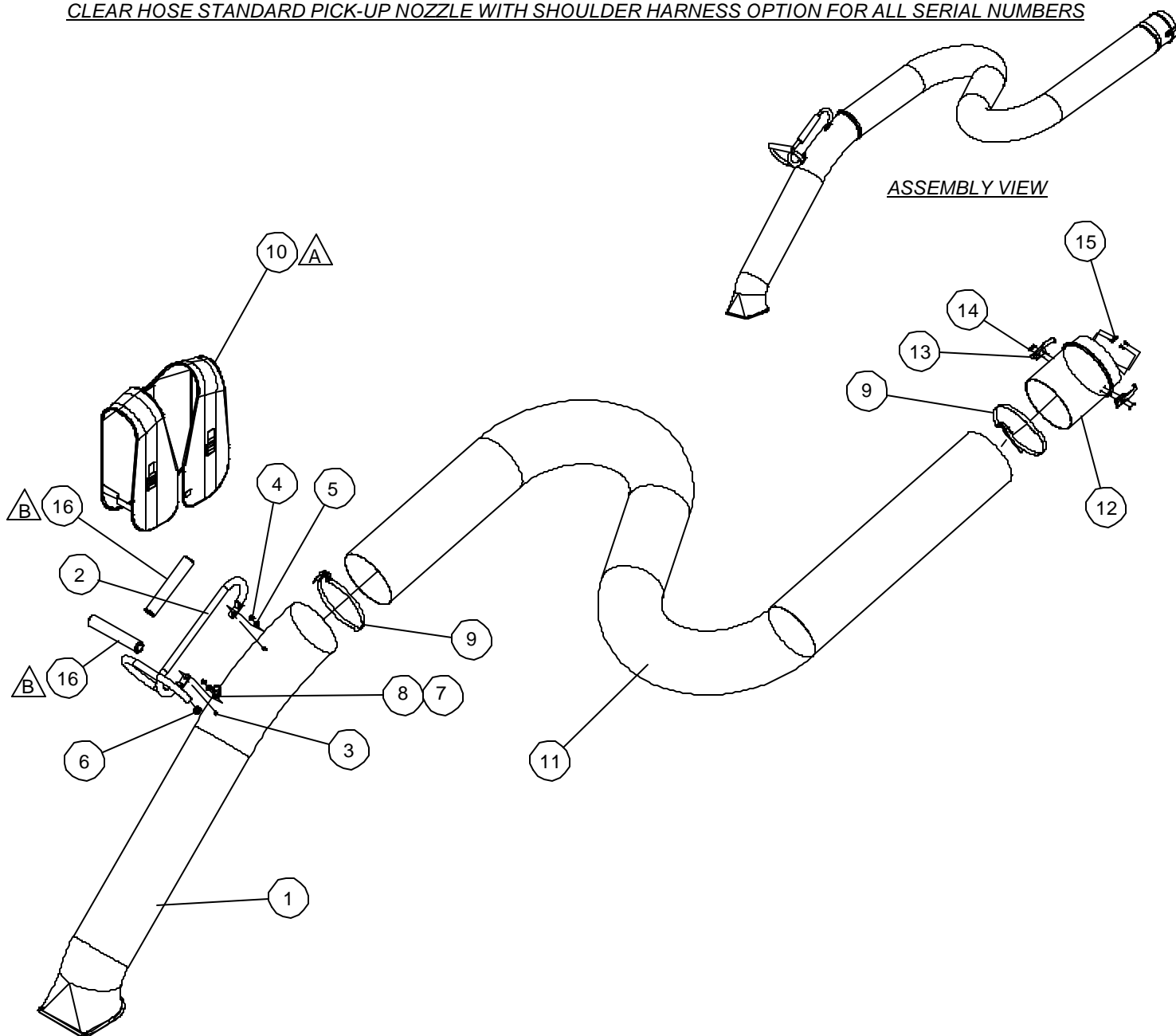
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60048)	HOOD FRAME ASSEMBLY	1
2	(SEE DRAWING A63646)	INTAKE DOOR ASSEMBLY	1
3	(SEE DRAWING A63640)	SIDE DOOR ASSEMBLY	1
4	(SEE DRAWING A60047)	HOOD COVER ASSEMBLY	1
5	28087	GAS SPRING	1

Vacuum Parts Drawings Section

Drawings	Description	Revision	Page
A64547	– 8” Pick-Up Nozzle with Shoulder Harness (Option K29017)		
	<i>(All Engines Configurations)</i>	B	V-1
A60208	– 6” Vacuum Hose (Option K60209)		
	<i>(All Engines Configurations)</i>	A	V-2
A60205	– 6” Aluminum Nozzle Assembly (Option K60209)		
	<i>(All Engines Configurations)</i>	---	V-3
A17175	– Hose Extension 8” X 25’ (Option K13063)		
	<i>(All Engines Configurations)</i>	---	V-4
A17174	– Hose Extension 8” X 15’ (Option K9899)		
	<i>(All Engines Configurations)</i>	---	V-5
A64677	– 5” Pick-Up Nozzle (Option K63818)		
	<i>(All Engines Configurations)</i>	A	V-6
A64561	– 8” Pick-Up Nozzle Extension Standard 18’ (Option K28354)		
	<i>(All Engines Configurations)</i>	---	V-7
A60037	– Power Pack & Fan Casing Assembly (K61-D2 Option)		
	<i>(Second Generation Diesel Engine)</i>	---	V-8
A66386	– High Capacity Container (Option K63700)		
	<i>(First Generation Diesel & Gasoline Engine)</i>	A	V-9
A64340	– Fan Casing (K61-D & G Option)		
	<i>(First Generation Diesel & Gasoline Engine)</i>	---	V-10
A63689	– Container On Frame (K61-D & G Option)		
	<i>(First Generation Diesel & Gasoline Engine)</i>	A	V-11
A63670	– Container (K61-D & G Option)		
	<i>(First Generation Diesel & Gasoline Engine)</i>	A	V-12
A60025	– Vacuum Fan Casing (K61-D2 Option)		
	<i>(Second Generation Diesel Engine)</i>	---	V-13
A60094	– Container Assembly (K61-DF2 Option)		
	<i>(Dual Fuel Engine Configuration)</i>	---	V-14
A63664	– Exhaust Filter Bag		
	<i>(All Engines Configurations)</i>	A	V-15
A60237	– Container Cover (Oversize Container)		
	<i>(All Engines Configurations)</i>	---	V-16

A64547 - 8" PICK-UP NOZZLE WITH SHOULDER HARNESS (OPTION K29017 - HAND HELD 8" Dia.)

CLEAR HOSE STANDARD PICK-UP NOZZLE WITH SHOULDER HARNESS OPTION FOR ALL SERIAL NUMBERS



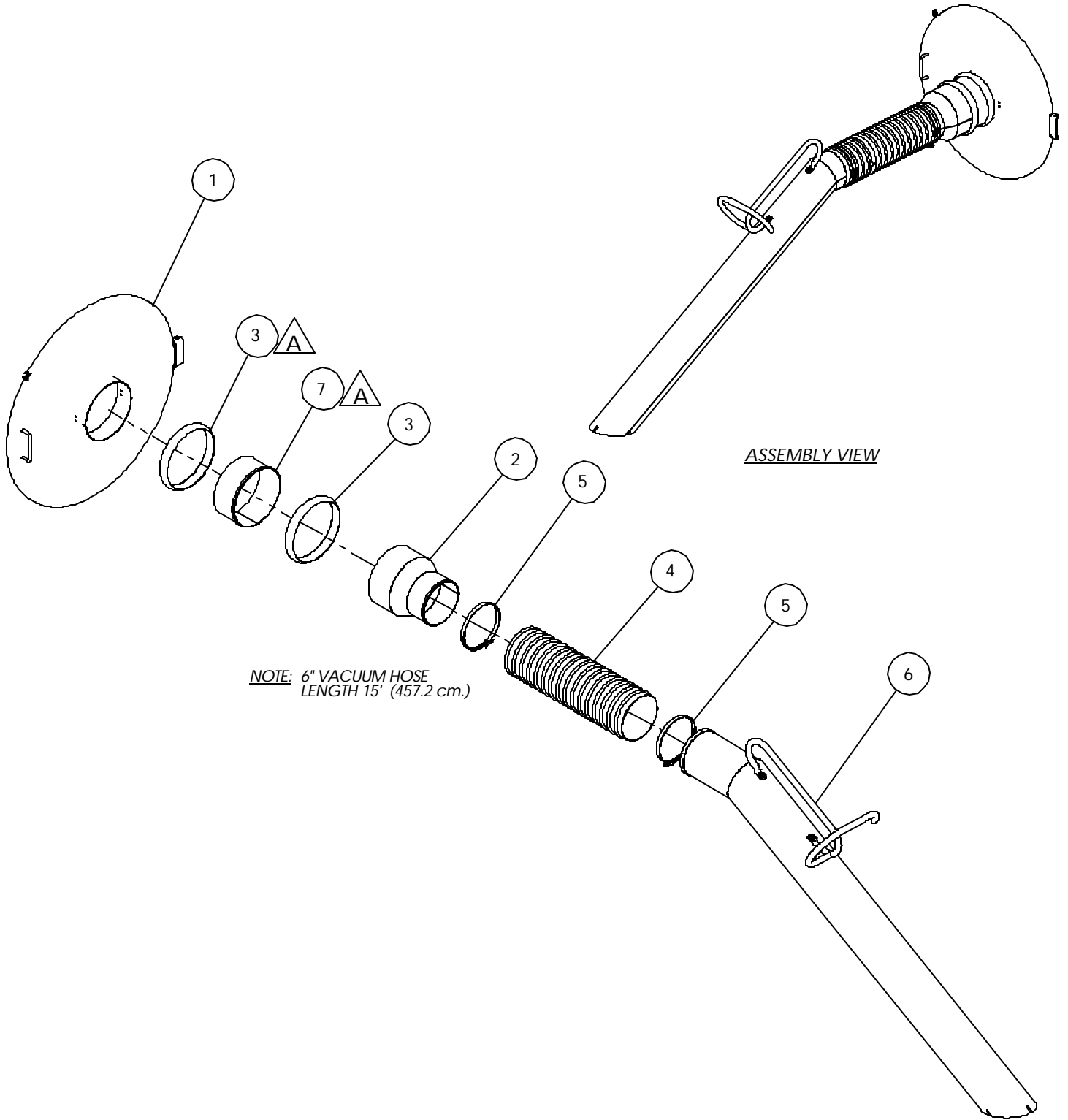
ASSEMBLY VIEW

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	29018	PICK-UP NOZZLE (Ø 8")	1
2	29077	Ø 8" PICK-UP NOZZLE HANDLE	1
3	90410	CARRIAGE BOLT 5/16" - 18 UNC. X 2" Lg.	2
4	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
5	90001	WASHER Ø 5/16"	2
6	17066	HOLE PLUG Ø 3/4"	1
7	8582	D'RING CLIP	1
8	8337	D RING CLIP	1
9	8507	HOSE CLAMP 8" Ø	2
A	10	62668 WANDERHOSE SUPPORT VEST	1
11	27050	VACUUM HOSE CLEAR 8" X 15' Lg.	1
12	63883	CONNECTOR, PLASTIC QUICK	1
13	63885	LATCH WITH SPRING LOCK	2
14	90006	LOCK NUT # 10 - 32 UNF	4
15	90146	SCREW ROUND HEAD SQUARE DRIVE 10 - 32 UNF. X 1/2" Lg.	4
A	16	7438 FOAM HANDLE	2

A60208 - 6" VACUUM HOSE (OPTION K60209)

Vacuum Section

6" VACUUM HOSE FOR MODEL 61 EQUIPPED WITH 6" VACUUM NOZZLE OPTION (K60209 OPTION)



NOTE: 6" VACUUM HOSE
LENGTH 15' (457.2 cm.)

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60189	OVERSIZE CONTAINER QUICK CONNECT COVER	1
2	60191	REDUCER Ø8" TO Ø6"	1
3	60006	QF CLAMP 8" DIA	2
4	60206	HOSE Ø6" X 15' CLEAR	1
5	60207	CLAMP HOSE Ø6"	2
6	(SEE DRAWING A60205)	Ø6" ALUMINIUM NOZZLE ASS'Y	1
7	60196	HOSE CONNECTOR	1

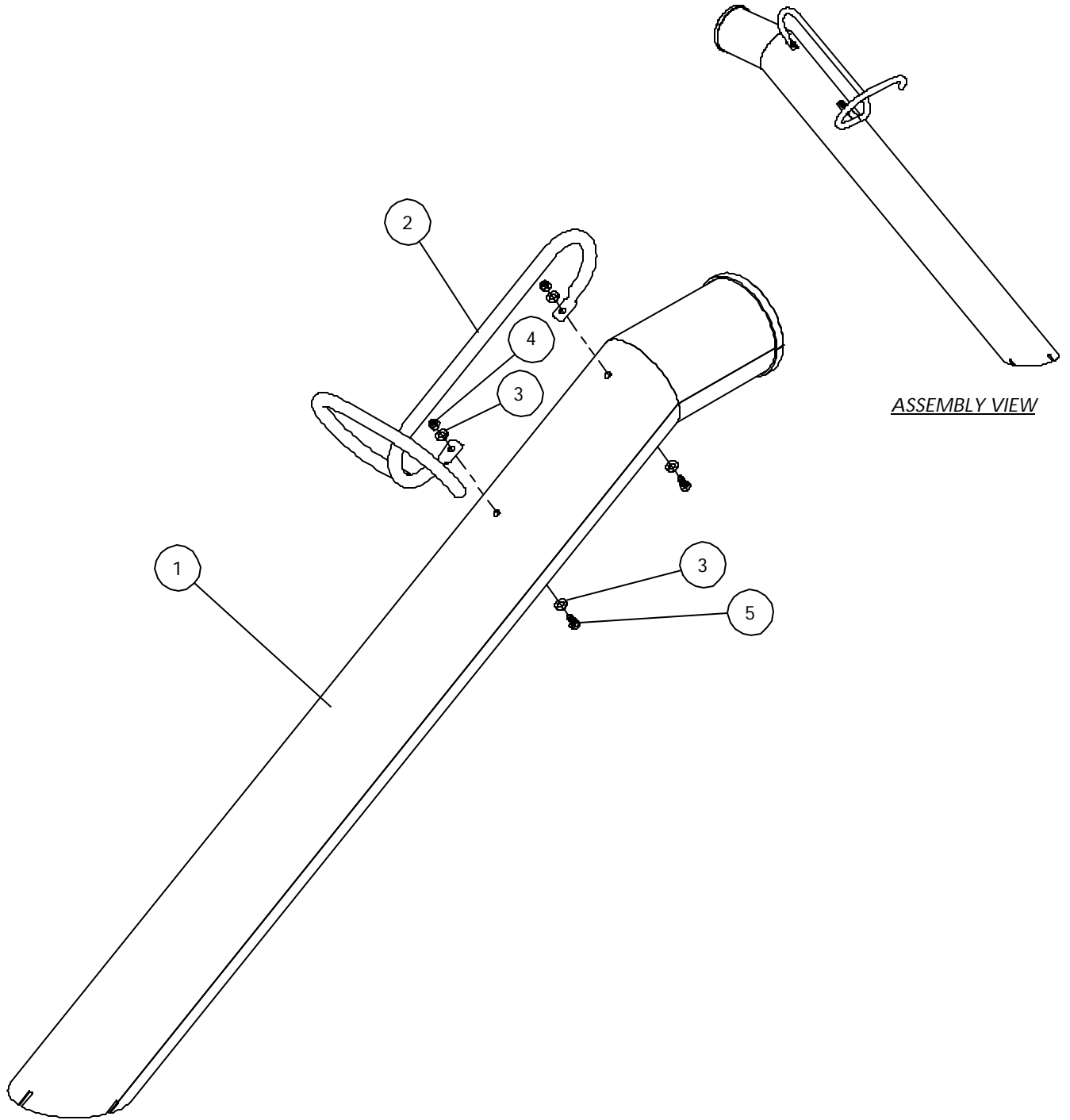
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A60205 - 6" ALUMINUM NOZZLE ASSEMBLY

6" ALUMINUM VACUUM NOZZLE FOR MODEL 61 EQUIPPED WITH QUICK CONNECT 6" ALUMINUM NOZZLE (OPTION K60209)



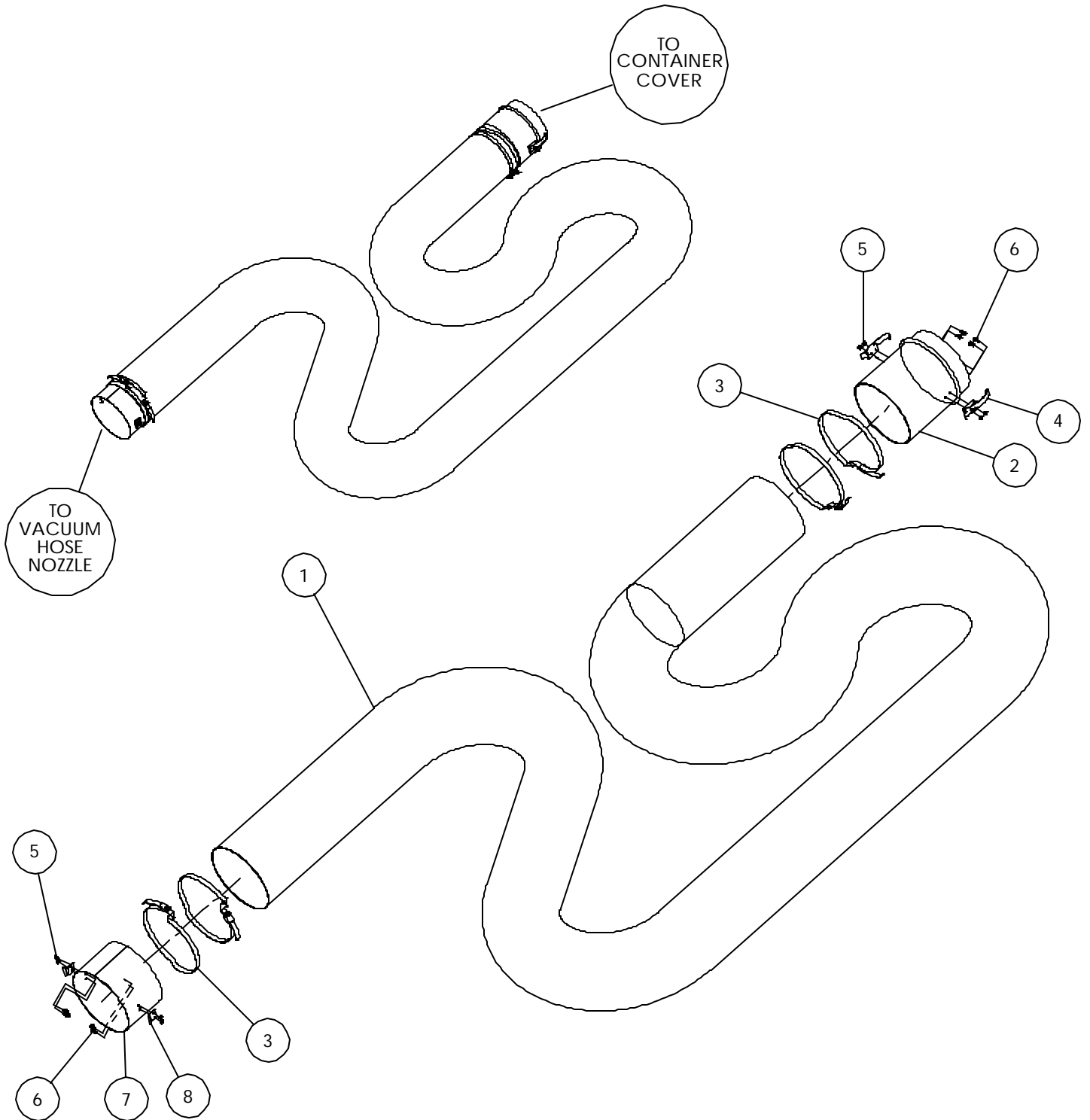
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60202	Ø6" ALUMINIUM NOZZLE	1
2	60199	Ø 6" PICK-UP NOZZLE HANDLE	1
3	90001	WASHER Ø 5/16"	4
4	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
5	90022	BOLT HEX. HEAD Ø 5/16" - 18 UNC. X 3/4" Lg.	2

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A17175 - HOSE EXTENSION 8" X 25' (OPTION K13063)

HOSE EXTENSION 8" X 25' (REGULAR DUTY) WITH CLAMP AND CONNECTOR FOR ALL 101 & 61 MODEL



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	13062	VACUUM HOSE CLEAR 8" X 25' Lg.	1
2	63883	CONNECTOR, PLASTIC QUICK	1
3	8507	HOSE CLAMP 8" Ø	4
4	63885	LATCH WITH SPRING LOCK	2
5	90006	LOCK NUT # 10 - 32 UNF	8
6	90146	SCREW ROUND HEAD SQUARE DRIVE 10 - 32 UNF. X 1/2" Lg.	8
7	63893	CONNECTOR, EXTENSION HOSE	1
8	7498	AGRAFFE ZINC DUST BRACKET	2

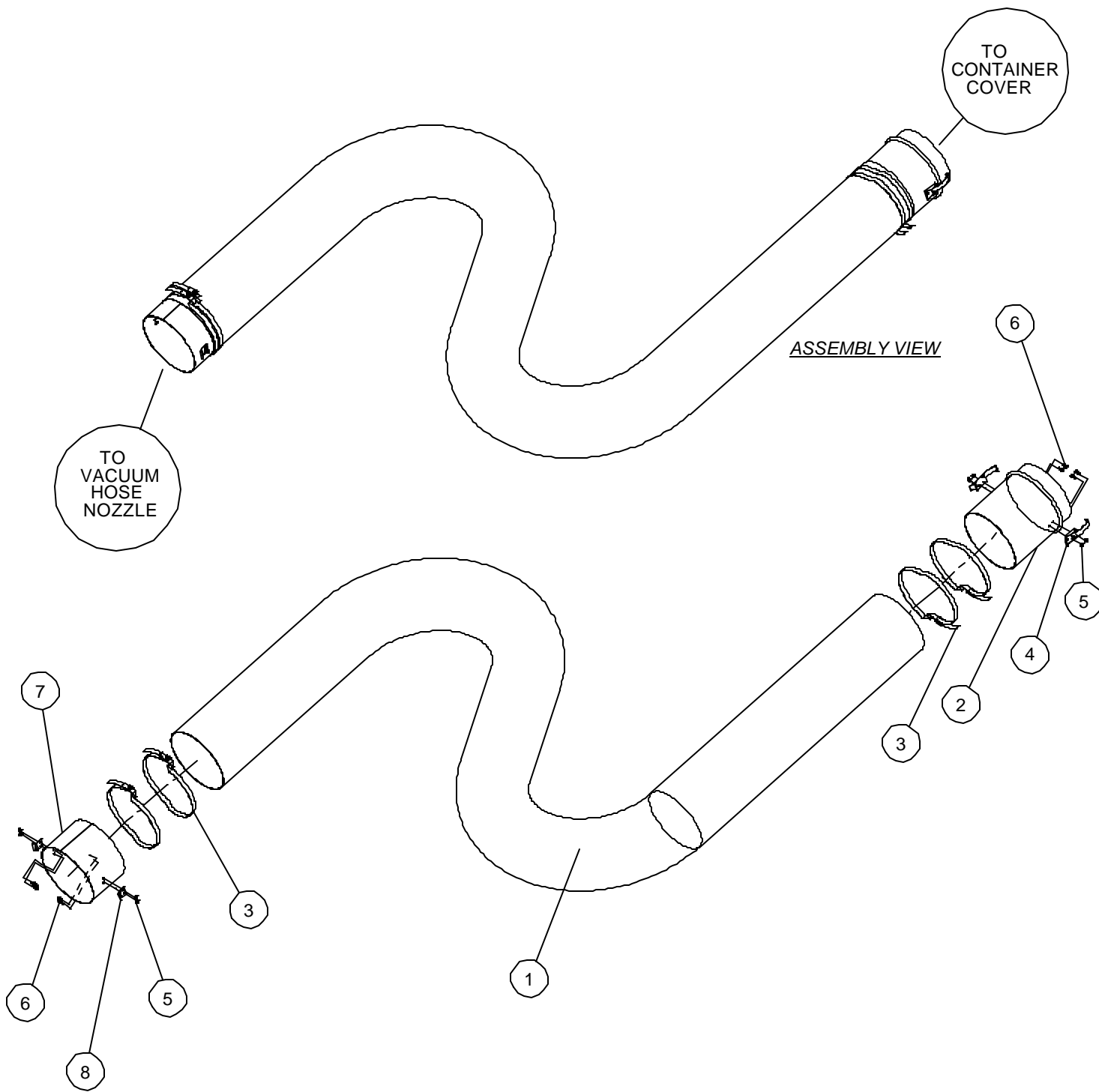
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May 2002, Revision: ---

A17174 - 8" x 15' HOSE EXTENSION (OPTION K9899)

HOSE EXTENSION 8" X 15' CLEAR (REGULAR DUTY) WITH CLAMP AND CONNECTOR FOR ALL 101& 61 MODEL



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	27050	VACUUM HOSE CLEAR 8" X 15' Lg.	1
2	63883	CONNECTOR, PLASTIC QUICK	1
3	8507	HOSE CLAMP 8" Ø	4
4	63885	LATCH WITH SPRING LOCK	2
5	90006	LOCK NUT # 10 - 32 UNF	8
6	90146	SCREW ROUND HEAD SQUARE DRIVE 10 - 32 UNF. X 1/2" Lg.	8
7	63893	CONNECTOR, EXTENSION HOSE	1
8	7498	AGRAFFE ZINC DUST BRACKET	2

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June 2002, Revision: ---

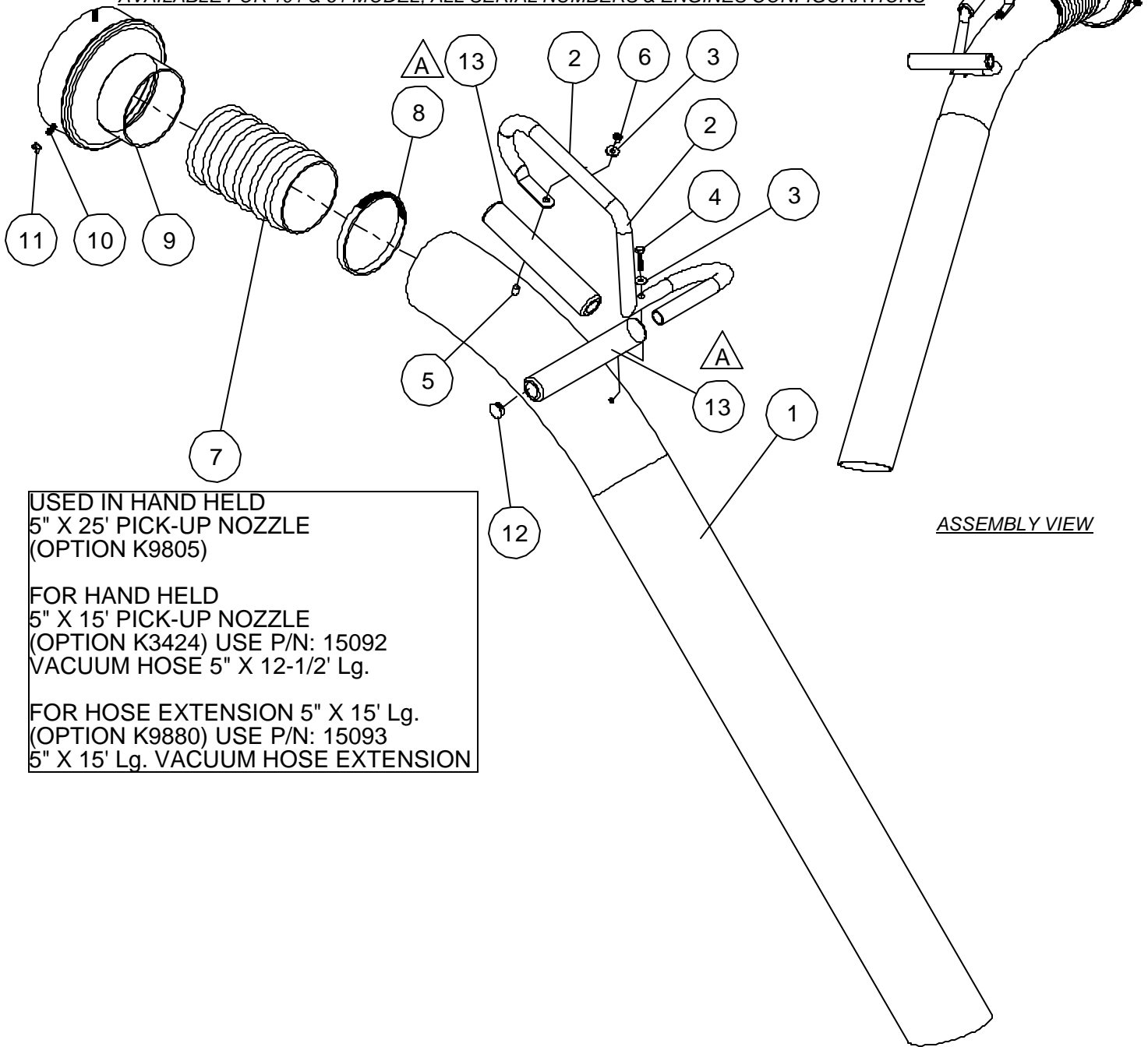
A64677 - 5" PICK-UP NOZZLE (OPTION K63818)

HAND HELD 5" X 15' Lg. PICK-UP NOZZLE (OPTION K3424)

HAND HELD 5" X 25' Lg. PICK-UP NOZZLE (OPTION K9805)

HOSE EXTENSION 5" X 15' (OPTION K9880)

AVAILABLE FOR 101 & 61 MODEL, ALL SERIAL NUMBERS & ENGINES CONFIGURATIONS



USED IN HAND HELD
5" X 25' PICK-UP NOZZLE
(OPTION K9805)

FOR HAND HELD
5" X 15' PICK-UP NOZZLE
(OPTION K3424) USE P/N: 15092
VACUUM HOSE 5" X 12-1/2' Lg.

FOR HOSE EXTENSION 5" X 15' Lg.
(OPTION K9880) USE P/N: 15093
5" X 15' Lg. VACUUM HOSE EXTENSION

ASSEMBLY VIEW

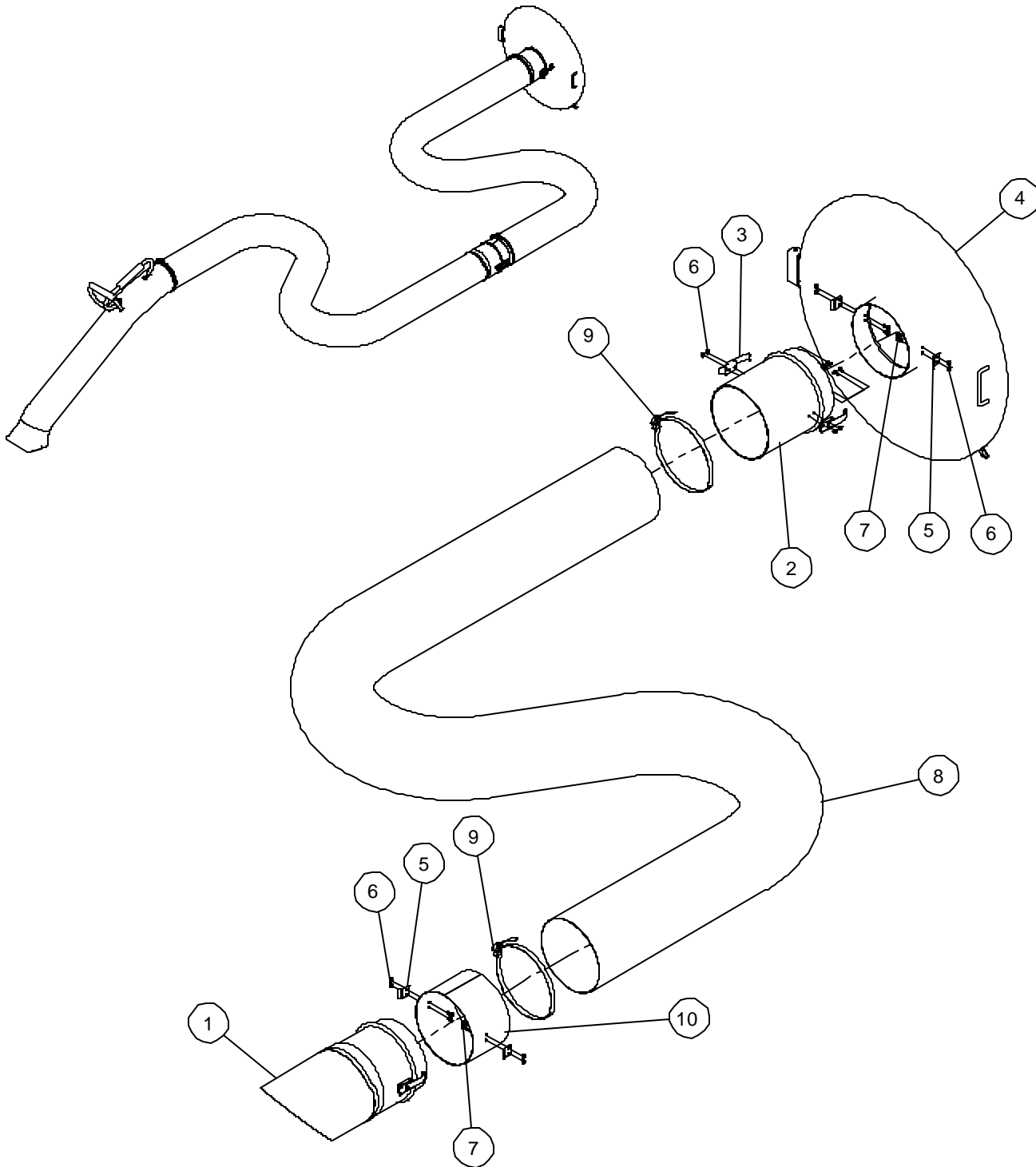
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY	
1	3440	5" PICK-UP NOZZLE	1	
2	29069	5" PICK-UP NOZZLE HANDLE	1	
3	90004	WASHER Ø 1/4"	2	
4	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	1	
5	90989	CARRIAGE BOLT 5/16" - 18 UNC X 3/4" Lg.	1	
6	90020	LOCK NUT Ø 1/4" - 20 UNC	1	
7	8558	HOSE 5" X 20' CLEAR	1	
8	8566	CLAMP HOSE Ø 5-1/4"	1	
9	3432	8" TO 5" REDUCER	1	
10	90021	BOLT HEX. HEAD 1/4" - 20 UNC. X 3/4" Lg.	3	
11	90279	WING NUT 1/4" X 20	3	
12	17066	HOLE PLUG Ø 3/4"	1	
A	13	7438	FOAM HANDLE	2

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A64561 - 8" PICK-UP NOZZLE EXTENSION (OPTION K28354)

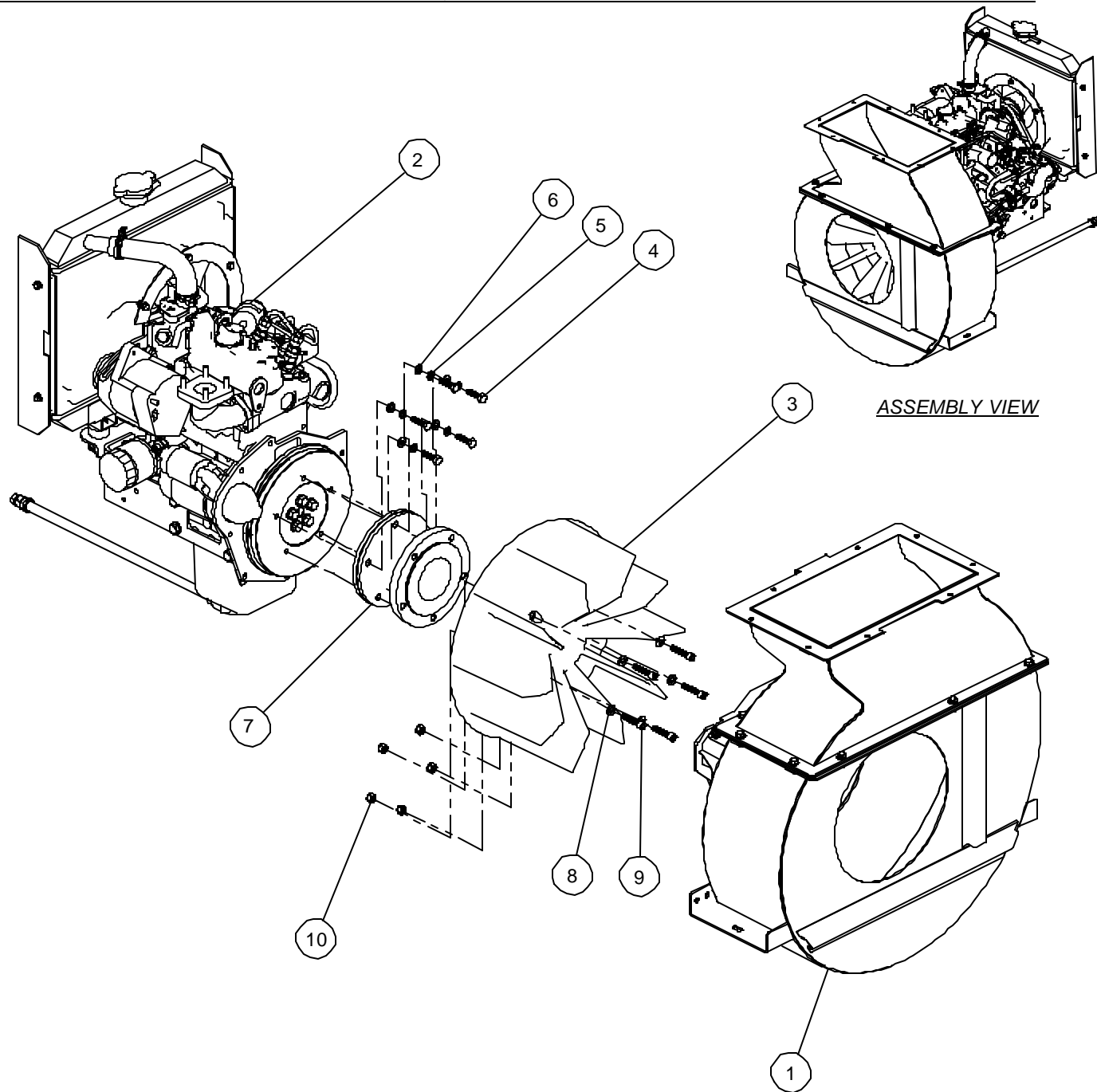
8" PICK-UP NOZZLE EXTENSION OPTION FOR ALL SERIAL NUMBERS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A64547)	8" PICK-UP NOZZLE OPTION	1
2	63883	CONNECTOR, PLASTIC QUICK	1
3	63885	LATCH WITH SPRING LOCK	2
4	63427	OVERSIZE CONTAINER COVER	1
5	7498	AGRAFFE ZINC DUST BRACKET	4
6	90006	LOCK NUT # 10 - 32 UNF	12
7	90146	SCREW ROUND HEAD SQUARE DRIVE 10 - 32 UNF. X 1/2" Lg.	12
8	27050	VACUUM HOSE CLEAR 8" X 15' Lg.	1
9	8507	HOSE CLAMP 8" Ø	2
10	63893	CONNECTOR, EXTENSION HOSE	1

A60037 - POWER PACK & FAN CASING (K61-D2 OPTION)

POWER PACK & FAN CASING FOR MODEL 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE OPTION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60025)	VOLUTE ASS'Y	1
2	60024	POWERPACK ASS'Y	1
3	65131	FAN CASTING	1
4	66630	BOLT HEX HEAD Ø M8 X 1.25 X 30mm lg. TORQUE:24 lb-ft	5
5	90752	LOCK WASHER Ø M8	5
6	90757	WASHER Ø M8	5
7	66631	FAN ADAPTER	1
8	90023	LOCK WASHER Ø 5/16"	5
9	66635	SOCKET HEAD Ø 5/16" -18 UNC X 1-1/2" . TORQUE:18 lb-ft	5
10	90000	LOCK NUT Ø 5/16" - 18 UNC.	5

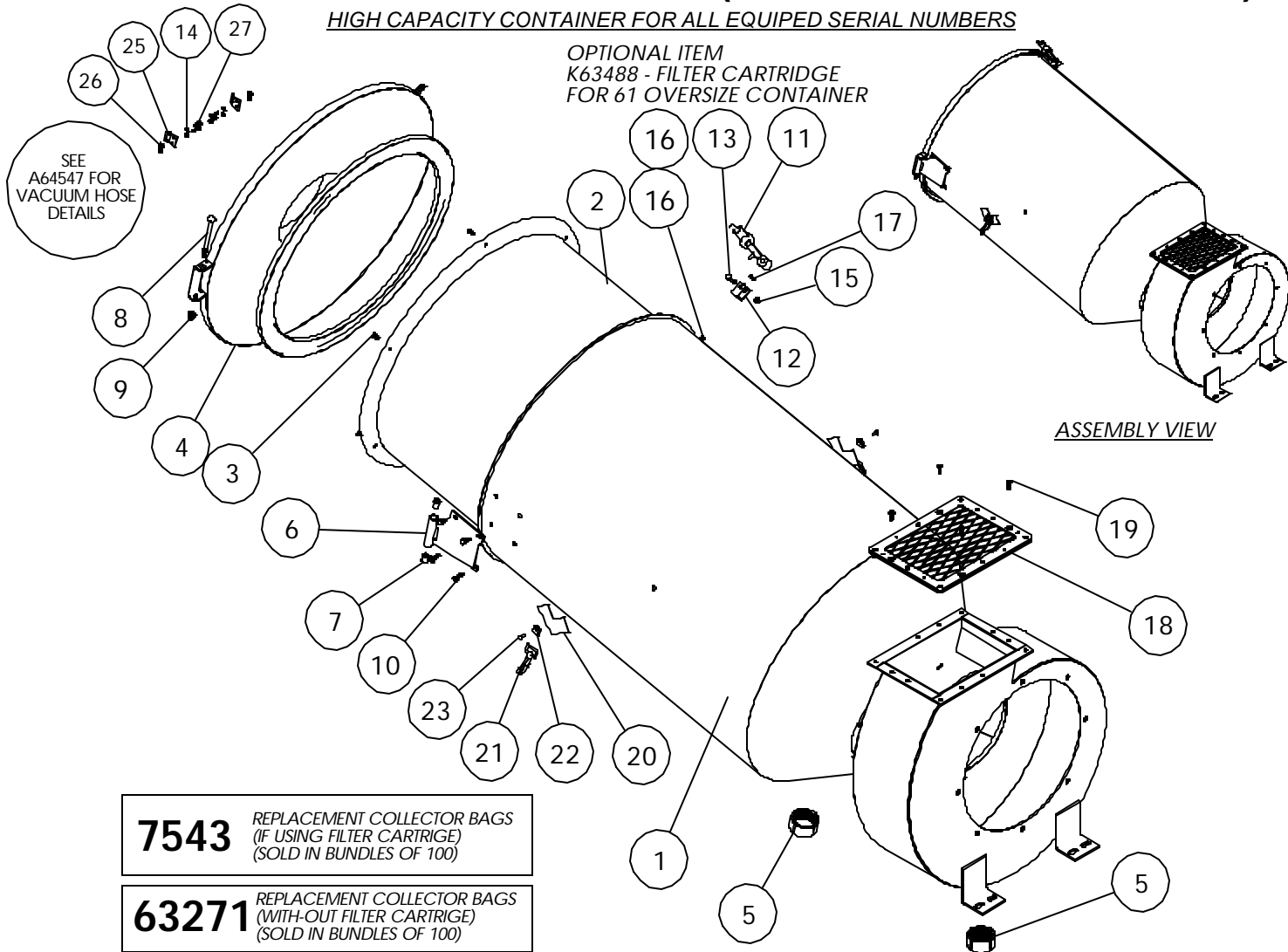
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A66386 - HIGH CAPACITY CONTAINER (K63700 - 61 HIGH CAPACITY)

HIGH CAPACITY CONTAINER FOR ALL EQUIPED SERIAL NUMBERS

OPTIONAL ITEM
K63488 - FILTER CARTRIDGE
FOR 61 OVERSIZE CONTAINER

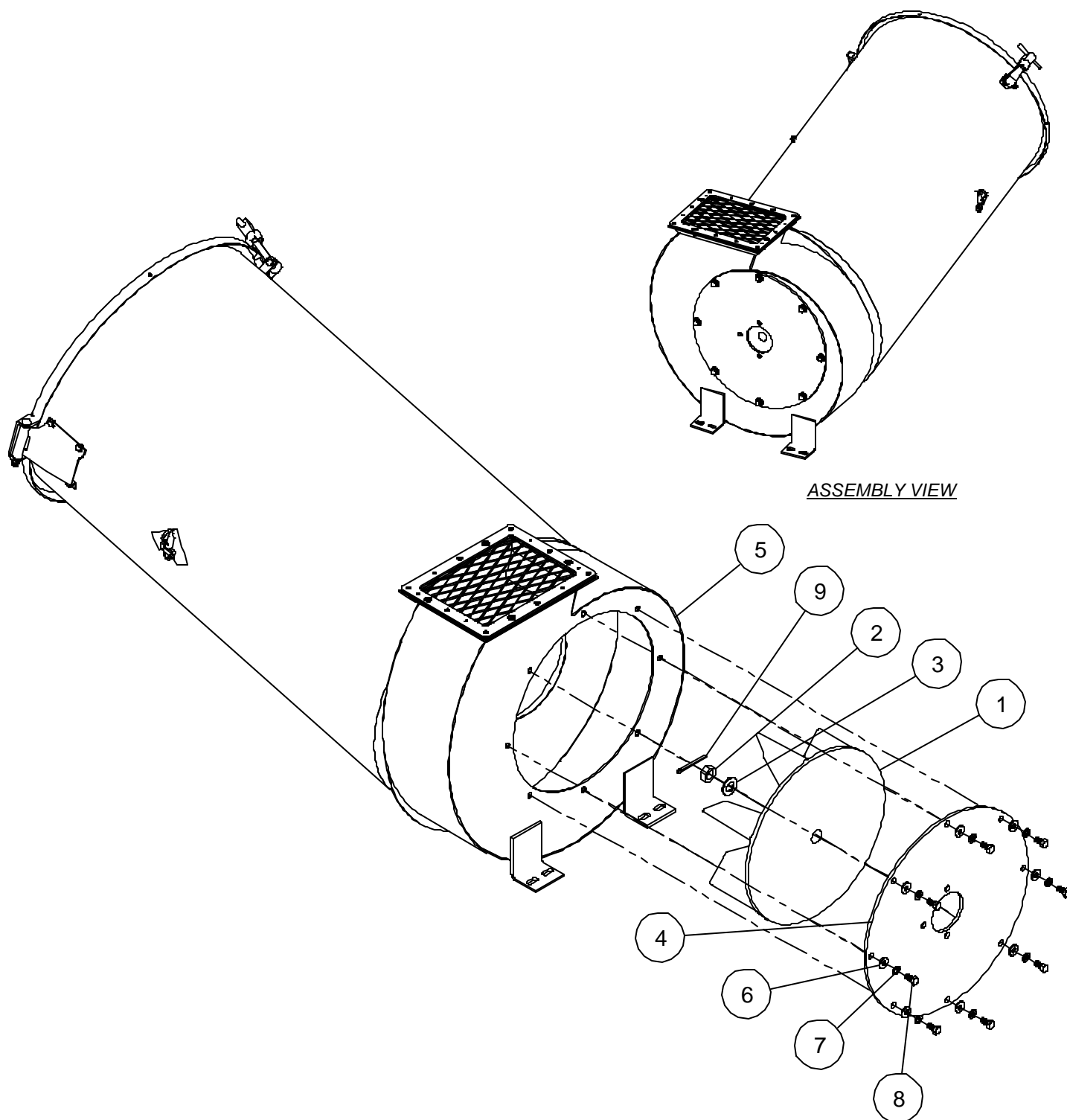


- 7543** REPLACEMENT COLLECTOR BAGS
(IF USING FILTER CARTRIDGE)
(SOLD IN BUNDLES OF 100)
- 63271** REPLACEMENT COLLECTOR BAGS
(WITH-OUT FILTER CARTRIDGE)
(SOLD IN BUNDLES OF 100)

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63470	OVERSIZE CONTAINER	1
2	63409	OVERSIZE CONTAINER BASKET	1
3	90352	SCREW FLAT HEAD SQUARE DRIVE Ø 1/4" - 20 UNC X 1/2" Lg	6
4	63427	OVERSIZE CONTAINER COVER	1
5	62941	PVC CAP 1-1/2"	2
6	62536	CONTAINER COVER HINGE	1
7	62609	BUSHING	2
8	62607	CARRIAGE BOLT DIA 3/8-16UNC X 5 LG	1
9	90046	LOCK NUT Ø 3/8" - 16 UNC.	1
10	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	4
11	8035	RUBBER CLAMP	1
12	17702	ANCHOR BRACKET	1
13	90164	BOLT HEX HEAD Ø1/4" - 20 UNC. X 1-3/4" Lg	1
14	90005	WASHER # 10	5
15	90020	LOCK NUT Ø 1/4" - 20 UNC	1
16	90450	ROUND HEAD SQUARE DRIVE SCREW Ø 1/4" - 20 UNC X 1/2" Lg.	1
17	90017	HEX. NUT Ø 1/4" - 20 UNC.	5
18	3904	OUTLET GUARD	1
19	90048	FLAT COUNTERSINK HEAD SCREW Ø 1/4" - 20 UNC X 3/4" Lg.	4
20	64620	ANTI-SLIP	2
21	8159	HOOK SNAP	2
22	8337	D RING CLIP	2
23	90049	RIVET Ø 3/16" X 1/2" Lg.	2
24	63273	FILTER CARTRIDGE	1
25	7498	AGRAFFE ZINC DUST BRACKET	2
26	90006	LOCK NUT # 10 - 32 UNF	4
27	90029	ROUND HEAD CAP SCREW # 10 - 32 UNC. X 3/4" Lg.	4

A64340 - FAN CASING (K61-D & G OPTION)

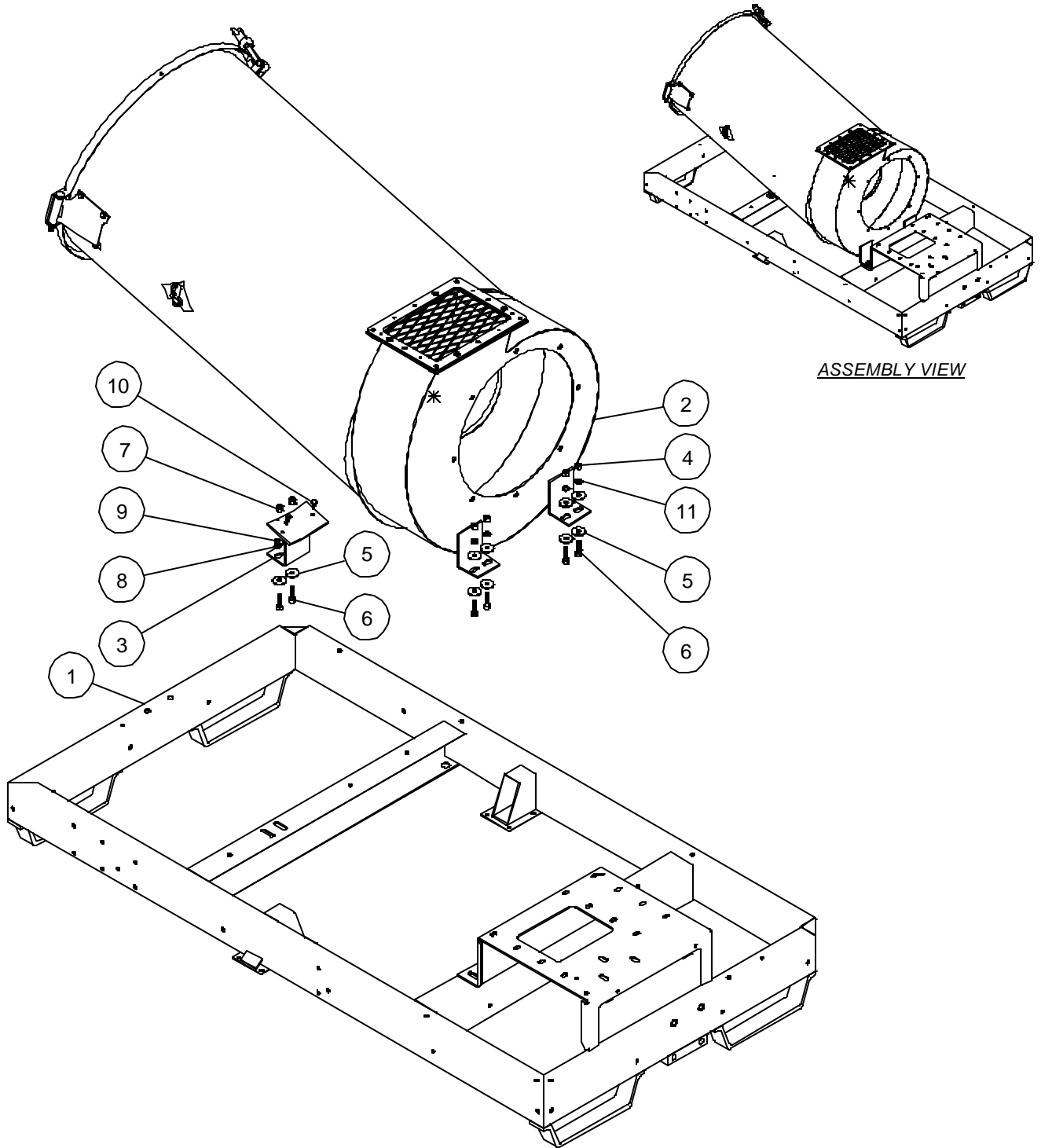
FAN CASING FOR MODEL 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE OPTION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62801	FAN	1
2	90286	JAM NUT 3/4" X 16 UNF.	1
3	63168	WASHER Ø3/4	1
4	4001	REMOVABLE PLATE	1
5	63670	CONTAINER	1
6	90066	WASHER Ø 3/8"	8
7	90065	LOCK WASHER Ø3/8	8
8	90190	BOLT HEX HEAD Ø 3/8" X 16 X 3/4" lg	8
9	90383	CUTTER PIN 1/2" X 2-1/2 " Lg.	1

A63689 - CONTAINER ON FRAME (K61-D & G OPTION)

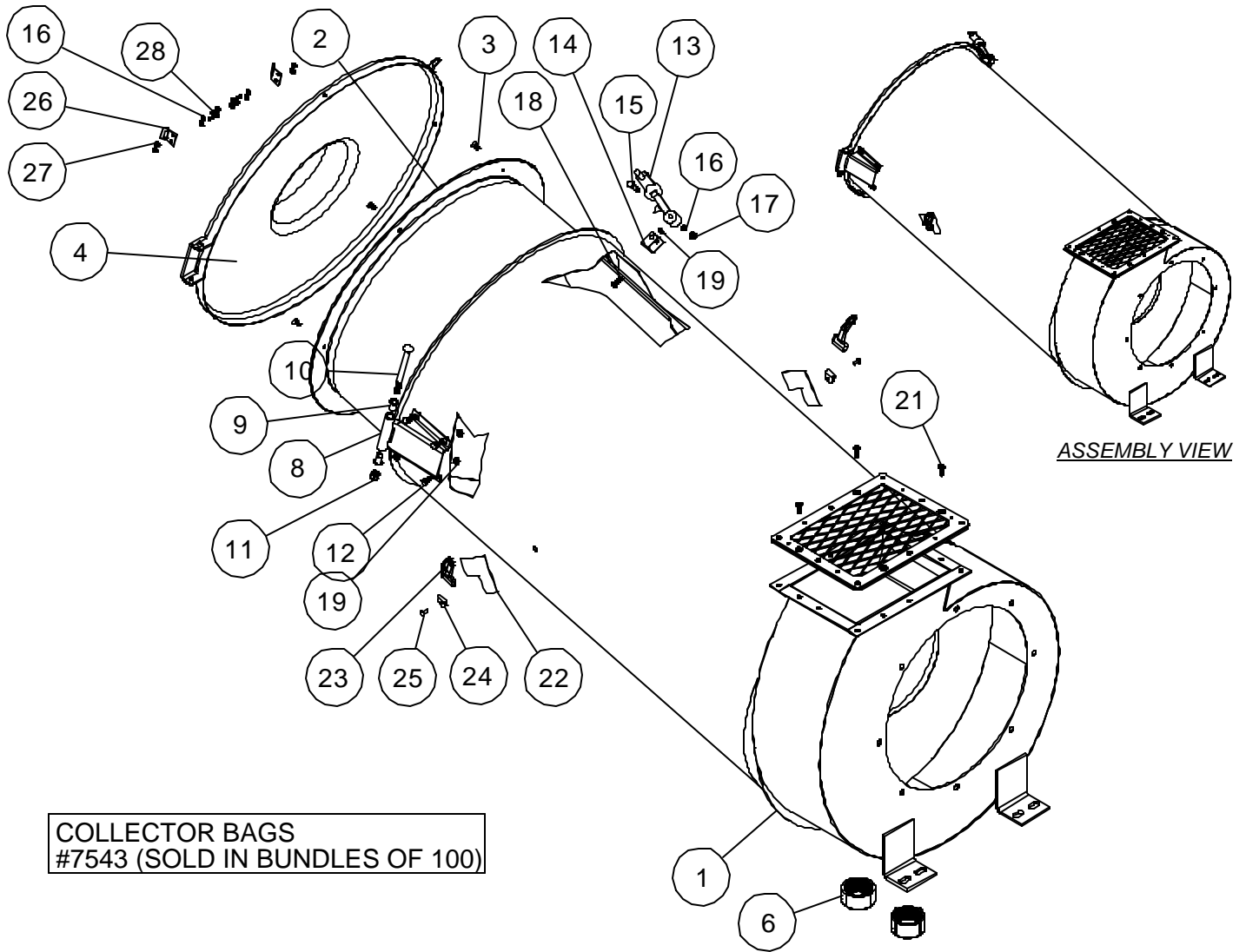
CONTAINER MOUNT FOR MODEL 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE OPTION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62097	FRAME	1
2	63670	CONTAINER	1
3	62119	CONTAINER SUPPORT	1
4	90093	NUT Ø 3/8" - 16 UNC.	4
5	90034	FLAT WASHER Ø 3/8" TYPE B-B	10
6	90042	BOLT HEX. HEAD Ø 3/8" - 16 UNC. X 1-1/4" Lg.	6
7	90046	LOCK NUT Ø 3/8" - 16 UNC.	2
8	90017	HEX. NUT Ø 1/4" - 20 UNC.	2
9	90004	WASHER Ø 1/4"	2
10	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	2
11	90065	LOCK WASHER Ø3/8	4

A63670 - CONTAINER (K61-D & G OPTION)

CONTAINER FOR MODEL 61 EQUIPPED WITH FIRST GENERATION DIESEL & GASOLINE ENGINE OPTION

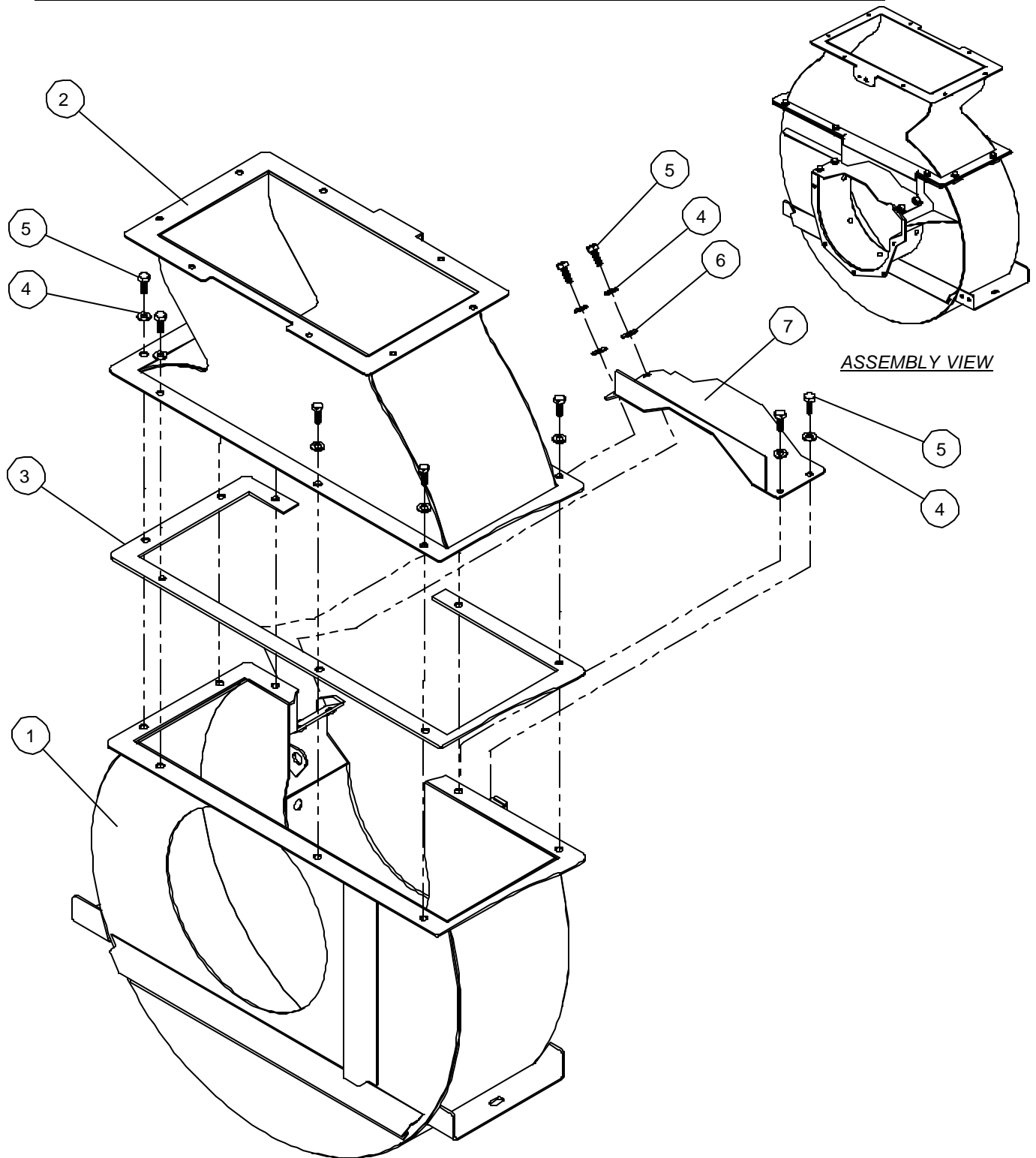


COLLECTOR BAGS
#7543 (SOLD IN BUNDLES OF 100)

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62366	CONTAINER	1
2	3963	EXPANDED METAL BIN	1
3	90352	SCREW FLAT HEAD SQUARE DRIVE Ø 1/4" - 20 UNC X 1/2" lg	6
4	62364	COVER	1
6	62941	PVC CAP 1-1/2"	2
8	62536	CONTAINER COVER HINGE	1
9	62609	BUSHING	2
10	62607	CARRIAGE BOLT DIA 3/8-16UNC X 5 LG	1
11	90046	LOCK NUT Ø 3/8" - 16 UNC.	1
12	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	4
13	8035	RUBBER CLAMP	1
14	17702	ANCHOR BRACKET	1
15	90164	BOLT HEX HEAD Ø1/4" - 20 UNC. X 1-3/4" Lg	1
16	90005	WASHER # 10	5
17	90020	LOCK NUT Ø 1/4" - 20 UNC	1
18	90450	ROUND HEAD SQUARE DRIVE SCREW Ø 1/4" - 20 UNC X 1/2" Lg.	1
19	90017	HEX. NUT Ø 1/4" - 20 UNC.	5
20	3904	OUTLET GUARD	1
21	90048	FLAT COUNTERSINK HEAD SCREW Ø 1/4" - 20 UNC X 3/4" Lg.	4
22	64620	ANTI-SLIP	2
23	8159	HOOK SNAP	2
24	8337	D RING CLIP	2
25	90049	RIVET Ø 3/16" X 1/2" Lg.	2
26	7498	AGRAFFE ZINC DUST BRACKET	2
27	90006	LOCK NUT # 10 - 32 UNF	4
28	90029	ROUND HEAD CAP SCREW # 10 - 32 UNC. X 3/4" Lg.	4

A60025 - VACUUM FAN CASING (K61-D2 OPTION)

VACUUM FAN CASING FOR 61 EQUIPPED WITH SECOND GENERATION DIESEL ENGINE OPTION



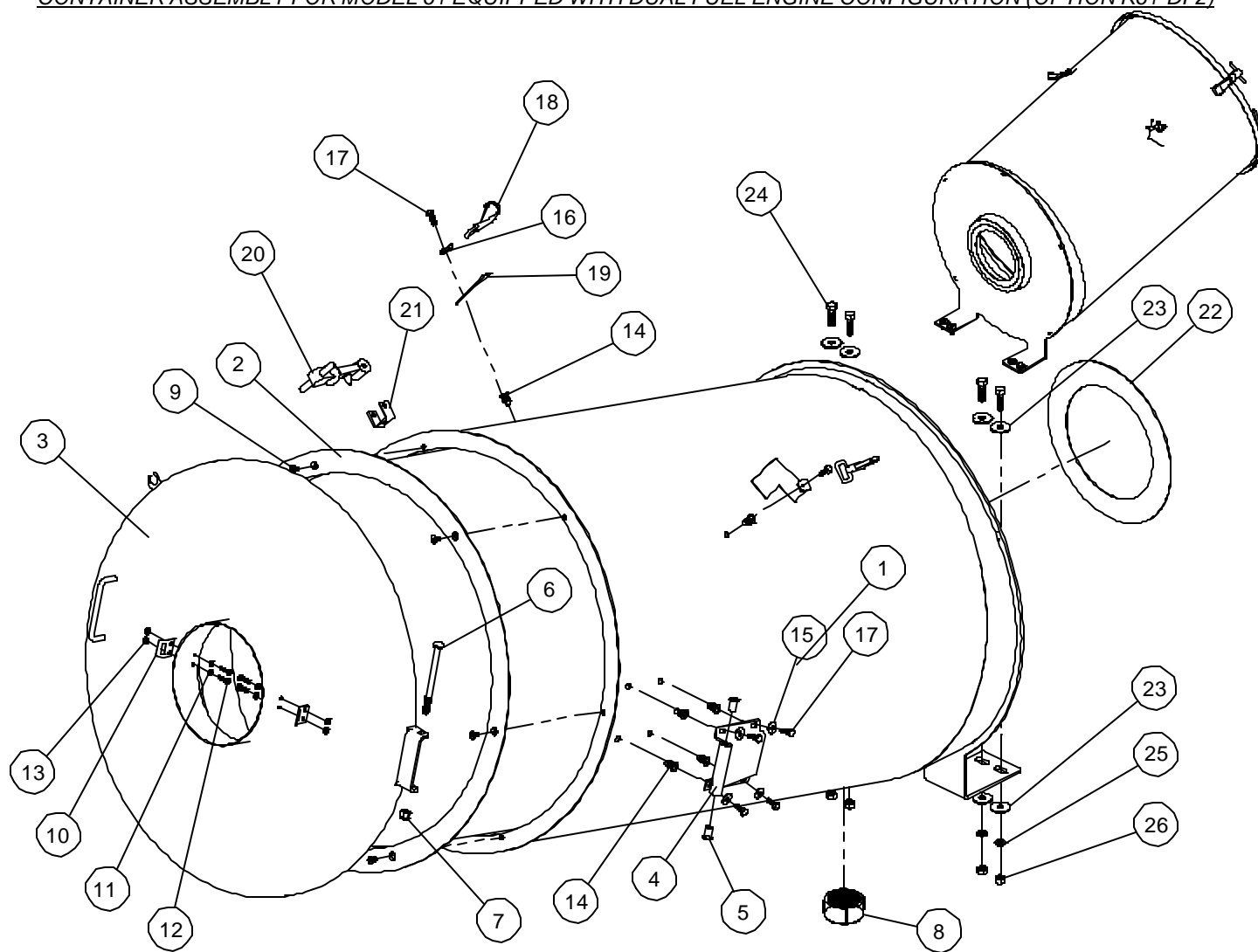
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	65150	LOWER VOLUTE	1
2	65414	UPPER VOLUTE	1
3	65828	LOWER VOLUTE SEAL	1
4	90018	LOCK WASHER Ø 1/4"	12
5	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	12
6	90004	WASHER Ø 1/4"	2
7	65215	BELL HOUSING COVER	1

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61 Operator's & Parts Manual
September 2002, Revision: ---

A60094 - CONTAINER ASSEMBLY FOR DUAL FUEL ENGINE (OPTION K61-DF2)

CONTAINER ASSEMBLY FOR MODEL 61 EQUIPPED WITH DUAL FUEL ENGINE CONFIGURATION (OPTION K61-DF2)



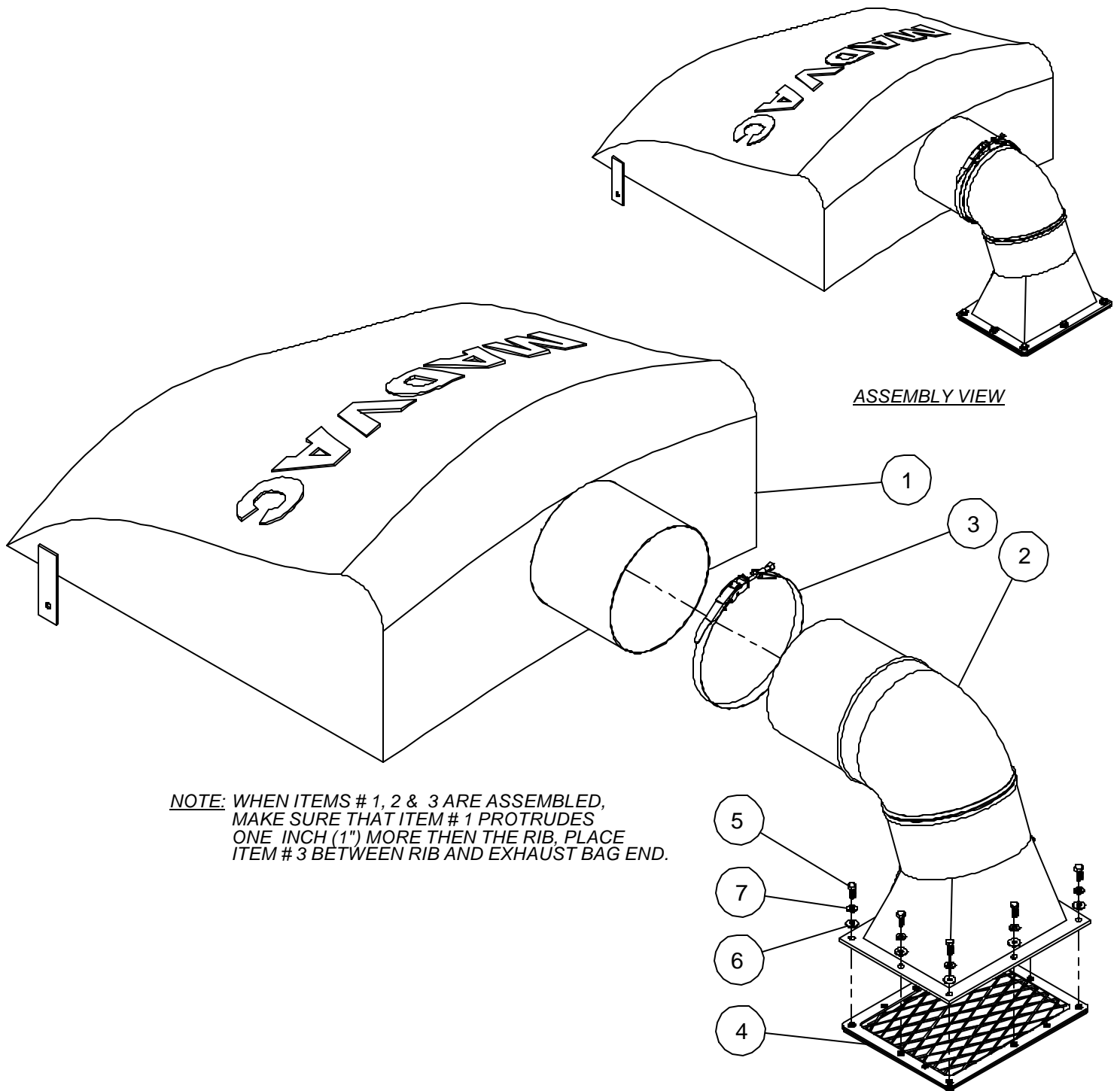
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60095	CONTAINER	1
2	63409	OVERSIZE CONTAINER BASKET	1
3	63427	OVERSIZE CONTAINER COVER	1
4	62536	CONTAINER COVER HINGE	1
5	62609	BUSHING	2
6	62607	CARRIAGE BOLT DIA 3/8-16UNC X 5 LG	1
7	90046	LOCK NUT Ø 3/8" - 16 UNC.	1
8	62941	PVC CAP 1-1/2"	1
9	90352	MACHINE SCREW FLATØ 1/4" X 20 X 1/2" lg	6
10	7498	AGRAFFE ZINC DUST BRACKET	2
11	90005	WASHER # 10	4
12	90029	ROUND HEAD CAP SCREW # 10 - 32 UNC. X 3/4" Lg.	4
13	90006	LOCK NUT # 10 - 32 UNF	4
14	90147	RIV NUT 1/4 - 20 UNC	6
15	90004	WASHER Ø 1/4"	4
16	8337	D RING CLIP	2
17	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	6
18	8159	HOOK SNAP	2
19	64620	ANTI-SLIP	2
20	8035	RUBBER CLAMP	1
21	17702	ANCHOR BRACKET	1
22	65681	VOLUTE SEAL	1
23	90034	FLAT WASHER Ø 3/8" TYPE B-B	8
24	90042	BOLT HEX. HEAD Ø 3/8" - 16 UNC. X 1-1/4" Lg.	4
25	90065	LOCK WASHER Ø3/8	4
26	90093	NUT Ø 3/8" - 16 UNC.	4

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 March 2003, Revision: ---

A63664 - EXHAUST FILTER BAG

EXHAUST FILTER BAG FOR ALL SERIAL NUMBERS

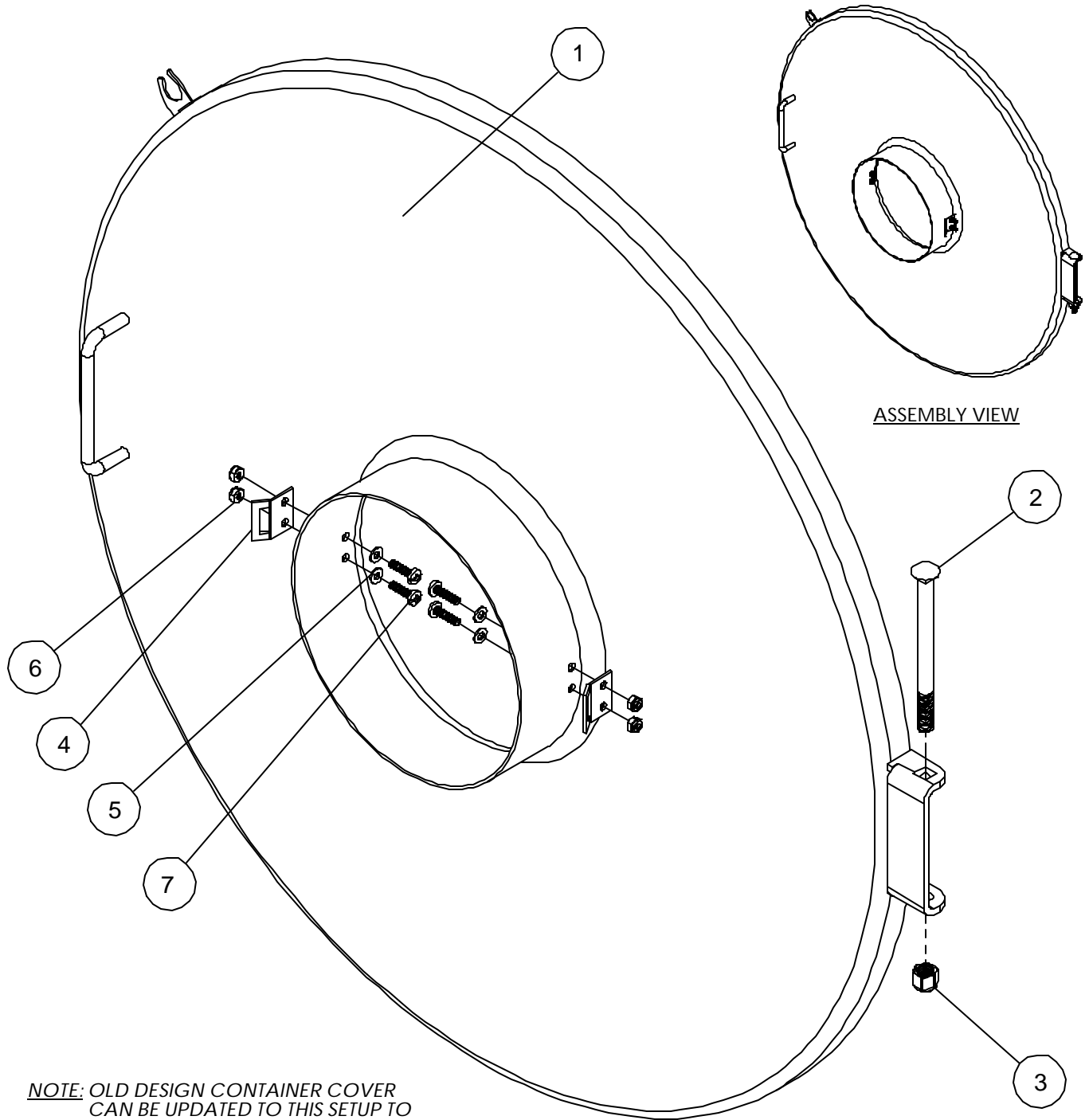


NOTE: WHEN ITEMS # 1, 2 & 3 ARE ASSEMBLED, MAKE SURE THAT ITEM # 1 PROTRUDES ONE INCH (1") MORE THEN THE RIB. PLACE ITEM # 3 BETWEEN RIB AND EXHAUST BAG END.

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62224	EXHAUST FILTER BAG	1
2	71898	FAN OUTLET CONE	1
3	62641	HOSE CLAMP 8"	1
4	3904	OUTLET GUARD	1
5	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	8
6	90004	WASHER Ø 1/4"	8
7	90018	LOCK WASHER Ø 1/4"	8

A60237 - CONTAINER COVER

CONTAINER COVER FOR MODEL 61 EQUIPPED WITH QUICK CONNECT VACUUM HOSES



NOTE: OLD DESIGN CONTAINER COVER CAN BE UPDATED TO THIS SETUP TO ACCOMMODATE NEW OPTIONS.

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63427	OVERSIZE CONTAINER COVER	1
2	62607	CARRIAGE BOLT DIA 3/8-16UNC X 5 LG	1
3	90046	LOCK NUT Ø 3/8" - 16 UNC.	1
4	7498	AGRAFFE ZINC DUST BRACKET	2
5	90005	WASHER # 10	4
6	90006	LOCK NUT # 10 - 32 UNF	4
7	90029	ROUND HEAD CAP SCREW # 10 - 32 UNC. X 3/4" Lg.	4

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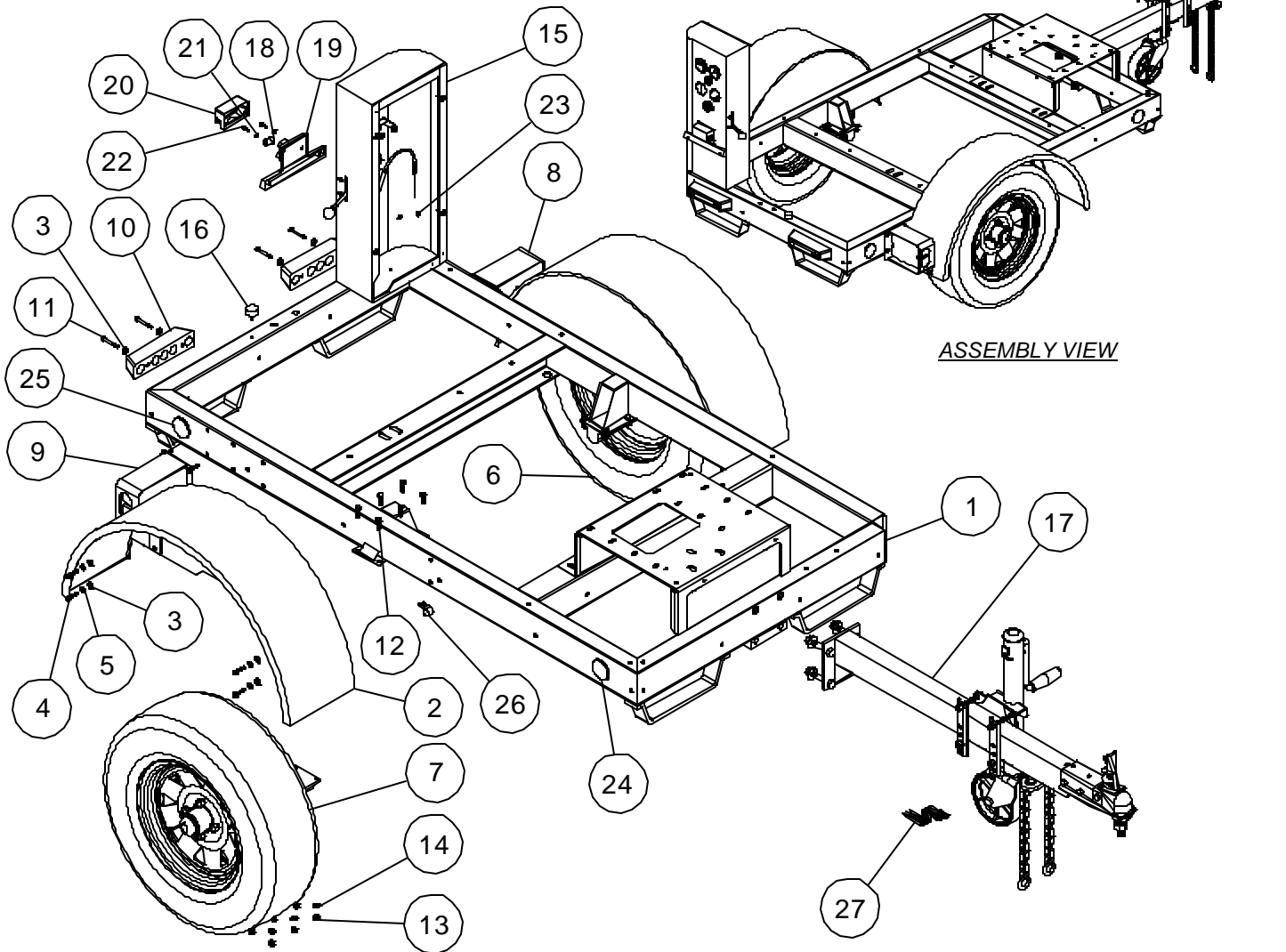
61 Operator's & Parts Manual
April 2003, Revision: ---

Trailer Option Parts Drawings Section

Drawings	Description	Revision	Page
A64531	– Trailer Conversion (Option K61-T & K61-T Euro)		
	<i>(All Engines Configurations)</i>	---	T-1
A64537	– Tow Bar (Ball Socket Configuration)		
	<i>(All Engines Configurations)</i>	---	T-2
A64553	– Tow Bar (Pintle Hitch Configuration)		
	<i>(All Engines Configurations)</i>	---	T-3
A64596	– Convertible Tow Hitch (Option K63751)		
	<i>(All Engines Configurations)</i>	---	T-4
A64383 & A64539	– Left & Right Wheel Assembly		
	<i>(All Engines Configurations)</i>	---	T-5
A64510	– Euro Lights Assembly Left & Right (Option K61-T Euro)		
	<i>(All Engines Configurations)</i>	---	T-6
A66345	– Euro Lights Electrical Diagram (Option K61-T Euro)		
	<i>(All Engines Configurations)</i>	---	T-7
A64529	– US Lights Assembly Left & Right (Option K61-T)		
	<i>(All Engines Configurations)</i>	---	T-8
A66351	– US Lights Electrical Diagram (Option K61-T)		
	<i>(All Engines Configurations)</i>	---	T-9
A66378	– D.O.T. Electrical Connection (Option K63751)		
	<i>(All Engines Configurations)</i>	---	T-10
A66380	– D.O.T. Electrical Diagram (Option K63751)		
	<i>(All Engines Configurations)</i>	---	T-11
A64555	– Spare Tire Mount (Option K63087)		
	<i>(All Engines Configurations)</i>	---	T-12

A64531 - TRAILER CONVERSION OPTION (K61-T)

TRAILER OPTION FOR ALL SERIAL NUMBERS & ENGINES CONFIGURATIONS



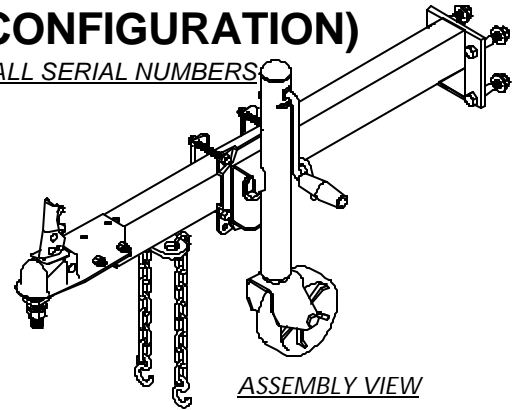
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62097	FRAME	1
2	62277	FENDER	2
3	90004	WASHER Ø 1/4"	12
4	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	8
5	90018	LOCK WASHER Ø 1/4"	8
6	(SEE DRAWING A64383)	LEFT WHEEL ASSEMBLY	1
7	(SEE DRAWING A64539)	RIGHT WHEEL ASSEMBLY	1
8	(SEE DRAWING A64529)	LEFT U.S. LIGHT ASSEMBLY	1
9	(SEE DRAWING A64545)	RIGHT U.S. LIGHT ASSEMBLY	1
10	7799	BUMPER	2
11	90165	BOLT HEX HEAD Ø1/4" X 20 X 2" lg	4
12	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	14
13	90000	LOCK NUT Ø 5/16" - 18 UNC.	14
14	90001	WASHER Ø 5/16"	14
15	(SEE DRAWING A63656)	CONTROL PANEL	1
16	64472	RUBBER MOUNT	1
17	(SEE DRAWING A64537)	TOW BAR	1
18	26262	LICENCE PLATE BULB REPLACEMENT	1
19	9139	LICENCE PLATE HOLDER	1
20	(COMES WITH 9139)	LICENCE PLATE HOLDER COVER	1
21	90056	LOCK WASHER # 10	2
22	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	2
23	90006	LOCK NUT # 10 - 32 UNF	2
24	62550	STICK-ON REFLECTOR	2
25	26246	RED REFLECTOR	2
26	27668	HOSE CLAMP (CL-06)	1
27	62860	CONNECTOR 4 WIRES	1

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February 2002, Revision: ---

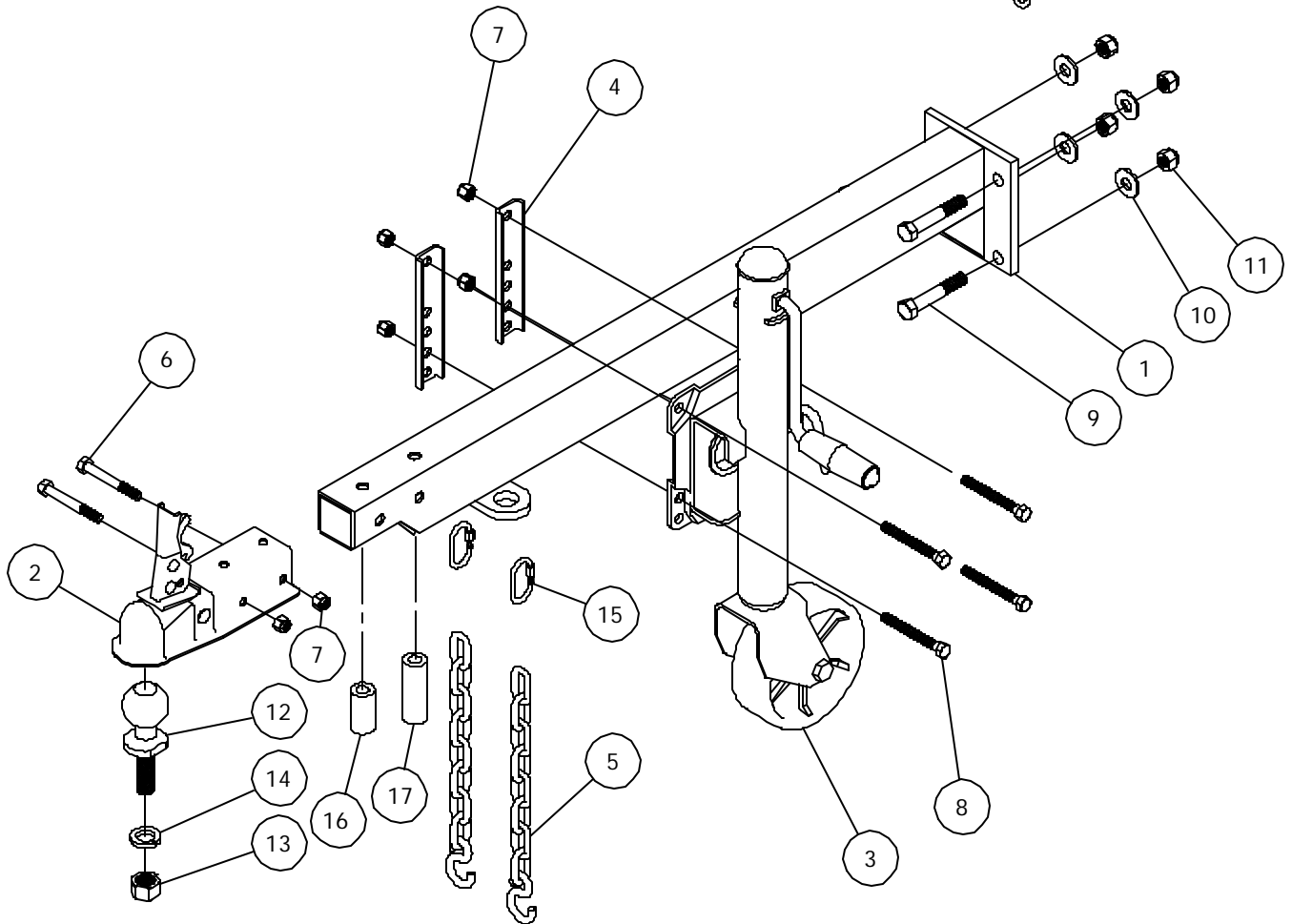
A64537 - TOW BAR (BALL SOCKET CONFIGURATION)

TOW BAR 1-7/8" & 2" BALL SOCKET CONFIGURATION FOR ALL SERIAL NUMBERS



ALTERNATIVE TOWING COUPLER

TOW HITCH SOCKET 1-7/8" - AS SHOWN
 TOW HITCH SOCKET 2" - 62909
 TOW BALL 2" (WITH LOCK WASHER & NUT) - 62911
 EURO TRAILER SLEEVE #1 & #2 - OPTIONAL ITEM



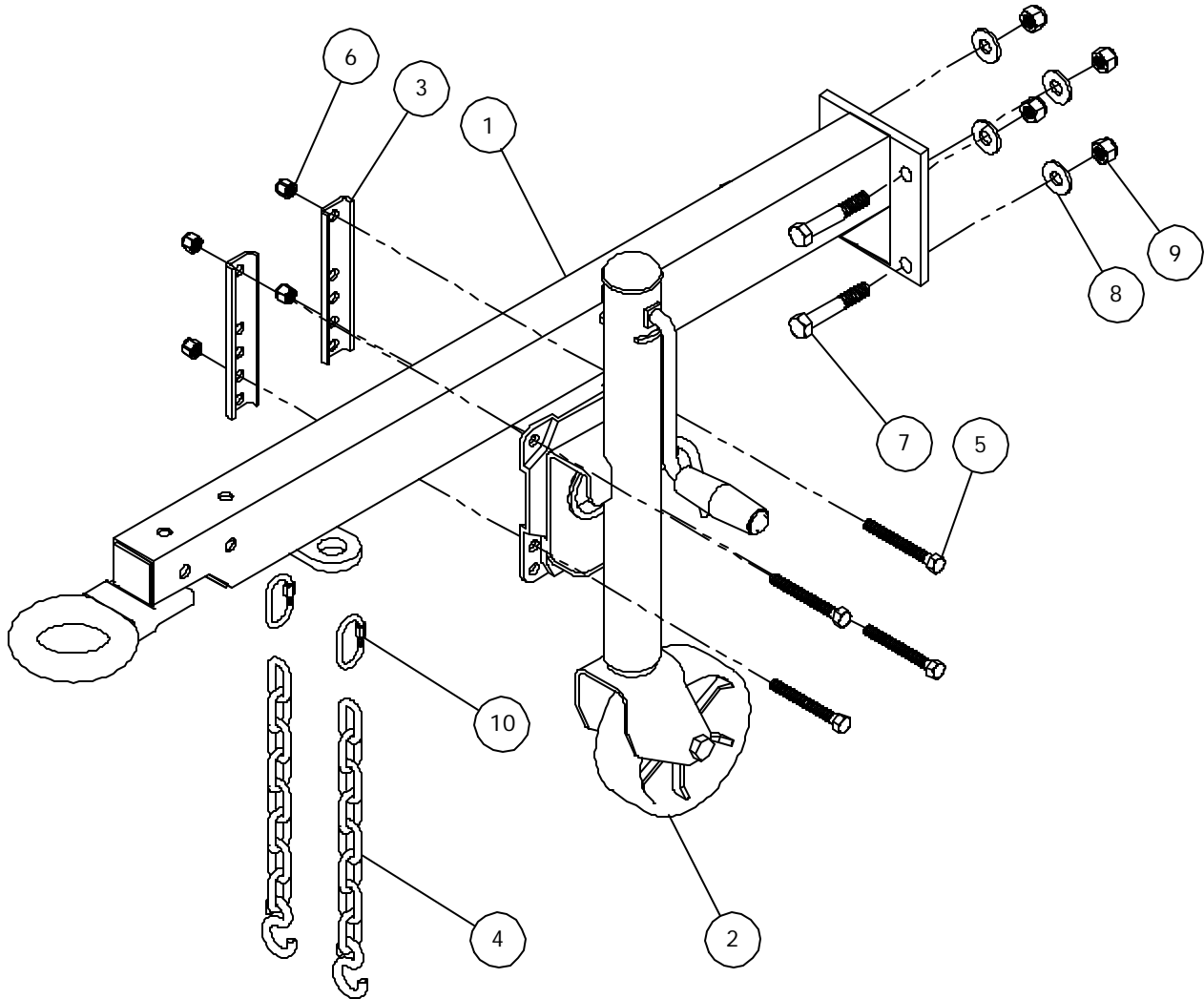
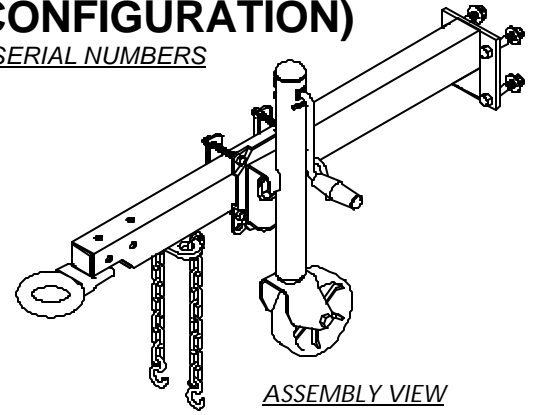
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62285	TOW BAR	1
2	78035	TOWING SOCKET 1-7/8"	1
3	62313	TRAILER JACK	1
4	(COME WITH 62313)	TRAILER JACK MOUNTING HARDWARE	2
5	62307	SAFETY CHAIN	2
6	90196	BOLT HEX HEAD Ø 3/8" X 16 X 3" lg	2
7	90046	LOCK NUT Ø 3/8" - 16 UNC.	6
8	90198	BOLT HEX HEAD (FULL THREAD) Ø 3/8" X 16 X 3-1/4" lg	4
9	90215	BOLT HEX HEAD Ø1/2" X 13 X 3" lg	4
10	90011	WASHER Ø 1/2" AA	4
11	90009	LOCK NUT Ø 1/2" - 13 UNC.	4
12	78027	TOW BALL 1-7/8"	1
13	(COME WITH 78027)	NUT Ø 3/4" - 16 UNF.	1
14	(COME WITH 78027)	LOCK WASHER Ø 3/4"	1
15	62838	QUICK CONNECTING LINKS	2
16	63298	EURO TRAILER SLEEVE #1	1
17	63300	EURO TRAILER SLEEVE #2	1

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 March 2001, Revision: ---

A64553 - TOW BAR (PINTLE HITCH CONFIGURATION)

TOW BAR PINTLE HITCH CONFIGURATION FOR ALL SERIAL NUMBERS



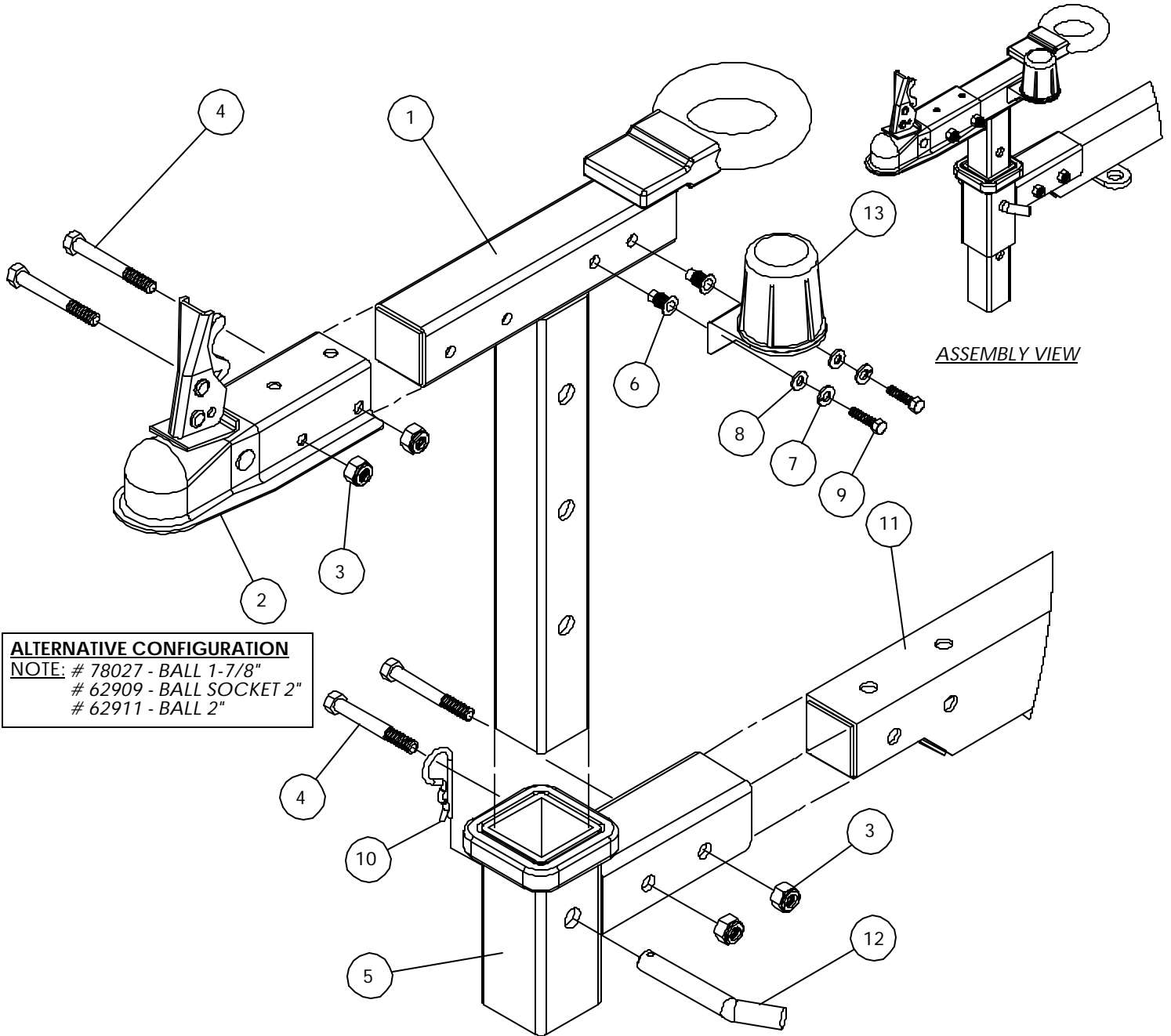
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63117	TOW BAR WITH PINTLE	1
2	62313	TRAILER JACK	1
3	(COME WITH 62313)	TRAILER JACK MOUNTING HARDWARE	2
4	62307	SAFETY CHAIN	2
5	90198	BOLT HEX HEAD (FULL THREAD) Ø 3/8" X 16 X 3-1/4" lg	4
6	90046	LOCK NUT Ø 3/8" - 16 UNC.	4
7	90215	BOLT HEX HEAD Ø1/2" X 13 X 3" lg	4
8	90011	WASHER Ø 1/2" AA	4
9	90009	LOCK NUT Ø 1/2" - 13 UNC.	4
10	62838	QUICK CONNECTING LINKS	2

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March 2002, Revision: ---

A64596 - CONVERTIBLE TOW HITCH (OPTION K63751)

PINTLE, BALL SOCKET 1-7/8", BALL SOCKET 2" & ADJUSTABLE HEIGHT BRACKETS FOR ALL EQUIPED SERIAL NUMBERS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	64590	ADJUSTABLE HEIGHT TOW BAR	1
2	78035	TOWING SOCKET 1-7/8"	1
3	90046	LOCK NUT Ø 3/8" - 16 UNC.	4
4	90196	BOLT HEX HEAD Ø 3/8" X 16 X 3" lg	4
5	64618	HITCH CONVERSION SUB-WELDING ASSEMBLY	1
6	90147	RIV NUT 1/4 - 20 UNC	2
7	90018	LOCK WASHER Ø 1/4"	2
8	90004	WASHER Ø 1/4"	2
9	90003	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	2
10	90038	HITCH PIN CLIPS -CP-84 H	1
11	62285	TOW BAR	1
12	63745	HITCH PIN Ø 5/8"	1
13	63788	CONNECTOR PLUG HOLDER	1

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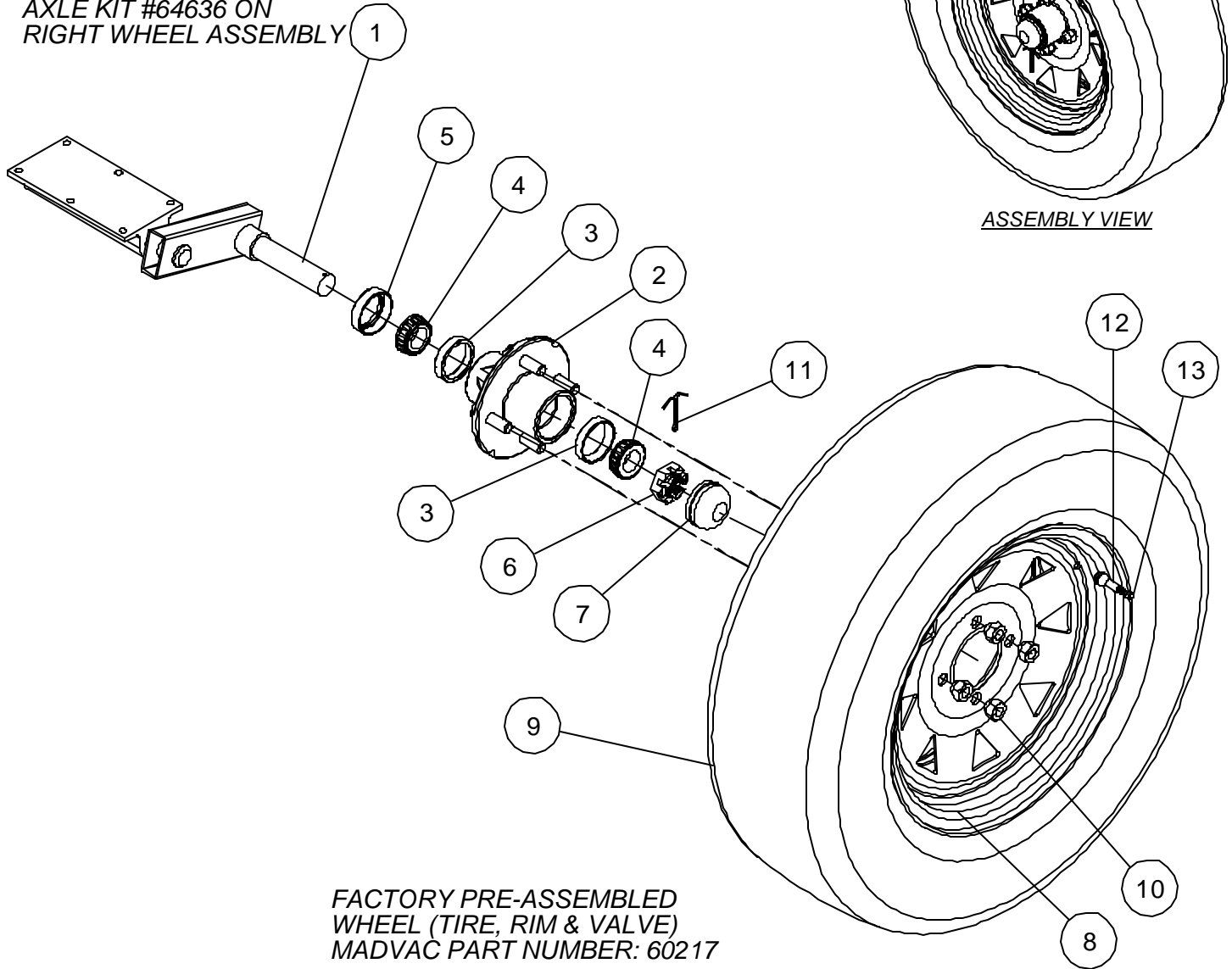
PS 300 Operator's & Parts Manual

March 2002, Revision: ---

A64383 & A-64539 - LEFT & RIGHT WHEEL ASSEMBLY

LEFT & RIGHT WHEEL ASSEMBLY FOR ALL SERIAL NUMBERS

USE RUBBER TORSION
AXLE KIT #64636 ON
RIGHT WHEEL ASSEMBLY

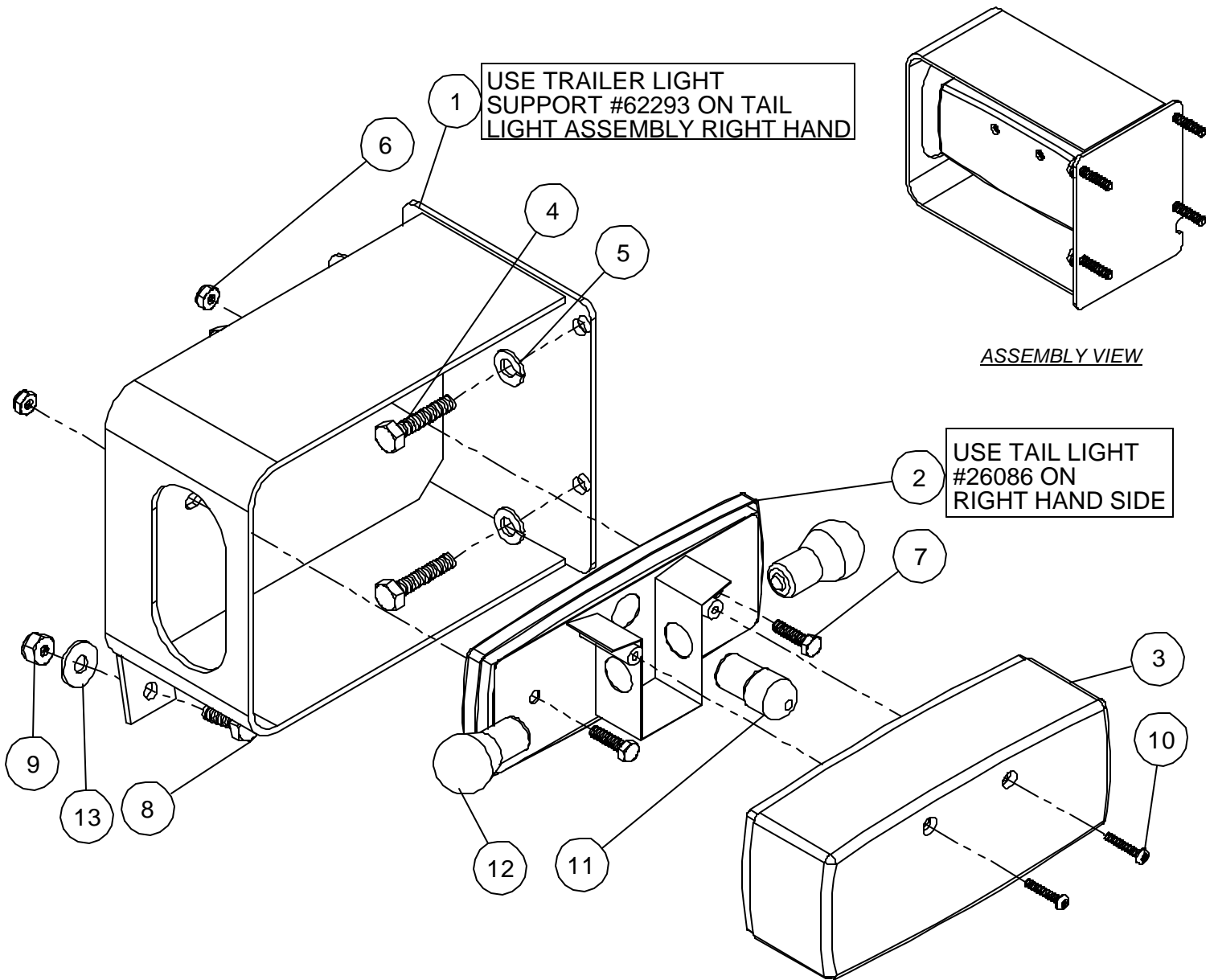


FACTORY PRE-ASSEMBLED
WHEEL (TIRE, RIM & VALVE)
MADVAC PART NUMBER: 60217

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62593	RUBBER TORSION AXLE KIT	1
2	62587	WHEEL HUB ASS'Y	1
3	9651	BEARING CUP	2
4	62633	HUB BEARING	2
5	62658	HUB DUST SEAL	1
6	62587	CASTLE NUT 1"-14 UNF	1
7	62660	HUB DUST CAP	1
8	62585	RIM SKID	1
9	28275	TIRE, RADIAL	1
10	(COMES WITH 62587)	WHEEL NUT	4
11	17154	CUTTER PIN Ø 1/8" X 2-7/8" Lg.	1
12	27587	TIRE VALVE	1
13	(COMES WITH 27587)	TIRE VALVE CAP	1

A64510 - LIGHT ASSEMBLY LEFT HAND (EURO)

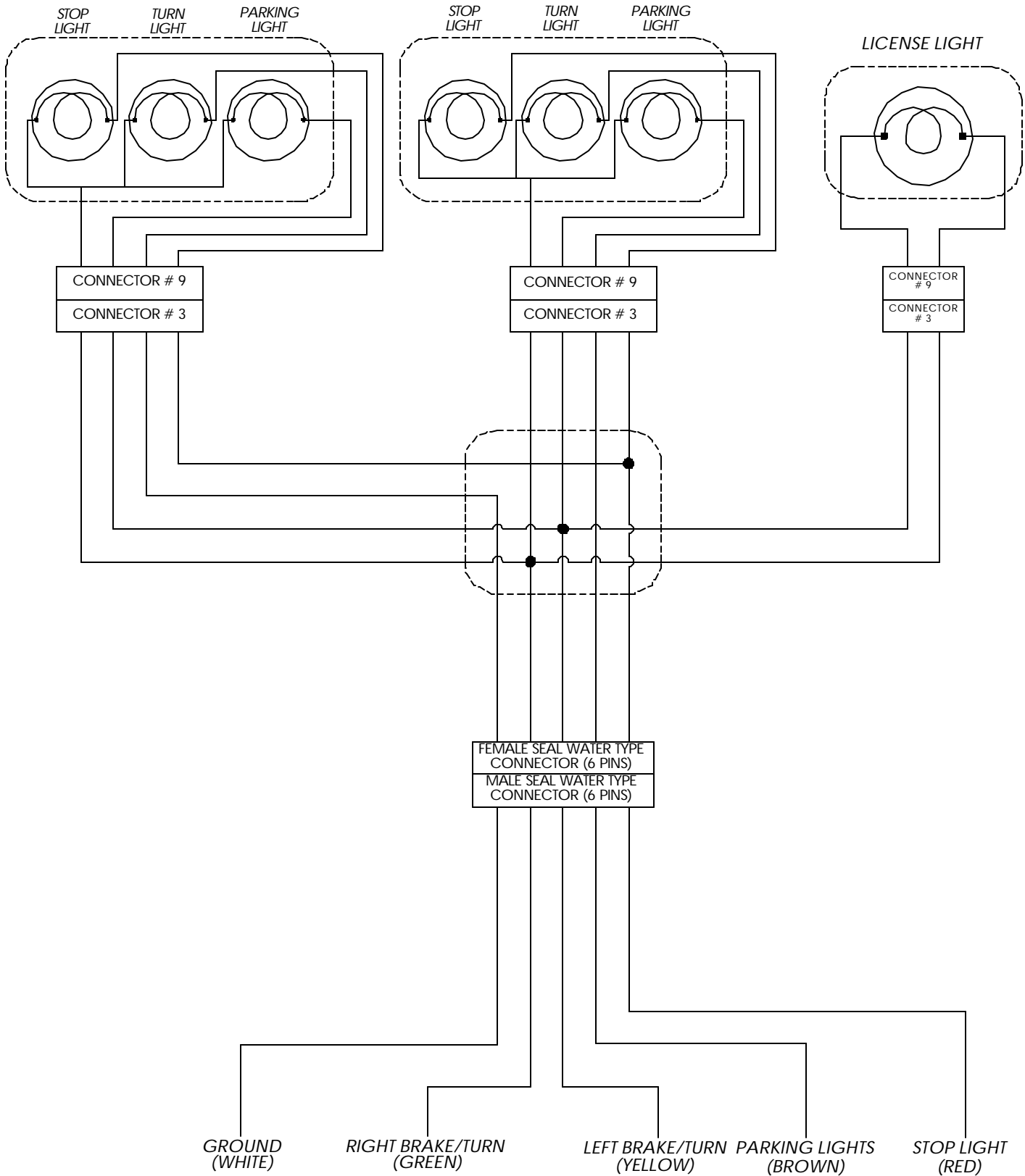
LIGHT ASSEMBLY LEFT HAND (EURO) FOR ALL SERIAL NUMBERS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62299	LEFT TRAILER LIGH SUPPORT	1
2	26092	LIGHT TAIL-STOP-FLASHER	1
3	26329	TAIL-STOP-FLASHER LENS	1
4	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	4
5	90018	LOCK WASHER Ø 1/4"	4
6	90006	LOCK NUT # 10 - 32 UNF	2
7	90007	BOLT HEX. HEAD # 10 - 32 UNF. X 3/4" Lg.	2
8	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	1
9	90020	LOCK NUT Ø 1/4" - 20 UNC	1
10	90029	ROUND HEAD CAP SCREW # 10 - 32 UNC. X 3/4" Lg.	2
11	26264	LIGHT (TAIL LIGHT X1)	1
12	26262	LIGHT (TAIL LIGHT)	2
13	90004	WASHER Ø 1/4"	1

A66345 - ELECTRICAL DIAGRAM (61 EURO TRAILER OPTION)

BRAKE LIGHTS/TURN SIGNAL, ELECTRICAL SCHEMA FOR ALL SERIAL NUMBERS



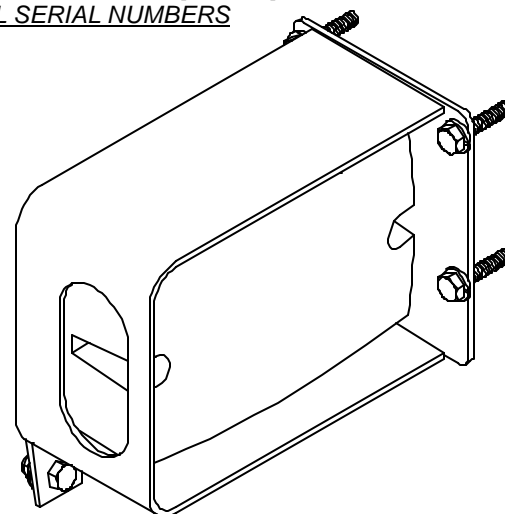
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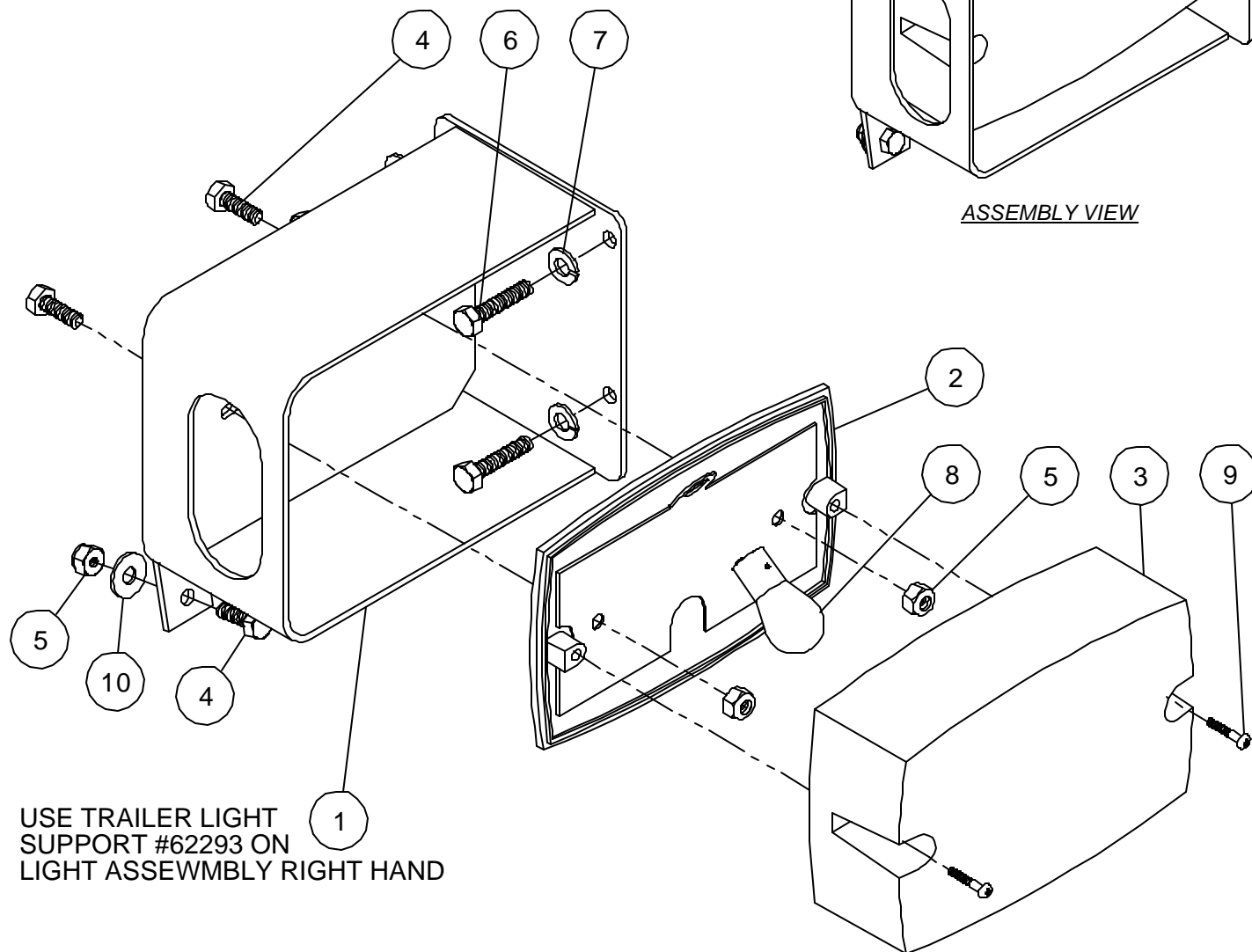
March 2002, Revision: ---

A64529 - LIGHT ASSEMBLY LEFT HAND (U.S.)

LIGHT ASSEMBLY LEFT HAND (U.S.) FOR ALL SERIAL NUMBERS



ASSEMBLY VIEW

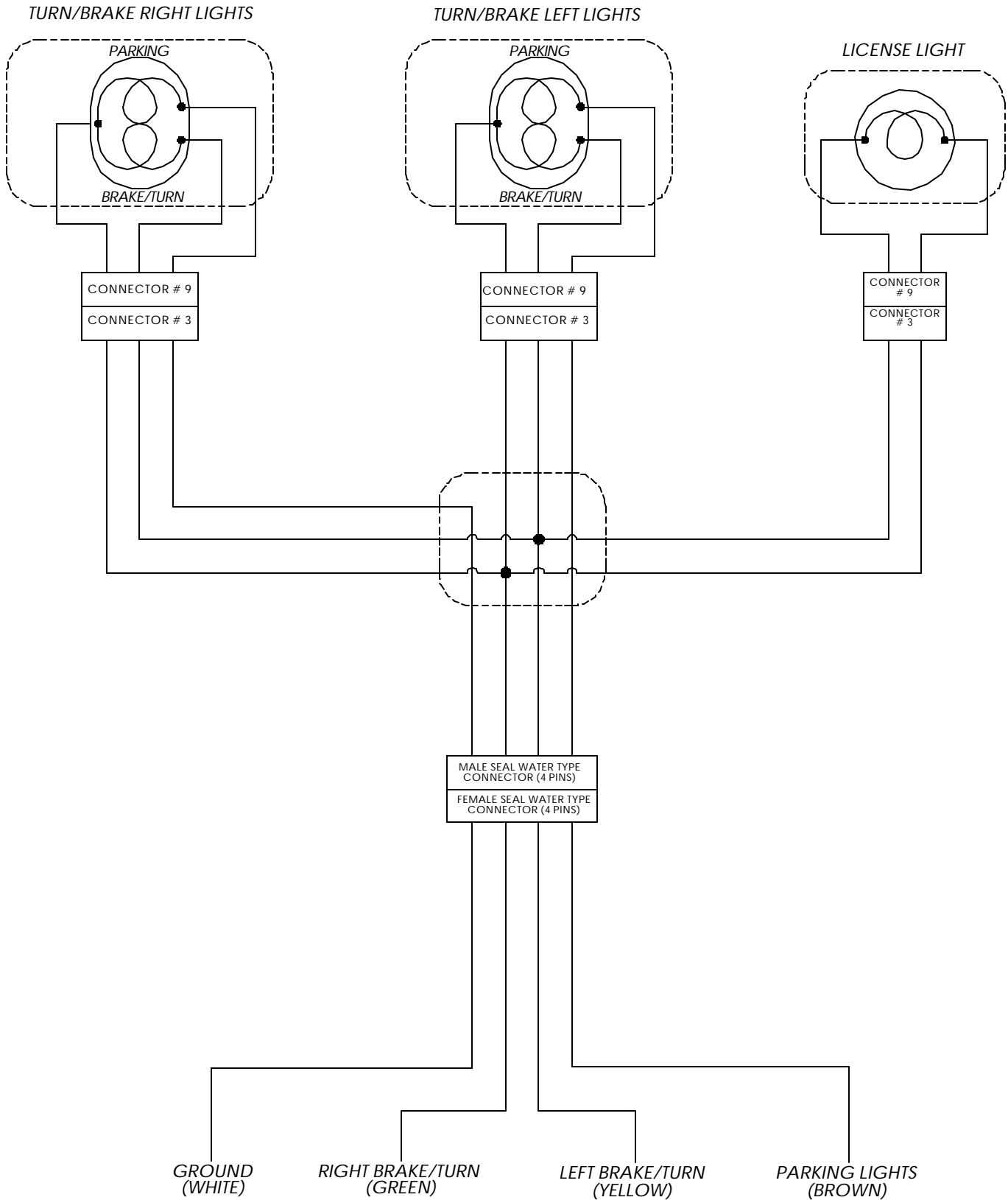


USE TRAILER LIGHT SUPPORT #62293 ON LIGHT ASSEMBLY RIGHT HAND

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62299	LEFT TRAILER LIGHT SUPPORT	1
2	62579	TRAILER LIGHT BACK PLATE	1
3	(COMES WITH 62579)	TRAILER LIGHT LENS	1
4	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	3
5	90020	LOCK NUT Ø 1/4" - 20 UNC	3
6	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	4
7	90018	LOCK WASHER Ø 1/4"	4
8	64466	BULB REPLACEMENT (US TAIL LIGHT)	1
9	90029	ROUND HEAD CAP SCREW # 10 - 32 UNC. X 3/4" Lg.	2
10	90004	WASHER Ø 1/4"	1

A66351 - ELECTRICAL DIAGRAM (61 US TRAILER OPTION)

BRAKE LIGHTS/TURN SIGNAL, ELECTRICAL SCHEMA FOR ALL SERIAL NUMBERS



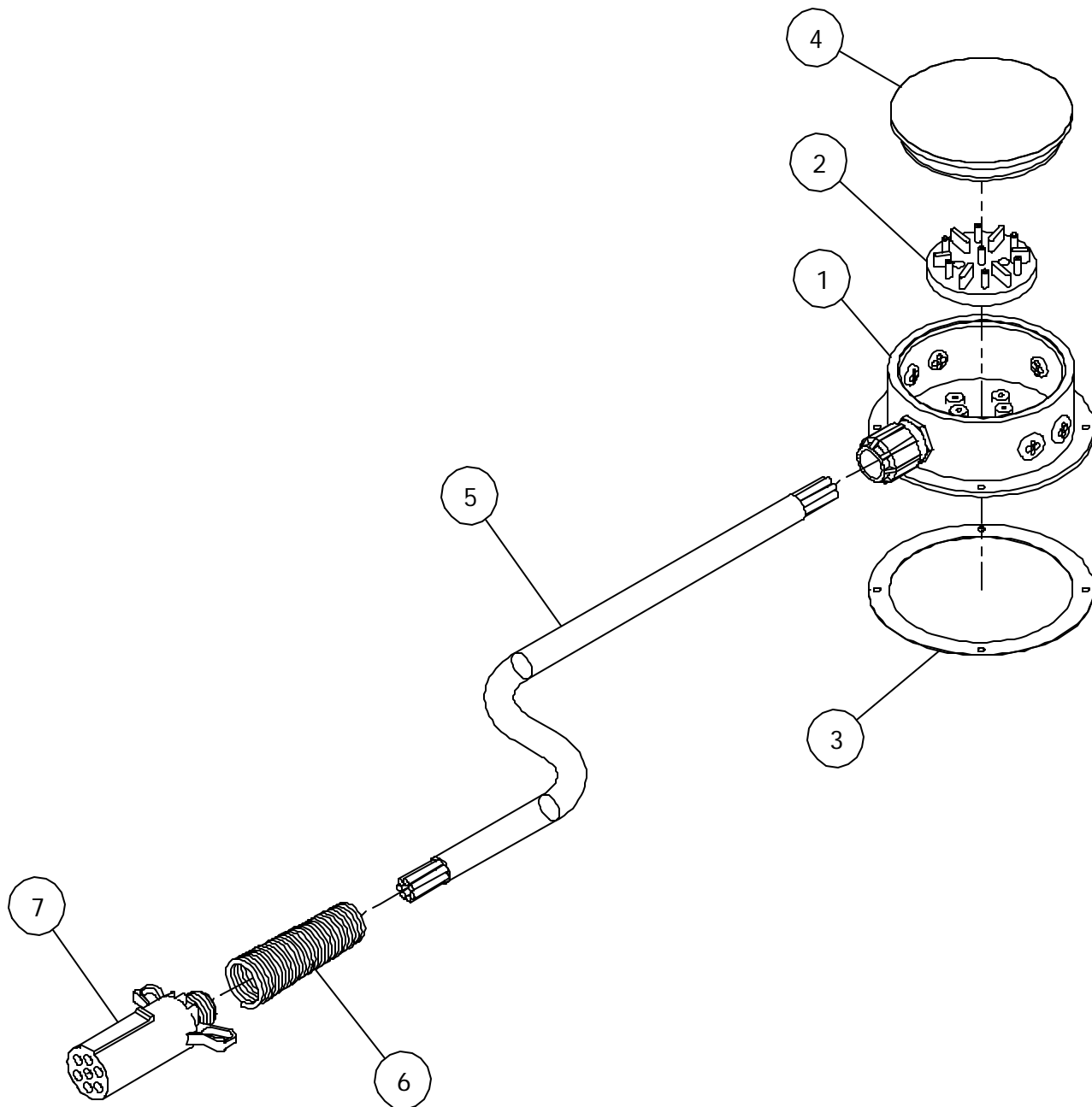
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61 Operator's & Parts Manual

March 2001, Revision: ---

A63378 - D.O.T. ELECTRICAL CONNECTION (K63751 - 61 SKID SPECIAL D.O.T.)

CONNECTOR & JUNCTION BOX FOR ALL EQUIPED SERIAL NUMBERS
 FOR MORE DETAILS ON ELECTRICAL CONNECTION,
 SEE A66380 - ELECTRICAL DIAGRAM (D.O.T. TRAILER OPTION)



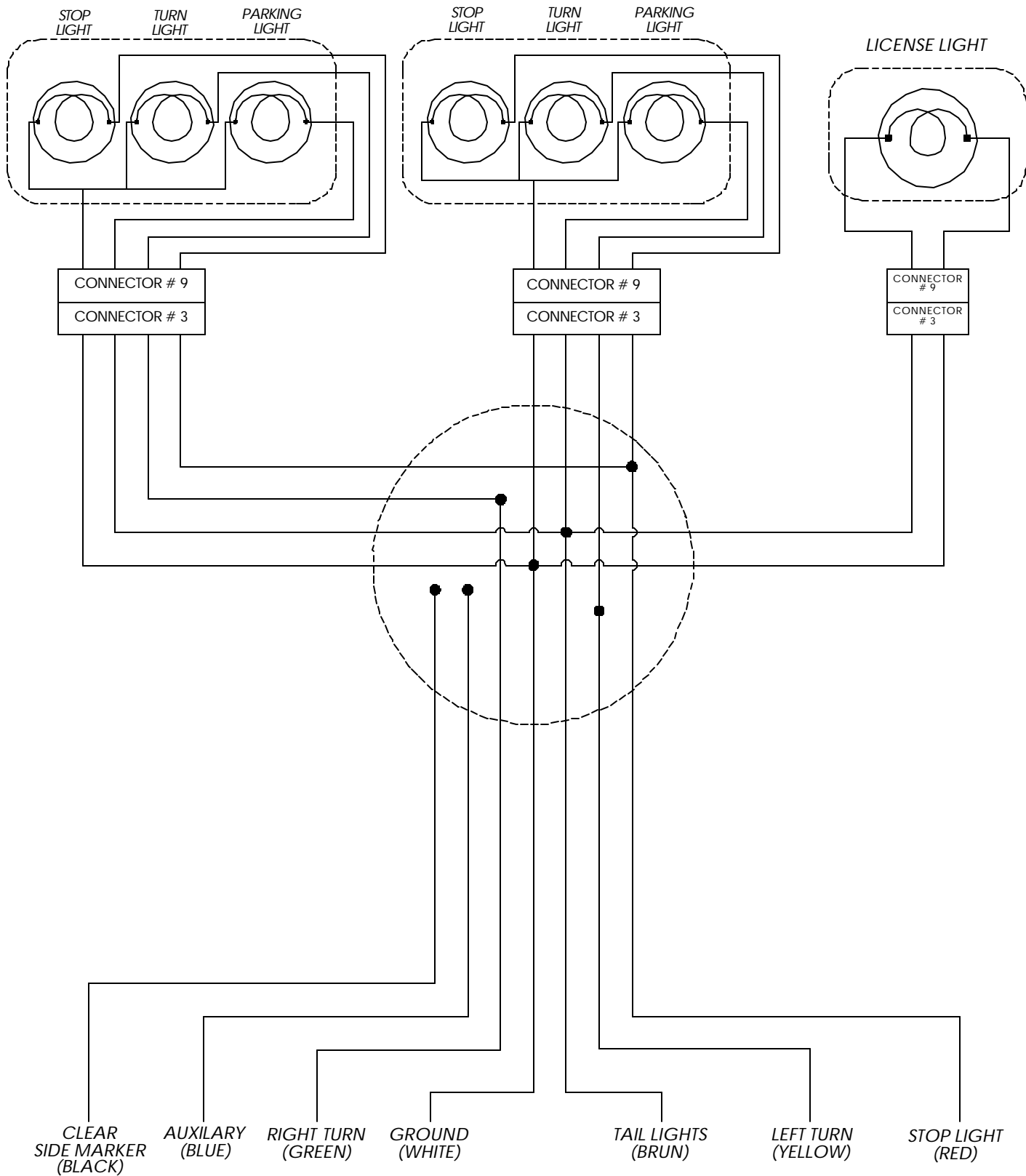
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63794	JUNCTION BOX	1
2	(COMES WITH 63794)	ELECTRICAL CONNECTOR	1
3	(COMES WITH 63794)	GASKET	1
4	(COMES WITH 63794)	CLEAR LENSE	1
5	63832	LIGHT WIRE FOR D.O.T. OPTION	1
6	(COME WITH 63786)	STEEL CABLE PROTECTOR	1
7	63786	ELECTRICAL CONNECTOR HOUSING	1

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 September 2001, Revision: ---

A66380 - ELECTRICAL DIAGRAM (K63751 - D.O.T. TRAILER OPTION)

BRAKE LIGHTS/TURN SIGNAL, ELECTRICAL SCHEMA FOR ALL SERIAL NUMBERS



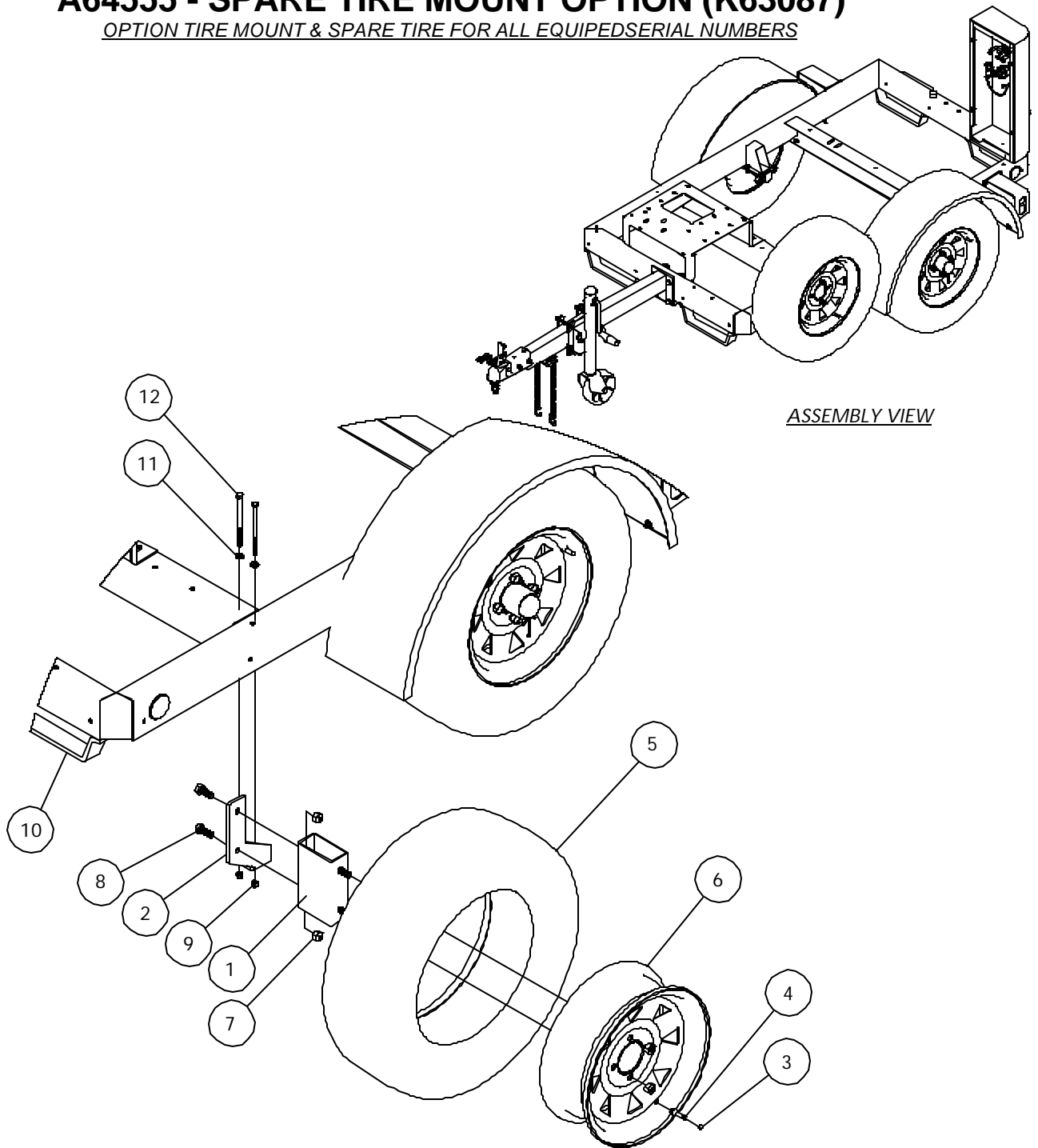
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A64555 - SPARE TIRE MOUNT OPTION (K63087)

OPTION TIRE MOUNT & SPARE TIRE FOR ALL EQUIPED SERIAL NUMBERS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62191	SPARE SPACER	1
2	62283	SPARE SUPPORT	1
3	(COMES WITH 27587)	TIRE VALVE CAP	1
4	27587	TIRE VALVE	1
5	28275	TIRE, RADIAL	1
6	62585	RIM SKID	1
7	90009	LOCK NUT Ø 1/2" - 13 UNC.	4
8	90210	BOLT HEX HEAD Ø 1/2" X 13 X 1-1/4" lg	2
9	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
10	(SEE DRAWING A64531)	TRAILER OPTION (COMPLETE)	1
11	90001	WASHER Ø 5/16"	2
12	90178	BOLT HEX HEAD 5/16" X 18 X 5" lg	2

Vacuum Arm Options Drawings Section

Drawings	Description	Revision	Page
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OLD STYLE DESIGN – NO LONGER AVAILABLE

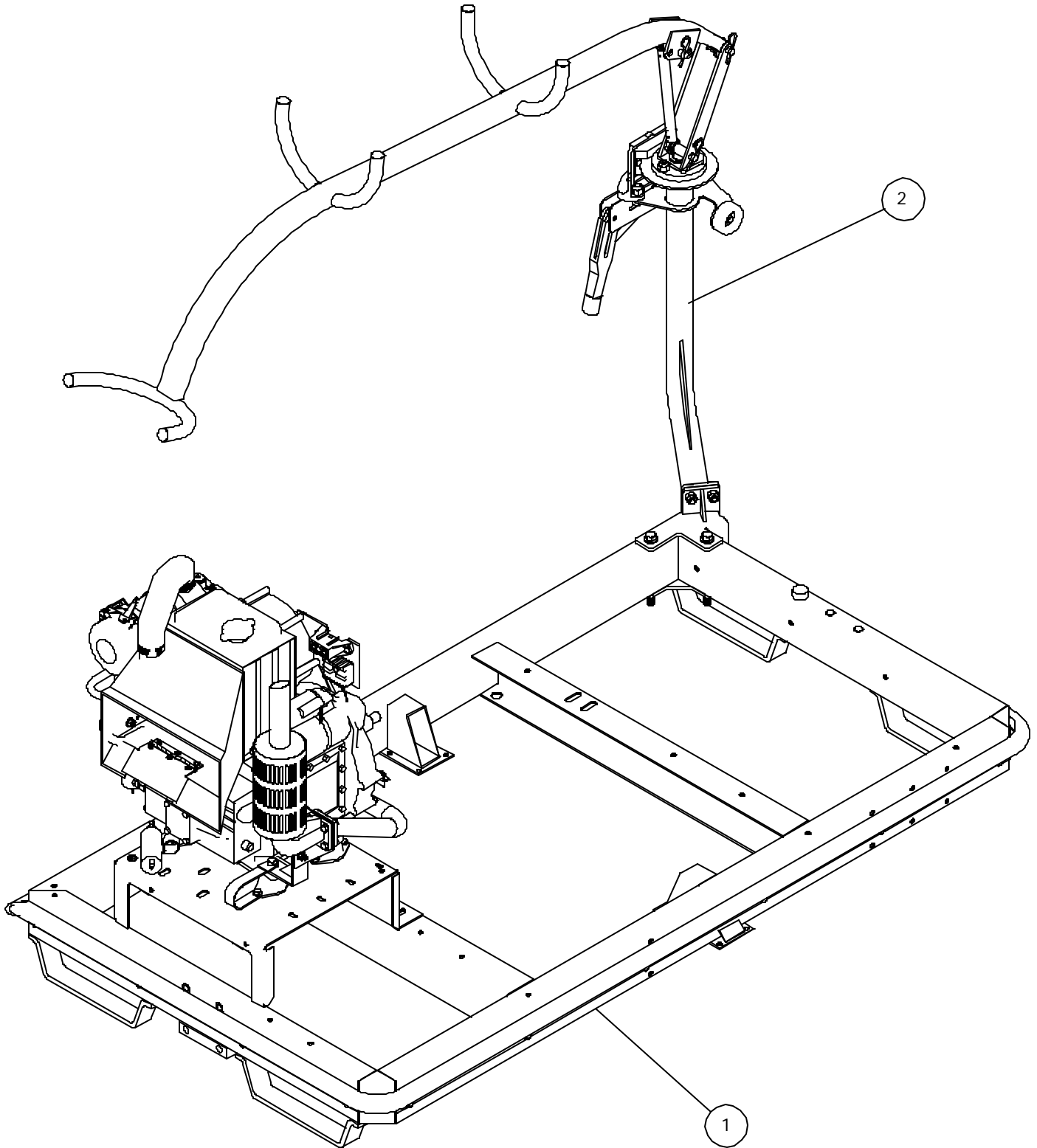
A66388	– 360° Rotational Arm (K63575 OPTION)		
	<i>(Old Style – No Longer Available)</i>	---	VA-1
A63999	– 360° Rotational Arm - Complete (K63575 OPTION)		
	<i>(Old Style – No Longer Available)</i>	A	VA-2
A63972	– 360° Rotational Arm - Rotating Sub Assembly (K63575 OPTION)		
	<i>(Old Style – No Longer Available)</i>	A	VA-3
A64679	– 360° Rotational Arm - Extension Tube Sub Assembly (K63575 OPTION)		
	<i>(Old Style – No Longer Available)</i>	A	VA-4

AVAILABLE FOR ALL ENGINES CONFIGURATION & OPTIONS

A60227	– Multi Position 360° Rotational Arm (K60228 OPTION)		
	<i>(All Engines & Options Configurations)</i>	A	VA-5
A60223	– Multi Position 360° Rotational Arm – Lower Arm Section (K60228 OPTION)		
	<i>(All Engines & Options Configurations)</i>	---	VA-6
A63972	– Multi Position 360° Rotational Arm – Rotating Arm Sub (K60228 OPTION)		
	<i>(All Engines & Options Configurations)</i>	---	VA-7

A66388 - 360° ROTATIONAL ARM (OPTION K63575) ARM ON CHASSIS

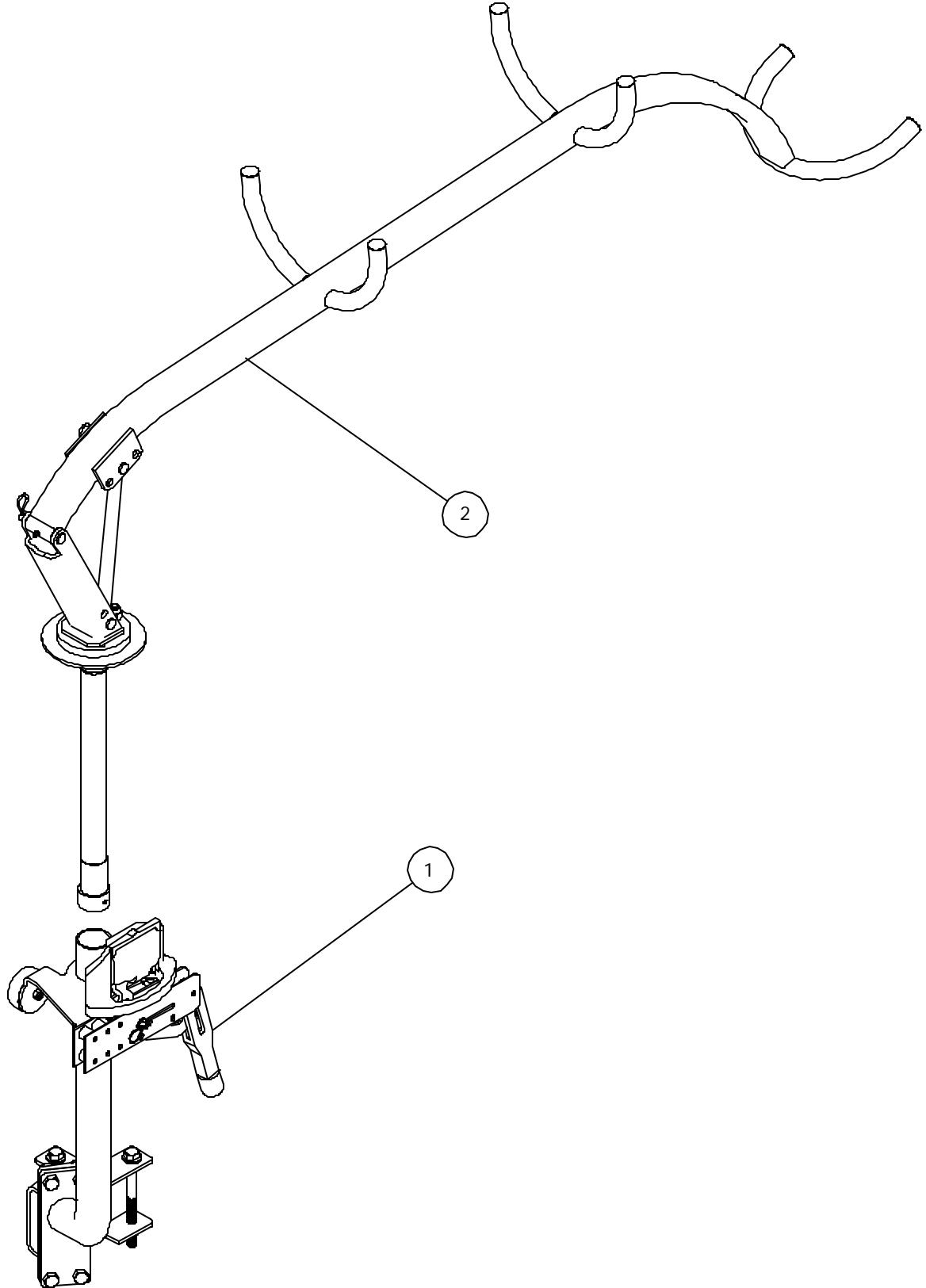
ARM POSITIONING ON CHASSIS FOR 61 MODEL EQUIPPED WITH OPTION K63575



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A64375)	ENGINE ON FRAME	1
2	(SEE DRAWING A63999)	360° ROTATIONAL ARM (SUB ASSEMBLY)	1

A63999 - 360° ROTATIONAL ARM (OPTION K63575)

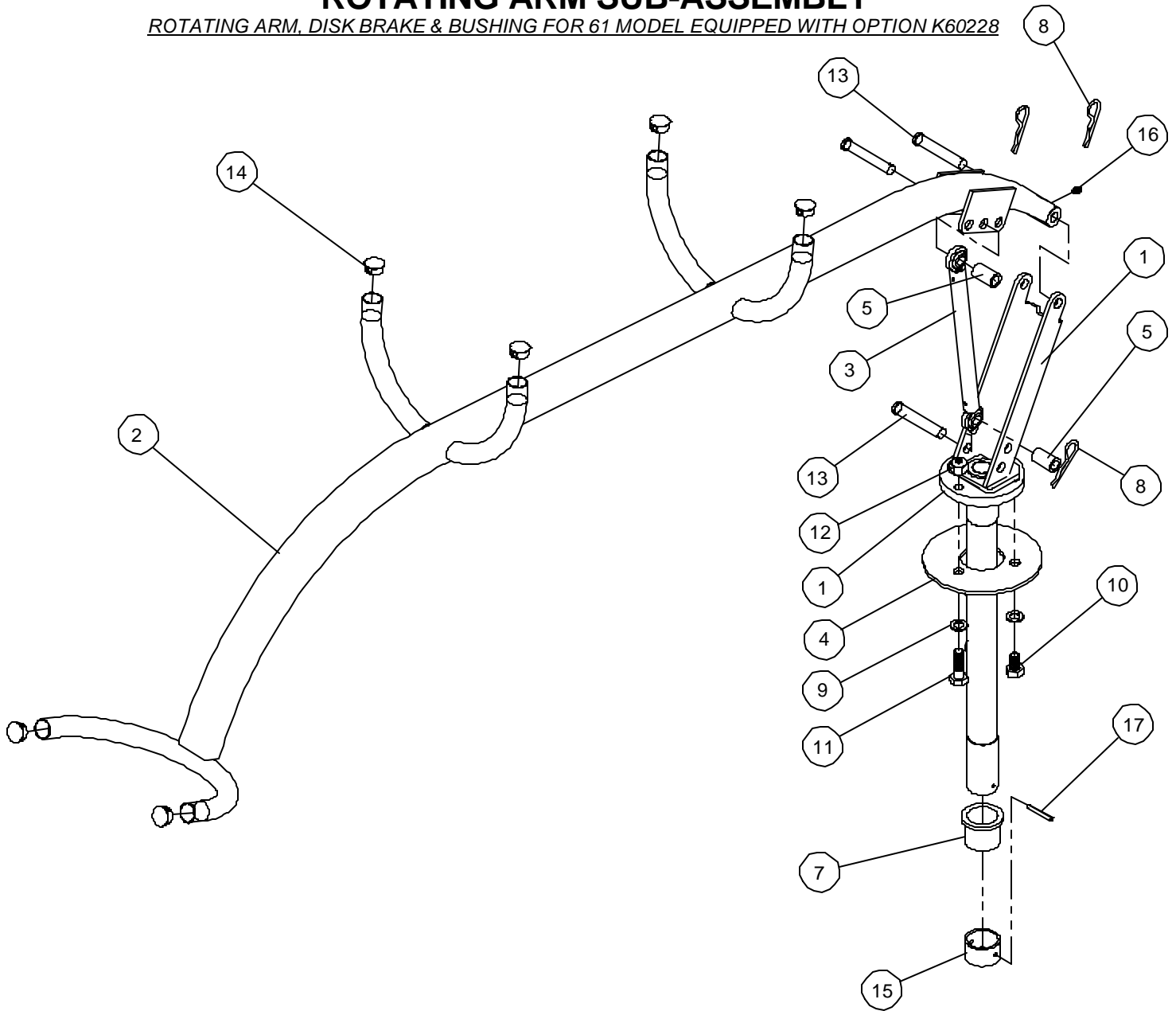
EXTENTION TUBE & ROTATING ARM SUB ASSEMBLY FOR ALL EQUIPPED 61 MODEL



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A64679)	EXTENTION TUBE SUB-ASSEMBLY	1
2	(SEE DRAWING A63972)	ROTATIONAL ARM SUB-ASSEMBLY	1

A63972 - MULTI POSITION 360° ROTATIONAL ARM (OPTION K60228) ROTATING ARM SUB-ASSEMBLY

ROTATING ARM, DISK BRAKE & BUSHING FOR 61 MODEL EQUIPPED WITH OPTION K60228



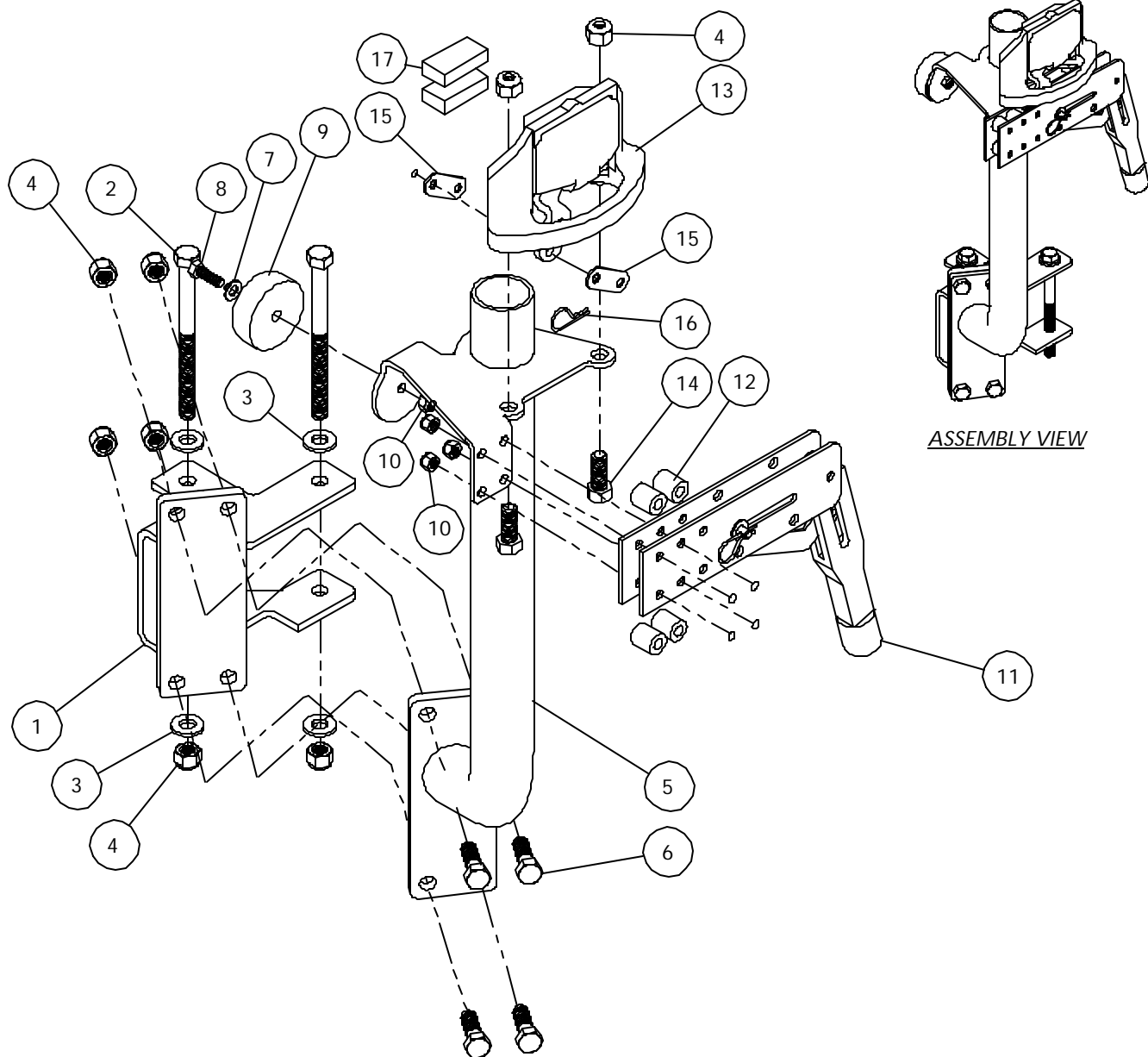
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63942	VACUUM HOSE PIVOT	1
2	63583	LOW CLEARANCE ARM FOR 61	1
3	65098	UPPER BRUSH ARM	1
4	63948	DISC BRAKE	1
5	67345	CYLINDER SPACER	2
6	9201	WASHER	1
7	7969	BUSHING POST top	1
8	63869	HITCH PIN CLIP	3
9	90013	LOCK WASHER Ø 1/2"	3
10	90208	BOLT HEX HEAD Ø 1/2" X 13 X 3/4" lg	2
11	90045	BOLT HEX. HEAD Ø 1/2 - 13 UNC. 1-1/2" Lg.	1
12	90009	LOCK NUT Ø 1/2" - 13 UNC.	1
13	90403	CLEVIS PIN Ø 1/2" X 3" lg	3
14	27546	HOLE PLUG Ø 7/8"	6
15	7306	BUSHING POST BOTTOM	1
16	90386	GREASE ZERK STRAIGHT Ø 1/4" - 28 UNF.	1
17	90365	SPRING PIN 3/16" X 1-5/8" lg	1

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A64679 - 360° ROTATIONAL ARM (OPTION K63575) EXTENTION TUBE SUB-ASSEMBLY

EXTENTION TUBE & LEVER HANDLE FOR 61 MODEL EQUIPPED WITH OPTION K63575



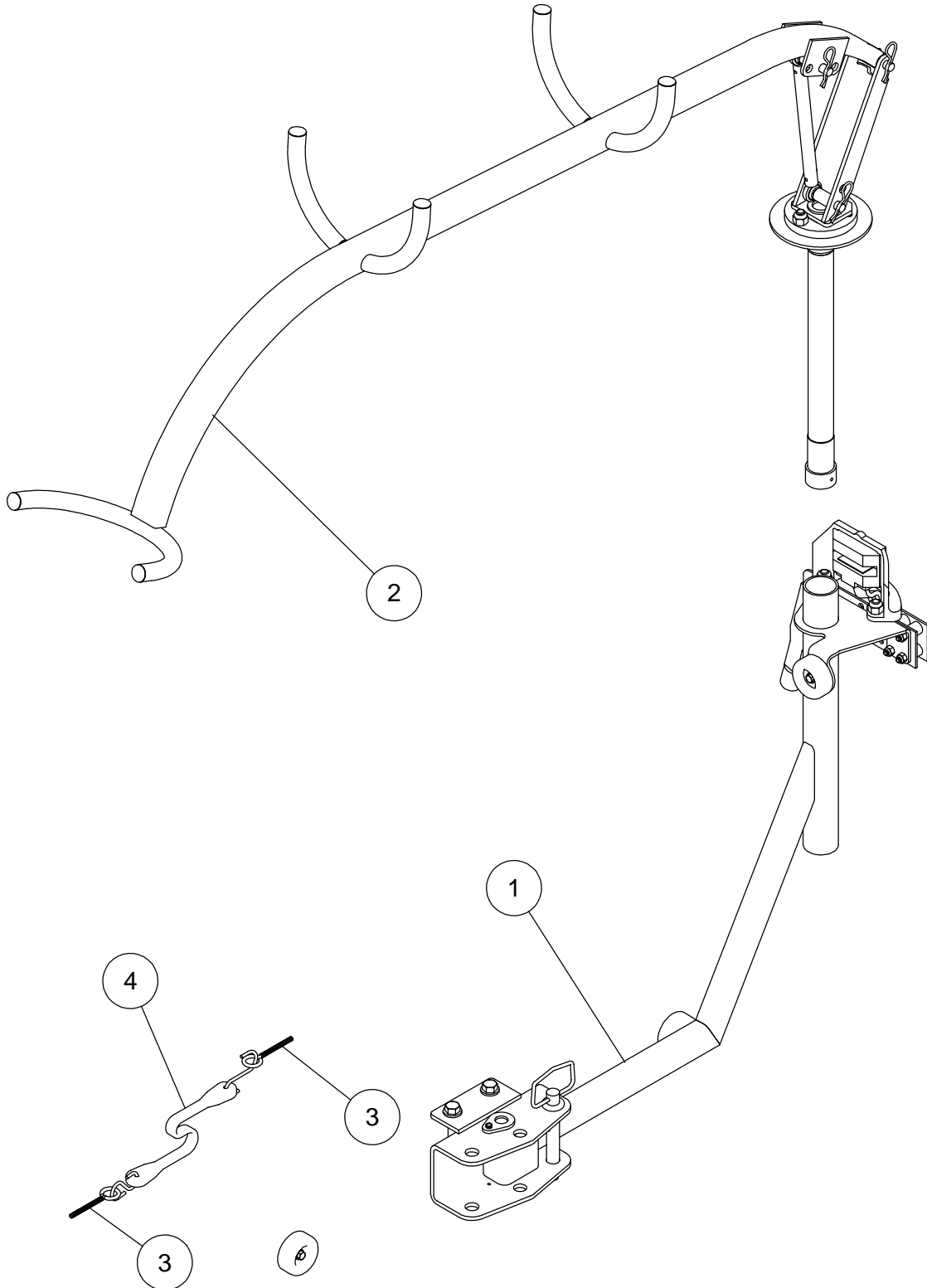
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63956	ROTATIONAL ARM RETROFIT SUPPORT	1
2	90222	BOLT HEX HEAD Ø 1/2" X 13 X 6" lg	2
3	90441	WASHER Ø 1/2"	4
4	90009	LOCK NUT Ø 1/2" - 13 UNC.	8
5	63907	POST, OVERSIZE CONTAINER	1
6	90045	BOLT HEX. HEAD Ø 1/2 - 13 UNC. 1-1/2" Lg.	4
7	90001	WASHER Ø 5/16"	1
8	90075	HEX BOLT Ø 5/16" - 18 UNC X 1" Lg.	1
9	7683	RUBBER BUMPER	1
10	90000	LOCK NUT Ø 5/16" - 18 UNC.	5
11	63840	BRAKE HANDLE	1
12	65994	HAND BRAKE BUSHING	4
13	65739	LEFT CALLIPER	1
14	90210	BOLT HEX HEAD Ø 1/2" X 13 X 1-1/4" lg	2
15	63950	LINK, HAND BRAKE LINK	2
16	27544	HITCH PIN CLIP	1
17	66057	BRAKE PAD REPLACEMENT (SET = 2 PADS) (66561+66562)	1

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A60227 - MULTI POSITION 360° ROTATIONAL ARM (OPTION K60228)

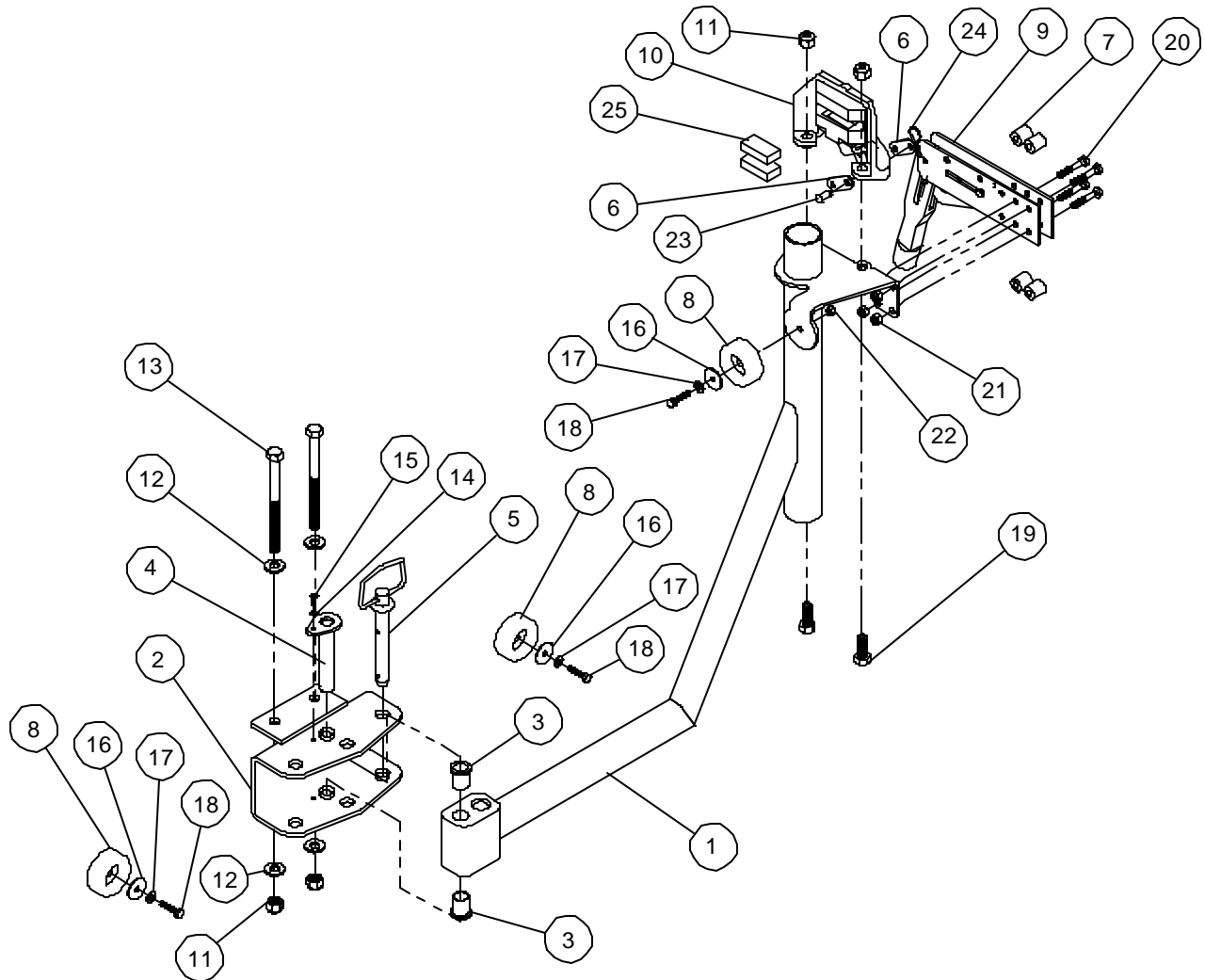
MULTI POSITION 360° ROTATIONAL ARM FOR 61 EQUIPPED WITH OPTION K60228



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A60223)	MULTI POSITION ARM SUPPORT ASS'Y	1
2	(SEE DRAWING A63972)	ROTATIONAL ARM SUB-ASSEMBLY	1
3	63861	EYE BOLT 1/4" - 20 UNC X 3" Lg.	2
4	63867	BUNGIE 31"	1

A60223 - MULTI POSITION 360° ROTATIONAL ARM (OPTION K60228) LOWER ARM SECTION

LOWER ARM SECTION FOR 61 EQUIPPED WITH MULTI POSITION 360° ARM OPTION K60228



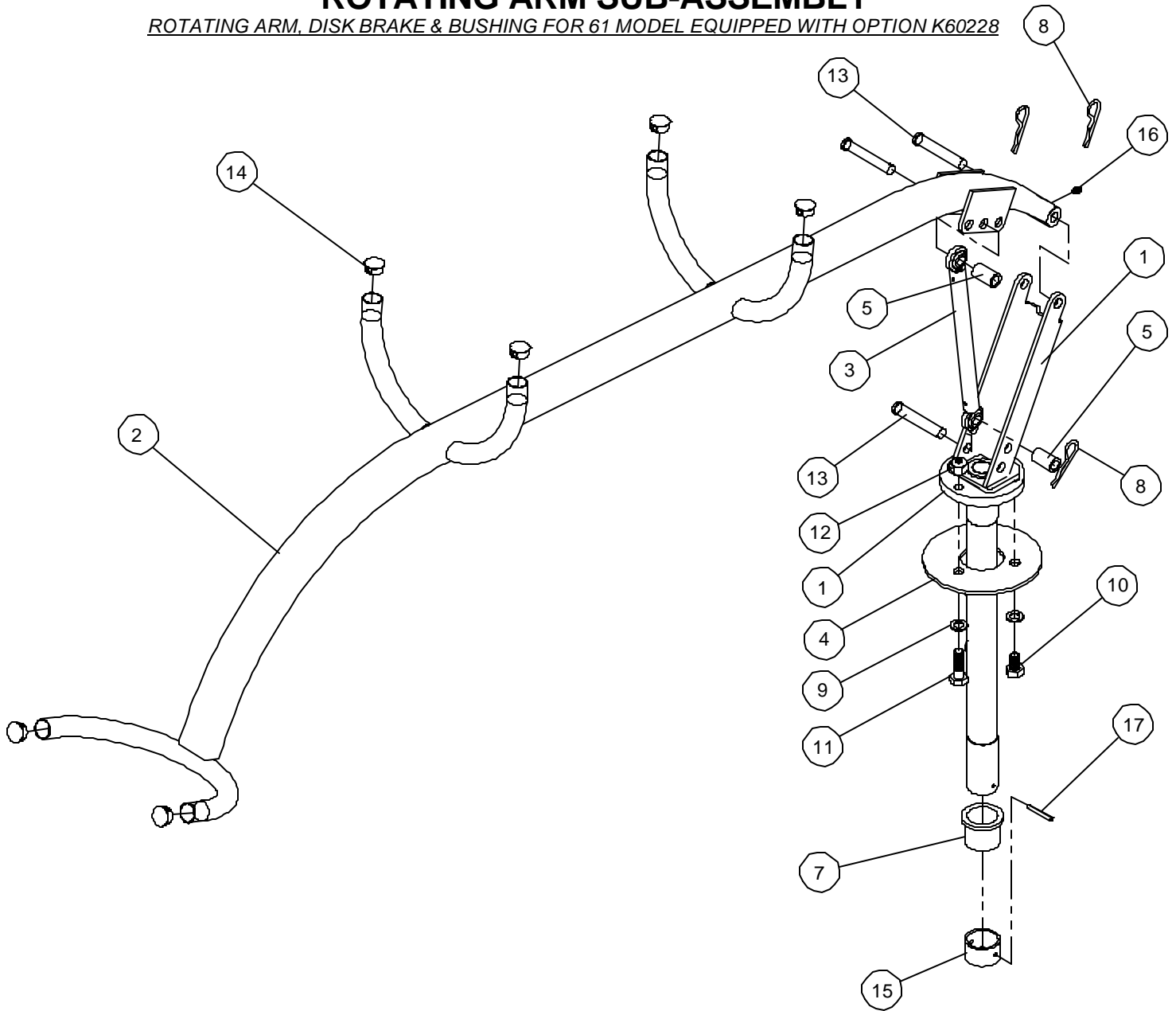
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	60218	SUPPORT, MULTI POSITION ARM	1
2	60224	ANCHOR CHANNEL, MULTI POSITION ARM	1
3	60065	BRONZE BUSHING 3/4 I.D.	2
4	60076	PIN ASS'Y, LPG BOTTLE SUPPORT	1
5	80142	SHORT HITCH PIN	1
6	63950	LINK, HAND BRAKE LINK	2
7	65994	HAND BRAKE BUSHING	4
8	7683	RUBBER BUMPER	3
9	63840	BRAKE HANDLE	1
10	65739	LEFT CALLIPER	1
11	90009	LOCK NUT Ø 1/2" - 13 UNC.	4
12	90441	WASHER Ø 1/2"	4
13	90222	BOLT HEX HEAD Ø 1/2" X 13 X 6" lg	2
14	90056	LOCK WASHER # 10	1
15	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	1
16	90241	WASHER 9/32" X 1-1/4"	3
17	90018	LOCK WASHER Ø 1/4"	3
18	90024	BOLT HEX. HEAD 1/4" - 20 UNC. X 1-1/4" Lg. (FULL THREADS)	3
19	90210	BOLT HEX HEAD Ø 1/2" X 13 X 1-1/4" lg	2
20	90176	BOLT HEX HEAD 5/16" X 18 X 1-3/4"lg	4
21	90000	LOCK NUT Ø 5/16" - 18 UNC.	4
22	90020	LOCK NUT Ø 1/4" - 20 UNC	1
23	90396	CLEVIS PIN Ø 5/16 " X 3/4" lg	1
24	27544	HITCH PIN CLIP	1
25	66057	BRAKE PAD REPLACEMENT (SET = 2 PADS)	2

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A63972 - MULTI POSITION 360° ROTATIONAL ARM (OPTION K60228) ROTATING ARM SUB-ASSEMBLY

ROTATING ARM, DISK BRAKE & BUSHING FOR 61 MODEL EQUIPPED WITH OPTION K60228



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	63942	VACUUM HOSE PIVOT	1
2	63583	LOW CLEARANCE ARM FOR 61	1
3	65098	UPPER BRUSH ARM	1
4	63948	DISC BRAKE	1
5	67345	CYLINDER SPACER	2
6	9201	WASHER	1
7	7969	BUSHING POST top	1
8	63869	HITCH PIN CLIP	3
9	90013	LOCK WASHER Ø 1/2"	3
10	90208	BOLT HEX HEAD Ø 1/2" X 13 X 3/4" lg	2
11	90045	BOLT HEX. HEAD Ø 1/2 - 13 UNC. 1-1/2" Lg.	1
12	90009	LOCK NUT Ø 1/2" - 13 UNC.	1
13	90403	CLEVIS PIN Ø 1/2" X 3" lg	3
14	27546	HOLE PLUG Ø 7/8"	6
15	7306	BUSHING POST BOTTOM	1
16	90386	GREASE ZERK STRAIGHT Ø 1/4" - 28 UNF.	1
17	90365	SPRING PIN 3/16" X 1-5/8" lg	1

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Robotic Arm Options Drawings Section

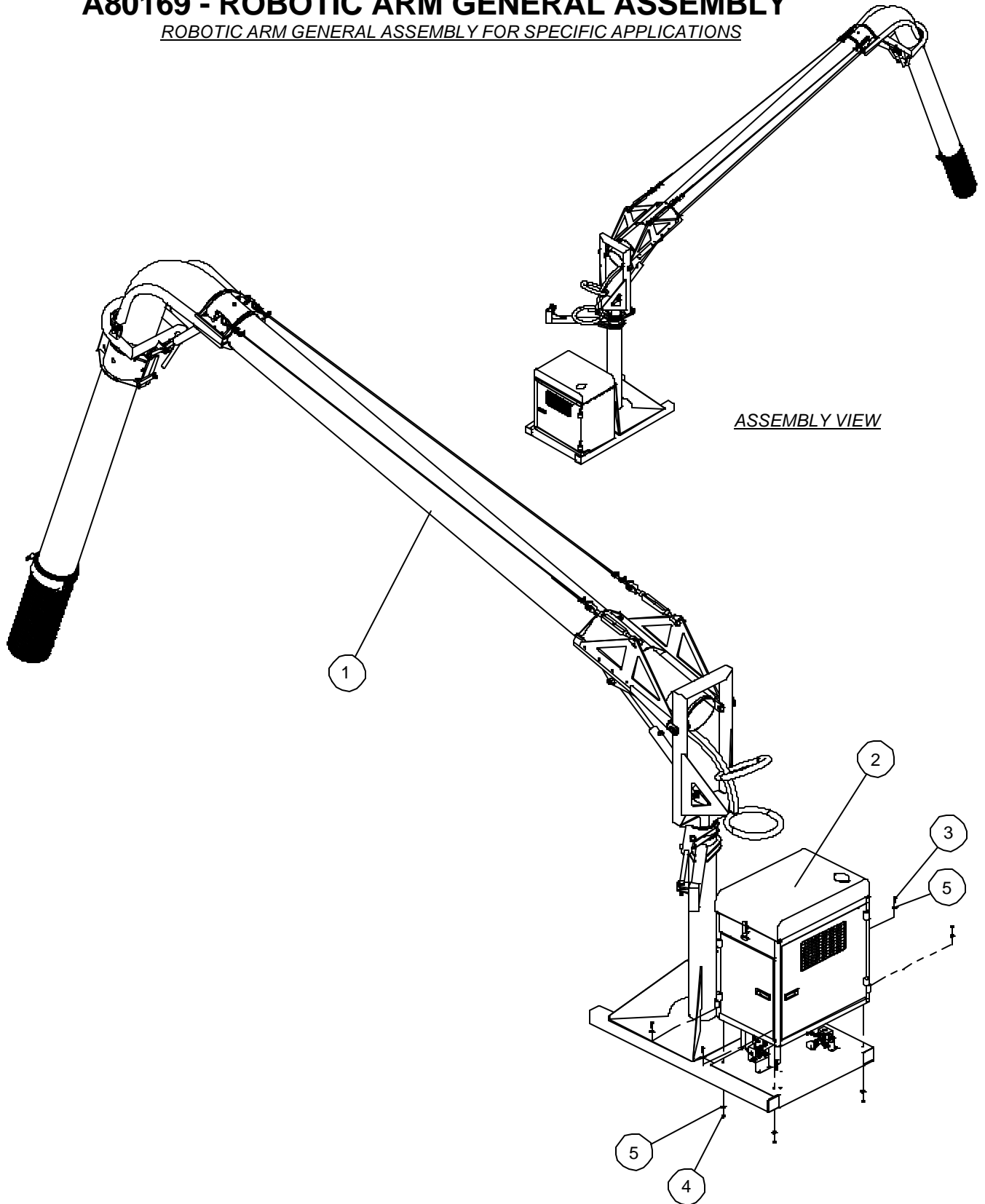
Drawings	Description	Revision	Page
<u>SPECIFIC APPLICATION ROBOTIC ARM OPTION (CALL FACTORY FOR DETAILS)</u>			
	A80169 – Robotic Arm General Assembly – Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-1
	A80174 – Robotic Arm General Assembly – Manual (K64686 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-2
	A80173 – Horizontal Vacuum Arm – Manual (K64686 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-3
	A80167 – Vacuum Arm Elbow (K64686 & K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-4
	A80085 – Vertical Vacuum Arm – Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-5
	A80165 – Rotating Frame Assembly (K64686 & K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-6
	A80175 – Control Arm – Manual (K64686 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-7
	A80039 – Vacuum Tube Assembly – Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-8
	A80138 – Unloading Cable - Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-9
	A80168 – Horizontal Vacuum Arm Assembly – Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-10
	A80166 – Vacuum Arm Assembly – Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-11
	A80155 – Hydraulic Components On Base – Hydraulic (K64685 Option)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-12
	A80139 – Cabinet Assembly (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option K64685 & K64686)</i>	A	RA-13
	A80140 – Hydraulic Tank Assembly (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option K64685 & K64686)</i>	---	RA-14
	A80154 – Hydraulic Oil Filter (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option K64685 & K64686)</i>	---	RA-15
	A80162 – Hydraulic Oil Cooler Assembly in Cabinet (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-16
	A80153 – Cooling Fans (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-17
	A80141 – Oil Cooler Assembly (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-18
	A80171 – Hydraulic Pump on 61-D2 Engine (Option K64685 & K64686)		
	<i>(Specific Application - Robotic Arm Option)</i>	---	RA-19

A80170 – Hydraulic Hoses Routing (Power & Controls) Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-20
A80172 – Hydraulic Hoses Routing (Hydraulic Cylinders) Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-21
A80011 – Unloading Valve Hydraulic Manifold Assembly (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-22
A80012 – Axis Control Hydraulic Block Manifold (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-23
A80013 – Shuttle Valves Hydraulic Manifold Block (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-24
A80016 – Up & Down Hydraulic Manifold Block Assembly (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-25
A80176 – Hydraulic Hoses Routing (Internal Power & Controls) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-26
A80177 – Hydraulic Hoses Routing (Internal Controls Manifolds) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-27
A80178 – Hydraulic Hoses Routing (Manifold To Cylinder) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-28
A80179 – Hydraulic Hoses Routing (Oil Cooler, Filter & Tank) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-29
A80181 – Hydraulic Hoses Routing (Return Line) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-30
A80144 – Base Assembly (Manual – K64686 Option) <i>(Specific Application - Robotic Arm Option)</i>	RA-31
A80164 – Hydraulic Schema For Robotic Arm – Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-32
A80161 – Electric Schema For Robotic Arm – Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-33
A80117 – Hydraulic Robotic Arm, Controls Components (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-34
A80143 – Vacuum Tube Assembly – Manual Configuration (Option K64686) <i>(Specific Application - Robotic Arm Option)</i>	RA-35

A80170 – Hydraulic Hoses Routing (Power & Controls) Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-20
A80172 – Hydraulic Hoses Routing (Hydraulic Cylinders) Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-21
A80011 – Unloading Valve Hydraulic Manifold Assembly (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-22
A80012 – Axis Control Hydraulic Block Manifold (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-23
A80013 – Shuttle Valves Hydraulic Manifold Block (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-24
A80016 – Up & Down Hydraulic Manifold Block Assembly (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-25
A80176 – Hydraulic Hoses Routing (Internal Power & Controls) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-26
A80177 – Hydraulic Hoses Routing (Internal Controls Manifolds) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-27
A80178 – Hydraulic Hoses Routing (Manifold To Cylinder) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-28
A80179 – Hydraulic Hoses Routing (Oil Cooler, Filter & Tank) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-29
A80181 – Hydraulic Hoses Routing (Return Line) (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-30
A80144 – Base Assembly (Manual – K64686 Option) <i>(Specific Application - Robotic Arm Option)</i>	RA-31
A80164 – Hydraulic Schema For Robotic Arm – Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-32
A80161 – Electric Schema For Robotic Arm – Hydraulic Arm (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-33
A80117 – Hydraulic Robotic Arm, Controls Components (Option K64685) <i>(Specific Application - Robotic Arm Option)</i>	RA-34
A80143 – Vacuum Tube Assembly – Manual Configuration (Option K64686) <i>(Specific Application - Robotic Arm Option)</i>	RA-35

A80169 - ROBOTIC ARM GENERAL ASSEMBLY

ROBOTIC ARM GENERAL ASSEMBLY FOR SPECIFIC APPLICATIONS



ASSEMBLY VIEW

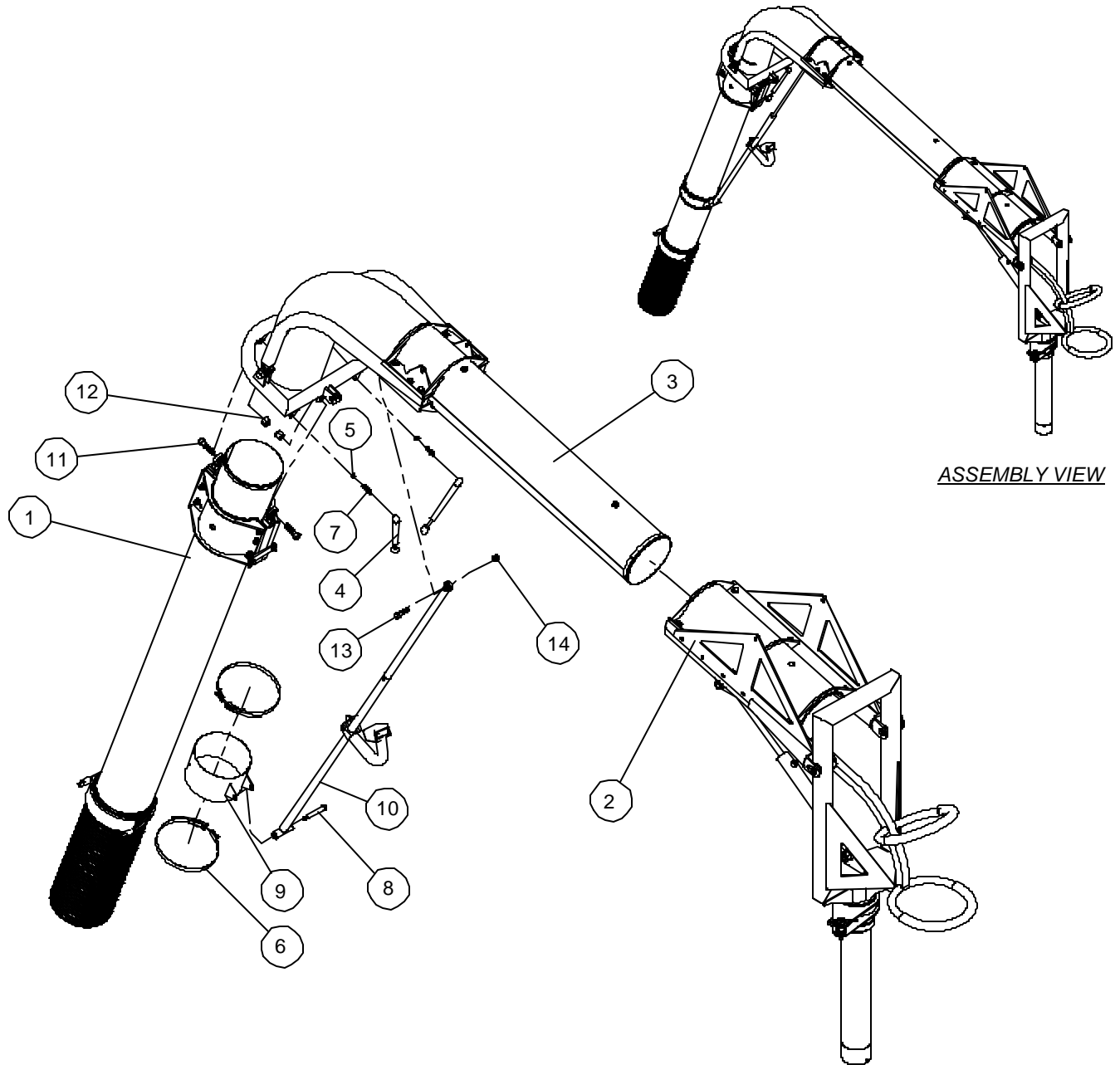
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A80166)	BASE & ARM	1
2	(SEE DRAWING A80162)	CABINET ASSEMBLY	1
3	90003	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 1" Lg. (FULL THREAD)	4
4	90020	LOCK NUT Ø 1/4" - 20 UNC	4
5	90004	WASHER Ø 1/4"	8

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A80174 - ROBOTIC ARM - MANUAL ARM (OPTION K64686)

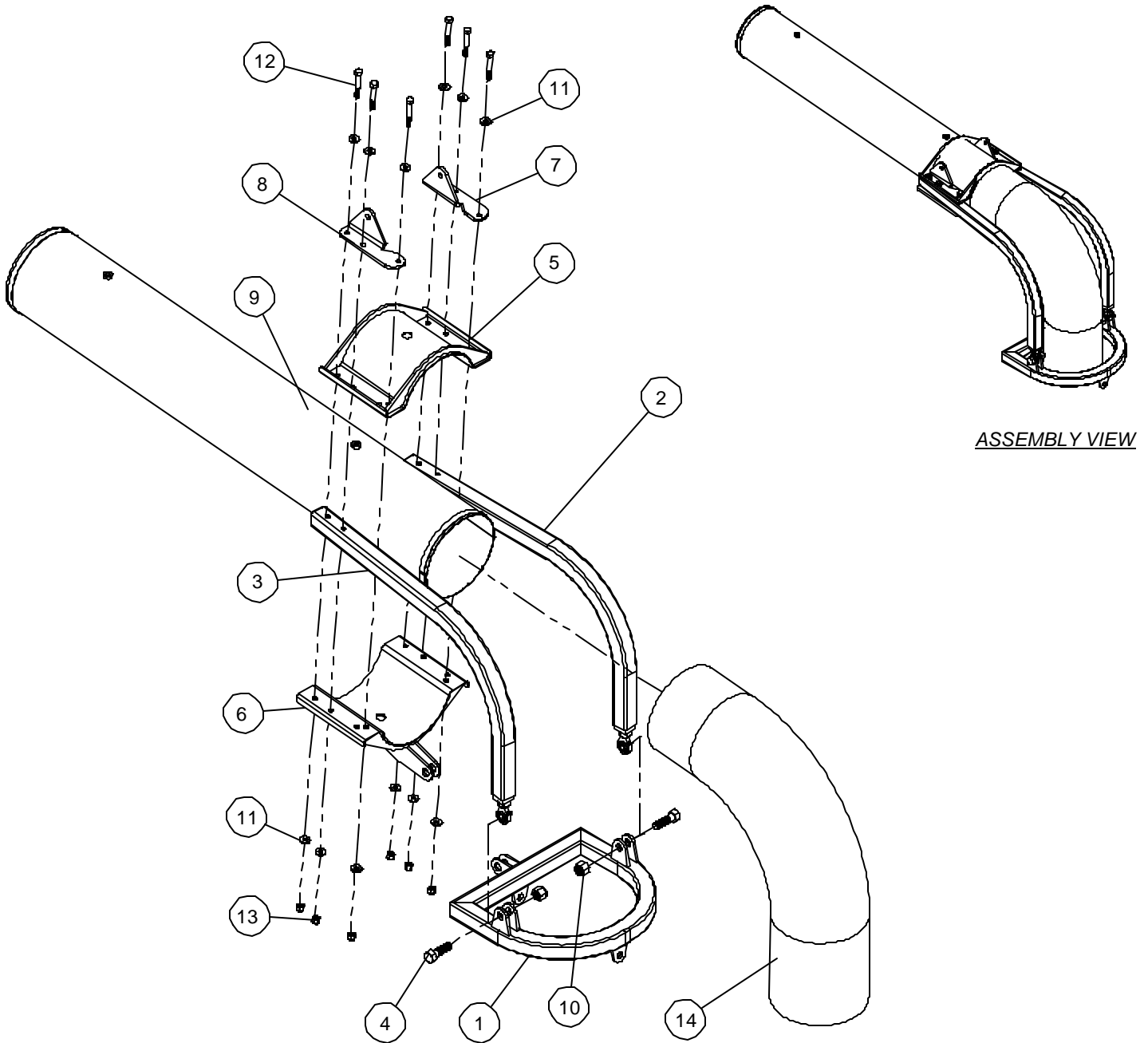
ROBOTIC ARM - MANUAL ARM OPTION GENERAL ASSEMBLY FOR SPECIFIC APPLICATIONS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A80085)	VERTICAL TUBE ASSY	1
2	(SEE DRAWING A80165)	1
3	(SEE DRAWING A80173)	SHORT ARM ASSY	1
4	28087	GAS SPRING	2
5	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
6	62641	HOSE CLAMP 8"	2
7	17085	BALL STUD LONG	2
8	90133	SHOULDER SCREW 3/8" X 2"LG.	1
9	80134	COLLAR ASSY	1
10	(SEE DRAWING A80175)	HANDLE ASSY	1
11	90796	BHH - 5/8 X 11 UNC X 2.0 lg	2
12	90266	LOCK NUT 3/4" X 10	2
13	90226	BOLT HEX HEAD Ø 1/2" X 20 X 1-3/4" lg	1
14	90009	LOCK NUT Ø 1/2" - 13 UNC.	1

A80173 - HORIZONTAL VACUUM ARM - MANUAL (OPTION K64686)

HORIZONTAL VACUUM ARM FOR ROBOTIC ARM - MANUAL CONFIGURATION (OPTION K64686)



ASSEMBLY VIEW

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80071	UNIVERSAL JOINT	1
2	(SEE DRAWING A80167)	ELBOW STRUCTURAL TUBE	1
3	(SEE DRAWING A80167)	ELBOW STRUCTURAL TUBE	1
4	90796	BHH - 5/8 X 11 UNC X 2.0 lg	2
5	80070	SHORT COLLAR	1
6	80092	LOWER COLLAR	1
7	80103	CABLE RETAINER LEFT	1
8	80104	CABLE RETAINER RIGHT	1
9	80108	HORIZONTAL TUBE, SHORT	1
10	90266	LOCK NUT 3/4" X 10	2
11	90066	WASHER Ø 3/8"	12
12	90195	BOLT HEX HEAD Ø 3/8" X 16 X 2-1/2" lg	6
13	90046	LOCK NUT Ø 3/8" - 16 UNC.	6
14	80149	ELBOW, FLEXIBLE TUBING	1

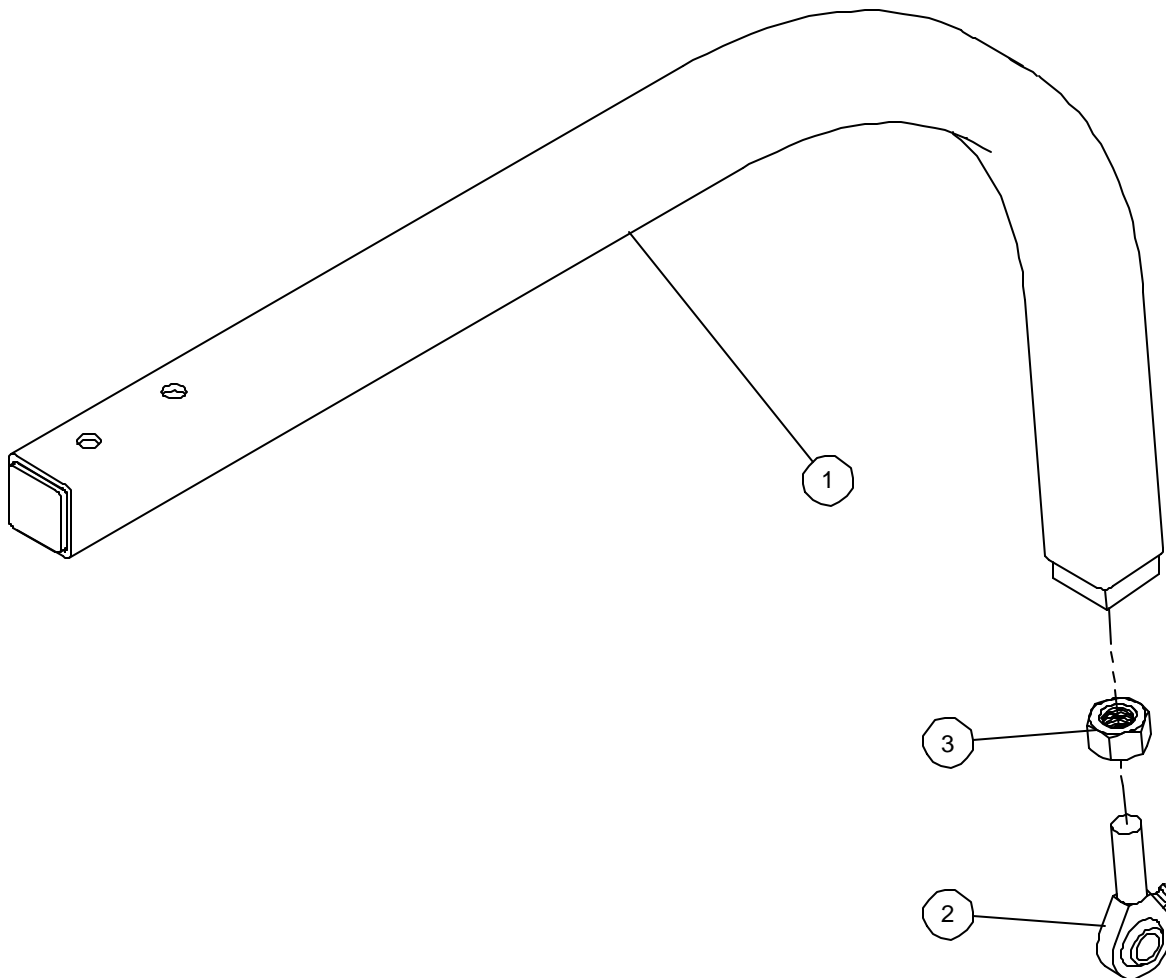
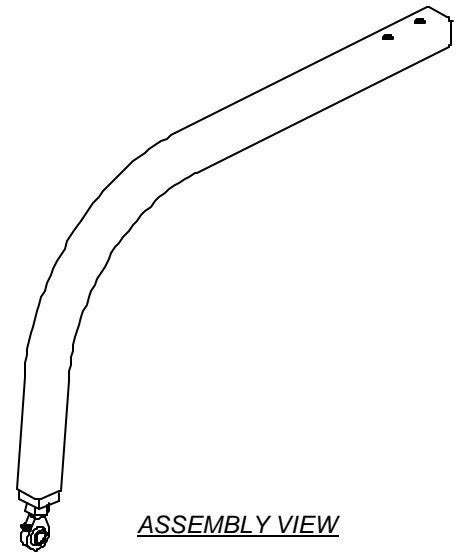
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A80167 - VACUUM ARM ELBOW

Robotic Arm Option

VACUUM ARM ELBOW FOR ROBOTIC ARM OPTION - MANUAL & HYDRAULIC (K64686 & K64685)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80088	ELBOW STRUCTURAL TUBE	1
2	3203	ROD END Ø 1/2"	1
3	90140	NUT 5/8"-18" unf	1

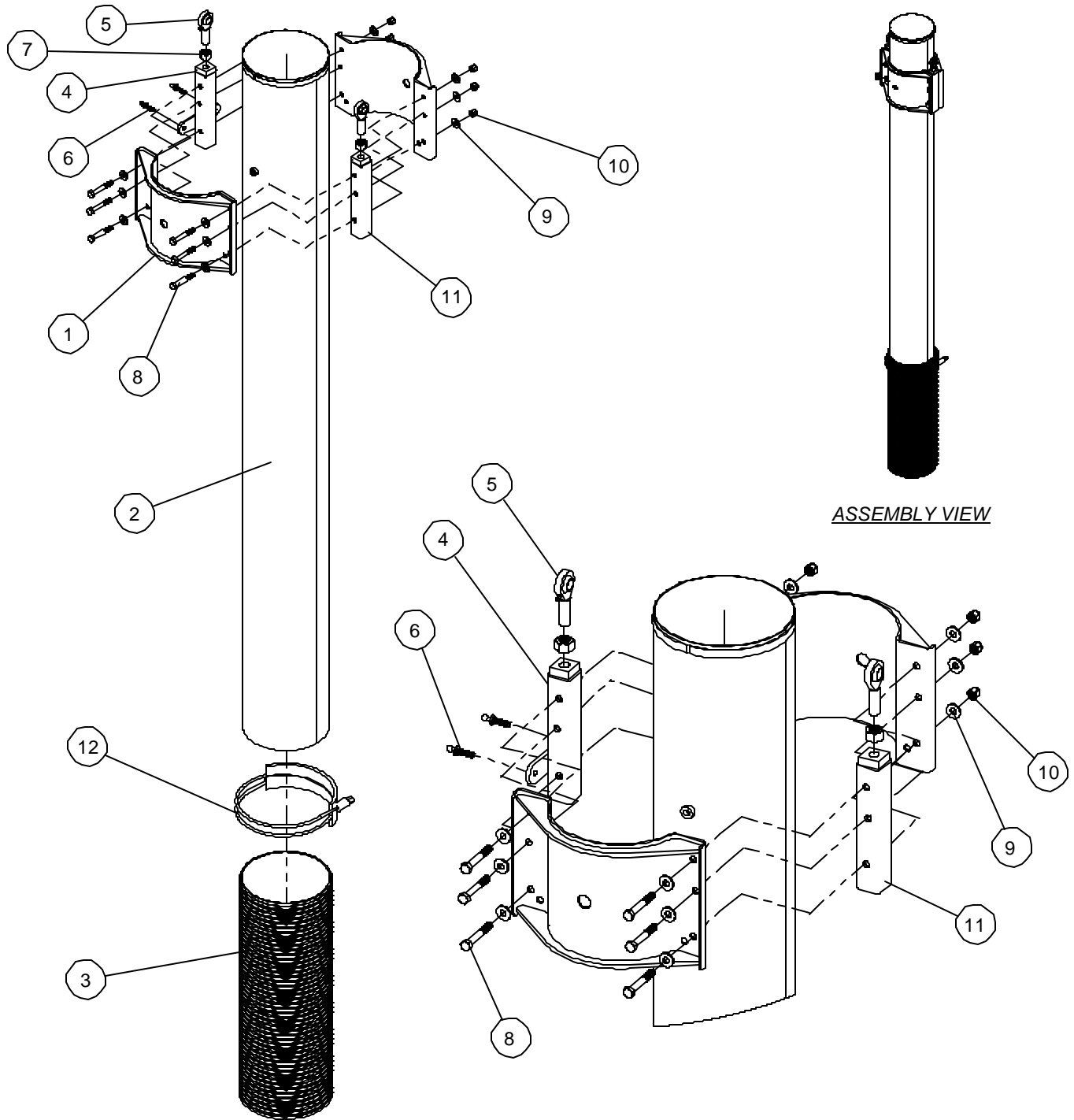
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A80085 - VERTICAL VACUUM ARM - HYDRAULIC (OPTION K64685)

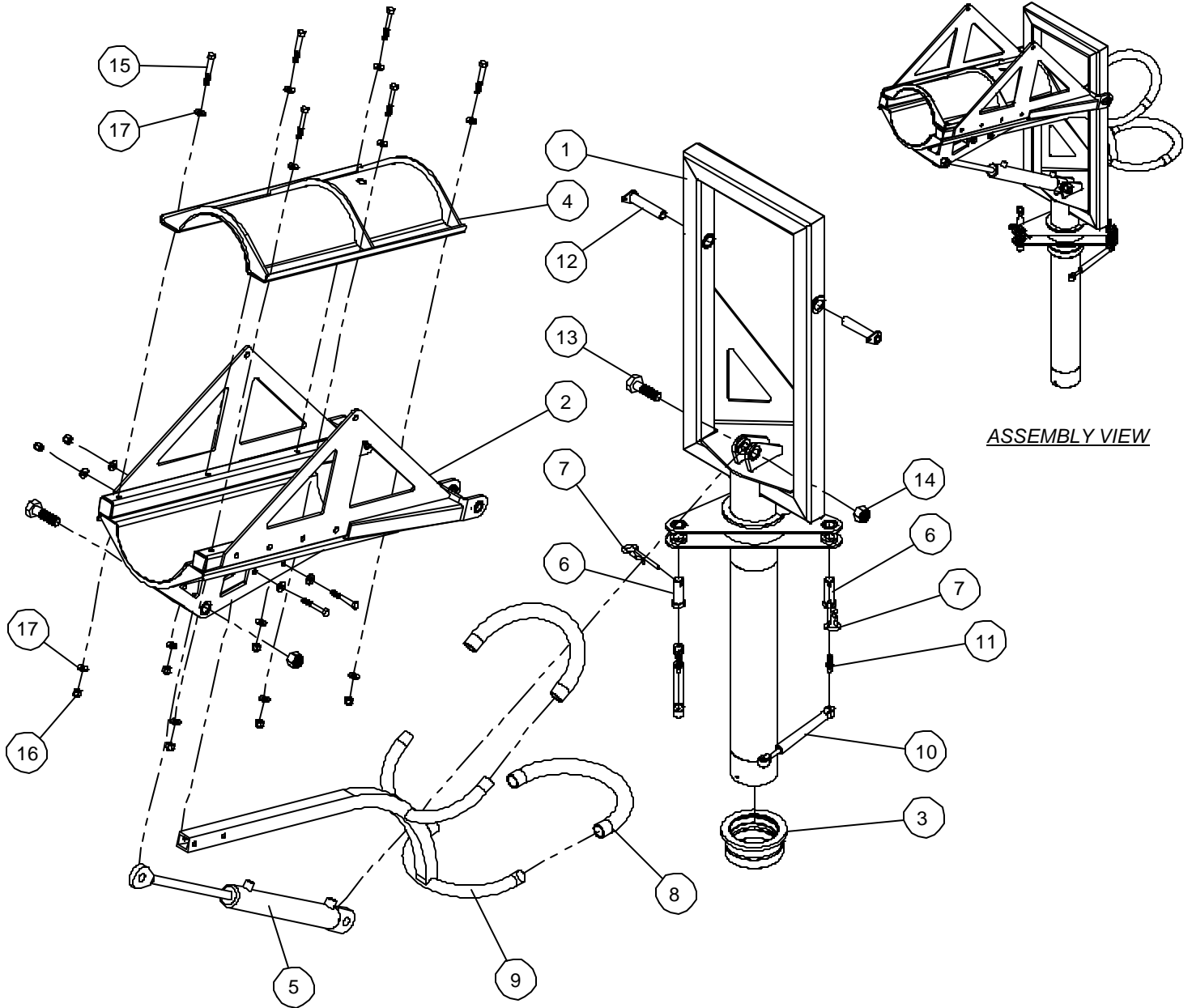
VERTICAL VACUUM ARM FOR ROBOTIC ARM - HYDRAULIC CONFIGURATION (OPTION K64685)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80070	SHORT COLLAR	2
2	80023	VERTICAL TUBE	1
3	80086	TUBE FLEXIBLE END	1
4	80084	REAR ROD END TUBE	1
5	80105	ROD END Ø 5/8	2
6	17085	BALL STUD LONG	2
7	90140	NUT 5/8"-18" unf	2
8	90195	BOLT HEX HEAD Ø 3/8" X 16 X 2-1/2" lg	6
9	90066	WASHER Ø 3/8"	12
10	90046	LOCK NUT Ø 3/8" - 16 UNC.	6
11	80083	ROD END TUBE	1
12	80101	POWERLOCK CLAMP 8"	1

A80165 - ROTATING FRAME ASSEMBLY (OPTION K64686 & K64685)

ROTATING FRAME ASSEMBLY FOR ROBOTIC ARM - HYDRAULIC & MANUAL OPTION (K64686 & K64685)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80037	ROTATING FRAME	1
2	80095	LONG LOWER COLLAR	1
3	80035	FLANGE BUSHING	1
4	80063	LONG COLLAR ASSY	1
5	5184	HYDRAULIC CYLINDER	1
6	80125	PIN, GAS SPRING	2
7	80126	COTTER PIN Ø 1/8" (HAIRPIN STYLE)	2
8	27137	HOSE GUIDE	2
9	80123	HOSE GUIDE ASSY	1
10	28087	GAS SPRING	2
11	17085	BALL STUD LONG	2
12	80050	UNIVERSAL JOINT PIN ASS'Y	2
13	90237	BOLT HEX HEAD Ø3/4" X 10 X 2-1/2" lg	2
14	90266	LOCK NUT 3/4" X 10 UNC	2
15	90195	BOLT HEX HEAD Ø 3/8" X 16 X 2-1/2" lg	8
16	90046	LOCK NUT Ø 3/8" - 16 UNC.	8
17	90066	WASHER Ø 3/8"	16

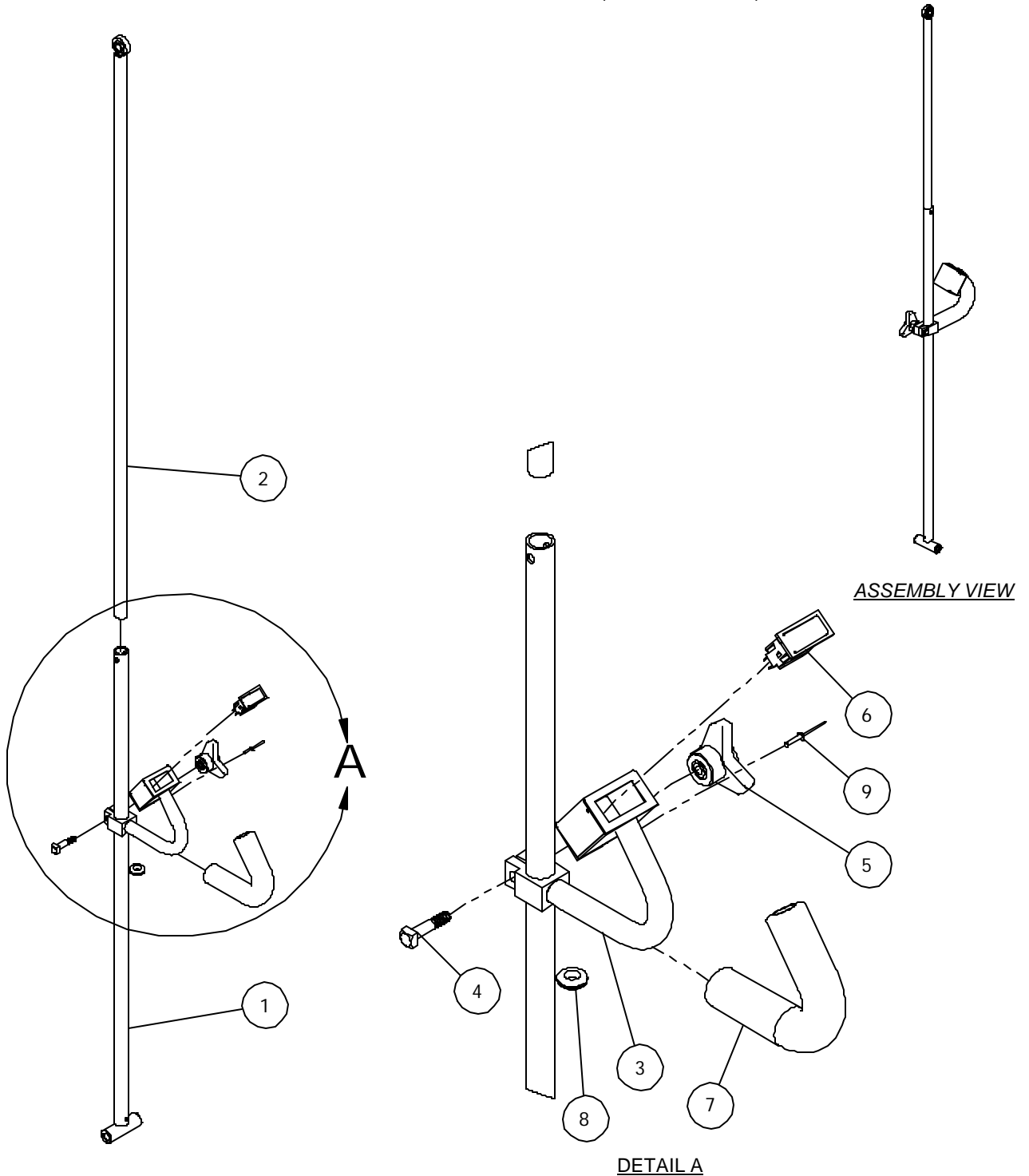
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ROBOTIC ARM Operator's & Parts Manual

August 2002, Revision: ---

A80175 - CONTROL ARM MANUAL CONFIGURATION (K64686 OPTION)

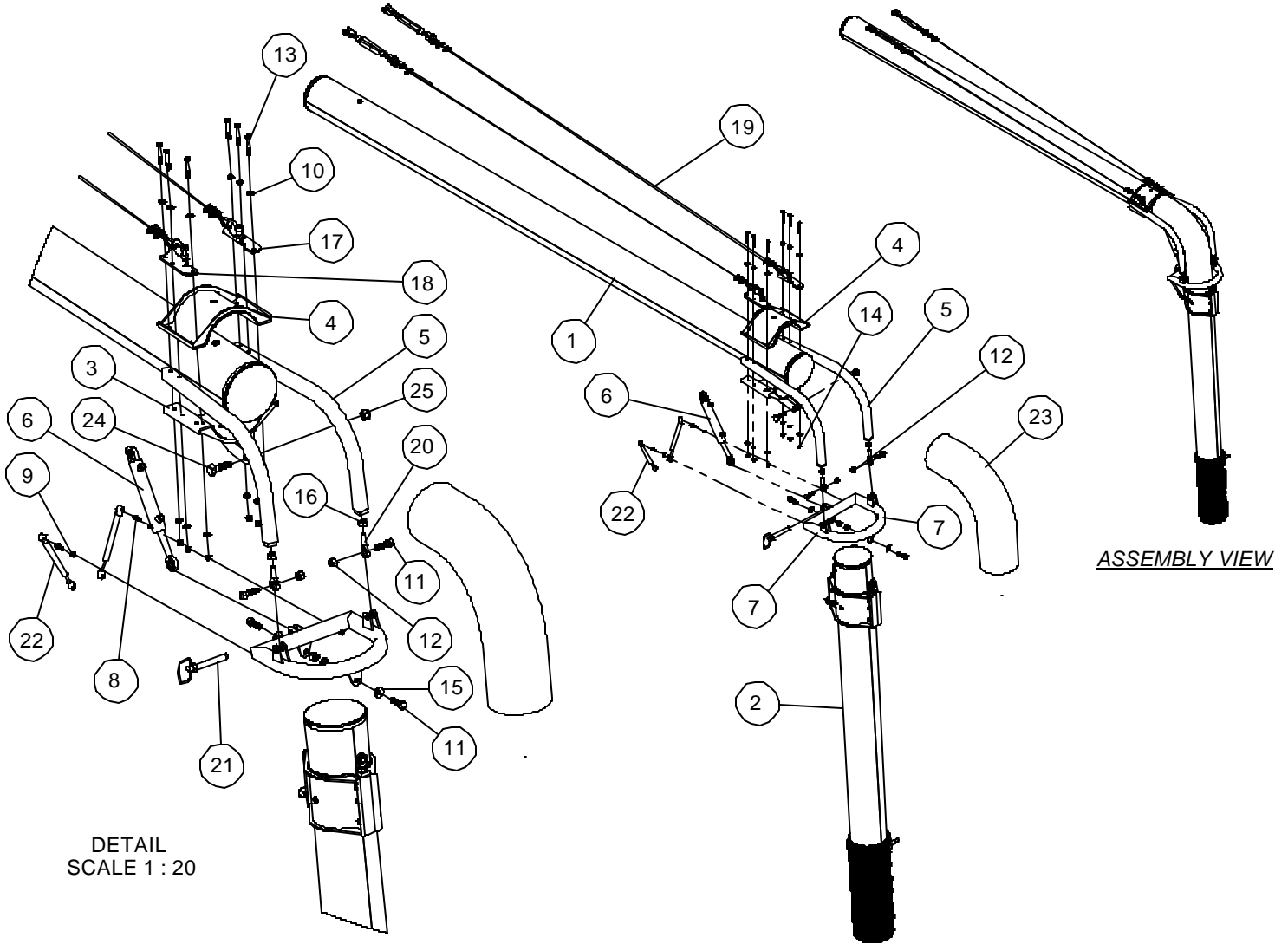
CONTROL ARM FOR MANUAL ROBOTIC ARM CONFIGURATION (OPTION K64686)



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80131	SLIDING ARM	1
2	3238	UPPER TELESCOPIC ARM	1
3	3491	HANDLE ASSY	1
4	9732	SQUARE HEAD 3/8-16 UNC X 2" LG	1
5	7411	PLASTIC KNOB	1
6	6016	SWITCH & SYMBOL U/D	1
7	7438	FOAM HANDLE	1
8	17656	RUBBER GROMMET Ø 9/16"	1
9	66462	POP-RIVET	1

A80039 - VACUUM TUBE ASSEMBLY (OPTION K64685)

VACUUM TUBE ASSEMBLY FOR ROBOTIC ARM - HYDRAULIC CONFIGURATION (OPTION K64685)



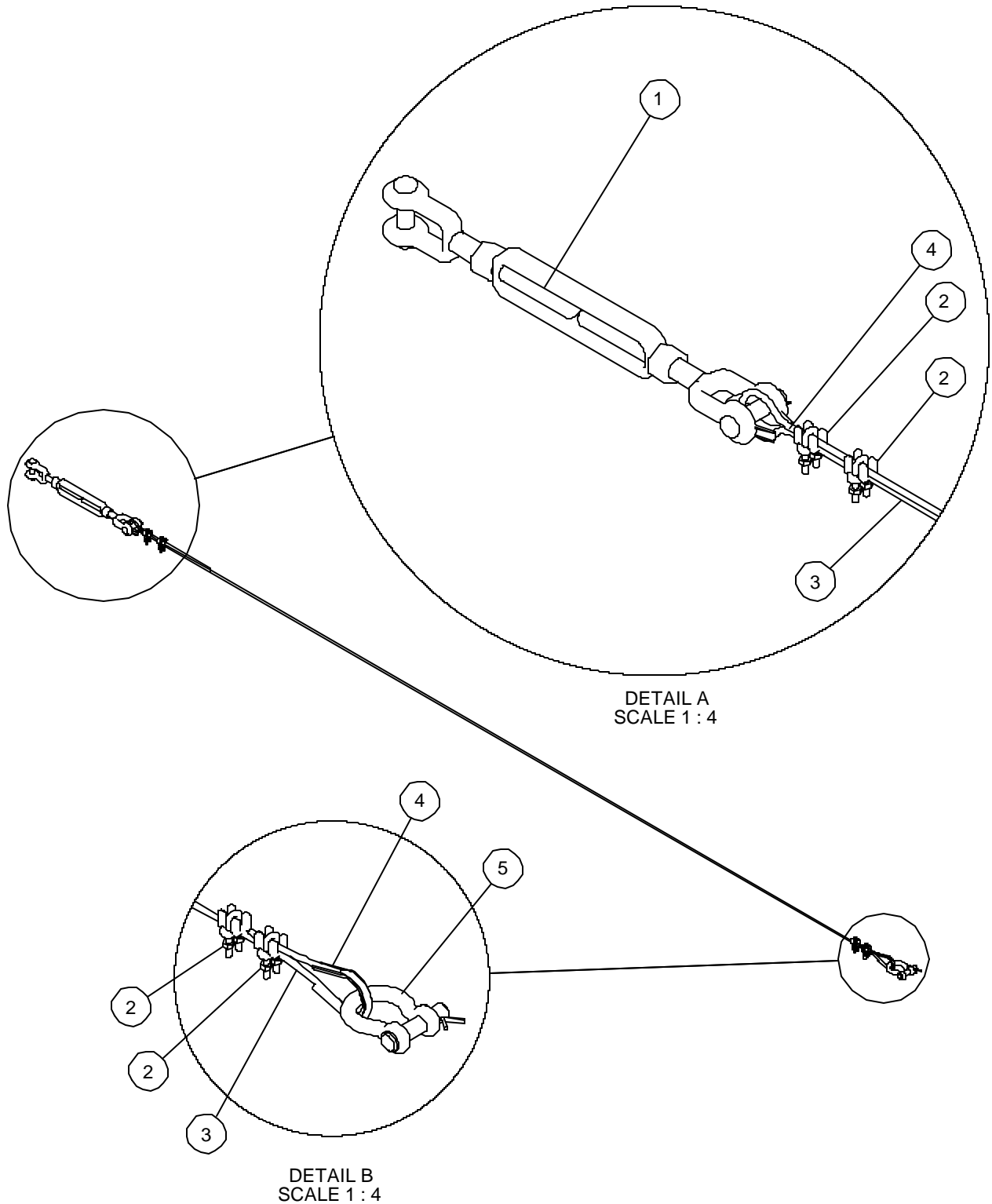
DETAIL
SCALE 1 : 20

ASSEMBLY VIEW

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80025	HORIZONTAL TUBE	1
2	(SEE DRAWING A80085)	VERTICAL TUBE ASS'Y	1
3	80092	LOWER COLLAR	1
4	80070	SHORT COLLAR	1
5	80088	ELBOW STRUCTURAL TUBE	2
6	46768	STEERING CYL ASSY	1
7	80071	UNIVERSAL JOINT	1
8	17085	BALL STUD LONG	2
9	90000	LOCK NUT Ø 5/16" - 18 UNC.	2
10	90066	WASHER Ø 3/8"	12
11	90796	BHH - 5/8 X 11 UNC X 2.0 lg	4
12	90807	LOCK NUT Ø 5/8" - 11 UNC.	4
13	90195	BOLT HEX HEAD Ø 3/8" X 16 X 2-1/2" lg	6
14	90046	LOCK NUT Ø 3/8" - 16 UNC.	6
15	90054	FLAT WASHER 5/8 X 1 5/16 OD	2
16	90140	NUT 5/8"-18" unf	2
17	80103	CABLE RETAINER LEFT	1
18	80104	CABLE RETAINER RIGHT	1
19	(SEE DRAWING A80138)	CABLE ASSY	2
20	80105	ROD END Ø 5/8	2
21	80142	SHORT HITCH PIN	1
22	28087	GAS SPRING	2
23	80149	ELBOW, FLEXIBLE TUBING	1
24	90237	BOLT HEX HEAD Ø3/4" X 10 X 2-1/2" lg	1
25	90266	LOCK NUT 3/4" X 10 UNC	1

A80138 - UNLOADING CABLE, HYDRAULIC CONFIGURATION

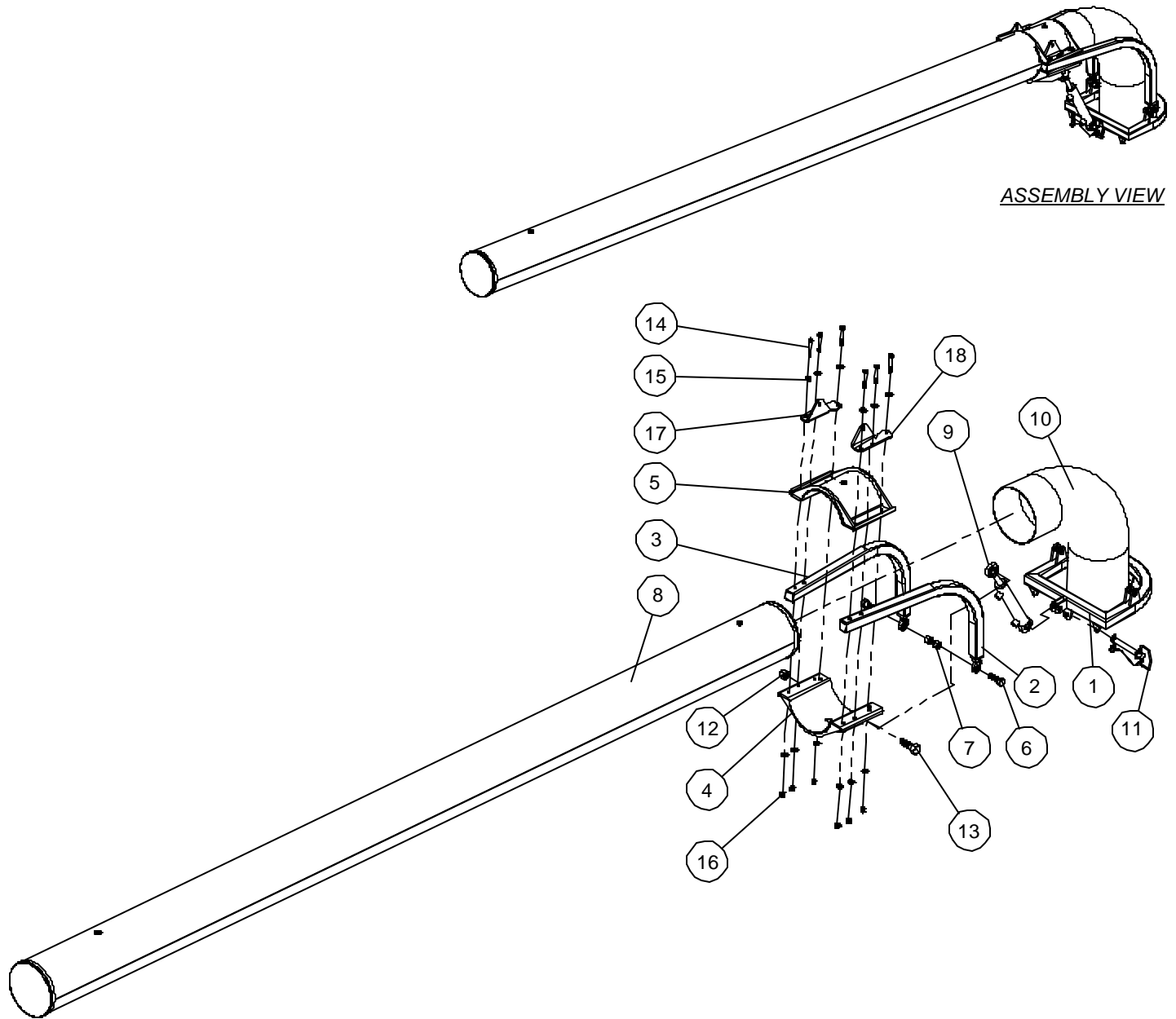
UNLOADING CABLE ASSEMBLY FOR OPTION K64685 - ROBOTIC ARM HYDRAULIC CONFIGURATION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80109	TURNBUCKLE	1
2	80110	CLAMPS KIT	4
3	80111	CABLE	1
4	80152	THIMBLE, WIRE CABLE Ø 3/16"	2
5	80151	ANCHOR SHACKLE	1

A80168 - HORIZONTAL VACUUM ARM ASSEMBLY

HORIZONTAL VACUUM ARM ASSEMBLY FOR ROBOTIC ARM - HYDRAULIC (OPTION K64685)



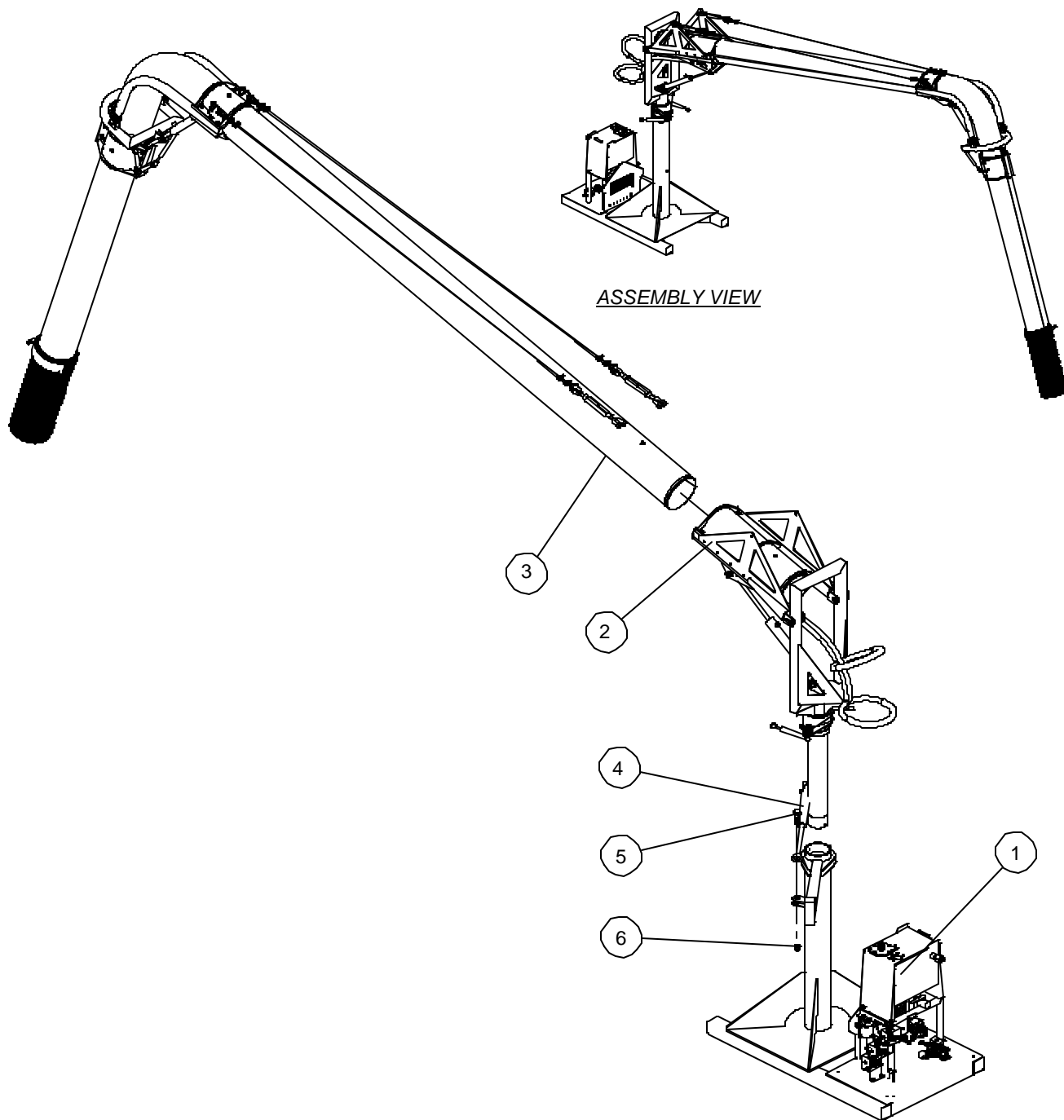
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80071	UNIVERSAL JOINT	1
2	(SEE DRAWING A80167)	ELBOW STRUCTURAL TUBE	1
3	(SEE DRAWING A80167)	ELBOW STRUCTURAL TUBE	1
4	80092	LOWER COLLAR	1
5	80070	SHORT COLLAR	1
6	90796	BHH - 5/8 X 11 UNC X 2.0 lg	2
7	90807	LOCK NUT Ø 5/8" - 11 UNC.	2
8	80025	HORIZONTAL TUBE	1
9	46768	STEERING CYL ASSY	1
10	80149	ELBOW, FLEXIBLE TUBING	1
11	80118	HITCH PIN 3/4" X 4 1/2" LG.	1
12	90266	LOCK NUT 3/4" X 10 UNC	1
13	90237	BOLT HEX HEAD Ø3/4" X 10 X 2-1/2" lg	1
14	90195	BOLT HEX HEAD Ø 3/8" X 16 X 2-1/2" lg	6
15	90066	WASHER Ø 3/8"	12
16	90046	LOCK NUT Ø 3/8" - 16 UNC.	6
17	80103	CABLE RETAINER LEFT	1
18	80104	CABLE RETAINER RIGHT	1

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A80166 - VACUUM ARM ASSEMBLY (OPTION K64685)

VACUUM ARM ASSEMBLY FOR ROBOTIC ARM - HYDRAULIC CONFIGURATION (OPTION K64685)



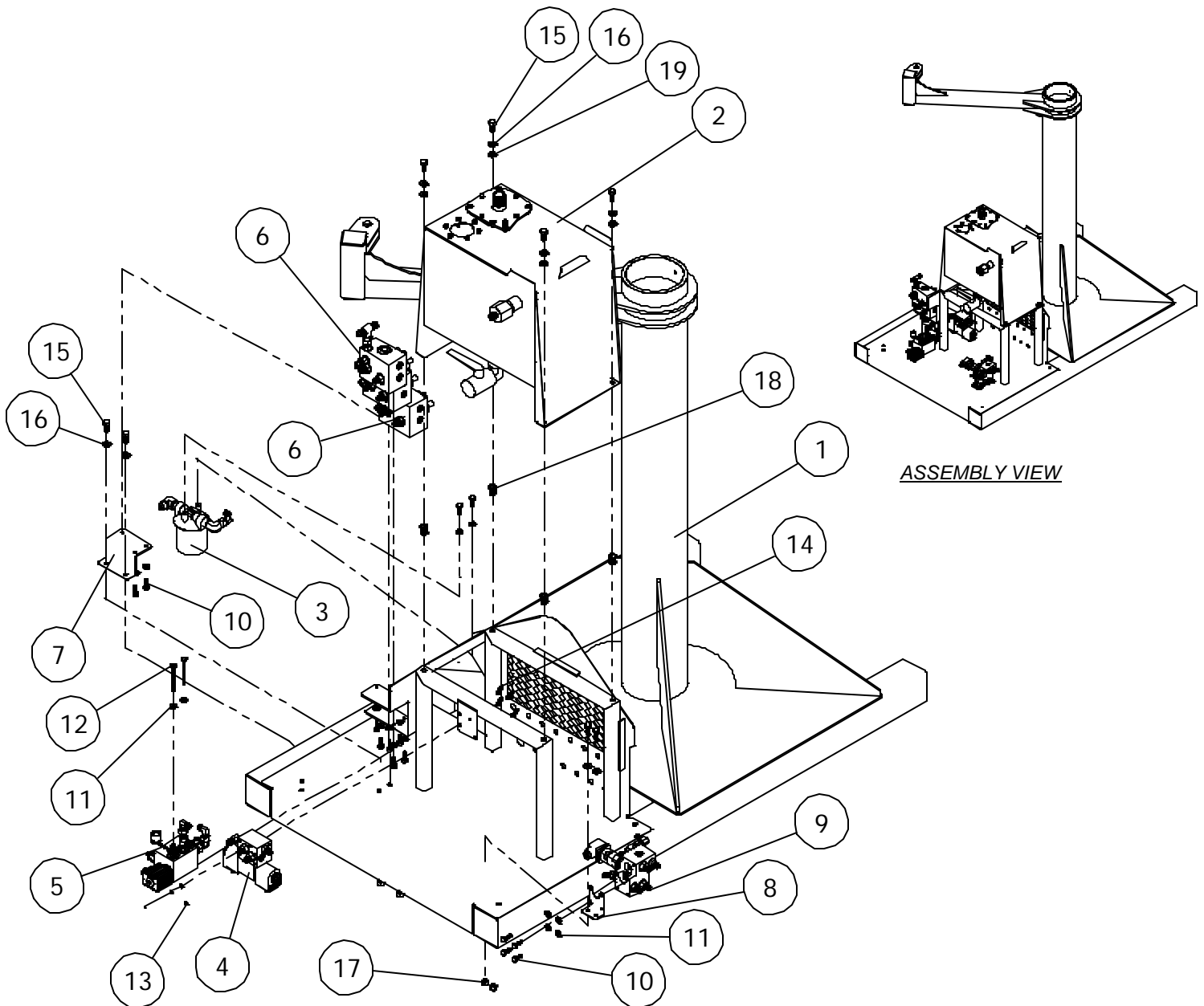
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A80155)	HYDRAULIC MANIFOLD GENERAL ASSEMBLY	1
2	(SEE DRAWING A80165)	ROTATING FRAME ASSEMBLY	1
3	(SEE DRAWING A80039)	VACUUM TUBE ASSEMBLY	1
4	5184	HYDRAULIC CYLINDER	1
5	90237	BOLT HEX HEAD Ø3/4" X 10 X 2-1/2" lg	1
6	90266	LOCK NUT 3/4" X 10 UNC	1

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A80155 - HYDRAULIC COMPONENTS ON BASE

HYDRAULIC MANIFOLD, OIL TANK & FILTER ASSEMBLY ON FRAME FOR ROBOTIC ARM HYDRAULIC CONFIGURATION



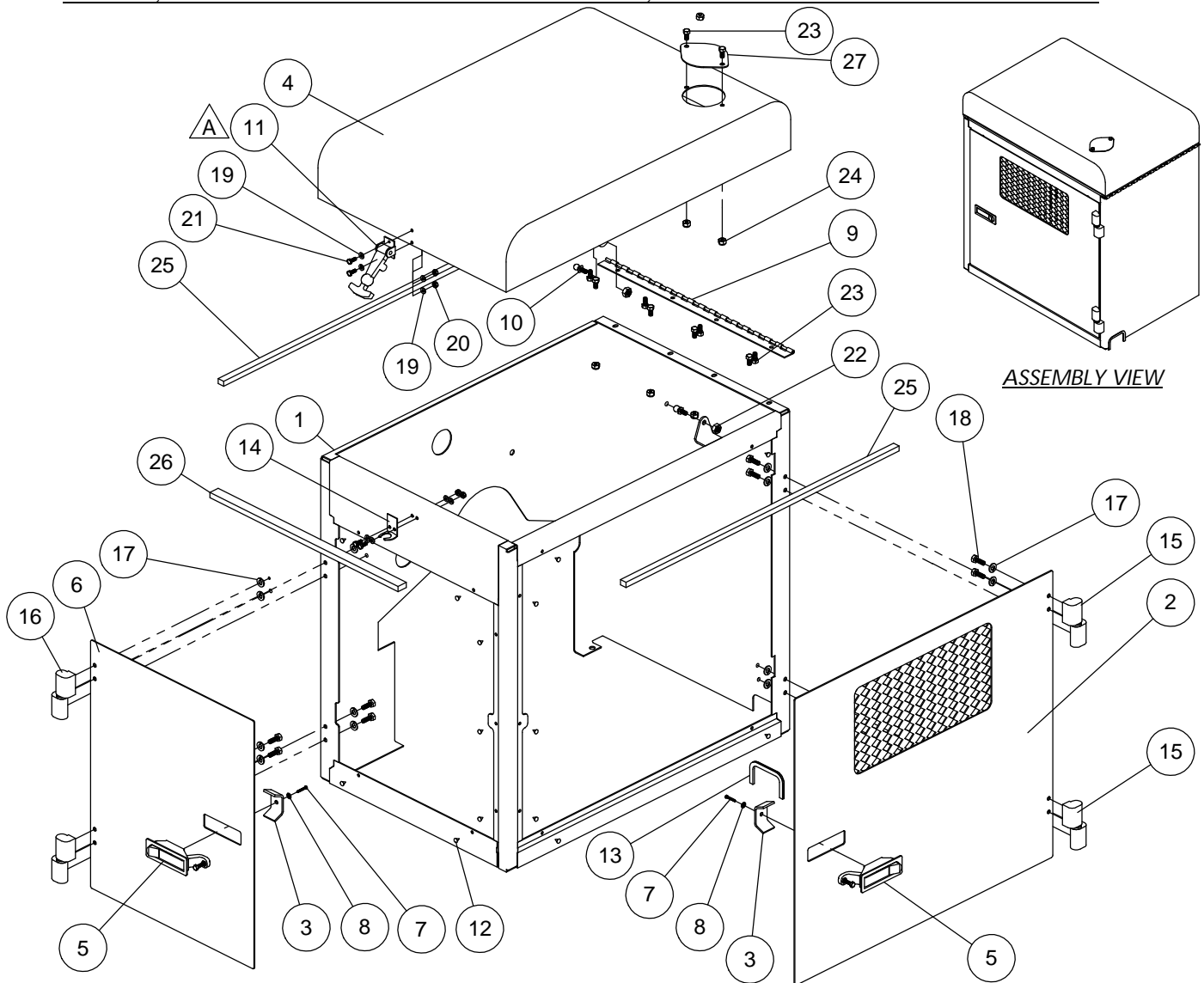
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80080	BASE	1
2	(SEE DRAWING A80140)	TANK HYDRAULIC ASSY	1
3	(SEE DRAWING A80154)	HYDRAULIC OIL FILTER PRE-ASSEMBLY	1
4	(SEE DRAWING A80016)	GETOP 2VALVES MOUNTING BLOC ASS Y	1
5	(SEE DAWING A80011)	UNLOADING BLOC ASS Y	1
6	(SEE DRAWING A80012)	AXIS CONTROL BLOC ASS Y	3
7	80137	HYD. BLOCK SUPPORT 2	1
8	80136	HYD. BLOCK SUPPORT	1
9	(SEE DRAWING A80013)	SHUTTLE VALVES BLOC ASS Y	1
10	90021	BOLT HEX. HEAD \varnothing 1/4" - 20 UNC. X 3/4" Lg.	15
11	90018	LOCK WASHER \varnothing 1/4"	17
12	90167	BOLT HEX HEAD (FULL THREAD) \varnothing 1/4" X 20 X 2-1/2"lg	2
13	90056	LOCK WASHER # 10	4
14	90265	PEM STUD 1/4 - 20 X 1" LG. #FH-0420-10	4
15	90022	BOLT HEX. HEAD \varnothing 5/16" - 18 UNC. X 3/4" Lg.	8
16	90023	LOCK WASHER \varnothing 5/16"	8
17	90000	LOCK NUT \varnothing 5/16" - 18 UNC.	4
18	90028	RIV NUT \varnothing 5/16 - 18 UNC.	4
19	90001	WASHER \varnothing 5/16"	4

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A80139 - CABINET ASSEMBLY (OPTION K64685 & K64686)

CABINET, DOORS & COVER FOR OPTION ROBOTIC ARM, HYDRAULIC & MANUAL CONFIGURATIONS



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	62129	HOOD FRAME	1
2	80067	AIR INTAKE DOOR ASS'Y	1
3	(COMES WITH 62445)	HOOD DOOR LATCH BRACKET	2
4	62121	HOOD COVER	1
5	62445	DOOR LATCH	2
6	65128	SIDE DOOR DETAIL	1
7	(COMES WITH 62445)	BOLT HEX. HEAD #10 - 32 UNF. X 1/2" Lg	2
8	(COMES WITH 62445)	TOOTH LOCK WASHER #10	2
9	62135	HOOD HINGE	1
10	(COMES WITH 28027)	BALL STUD	2
A 11	78043	SMALL RUBBER CLAMP	1
12	62935	RUBBER BUMPER	14
13	62714	MOLDING TRIM	1
14	78043	RUBBER CLAMP HOLDER	1
15	66124	DOOR HINGE (RIGHT HAND)	2
16	66123	DOOR HINGE (LEFT HAND)	2
17	90018	LOCK WASHER Ø 1/4"	16
18	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	8
19	90005	WASHER # 10	8
20	90006	LOCK NUT # 10 - 32 UNF	4
21	90070	BOLT HEX HEAD # 10 - 32 UNF X 1/2" Lg.	4
22	90061	NUT HEX. HEAD Ø 5/16" - 18 UNC	2
23	90051	BOLT HEX. HEAD Ø 1/4" X 20 UNC. X 1/2" Lg.	10
24	90020	LOCK NUT Ø 1/4" - 20 UNC	7
25	64669	FOAM TRIM 1/2" X 3/8" X 19-1/8" Lg.	2
26	64650	FOAM TRIM 3/4" X 3/8" X 17-1/8" Lg.	1
27	62930	HOOD COVER PLUG	1

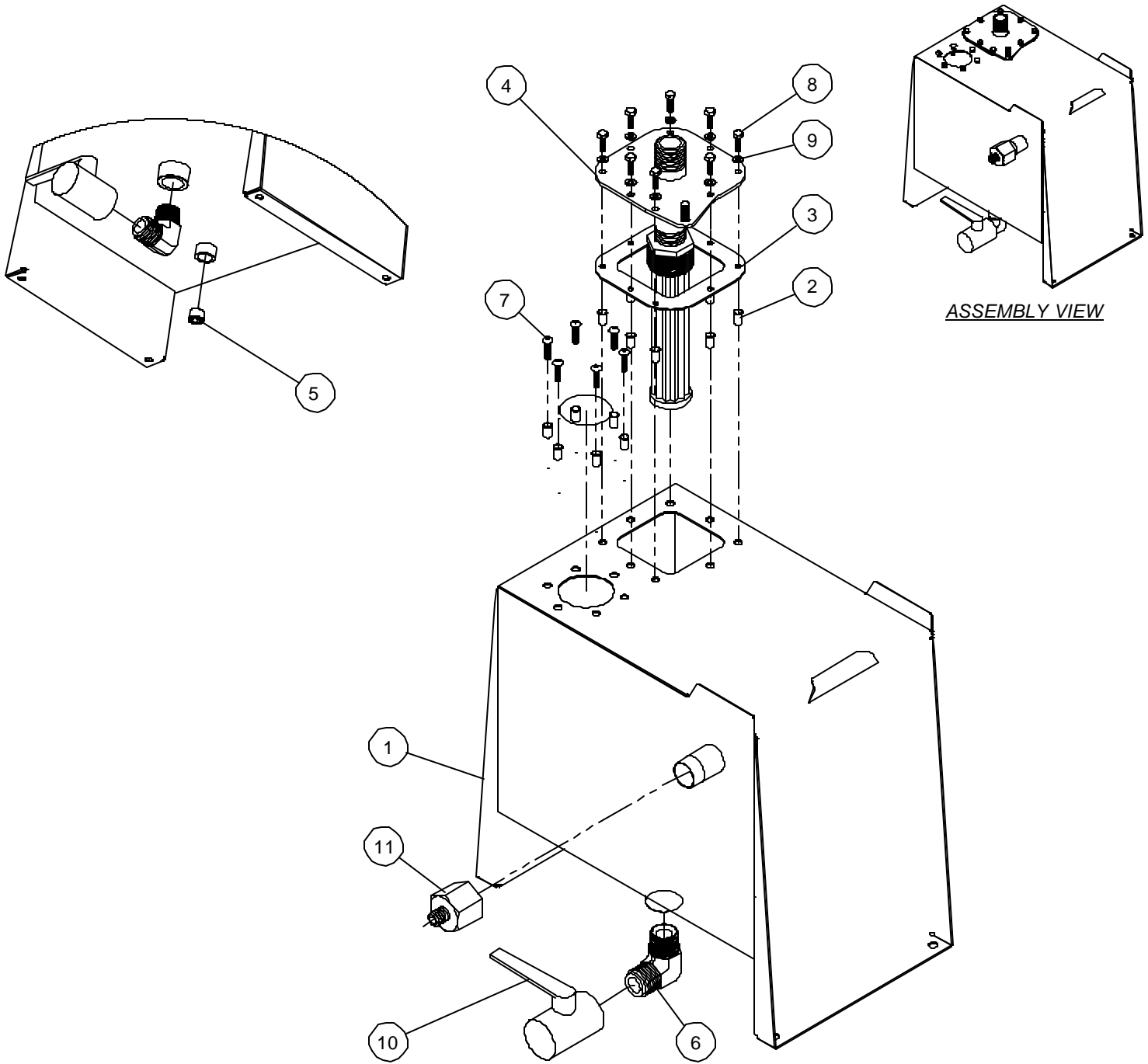
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October 2003, Revision: A

A80140 - HYDRAULIC TANK ASSEMBLY

Robotic Arm Option

HYDRAULIC TANK ASSEMBLY FOR ROBOTIC ARM OPTION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	73357	TANK HYDRAULIC	1
2	90740	RIV-NUT Ø M5 - 0.8 thin	14
3	73361	GASKET COVER TANK	1
4	(SEE DRAWING A73362)	COVER TANK ASSY	1
5	66264	HYDRAULIC PLUG FITTING	1
6	73388	HYD. FITTING 90° (Male 3/4" NPTF/Male 3/4" NPTF)	1
7	90767	HEX SOCKET BUTTON HEAD SCREW Ø M5 - 0.8 X 20 M.M. LG	6
8	90701	BOLT HEX. HEAD Ø M5 - 0.8 X 16 M.M. LG	8
9	90750	LOCK WASHER Ø M5	8
10	73387	BALL VALVE Ø 3/4" NPT	1
11	80014	HYDRAULIC FITTING REDUCER (Female NPT-12/Male NPT-04)	1

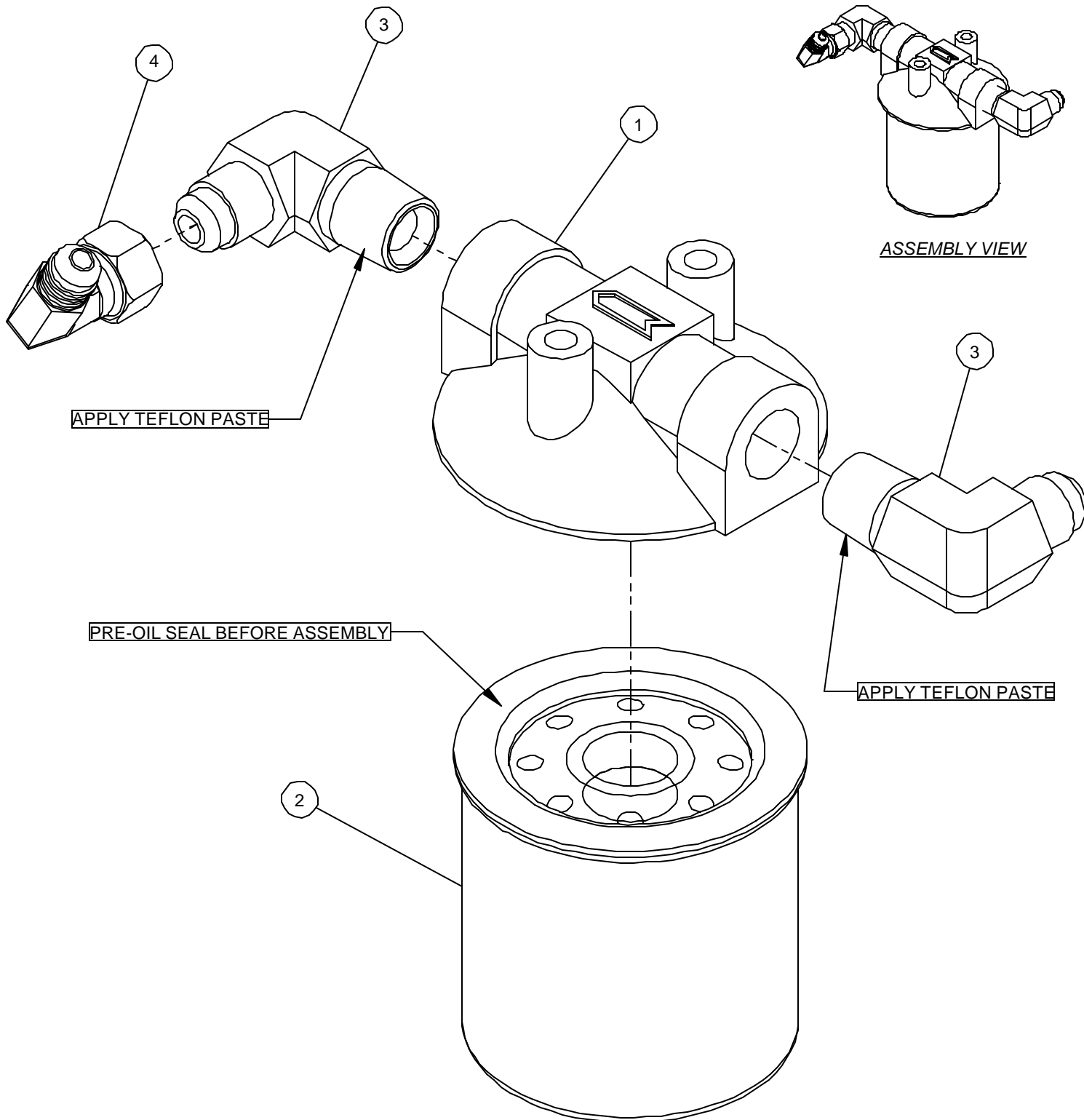
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ROBOTIC ARM Operator's & Parts Manual

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A80154 - HYDRAULIC OIL FILTER PRE-ASSEMBLY

HYDRAULIC OIL FILTER & HYDRAULIC FITTINGS PRE-ASSEMBLY



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	65719	OIL FILTER BASE	1
2	65720	OIL FILTER	1
3	65872	HYD. FITTING 90° (Pipe-06/JIC-06)	2
4	24324	HYD. FITTING 90° (Male JIC-06/Female JIC-06)	1

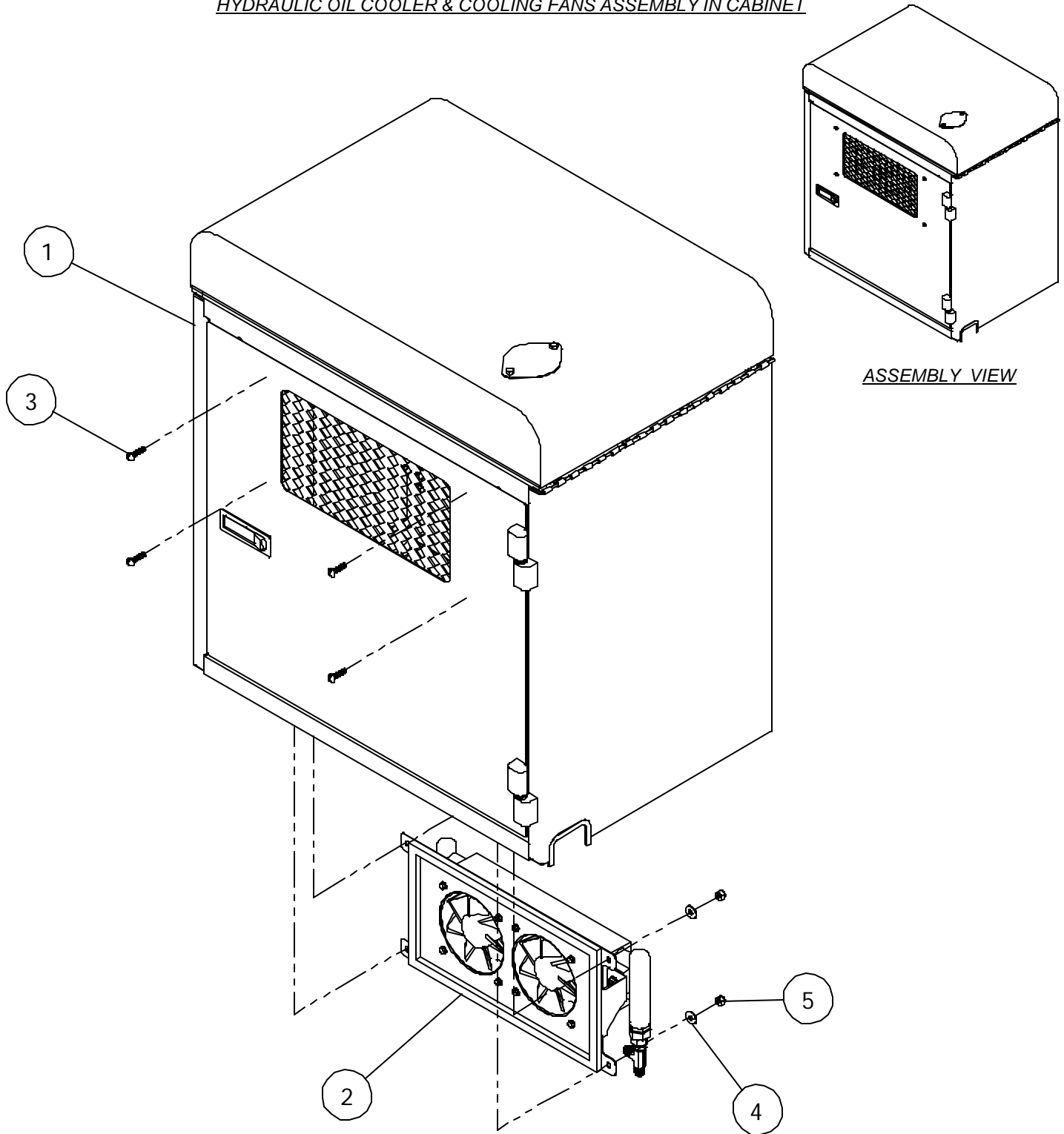
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A80162 - HYDRAULIC OIL COOLER ASSEMBLY IN CABINET

HYDRAULIC OIL COOLER & COOLING FANS ASSEMBLY IN CABINET



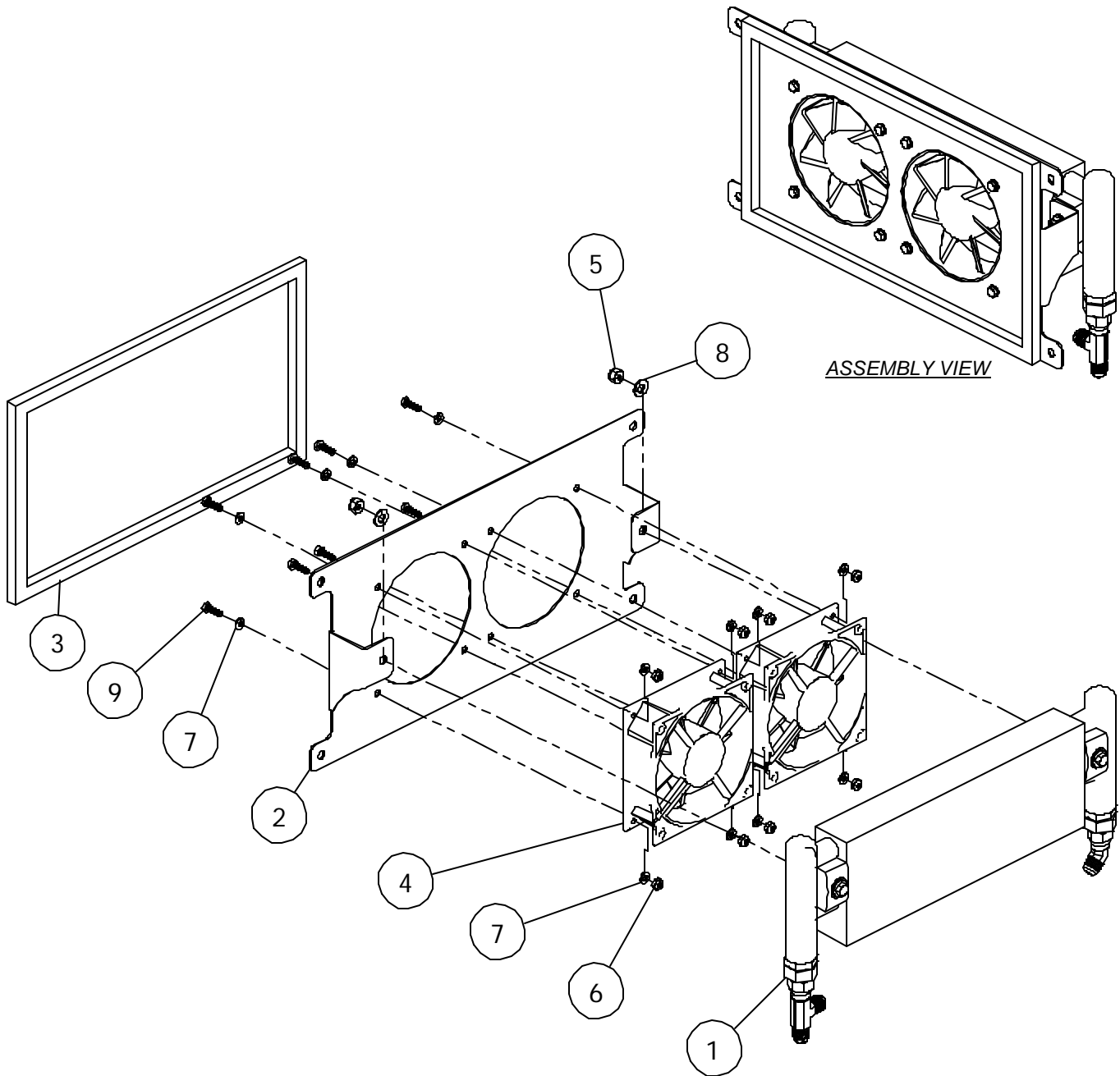
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A80139)	CABINET ASSEMBLY	1
2	(SEE DRAWING A80153)	COOLING FANS ASSEMBLY	1
3	90068	ROUND HEAD CAP SCREW Ø 1/4" - 20 UNC X 1" Lg.	4
4	90004	WASHER Ø 1/4"	4
5	90020	LOCK NUT Ø 1/4" - 20 UNC	4

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A80153 - COOLING FANS

HYDRAULIC OIL COOLER COOLING FANS PRE-ASSEMBLY



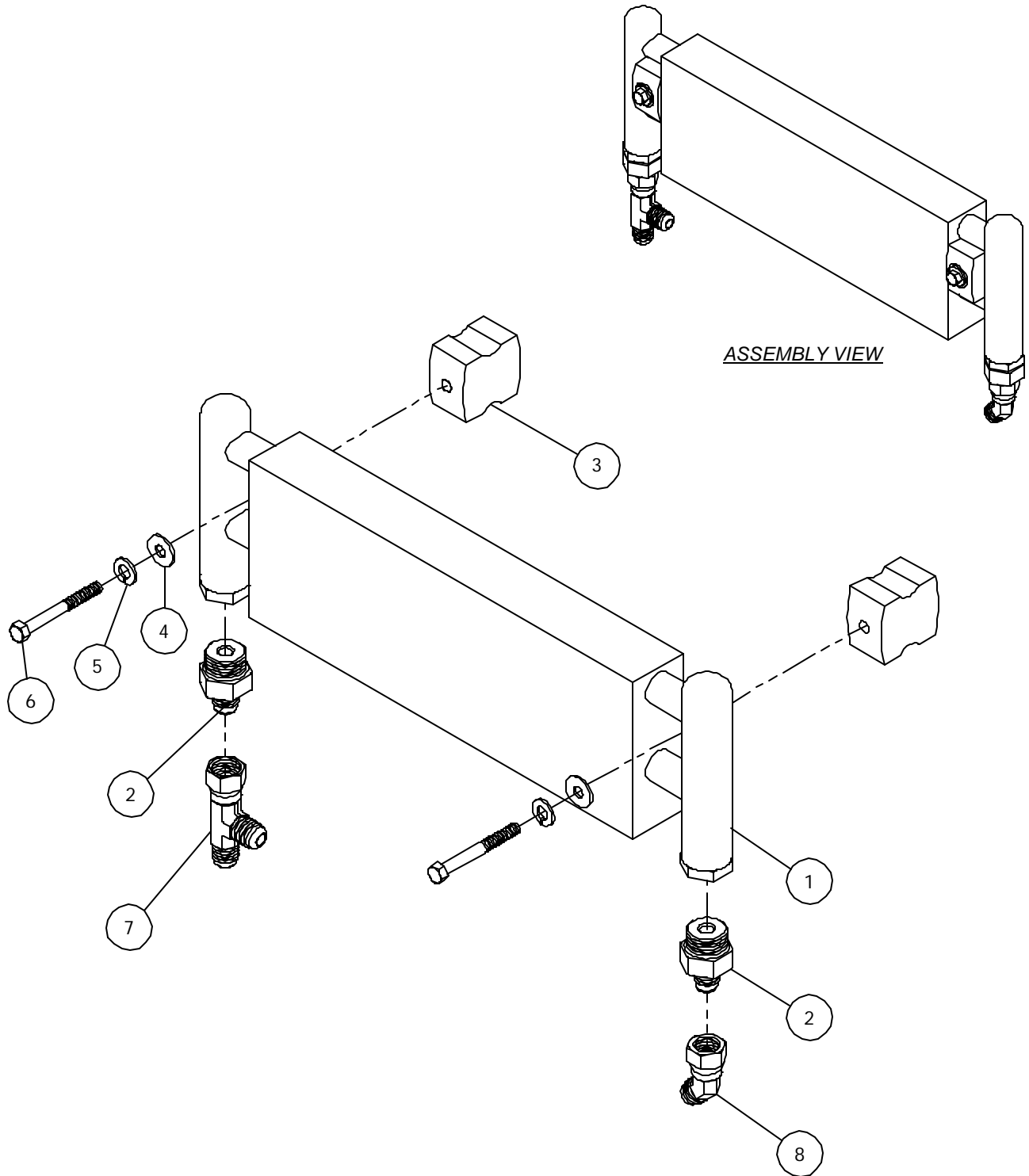
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	(SEE DRAWING A80141)	OIL COOLER PRE-ASSEMBLY	1
2	80065	GRILL COVER	1
3	80169	FOAM TRIM 1/2" Width X 3/8" Thick X 45" Lg.	1
4	80017	COOLING FAN	2
5	90020	LOCK NUT Ø 1/4" - 20 UNC	2
6	90006	LOCK NUT # 10 - 32 UNF	8
7	90005	WASHER # 10	16
8	90018	LOCK WASHER Ø 1/4"	2
9	90162	BOLT HEX HEAD 10-32 X 5/8" Lg	8

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A80141 - OIL COOLER ASSEMBLY

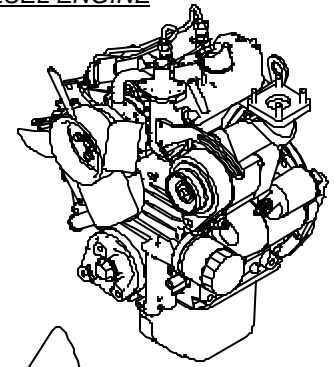
HYDRAULIC OIL COOLER & HYDRAULIC FITTINGS PRE-ASSEMBLY



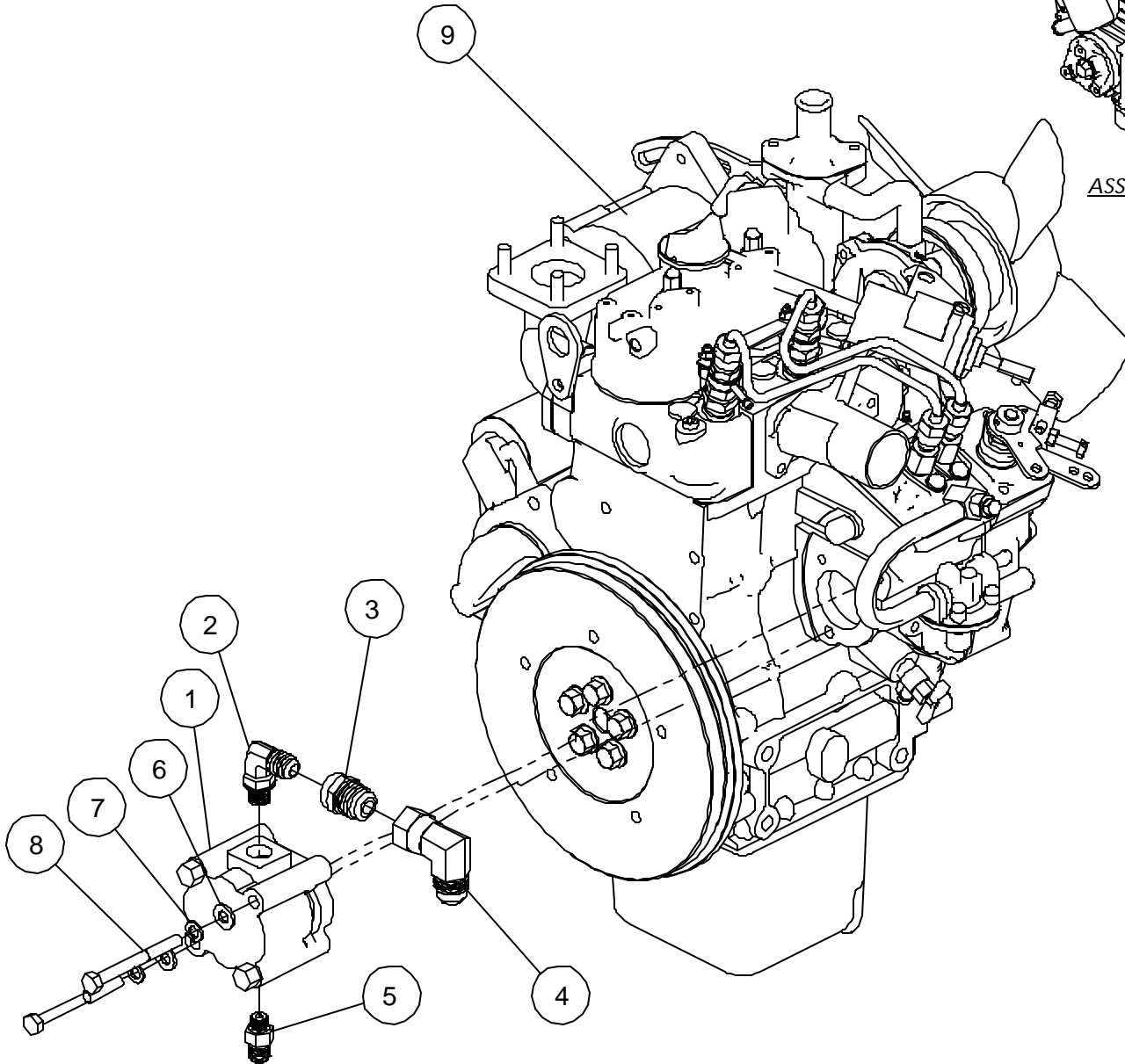
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	65718	OIL COOLER	1
2	65864	HYDRAULIC FITTING STRAIGHT (ORB-10/JIC-06)	2
3	27064	OIL COOLER SUPPORT KIT	2
4	90004	WASHER Ø 1/4"	2
5	90018	LOCK WASHER Ø 1/4"	2
6	90124	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 2-1/4" Lg.	2
7	24081	HYDRAULIC FITTING "T" (JIC-06/JIC-06/Fem JIC-06)	1
8	4294	HYD. FITTING 45° (Female JIC-06/Male JIC-06)	1

A80171 - HYDRAULIC PUMP ON 61-D2 ENGINE

HYDRAULIC PUMP & FITTINGS UPGRADE ON VACUUM SYSTEM MADVAC 61-D2 DIESEL ENGINE



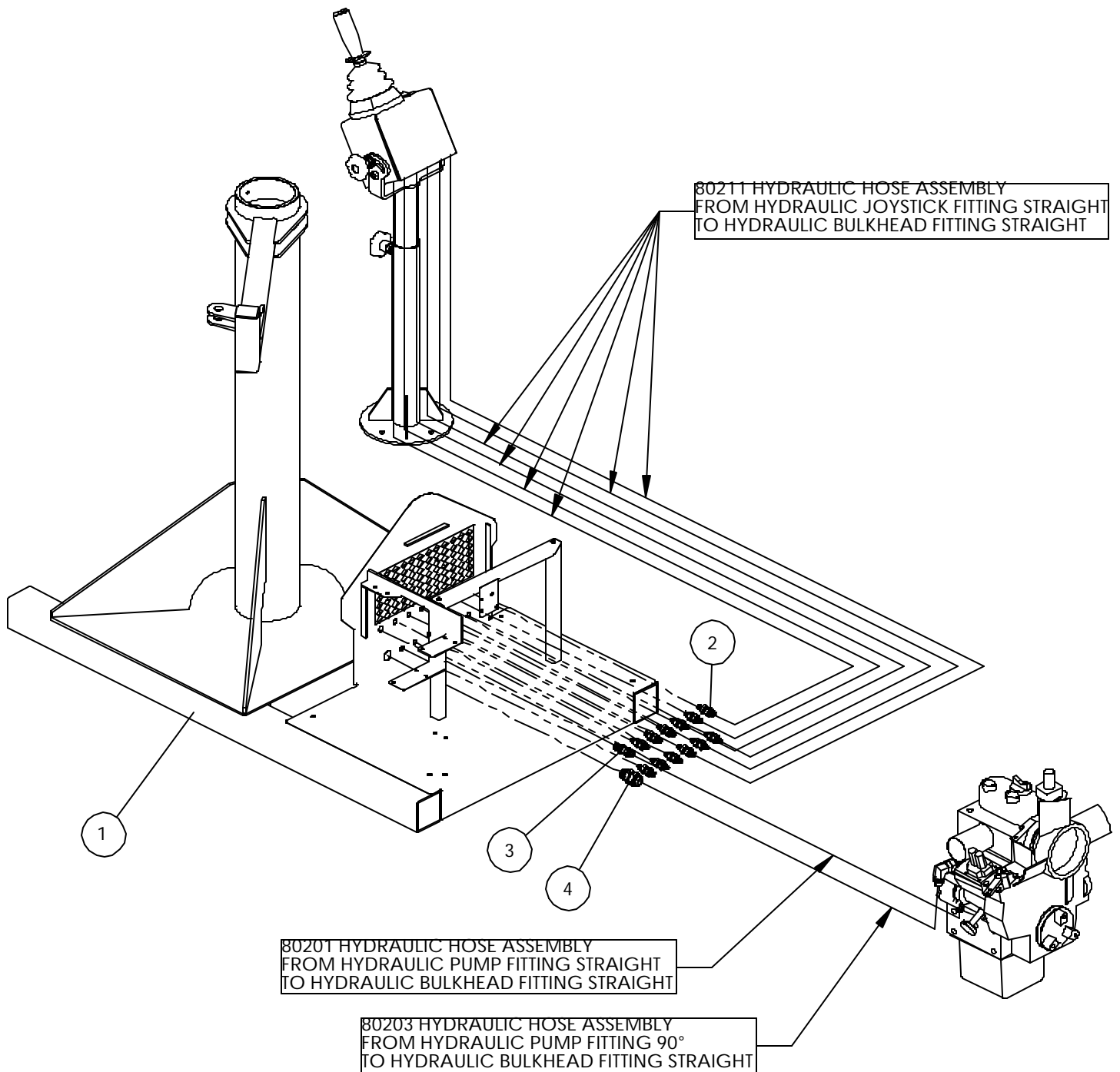
ASSEMBLY VIEW



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	65909	HYDRAULIC PUMP	1
2	80197	HYDRAULIC FITTING 90°	1
3	80196	HYDRAULIC FITTING REDUCER	1
4	24391	HYD. FITTING 90° (Male JIC-10/Fem JIC-10)	1
5	80195	HYDRAULIC FITTING STRAIGHT	1
6	90257	WASHER M8- PW	2
7	90752	LOCK WASHER Ø M8	2
8	90109	BOLT HEX HEAD Ø M8 - 1.25 X 75 mm. Lg.	2
9	65754	ENGINE, DIESEL 2 CYL (PS300)	1

A80170 - HYDRAULIC HOSES ROUTING (POWER & CONTROL)

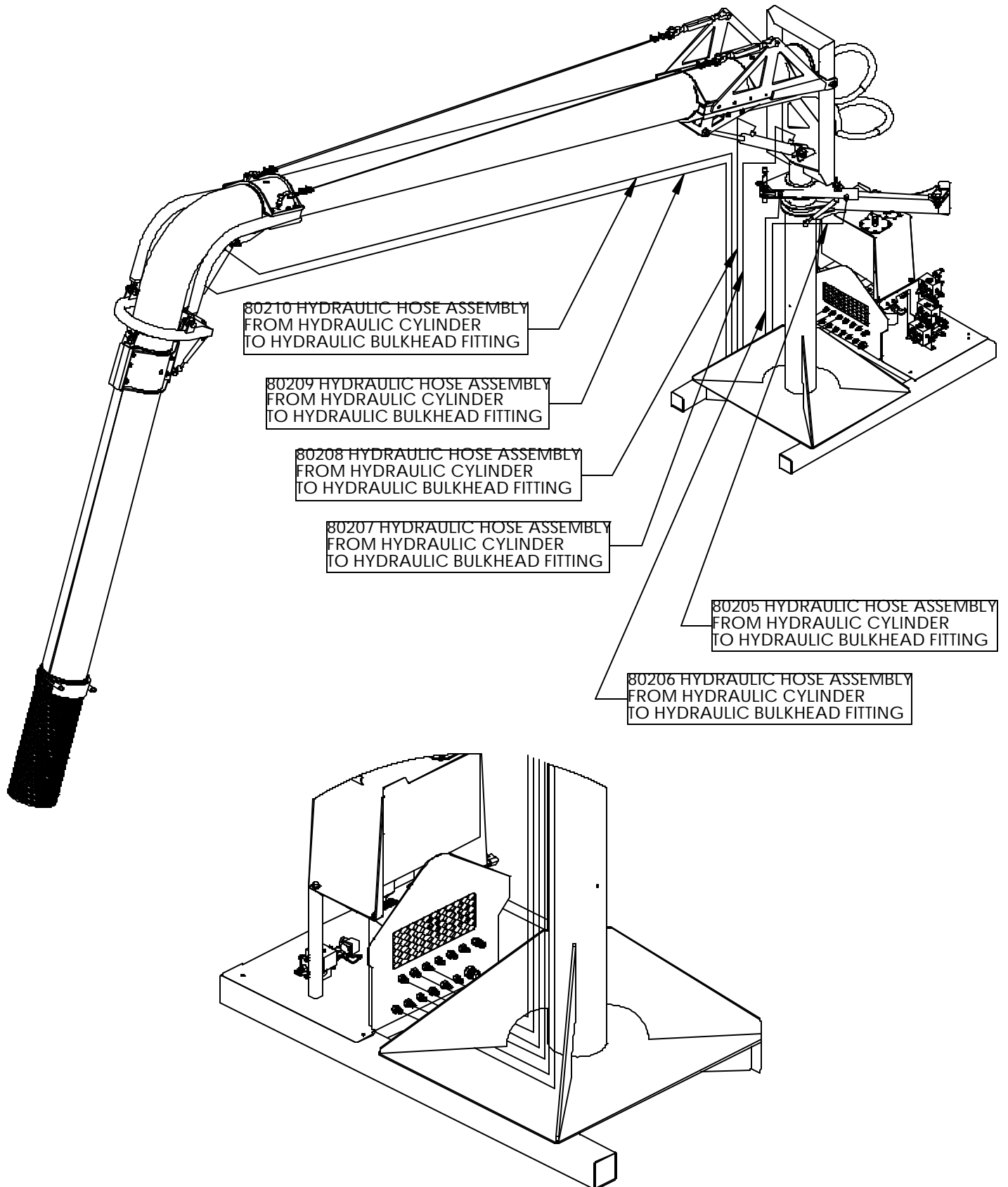
HYDRAULIC HOSES ROUTING FROM HYDRAULIC PUMP & CONTROLS CONSOL



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80080	BASE	1
2	25401	HYD. FITTING STRAIGHT BULKHEAD (JIC-04/JIC-04)	12
3	80199	HYDRAULIC FITTING BULKHEAD(jic-04/jic-04)	1
4	80198	HYDRAULIC FITTING BULKHEAD	1

A80172 - HYDRAULIC HOSES ROUTING (HYDRAULIC CYLINDER)

HYDRAULIC HOSES ROUTING FROM HYDRAULIC CYLINDER TO HYDRAULIC BULKHEAD FITTINGS

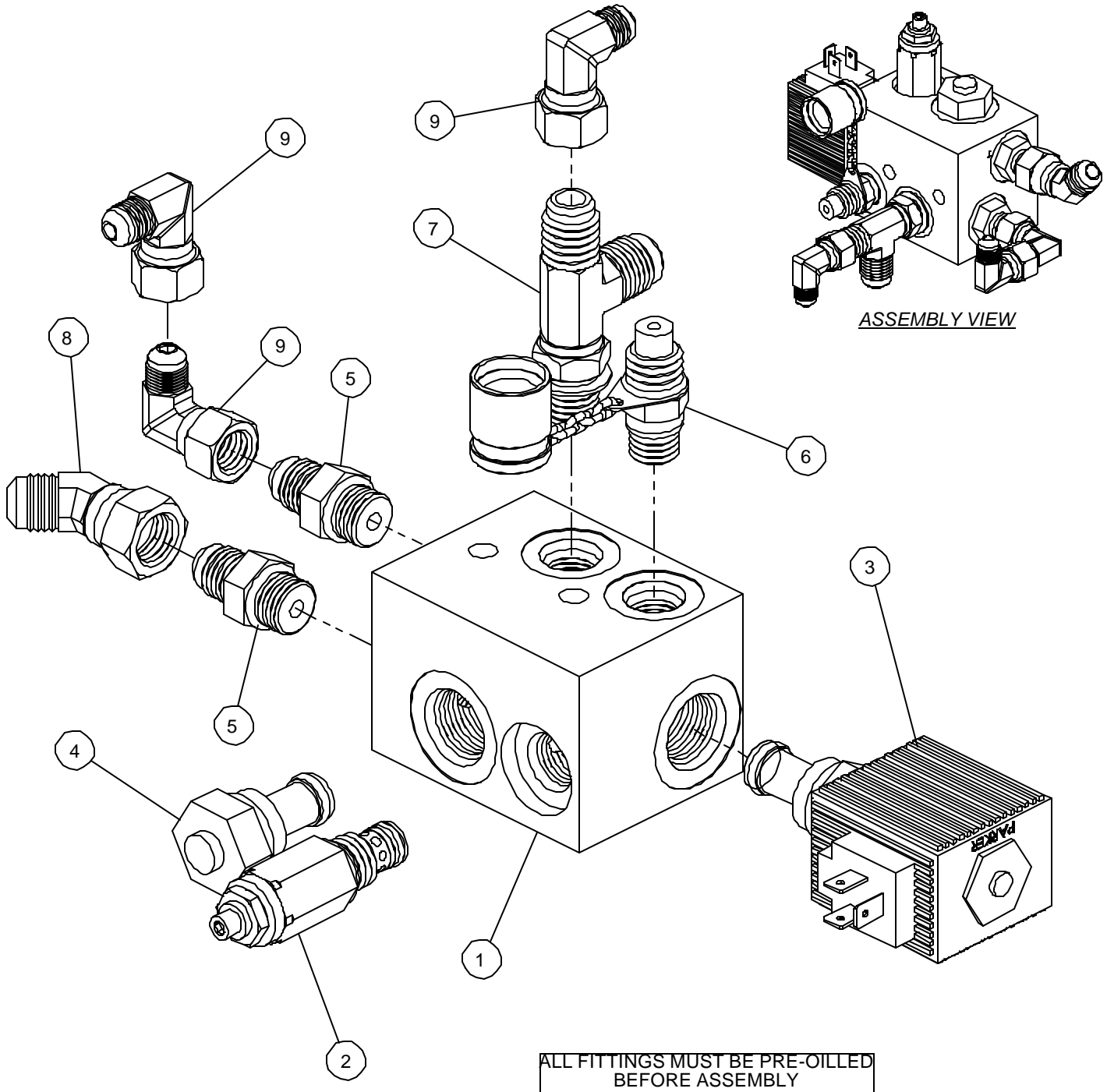


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A80011 - UNLOADING VALVE HYDRAULIC MANIFOLD ASSEMBLY

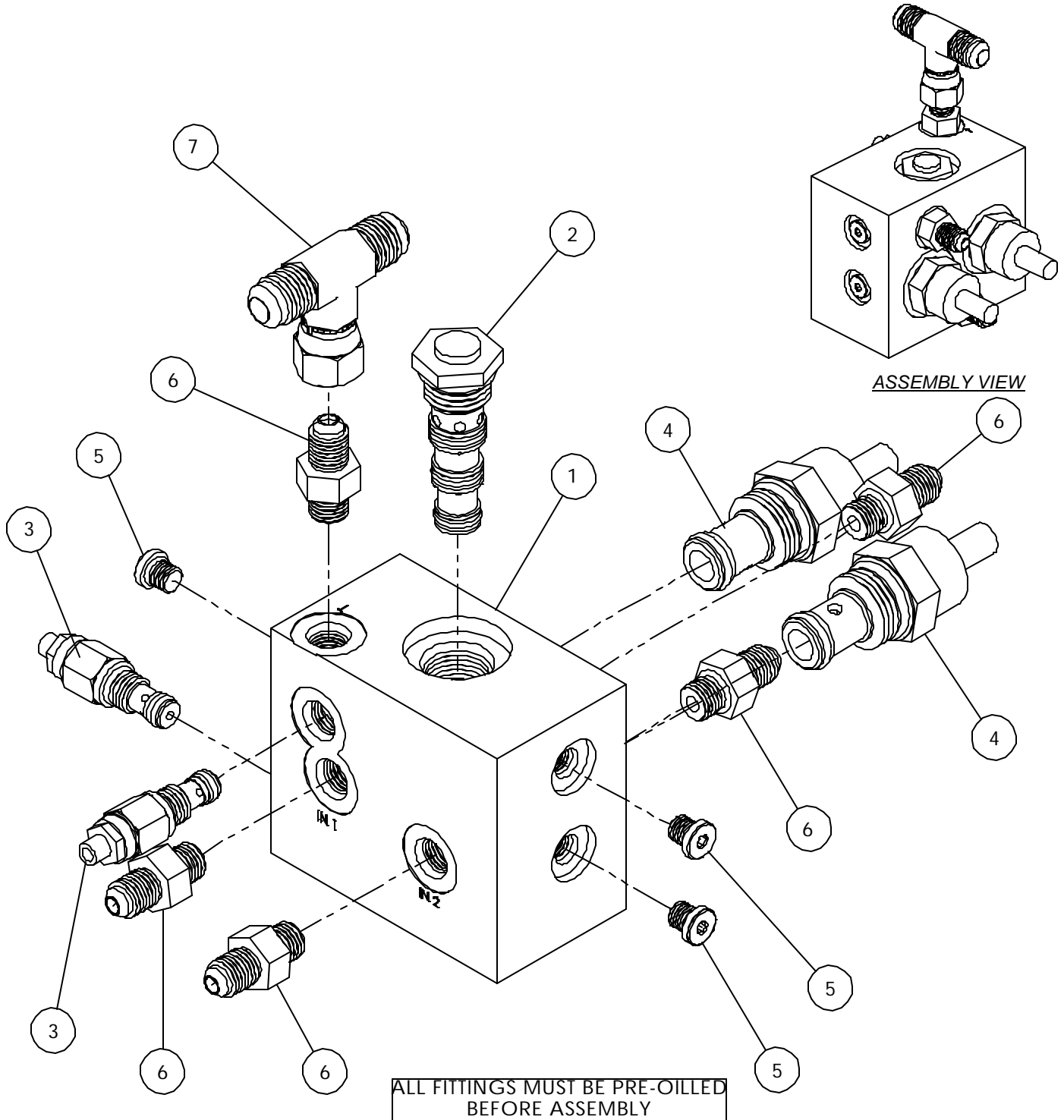
UNLOADING VALVE HYDRAULIC MANIFOLD BLOCK & HYDRAULICS FITTINGS PRE-ASSEMBLY



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80001	UNLOADING BLOC	1
2	67306	RELIEF VALVE	1
3	80004	SOLENOID VALVE POPPET TYPE	1
4	80005	CHECK VALVE	1
5	4285	HYDRAULIC FITTING STRAIGHT (JIC-06/ORB-06)	2
6	67699	HYDRAULIC FITTING TEST PORT COUPLING	1
7	25193	HYDRAULIC FITTING "T" (JIC-06/JIC-06/ORB-06)	1
8	4294	HYD. FITTING 45° (Female JIC-06/Male JIC-06)	1
9	24324	HYD. FITTING 90° (Male JIC-06/Female JIC-06)	3

A80012 - AXIS CONTROL HYDRAULIC BLOCK MANIFOLD

AXIS CONTROL HTDRAULIC BLOCK MANIFOLD & HYDRAULIC FITTINGS PRE-ASSEMBLY



ALL FITTINGS MUST BE PRE-OILED BEFORE ASSEMBLY

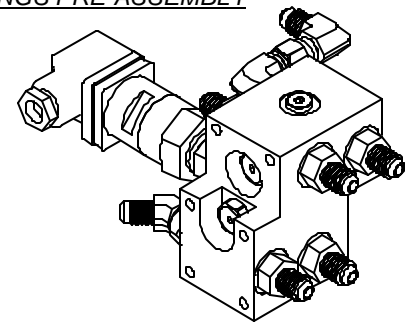
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80002	AXIS CONTROL BLOC	1
2	46752	DOUBLE PILOT OPERATED CHECK VALVE	1
3	46773	RELIEF VALVE 1 GPM	2
4	80006	FLOW CONTROL CARTRIDGE	2
5	17108	HYD. FITTING PORT PLUG (O-Ring Boss-02)	3
6	4595	HYDRAULIC FITTING STRAIGHT (ORB-04/JIC-04)	5
7	25659	HYDRAULIC FITTING "T" (Fem JIC-06/JIC-06/JIC-06)	1

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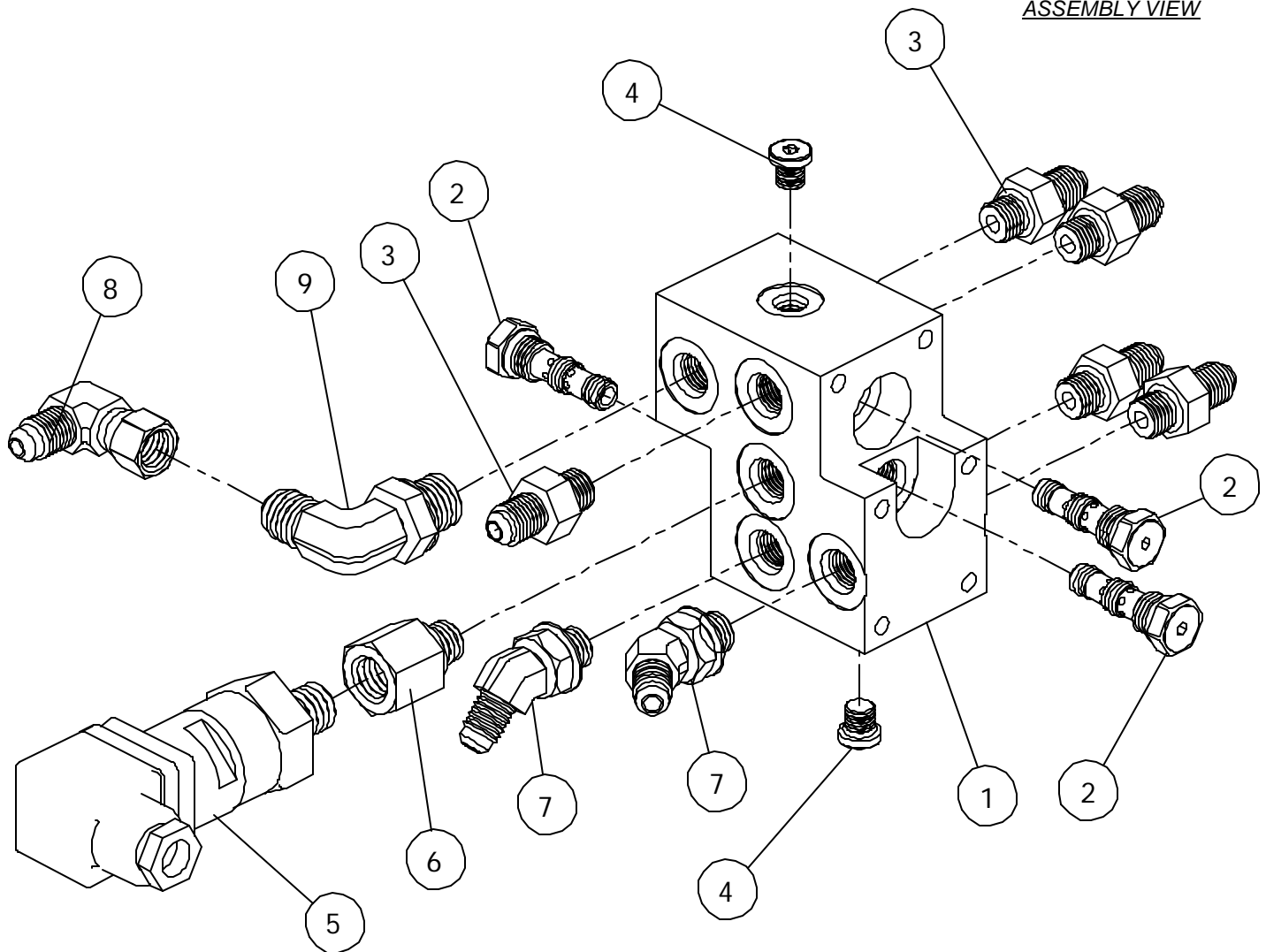
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A80013 - SHUTTLE VALVES HYDRAULIC MANIFOLD BLOCK

SHUTTLE VALVES HYDRAULIC MANIFOLD BLOCK & HYDRAULIC FITTINGS PRE-ASSEMBLY



ASSEMBLY VIEW



ALL FITTINGS MUST BE PRE-OILED
BEFORE ASSEMBLY

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80003	SHUTTLE VALVES BLOC	1
2	80007	SHUTTLE VALVE	3
3	4595	HYDRAULIC FITTING STRAIGHT (ORB-04/JIC-04)	5
4	17108	HYD. FITTING PORT PLUG (O-Ring Boss-02)	2
5	80010	PRESSURE SWICTH	1
6	80132	HYDRAULIC FITTING STRAIGHT (ORB-04/FEMALE NPT-04)	1
7	67332	HYD. FITTING 45° (O-Ring Boss-04/JIC-04)	2
8	25403	HYD. FITTING 90° (Female JIC-04/Male JIC-04)	1
9	25454	HYD. FITTING 90° (O-Ring Boss-06/JIC-04)	1

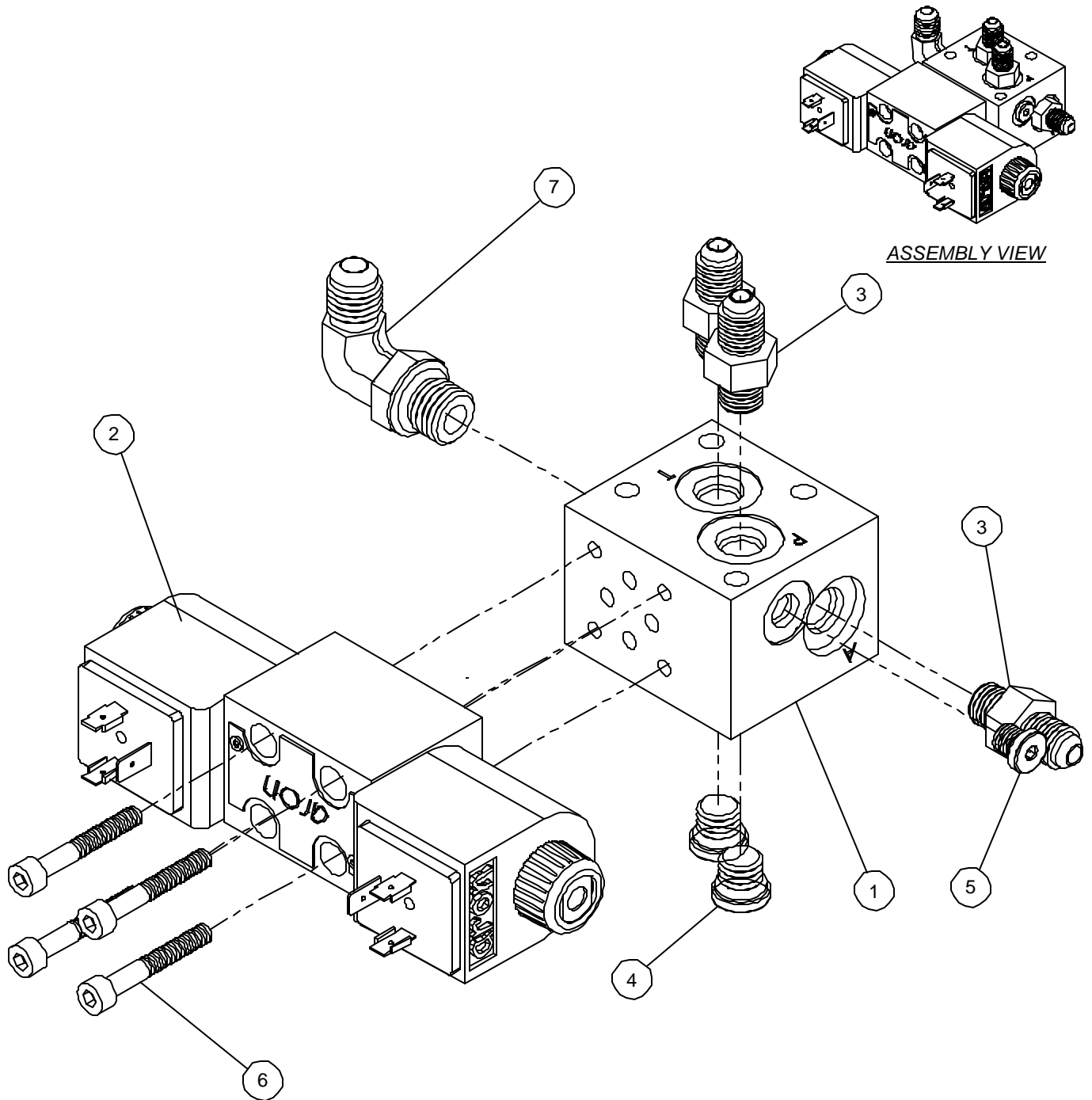
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August 2002, Revision: ---

A80016 - UP & DOWN HYDRAULIC MANIFOLD BLOCK ASSEMBLY

UP & DOWN HYDRAULIC MANIFOLD BLOCK, VALVE 7 HYDRAULIC FITTINGS PRE-ASSEMBLY



ALL FITTINGS MUST BE PRE-OILED BEFORE ASSEMBLY

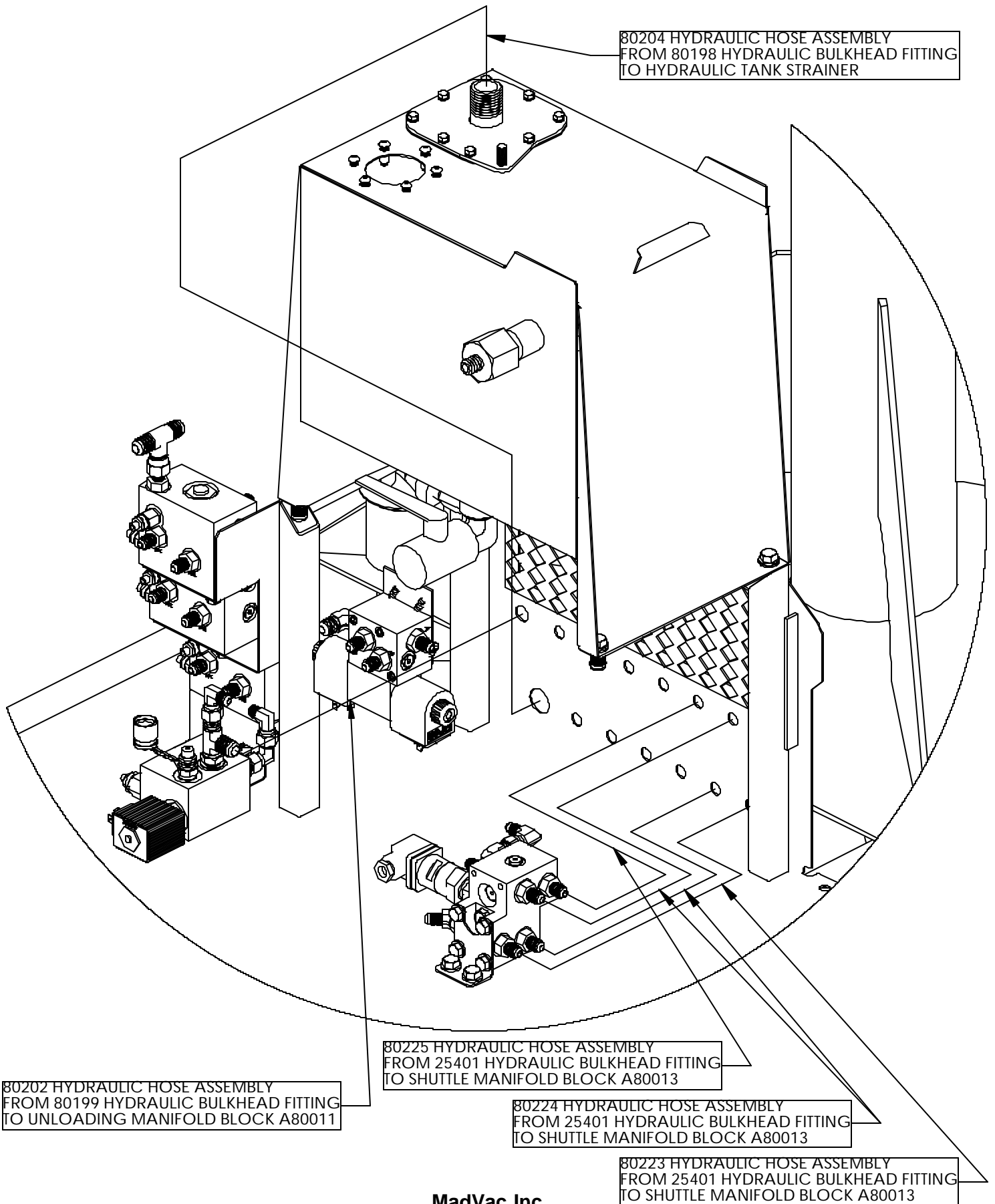
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	46799	VALVE MOUNTING BLOC, CETOP 2	1
2	46771	HYDRAULIC DIRECTIONAL VALVE	1
3	4595	HYDRAULIC FITTING STRAIGHT (ORB-04/JIC-04)	3
4	14000	HYD. FITTING PORT PLUG (O-Ring Boss-04)	2
5	17108	HYD. FITTING PORT PLUG (O-Ring Boss-02)	1
6	90468	SOCKET HEAD CAP SCREW M5 - 0.80 X 45MM.	4
7	25454	HYD. FITTING 90° (O-Ring Boss-06/JIC-04)	1

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A80176 - HYDRAULIC HOSES ROUTING (INTERNAL POWER & CONTROL)

HYDRAULIC HOSES ROUTING FROM INSIDE CABINET LINKING OUTSIDE HOSES TO HYDRAULIC MANIFOLDS & TANK



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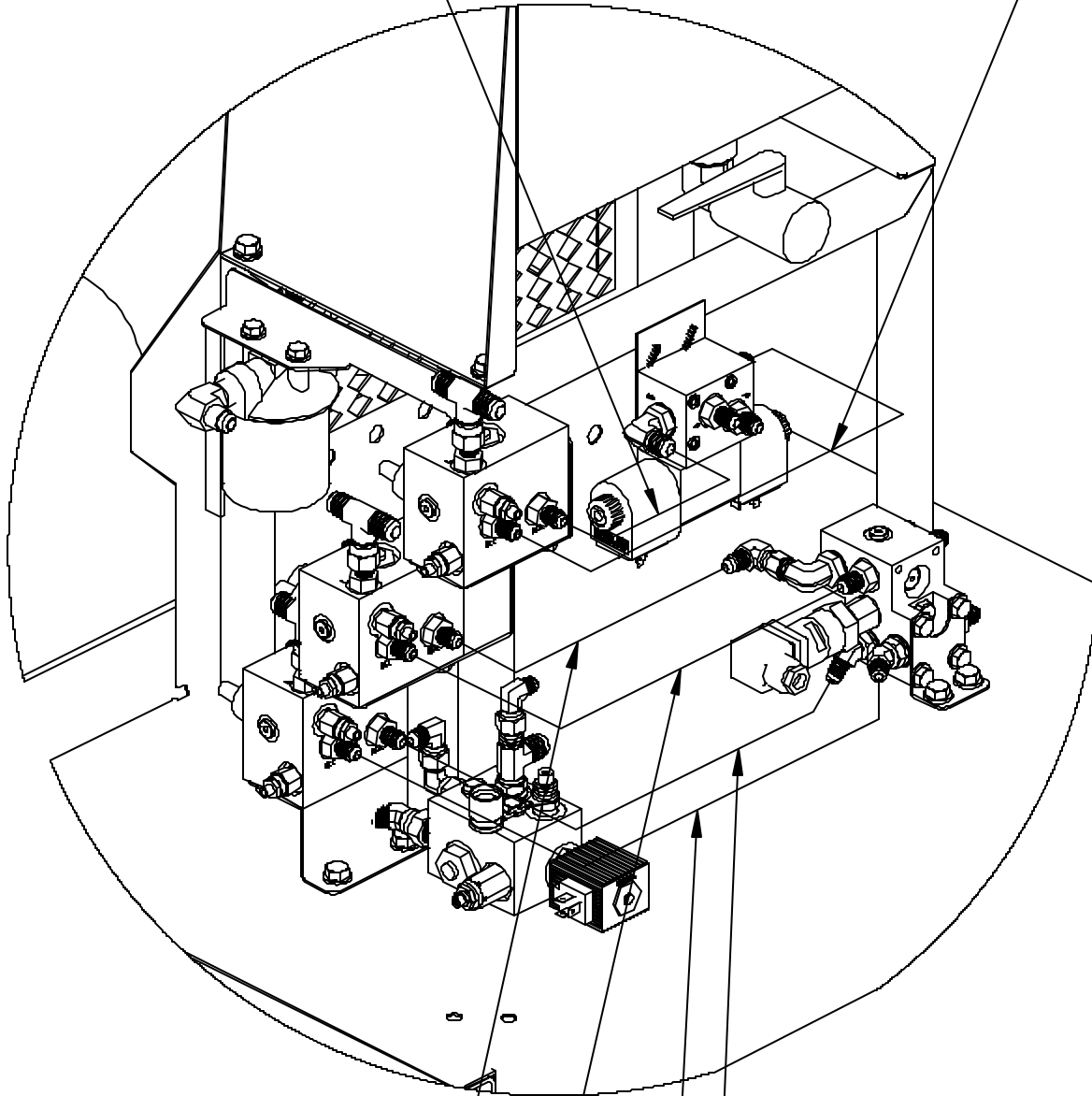
March 2002, Revision: ---

A80177 - HYDRAULIC HOSES ROUTING (INTERNAL CONTROLS MANIFOLDS)

HYDRAULIC HOSES ROUTING FROM INSIDE CABINET LINKING AXIS CONTROL MANIFOLDS TO SHUTTLE BLOCK & UP/DOWN MANIFOLD

80229 HYDRAULIC HOSE ASSEMBLY
FROM AXIS CONTROL MANIFOLD A80012
TO UP/DOWN MANIFOLD BLOCK A80016

80230 HYDRAULIC HOSE ASSEMBLY
FROM AXIS CONTROL MANIFOLD A80012
TO UP/DOWN MANIFOLD BLOCK A80016



80240 HYDRAULIC HOSE ASSEMBLY
FROM SHUTTLE BLOCK MANIFOLD A80013
TO AXIS CONTROL MANIFOLD BLOCK A80012

80242 HYDRAULIC HOSE ASSEMBLY
FROM SHUTTLE BLOCK MANIFOLD A80013
TO AXIS CONTROL MANIFOLD BLOCK A80012

80241 HYDRAULIC HOSE ASSEMBLY
FROM SHUTTLE BLOCK MANIFOLD A80013
TO AXIS CONTROL MANIFOLD BLOCK A80012

80243 HYDRAULIC HOSE ASSEMBLY
FROM SHUTTLE BLOCK MANIFOLD A80013
TO AXIS CONTROL MANIFOLD BLOCK A80012

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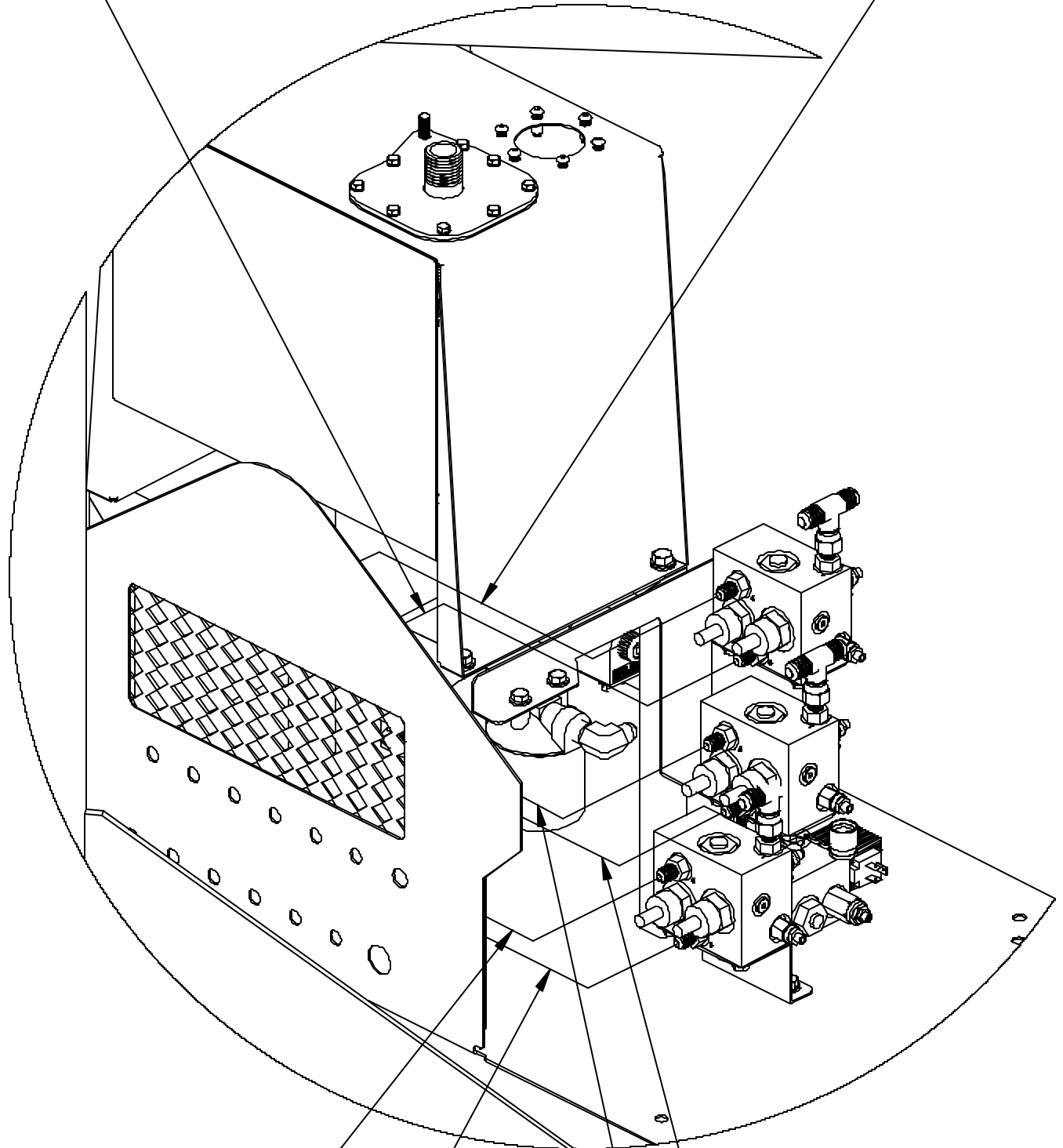
March 2002, Revision: ---

A80178 - HYDRAULIC HOSES ROUTING (MANIFOLD TO CYLINDER)

HYDRAULIC HOSES ROUTING FROM HYDRAULIC MANIFOLDS TO BULKHEAD FITTINGS

80218 - HYDRAULIC HOSE ASSEMBLY
FROM HYDRAULIC MANIFOLD BLOCK
TO HYDRAULIC BULKHEAD FITTING

80217 - HYDRAULIC HOSE ASSEMBLY
FROM HYDRAULIC MANIFOLD BLOCK
TO HYDRAULIC BULKHEAD FITTING



80222 - HYDRAULIC HOSE ASSEMBLY
FROM HYDRAULIC MANIFOLD BLOCK
TO HYDRAULIC BULKHEAD FITTING

80221 - HYDRAULIC HOSE ASSEMBLY
FROM HYDRAULIC MANIFOLD BLOCK
TO HYDRAULIC BULKHEAD FITTING

80219 - HYDRAULIC HOSE ASSEMBLY
FROM HYDRAULIC MANIFOLD BLOCK
TO HYDRAULIC BULKHEAD FITTING

80220 - HYDRAULIC HOSE ASSEMBLY
FROM HYDRAULIC MANIFOLD BLOCK
TO HYDRAULIC BULKHEAD FITTING

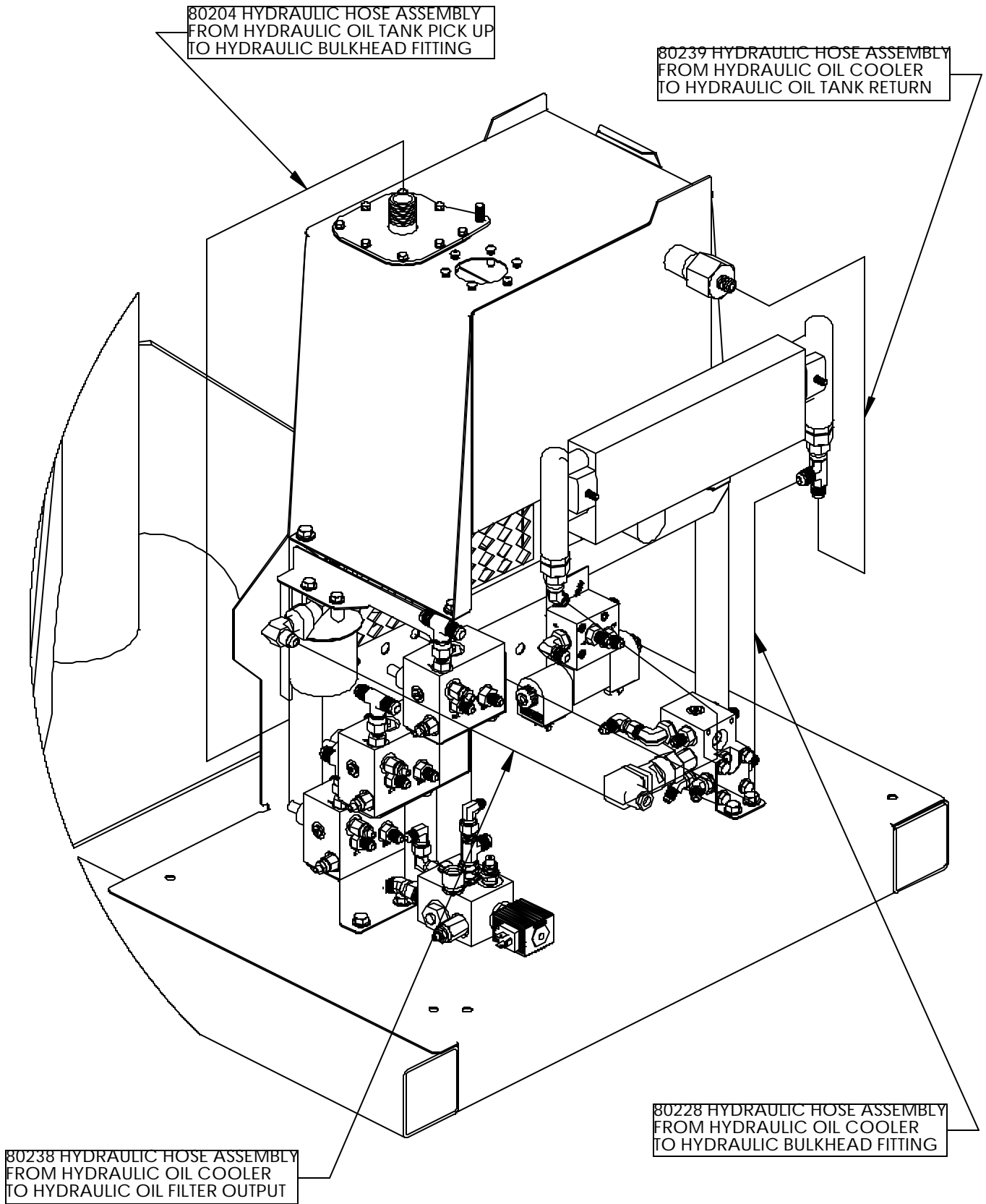
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March 2002, Revision: ---

A80179 - HYDRAULIC HOSES ROUTING (OIL COOLER, FILTER & TANK)

HYDRAULIC HOSES ROUTING FROM HYDRAULIC OIL COOLER TO HYDRAULIC OIL FILTER AND HYDRAULIC TANK



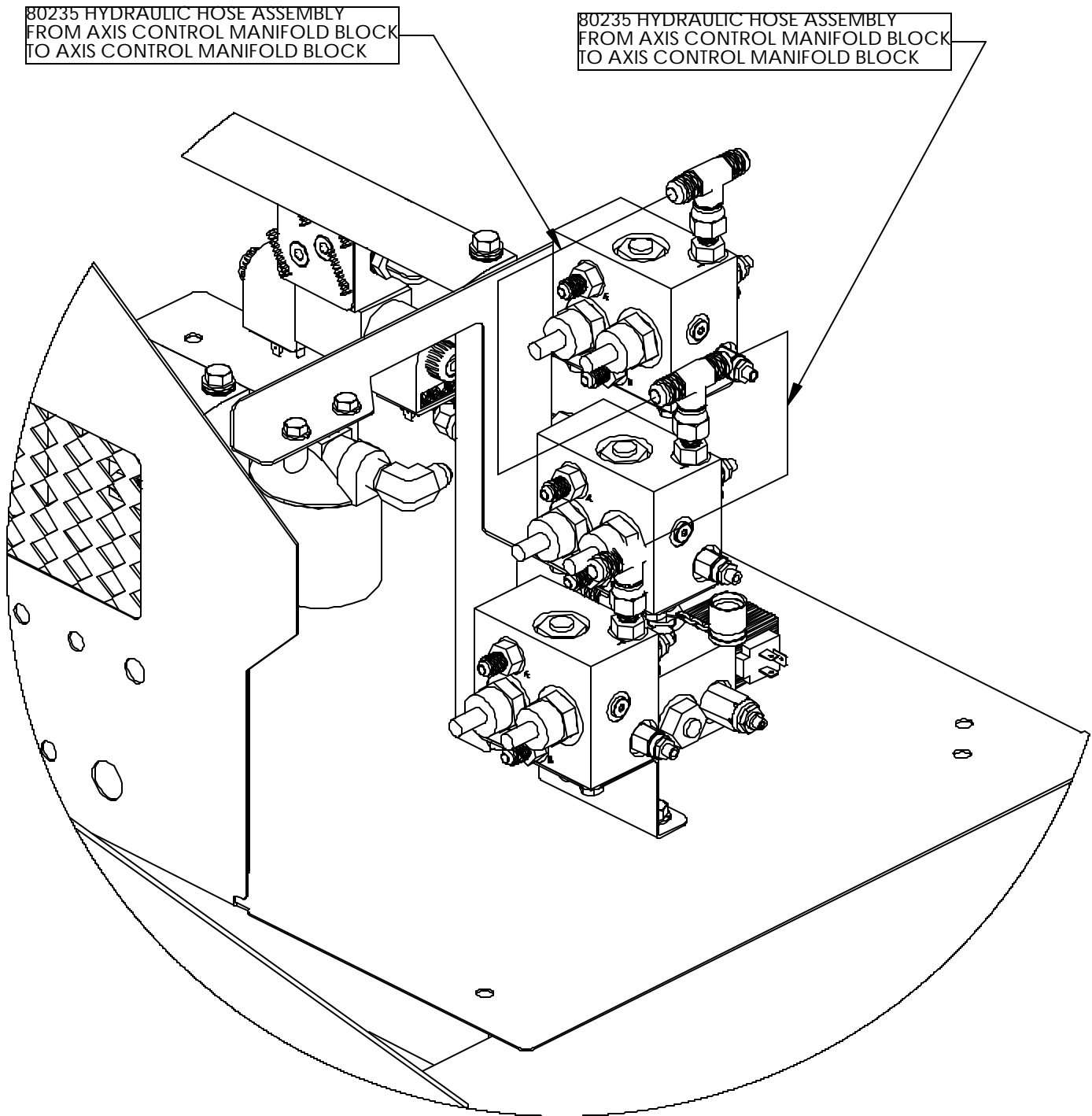
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March 2002, Revision: ---

A80181 - HYDRAULIC HOSES ROUTING (RETURN LINE)

HYDRAULIC HOSES ROUTING FROM HYDRAULIC MANIFOLD RETURN LINE TO HYDRAULIC OIL TANK

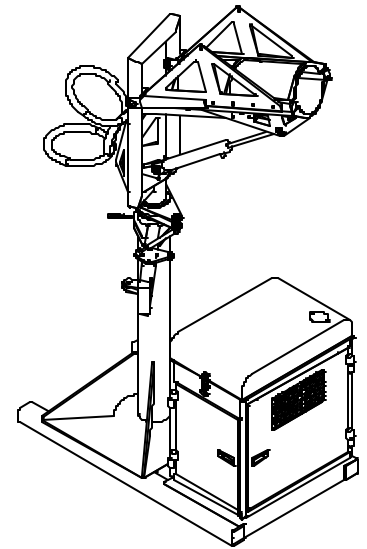
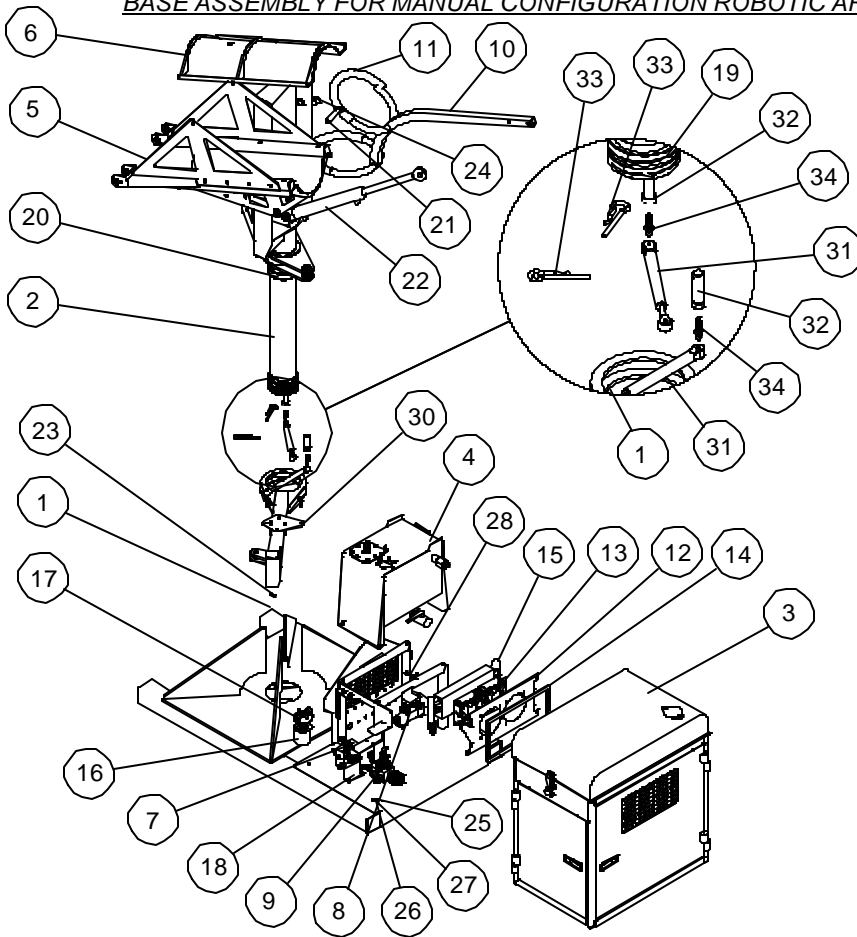


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March 2002, Revision: ---

A80144 - BASE ASSEMBLY (MANUAL - K64686 OPTION)

BASE ASSEMBLY FOR MANUAL CONFIGURATION ROBOTIC ARM OPTION - K64686



ASSEMBLY VIEW

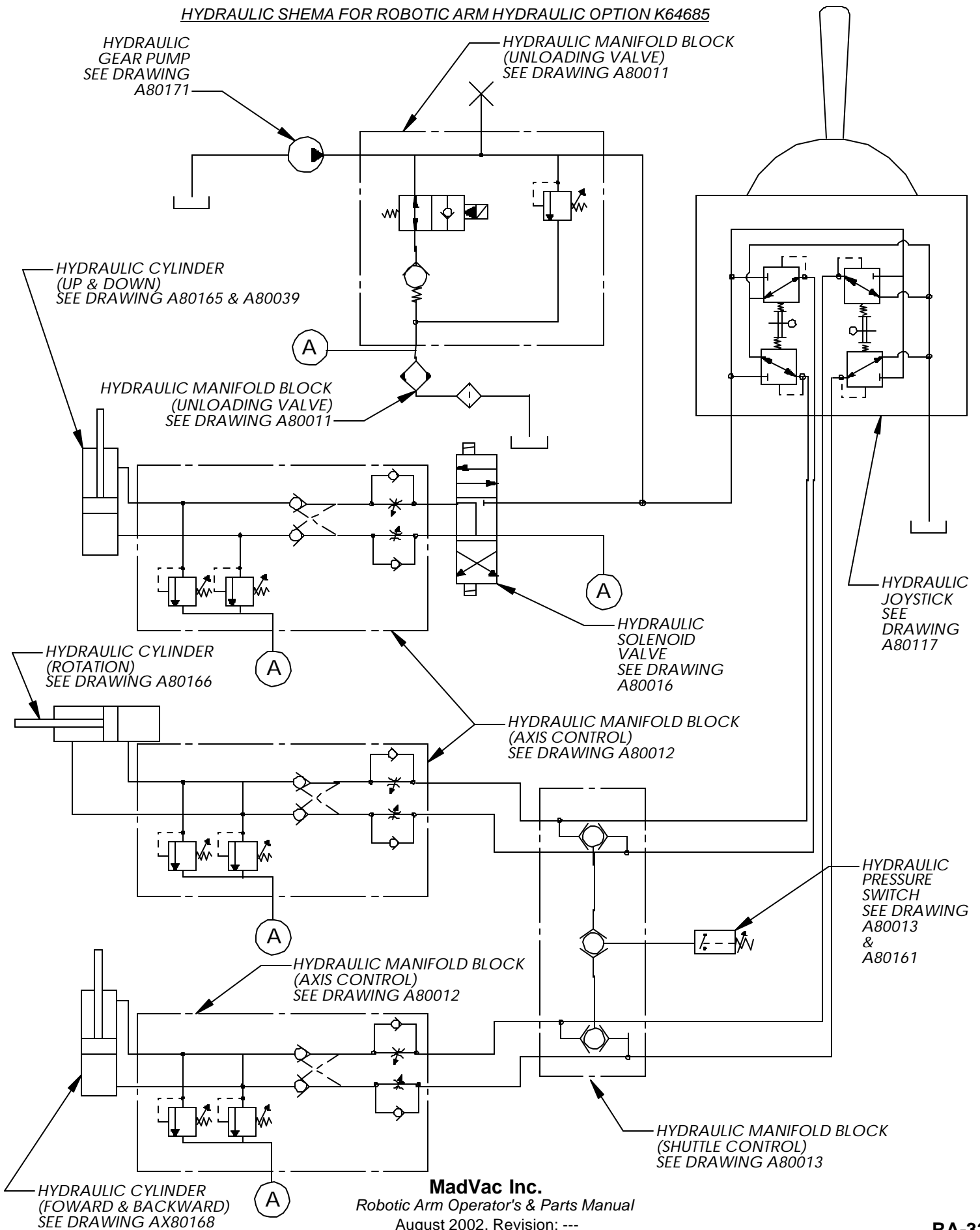
ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80080	BASE	1
2	80037	ROTATING FRAME	1
3	(SEE DRAWING A80139)	CABINET ASSEMBLY	1
4	(SEE DRAWING A80140)	TANK HYDRAULIC ASSY	1
5	80095	LONG LOWER COLLAR	1
6	80063	LONG COLLAR ASSY	1
7	(SEE DRAWING A80012)	AXIS CONTROL BLOC ASS Y	1
8	(SEE DRAWING A80016)	CETOP 2VALVES MOUNTING BLOC ASS Y	1
9	(SEE DRAWING A80011)	UNLOADING BLOC ASS Y	1
10	80123	HOSE GUIDE ASSY	1
11	27137	HOSE GUIDE	2
12	80065	GRILL COVER	1
13	80017	COOLING FAN	2
14	R1009 (Sold by foot)	TRIM 3/8" X 1/2" X 45" LG.	1
15	(SEE DRAWING A80141)	OIL COOLER PRE-ASSEMBLY	1
16	65720	OIL FILTER	1
17	65719	OIL FILTER BASE	1
18	80137	HYD. BLOCK SUPPORT 2	1
19	80036	BRONZE BUSHING	1
20	80035	FLANGE BUSHING	1
21	80050	UNIVERSAL JOINT PIN ASS'Y	2
22	5184	HYDRAULIC CYLINDER	1
23	90368	SPRING PIN Ø 1/4" X 3/4" lg	2
24	80106	BRONZE BUSHING	2
25	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	5
26	90004	WASHER Ø 1/4"	5
27	90018	LOCK WASHER Ø 1/4"	3
28	90124	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 2-1/4" Lg.	1
29	90265	PEM STUD 1/4 - 20 X 1" LG. #FH-0420-10	1
30	80129	ATTACHMENT, GAS SPRING	1
31	28087	GAS SPRING	2
32	80125	PIN, GAS SPRING	2
33	80126	COTTER PIN Ø 1/8" (HAIRPIN STYLE)	2
34	17085	BALL STUD LONG	4

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A80164 - HYDRAULIC SHEMA FOR ROBOTIC ARM HYDRAULIC OPTION

HYDRAULIC SHEMA FOR ROBOTIC ARM HYDRAULIC OPTION K64685

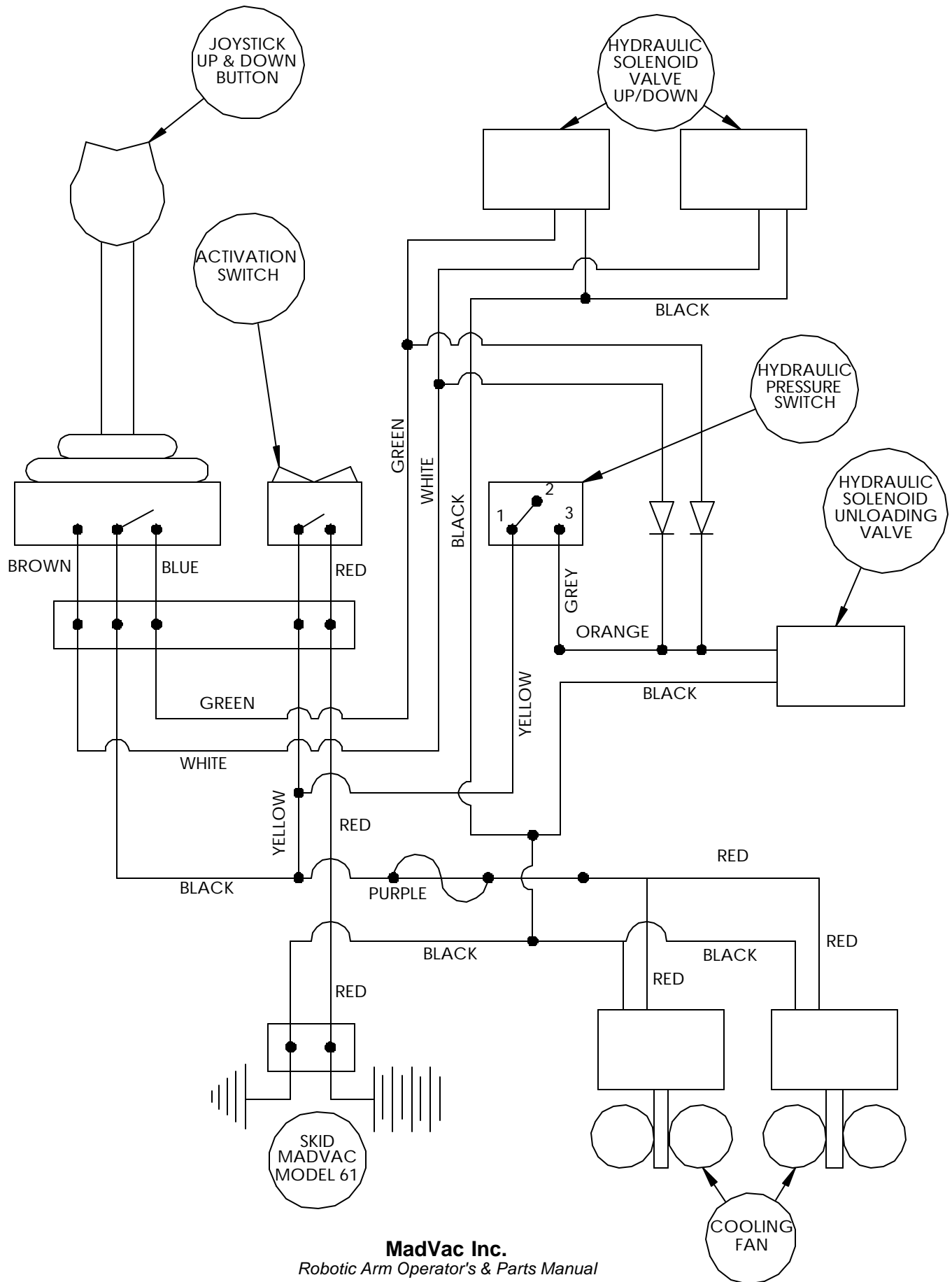


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August 2002, Revision: ---

A80161 - ELECTRIC SCHEMA FOR ROBOTIC ARM HYDRAULIC OPTION

ELECTRIC SCHEMA FOR ROBOTIC ARM HYDRAULIC OPERATED OPTION K64685

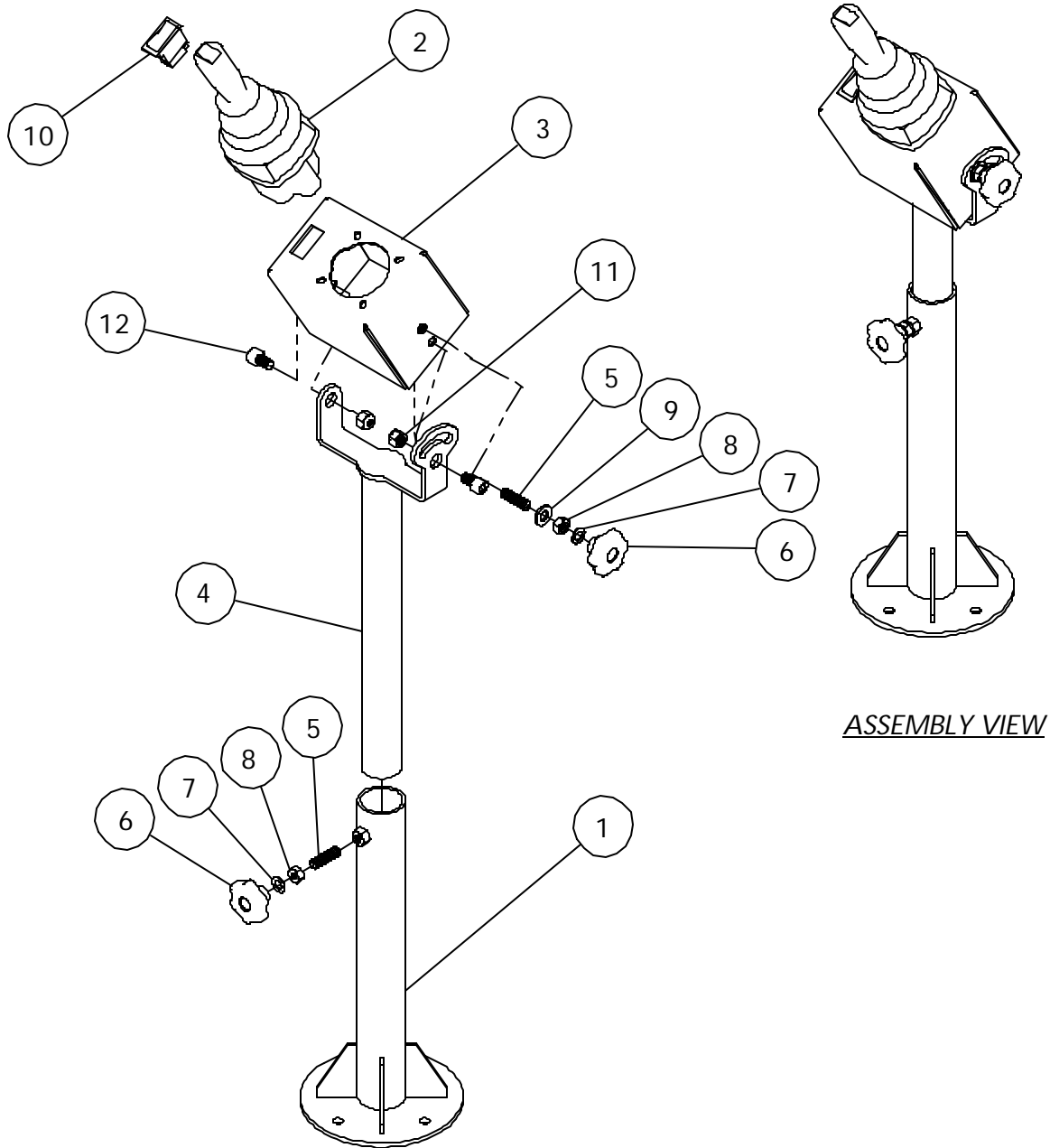


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March 2002, Revision: ---

A80117 - ROBOTIC ARM, CONTROLS COMPONENTS

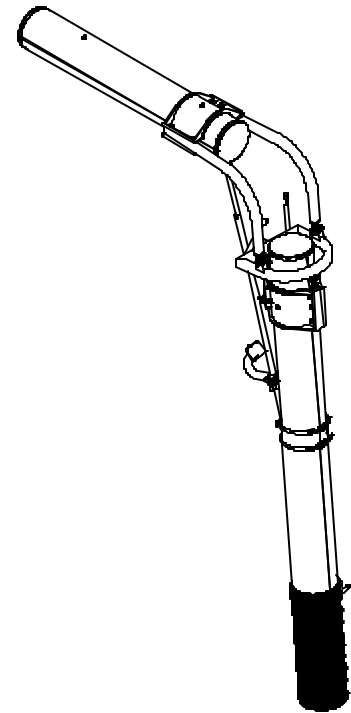
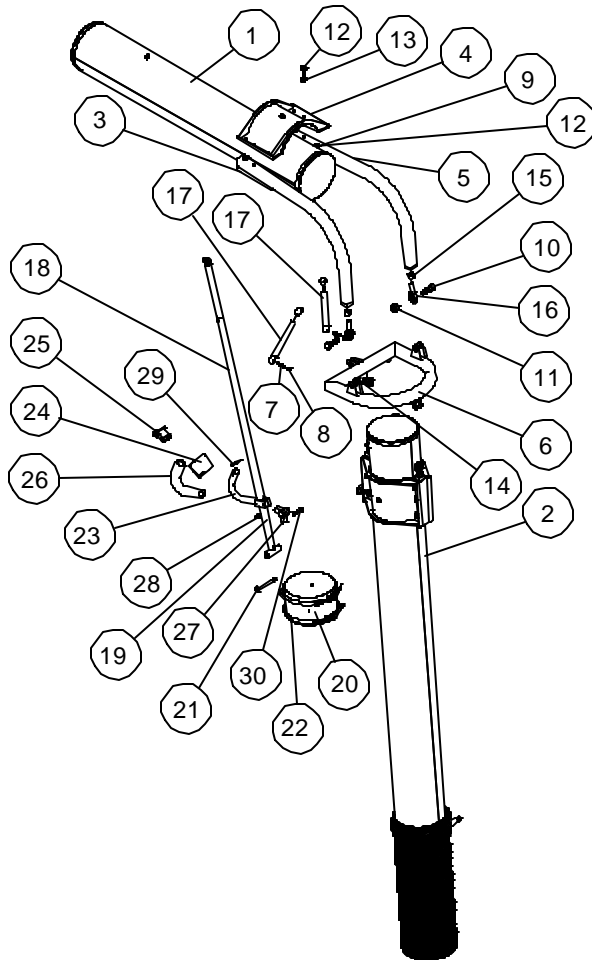
CONTROLS COMPONENTS FOR 61 SKID WITH ROBOTIC ARM OPTION



ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80119	POST SUPPORT	1
2	80009	Hydraulic Remote Joystick	1
3	80112	CONTROL BOX	1
4	80114	EXTENSION POST	1
5	66164	THREADED ROD Ø 1/2" - 13 UNC.	2
6	60910	ADJUSTING KNOB	2
7	90013	LOCK WASHER Ø 1/2"	2
8	90270	JAM NUT Ø 1/2" X 13 UNC	2
9	90441	WASHER Ø 1/2"	1
10	6016	SWITCH & SYMBOL U/D	1
11	90009	LOCK NUT Ø 1/2" - 13 UNC.	2
12	90850	SOCKET HEAD CAP SCREW 1/2" - 13 UNC. X 1-1/4" Lg.	2

A80143 - VACUUM TUBE ASSEMBLY - MANUAL (OPTION K64686)

VACUUM TUBE FOR ROBOTIC ARM WITH MANUAL CONFIGURATION OPTION K64686



ASSEMBLY VIEW

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80108	HORIZONTAL TUBE, SHORT	1
2	(SEE DRAWING A80085)	VERTICAL TUBE ASSY	1
3	80092	LOWER COLLAR	1
4	80070	SHORT COLLAR	1
5	80088	ELBOW STRUCTURAL TUBE	2
6	80071	UNIVERSAL JOINT	1
7	17085	BALL STUD LONG	2
8	90000	LOCK NUT \varnothing 5/16" - 18 UNC.	2
9	90066	WASHER \varnothing 3/8"	7
10	90796	BHH - 5/8 X 11 UNC X 2.0 lg	4
11	90266	LOCK NUT 3/4" X 10 UNC	2
12	90195	BOLT HEX HEAD \varnothing 3/8" X 16 X 2-1/2" lg	3
13	90046	LOCK NUT \varnothing 3/8" - 16 UNC.	3
14	90054	FLAT WASHER 5/8 X 1 5/16 OD	2
15	90140	NUT 5/8"-18" unf	2
16	80105	ROD END \varnothing 5/8	2
17	28087	GAS SPRING	2
18	3238	UPPER TELESCOPIC ARM	1
19	80131	SLIDING ARM	1
20	80134	COLLAR ASSY	1
21	90133	SHOULDER SCREW 3/8" X 2"LG.	1
22	62641	HOSE CLAMP 8"	2
23	3491	HANDLE	1
24	3494	HANDLE BOX	1
25	6016	SWITCH & SYMBOL U/D	1
26	7438	FOAM HANDLE	1
27	7411	PLASTIC KNOB	1
28	17656	RUBBER GROMMET \varnothing 9/16"	1
29	66462	POP-RIVET	1
30	9732	SQUARE HEAD 3/8-16 UNC X 2" LG	1

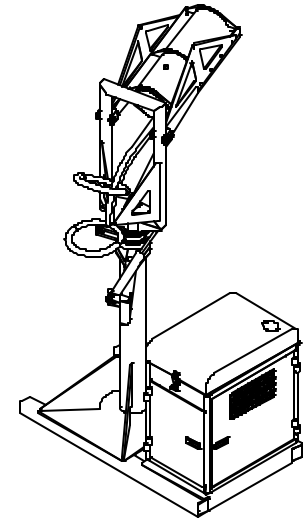
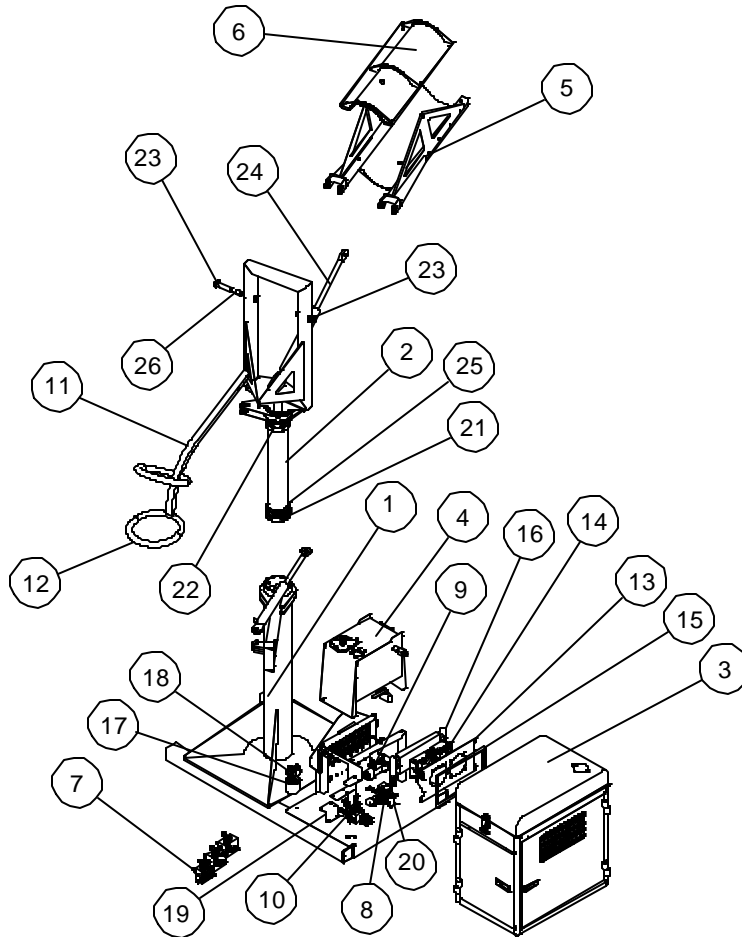
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A80038 - BASE ASSEMBLY (ROBOTIC - K64685 OPTION)

BASE ASSEMBLY FOR HYDRAULIC CONFIGURATION ROBOTIC ARM OPTION K64685



ASSEMBLY VIEW

ITEM NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	80080	BASE	1
2	80037	ROTATING FRAME	1
3	(SEE DRAWING A80139)	CABINET ASSEMBLY	1
4	(SEE DRAWING A80140)	TANK HYDRAULIC ASSY	1
5	80095	LONG LOWER COLLAR	1
6	80063	LONG COLLAR ASSY	1
7	(SEE DRAWING A80012)	AXIS CONTROL BLOC ASS Y	3
8	(SEE DRAWING A80013)	SHUTTLE VALVES BLOC ASS Y	1
9	(SEE DRAWING A80016)	CETOP 2VALVES MOUNTING BLOC ASS Y	1
10	(SEE DAWING A80011)	UNLOADING BLOC ASS Y	1
11	80123	HOSE GUIDE ASSY	1
12	27137	HOSE GUIDE	2
13	80065	GRILL COVER	1
14	80017	COOLING FAN	2
15		TRIM 3/8" X 1/2" X 45" LG.	1
16	(SEE DRAWING A80141)	OIL COOLER PRE-ASSEMBLY	1
17	65720	OIL FILTER	1
18	65719	OIL FILTER BASE	1
19	80137	HYD. BLOCK SUPPORT 2	1
20	80136	HYD. BLOCK SUPPORT	1
21		BRONZE BUSHING	1
22	80035	FLANGE BUSHING	1
23	80050	UNIVERSAL JOINT PIN ASSY	2
24	5184	HYDRAULIC CYLINDER	2
25	90368	SPRING PIN Ø 1/4" X 3/4" lg	2
26		BRONZE BUSHING	2
27	90021	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 3/4" Lg.	5
28	90004	WASHER Ø 1/4"	5
29	90018	LOCK WASHER Ø 1/4"	3
30	90124	BOLT HEX. HEAD Ø 1/4" - 20 UNC. X 2-1/4" Lg.	1
31	90265	PEM STUD 1/4 - 20 X 1" LG. #FH-0420-10	1
32		HYDRAULIC FITTING	1

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