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SERVICE OPERATOR MANUAL and PARTS MANUAL

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MODELS

Paul Gopher State
218-779-7574

- 100 GP
- 100 OEM
- 125 GP
- 160 GP



A WMH Meir Holding Company • 1535 Old Louisville Road • Bowling Green, KY 42101-1279

Waterboy
763 6829698

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NOTICE

This unit was shipped with a detailed compressor service operator and parts manual and engine operators manual. These manuals contain vital information for the proper use and efficient operation of this compressor. Carefully read the service operator manual before starting the compressor. Failure to adhere to the instructions could result in personal injury or property damage. Never paint over or deface any decals or data plates.

BEFORE STARTING THE COMPRESSOR:

Before starting the compressor, the service and operators manual and engine operators manual should be carefully read to obtain a thorough knowledge of proper operating procedures. Keep the compressor clean and in good mechanical condition.

Refer to the parts list that came with your compressor for compressor replacement parts.

For information regarding the condition or operation of your compressor or for major servicing not covered in this manual, consult your nearest authorized distributor. Be sure to specify the model and serial number of the compressor during any correspondence with a company representative.

SMITH AIR COMPRESSORS

1535 OLD LOUISVILLE ROAD • BOWLING GREEN, KY 42101-1279

WARRANTY

GENERAL PROVISIONS

SMITH AIR COMPRESSORS, referred to here as the Company, warrants to the Distributor and to the original end user (Customer) that equipment sold by Company will be free from any defects in material or workmanship for a period of twenty four (24) months or 2000 hours whichever occurs first. If, within that period, the Company receives from Distributor or Customer written notice of any alleged defect in or nonconformance of any such product and if, in the Company's sole judgement, the product does not conform or is found to be defective in material or workmanship, then Distributor or Customer shall, at the Company's request, return the part or Customer shall, at the Company's request, return the part or product freight prepaid to the Company's plant and the Company, at its option and expense shall repair or replace the defective part or product or repay to Distributor or Customer the full price paid for such part or product. Any repayment of purchase price shall be without interest. Warranty on third party items shall be limited to the warranty passed on to the Company by the original manufacturer of such items.

The above warranty shall not apply to tires, battery or to normal maintenance items such as engine tune-up, air and fuel system cleaning, etc., nor to replacement of such parts as spark plugs, air and oil filters.

DISCLAIMER

The company's sole responsibility, and Distributor or Customer's exclusive remedy hereunder, shall be limited to such repair, replacement, or repayment of the purchase price as above provided. There are no other warranties expressed or implied including those of merchantability and of fitness for particular purpose not any affirmation of fact or representation which extends beyond this warranty.

LIMITATIONS

The warranties of SMITH AIR COMPRESSORS do not cover and the Company makes no warranty with respect to:

- (A) Failures not reported to the Company within the warranty period specified.
- (B) Failures or damages due to misapplication, abuse, improper installation or abnormal conditions of dirt or corrosion, pressure, or temperature.
- (C) Failures due to operation either intentional or otherwise above rated capacities or in an otherwise improper manner.
- (D) Products which have been in any way tampered with or altered by anyone other than authorized representative of the Company.
- (F) Expenses incurred by Distributor or Customer in an attempt to repair or rework any alleged defective products.

The Company shall not be responsible for any special, indirect or consequential damage of any nature arising out of or relating to the manufacture, sale or use of the Company's products. Such excluded damages include, but are not limited to, loss of business, profits, revenues, opportunities, loss of goodwill, down time of equipment and facilities and all other type of damages, direct and indirect, foreseeable or unforeseeable.

Distributors, Dealers and Agents of SMITH AIR COMPRESSORS, have no authority to make any other warranty or representation concerning SMITH AIR COMPRESSORS products.

NOISE EMISSION WARRANTY

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that this air compressor was designed, built and equipped to conform, at the time of sale to the first retail purchaser, with all applicable U.S. E.P.A. noise control regulations.

The warranty is not limited to any particular part, component, or system of the compressor which, at the time of sale to the first retail purchaser, caused noise emissions to exceed Federal standards are covered by this warranty for the life of the air compressor.

The Company reserves the right to make changes in the design of its product at any time without incurring any obligation with respect to any product previously sold by it.

SMITH AIR COMPRESSORS

1535 OLD LOUISVILLE ROAD • BOWLING GREEN, KY 42101-1279

IMPORTANT

WARRANTY REGISTRATION

Warranty period commences thirty (30) days after date of shipment from factory unless registration card is returned within 10 days of machine startup.

The Smith reciprocating compressor, if used in accordance with manufacturer's instructions, is warranted for two years against defects in materials and workmanship. The compressor will be replaced or repaired as a result of such defects. Disassembly of the compressor will void this warranty. This warranty does not apply to any damage by accident, misuse or negligence.

The two-year /2000 hour warranty extends only to the Smith reciprocating air compressor. All other parts are warranted by Smith for twelve (12) months against defects in materials and workmanship.

All claims under this warranty should be made by contacting Smith Air Compressors Service Department.

SMITH AIR COMPRESSORS

1535 OLD LOUISVILLE ROAD • BOWLING GREEN, KY 42101-1279

*Warranty is transferable by notifying Smith.
State new owner, address, model and serial number of compressor.*

Model No. _____	Serial No. _____
Firm Name _____	
Street Address _____	
City _____	State _____ Zip _____
Phone () _____	
Compressor Purchased From _____	

Date of Start Up _____	

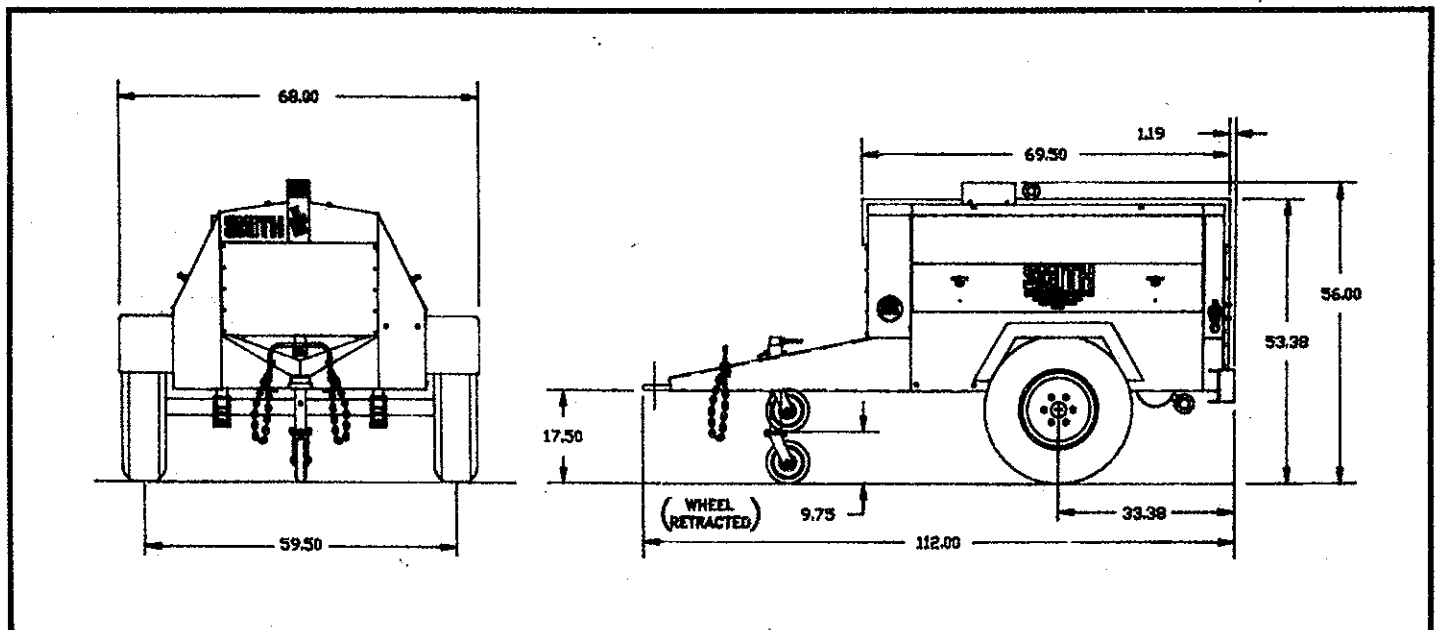
v

This Card Registers You As A Smith Compressor Owner.

SPECIFICATIONS

U.S./METRIC COMPRESSOR MODEL

	160	100
Make and Model of Engine	FORD 7.5L (460)	FORD 5.0L (302)
Normal Operating Pressure PSIG/kPa	100/690	100/690
Normal Operating Temperature Range °F	-20 to +120	-20 to +120
Delivery CFM @ 100 PSIG (689 kPa)	160	100
Operating Pressure Range PSI/kPa	100-125/689-862	100-125/639-862
Full Load Speed RPM	2000	200
Approximate Idle Speed RPM	1000/1100	1000/1100
Air Receiver FT ³ /M ³	3/08	3/08
Engine Crank Case Capacity Qt/Liter	9/8.5	7/6.6
(Add 1 Quart for Filter Change)		
Fuel Tank Capacity Gal/Liter	26/98	26/98
Engine Cooling System Capacity Qt/Liter	21/19.9	17/16.0
Electric System Negative Ground		
Battery	12 Volts	12 Volts
Alternator	40 Amp	40 Amp
Weight Dry Lb/Kg		
Wheel Mounted	1850/839	1550/703
Utility	1584/718	1283/582
Weight Serviced Lb/Kg (Less Fuel)		
Wheel Mounted	1913/868	1590/721
Utility	1647/747	1323/600
Maximum Towing Speed (Smooth Roads)	55 MPH/88.5Km/H	55 MPH/88.5Km/H
Tire Size and Pressure PSI/kPa	215-75R-15-32-221kPa	215-75R-15-32/221kPa
Load Range B		
Maximum Tilt Angle Any Angle	15°	15°



OPERATING PRECAUTIONS

The following is a list of precautions that should be observed when operating, servicing, and maintaining your Smith portable air compressor. This list does not cover all conceivable hazards which may exist in any given circumstance, but it serves to point out specific areas which require the attention of operators and maintenance men.

NOTICE

Lack of attention to proper operating procedures may result in accidents, personal injury, property damage, and /or loss of life. Therefore, use the following precautions as a general guide to proper operation.

1. REFUELING

NEVER attempt to refuel the compressor while it is operating. Fuel vapor may be ignited, causing fire. Always replace fuel fill-cap after refueling.

NOTICE

Always wipe up fuel spills which may occur inside the compressor enclosure and allow the machine to ventilate with both side doors open before restarting.

Failure to comply with this caution may result in property damage or personal injury.

2. MAINTENANCE

NEVER attempt to service, or perform maintenance on the machine unless it is shut down and allowed to cool off. When working on the machine, always secure door to prevent accidental closure.

NEVER smoke or use open flames near batteries, or fuel tank. Volatile fumes or vapors from hydrocarbon fuels, lubricants, and batteries may ignite, resulting in fire. To avoid burns, use extreme caution when working near hot engine components such as exhaust pipes and manifolds.

3. OPERATIONS

NEVER use the air discharged from this compressor for breathing. Sufficient oil carryover from the compressor may exist to cause death if used for breathing air.

WARNING

Air discharged is not suitable for human consumption.

Always read the Service and Operator Manual to gain a thorough understanding of the operation of the compressor.

Operate your compressor with the side access doors closed.

Keep hands clear of the engine fan and fan belts at all times.

NEVER spray ether into the compressor air filter.

4. TOWING

The compressor must be towed at speeds not exceeding legal limits. When the unit is in tow, the side access doors must be closed and latched.

Any tools stored in the tool boxes must be well stowed.

Never wrap hoses around the side access doors.

Never pile hoses, or any other equipment, on the roof on the compressor.

1.1 GENERAL

Smith Air Compressors designs and manufactures all of its products so they can be operated safely. However, the responsibility for safe operation rests with those who use and maintain these products. The following safety precautions are offered as a guide which, if conscientiously followed, will minimize the possibility of accidents throughout the useful life of this equipment.

This air compressor should be operated only by those who have been trained and delegated to do so and who have read and understand this operator's manual. Failure to follow the instructions, procedures and safety precautions in this manual may increase the possibility of accidents and injuries.

Never start the air compressor unless it is safe to do so. Do not attempt to operate the air compressor with a known unsafe condition. Tag the air compressor and render it inoperative by disconnecting the battery so others who may not know of the unsafe condition will not attempt to operate it until the condition is corrected.

Use and operate this air compressor only in full compliance with all pertinent OSHA requirements and all other pertinent Federal, State and Local codes or requirements. Read your CIMA Safety Manual prior to operation or performing maintenance on this equipment.

Do not modify this compressor except with written factory approval.

Each day walk around the air compressor and inspect for leaks, loose or missing parts or parts out of adjustment. Perform all recommended daily maintenance per this manual.

1.2 TOWING*

A. Preparing to Tow

1. Inspect the air compressor ball hitch, pintle eye or coupling device and drawbar and chains, if provided, and also the towing vehicle coupling device and if to be utilized, the points of chain attachment, for defects such as excessive wear or corrosion or cracked, bent, dented or otherwise deformed or degraded members and for loose nuts, bolts or other fasteners.

2. Make sure the towing vehicle, its coupling device and if utilized, its points of chain attachment, are rated for towing a vehicle of at least the net weight of mud, snow, ice, or stored cables, tools and/or equipment.

3. Back tow vehicle to the compressor and position it in preparation for coupling the compressor.

4. Raise drawbar to engage coupling device or otherwise couple the compressor to the towing vehicle. Do not attempt to raise or lower drawbars by hand if the weight is more than you can safely handle. Use a lifting device such as a jack or chain fall if you can't lift or lower without avoiding injury to yourself or others. Keep hands and fingers clear of the coupling device and all other pinch points. Keep feet clear of drawbar to avoid injury in case it should slip from your hand.

5. Make sure the coupling device is fully engaged, closed and locked.

6. If chains are provided, pass each chain through its point of attachment on the towing vehicle. Cross chains under front of drawbar before passing through points of attachment on towing vehicle to support front of drawbar in case it should accidentally become uncoupled.

7. Make sure that the coupling device and adjacent structures on the towing vehicle (and also, if utilized, chain adjustment, brake and /or electrical interconnections) do not interfere with or restrict motion of any part of the air compressor, including its coupling device, with respect to the towing vehicle when maneuvering over any anticipated terrain.

8. If provided, make sure chain length and brake and electrical interconnections provide sufficient slack to prevent strain when cornering and maneuvering yet are supported so they can not drag or rub on road, terrain or towing vehicle surfaces, which might cause wear that could render them inoperative.

9. On two-wheeled models, fully retract front and any rear stabilizer legs if provided. Pull the lock pin and raise the caster wheel, then make sure pin is re-engaged to secure caster wheel in full up and locked position.

10. Make sure tires are in good condition and are the size (load range) specified and are inflated to the specified pressure. Do not change tire size or type. Also, make sure wheel bolts, lugs or nuts are tightened to the specified torque.

11. If provided, make sure all dual stop, tail, directional and clearance light are operating properly and that their lenses are clean and functional. Also, make sure all reflectors and reflecting surfaces, including the slow moving vehicle emblem on compressors provided with same, are clean and functional.

12. Make sure all service air hoses (not air brake hoses) are disconnected or are fully stowed and secured on hose reels, if provided.

13. Make sure all access doors and tool box covers are closed and latched.

14. Make sure parking brakes on towing vehicle are set, or that its wheels are chocked or blocked, or that it is otherwise restrained from moving. Then, release the compressor parking brakes, if provided.

15. Make sure the compressor wheels are not chocked or blocked, and that all tie-downs, if any, are free.

16. Test running brake operation, including breakaway switch operation if provided, before attempting to tow the compressor at it's rated speed or less when conditions prevail.

B. Towing

1. Observe all local and Federal traffic laws, including those specifying minimum speed.

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2. Tow at appropriate speed listed below, or less, under ideal conditions. Reduce speed accordingly, as dictated by posted signs, weather, road or terrain conditions.

3. Remember that the portable air compressor may approach or exceed the weight of the towing vehicle. Maintain increased stopping distance accordingly.

4. Avoid grades in excess of 15° (27%)

5. Avoid potholes, rocks and other obstructions and soft shoulders or unstable terrain.

6. Maneuver in a manner that will not exceed freedom of motion of the compressor's drawbar and/or coupling device in or on the towing vehicles coupling device and/or adjacent structure, whether towing forward or backing up, regardless of the terrain being traversed.

7. Do not permit personnel to ride in or on the compressor.

8. Make sure the areas behind, in front of, and under the compressor are clear of all personnel and obstructions prior to towing in any direction.

9. Do not permit personnel to stand or ride on the drawbar, or to stand or walk between the compressor and the towing vehicle.

C. Parking or Locating Compressor

1. Park or locate the compressor on level areas, if possible. If not, park or locate compressor across grade, so the compressor does not tend to roll down hill. Do not park or locate compressor on grades exceeding 15° (27%).

2. Make sure compressor is parked or located on a firm surface that can support its weight.

3. Park or locate compressor so the wind, if any, tends to carry the exhaust fumes and radiator heat away from the compressor air inlet openings and also where the compressor will not be exposed to excessive dust from the work site.

4. Set parking brakes and disconnect break-away switch cable and all other interconnecting electrical and/or brake connections, if provided.

5. Block or chock both sides of all wheels.

6. If the compressor is provided with a caster wheel, pull pin and lower caster wheel, then make sure pin is re-engaged to secure caster wheel in the full down and locked position.

7. If provided, unhook chains and remove them from the points of chain attachment on the towing vehicle, then hook chains to bail on drawbar or wrap chains around the drawbar and hook them to themselves to keep chains off the ground which might accelerate rusting.

8. Disconnect coupling device, keeping hands and fingers clear of all pinch points. Do not attempt to lift the drawbar. If the

weight is more than you can safely handle. Use a lifting device such as a jack or chain fall if you can't lift or raise the drawbar without avoiding injury to yourself or others.

9. Move the towing vehicle well clear of the parked compressor and erect hazard indicators, barricades and/or flares (if at night) if compressor is parked on or adjacent to public roads. Park compressor so as not to interfere with traffic.

*While not towed in the usual sense of the word, many of these recommendations are directly applicable to skid mounted air compressors as well.

1.3 PRESSURE RELEASE

A. Open the pressure relief valve at least weekly to make sure it is not blocked, closed, obstructed or otherwise disabled.

B. Install an appropriate flow limiting valve between the compressor service air outlet and the shut-off (throttle) valve, when an air hose exceeding 1/2" (13 mm) inside diameter is to be connected to the shut-off (throttle) valve, to reduce pressure in case of hose failure, per OSHA Standard 20 CFR 1926.302 (as) (7).

C. When the hose is to be used to supply a manifold, install an additional appropriate flow limiting valve between the manifold and each air hose exceeding 1/2" (13 mm) inside diameter that is to be connected to the manifold to reduce pressure in case of hose failure.

D. Provide an appropriate flow limiting valve for each additional 75 feet (20 meters) of hose in runs of air hose exceeding 1/2" (13 mm) inside diameter to reduce pressure in case of hose failure.

E. Flow limiting valves are listed by pipe size and rated CFM. Select appropriate valve accordingly.

F. Do not use tools that are rated below the maximum pressure rating of this compressor. Select tools, air hoses, pipes, valves, filters and other fittings accordingly. Do not exceed manufacturer's rated safe operating pressures for these items.

G. Secure all hose connections by wire, chain or other suitable retaining devices to prevent tools or hose ends from being accidentally disconnected and expelled.

H. Vent all internal pressure prior to opening any line, fitting, hose, valve, drain plug, connection or other component, such as filters and line oilers, and before attempting to refill optional air line anti-icer systems with antifreeze compound.

I. Keep personnel out of line with and away from the discharge opening of hoses or tools or other points of compressed air discharge.

J. Do not use air at pressures higher than 30 PSIG (200 kPa) for cleaning purposes, and then only with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242 (b).

K. Do not engage in horseplay with air hoses as death or

serious injury may result.

L. Remove radiator filler cap only when cool enough to touch with bare hand. Then loosen cap slowly to its stop to relieve any excess pressure and make sure coolant is not boiling before removing cap completely.

1.4 FIRE AND EXPLOSION

A. Refuel at a service station or from a fuel tank designed for its intended purpose. If this is not possible, ground the machine to the dispenser prior to refueling.

B. Clean up spills of fuel, oil, battery electrolyte or coolant immediately when such spills occur.

C. Shut off air compressor and allow it to cool. Then keep sparks, flames and other sources of ignition away and do not permit smoking in the vicinity when adding fuel, or when checking or adding electrolyte to batteries, or when checking or adding oil, or when refilling air line anti-icer systems with antifreeze compound.

D. Do not permit liquids, including air line anti-icer system antifreeze compound or oil film to accumulate on bottom covers or on, under or around acoustical material, or on any external or internal surfaces of the air compressor. Wipe down using an aqueous industrial cleaner or steam clean as required. Any acoustical material with a protective covering that has been torn or punctured should be replaced immediately to prevent accumulation of liquids or oil film within the material. Do not use flammable solvents for cleaning purposes.

E. Disconnect the grounded (negative) battery terminals and other terminals, in good condition. Replace any wiring that has cracked, cut, abraded or otherwise degraded insulation or terminals that are worn, discolored or corroded. Keep all terminals clean and tight.

G. Turn off battery charger before making or breaking connections to the battery.

H. Keep grounded conductive objects such as tools away from exposed live electrical parts such as terminals to avoid arcing which might serve as a source of ignition.

I. Replace damaged fuel tanks or lines immediately rather than attempting to weld or otherwise repair them. Do not store or attempt to operate the compressor with any known leaks in the fuel system. Tag the compressor and render it inoperative until repairs can be made.

J. Remove any acoustical material or other material that may be damaged by heat or that may support combustion and is in close proximity to air line anti-icer system components containing antifreeze compound, prior to attempting to weld repairs in any place other than the fuel system which should not be welded.

K. Keep a suitable fully charged class BC or ABC fire extinguisher or extinguishers nearby when servicing and operating the compressor.

L. Keep oily rags, trash, leaves, litter or other combustibles out of and away from the compressor.

M. Open all access doors and allow the enclosure to ventilate thoroughly prior to attempting to start the engine.

N. Do not operate compressor under low overhanging leaves or permit such leaves to contact hot exhaust system surfaces when operating the compressor in forested areas.

O. Do not attempt to use ether as a starting aid in gasoline engines.

P. Antifreeze compound used in air line anti-icer systems contains methanol which is flammable. Use systems and refill with compound only in well ventilated areas away from heat, open flames or sparks. Do not expose any part of these systems or the antifreeze compound to temperatures above 150°F (65°C). Vapors from the antifreeze compound are heavier than air. Do not store compound or discharge treated air in confined or unventilated areas. Do not store containers or antifreeze compound in direct sunlight.

Q. Store flammable fluids and materials away from your work area. Know where fire extinguishers are and how to use them, and for what type of fire they are intended. Check readiness of fire suppression systems and detectors if so equipped.

1.5 MOVING PARTS

A. Keep hands, arms and other parts of the body and also clothing away from belts, pulleys and other moving parts.

B. Do not attempt to operate the compressor with the fan or other guards removed.

C. Wear snug fitting clothing and confine long hair when working around this compressor, especially when exposed to hot or moving parts inside the enclosure.

D. Keep access doors closed except when making repairs or adjustments, performing servicing or when starting or stopping the compressor.

E. Make sure all personnel are out of and clear of the compressor prior to attempting to start or operate it.

F. Shut off engine before adding fuel, oil, coolant, lubricants, air line antifreeze compound or battery electrolyte, or before replacing ether starting aid cylinders.

G. Disconnect the grounded negative battery connection to prevent accidental engine operation prior to attempting repairs or adjustments. Tag the battery connection so others won't unexpectedly reconnect it.

H. Make adjustments only when the engine is shut off. When necessary, make adjustment, then start engine to check adjustment. If adjustment is incorrect, shut off engine, readjust, then restart engine to recheck adjustment.

I. Keep hands, feet, floors, controls and walking surfaces clean and free of oil, water, antifreeze or other liquids to minimize

Section 1

SAFETY

possibility of slips and falls.

1.6 HOT SURFACES, SHARP EDGES AND SHARP CORNERS

A. Avoid bodily contact with hot oil, hot coolant, hot surfaces and sharp edges and corners.

B. Keep all parts of the body away from all points of air discharge and away from hot exhaust gases.

C. Wear personal protective equipment including gloves and head covering when working in, on or around the compressor.

D. Seek medical assistance promptly in case of injury. Don't ignore small cuts and burns as they may lead to infection.

1.7 TOXIC AND IRRITATING SUBSTANCES

A. Do not use air from this compressor for respiration (breathing) except in full compliance with OSHA Standards 29 CFR 1920 and any other Federal, State or Local Codes or regulations.

B. Do not use air line anti-icer system in air lines supplying respirators or other breathing air utilization equipment and do not discharge air from these systems in unventilated or other confined areas.

C. Operate the compressor only in open or well ventilated areas.

D. If the machine is operated indoors, discharge engine exhaust fumes outdoors.

E. Locate the compressor so that exhaust fumes are not apt to be carried towards personnel, air intakes servicing personnel areas or towards the air intake of any portable or stationary compressor.

F. Fuels, oils, coolants, lubricants and battery electrolyte used in this compressor are typical of the industry. Care should be taken to avoid accidental ingestion and/or skin contact. In the event of ingestion seek medical treatment promptly. Do not induce vomiting if fuel is ingested. Wash with soap and water in the event of skin contact.

G. Wear an acid resistant apron and a face shield or goggles when servicing the battery. If electrolyte is spilled on skin or clothing, immediately flush with large quantities of water.

H. Wear goggles or a full face shield when testing ether starting aid systems or when adding antifreeze compound to air line anti-icer systems. Keep openings of valve, tube or atomizer of ether starting aid system pointed away from yourself and other personnel.

I. If ethyl ether or air line anti-icer system antifreeze compound enters the eyes or if fumes irritate the eyes, they should be washed with large quantities of clean water for 15 minutes. A physician, preferable an eye specialist, should be contacted immediately.

J. Do not store ether cylinders or air line anti-icer system

antifreeze compound in operator's cabs or in other confined areas.

K. The antifreeze compound used in air line anti-icer systems contains methanol and is toxic, harmful or fatal if swallowed. Avoid contact with the skin or eyes and avoid breathing the fumes. If swallowed induce vomiting by administering a tablespoon of salt in each glass of clean warm water until vomit is clear, then administer two tablespoons of baking soda in a glass of clean water. Have patient lay down and cover eyes or exclude light. Call a physician immediately.

1.8 ELECTRICAL SHOCK

A. Keep the towing vehicle or equipment carrier, compressor, hoses, tools and all personnel at least 10 feet (3 meters) from power lines and buried cables.

B. Keep all parts of the body and any hand-held tools or other conductive objects away from exposed live parts of electrical system. Maintain dry footing, stand on insulating surfaces and do no contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the electrical system.

C. Attempt repairs only in clean, dry and well lighted and ventilated areas.

D. Stay clear of the machine during electrical storms! It can attract lightning.

1.9 LIFTING

A. If the compressor is provided with a lifting bail then lift by the bail provided. If no bail is provided then lift by sling. Compressors to be air lifted by helicopter must not be supported by the lifting bail, but by slings instead. In any event, lift only in full compliance with OSHA Standards 29 CFR 1910 subpart N.

B. Inspect lifting bail and points of attachment for cracked welds and for cracked, bent, corroded or otherwise degraded members and for loose bolts or nuts prior to lifting.

C. Make sure entire lifting, rigging and supporting structure has been inspected, is in good condition and has a rated capacity of at least the net weight of the compressor plus an additional 10% allowance for the weight of snow, ice, mud or stored tools and equipment. If you are unsure of the weight, then weigh compressor before lifting.

D. Make sure lifting hook has a functional safety latch or equivalent, and is fully engaged and latched on the lifting bail.

E. Use guide ropes or equivalent to prevent twisting or swinging of the machine once it has been lifted clear of the ground.

F. Do not attempt to lift in high winds.

G. Keep all personnel out from under and away from the compressor when it is suspended.

H. Lift compressor no higher than necessary.

I. Keep lift operator in constant attendance whenever com-

pressor is suspended.

J. Set compressor down only on level surfaces capable of supporting at least its net weight plus an additional 10% allowance for the weight of snow, ice, mud or stored tools and equipment.

K. If the compressor is provided with parking brakes, make sure they are set, and in any event, block or chock both sides of all running wheels before disengaging the lifting hook.

1.10 JUMP STARTING

A. Observe all safety precautions mentioned elsewhere in this manual.

B. Batteries may contain hydrogen gas which is flammable and explosive. Keep flames, sparks and other sources of ignition away.

C. Batteries contain acid which is corrosive. Do not allow battery acid to contact eyes, skin, fabrics or painted surfaces as serious personal injury or property damage could result. Flush any contacted areas thoroughly with water immediately. Wear an acid resistant apron and face shield when attempting to jump start the compressor.

D. Remove all vent caps (if so equipped) from the battery or batteries in the compressor. Do not permit dirt or foreign matter to enter the open cells.

E. Check fluid level. If low, bring fluid is frozen or slushy. Bring batteries up to at least 60°F (15°C) before attempting to jump start or it may explode.

G. Cover open cells of all compressor batteries with clean dampened cloths before attempting to jump start.

H. Attempt to jump start only with a vehicle with a negative ground electrical system with the same voltage and that is equipped with a battery or batteries of comparable size or larger than supplied in the compressor. Do not attempt to jump start using motor generator sets, welders or other sources of DC power as serious damage may result.

I. Bring the starting vehicle alongside the compressor, but do not permit metal to metal contact between the compressor and the starting vehicle.

J. Set the parking brakes of both the compressor (if provided) and the starting vehicle or otherwise block both sides of all wheels.

K. Place the starting vehicle in neutral or park, turn off all non-essential accessory electrical loads and start its engine.

L. Use only jumper cables that are clean, in good condition and are heavy enough to handle the starting current.

M. Avoid accidental contact between jumper cable terminal clips or clamps and any metallic portion of either the compressor or the starting vehicle to minimize the possibility of uncontrolled arcing which might serve as a source of ignition.

N. Positive battery terminals are usually identified by a plus (+) sign on the terminal and letters POS adjacent to the terminal. Negative battery terminals are usually identified by the letters NEG adjacent to the terminal or a neg (-) sign.

O. Connect one end of a jumper cable to the positive (POS) (+) battery terminal in the starting vehicle. When jump starting 24V compressor and if the starting vehicle is provided with two (2) 12V batteries connected in series, connect the jumper cable to the positive (POS) (+) terminal of the ungrounded battery.

P. Connect the other end of the same jumper cable to the positive (POS) (+) terminal of the starter motor (starter relay on Ford gas) battery in the compressor, or when jump starting 24V compressor, to the positive (POS) (+) terminal of the ungrounded battery in the compressor.

Q. Connect one end of the outer jumper cable to the grounded negative (NEG) (-) terminal of the battery in the starting vehicle. When jump starting 24V compressors and if the starting vehicle is provided with two (2) 12V batteries connected in series, connect the jumper cable to the negative (NEG) (-) terminal of the grounded battery.

R. Check your connections. Do not attempt to start a 24V compressor with one 12V battery in the starting vehicle. Do not apply 24V to one 12V battery in the compressor.

S. Connect the other end of this same jumper cable to a clean portion of the compressor engine block away from fuel lines, the crank case breather opening, and the battery.

T. Start the compressor in accordance with normal procedure. Avoid prolonged cranking.

U. Allow the compressor to warm up. When the compressor is warm and operating smoothly at normal idle RPM, disconnect the jumper cable from the engine block in the compressor, then disconnect the other end of this same cable from the grounded negative (NEG) (-) terminal of the battery in the starting vehicle. Then disconnect the other jumper cable from the positive (POS) (+) terminal of the battery in the compressor, or if provided with two (2) 12V batteries connected in series, from the ungrounded battery in the compressor, and finally, disconnect the other end of this same jumper cable from the positive (POS) (+) terminal of the battery in the starting vehicle, or from the positive (POS) (+) terminal of the ungrounded battery in the starting vehicle, if it is provided with two (2) 12V batteries connected in series.

V. Remove and carefully dispose of the dampened cloths, as they may now be contaminated with acid, then replace all vent caps.

Section 2

GENERAL INFORMATION

2.1 INTRODUCTION

Your new Smith Portable Air Compressor will offer superior performance and reliability with a minimal amount of maintenance requirements.

The Smith reciprocating air compressor consists of a heavy duty industrial engine modified to operate on half of its cylinders while the other half is altered to operate as an air compressor. This compressor-engine is mounted in a unitized welded frame, and the complete package of fuel tank, air receiver, and radiator, etc. is completely enclosed in a rugged sheet metal enclosure.

As you continue reading this manual and come to learn how the machine operates and is cared for, you will see how surprisingly easy it is to keep a Smith compressor in top operating condition.

Read Section 3 (Maintenance) to keep your compressor in top operating condition. Should any problem or question arise which cannot be answered in the text, contact your nearest Smith representative or the Service Department by calling Smith Air Compressors 1-502-842-1689.

DESCRIPTION OF COMPONENTS

2.1 COMPRESSOR

The special air compressor head is designed with large water-cooling passages around each valve and is also designed so each valve may be removed for inspection without having to drain the engine coolant or remove the cylinder head. The compressor has four large concentric valves sized for low air velocity and high efficiency. Since the crankshaft has four "throws" on it, the compressor produces a "cylinder-full" of air each 90° of crankshaft rotation or four times per revolution—thus insuring a smooth flow of air.

2.1 ENGINE

The Ford engine with hydraulic valve lifters, large free-turn type intake and exhaust valves, a full flow oil filter, full-circle water jackets, rotor-type oil pump, and many other features give this engine high performance and durability. The engine is supported with 4 shock mounts for minimum vibration to the chassis and enclosure. Spark-arresting mufflers conforming to U.S. Forestry Service specifications 5100-A are installed as standard equipment on all Smith compressors. Ford Industrial Engine tested the Smith compressor.

The engine cooling system is comprised of a radiator, high-capacity fan, and thermostat. The high-capacity fan pulls air through the radiator, and keeps the engine at the proper operating temperature.

The same fan used to provide the engine radiator with air also provides air to the compressor after-cooler. As air passes through the cooler, the heat of compression is removed from the compressed air.

2.1 AIR INDUCTION

The compressor and engine are provided with a two-stage heavy duty air filter. This dry type filter has its inlet located above the roof so that clean and cool air is drawn into the engine and compressor.

An air filter restriction gauge located on the air filter advises when service to the air filter element is required.

2.2 ENCLOSURE:

All of the compressor and its accessories are enclosed in a heavy gauge enclosure.

The enclosure includes full length tool boxes on each side of the unit. Each tool box is provided with tabs which will allow the machine to be securely locked. The tool boxes have a perforated bottom to eliminate any build-up of sludge or dirt. Even more important, the open-bottomed tool boxes provide a path for the engine fan air flow. In this manner engine fan air is allowed to escape and keep the engine cool.

2.3 CHASSIS

The frame is of unitized welded construction. The draw bar and bumper are of integral design which adds to the rigidity of the unit. The draw bar has its hitch located low to match the trucks or cars usually used for towing this compressor. The swivel wheel has a handle for positioning the swivel wheel in either the retracted or lowered position.



CAUTION

Do not retract swivel wheel unless compressor has been secured to hitch on towing vehicle!

2.4 FUEL SYSTEM

The fuel tank is of heavy gauge aluminized steel construction. An extra large filler cap is provided for faster filling. A fuel gauge is built into the filler cap.

A normally closed solenoid valve is installed next to the carburetor to prevent fuel from being siphoned into the engine-compressor crankcase during normal shutdown.

2.5 COMPRESSOR CONTROL

The control of the compressor output includes a pilot valve, carburetor idling device, unloader pistons, flow-control valve.

When the air receiver pressure reaches approximately 105 psi, the pilot valve opens, allowing air pressure to uncock the compressor valves and also reduce the engine to its idle speed. The compressor maintains this condition until the receiver air pressure drops to approximately 85 psi then the controls act in an opposite direction, and the unit resumes compressing air.

2.5 AUTOMATIC BLOW DOWN

The compressor is equipped with oil pressure operated normally open valve located on the bottom of the air reservoir.

The purpose of this valve is to eject the oil & water collected in the reservoir during normal operation.

NOTICE

This valve is operated by engine oil pressure, therefore, during cold weather there may be a slight delay before it closes.

2.6 LUBRICATION

Lubrication is a very important factor contributing to the life and performance of any engine and/or compressor and we suggest that the Ford Motor recommendations be followed for proper lubricants. The spring shackles require no lubrication. There are grease fittings on the swivel wheel assembly that require periodic attention and the wheel bearings also should be inspected and repacked annually.

Whenever it becomes necessary to install replacement O rings on the unloader piston, be sure to use a high temperature grease (silicone) and slip the O ring on the Piston—do not roll the O ring into place on the piston.

2.7 INSTRUMENT PANEL

The standard instrument panel group consists of a panel containing an air pressure gauge, engine oil pressure, engine coolant temperature gauges, hour meter, and volt meter. In addition an ignition-starter switch and choke.

- The air pressure gauge continually monitors the reservoir pressure at various load and/or unload conditions.
- The hourmeter indicates the cumulative hours of compressor operation. This useful for planning and logging service operations.
- The ignition starter switch is used to energize the machine's electrical system and provide power to the starter motor. It is an anti-restart type. (Switch must be returned to off position before attempting a restart.)
- The engine water temperature gauge is connected to the engine which allows it to sense the temperature of the engine's coolant. This gauge continually monitors the temperature of the coolant during operation.
- The engine oil pressure gauge monitors the engine oil pressure from the moment the machine is started. It is essential that the proper oil pressure be maintained. The proper oil pressure reading should be approximately 45-65 PSI (311-449 kPa) at Full Load Speed.
- The voltmeter indicates the voltage of the battery when the engine is not operating and indicates the operation of the alternator by a voltage reading of 14 to 15 volts.

2.8 ELECTRICAL SYSTEM

The 12-volt electrical system begins with a large maintenance-free battery. Water loss from the battery has been virtually

eliminated through the use of "antimony-free" plates. Since the battery never needs water, there are no filler caps to be removed or to spew acid fumes.

Heavy duty battery cables are used to insure adequate voltage to the engine starter motor. The longer cable (positive) is connected to the starter relay.

The spark plug ignition cables are standard Ford Motor cables designed to include radio suppression. It is important that all spark plug wires normally connected to the left engine bank (wires 5 thru 8) be grounded. If these wires are not grounded, a short circuit may occur inside the distributor cap which would seriously affect starting and running the engine.

A circuit breaker is installed in the line between the ignition switch and the alternator. If a short circuit or electrical overload occurs, the circuit breaker will open to protect the electrical system and the engine will shut down. At this point we suggest you search for the cause of the electrical problem. After the circuit breaker cools to its normal operating temperature, it will close automatically and once again will carry current through the system.

The electrical system is assembled in a packaged wiring harness which is color coded for easy identification and inspection against the wiring diagram. SEE WIRING DIAGRAM.

Section 3

OPERATION

3.1 GENERAL

While Smith Air Compressor has built into its compressor a comprehensive array of controls and indicators to assure you that it is running properly, you will want to recognize and interpret the readings which will call for or indicate the beginning of a malfunction. Before starting your compressor, read this section thoroughly; familiarize yourself with the controls and indicators, their purpose, location and use.

3.2 PURPOSE OF CONTROLS

ENGINE IGNITION STARTER SWITCH	Turn this switch to the "on" position to energize the electrical system of the machine and supply power to the starter motor. This switch is located on the instrument panel.
VOLTMETER	Monitors the performance of the engine alternator and is the primary indicator of an electrical malfunction.
AIR PRESSURE GAUGE	Continually monitors the pressure inside the receiver at various loaded and unloaded conditions.
HOURMETER	Indicates the engine accumulated hours of operation. Useful for planning and logging service schedules.
ENGINE OIL PRESSURE GAUGE	Monitors the engine oil pressure. The normal reading is 45-65 PSIG (331-449 kPa) at full load speed.
ENGINE COOLANT TEMPERATURE GAUGE	Monitors the temperature of the engine coolant. The operating temperature should read approximately 185-190°F (85-88°C).
ENGINE COOLANT TEMPERATURE SWITCH	Opens the electrical circuit to shut down the machine when the engine coolant temperature reaches 220°F (105°C).
PRESSURE RELIEF VALVE	Opens receiver pressure to the atmosphere should pressure inside the receiver exceed 150 PSIG (1034kPa).
AIR FILTER MAINTENANCE INDICATOR	Continually monitors the condition of the engine air filter element. Replace air filter element when indicator shows red.
BLOWDOWN VALVE	Vents receiver pressure to the atmosphere at shut-down.
PILOT VALVE	A Two-Point Regulator to maintain a constant receiver pressure.
FLOW CONTROL VALVE	Retards the loading of the compressor valves when going from idle to full speed.

3.3 INITIAL START-UP PROCEDURE

The following procedure should be used to make the initial start-up of your compressor.

1. Before start-up, inspect compressor for loose connections or damage that may have occurred in shipment.
2. The battery is a maintenance-free unit and does not require any additional water or electrolyte. Attach the battery cables to the battery.
3. Check engine & compressor air filter to see if elements is in place. Tighten filter cap nut securely.
4. The radiator-engine has been filled with 50% mixture of ethylene glycol and water. Check the cooling system level.
5. Check the engine crankcase oil level.
6. Fill the fuel tank with clean fuel and open the pet-cock underneath the fuel tank.
7. Start engine and check engine speed. If necessary, reset to rated speed after reaching normal operating temperatures.
8. After the initial run, shut the machine down, check coolant and oil levels. Tighten any loose fittings and check fan belt tension.

Normal Starting Instructions:

1. Check engine oil level.
2. Check engine radiator level.
3. Check fuel tank level.
4. Open compressor air service valve (aftercooler drain cock should be open)
5. Turn the ignition switch to the start position. After the engine starts, release the switch. Use choke as may be required. Do not operate starter for periods longer than 30 seconds. Wait at least two minutes between such cranking periods. (Switch must be returned to off position before attempting a restart.)
6. Close the aftercooler drain cock.
7. Partially close the compressor air service valve. Maintain 70 to 80 PSI on air gage.
8. When engine is running smoothly close service valve(s). The compressor is now ready for operation.

3.4 SHUTDOWN PROCEDURES

To shut the machine down, close the service valves and run machine for approximately 2-3 minutes; then turn the starter switch to the "off" position. In case of emergency where immediate shutdown is required, this procedure is not necessary. The starter switch should be put in the "off" position immediately. Open aftercooler drain cock. (Leave drain cock open for the next start)

NOTICE

Shutting the machine down under emergency conditions may cause the engine to backfire.

317 984
1825

Section 4

INSPECTION - LUBRICATION - MAINTENANCE

4.1 GENERAL

A good maintenance program is the key to long machine life. The following is a program that when adhered to should keep your machine in top running condition. For engine maintenance requirements, refer to the Engine Operators Manual where a detailed description of service instructions is given.



WARNING

Do not remove caps, plugs or other components when compressor is running or pressurized.

Stop compressor and relieve all internal pressure before doing so.

4.2 DAILY OPERATION

Check the engine oil and engine coolant level replenish as required.

NOTICE

The radiator and engine cooling system should be drained and flushed every two years. Replace the coolant with a mixture of 50 percent water/50 percent ethylene glycol. Do not use a leak sealing type of antifreeze. Should a 100 percent water solution be used, a rust inhibitor must be added.

After a routine start has been made, observe the instrument panel gauges. After the machine has warmed up, it is recommended that a general check of the overall machine and instrument panel be made to assure that the compressor is running properly. Also check the air filter maintenance indicator. Should the indicator show red, clean or replace the elements immediately.

4.3 LUBRICATION RECOMMENDATIONS

LUBRICATION GUIDE - ENGINE

Engine - Compressor Oil
Ford Motor Company recommends the use of Motorcraft® or equivalent oil meeting API service category SG or SH.

The recommended viscosity grade is 10W30, or if ambient temperatures are normally below 50°F (10°C) use grade 5W30.

DO NOT USE

1. "Non-Detergent" oils
2. Oils labeled AP.1, SA, SB, SC, SD, SE OR SF
3. Oil Additives

4.3 ENGINE FUEL

"Regular" Unleaded gasoline meeting a minimum octane rating of 87 (R+M/2) is the recommended fuel.

Other fuels may be used and are often referred to as reformulated gasoline. Some of these fuels are:

1. Blends containing ethanol (Ethyl Alcohol - Corn)
Must not contain more than 10% Ethanol
2. Blends containing methanol (Methyl Alcohol - Wood)
Must not contain more than 5% Methanol and must contain cosolvents and additives which are necessary to prevent damage to the engine.
3. Blends containing MTBE (Methyl Tertiary Butyl Ether) with NO limitations on percentage of MTBE in fuel.

There will be some loss of power and fuel economy when using ethanol or methanol. However, it can be minimized by using fuel blended with MTBE.

NOTICE

Because of the differences in fuel formulation it will be necessary to add a "fuel stabilizer" to the fuel system of compressors which are not going to be run for three (3) or four (4) weeks.

Without the use of an additive the fuel can and will go bad in a short period of time causing varnish and contaminants to form.

INSPECTION - LUBRICATION - MAINTENANCE

4.4 MAINTENANCE CHART

NOTICE

Follow the engine maintenance schedule as shown in the Ford Maintenance & Operators Manual

INTERVAL	REQUIRED MAINTENANCE
EVERY 10 HOURS OR DAILY	<ol style="list-style-type: none"> 1. Check engine oil level 2. Check radiator coolant level 3. Check fuel supply after running 4. Check air filter maintenance 5. Check for fuel, oil, air, and water leaks 6. Check battery mounting for security.
EVERY 50 HOURS OR WEEKLY	<ol style="list-style-type: none"> 1. Check drawbar, toweye and safety chains, and prior to each move (All towing connections) 2. Check wheel nut torque (and prior to each move) 95 ft-lb. 3. Check tire pressure. 32 PSI 4. Inspect lifting frame (and before each lift)
EVERY 100 HOURS	<ol style="list-style-type: none"> 1. Change engine oil and oil filter.
EVERY 300 HOURS	<ol style="list-style-type: none"> 1. Clean pilot valve air filter, or replace as necessary 2. Check axle spring mounting bolts for tightness and damage 3. Clean battery terminals, check battery hold-downs and cables for wear 4. Check air filter piping, fittings and clamps 5. Check radiator hoses and clamps 6. Check engine mounts 7. Check fan belt tension 8. Examine components in exhaust system for cracks and/or holes. Engine is equipped with a spark arresting muffler and must be maintained in an effective working order. 9. Clean automatic blow down valve 10. Clean spark arrester
EVERY 1,000 HOURS	<ol style="list-style-type: none"> 1. Install new air filter element (shorter interval may be necessary under dusty conditions) 2. Check all door gaskets, hinges, and latches to maintain acoustical seal 3. Check engine shut down switches 4. Check receiver pressure relief valve 5. Repack wheel bearings

Section 4

INSPECTION - LUBRICATION - MAINTENANCE

4.5 SPARK ARRESTER



WARNING

BEFORE TOUCHING ANY PART OF AN EXHAUST SYSTEM, BE ABSOLUTELY SURE THAT IT HAS HAD SUFFICIENT TIME TO COOL!

The following paragraph is from the USDA Forest Service Standard 5100-lb for Spark Arresters for Internal Combustion Engines.

2.2.1 The arrester shall have provision for the easy disposal of the accumulated particles, if cleaning is necessary. Easy disposal is defined as the removal of accumulated carbon particles without the use of special tools, the insertion of probes which may damage the internal or external construction, or the use of a blunt object, shaking, or any method deemed unsatisfactory by the government.

Disposal of accumulated particles may be accomplished by following the steps listed below.

1. IN A SAFE AREA take precautions to collect and properly dispose of residue falling from the spark arrester trap.
2. KEEP HEAD AND FACE AWAY FROM POSSIBLE DRAINAGE!
3. Remove the cleanout plug (pipe plug) on the bottom half of the spark arrester (muffler). Some particles may begin to drain out at this time. Soot mixed with condensation or other oily liquids may also empty out at this time.
4. Without causing deformation (or any type of damage to the spark arrester) repeatedly tap on the arrester near the cleanout plug. This may be enough to begin drainage of the spark trap.
5. Industrial vacuum cleaners can do a complete job at this point.

Or, IN A SAFE AREA, start the engine. Then alternate between low idle and high idle for two to three minutes.

TURN OFF THE ENGINE AND LET THE ARRESTER COOL AGAIN, as stated above.

6. Replace the cleanout plug.
7. Dispose of the accumulated particles.

Do this maintenance after every 350 hours of use. If any breaks in the metal or weldments are discovered, the spark arrester must be replaced. Order a new spark arrester.

4.6 AIR INTAKE FILTERS

The air intake filter is a heavy-duty, dry type, two stage, high efficiency filter to protect the engine and compressor from dust and foreign objects.

Frequency of maintenance of the air filter depends on dust conditions at the operating site. The filter element must be serviced when clogged as indicated by a filter maintenance

indicator. This device visually indicates the condition of the air filter. A red marker in the gauge rises as restricted air flow through the filter element causes back pressure to build up. When the indicator shows all red, it is an indication that the air filter element must be removed and cleaned or replaced. (*The installation of a new element is recommended.*) Read indicator under full load, full speed operating conditions.

Extra elements should be kept on hand for service. However, in the event a new element is not available at the time, careful cleaning will provide for interim use.

AIR FILTER REPLACEMENT

1. Loosen the wingnut which secures the cover to the body and remove the cover.
2. Remove the wingnut from the end of the element and remove the element.
3. Clean the body and cover with damp cloth inside and out. DO NOT blow out with compressed air.
4. At this clean or replace the element.

AIR FILTER ELEMENT CLEANING

1. Remove filter element and wash in mild detergent and lukewarm water.
2. Allow element to dry thoroughly. Do not attempt to clean or dry the element with a direct blast of air (aim air blast at an angle to prevent damage). Do not dip in oil.
3. After cleaning, inspect filter element for damage. If element does not clean easily or if it has holes, install a new element.
4. Reassemble filter element into body and secure wingnut.

ELEMENT INSPECTION

1. Place a bright light inside the element to inspect for damage or holes. Concentrated light will shine through the element and disclose any holes.
2. Inspect all gaskets and gasket contact surfaces of the housing. Should faulty gaskets be evident, correct the condition immediately.
3. If the clean element is to be stored for later use, it must be stored in a clean container.
4. After the element has been installed, inspect and tighten all air inlet connections prior to resuming operation.

Proper air filter installation and maintenance is critical to proper operation. Dirt entering the system will cause excess wear and eventual failure of both engine and compressor.

INSPECTION - LUBRICATION - MAINTENANCE

4.7 CONTROL SYSTEM ADJUSTMENT

Prior to adjusting the Control System, it is necessary to determine the desired operating pressure range as well as the nominal pressure at which your machine is to operate. (This pressure must not exceed the maximum operating pressure which is stamped on the machine serial number nameplate.) The following explanation applies to a typical machine with a nominal discharge pressure of 100 PSIG and an operating range of 100-105 PSI (689-723 kPa).

CONTROL SYSTEM AIR FILTER:

A dirty filter will make the control system operate erratically or inoperative.

Extra filters should be kept on hand for service. However, in the event a new filter is not available at the time, careful cleaning will provide for interim use.

Air directed to the pilot valve is cleaned through a sintered metal filter. This filter P/N (M1146) is located under the pilot valve. To reach this filter remove the pilot valve and then remove the pipe bushing which held the pilot valve. SEE CONTROL SYSTEM DIAGRAM.

PILOT VALVE

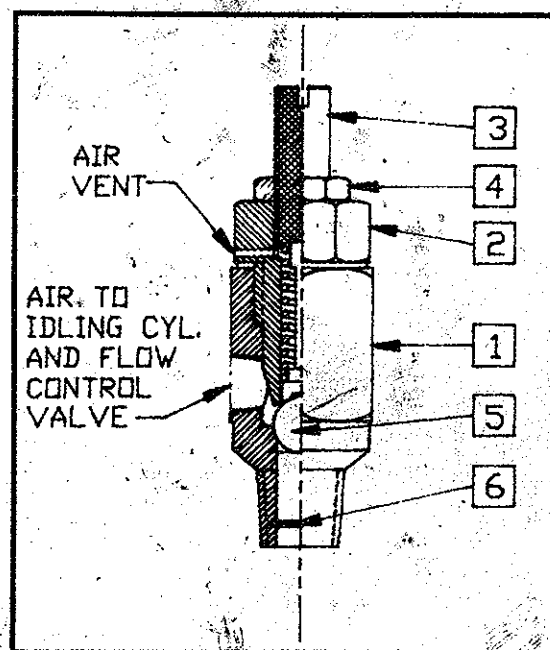
The Pilot Valve is a Two-Point Regulator to maintain a constant receiver pressure. For adjustment of the unloading pressure, loosen locknut (4).

A. To increase unloading pressure, rotate adjusting screw (3) clockwise (rotate in), and then retighten locknut (4). Operate compressor and check unloading pressure.

B. To decrease unloading pressure, rotate adjusting screw (3) counter clockwise (rotate out) and then retighten locknut (4). Operate compressor and check unloading pressure.

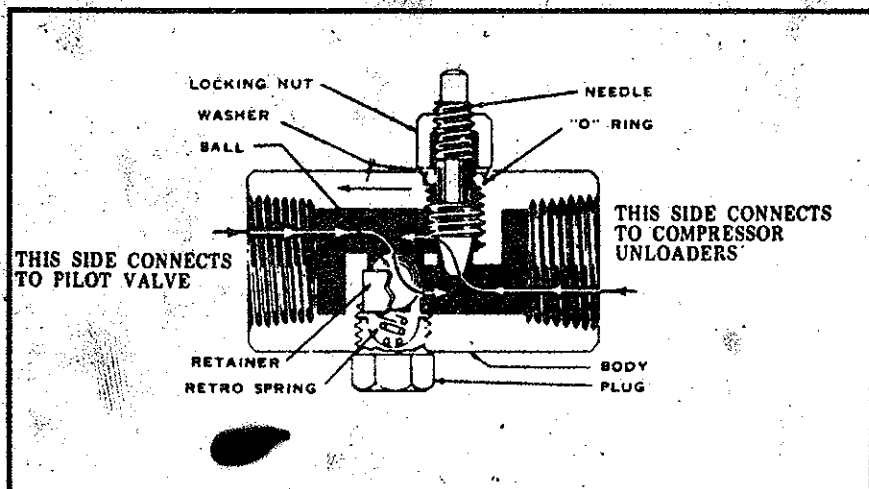
C. The Pilot Valve 'Range' is the pressure difference between unloading to loading pressure i.e., no pumping to pumping. For our use, the setting is an unloading pressure of 100 PSI and a loading pressure of 85 PSI and thus a 15 PSI 'Range'.

If pilot valve sticks or flutters unscrew upper assembly by unscrewing and removing nut (2). Then clean ball (5) and seat with a solvent. Also clean filter screen (6) located within part (1). If the seat in part (1) is scratched or damaged replace pilot valve. It may be necessary annually to clean the entire pilot valve in a solvent to keep the internal parts moving freely.

**FLOW CONTROL VALVE:**

The flow control valve is located on the front of the compressor cylinder head. It is installed with the arrow (stamped on its body) pointed away from the cylinder head.

The function of the flow control valve is to retard the loading of the compressor valves when going from idle to full speed and thus give the engine extra time to accelerate to full speed. If the needle valve in this flow control valve is turned in too far, the engine will race to its full speed. If this needle valve is turned out too far, the engine will drag going from idle to full speed. INITIAL SETTING FOR FLOW CONTROL VALVE IS 1/4 TO 1/2 TURN OPEN. SEE CONTROL SYSTEM DIAGRAM.

**UNLOADER PISTONS:**

Each air compressor valve has an unloader piston installed in the Valve Cage, which holds the valve in position. The piston's job is to move the unloader finger which in turn moves or opens the intake Valve by holding the Intake Valve plate open. It is important that the proper lubricant be used on the unloader piston O Ring. The proper lubricant is a high temperature silicone type of grease similar to Dow Corning 55M. Also slide the O Ring in place. DO NOT roll it into position.

Section 4

INSPECTION - LUBRICATION - MAINTENANCE

4.7 CONTROL SYSTEM ADJUSTMENT

ENGINE SPEED CONTROL:

The speed of the engine is controlled by an idling cylinder and idle screw. In order to change the speed of the compressor-engine make the following adjustments.

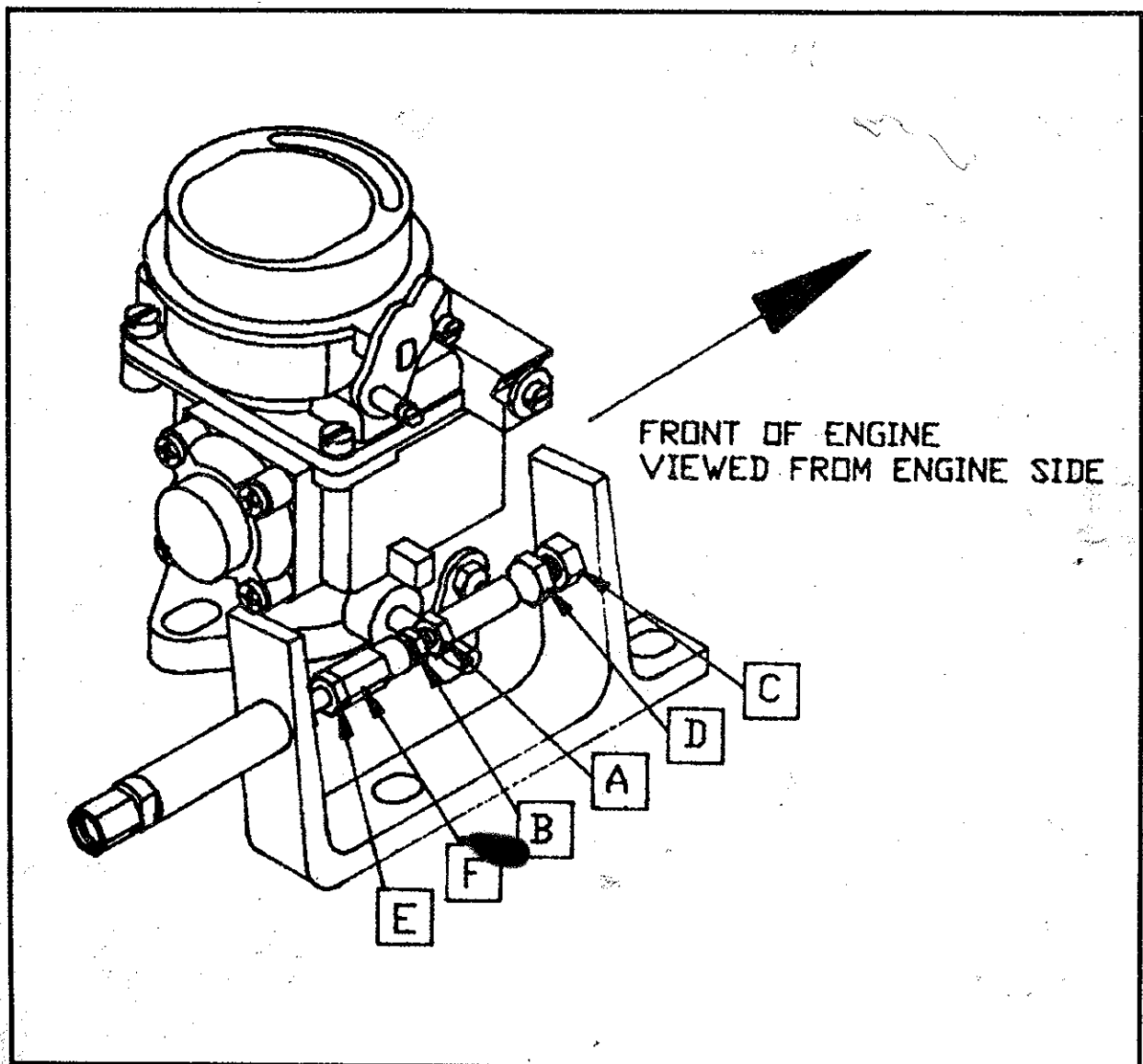
Full speed adjustment:

1. To increase the full speed of the engine, loosen locknut (A). Turn hex fitting (B), clockwise until proper speed is attained. Tighten locknut (A).
2. To decrease the full speed of the engine, loosen locknut (A). Turn hex fitting (B) counter clockwise until proper speed is attained. Tighten locknut (A).
3. Additional adjustment can be made by loosening locknut (E). Turn hex fitting (F) counter clockwise to increase speed and clockwise to decrease speed. Tighten locknut.

Idle speed adjustment:

1. To increase the idle speed of the engine loosen locknut (C). Turn adjustment screw (D) counter clockwise until proper speed is attained.
2. To decrease idle speed of the engine, loosen locknut (C). Turn adjustment screw (D) clockwise until proper speed is attained.

NOTE: Rated speed (full speed) is set with the service valve open in a position to hold 100 psi on the gauge.
SEE SPECIFICATIONS FOR PROPER SPEED SETTINGS.



INSPECTION - LUBRICATION - MAINTENANCE

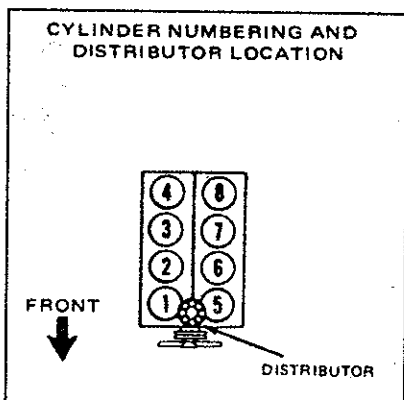
4.7 CONTROL SYSTEM ADJUSTMENT

IGNITION SYSTEM:

Solid State Ignition

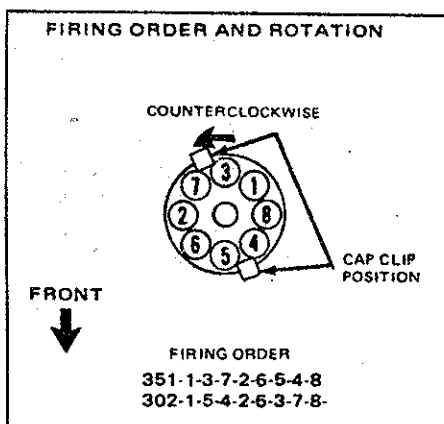
No adjustments are made to the ignition system except initial timing and spark plug gap.

CYLINDER NUMBERING AND DISTRIBUTOR LOCATION



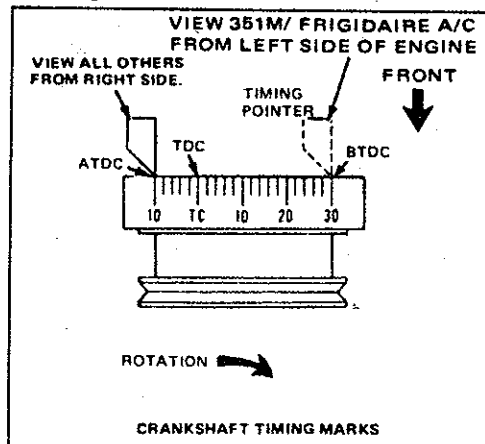
FIRING ORDER AND ROTATION

1-4-2-3 (Engine Cylinders)
Cylinders 5-6-7-8 to ground



SPARK PLUGS - MOTOCRAFT ASF42
OR EQUAL. GAP .045 TO .050

Ignition Timing



1. Start and warm up the engine to operating temperature.
2. Connect timing light
3. Remove the vacuum hose at distributor and plug the hose.
4. Idle the engine. check and set the idle speed to specification (See Specification Page)
5. Loosen the distributor hold down bolt. Rotate the distributor to a reading of 8°-12° BTC. Tighten hold down bolt.
NOTE: IGNITION TIMING IS ADVANCED BY CLOCKWISE ROTATION OF THE DISTRIBUTOR AND COUNTER CLOCKWISE ROTATION RETARDS TIMING.
6. Open and close compressor service valve and observe engine performance.

Section 5

TROUBLESHOOTING

5.1 TROUBLESHOOTING

The information contained in this troubleshooting chart has been compiled from field report data and factory experience. It contains symptoms and usual causes for the described problems; however, do not assume that these are the only problems that may occur. All available data concerning the trouble should be systematically analyzed before undertaking any repairs or component replacement procedures.

A detailed visual inspection is worth performing for almost all problems and may avoid unnecessary additional damage to the machine.

- Check for loose wiring
- Check for damaged piping
- check for parts damaged by heat or an electrical short circuit, usually apparent by discoloration or a burnt odor.

Should your problem persist after making the recommended checks, consult your nearest representative or the Smith Air Compressor factory by calling 1-502-842-1689.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE AND REMEDY
1. COMPRESSOR WILL NOT START.	<ol style="list-style-type: none">1. No fuel.2. Plugged fuel filter<ol style="list-style-type: none">a. Replace the element.3. Low battery voltage.<ol style="list-style-type: none">a. Recharge or replace battery.b. Loose battery cables, tighten cable.c. Dirty battery cables, clean thoroughly.4. Plugged air filter.<ol style="list-style-type: none">a. Clean or replace the element.5. Engine problems that may develop, refer to your Engine Operators Manual.6. Defective low oil pressure switch or engine coolant temperature switch.<ol style="list-style-type: none">a. Check continuity and replace if necessary7. Faulty circuit breaker.<ol style="list-style-type: none">a. Check continuity and replace if necessary.8. Faulty fuel solenoid valve<ol style="list-style-type: none">a. Check and replace valve
2. COMPRESSOR SHUTS DOWN WITH AIR DEMAND PRESENT	<ol style="list-style-type: none">1. No fuel.<ol style="list-style-type: none">a. Check fuel gauge. Add fuel if necessary.2. Engine coolant switch is open or defective.<ol style="list-style-type: none">a. Replace switch3. Low oil pressure switch is open or defective<ol style="list-style-type: none">a. Check oil pressureb. Replace switch4. Cooling airflow is insufficient.<ol style="list-style-type: none">a. Clean radiator.5. Check fan belt tension6. Check coolant level in radiator
3. ENGINE DIES AFTER GOING TO IDLE SPEED	<ol style="list-style-type: none">1. Idle speed too low.<ol style="list-style-type: none">a. Set idle speed to specification2. Unloader piston O rings leaking.<ol style="list-style-type: none">a. Inspect, replace O rings & lubricate with high temperature grease.3. Partially plugged control system air filter<ol style="list-style-type: none">a. Replace the filter4. Plugged control system air lines to compressor unloaders<ol style="list-style-type: none">a. Inspect, clean or replace

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE AND REMEDY
<p>4. ENGINE DOES NOT PICK-UP LOAD FROM IDLE TO FULL SPEED. (LABORS OR STALLS)</p>	<ol style="list-style-type: none"> 1. Cold engine <ol style="list-style-type: none"> a. Let engine warm up 2. Engine performance below standard <ol style="list-style-type: none"> a. Perform compression check. 3. Idle speed too low <ol style="list-style-type: none"> a. Set idle speed to specification 4. Flow control valve open to far <ol style="list-style-type: none"> a. Adjust valve (close) 5. Leaking air control line(s) to unloaders <ol style="list-style-type: none"> a. Inspect for leaks & repair. 6. Sticking or weak return spring in idle cylinder <ol style="list-style-type: none"> a. Replace cylinder
<p>5. ENGINE RACES GOING FROM IDLE TO FULL SPEED. AIR PRESSURE CONTINUES TO DROP.</p>	<ol style="list-style-type: none"> 1. Flow control valve <ol style="list-style-type: none"> a. Adjust or clean (open) 2. Unloaders sticking <ol style="list-style-type: none"> a. Clean and lubricate unloaders
<p>6. COMPRESSOR WILL NOT BUILD UP FULL DISCHARGE PRESSURE.</p>	<ol style="list-style-type: none"> 1. Air demand too great. 2. Dirty air filter. <ol style="list-style-type: none"> a. Change or clean element if required. 3. Pilot valve out of adjustment. <ol style="list-style-type: none"> a. Adjust to specification. 4. Engine speed too low <ol style="list-style-type: none"> a. Adjust speed to specification 5. Defective pilot valve <ol style="list-style-type: none"> a. Replace pilot valve
<p>7. IMPROPER UNLOADING WITH AN EXCESSIVE PRESSUR BUILDUP CAUSING PRESSURE RELIEF VALVE TO OPEN.</p>	<ol style="list-style-type: none"> 1. Pilot valve is set too high. <ol style="list-style-type: none"> a. Readjust to specification 2. Leak in the control system <ol style="list-style-type: none"> a. Check unloader control lines and fittings. 3. Unloader piston O-ring leaking <ol style="list-style-type: none"> a. Inspect and replace O-rings 4. Restriction in the unloader control system. <ol style="list-style-type: none"> a. Check all control lines and components. 5. Plugged control system air filter <ol style="list-style-type: none"> a. Replace air filter. 6. Defective pressure relief valve. <ol style="list-style-type: none"> a. Replace pressure relief valve. 7. Defective air pressure gauge. <ol style="list-style-type: none"> a. Replace gauge.

Section 5

TROUBLESHOOTING

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE AND REMEDY
8. ENGINE OVERHEATING.	<ol style="list-style-type: none">1. Loose or broken fan belt.<ol style="list-style-type: none">a. Tighten or replace belt.2. Dirty radiator core.<ol style="list-style-type: none">a. Clean thoroughly.3. Low coolant level.<ol style="list-style-type: none">a. Refill.4. Low oil level.<ol style="list-style-type: none">a. Refill5. Faulty water pump.<ol style="list-style-type: none">a. Replace pump.6. Plugged radiator tubes.<ol style="list-style-type: none">a. Clean thoroughly.
9. ENGINE—COMPRESSOR CYCLES TOO FREQUENTLY	<ol style="list-style-type: none">1. Leaking pilot valve<ol style="list-style-type: none">a. Repair or replace2. Leaking air control lines or fittings<ol style="list-style-type: none">a. Check for leaks. Repair or replace.3. Leaking air lines or service valves.<ol style="list-style-type: none">a. Check for leaks. Repair or replace.4. Leaking compressor valve<ol style="list-style-type: none">a. Check for valve leak. See leak test procedure.
10. COMPRESSED AIR TOO HOT	<ol style="list-style-type: none">1. Engine speed<ol style="list-style-type: none">a. Set speed to specification2. Air pressure too high<ol style="list-style-type: none">a. Adjust pilot valve.3. Compressor aftercooler dirty<ol style="list-style-type: none">a. Clean aftercooler4. Leaking compressor valves.<ol style="list-style-type: none">a. Check for valve leak. See leak test procedure.
11. OIL BLOWING OUT OF OIL DIPSTICK TUBE	<ol style="list-style-type: none">1. Too much oil in crankcase<ol style="list-style-type: none">a. Check & correct2. Defective PCV valve or system<ol style="list-style-type: none">a. Check & correct.3. Stuck or worn-out piston rings<ol style="list-style-type: none">a. Take engine compression, check, repair.4. Leaking compressor valves<ol style="list-style-type: none">a. Check for valve leak. See leak test procedure.

6.1 NOISE EMISSIONS WARRANTY

Smith Air Compressors warrants to the ultimate purchaser and each subsequent purchaser that this air compressor was designed, built, and equipped to conform at the time of sale to the first retail purchaser, with all applicable U.S. E.P.A. noise control regulations.

This warranty is not limited to any particular part, components, or system of the air compressor. Defects in the design, assembly, or in any part, component, or system of the compressor which, at the time of sale to the first retail purchaser, caused noise emissions to exceed federal standards are covered by this warranty for the life of the air compressor.

6.2 TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

Federal Law prohibits the following acts or the causing thereof:

- (1) The removal or rendering inoperative by any persons, other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or

- (2) the use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

Among those acts included in the prohibition against tampering are the acts listed below:

- 1. Removal or rendering inoperative any of the following:
 - a. engine exhaust system or parts thereof
 - b. compressor air intake system or parts thereof
 - c. enclosure or parts thereof
- 2. Removal of any of the following:
 - a. vibration isolators
- 3. Operation with enclosure doors open for any purpose other than starting, stopping, adjustment, repair, replacement of parts, or maintenance.

6.3 NOISE EMISSION MAINTENANCE AND MAINTENANCE RECORD LOG

The following instructions and maintenance record log book, for the proper maintenance, use and repair of this compressor, is intended to prevent noise emission degradation. (Refer to Figure 6-1.)

Figure 6-1
Noise Emission Maintenance and Maintenance Record Log

1. ANNUAL EXHAUST SILENCER AND EXHAUST SYSTEM INSPECTION

At least annually inspect exhaust silencer and engine exhaust system to make sure all parts are securely mounted, that all joints and connections are tight, and that the silencer is in good condition. Do not operate compressor with defective exhaust system. Remove and replace any defective parts with part numbers indicated in the PARTS LIST.

Maintenance
Performed

By

Location

Date

Maintenance
Performed

By

Location

Date

Section 6 NOISE CONTROL

Figure 6-1
Noise Emission Maintenance and Maintenance Record Log (continued)

2. ANNUAL AIR FILTER(S) AND AIR INLET SYSTEM INSPECTION

In addition to the instructions in the Maintenance section of the OPERATORS MANUAL, the air filter(s) and entire air inlet system should be inspected, at least annually, to make sure all parts securely mounted, that all joints and connections are tight, that there are no other leaks in the system, and that the filter elements(s) are intact. Do not operate compressor with defective air inlet system. Remove and replace defective parts with aprt numbers indicated in the PARTS LIST.

Maintenance
Performed

By

Location

Date

Maintenance
Performed

By

Location

Date

3. ANNUAL ENGINE VIBRATION MOUNT INSPECTION

At least annually, inspect engine vibration mounts for security of attachment and to make sure the resilient parts are intact. Do not operate compressor with defective engine mounting system. Remove and replace defective parts with part numbers indicated in PARTS LIST.

Maintenance
Performed

By

Location

Date

Maintenance
Performed

By

Location

Date

Figure 6-1
Noise Emission Maintenance and Maintenance Record Log (continued)

4. ANNUAL FRAME, ENCLOSURE, AND PARTS INSPECTION

At least annually, inspect frame, enclosure, and parts, for security of attachment, to make sure there are no missing members, and to make sure there are no badly deformed members, including all hinged doors and covers and their fastening devices. Do not operate compressor with defective frame, or enclosure parts. Remove and replace defective parts with part numbers indicated in PARTS LIST.

Maintenance
Performed

By

Location

Date

Maintenance
Performed

By

Location

Date

5. ANNUAL INSPECTION FOR PROPER OPERATION OF ALL SYSTEMS

In addition to the instructions in the OPERATORS MANUAL, at least annually, operate compressor and inspect to make sure all systems are operating properly and that engine runs at rated speed and pressure. Do not operate malfunctioning or improperly adjusted compressor. Repair or adjust, per instructions in OPERATORS MANUAL, as required.

Maintenance
Performed

By

Location

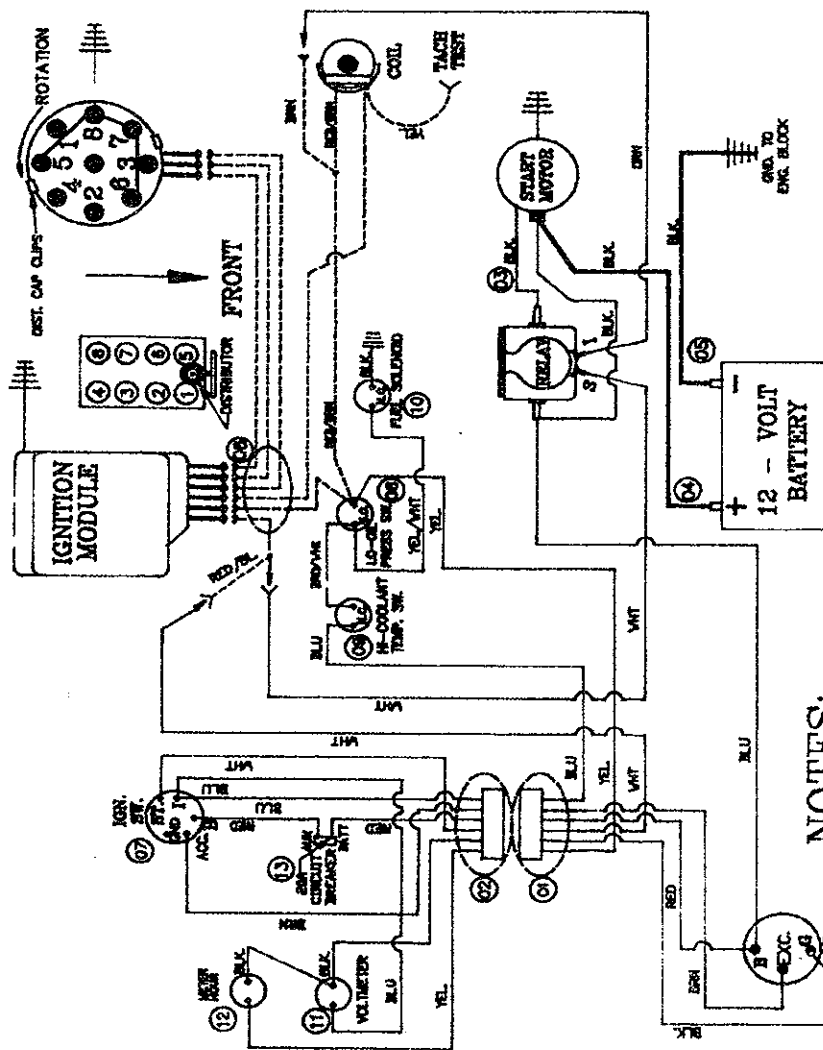
Date

Maintenance
Performed

By

Location

Date



NOTES:

1. --- REPRESENTS FORD MOTOR CO. SOLID STATE IGNITION WIRING HARNESS
2. DISTRIBUTOR FITTING ORDER 1-4-8-8 CTL'S 6-6-7-8 TO GRD.
3. THE RED WIRE WITH GREEN STRIPE (FROM LO-OIL PRESS. SWITCH TO COIL) IS A RESISTANCE WIRE WITH A SPECIAL TERMINAL. AT NO. TIME SHOULD THIS WIRE BE CUT OR SPliced.
4. APPLICABLE SERIAL NUMBERS 100E 9128 TO 100E 160C TO 160C

NO.	QTY.	PART NO.	DESCRIPTION
13	1	8-551	CIRCUIT BREAKER
12	1	M1150	HOURMETER
11	1	8-108	VOLTMETER
10	1	8-558	FUEL SOL. (SHUT-OFF)
09	1	M1006	HIGH COOLANT TEMP. SW.
08	1	M1015	LOW OIL PRESS. SWITCH
07	1	8-248	IGNITION SWITCH
06	1	8-419	HARNESS, IGN. MODULE
05	1	1000404	CABLE, BATTERY -
04	1	1000405	CABLE, BATTERY +
03	1	8-550	WIRE
02	1	2-889	WIRE HARNESS, PANEL
01	1	2-890	WIRE HARNESS, MAIN

WIRING DIAGRAM
SOLID STATE IGNITION

WIRING DIAGRAM

INSTRUCTIONS FOR ORDERING REPAIR PARTS

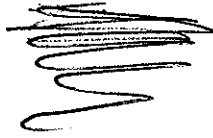
When ordering parts, specify compressor model and serial number (see data plate on unit). All orders for parts should be placed with the nearest distributor.

Do not order by sets or groups, specify exactly the quantity of parts required.

To determine the right hand and left hand side of portable compressor stand at the draw bar of the unit and look toward the compressor. Right hand and left hand are indicated following part name, i.e., RH & LH. Piping, tubing, fittings, hardware and connections may be purchased locally.

SMITH AIR COMPRESSORS

1535 OLD LOUISVILLE ROAD • BOWLING GREEN, KY 42101-1279
Telephone: (502) 842-1689 • FAX: (502) 782-2141



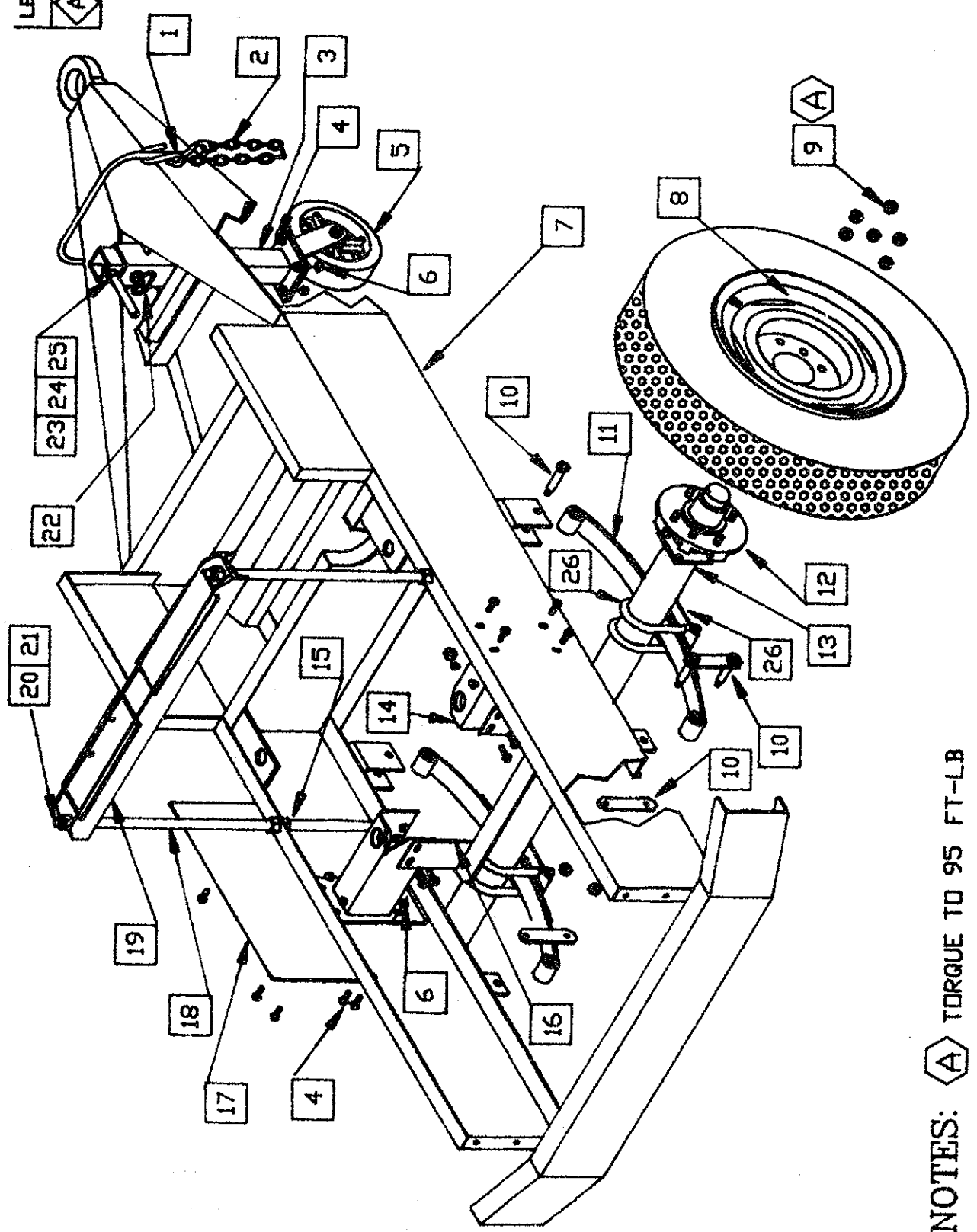
PARTS RETURNED

All claims must be made within five (5) days after receipt of goods. If order has been filled correctly, we cannot allow the return of the goods without our consent and then only on a basis of a charge for service and rehandling. Transportation charges must be prepaid. If it is necessary to return a part, do not fail to do the following:

1. Contact parts department advising what material you wish to return and why.
2. After receiving permission to return the item or items, tag each article in the box or package stating what by part number and how many are being returned.
3. Place a tag in the package showing your name and address.
4. Always give the serial number of the machine from which the parts were removed or the invoice number on which the parts were originally shipped.

Model Number
Serial Number
Date Purchased
Distributor's Name
And Address
Engine Model Number
Engine Serial Number

LF 



NOTES:  TORQUE TO 95 FT-LB

CHASSIS

CHASSIS

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	LAP LINK	2	8-043	2	8-043	2	8-043
2	CHAIN SAFETY	2	M2182	2	M2182	2	M2182
3	LEG ASSY	1	1000516	1	1000516	1	1000516
4	SCREW, H.H. 5/16-18 X 1 (H05-18-08W)	4	STD.	4	STD.	4	STD.
5	WHEEL & YOKE ASSY, SWIVEL WHEEL & AXLE	1	M1452	1	M-1452	1	M-1452
	YOKE ASSY	1	M1453	1	M1453	1	M1453
6	NUT, HEX 5/16-18 (N05-18-00W)	1	8-534	1	8-534	1	8-534
	FRAME ASSY.	14	STD.	14	STD.	14	STD.
7	WHEEL ASSY.	1	2-780	1	2-780	1	2-780
8	WHEEL (655) TIRE 215-75R15	2	8-489	2	8-489	2	8-489
	VALVE	2	**	2	**	2	**
9	NUT, WHEEL	2	8-026	2	8-026	2	8-026
10	KIT, SPRING MOUNTING	12	8-491	12	8-491	12	8-491
11	SPRING, LEAF	2	8-466	2	8-466	2	8-466
12	HUB ASSY.	2	8-498	2	8-498	2	8-498
	WITH BEARING & SEALS	2	8-501	2	8-501	2	8-501
*	KIT, WHEEL BEARING	2	8-502	2	8-502	2	8-502
**	CAP, GREASE	2	8-533	2	8-533	2	8-533
13	BEAM, AXLE	1	8-488	1	8-488	1	8-488
14	SUPPORT, ENGINE	2	1000114	2	1000703	2	1000703
15	NUT, SQ. 3/4-10 (Z12-10-000)	2	STD.	2	STD.	2	STD.
16	TIE BAR, FRONT ENGINE	N/R		1	1000495	1	1000495
17	SHIELD, EXHAUST	N/R		1	1000295	1	1000295
18	ROD, LIFTING BAIL	2	1000199	2	100199	2	100199
19	BEAM, LIFTING BAIL	1	1000200	1	1000200	1	1000200
20	NUT, HEX 3/4-10 (N12-10-000)	9	STD.	9	STD.	9	STD.
21	WASHER, SPRING LOCK 3/4 (L12-00-000)	9	STD.	9	STD.	9	STD.
22	PIN, HITCH WITH COTTER	1	M1675	1	M1675	1	M1675
23	NUT, HEX 5/8-11 (N10-11-000)	2	STD.	2	STD.	2	STD.
24	WASHER, SPRING LOCK 5/8 (L10-00-000)	1	STD.	1	STD.	1	STD.
25	HANDLE	1	M1678	1	M1678	1	M1678
26	KIT, U-BOLT & TIRE PLATE	2	3-070	2	3-070	2	3-070

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
	THE FOLLOWING PARTS ARE NOT ILLUSTRATED.						
	EYE, LIFTING	1	M1202	1	M1202	1	M1202
	BRACKET, LIFTING EYE	1	1000201	1	1000201	1	1000201
	GROMMET, LIFTING EYE	1	M1410	1	M1410	1	M1410
	COUPLER, ADAPTER	A/R	IBALL	A/R	IBALL	A/R	IBALL
	EYE TO BALL (1 7/8-2")	A/R	M1381	A/R	M1381	A/R	M1381
	REPAIR KIT FOR COUPLER	A/R	GSIB	A/R	GSIB	A/R	GSIB
	WEDGE BOLT FOR COUPLER						

** LOCAL PURCHASE
* NOT ILLUSTRATED

NOTES:

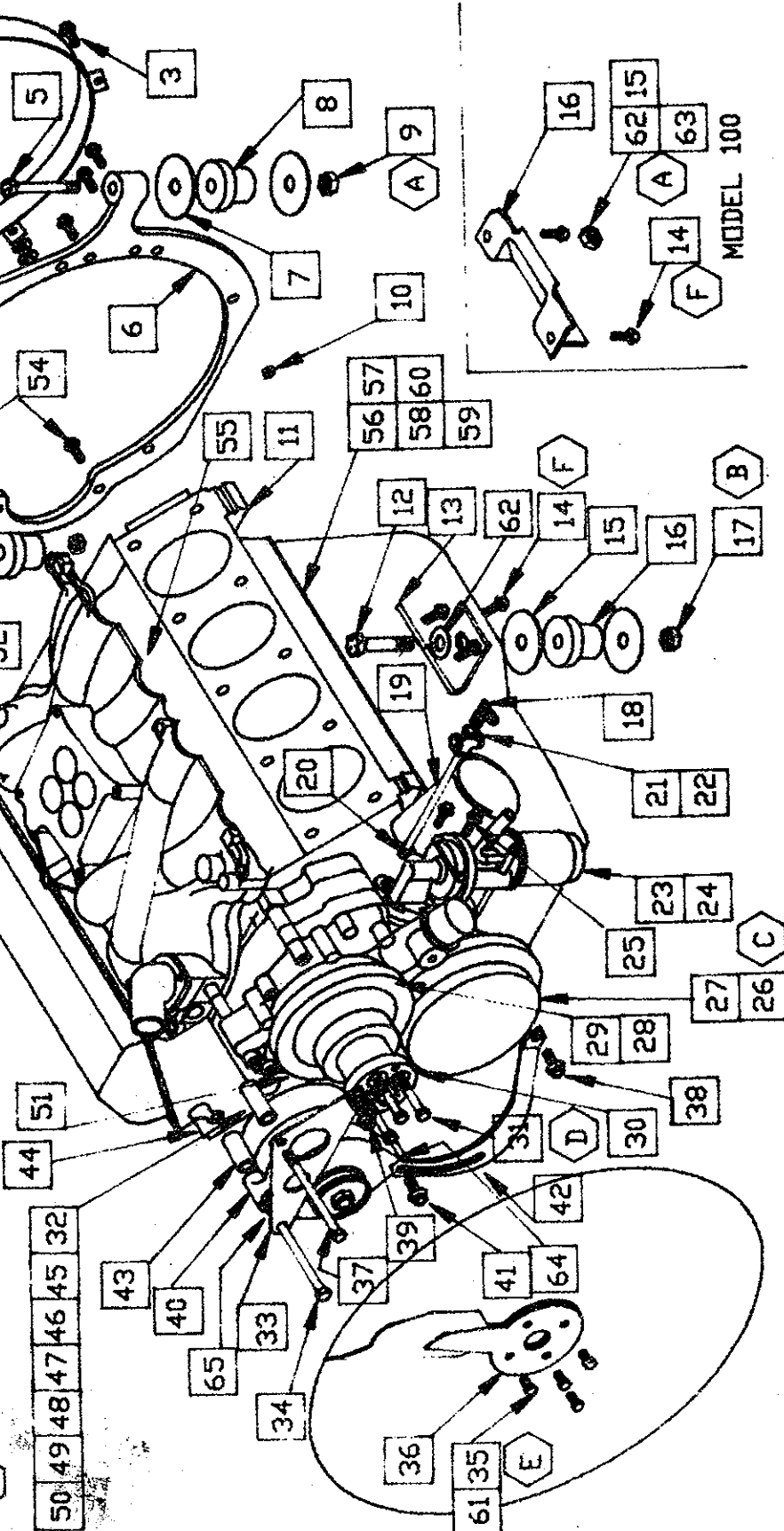
A TORQUE TO 75 FT-LB F TORQUE TO 50 FT-LB

B TORQUE TO 125 FT-LB

C TORQUE TO 30 FT-LB

D TORQUE TO 20 FT-LB

E TORQUE TO 15 FT-LB



ENGINE

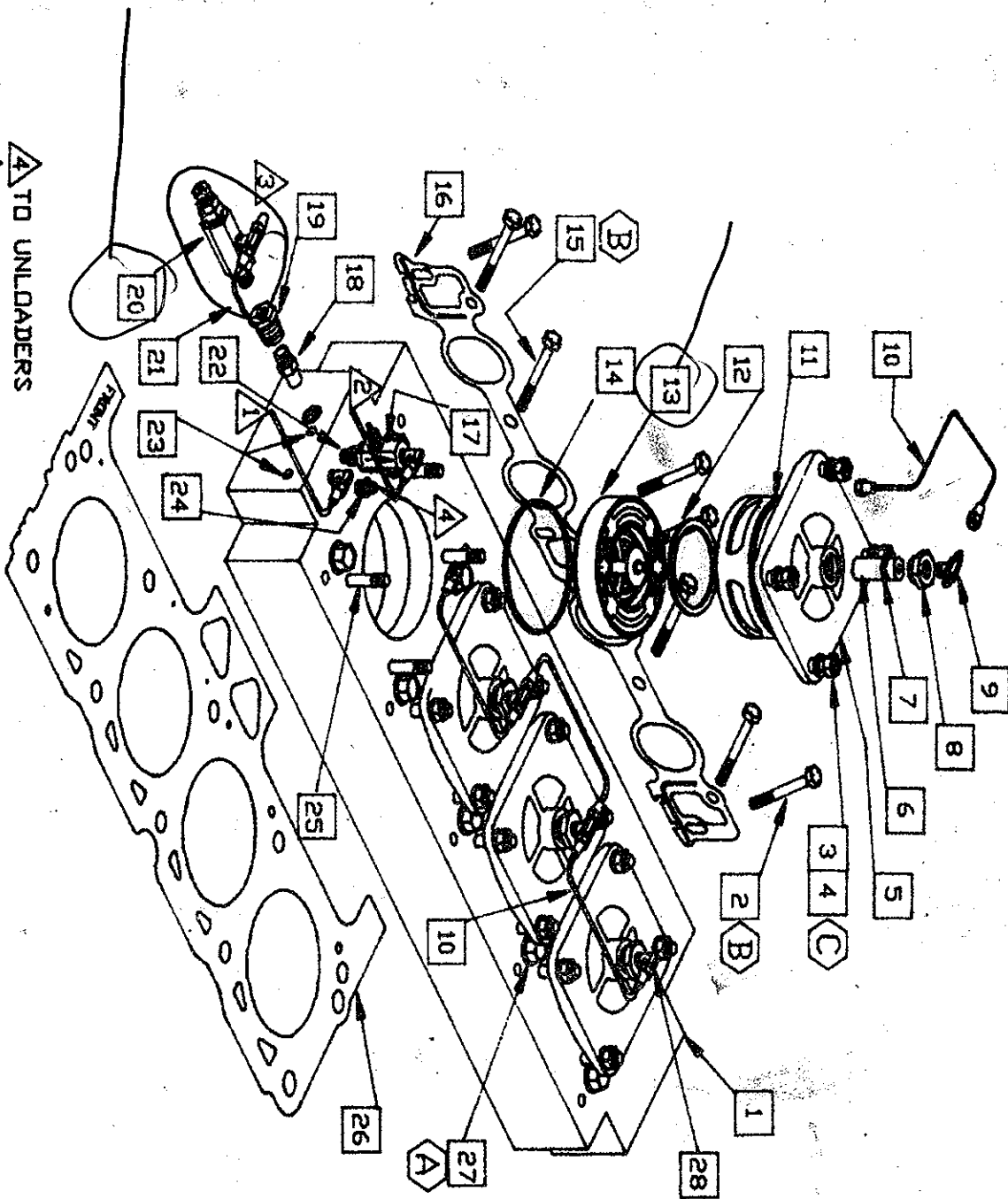
ENGINE

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	COVER, FLYWHEEL	1	1000205	1	1000284	1	1000284
2	SCREW, H.H. 7/16-14X1 1/4 (H07-14-10W)	6	STD.	6	STD.	6	STD.
3	SCREW, H.H. 5/16-18 X 1 (H05-18-06B)	2	STD.	2	STD.	2	STD.
4	(REF. NO. 4 NOT USED)						
5	SCREW, H.H. 1/2-13 X 4 (H08-13-32B)	2	STD.	2	STD.	2	STD.
6	SUPPORT, REAR	1	1000141	1	1000288	1	1000288
7	WASHER, FLAT	4	M1216	4	M1216	4	M1216
8	MOUNT, SHOCK REAR	2	M1212	2	M1212	2	M1212
9	NUT, HEX LOCK 1/2-13	2	STD.	2	STD.	2	STD.
10	NUT, HEX LOCK 5/16-18 (N08-13-08)	2	STD.	2	STD.	2	STD.
11	ENGINE, SHORT BLOCK (N05-18-00W)	#	STD.	#	STD.	#	STD.
12	SCREW, H.H. 5/8-11X3 1/2 (H10-11-28B)	N/R		N/R		N/R	
13	MOUNT, SIDE	N/R		N/R		N/R	
14	SCREW, H.H. 7/16-14 X 1 (H07-14-08B)	5	STD.	2	1000297	2	1000297
15	WASHER, FLAT (F08-00-000)	2	STD.	4	M1853	4	M1853
16	MOUNT, SHOCK	2	8-514	2	M1985	2	M1985
17	NUT, HEX LOCK 5/8-11 (N10-11-08)	N/R		2	STD.	2	STD.
18	ELBOW, 90 1/8T X 1/8P	1	M1169	1	M1169	1	M1169
19	NIPPLE, 1/8NPT X 7" XS PN-01-14SP	1	STD.	1	STD.	1	STD.
20	BUSHING, REDUCING 1/4X1/8 (PB-02-01BS)	N/R		N/R		N/R	
21	CROSS, 1/8NPT (PX-01-00BS)	1	STD.	1	STD.	1	STD.
22	CONNECTOR, 1/8T X 1/8P	1	M1191	1	M1191	1	M1191
23	GASKET, FUEL PUMP (FORD DOTZ-9950-C)	1	8-520	1	8-531	1	8-531
24	PUMP, FUEL (MOTORCRAFT FG1A)	N/R		1	8-418	N/R	
25	COCK, DRAIN	1	8-517	N/R		N/R	
26	SCREW, H.H. 3/8-16 X 1 1/4 (H06-16-10B)	4	STD.	4	STD.	4	STD.
27	SCREW, H.H. 3/8-16 X 1 (H06-16-08B)	1	8-522	1	8-409	1	8-409
28	PULLEY, CRANKSHAFT	1	8-523	1	8-411	1	8-411
29	BELT (MOTORCRAFT JC-46S)	N/R		N/R		N/R	
30	SPACER, FAN (MOTORCRAFT JB-430-LA)	1	M-1201	1	8-413	1	8-413
31	SCREW, H.H. 5/16-24X2 3/4 (H05-24-22B)	4	STD.	4	STD.	4	STD.
32	SPACER, 7/8"	N/R		N/R		N/R	
33	BRACKET, ALTERNATOR	1	8-508	1	1000313	1	1000313
34	SCREW, H.H. 7/16-14X5 1/2 (H07-14-44B)	1	STD.	1	3-109	1	3-109
35	SCREW, H.H. 5/16-18 X 1 (H05-18-08B)	4	STD.	4	STD.	4	STD.
36	FAN	1	3-056	1	3-056	1	3-056
37	SCREW, H.H. 3/8-16X5 1/2 (H06-16-44B)	N/R		1	STD.	1	STD.
38	SCREW, H.H. 3/8-16 X 1 (H06-16-08W)	N/R		1	STD.	1	STD.
39	SPACER, 1 7/8"	N/R		1	STD.	1	STD.
40	ALTERNATOR GUARD, ALT.	1	STD.	1	8-507	1	8-507
		1	3-042	1	3-042	1	3-042
		1	8-572	1	8-572	1	8-572

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
41	SCREW, H.H. 5/16-18 X 1 (H05-18-08W)	1	STD.	1	STD.	1	STD.
42	ARM, BEST TENSION	1	8-509	1	3-043	1	3-043
43	SPACER 2 7/8"	1	3-044	1	3-045	1	3-045
44	ADAPTER BRACKET	1	8-510	N/R		N/R	
45	SCREW, H.H. 7/16-14 X 1 (H07-14-08B)	N/R		N/R		N/R	
46	SCREW, H.H. 3/8-16X2 3/4 (H06-16-22B)	N/R		8	STD.	8	STD.
47	SCREW, H.H. 7/16-14X2 1/2 (H07-14-20B)	N/R		N/R		N/R	
48	TUBE, CRANKCASE VENT	1	1001015	1	STD.	1	STD.
49	TUBE ASSY. OIL LEVEL	1	1001015	N/R		N/R	
50	MANIFOLD EXHAUST	1	G1032	N/R		N/R	
51	SCREW/WASHER, EXH. MANIF. (H06-16-12B) 3/8-16 X 1	4	STD.5	N/R		N/R	
52	SCREW/WASHER, EXH. MANIF. (H06-16-18B) 3/8-16 X 2 1/4	4	STD.	N/R		N/R	
53	INDICATOR, OIL LEVEL	N/R		N/R		N/R	
54	CLAMP, HOSE (W120-00-YZ)	1	STD.	1	8-231	1	8-231
55	CAP, HEATER OUTLET	1	8-432	N/R		N/R	
56	HOSE BARB	1	STD.	1	M2222	1	M2222
57	NUT, HEX 3/8-16 (N06-16-000)	2	STD.	2	STD.	2	STD.
58	STARTER	1	8-527	1	8-405	1	8-405
59	(FORD F2TZ-11002-A)	N/R		N/R		N/R	
60	(FORD F2HZ-11002-AA)	1	STD.	1	STD.	1	STD.
61	SCREW, H.H. 3/8-1616 X 1 3/4 (H06-16-14B)	2	STD.	2	STD.	2	STD.
62	PLUG, OIL PASSAGE	1	2-176	1	1000249	1	1000249
63	TUBE ASSY. OIL INDICATOR ASSY.	1	8-518	N/R		N/R	
64	CLIP	1	8-519	N/R		N/R	
65	SCREW 1/4-20 X 1/2	1	8-148	N/R		N/R	
66	BRACKET	1	2-778	N/R		N/R	
67	WASHER, LOCK 5/16 (L05-00-000)	4	STD.	4	STD.	4	STD.
68	NUT, HEX 1/2-13 (N08-13-000)	2	STD.	2	STD.	2	STD.
69	WASHER, FLAT 5/8 (F10-00-000)	N/R		N/R		N/R	
70	WASHER, INT. TOOTH 1/2 (C08-00-000)	2	STD.	2	STD.	2	STD.
71	WASHER, FLAT 5/16 (F05-00-000)	3	STD.	3	STD.	3	STD.
72	WASHER, FLAT 7/16 (F07-00-000)	1	STD.	1	STD.	1	STD.
73	ELEMENT OIL FILTER (MOTORCRAFT FL1A)	1	STD.	1	STD.	1	STD.
74	SPARK PLUG (MOTORCRAFT) (ASF32 OR ASF42)	4	STD.	4	STD.	4	STD.
75	HOSE, 3/16 (VACUUM)	28*	M1957	15*	M1957	15*	M1957
76	BUSHING 3/8 X 1/8 P. PB 03-01-85	1	M1954	1	M1954	1	M1954
77		1	STD.	1	STD.	1	STD.

FOR ENGINE SHORT BLOCK CONTACT YOUR NEAREST FORD POWER PRODUCTS DEALER OR POWER UNLIMITED INC. (502) 581-0916 (*) NOT ILLUSTRATED

HEAD & VALVE ASSEMBLY



- △ TO UNLOADERS
- △ TO IDLE CYL
- △ TO PILOT VALVE
- △ TO INST. PANEL

NOTES:

- ⬡ TORQUE TO 15 FT-LB
- ⬡ TORQUE TO 25 FT-LB
- ⬡ TORQUE TO 100 FT-LB MODEL 160
- ⬡ TORQUE TO 70 FT-LB MODEL 100

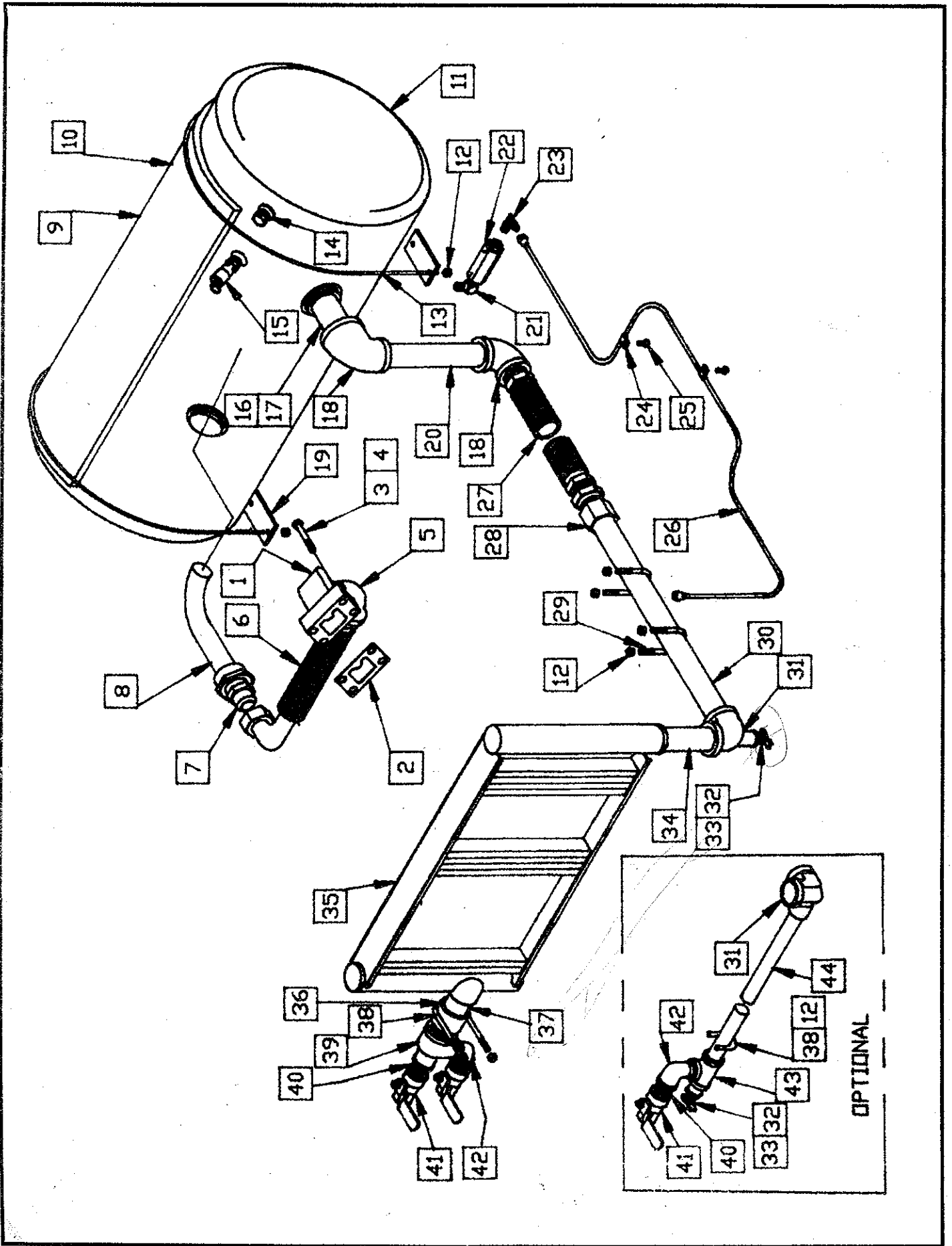
Bob Fischer
763-689-3703

HEAD & VALVE ASSEMBLY

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	HEAD, COMPRESSOR	1	2-748	1	2-748	1	2-748
2	SCREW, H.H.	N/R	M1283	4	M1283	4	M1283
3	NUT, HEX 3/8-16 (N06-16-000)	16	STD.	16	STD.	16	STD.
4	WASHER, SPRINGLOCK 3/8 (L06-00-000)	16	STD.	16	STD.	16	STD.
5	CAGE, VALVE	4	2-384	4	2-384	4	2-384
6	PISTON, UNLOADER	4	1000154	4	1000154	4	1000154
7	"O" RING, UNLOADER	4	M1113	4	M1113	4	M1113
8	LUBRICANT "O" RING .06 OZ	4	8-504	4	8-504	4	8-504
9	BUSHING, BRASS	4	M1953	4	M1953	4	M1953
10	TEE, 1/8T Z 1/8P	4	M1167	4	M1167	4	M1167
11	TUBE, ASSY.	4	M1250	4	M1250	4	M1250
12	"O" RING, CAGE	4	M1114	4	M1114	4	M1114
13	O-RING, CAGE TO VALVE	4	3-084	4	3-084	4	3-084
14	VALVE, COMPRESSOR (NEW) (REMANUFACTURED)	4	M1131	4	M2232	4	M2232
15	GASKET, VALVE TO HEAD	4	1000178	4	2-894	4	2-894
16	SCREW, H.H.	4	M1119	4	M1278	4	M1278
17	GASKET, INTAKE MANIFOLD (FEL-PRO#) MS90103-1	N/R		4	M1284	4	M1284
18	VALVE, FLOW CONTROL (FEL-PRO#) MS90110-1	1	M1229	N/R		N/R	
19	FILTER	1	FCV100	1	M2234	1	M2234
20	ADAPTER VALVE, PILOT	1	M1146	1	FCV100	1	FCV100
21	TUBE, ASSY.	1	1000385	1	M1146	1	M1146
22	NIPPLE, BRASS	1	M1166	1	1000385	1	1000385
23	* PART OF ITEM 1	1	M1484	1	M1166	1	M1166
24	* PART OF ITEM 1	1	M1311	1	M1484	1	M1484
25	* PART OF ITEM 1	1	M1221	1	M1311	1	M1311
26	GASKET, HEAD (FEL-PRO#) 8548 PT1	1	M1162	1	M1221	1	M1221
**	ELBOW, MALE (FEL-PRO#) 8265 PT1	N/R		N/R		N/R	
**	"O" RING LUBRICANT 5.3 OZ TUBE	A/R	55M	A/R	M1322	A/R	M1322
27	BOLT, HEAD - (H07-14-30B)	10	STD.	10	M1324	10	M1324
28	ELBOW, MALE	3	M1169	3	M1169	1	M1169
**	KIT, GASKET SET (CONTAINS 1 EA OF #7, 11, 12, 14, & LUBRICANT 8-405)	A/R	1000165	A/R	M1367	A/R	M1367
**	KIT, VALVE REBUILD		M1457		M1458		M1458

** NOT ILLUSTRATED
KITS ARE AVAILABLE FOR VALVE
REBUILD CONTACT SERVICE MGR.
FOR INFORMATION

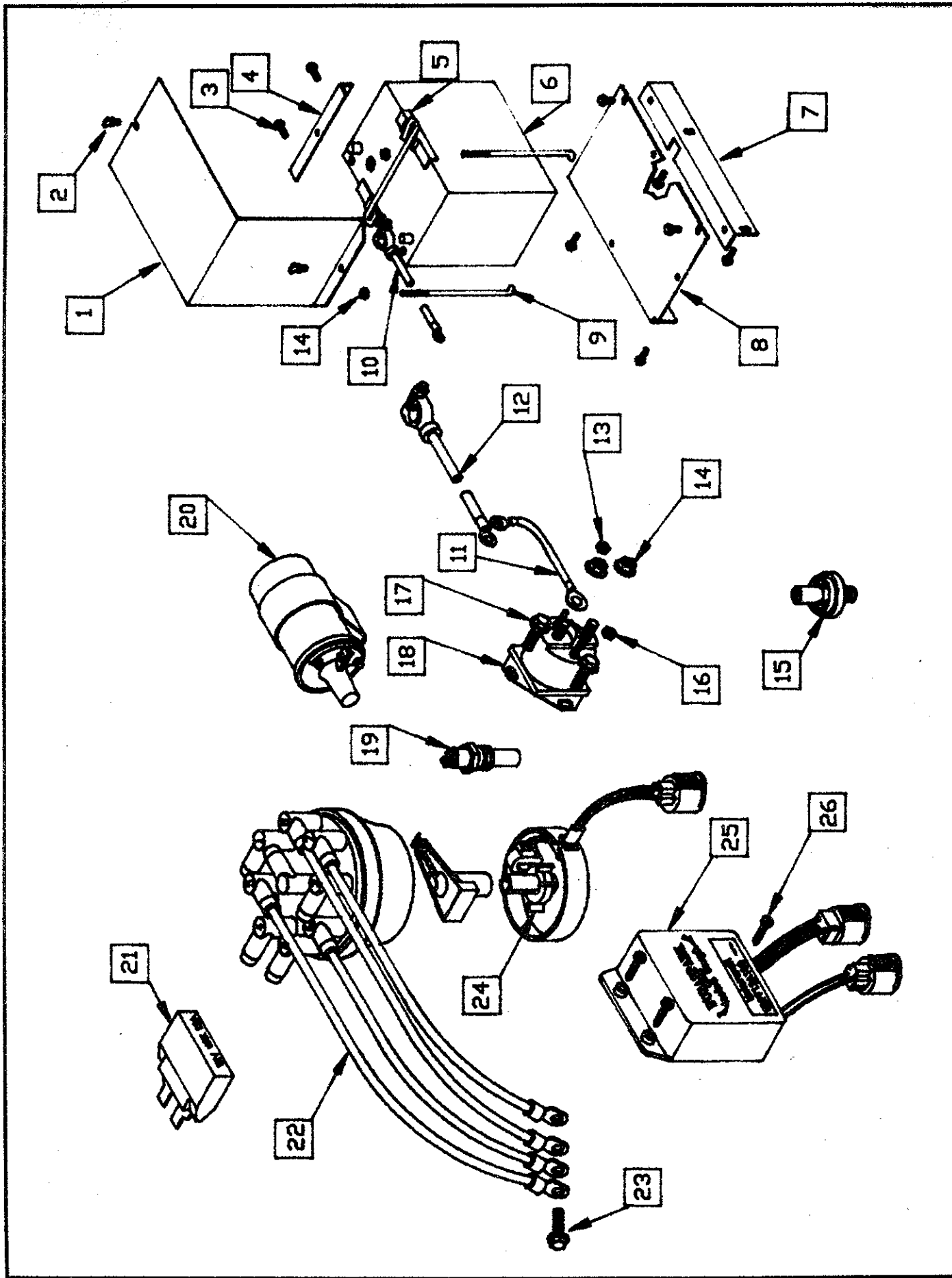


AIR PIPING & RECEIVER

AIR PIPING AND RECEIVER

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
33	BUSHING 1/2 X 1/4 NPT (PB-04-02BS)	1	STD.	1	STD.	1	STD.
34	NIPPLE, 1 1/4 NPT X 4 1/2 (PN-10-09BS)	1	STD.	1	STD.	1	STD.
35	COOLER	1	M1981	1	M1981	1	M1981
36	SLEEVE	1	8-450	1	8-450	1	8-450
37	NIPPLE, 1 1/4 NPT X 4 (PN-10-08BS)	1	STD.	1	STD.	1	STD.
38	CLAMP, MUFFLER	1	M1143	1	M1143	1	M1143
39	REDUCER, BELL 1 1/4 NPT X 3/4 NPT (PV-10-06BS)	1	STD.	1	STD.	N/R	
40	TEE, 1 1/4 X 3/4 3/4 (PR-10-06BS)	N/R		N/R		1	STD.
41	NIPPLE, 3/4 NPT X CLOSE VALVE, BALLS	1	STD.	2	STD.	2	STD.
42	ELBOW, 90 3/4 NPT	1	C-308	2	C-308	2	C-308
		N/R		1	STD.	1	STD.

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	ELBOW, DISCHARGE	1	2-796	1	2-796	1	2-796
2	GASKET, DISCHARGE ELBOW	1	1000241	1	1000241	1	1000241
3	SCREW, HEX HEAD 3/8-16 X 3 3/4 (H06-16-30C)	2	STD.	2	N/R	2	N/R
4	SCREW, HEX HEAD 3/8-16 X 1 3/4 (H06-16-14C)	N/R		4	STD.	4	STD.
5	SCREW, HEX HEAD 3/8-16 X 3 (H06-24C)	2	STD.	N/R		N/R	
6	ELBOW, STREET 1 1/4 NPT	N/R		1	STD.	1	STD.
7	CONNECTOR, DISCHARGE	1	2-946	1	2-946	1	2-946
8	ADAPTER 1 1/4 T X 1 1/4 P	1	8-205	1	8-205	1	8-205
9	TUBE ASSY.	1	2-947	1	2-947	1	2-947
10	PIPE PLUG 2" NPT (PP-16-00BS)	1	STD.	1	STD.	1	STD.
11	BLANKET, INSULATION	N/R		1	2-697	1	2-697
12	RECEIVER, AIR	1	1000144	1	1000144	1	1000144
13	NUT, HEX 5/16-18 (N05-18-00W)	10	STD.	10	STD.	10	STD.
14	STRAP	2	1000181	2	1000181	2	1000181
15	PLUG, PIPE 3/4" NPT (PP-06-00BS)	1	STD.	1	STD.	1	STD.
16	VALVE, PRESSURE RELIEF BUSHING, PIPE 1 1/2 X 1 1/4 (PB-12-10BS)	1	C-283	1	C-283	1	C-283
17	NIPPLE, 1 1/4 NPT X 3 1/2 (PN-10-07HD)	1	STD.	1	STD.	1	STD.
18	ELBOW, 90 1 1/4 NPT (PE-10-00BS)	1	STD.	1	STD.	1	STD.
19	STRIP, RUBBER	N/R		4	M1992	4	M1992
20	NIPPLE, 1 1/4 NPT X 8 (PN-10-16LS)	1	STD.	1	STD.	1	STD.
21	ELBOW, STEEL 1/4" NPT	1	8-403	1	8-403	1	8-403
22	VALVE, BLOWDOWN	1	8-347	1	8-347	1	8-347
23	KIT, BLOWDOWN VALVE	1	8-347A	1	8-347A	1	8-347A
24	ELBOW, 1/4" T X 1/4" P	1	M22366	1	M22366	1	M22366
25	CLIP CLOSED INSULATED	2	STD.	2	8-222	2	8-222
26	SCREW, HEX THD. FORMING TUBE, 1/4" STEEL	2	8-118	2	8-118	2	8-118
27	LINE, FLEXIBLE 1 1/4" NPT	1	2-644	1	2-644	1	2-644
28	ADAPTER, SWIVEL	1	M2037	1	M2037	1	M2037
29	BOLT "U" 5/16-18	1	M2128	1	M2128	1	M2128
30	NIPPLE, 1 1/4 NPT X 17 1/2 (PN-10-35BS)	2	8-085	2	8-085	2	8-085
31	TEE, 1 1/4 X 1/2 X 1 1/4 (PR-10-04MI)	1	STD.	1	STD.	1	STD.
32	COCK, DRAIN	1	M1253	1	M1253	1	M1253



CONTROL, ELECTRICAL

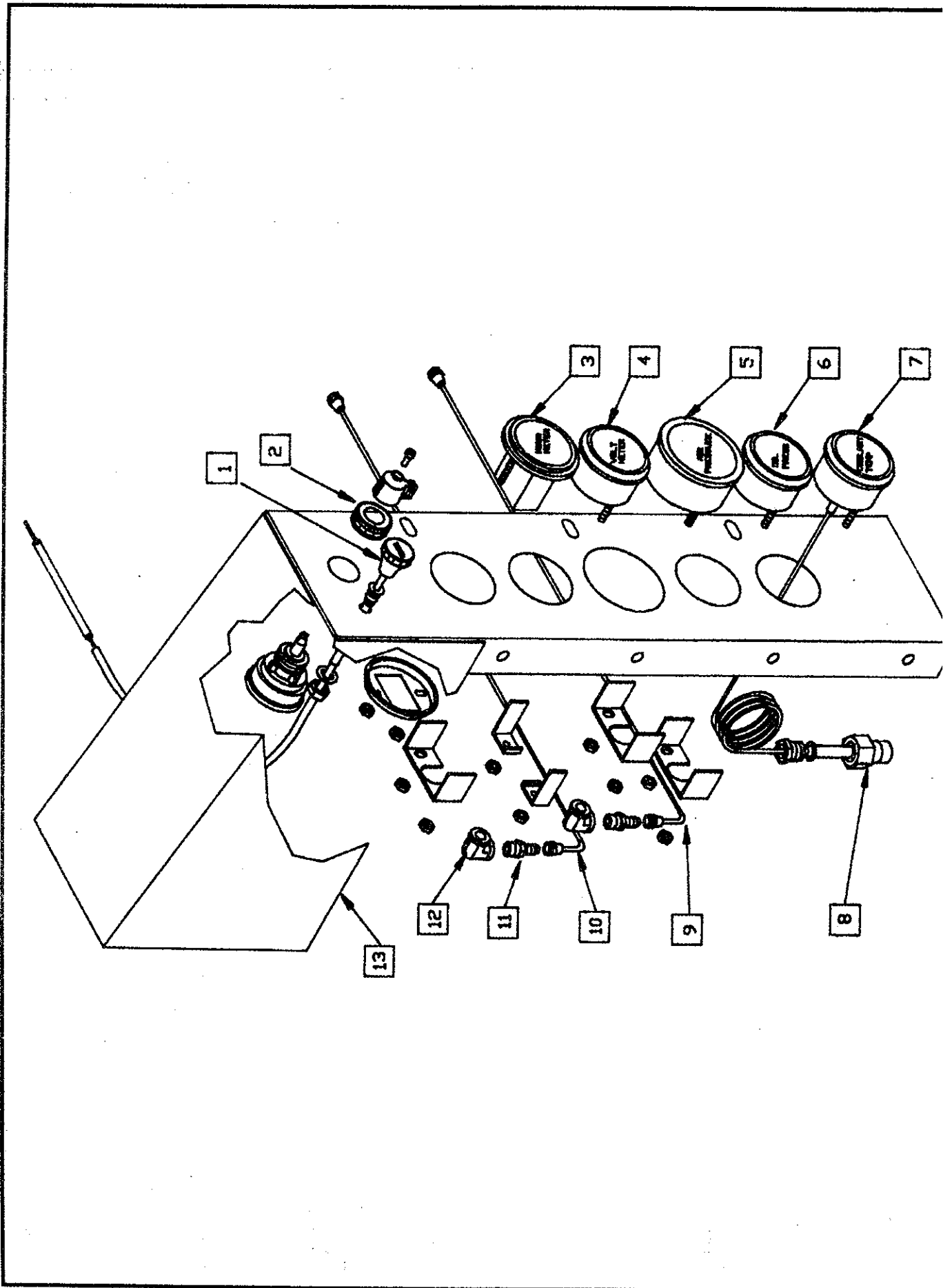
ELECTRIC CONTROL

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
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REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	COVER, BATTERY	1	1000508	1	1000508	1	1000508
2	SCREW, THUB 5/16-18 X 1/2 (H05-18-04W)	2	STD.	2	STD.	2	STD.
3	SCREW, H.H. 5/16-18 X 3/4 (H05-18-06)	8	STD.	8	STD.	8	STD.
4	SUPPORT, COVER	1	1000507	1	1000507	1	1000507
5	BRACKET	1	M1186	1	M1186	1	M1186
6	BATTERY (BC124-500)	1	M1903	1	M1903	1	M1903
7	SUPPORT TRAY	1	1000505	1	1000505	1	1000505
8	BASE, BATTERY TRAY	1	1000506	1	1000506	1	1000506
9	BOLT "J"	2	M1672	2	M1672	2	M1672
10	CABLE, BATT. NEG.	1	8-543	1	8-543	1	8-543
11	CABLE, RELAY TO STARTER	1	8-550	1	8-550	1	8-550
12	CABLE, BATT. POS.	1	1000405	1	1000405	1	1000405
13	NUT, HEX #10-32 (N10-32-000)	3	STD.	3	STD.	3	STD.
14	NUT, HEX 5/16-18 (N05-18-00W)	2	STD.	2	STD.	2	STD.
15	SWITCH, OIL PRESSURE	1	M1015	1	M1015	1	M1015
16	NUT, HEX 8-32 (N08-32-000)	1	STD.	1	STD.	1	STD.
17	SCREW, H.H. 1/9-20 X 1/2	2	STD.	2	STD.	2	STD.
18	RELAY, STARTER (FORD E4JL-11450-AA)	1	8-417	1	8-417	1	8-417
19	SWITCH, TEMPERATURE	1	M1006	1	M1006	1	M1006
20	COIL, IGNITION (FORD D5AZ-12029-A)	1	M1006	1	M1006	1	M1006
21	BREAKER, CIRCUIT 20A DO NOT SUBSTITUTE	1	8-551	1	8-551	1	8-551
22	WIRE SET, IGNITION	1	2-872	1	2-872	1	2-872
23	SCREW, H.H. 3/8-16 X 3/4 (H06-16-06W)	1	STD.	1	STD.	1	STD.
24	ARMATURE	1	1000719	1	1000719	1	1000719
25	MODULE, IGNITION (FORD D9VZ-12A199-A)	1	8-373	1	8-373	1	8-373
26	SCREW, (S10-00-05P)	2	STD.	2	STD.	2	STD.
*	HARNESS, WIRE MAIN	1	2-890	1	2-890	1	2-890
*	HARNESS, WIRE IGN. ODULE (FORD D7JL-12A200-A)	1	8-419	1	8-419	1	8-419

NOTE: FOR STARTER OR ALTERNATOR,
SEE ENGINE PAGE

(*) NOT ILLUSTRATED



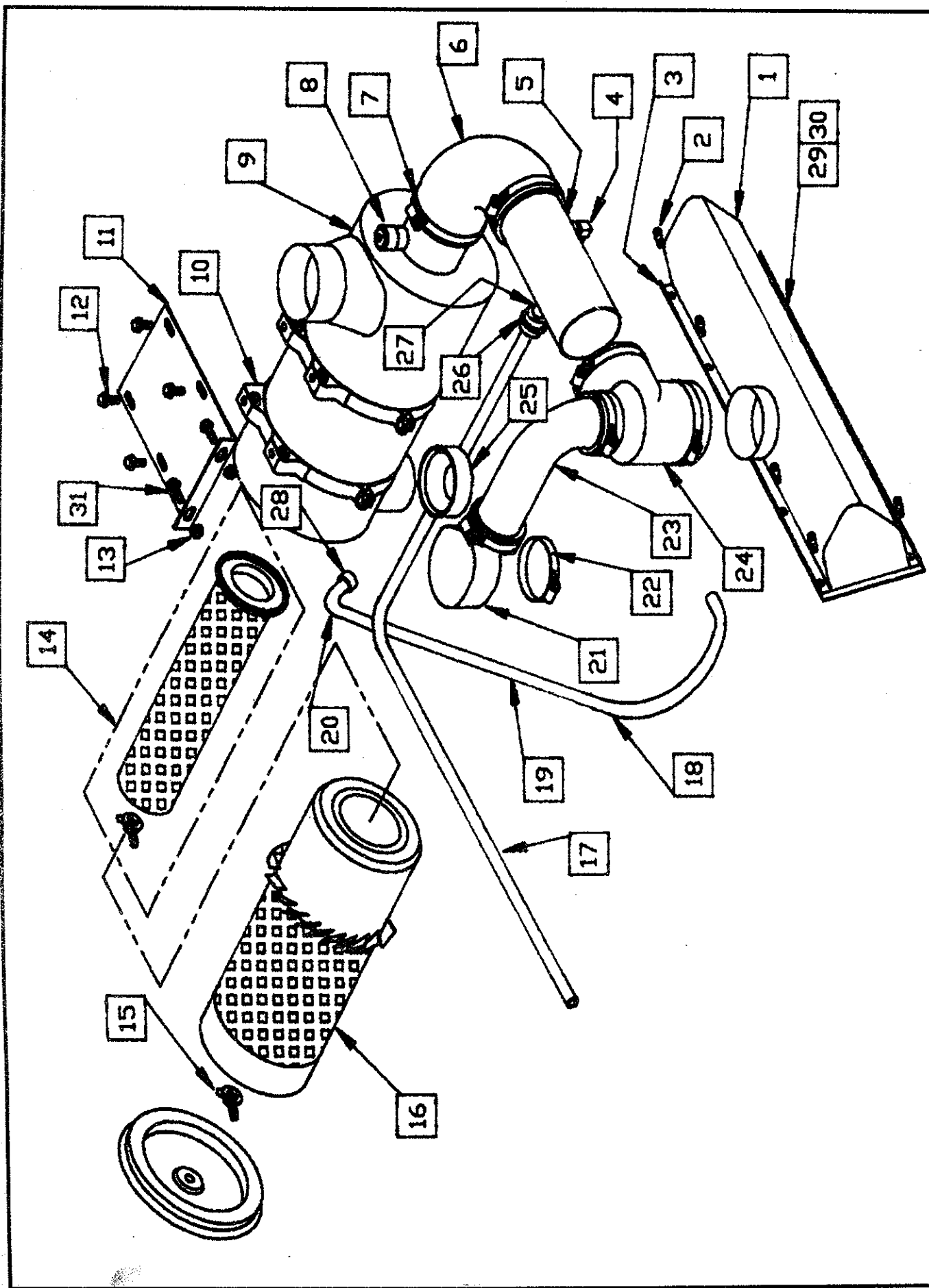
INSTRUMENT PANEL

INSTRUMENT PANEL

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	CABLE, CHOKE	1	M1203	1	1203	1	1203
2	SWITCH, IGNITION	1	8-248	1	8-248	1	8-248
3	METER, HOUR	1	M1150	1	M1150	1	M1150
4	GAUGE, VOLTMETER	1	8-108	1	8-108	1	8-108
5	GAUGE, AIR PRESSURE	1	C-299	1	C-299	1	C-299
6	GAUGE, OIL PRESSURE	1	C-293	1	C-293	1	C-293
7	GAUGE, COOLANT TEMP.	1	C-288	1	C-288	1	C-288
8	BUSHING, COOLANT TEP.	1	8-467	1	8-467	1	8-467
9	TUBE, ASSY.	1	2-777	1	2-777	1	2-777
10	TUBE, ASSY.	1	M1220	1	M1220	1	M1220
11	CONNECTOR 1/8T X 118P	2	M1221	2	M1221	2	M1221
12	ELBOW 1/8P	2	M1235	2	M1235	2	M1235
13	PANEL, INSTRUMENT	1	2-935	1	2-937	1	2-936
*	HARNES, WIRING INST. PANEL	1	2-889	1	2-889	1	2-889

(*) NOT ILLUSTRATED

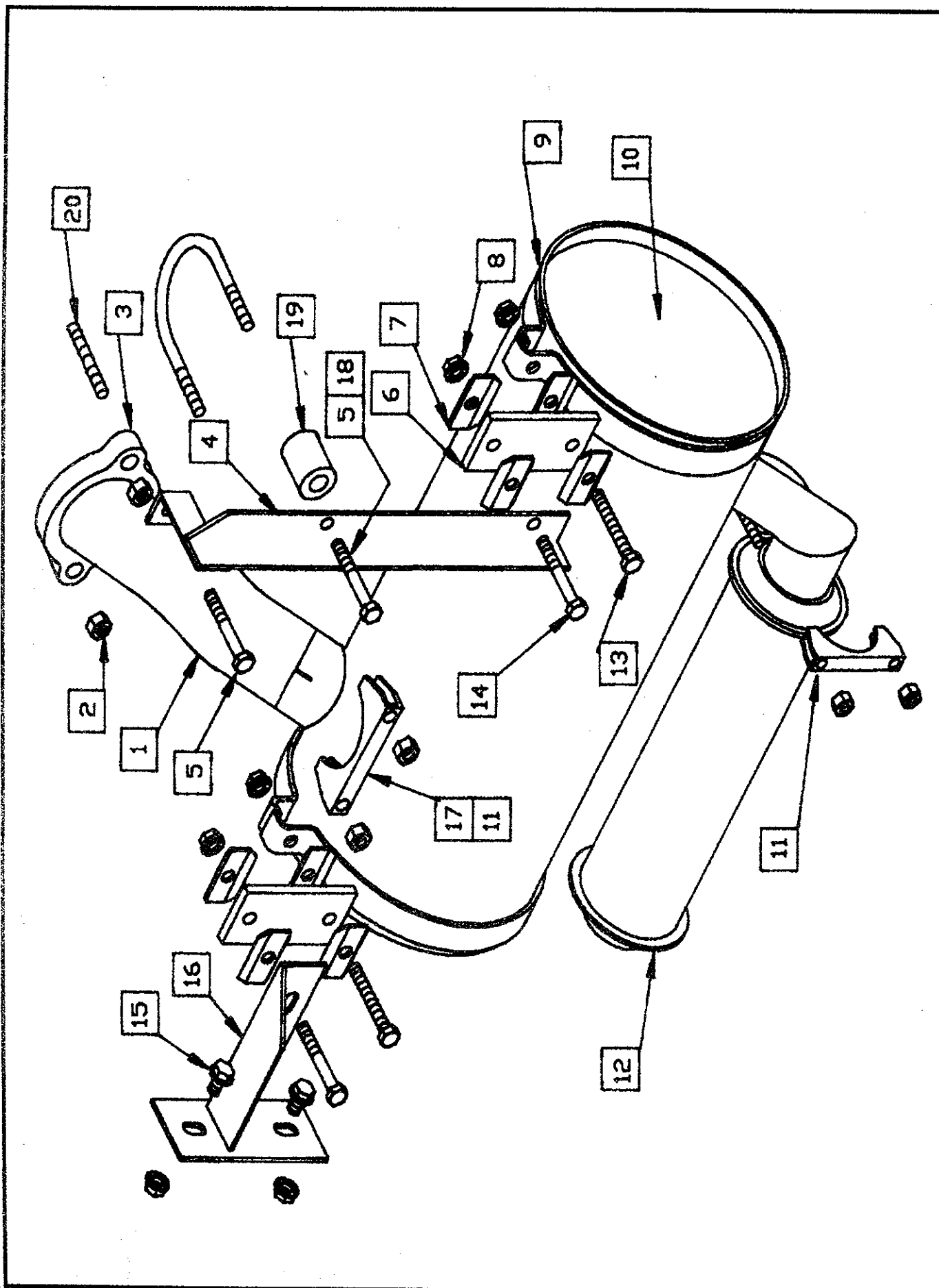


AIR INDUCTION SYSTEM

AIR INDUCTION SYSTEM

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	COVER, COMPRESSOR VALVE	1	3-111	1	1000494	1	1000494
2	SCREW SOCKET 5/16-18 X 1/2 (S05-18-04H)	9	STD.	10	STD.	10	STD.
3	GASKET, VALVE COVER	1	1000106	1	1000286	1	1000286
4	ELBOW, BARB 3/8T X 1/4P	1	M2222	1	M2222	1	2222
5	TUBE	1	2-527	1	2-528	1	2-528
6	ELBOW	1	M1659	1	M1659	1	M1659
7	CLAP, HOSE W64-00-YZ)	4	STD.	4	STD.	4	STD.
8	INDICATOR, FILTER SERVICE	1	M1679	1	M1679	1	M1679
9	FILTER, AIR	1	M1657	1	M1657	1	M1657
10	BAND, LP	2	M1658	2	M1658	2	M1658
11	BRACKET	1	1000501	1	1000501	1	1000501
12	SCREW, H.H. 5/16-18 X 1/2 (H05-18-04W)	4	STD.	6	STD.	6	STD.
13	NUT, HEX 16-18 (N05-18-00W)	6	STD.	6	STD.	6	STD.
14	ELEMENT, SAFETY (*)	1	8-281	1	8-281	1	8-281
15	NUT, WING	2	8-255	2	8-255	2	8-255
16	ELEMENT, AIR	1	M1674	1	M1674	1	M1674
17	HOSE 3/8" I.D.	25	M2223	45	M2223	45	M2223
18	HOSE	N/R		22	M2223	22	M2223
19	CONNECTOR, BARB	1	M1276	1	M1276	1	M1276
20	ELBOW, RUBBER VALVE, PCV	1	M2171	N/R		N/R	
21	(FORD # D90Z-6A666-A)						
22	ELBOW, CARB.	1	M2237	1	M2237	1	M2237
23	CLAMP, HOSE (W40-00-YZ)	3	STD.	3	STD.	3	STD.
24	ELBOW	1	2-722	1	2-722	1	2-722
25	TEE	1	1000497	1	1000497	1	1000497
26	VACUATOR	1	M1997	1	M1997	1	M1997
27	FLAME ARRESTER	1	M2224	1	M2224	1	M2224
28	HOSE 3/8" I.D.	6	M2223	6	M2223	6	M2223
29	CLAMP, HOSE (W10-00-YZ)	1	STD.	N/R		N/R	
30	SCREW, 5/16-18 X 1 (S0-18-08H)	1	STD.	N/R		N/R	
31	SPACER	1	STD.	N/R		N/R	
	SCREW, H.H. 5/16-18 X 3/4 (H05-18-06W)	2	STD.	2	STD.	2	STD.

* OPTIONAL EQUIPMENT
N/R NOT REQUIRED

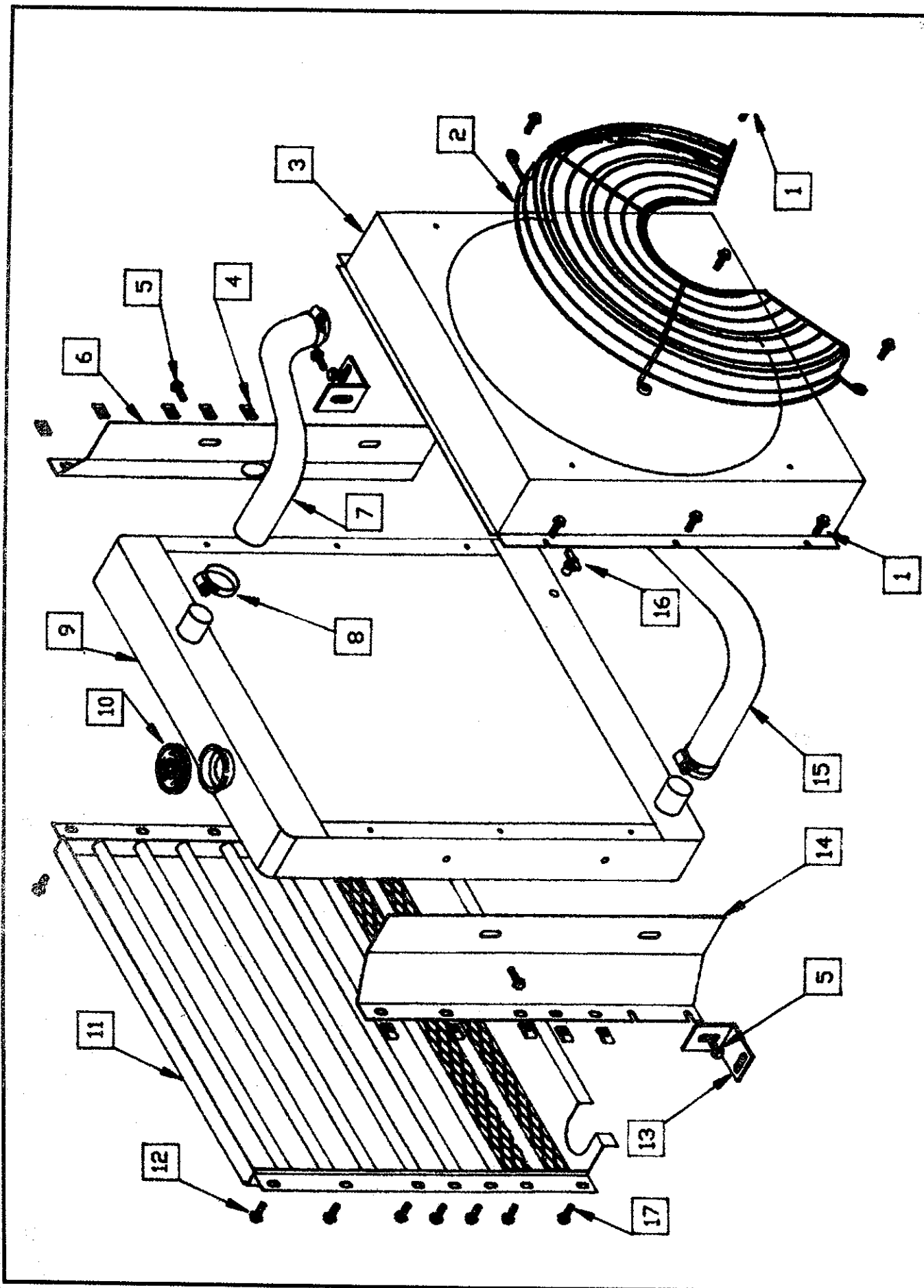


EXHAUST MUFFLER

EXHAUST MUFFLER

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY	MODEL 100	MODEL 125	MODEL 160
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.										
1	PIPE, EXHAUST	1	M1144	1	1000721	1	1000721	1	1000721								
2	NUT, HEX BRASS 7/16-20	2	M1205	2	M1205	2	M1205	2	M1205								
3	FLANGE, EXHAUST	1	M1163	1	M1287	1	M1287	1	M1287								
4	BRACKET, MUFFLER	1	1000704	1	3-133	1	3-133	1	3-133								
5	SCREW, H.H. 3/8-16 X 3/4 (H06-18-06W)	1	STD.	2	STD.	2	STD.	2	STD.								
6	STRIP, RUBBER	1	M1992	2	M1992	2	M1992	2	M1992								
7	PLATE, BACKING	4	M1214	8	M1214	8	M1214	8	M1214								
8	NUT, HEX 5/16-18 (N05-18-00W)	2	STD.	6	STD.	6	STD.	6	STD.								
9	CLAMP, BAND	1	M1211	2	M1211	2	M1211	2	M1211								
10	MUFFLER	1	M1120	1	2-702	1	2-702	1	2-702								
11	CLAP, MUFFLER	2	M1143	1	M1143	1	M1143	1	M1143								
12	RESONATOR	1	M1545	1	M1545	1	M1545	1	M1545								
13	SCREW, H.H. 5/16-18 X 2 1/4 (H05-18-18E)	1	STD.	2	STD.	2	STD.	2	STD.								
14	SCREW, H.H. 5/16-18 X 1 (H05-18-08W)	1	STD.	2	STD.	2	STD.	2	STD.								
15	SCREW, H.H. 5/16-18 X 3/4 (H05-18-06W)	N/R		2	STD.	2	STD.	2	STD.								
16	SUPPORT, MUFFLER	N/R		1	2-703	1	2-703	1	2-703								
17	CLAMP, MUFFLER	N/R		1	M1295	1	M1295	1	M1295								
18	SCREW, H.H. 3/8-16 X 3/4 (H06-16-14W)	1	STD.	N/R		N/R		N/R									
19	SPACER	1	1000706	N/R		N/R		N/R									
20	STUD, MANIFOLD 7/16X1 7/8	2	M1208	N/R		N/R		N/R									
	KIT FLEX CONNECTOR CONSISTS OF ITEMS 6, 7, 8, 13, 14	1	M1218	2	M1218	2	M1218	2	M1218								

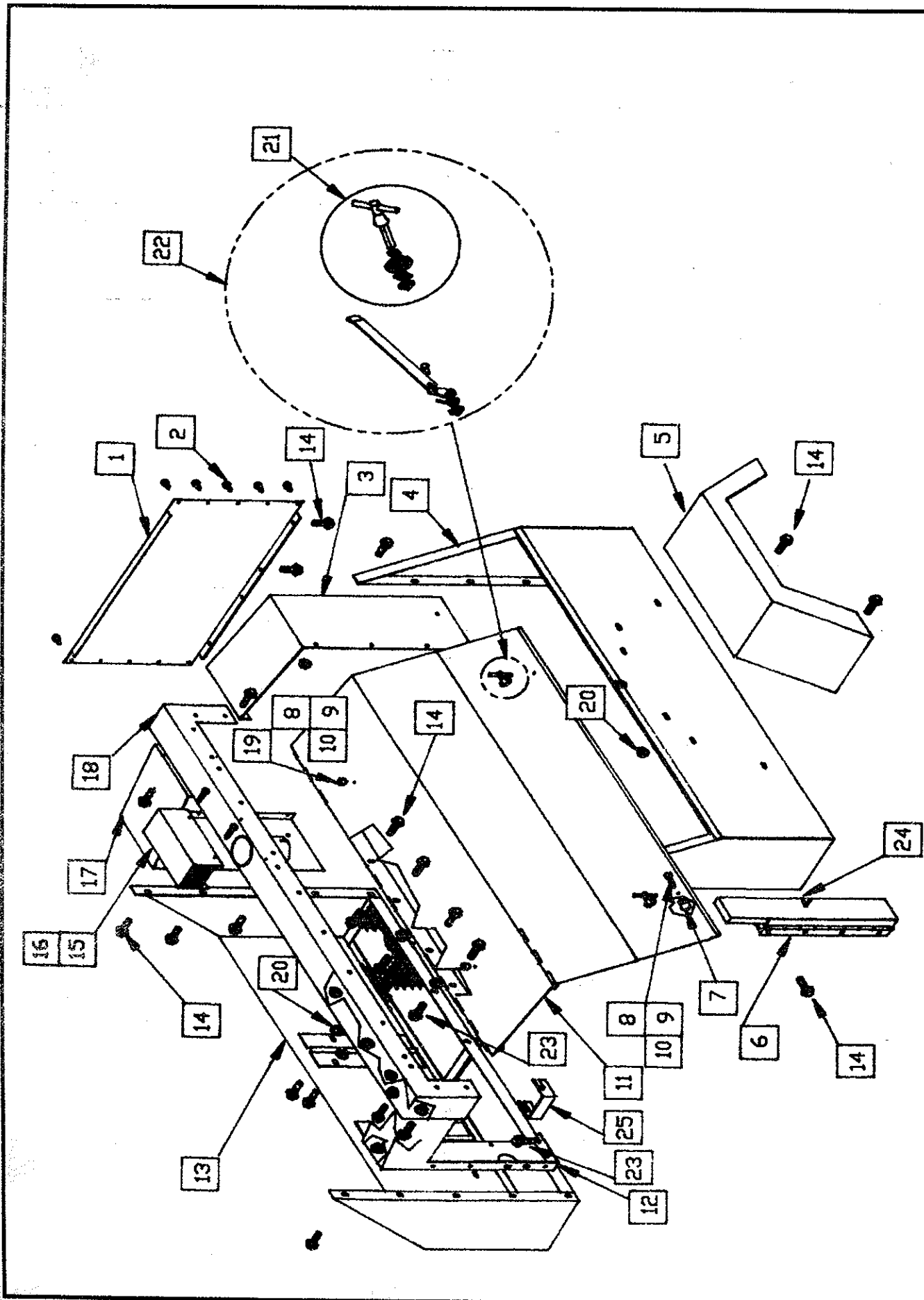
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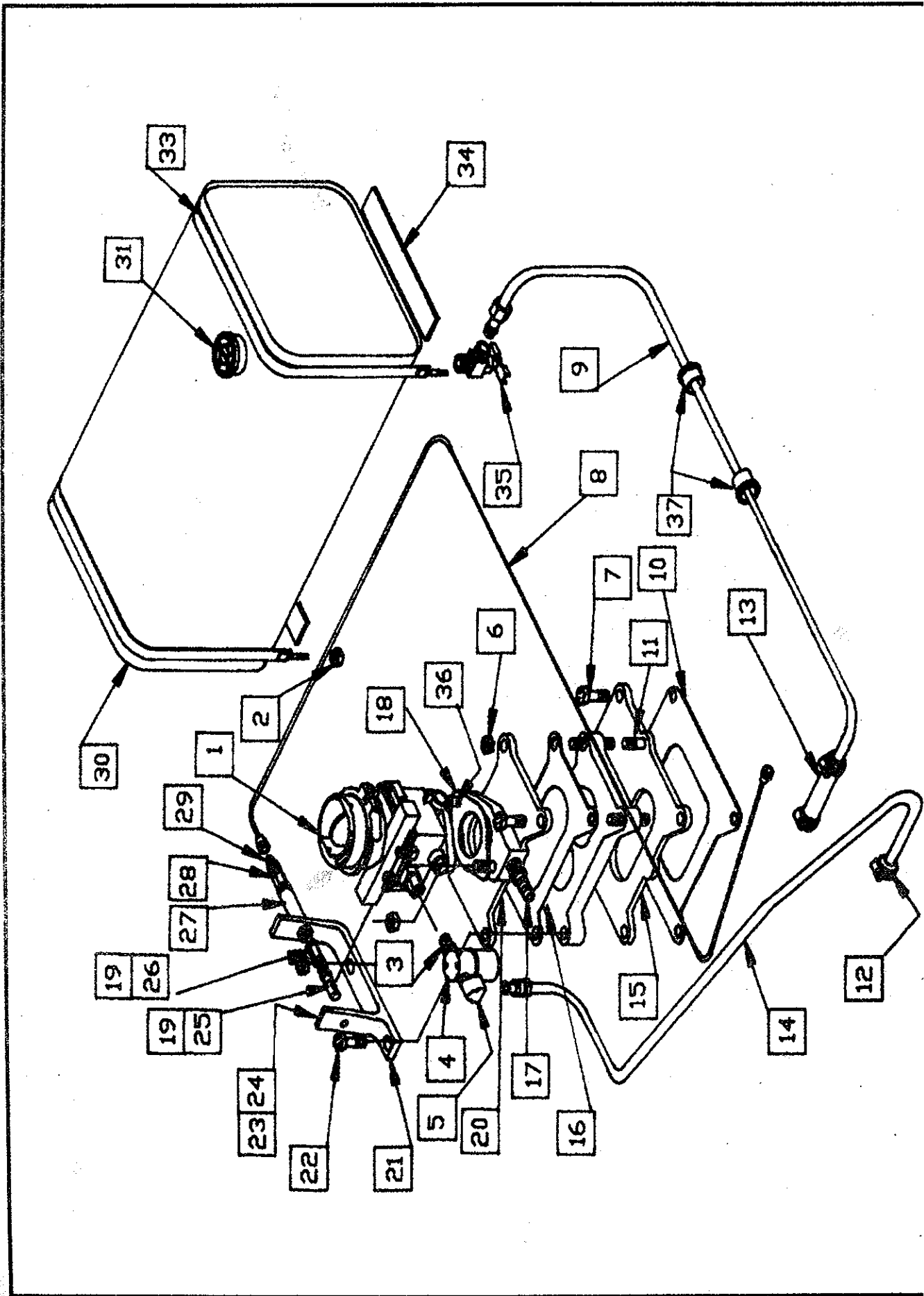
RADIATOR

RADIATOR

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	SCREW, H.H. 1/4-20 X 3/4 (H04-20-06W)	12	STD.	12	STD.	12	STD.
2	GUARD, FAN SHROUD	1	M2198	1	M2198	1	M2198
3	NUT, TINNERMAN 1/2 5/16	1	1000147	1	1000279	1	1000279
4	SCREW, H.H. 3/8-16 X 3/4 (H06-16--06W)	7	M1251	7	M1251	7	M1251
5	SCREW, H.H. 3/8-16 X 3/4 (H06-16--06W)	4	STD.	4	STD.	4	STD.
6	SUPPORT, RADIATOR R.H.	1	1000708	1	1000708	1	1000708
7	HOSE, RADIATOR UPPER	1	1000183	1	1000281	1	1000281
8	CLAMP, HOSE (W28-00-YZ)	4	STD.	4	STD.	4	STD.
9	RADIATOR	1	M1298	1	M1298	1	M1298
10	CAP, RADIATOR	1	M1401	1	M1401	1	M1401
11	GRILLE ASSY.	1	2-810	1	2-810	1	2-810
12	SCREW, H.H. 5/16-18 X 3/4 (H05-18-06W)	7	STD.	7	STD.	7	STD.
13	BRACKET	N/R		2	1000310	2	1000310
14	SUPPORT, RADIATOR L.H.	1	1000707	1	1000707	1	1000707
15	HOSE, RADIATOR LOWER	1	1000182	1	1000280	1	1000280
16	COCK, DRAIN	1	M1253	1	M1253	1	M1253
17	SCREW, H.H. 5/16-18 X 5/8 CLAMP, HOSE (W36-00-YZ)	4	8-304	4	8-304	4	8-304
	(*) NOT ILLUSTRATED						



ENCLOSURE



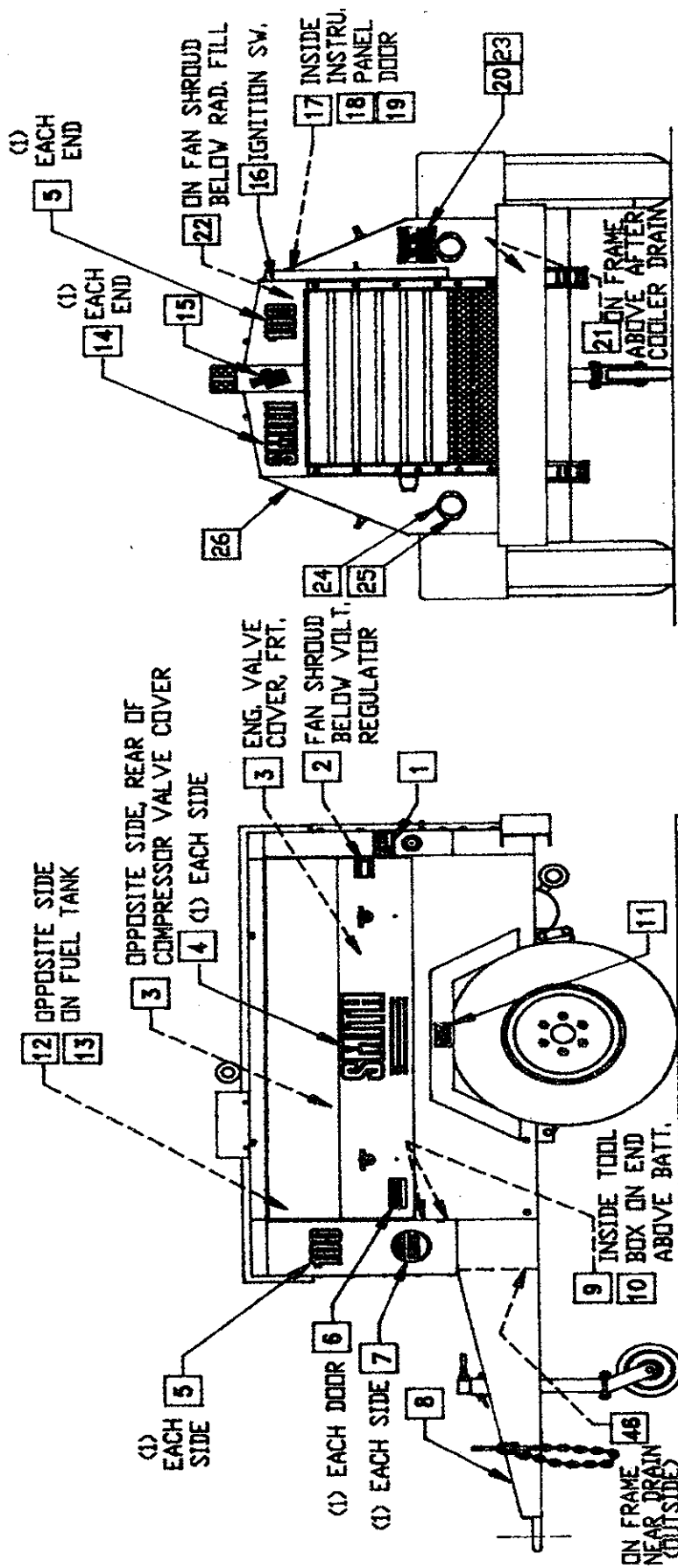
FUEL TANK & SYSTEM

FUEL TANK AND SYSTEM

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	CARBURETOR KIT CARBURETOR REPAIR	1	8-485	1	8-485	1	8-485
2	NUT, HEX 3/8-16 (N06-18-00W)	4	8-500	4	8-500	4	8-500
3	NIPPLE, 1/8NPT X CLOSE VALVE, FUEL SOLENOID	1	M1311	1	M1311	1	M1311
4	ELBOW, 5/16-18 X 1/8P	1	8-558	1	8-558	1	8-558
5	NUT, HEX 5/16-18 (N05-18-00W)	2	M2235	2	M2235	2	M2235
6	SCREW, H.H. 5/16-18 X 1 1/4 (H05-18-10W)	N/R	STD.	1	STD.	1	STD.
7	SCREW, H.H. 5/16-18 X 1 (H05-18-00W)	2	STD.	N/R		N/R	
8	TUBE, ASSY, 1/8	1	2-777	1	2-777	1	2-777
9	TUBE, FUEL (PUMP TO TANK)	1	3-112	1	2-624	1	2-624
10	GASKET	N/R		1	2-684	1	2-684
11	STUD, 5/16-18 X 1 1/4	N/R		2	M1396	2	M1396
12	CLAMP (W04-00-YZ)	12	STD.	3	STD.	3	STD.
13	HOSE 3/8"	12	M2223	3.5	M2223	3.5	M2223
14	TUBE, FUEL (PUMP TO CARB)	1	2-898	1	2-977	1	2-977
15	ADAPTER	N/R		1	G1014	1	G1014
16	GASKET	2	M1122	1	M1122	1	M1122
17	FITTING, HOSE BARB	N/R		1	M1258	1	M1258
18	GASKET	1	M1123	1	M1123	1	M1123
19	NUT, HEX JAM #10-32 (N10-32-000)	2	STD.	2	STD.	2	STD.
20	ADAPTER	1	3-081	1	3-081	1	3-081
21	BRACKET, IDLING CYLINDER	1	1000283	1	1000283	1	1000283
22	SCREW, H.H. 5/16-18 X 1 1/2 (H05-18-12W)	N/R		2	STD.	2	STD.
23	SCREW, H.H. 5/16-18 X 1 1/4 (H05-18-18E)	2	STD.	N/R		N/R	
24	SCREW, H.H. 1/4-20 X 1 (H04-20-08B)	1	STD.	1	STD.	1	STD.
25	NUT, HEX JAM 1/4-20 (N04-20-000)	1	STD.	1	STD.	1	STD.
26	JOINT, BALL DISCONNECT	1	8-484	1	8-484	1	8-484
27	JOINT, BALL SWIVEL	1	M1139	1	M1139	1	M1139
28	CYLINDER, IDLING	1	M1121	1	M1121	1	M1121
29	ADAPTER	1	M1471	1	M1471	1	M1471
30	CONNECTOR	1	M1221	1	M1221	1	M1221
31	TANK, FUEL W/CAP & GAUGE	1	1000134	1	1000134	1	1000134
32	CAP & GAUGE	1	8-133	1	8-133	1	8-133
33	STRAP, FUEL TANK	2	1000180	2	1000180	2	1000180
34	TAPE, FOAM	32"	8-112	32"	8-112	32"	8-112

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
35	VALVE, SHUT-OFF	1	M1197	1	M1197	1	M1197
36	STUD, 5/16-18 X 1 1/4	2	M1246	2	M1246	2	M1246
37	GROMMET	2	M1327	N/R		2	M1327

(*) NOT ILLUSTRATED



IDENTIFICATION

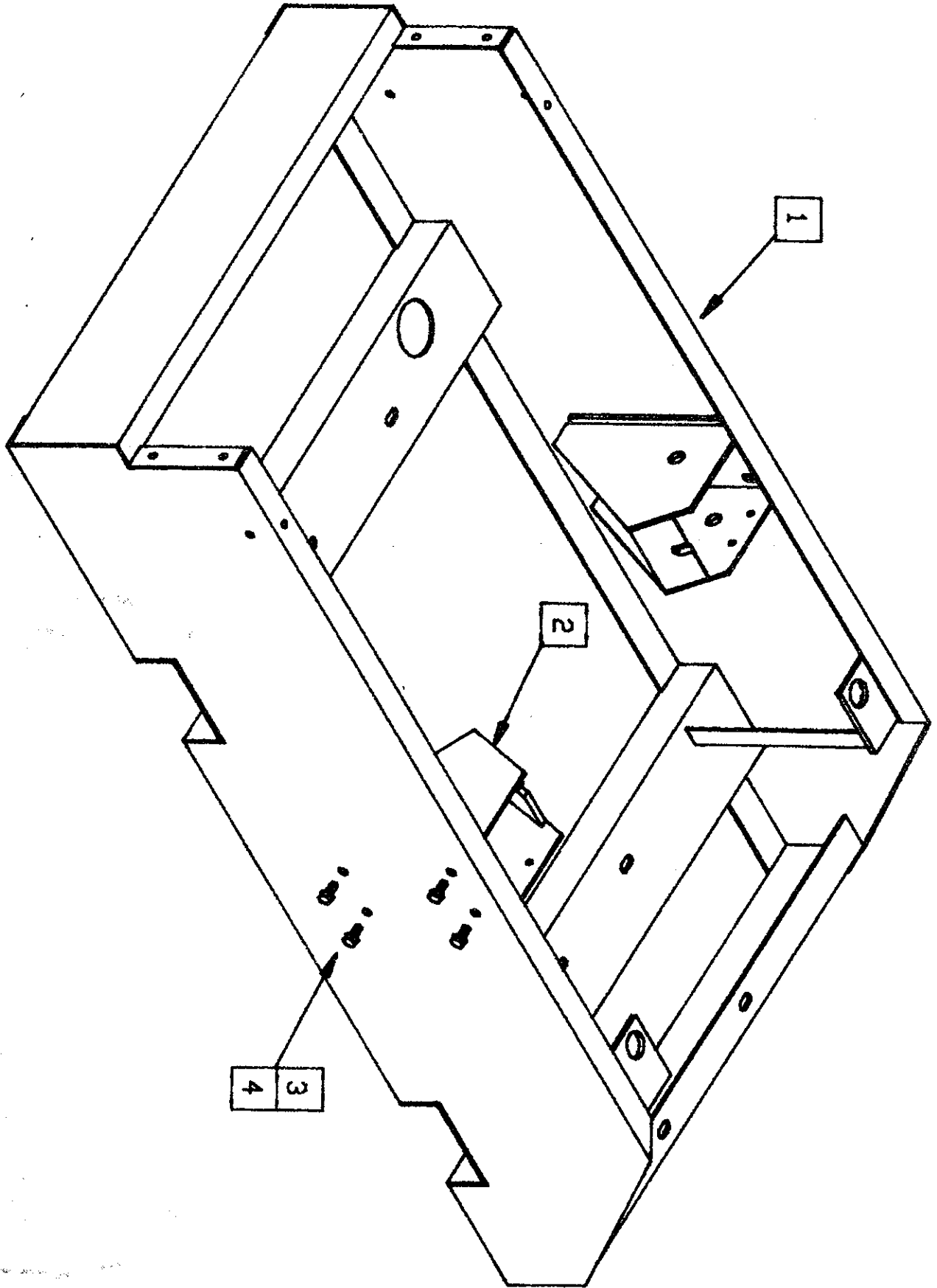
REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	DECAL, BREATHING AIR	1	2-338	1	2-338	1	2-338
2	DECAL, PINCH POINT	1	2-337	1	2-337	1	2-337
3	DECAL, HOT EXHAUST	2	2-377	2	2-377	2	2-377
4	DECAL, SMITH	2	3-123	2	3-123	2	3-123
5	DECAL, MODEL NUMBER	4	3-127	4	2-791	4	2-660
6	DECAL, CLOSE DOORS	2	1000418	2	1000418	2	1000418
7	DECAL, THROUGH BRED	2	2-426	2	2-426	2	2-426
8	DECAL, TOWING	1	2-341	1	2-341	1	2-31
9	DECAL, ELECT SHOCK	1	2-378	1	2-378	1	2-378
10	DECAL, VOLTAGE	1	2-380	1	2-380	1	2-380
11	DECAL, TIRE PRESSURE	2	2-339	2	2-339	2	2-339
12	DECAL, FUEL	1	2-765	1	2-765	1	2-765
13	MANUAL, SAFETY	1	8-244	1	8-244	1	8-244
14	DECAL, SMITH	2	3-122	2	3-122	2	3-122
15	DECAL, RUGGED BREED	2	2-427	2	2-427	2	2-427
16	DECAL, START	1	1001010	1	1001010	1	1001010
17	DECAL, OPERATING INSTR.	1	2-764	1	2-764	1	2-764
18	DECAL, LIUD LEVELS	1	2-766	1	2-766	1	2-766
19	DECAL, MUFFLER	1	2-663	1	2-663	1	2-663
20	PLATE, EPA DATA	1	.	1	.	1	.
21	DECAL, DRAIN	1	3-040	1	3-040	1	3-040
22	DECAL, COOLANT	1	2-346	1	2-346	1	2-346
23	RIVET, POP (ALUM.)	4	8-193	4	8-193	4	8-193
24	REFLECTOR (RED)	2	8-190	2	8-190	2	8-190
25	RIVET, POP (STEEL)	4	8-104	4	8-104	4	8-104
26	TAPE, FOAM (INCHES)	132	8-112	132	8-112	132	8-112
46	DECAL, AUTO-DRAIN	1	3-039	1	3-039	1	3-039
**	MANUAL, COMPRESSOR	1	8-369	1	8-369	1	8-369
**	SERVICE AND PARTS KIT, DECAL (INCLUDES ITEMS 1 THRU, 12, 14 THRU, 19, 21, 22 AND 46)	1	3-046	1	3-047	1	3-048

ITEMS 27 THRU, 45 ARE NOT SERVICE ITEMS
 (*) NOT AVAILABLE AS A SEPARATE PART
 (**) NOT ILLUSTRATED

The following pages cover the parts that are unique to the OEM models. For parts not listed here, refer to parts section 7.

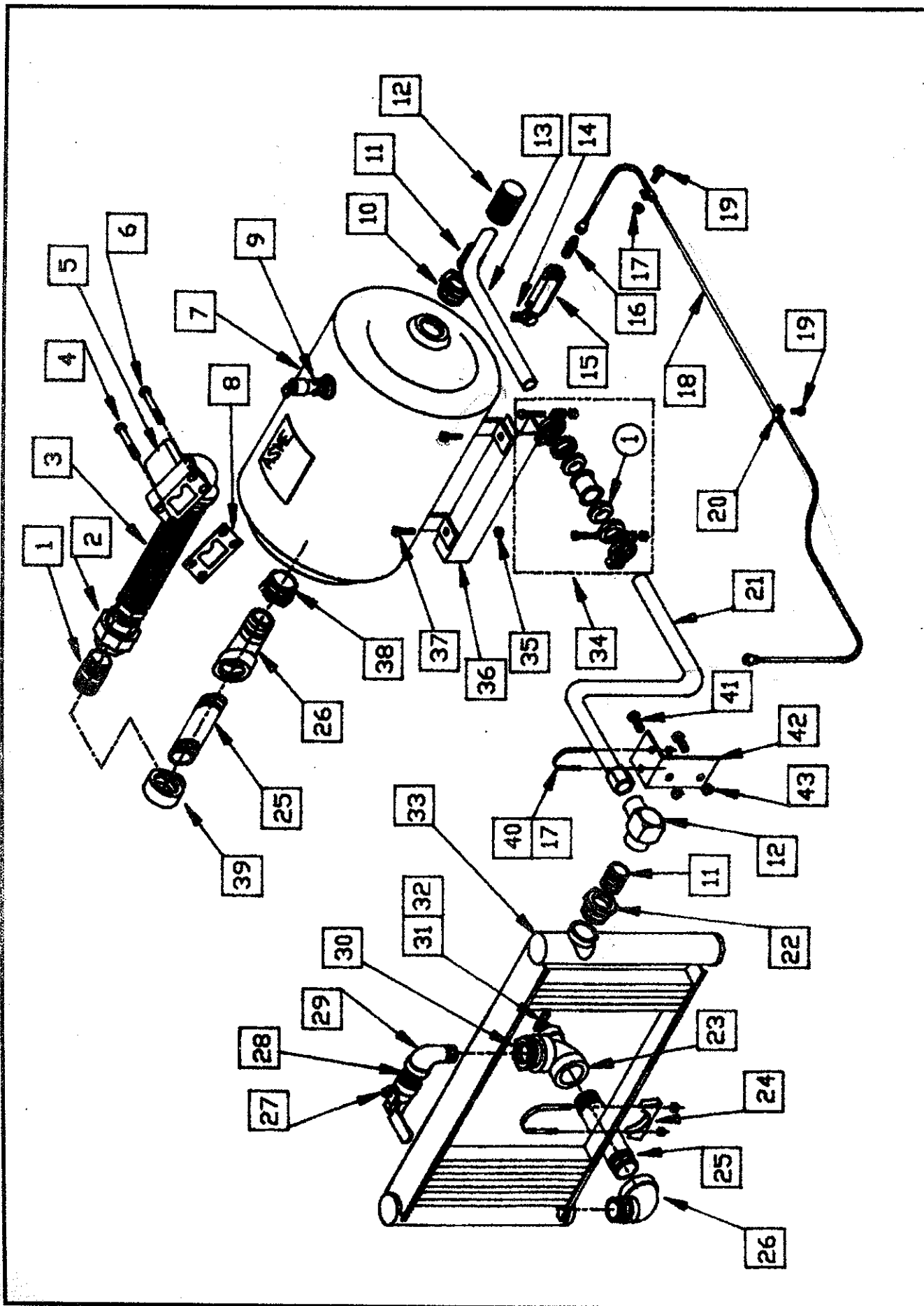
FRAME ASSEMBLY

50



CHASSIS OEM MODELS ONLY

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	FRAME ASSY.	1	1000741	1	1000741	1	1000741
2	SUPPORT, ENGINE	2	1000114	2	1000703	2	1000703
3	SCREW, H.H. 5/16-18 X 1 (H05-18-08W)	8	STD.	8	STD.	8	STD.
4	NUT, HEX 5/16-18	8	STD.	8	STD.	8	STD.

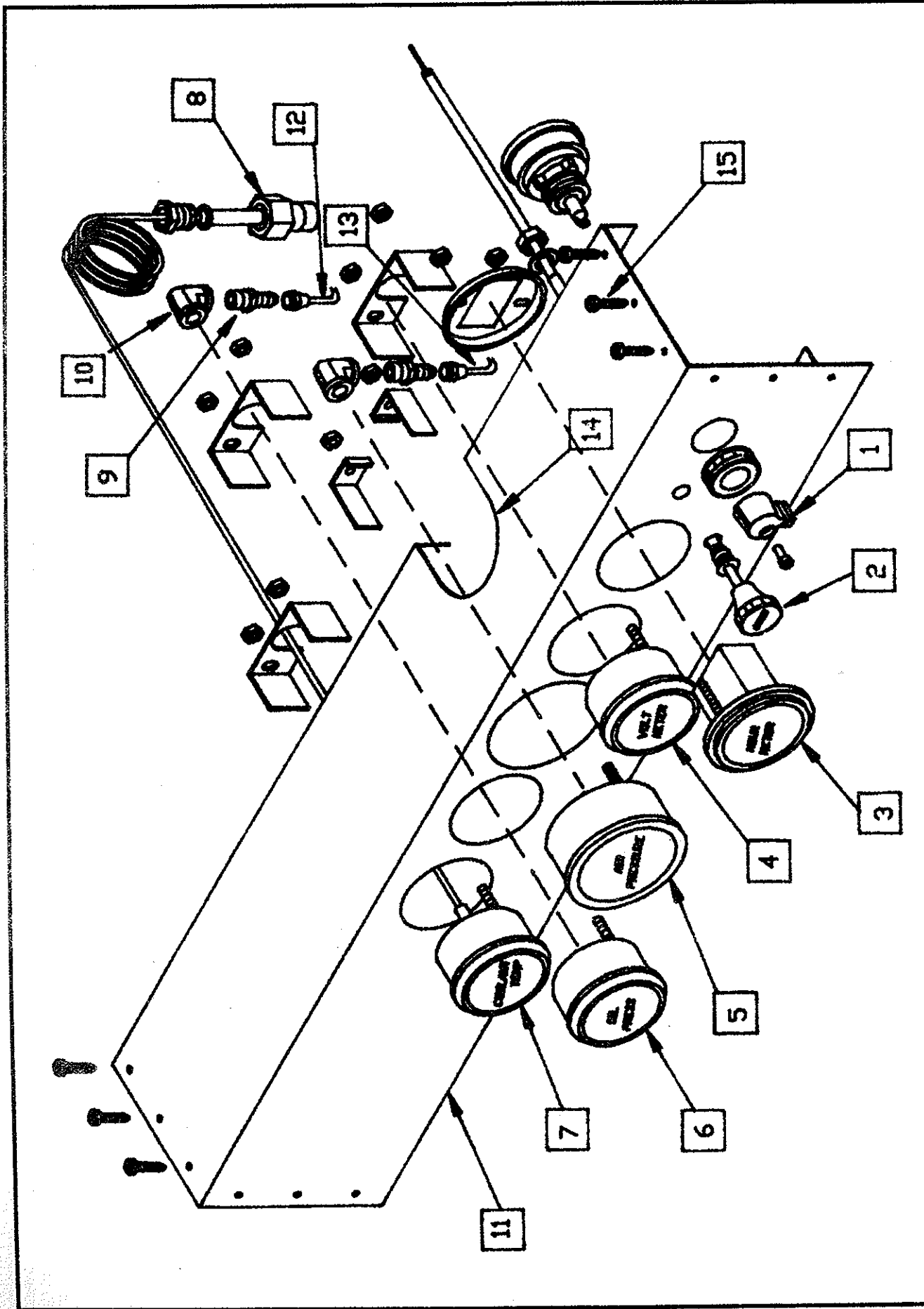


RECEIVER, COOLER, AND PIPING

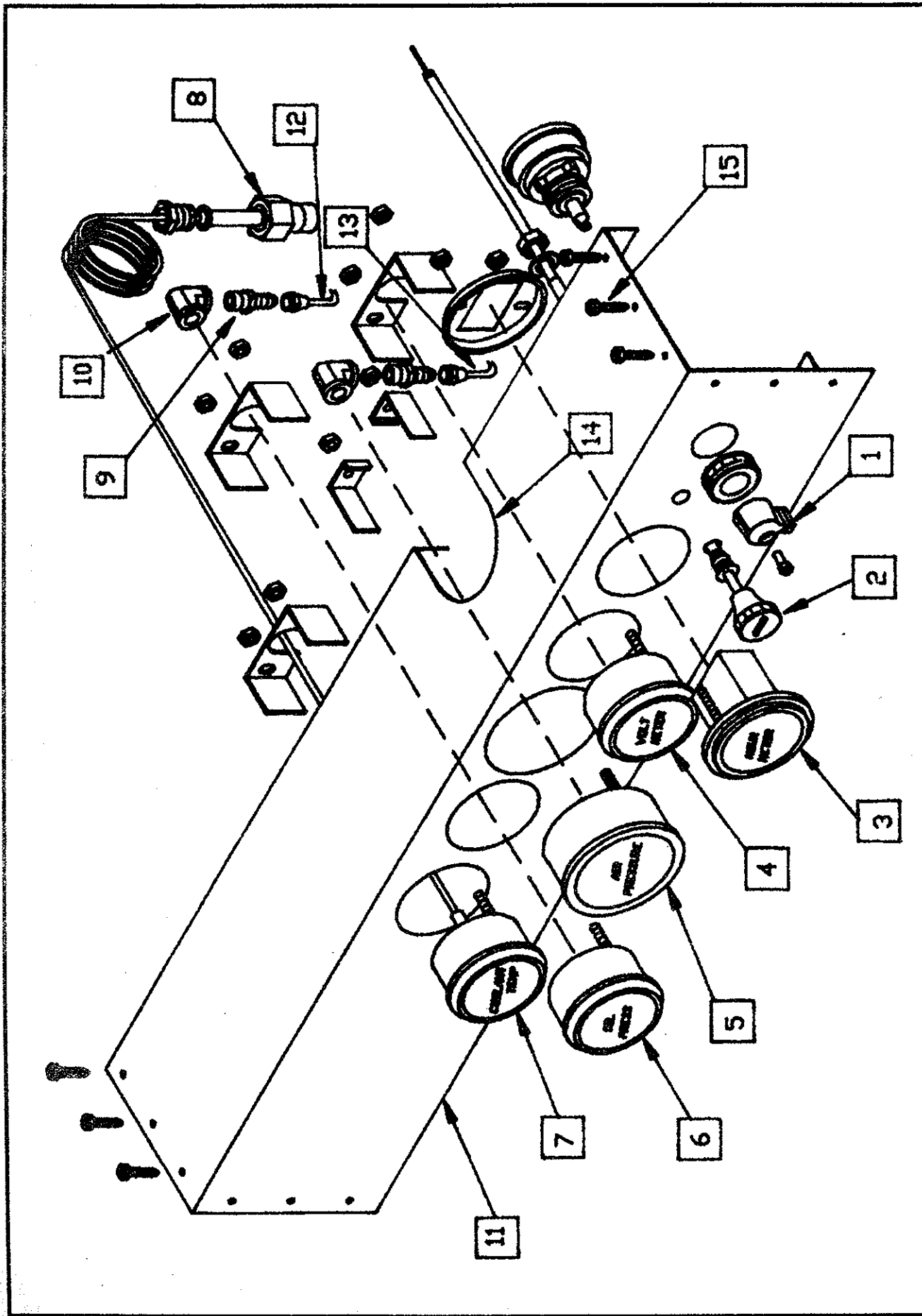
AIR PIPING AND RECEIVER OEM MODELS ONLY

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	NIPPLE, 1/4"NPT X CLOSE PN-10-08BS	1	STD.	2	STD.	2	STD.
2	UNION 300# 1 1/4 NPT PU-10-04D	1	STD.	1	STD.	1	STD.
3	LINE, FLEXIBLE	1	M1164	1	M1164	1	M1164
4	SCREW, HEX HEAD 3/8-16 X 3 3/4	2	STD.	N/R		N/R	
	(H06-16-30C)						
	SCREW, HEX HEAD 3/8-16 X 1 3/4	N/R		4	STD.	4	STD.
	(H06-16-14C)						
5	ELBOW DISCHARGE	1	2-795	1	2-796	1	2-796
6	SCREW, HEX HEAD 3/8-16 X3	2	STD.	N/R		N/R	
	(H0C-16-24C)						
7	RECEIVER AIR	1	1000727	1	1000727	1	1000727
9	VALVE, PRESSURE RELIEF	1	M2033	1	M2033	1	M2033
8	GASKET, DISCHARGE ELBOW	1	1000167	1	1000241	1	1000241
9	VALVE, PRESSURE RELIEF	1	M2203	1	M2203	1	M2203
10	BUSHING, 1/2 X 1 NPT (PB-12-08BS)	1	STD.	1	STD.	1	STD.
11	NIPPLE 1 1/4"NPT (PN-18-00BS)	2	STD.	2	STD.	2	STD.
12	ELBOW, 1" NPT	2	8-042	2	8-042	2	8-042
13	TUBE & NUT ASSY.	1	2-081	1	2-081	1	2-081
14	ELBOW, STEEL, 1/4" NPT	1	8-403	1	8-403	1	8-403
15	VALVE, BLOWDOWN	1	8-347	1	8-347	1	8-347
16	CONNECTOR, 1/4T X 1/4P NUT, HEX 1/4-20 (NO4-20-00N)	1	8-538	1	8-538	1	8-538
17	TUBE, 1/4" STEEL	1	2-980	1	2-980	1	2-980
18	SCREW, HEX THD. FORMING	2	8-118	2	8-118	2	8-118
19	CLIP CLOSED INSULATED	2	8-222	2	8-222	2	8-222
20	TUBE AND NUT ASSY.	1	2-080	1	2-080	1	2-080
21	BUSHING, 1/4 X 1 NPT (PB-10-08BS)	1	STD.	1	STD.	1	STD.
22	TEE, 1/4 X 1/2 X 1 1/4 300# (PR-10-08BS)	1	STD.	1	STD.	1	STD.
23	CLAMP, MUFFLER NIPPLE, 1/4 NPT X 6" (PN-10-12BS)	1	M1143	1	M1143	1	M1143
24	ELBOW, 90 1/4"NPT 300# (PS-10-00HD)	2	STD.	2	STD.	2	STD.
25	VALVE, BALL NIPPLE, 3/4 NPT X CLOSE (PN-06-00BS)	1	C-308	2	C-308	2	C-308
26	ELBOW, 90 3/4 NPT 300# (PS-06-00HD)	1	STD.	1	STD.	1	STD.
27	BUSHING, 1/4 X 3/4 NPT (PB-10-06BS)	1	STD.	1	STD.	1	STD.
28	BUSHING, 1/2 X 1/4 NPT	1	STD.	1	STD.	1	STD.
29							
30							
31							

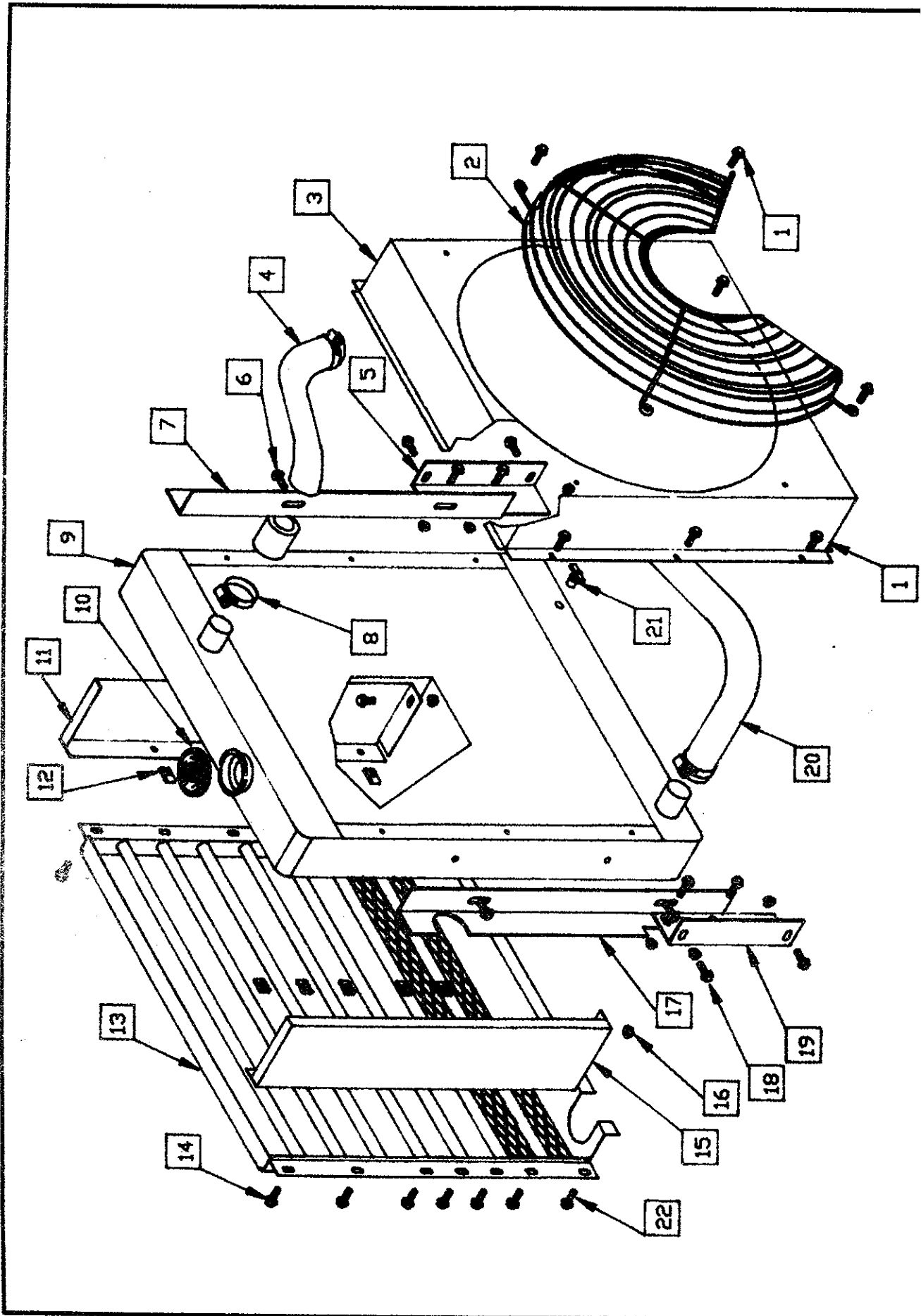
REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
32	(PB-04-02BS) COCK DRAIN	1	M1253	1	M1253	1	M1253
33	COOLER	1	M1981	1	M1981	1	M1981
34	CONNECTOR, FLEXMASTER GASKET, FLEXMASTER NUT, HEX 5/16-18 (N05-18-00W)	1	8-002	1	8-002	1	8-002
35		2	8-004	2	8-004	2	8-004
36	SPACER SCREW, HH 5/16-18 X3 (H05-18-24B)	4	STD.	4	STD.	4	STD.
37	BUSHING, 1 1/2 X 1 1/4 NPT (PB-12-10BS)	1	1001009	1	1001009	1	1001009
38	ELBOW, 1 1/4 NPT 300# (PE-10-00HD)	2	STD.	2	STD.	2	STD.
39	SCREW, H.H. 5/16-18 X 1 1/4 (H05-18-10B)	1	STD.	1	STD.	1	STD.
		2	STD.	2	STD.	2	STD.



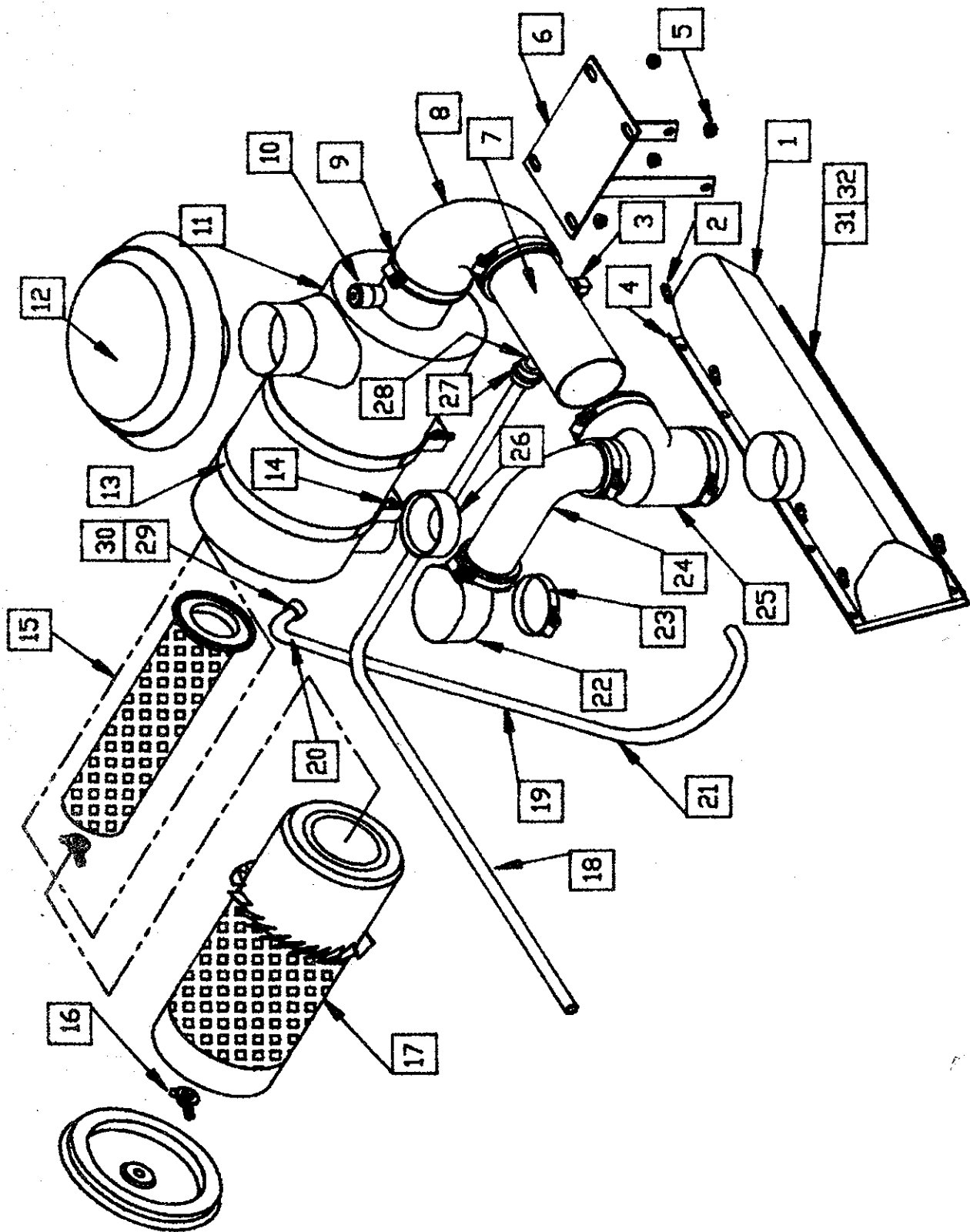
PANEL INSTRUMENT



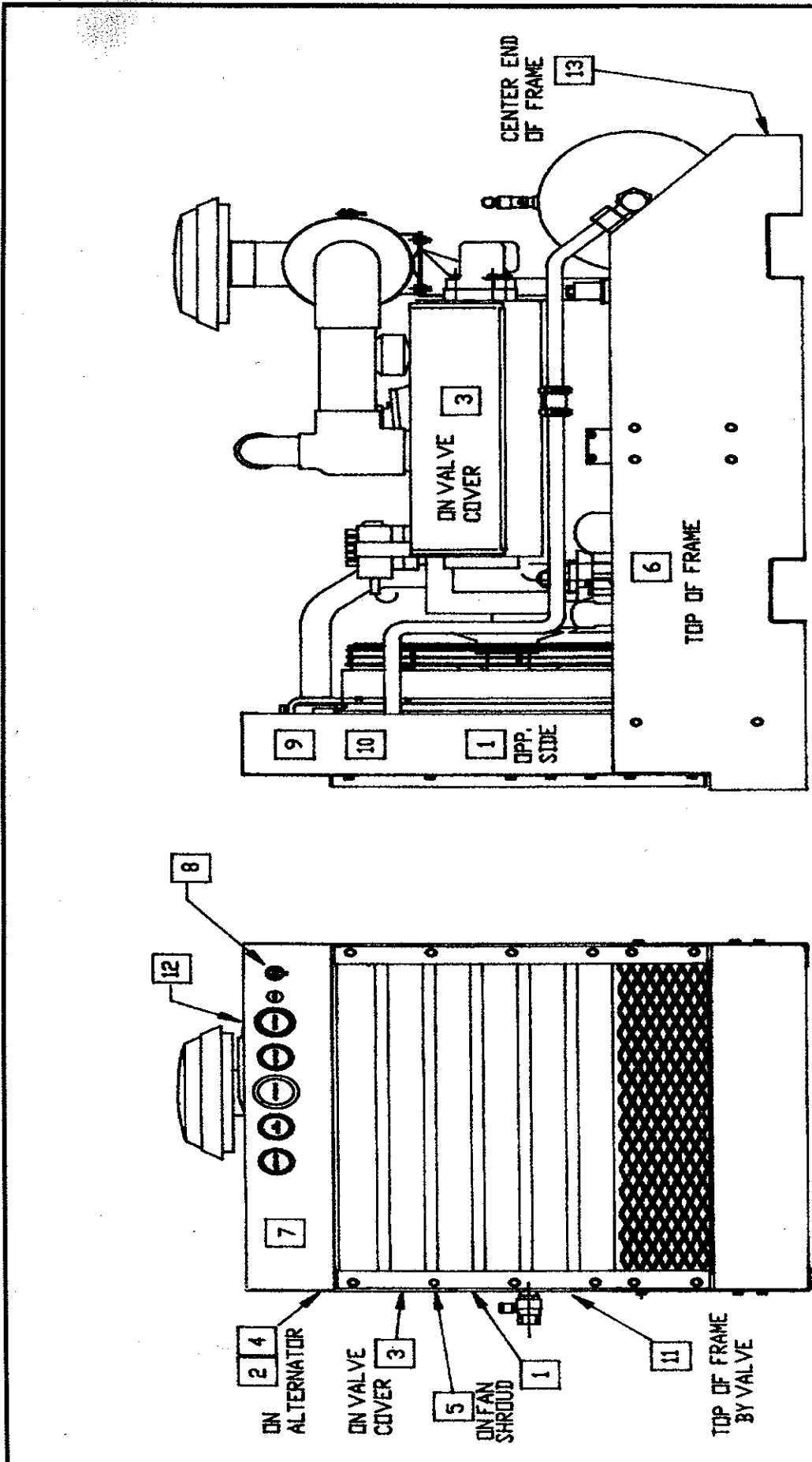
PANEL INSTRUMENT



RADIATOR



AIR INDUCTION SYSTEM



IDENTIFICATION

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	DECAL, BREATHING AIR WARNING	1	2-338	1	2-338	1	2-338
2	DECAL, PINCH POINT CAUTION	1	2-337	1	2-337	1	2-337
3	DECAL, HOT EXHAUST DANGER	2	2-377	2	2-377	2	2-377
4	DECAL, ELECT SHOCK CAUTION	1	2-378	1	2-378	1	2-378
5	DECAL, NOTICE - 12 VOLT	1	2-380	1	2-380	1	2-380
6	NOTICE-FUEL	1	2-765	1	2-765	1	2-765
7	PLATE, DATA	1	1000775	1	1000775	1	1000775
8	DECAL, START ON-OFF	1	1001010	1	1001010	1	1001010
9	DECAL, OPERATING INSTR.	1	2-764	1	2-764	1	2-764
10	DECAL, LUID LEVELS	1	2-766	1	2-766	1	2-766
11	DECAL, DRAIN	1	3-040	1	3-040	1	3-040
12	DECAL, HOT COOLANT	1	2-346	1	2-346	1	2-346
13	DECAL, AUTO-DRAIN	1	3-039	1	3-039	1	3-039

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.

NOTES:

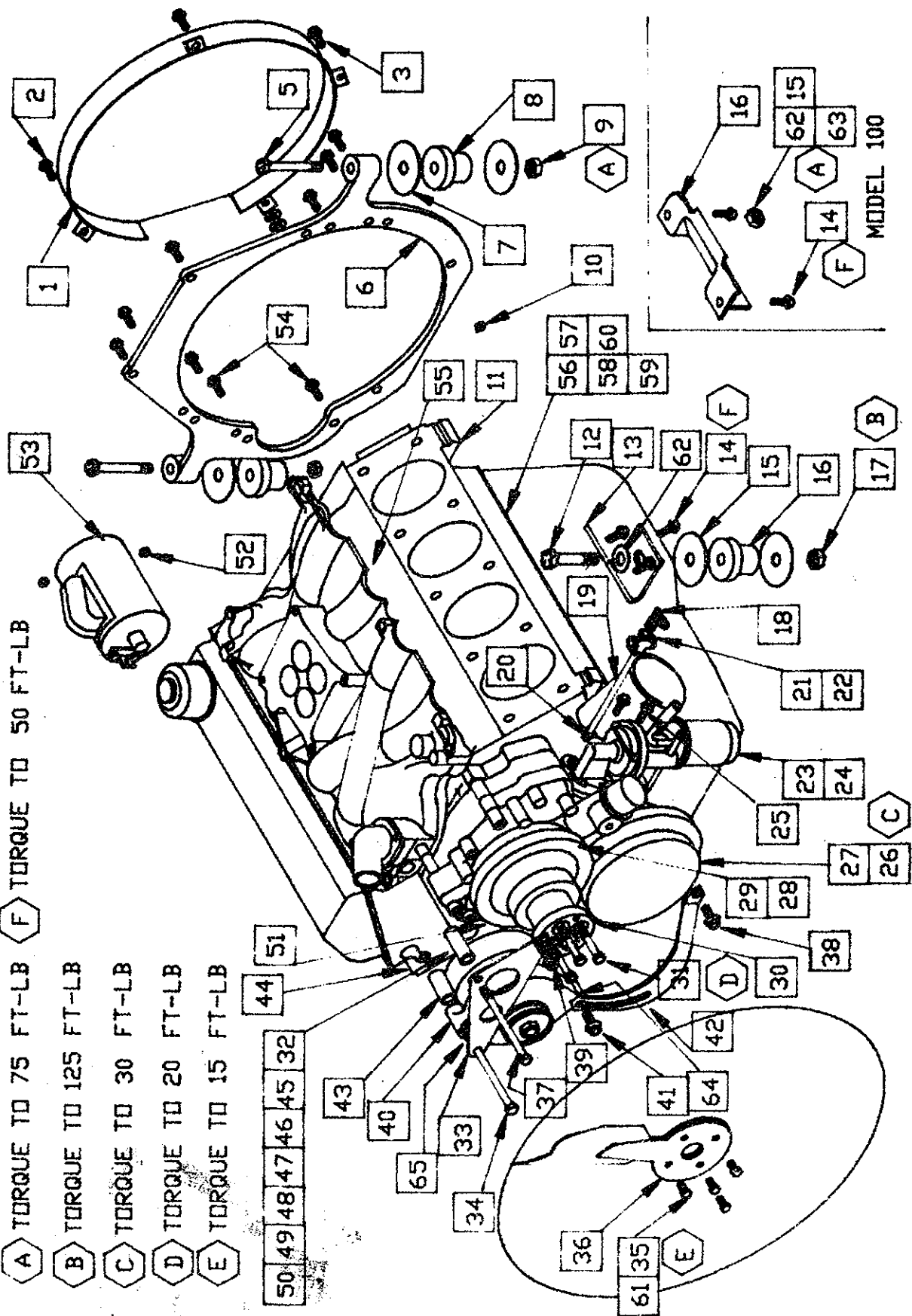
A TORQUE TO 75 FT-LB F TORQUE TO 50 FT-LB

B TORQUE TO 125 FT-LB

C TORQUE TO 30 FT-LB

D TORQUE TO 20 FT-LB

E TORQUE TO 15 FT-LB



ENGINE

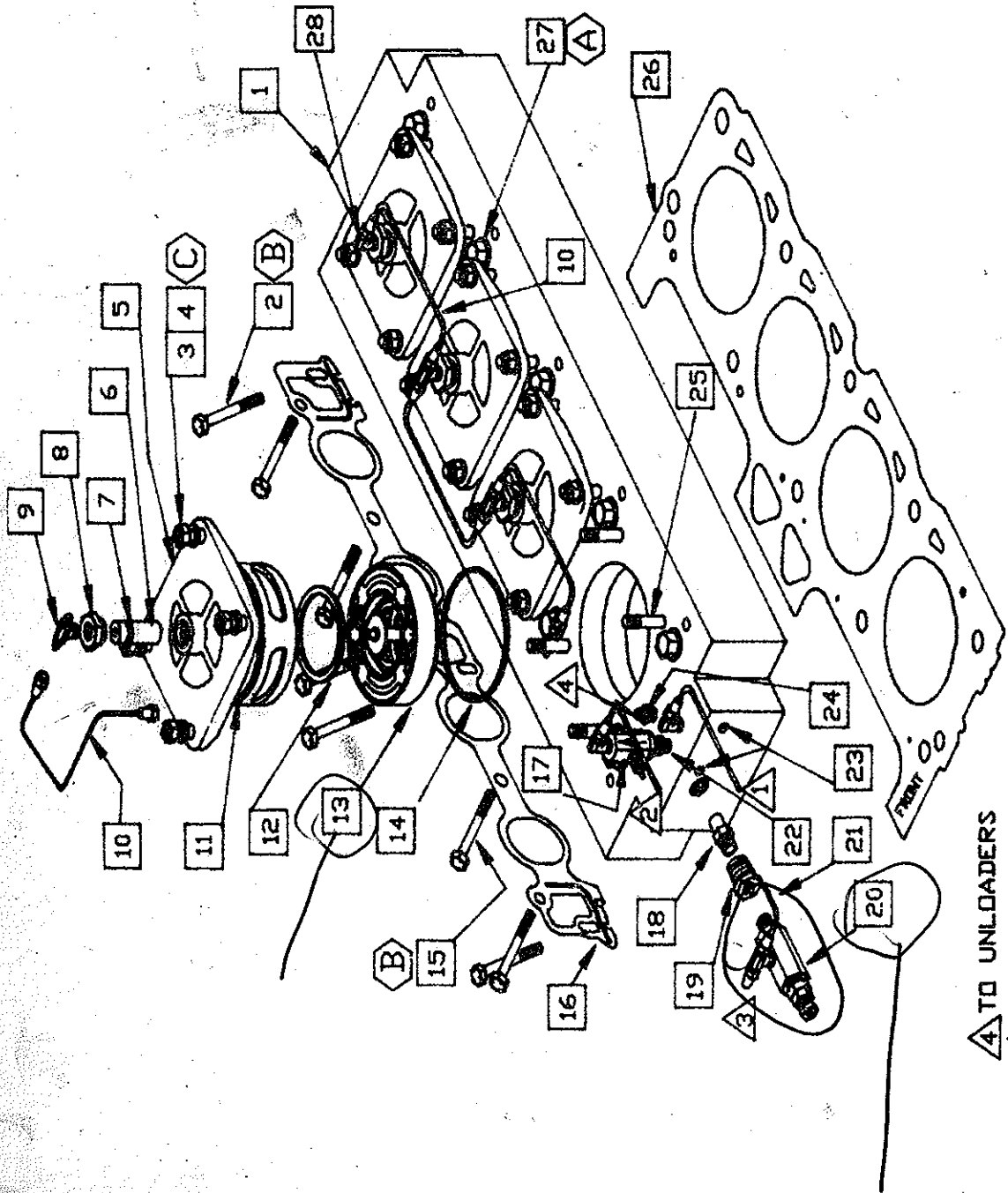
ENGINE

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
1	COVER, FLYWHEEL	1	1000205	1	1000284	1	1000284
2	SCREW, H.H. 7/16-14X1 1/4 (H07-14-10W)	6	STD.	6	STD.	6	STD.
3	SCREW, H.H. 5/16-18 X 1 (H05-18-06B)	2	STD.	2	STD.	2	STD.
4	SCREW, H.H. 1/2-13 X 4 (REF. NO. 4 NOT USED)	2	STD.	2	STD.	2	STD.
5	SCREW, H.H. 7/16-14 X 1 (H07-14-08B)	2	STD.	2	STD.	2	STD.
6	SUPPORT, REAR	1	1000141	1	1000288	1	1000288
7	WASHER, FLAT	4	M1216	4	M1216	4	M1216
8	MOUNT, SHOCK REAR	2	M1212	2	M1212	2	M1212
9	NUT, HEX LOCK 1/2-13 (N08-13-08)	2	STD.	2	STD.	2	STD.
10	NUT, HEX LOCK 5/16-18 (N05-18-00W)	2	STD.	2	STD.	2	STD.
11	ENGINE, SHORT BLOCK	#	STD.	#	STD.	#	STD.
12	SCREW, H.H. 5/8-11X3 1/2 (H10-11-28B)	N/R		N/R		N/R	
13	MOUNT, SIDE	N/R		N/R		N/R	
14	SCREW, H.H. 7/16-14 X 1 (H07-14-08B)	5	STD.	6	1000297	6	1000297
15	WASHER, FLAT (F08-00-000)	2	STD.	4	M1853	4	M1853
16	MOUNT, SHOCK	2	8-514	2	M1985	2	M1985
17	NUT, HEX LOCK 5/8-11 (N10-11-08)	N/R		2	STD.	2	STD.
18	ELBOW, 90 1/8T X 1/8P	1	M1169	1	M1169	1	M1169
19	NIPPLE, 1/8NPT X 7" XS PN-01-14SP	1	STD.	1	STD.	1	STD.
20	BUSHING, REDUCING 1/4X1/8 (PB-02-01BS)	N/R		N/R		N/R	
21	CROSS, 1/8NPT (PX-01-00BS)	1	STD.	1	STD.	1	STD.
22	CONNECTOR, 1/8T X 1/8P (FORD DOTZ-9950-B)	1	M1191	1	M1191	1	M1191
23	CASKET, FUEL PUMP	1	8-520	1	8-531	1	8-531
24	PUMP, FUEL	N/R		N/R		N/R	
25	SCREW, H.H. 3/8-16 X 1 1/4 (H06-16-10B)	1	8-517	1	8-418	1	8-418
26	SCREW, H.H. 3/8-16 X 1 (H06-16-08B)	2	M1253	2	M1253	2	M1253
27	PULLEY, CRANKSHAFT	4	STD.	4	STD.	4	STD.
28	PULLEY, WATER PUMP	1	8-522	1	8-409	1	8-409
29	BELT (MOTORCRAFT JB-430-LA)	1	8-523	1	8-411	1	8-411
30	SPACER, FAN	N/R		N/R		N/R	
31	SCREW, H.H. 5/16-24X2 3/4 (H05-24-22B)	1	M-1201	1	8-408	1	8-408
32	SPACER, 1/8" (MOTORCRAFT JB-430-LA)	1	8-515	1	8-413	1	8-413
33	BRACKET, ALTERNATOR	4	STD.	4	STD.	4	STD.
34	SCREW, H.H. 7/16-14X5 1/2 (H07-14-44B)	N/R		N/R		N/R	
35	SCREW, H.H. 5/16-18 X 1 (H05-18-08B)	1	8-508	1	1000313	1	1000313
36	FAN	1	STD.	1	3-109	1	3-109
37	SCREW, H.H. 3/8-16X5 1/2 (H06-16-44B)	4	STD.	4	STD.	4	STD.
38	SCREW, H.H. 3/8-16 X 1 (H06-16-08W)	1	3-056	1	3-056	1	3-056
39	SPACER, 1/8" (MOTORCRAFT)	N/R		N/R		N/R	
40	ALTERNATOR	N/R		N/R		N/R	

REF NO.	DESCRIPTION	MODEL 100		MODEL 125		MODEL 160	
		QTY	PART NO.	QTY	PART NO.	QTY	PART NO.
41	SCREW, H.H. 5/16-18 X 1 (H05-18-08W)	1	STD.	1	STD.	1	STD.
42	ARM, BEST TENSION	1	8-509	1	3-043	1	3-043
43	SPACER 2 7/8"	1	3-044	1	3-045	1	3-045
44	ADAPTER BRACKET	1	8-510	N/R		N/R	
45	SCREW, H.H. 7/16-14 X 1 (H07-14-08B)	N/R		N/R		N/R	
46	SCREW, H.H. 3/8-16X2 3/4 (H06-16-22B)	8	STD.	8	STD.	8	STD.
47	SCREW, H.H. 7/16-14X2 1/2 (H07-14-20B)	1	STD.	1	STD.	1	STD.
48	TUBE, CRANKCASE VENT	1	1001015	N/R		N/R	
49	TUBE ASSY. OIL LEVEL	N/R		N/R		N/R	
50	MANIFOLD EXHAUST	1	G-1032	1	8-420	1	8-420
51	SCREW/WASHER, EXH. MANIF. (H06-16-12B) 3/8-16 X 1	4	STD.	N/R		N/R	
52	SCREW/WASHER, EXH. MANIF. (H06-16-18B) 3/8-16 X 2 1/4	4	STD.5	N/R		N/R	
53	INDICATOR, OIL LEVEL	N/R		N/R		N/R	
54	SCREW, H.H. 3/8-16 X 2 (H06-16-16B)	2	STD.	2	STD.	2	STD.
55	CLIP	N/R		N/R		N/R	
56	CLAMP, HOSE (W120-00-YZ)	1	STD.	1	8-231	1	8-231
57	CAP, HEATER OUTLET	1	8-432	N/R		N/R	
58	HOSE BARB	1	STD.	1	M2222	1	M2222
59	NUT, HEX 3/8-16 (N06-16-000)	2	STD.	2	STD.	2	STD.
60	STARTER (FORD F2TZ-11002-A)	1	8-527	1	8-405	1	8-405
61	SCREW, H.H. 3/8-1616 X 1 3/4 (H06-16-14B)	1	STD.	1	STD.	1	STD.
62	PLUG, OIL PASSAGE	2	STD.	2	STD.	2	STD.
63	TUBE ASSY. OIL INDICATOR ASSY. (F10-00-000)	1	2-176	1	1000249	1	1000249
64	CLIP (F08-00-000)	1	8-518	1	8-518	1	8-518
65	SCREW 1/4-20 X 1/2 (F05-00-000)	1	8-519	1	8-519	1	8-519
66	BRACKET (WASHER, LOCK 5/16 (L05-00-000))	1	8-148	1	8-148	1	8-148
67	NUT, HEX 1/2-13 (N08-13-000)	1	2-778	1	2-778	1	2-778
68	WASHER, FLAT 5/8 (F10-00-000)	2	STD.	2	STD.	2	STD.
69	WASHER, INT. TOOTH 1/2 (C08-00-000)	N/R		N/R		N/R	
70	WASHER, FLAT 5/16 (F05-00-000)	3	STD.	3	STD.	3	STD.
71	WASHER, FLAT 7/16 (F07-00-000)	1	STD.	1	STD.	1	STD.
72	ELEMENT OIL FILTER (MOTORCRAFT FL1A)	1	STD.	1	STD.	1	STD.
73	SPARK PLUG (MOTORCRAFT) (ASF32 OR ASF42)	4	STD.	4	STD.	4	STD.
74	HOSE, 3/16 (VACUUM)	15'	M1957	15'	M1957	15'	M1957
75	HOSE BARB	1	M1954	1	M1954	1	M1954
76	BUSHING 3/8 X 1/8 P. PB 03-01-85	1	STD.	1	STD.	1	STD.

FOR ENGINE SHORT BLOCK CONTACT YOUR NEAREST FORD POWER PRODUCTS DEALER

Bob Fischer
763-689-3703



- △ 4 TO UNLOADERS
- △ 3 TO IDLE CYL
- △ 2 TO PILOT VALVE
- △ 1 TO INST. PANEL

- ⊞ C TORQUE TO 15 FT-LB
- ⊞ B TORQUE TO 25 FT-LB
- ⊞ A TORQUE TO 100 FT-LB MODEL 160
- ⊞ A TORQUE TO 70 FT-LB MODEL 100

NOTES:

HEAD & VALVE ASSEMBLY

