COMP 136

OPERATING, MAINTENANCE & PARTS MANUAL

SERIAL No 164058 - US7771

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[illegible]

MODEL

XHP-750-S-CAT

·HR2 - 750 - 300

PART NO. 35366004

JULY, 1985

0418 928 826

COMPRESSOR SERIAL NUMBER RANGE

164058-164067

IAN HEWITT

XHR 750 - S - CAT

750-

DANGER

STATEMENT CONCERNING THE USE OF THIS EQUIPMENT FOR BREATHING AIR AND/OR AQUA LUNG SERVICE

If the model number on this air compressor contains the letters "BAP", the compressor is suitable for use in breathing air services. In the absence of such a designation, the compressor is not considered as capable of producing air of breathing quality. For a compressor to be capable of use in breathing air services, it must be fitted with additional specialized equipment to properly filter and/or purify the air to meet all applicable federal, state and local laws, rules, regulations and codes, such as, but not limited to, OSHA 29 CFR 1910.134, Compressed Gas Association Commodity Specification G-7.1-1966, Grade D Breathing Air, and/or Canadian Standards Association. Should the Purchaser and/or User fail to add such specialized equipment and proceeds to use the compressor for breathing air service, the Purchaser/User assumes all liability resulting therefrom without any responsibility or liability being assumed by Ingersoll-Rand Company.

The Purchaser is urged to include the above provision in any agreement for any resale of this compressor.

A BATTERY CONTAINS SULFURIC ACID AND CAN GIVE OFF GASES WHICH ARE CORROSIVE AND POTENTIALLY EXPLOSIVE. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. IN CASE OF CONTACT, FLUSH AREA IMMEDIATELY WITH WATER.

EXERCISE EXTREME CAUTION WHEN USING BOOSTER BATTERY. TO JUMP BATTERY, CONNECT ENDS OF ONE BOOSTER CABLE TO THE POSITIVE (+) TERMINAL OF EACH BATTERY. CONNECT ONE END OF OTHER CABLE TO THE NEGATIVE (-) TERMINAL OF THE BOOSTER BATTERY AND OTHER END TO A GROUND CONNECTION AWAY FROM DEAD BATTERY (TO AVOID A SPARK OCCURRING NEAR ANY EXPLOSIVE GASES THAT MAY BE PRESENT). AFTER STARTING UNIT, ALWAYS DISCONNECT CABLES IN REVERSE ORDER.

NEVER INSPECT OR SERVICE UNIT WITHOUT FIRST DISCONNECTING BATTERY CABLE(S) TO PREVENT ACCIDENTAL STARTING.

USE EXTREME CARE TO AVOID CONTACTING HOT SURFACES (ENGINE EXHAUST MANIFOLD AND PIPING, AIR RECEIVER AND AIR DISCHARGE PIPING, ETC.).

DO NOT LOOSEN OR REMOVE OIL FILLER PLUG OR PERFORM ANY MAINTENANCE FUNCTIONS WITHOUT FIRST MAKING SURE ALL AIR PRESSURE HAS BEEN RELIEVED FROM UNIT.

NEVER OPERATE THIS MACHINE WITH ANY GUARDS REMOVED.

THE HIGH AIR PRESSURE DEVELOPED BY THIS MACHINE CAN BE HAZARDOUS.

THE AIR DISCHARGED FROM THIS UNIT IS NOT SUITABLE FOR HUMAN CONSUMPTION.

NEVER OPERATE UNIT WITHOUT FIRST OBSERVING ALL CAUTION AND WARNING DECALS AND CAREFULLY READING THE OPERATOR'S AND MAINTENANCE MANUAL FURNISHED WITH THIS MACHINE. ADDITIONAL COPIES OF THE MANUAL CAN BE OBTAINED FROM INGERSOLL-RAND COMPANY, MOCKSVILLE, NC 27028 USA.

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OPERATING, MAINTENANCE & PARTS MANUAL

COMPRESSOR NOISE EMISSION CONTROL INFORMATION

THIS COMPRESSOR CONFORMS TO U.S. E.P.A. REGULATIONS FOR NOISE EMISSIONS APPLICABLE TO PORTABLE AIR COMPRESSORS. THE FOLLOWING ACTS OR THE CAUSING THEREOF BY ANY PERSON ARE PROHIBITED BY THE NOISE CONTROL ACT OF 1972:

(A) THE REMOVAL OR RENDERING INOPERATIVE, OTHER THAN FOR THE PURPOSE OF MAINTENANCE, REPAIR, OR REPLACEMENT, OF ANY NOISE CONTROL DEVICE OR ELEMENT OF DESIGN INCORPORATED INTO THIS COMPRESSOR IN COMPLIANCE WITH THE NOISE CONTROL ACT;

(B) THE USE OF THIS COMPRESSOR AFTER SUCH DEVICE OR ELEMENT OF DESIGN HAS BEEN REMOVED OR RENDERED INOPERATIVE.

NOTE: The above information applies only to units that are built in compliance with the U.S. Environmental Protection Agency.

INGERSOLL-RAND

IMPORTANT SAFETY INSTRUCTIONS

This manual provides important information to familiarize you with safe operating and maintenance procedures for your Ingersoll-Rand Compressor. Even though you may be familiar with similar equipment you MUST read and understand this manual before operating this unit.

LOOK FOR THESE SYMBOLS WHICH POINT OUT ITEMS OF EXTREME IMPORTANCE TO YOU AND YOUR CO-WORKERS' SAFETY. READ AND UNDERSTAND THOROUGHLY. HEED THE WARNING AND FOLLOW THE INSTRUCTIONS.

⚠ DANGER

You MUST follow all DANGER safety notes. If you do not follow the instructions, your mistake might likely result in VERY SERIOUS INJURY or DEATH.

⚠ WARNING

WARNING safety notes must ALSO be followed. Your mistake might result in SERIOUS INJURY to yourself or others.

⚠ CAUTION

CAUTION safety notes are ALSO very important. They point out to you where your mistakes could cause PHYSICAL HARM to you or others, or damage to the machine.

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FOREWORD

During the preparation of this manual every effort was made to ensure the adequacy and accuracy of the contents. Only in this manner can the owner be provided with a tool that will aid him in obtaining maximum performance and trouble-free service from the compressor. Since all classes of equipment require a certain amount of attention, the purpose of this manual is to acquaint an operator with the functions, operation and lubrication of the compressor. This manual also provides the owner with the maintenance requirements applicable to the various components designed or selected for incorporation into this unit. Special attention has been given in an effort to make sure that only components built with the very best materials and the finest workmanship have been used, thus reducing the maintenance requirement to a bare minimum.

Before starting the compressor, the instructions should be carefully read to obtain a thorough knowledge of the duties to be performed. Take pride in the compressor, keep it clean, and in good mechanical condition.

For complete protection and minimum down-time to facilitate the maintenance effort that is required, it is suggested that a complete set of recommended spares be kept on hand during and after the first few months of operation. For recommended spares, replacement parts or information regarding the condition or operation of your unit or for major servicing not covered in this manual, consult your nearest sales office, autonomous company or authorized distributor. Be sure to specify the model and serial number of the compressor during any correspondence with a company representative THIS IS IMPORTANT. The serial number of the unit will be found stamped on a plate attached to the unit. (The serial number of the unit is also permanently stamped in the metal of the frame side rail.)

In addition to preventive maintenance, the compressor airend may require overhauling to maintain maximum output and performance of the unit. Your Ingersoll-Rand Company Construction Equipment Group Sales Offices and authorized distributors as well as Ingersoll-Rand International autonomous companies and authorized distributors now have a compressor airend exchange program, therefore we do not recommend overhaul of the airend by the customer. However, we do recognize the fact that circumstances may warrant field overhaul of the airend. Prior to any disassembly or reassembly of the airend we strongly suggest the owner contact the Customer Service Department, Ingersoll-Rand Company, Mocksville, North Carolina, 27028 for their advice and suggestions.

SECTION 2 — GENERAL DATA

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SPECIFICATIONS

COMPRESSOR

Actual Delivery	750 cfm (354 litres per sec)
Rated Operating Pressure	300 psi (21.1 kgf per cm²) (2070 kPa)
Safety Valve Setting	400 psi (28.1 kgf per cm²) (2760 kPa)

ENGINE (DIESEL)

Manufacturer	Caterpillar Tractor Co.
Model	3306 TA
Speed, Full	2100 RPM
Speed, Idle	1200 RPM
Electrical System	24 Volt

FLUID CAPACITIES

Compressor Lubrication	42 U.S. gals. (159 litres)
Engine Crankcase (including filter)	23 quarts (22 litres)
Engine Coolant Capacity	55 quarts (52 litres)
Fuel Tank (Diesel)	144 U.S. gals. (540 litres)

UNIT MEASUREMENTS/WEIGHTS

Overall Length	12.54 feet (3.82 meters)
Overall Height	7.09 feet (2.16 meters)
Overall Width	6.69 feet (2.04 meters)
Net Weight (including lube oil)	10,600 lbs. (4800 kg)
Gross Weight (including fuel and coolant)	12,100 lbs. (5500 kg)

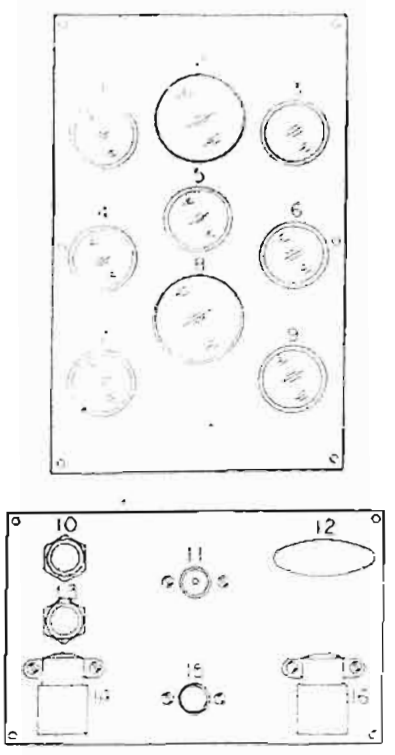
RUNNING GEAR

Tire Size/Load Range	8.00 x 16.5/E
Inflation Pressure (Cold)	75 psi (5.25 kgf per cm²) (520 kPa)
Towing Speed (Maximum)	20 mph (32 km/hr)

CAUTION: ANY DEPARTURE FROM THE SPECIFICATIONS MAY MAKE THIS EQUIPMENT UNSAFE.

EXPENDABLE SERVICE PARTS

Compressor Oil Filter Element Kit	Part No. 35367879
Compressor Oil Separator Element	Part No. 35820893
Air Filter Element (Primary)	Part No. 35109263
Air Filter Element (Safety)	Part No. 35109271



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OPERATING CONTROLS AND INSTRUMENTS

1. Engine Oil Pressure Gauge — Indicates lubricating oil pressure in the engine. See engine manual for normal range.
2. Compressor Discharge Pressure Gauge — Indicates pressure in receiver tank, normally from 0 psi kPa to the rated pressure of the machine.
3. Engine Coolant Temperature Gauge — Indicates coolant temperature in the engine, with normal maximum from 180°F (82°C) to 200°F (93°C). The red band indicates an overheating condition.
4. Engine Fuel Pressure — Can be used to determine when filters are clogged by comparing with pressure when clean.
5. Dischage Air Temperature Gauge — Indicates air temperature in °F and °C. Normal range is 190°F (88°C) to 230°F (110°C).
6. Voltmeter — Indicates voltage of the electrical system, normally approximately 28 volts.
7. Fuel Level — Indicates level in tanks, from empty to full.
8. Engine Tachometer/Hourmeter — Indicates engine speed, from 0 rpm at stop to 1800 rpm at full load. Records running time in hours for maintenance purposes.
9. Ammeter — Indicates charging rate of alternator, normally slighitly positive.
10. Start Button — Switch that activates the engine starter.
11. "Service Air" Button — A 2-way valve that should be tripped (pushed) after engine is warmed up to obtain full air pressure at the service outlet.
12. Stop Handle — Is connected by cable to lever on the engine governor.
13. "Safety Circuit Bypass" Button — Switch that bypasses the engine low oil pressure sensor in the safety shutdown system during start-up.

14-16. Air Filter Service Indicators — Indicate acceptable (green flag) or excessive (red flag) restriction within engine or compressor air filter.

15. Pressure Regulator Knob — Valve that can be adjusted to automatically limit the operating pressure from 150 psi (10.5 kgf per cm²) to 300 psi (21.1 kgf per cm²).

-- Cold Starting Aid (Beside Control Panel) — A valve for injecting a measured shot of ether from a pressurized can.

-- Fuel Primer Pump (On side of engine) — Manually operated to prime fuel system.

SECTION 3 — OPERATING INSTRUCTIONS

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⚠ DANGER

Failure to follow these instructions could result in very serious personal injury or death.

- Do not store or transport material or equipment in or on compressor.
- Do not transport personnel in or on compressor.
- Do not climb on top of machine.

MOVING THE UNIT

⚠ DANGER

Failure to follow these instructions could result in very serious personal injury, death or property damage.

- Insure that the tires, wheels and running gear are in good condition and secure.
- Insure that the tires are inflated to 75 psi (5.25 kgf per cm^2) (520 kPa).
- Do not tow this unit in excess of 20 mph (32 km/hr).
- Use a vehicle whose towing capacity is greater than the gross weight of this unit.

SETTING UP

- All fluid levels (engine oil, compressor oil and radiator coolant) should be checked and topped off while the unit is level and maintained at this level. Do not overfill either the engine crankcase or the compressor oil reservoir.
- Place the unit in a position as level as possible. The design of these units permits a 15-degree lengthwise and a 15-degree sidewise limit on out-of-level operation.
- Chock the wheels of the compressor unit.

⚠ CAUTION

Do not connect the air discharge on this unit into a common header with any other unit of any description, or any other source of compressed air, without first making sure a check-valve is used between the header and the unit. If this unit is connected in parallel with another unit of higher discharge pressure and capacity, a safety hazard could occur in a back-flow condition.

BEFORE STARTING

- Open manual blowdown valve on the receiver-separator tank to insure pressure is relieved in the system. Close this valve and all service valves.
- Check battery for proper connections and conditions.

⚠ WARNING

Exercise extreme caution when using a booster battery to start, as a spark in the presence of battery gases could cause an explosion and result in serious personal injury. To jumpstart, connect the ends of one booster cable to the positive (+) terminals of each battery (booster and weak). Then connect one end of the other cable to the negative (−) terminal of the booster

battery and the other end to the engine block (NOT TO THE NEGATIVE (−) TERMINAL OF THE WEAK BATTERY).

After starting:

a. Reduce engine speed to idle.

b. Disconnect negative (−) cable from engine block; then from booster battery.

c. Disconnect positive (+) cable from both batteries (booster and weak).

- Check the compressor lubricating oil level. The proper oil level is mid-way on the sight window. Add oil if the level falls to the bottom of the sight window when the unit is not running. DO NOT OVERFILL. If necessary, refer to Section 5 — Lubrication, for recommended lubricant.
- Check the engine lubricating oil level. Refer to the engine Operator's Manual for recommended lubricant.

⚠ DANGER

No smoking, sparks, or open flame near fuel.

- Check the fuel level. Use only clean diesel fuel. Refer to engine Operator's Manual for specifications.

NOTE

To minimize condensation (water) in the fuel tank, it is recommended to fill the tank at the end of each day.

- Check the service indicators on both air cleaners. If the flag in either shows red, refer to Section 4 — Preventive Maintenance, for service instructions.

⚠ WARNING

Use extreme care when removing a radiator pressure cap from the engine radiator. The sudden release of pressure from a heated cooling system can result in a loss of coolant and possible personal injury by scalding.

- Check the coolant level in the radiator. The coolant must cover the tubes in the top tank (approximately 1 inch high on a clean measuring rod stuck down filler neck).

⚠ WARNING

Insure that all guards (fan, etc.) are in place and that all high pressure air and oil lines are safely connected.

NOTE

When operating in ambient temperatures above 90°F (32°C) and high humidity, drain any condensate from the receiver tank daily. Also inspect compressor oil for milky appearance. If found, refer to Section 5 — Lubrication.

STARTING THE UNIT

- Make sure the manual stop handle is pushed in all the way.
- Manually operate the hand-primer pump on side of engine to insure fuel pressure.

NOTE — COLD WEATHER

If the temperature is below 60°F (16°C), it may be necessary to use the cold starting aid (ether bottle and valve located adjacent to instrument panel). If so, operate the valve handle once prior to and sparingly during cranking. Engine damage can result from excessive use.

⚠ WARNING

Ether is an extremely flammable and toxic gas. It can be harmful or fatal if swallowed. Avoid contact with skin or eyes, or breathing the fumes. If swal-

lowed do not induce vomiting. Call a physician immediately.

If fluid enters the eyes, or fumes irritate the eyes, they should be flushed with large quantities of clean water for 15 minutes. A physician should be consulted.

Contents of the cylinder are under pressure. Store in a cool dry place. Do not incinerate or puncture.

STARTING BELOW 32°F/0°C

If the temperature is below 32°F/0°C it is essential to close the compressor air inlet valve prior to cranking.

1. Pull and lock the handle on the left side of the control panel.
2. As soon as the engine speed reaches 1200 rpm, immediately unlock and GRADUALLY push in on the handle. The air inlet valve must be opened as quickly as possible to prevent oil pump cavitation and loss of airend lubrication.

- Press the start button and the safety bypass button at the same time.

NOTE

If the engine fails to start within 20 seconds, release the starting switch and allow the starting motor to cool 1 to 2 minutes before engaging the starter again.

If the engine does not start after 2 or 3 attempts, refer to Section 7 of this manual.

- Release the start button when the engine speed increases.

NOTE

If the engine oil pressure does not rise within 5 seconds, stop the engine and trouble shoot. Refer to Section 7 — Trouble Shooting, of this manual.

- Release the bypass button when the air discharge pressure reaches approximately 40 psi (2.81 kgf per cm^2).
- Allow the engine to warm-up for 5 to 10 minutes, depending upon the ambient temperature, or until the coolant temperature reaches 140°F (60°C).
- Push the "service air" button (2-way valve). The engine should go to full speed and the discharge pressure rise to approximately 325 psi (2200 kPa). If there is no air being consumed the compressor will unload (intake will be throttled) and the engine speed drop to an idle.
- Compressor is now ready to furnish air when the service valve is opened.

NOTE

If the engine stops unexpectedly, refer to Section 7 — Trouble Shooting, for assistance.

STOPPING

- Close all service valves.
- Allow unit to run at idle for 3 to 5 minutes. This will allow engine components to cool gradually and thus promote longer engine life.
- Pull the stop handle and hold it out until the engine comes to a complete stop.

NOTE

Once the engine stops the automatic blowdown valve will begin to relieve all pressure from the receiver-separator system.

⚠ CAUTION

Never allow the unit to sit stopped with pressure in the receiver-separator

system. If necessary, open the manual blowdown valve.

! DANGER

Even after pressure is relieved from the receiver-separator system, any air supply line from the compressor to a tool or machine could remain under pressure and cause very serious personal injury or death. After the compressor stops, carefully open a valve at any tool or machine to exhaust the pressure in any line prior to removal or servicing.

SAFETY SHUTDOWN

Should any of three shutdown failures occur (engine overheat, low engine oil pressure, excessive discharge air temperature), the unit will shut down. This occurs when the shutdown cylinder actuates the engine fuel rack thereby shutting off the fuel supply to the engine.

SECTION 4 — MAINTENANCE

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GENERAL

In addition to periodic inspections, many of the components in these units require periodic servicing to provide maximum output and performance. Servicing may consist of pre-operation and post-operation procedures to be performed by the operating or maintenance personnel. The primary function of preventive maintenance is to prevent failure, and consequently, the need for repair. Preventive maintenance is the easiest and the least expensive type of maintenance. Maintaining your unit and keeping it clean at all times will facilitate servicing.

Refer to the engine Operator's Manual furnished with the unit for the specific requirements on preventive maintenance for the diesel engine.

SCHEDULED MAINTENANCE

The schedule on the following page is based on normal operation of the unit. This page can be reproduced and used as a checklist by the service personnel. In the event unusual environmental operating conditions (very humid, very dusty, etc.) exist, the schedule should be adjusted accordingly.

COMPRESSOR OIL LEVEL

The optimum operating level is midway of the sight window on the side of the receiver tank. DO NOT OVERFILL. A totally filled sight window in which the level is not visible indicates an over-full condition and requires that oil be drained. Add oil only when the level is near the bottom. Then add enough oil to bring the level midway of the sight window.

AIR CLEANER

Inspect daily the air cleaner service indicator. Never guess about restriction in the air cleaner, always know what condition your air cleaner is in with the assistance of the service indicator. If it is not working properly, or is missing, replace it. Maximum compressor and engine protection against the ravages of dust is possible only if the air cleaner is serviced at regular intervals or whenever the service indicator shows red. Visually inspect the position of the flag in the air cleaner restriction indicator. Normally, the flag in a service indicator shows green indicating that the filter element is still serviceable. If the flag shows red when the unit is operating at full speed or stopped, it is an indication that proper servicing of the filter element is necessary. Also squeeze the precleaner dumps (rubber valve) to insure that they are not clogged.

⚠ CAUTION

- ANY UNAUTHORIZED MODIFICATION OR FAILURE TO MAINTAIN THIS EQUIPMENT MAY MAKE IT UNSAFE AND OUT OF FACTORY WARRANTY.
- IF PERFORMING MORE THAN VISUAL INSPECTIONS: (1) DISCONNECT BATTERY CABLES, (2) OPEN MANUAL BLOW-DOWN VALVE, AND (3) INSURE DISCHARGE AIR PRESSURE GAUGE READS ZERO (0).
- USE EXTREME CARE TO AVOID CONTACTING HOT SURFACES (ENGINE EXHAUST MANIFOLD AND PIPING, AIR RECEIVER AND AIR DISCHARGE PIPING, ETC.).
- NEVER OPERATE THIS MACHINE WITH ANY GUARDS REMOVED.
- INCH AND METRIC HARDWARE WAS USED IN THE DESIGN AND ASSEMBLY OF THIS UNIT. CONSULT THE PARTS LISTING FOR CLARIFICATION OF USAGE.

REQUIRED MAINTENANCE SCHEDULE

UNIT _____ DATE _____

HOURS _____ SERVICEMAN _____

	DAILY	WKLY	MO.	3 MO. 500 HRS	6 MO. 1000 HRS	12 MO. 2000 HRS
COMPRESSOR OIL LEVEL/DRAIN CONDENSATE	C					
ENGINE OIL LEVEL	C					
AIR FILTER RESTRICTION INDICATORS	C					
AIR FILTER PRECLEANER DUMPS	C					
RADIATOR COOLANT LEVEL	C					
GAUGES	C					
FUEL TANK (FILL AT END OF DAY)	C				DRAIN	
FAN BELTS	.....	C				
BATTERY ELECTROLYTE LEVEL	.....	C				
TIRE PRESSURE AND SURFACES	.....	C				
SAFETY SHUTDOWN SYSTEM	.....	.....	C			
EXTERNAL COOLER SURFACES (CLEAN)	.....	.....	C			
HOSES (OIL, AIR, HYDRAULIC, INTAKE, ETC.)	.....	.....	C			
COMPRESSOR OIL FILTERS	.....	.....	.....	R		
FASTENERS (TIGHTEN)	.....	.....	.....	C		
ANTIFREEZE (50% SOLUTION)	.....	.....	.....	C		
COMPRESSOR OIL	.....	.....	.....	.....	R	
CHASSIS LUBE POINTS	.....	.....	.....	.....	C	
WHEEL BEARINGS	.....	.....	.....	.....	.....	C
SEPARATOR ELEMENT	.....	.....	.....	.....	.....	R
SAFETY SWITCH SETTING	.....	.....	.....	.....	.....	C
SCAVENGE LINE	.....	.....	.....	.....	.....	C
ENGINE	REFER TO ENGINE OPERATOR'S MANUAL OR DEALER					

C = CHECK (AND ADJUST OR REPLACE IF NECESSARY) R = REPLACE

In addition, the air cleaner assembly should be inspected every three (3) months or 500 hours to maintain maximum protection to the compressor and engine and to obtain maximum service life. Make sure that the inlet is free from obstructions. Make sure the air cleaner mounting bolts and clamps are tight and that the air cleaner is mounted securely. Check the air cleaner housing for dents or damage to the cleaner which could mean a leak. Inspect the air transfer ducting to the air cleaner and from the air cleaner to the compressor and the engine. Make sure that all clamps and flange joints are tight and that there are no leaks in the ducting.

To service an air cleaner, first remove and empty the dust cup. Dirt should not be allowed to build up closer than one inch (25.4 mm) from the baffle. If the restriction indicates that element servicing is required, loosen the wing nut and remove the primary element. After the primary and the safety elements have been removed, wipe the inside of the air cleaner housing with a clean, damp cloth. If this surface is not cleaned, the gasket on the new elements may sit on top of some of this dirt and create potential leaks. If dirt on the inside of the air cleaner is left on the clean side of the element gasket, it could find its way into the compressor or the engine.

In the event that the filter element must be re-used immediately, maintenance of the element should be performed as follows: Direct compressed air through the element in the direction opposite to the normal air flow through the element. Move the nozzle up and down while rotating the element. Be sure to keep the nozzle at least one inch (25.4 mm) from the pleated paper.

⚠ CAUTION

To prevent damage to the element, never exceed a maximum air pressure of 100 psi (7.03 kgf per cm^2) (700 kPa).

Compressed air cleaning is recommended whenever the element must be reused immediately. A washed element must be thoroughly dried before re-using.

In the event the element is contaminated with dry dirt, oil or greasy dirt deposits, maintenance of the element should be performed as follows:

1. If only a mild cleaning is required, mix a sufficient amount of warm water and household detergent to allow the element to be fully submerged. Place the element in the cleaning solution and allow it to soak for five minutes. Agitate the element thoroughly in the cleaning solution after the soaking period. Remove the element from the cleaning solution, drain, then flush using a gentle stream of clean water.
2. If stronger cleaning is required, wash the element in a thoroughly mixed cleaning solution consisting of four tablespoons of household detergent and one-half teaspoon of trisodium phosphate to each gallon of lukewarm water. After soaking the element in the cleaning solution for not less than five minutes, agitate the element in the solution to make sure it is thoroughly cleaned.
3. Discard the dirty solution and rewash the element in a newly mixed bath of cleaning solution. After the element has been thoroughly cleaned, flush the element with clear water, using a gentle stream, being careful not to point the stream directly at the element.
4. Inspect the washed element for any damage by placing a bright light inside the element and rotating the element slowly. Keep in mind that the slightest rupture requires replacement of the element.
5. Allow the element to air-dry or use a stream of warm flowing air not exceeding a maximum temperature of 160°F (71°C).

Do not use compressed air or the heat of a light bulb to dry the element.

NOTE

It is highly recommended that new replacement elements be installed in the unit immediately in order that the unit be returned to service in the shortest possible time. In this manner the primary elements just removed for cleaning can be washed and stored as future replacement elements.

⚠ CAUTION

The safety element is not intended to be cleaned. For maximum protection and air cleaner service life, replace the safety cleaner with a new safety element every third primary element change.

Before installing new elements, always inspect the elements and their gaskets for shipping or storage damage. Carefully install the elements and their attaching wing nut. Reinstall the dust cap, making sure it seals 360 degrees around the air cleaner body.

Reset the restriction indicator to green. This may be done by pressing down on the indicator's flexible top.

ENGINE RADIATOR

The diesel engine cooling system functions not only to prevent the high combustion chamber temperatures from damaging the engine but, at the same time, must maintain the operating temperatures within safe limits. It is extremely important to maintain efficiency in the engine cooling system as the engine temperatures must be brought up to and maintained within a satisfactory range for efficient operation, but must also be kept from overheating in order to prevent damage to the engine moving parts.

To control the engine operating temperature range, the cooling system is designed so that the coolant is allowed to circulate only within the engine itself until normal operating temperatures are reached. At this point bypass-type thermostats open to allow all of the coolant to circulate through the radiator as well as the engine. The radiator, which consists of a core section through which the coolant is circulated, is designed to provide an extended surface through which the heat of the coolant can be dissipated. It is, therefore, extremely important that this core section be kept clean on the inside and free from dirt on the outside so that maximum heat transfer can take place.

Blowing compressed air, which contains a non-flammable safety solvent, between the cooling fins of the radiator in a direction opposite to that of the fan-circulated air should serve to keep the exterior cooling surfaces of the radiator section free of dirt and other foreign particles. This cleaning operation should be performed each month.

Sludge and rust in the cooling system can prevent normal heat transfer and in time can render the cooling system ineffective to properly maintain normal operating temperatures. The appearance of rust in a coolant system is a warning that the corrision inhibitor has lost its effectiveness and that the system requires cleaning and flushing. Refer to the engine Operator's Manual for specific instructions on cleaning the cooling system.

Before placing the unit back into service, make sure that all hose connections are tight and that all radiator draining points are tight, including all of the engine drain cocks. Refill the radiator with coolant as recommended in the engine Operator's Manual. Never use plain water.

GAUGES

The instruments or gauges are essential for

safety, maximum productivity and long service life of the machine. Inspect the gauges prior to start-up and during operation to insure proper functioning. Refer to Section 3 — Operating Controls, for the normal readings.

FUEL TANK

The fuel tank on this unit should be filled daily or every eight hours if necessary. However, in order to prevent condensation from forming in the fuel tank, it should be filled immediately after the unit has been operated, for example, at the end of each working day. Using clean fuel in the fuel tank is vitally important and every precaution should be taken to insure that only clean fuel is either poured or pumped into the tank.

When filling the fuel tank on this unit, by methods other than a pump and hose, use a nonmetallic funnel which is kept for this purpose only. Make sure the funnel is wiped clean before using.

Every six months the drain plugs should be removed from the fuel tanks so that any sediment or accumulated condensate may be drained. When replacing the drain plugs, make sure they are tightened securely.

BELTS (FAN/ALTERNATOR)

The fan belts should be neither too tight nor too loose. A belt that is too tight imposes an undue load on the fan bearings and shortens the life of the belt. One that is too loose allows slippage and lowers the fan speed, causes excessive belt wear and leads to overheating of the cooling system.

Replace all belts in a set when one is worn, single belts of similar size should not be used as substitute for a matched belt set; premature belt wear can result because of the belt length variation. All belts in a matched belt set are within .032 inch (.79 mm) of their specified center distances.

NOTE

To prevent premature fan or crankshaft bearing failure and/or belt failure, it is very important to refer to belt adjustment instructions outlined in the Engine Operator's Manual.

BATTERY

The electrolyte level in each cell should cover the top of the plates. If necessary, top-up with clean distilled water.

NOTE

If the ambient temperature is below 32°F (0°C) any addition of water to the batteries must be done after the engine has been started to prevent the batteries from freezing.

TIRES

The proper inflation pressure for the tires is listed in Section 2 — General Data. Tires that have cuts or cracks or little tread should be repaired or replaced.

SAFETY SHUTDOWN SYSTEM

The operation of the safety shutdown system should be checked every month, or whenever it appears not to be operating properly. The three switches involved in this protective shutdown system are the discharge air temperature switch, the engine coolant high temperature switch and the engine oil pressure switch. The operation of these switches is extremely important in order to protect the engine and the compressor airend from overheating. The engine oil pressure switch prevents the engine from being damaged due to oil starvation. Once a month remove a wire from the engine oil pressure switch to check the shutdown system for proper operation.

Once a year, the two temperature actuated switches should be tested by removing them

from the unit and placing them in a bath of heated oil. The engine coolant high temperature switch will require a temperature of approximately 210°F (99°C), while the discharge air high temperature switch will require approximately 248°F (120°C) to actuate. Test the switch's operation by connecting an ohmmeter between the two wire terminals. The ohmmeter should show zero ohms. When the switch is placed in the heated oil bath and its contacts open, the ohmmeter should indicate infinite ohms. Tap the switch lightly during the checking operation. Replace any defective switch before continuing to operate the unit. Test the engine oil pressure switch by removing it and connecting it to a source of controlled pressure while monitoring an ohmmeter connected to the switch terminals. As pressure is applied slowly from the controlled source, the switch should close at 12 psi (84 kPa) and show continuity through the contacts. As the pressure is slowly decreased to 10 psi (70 kPa) the contacts should open and the ohmmeter should show lack of continuity through the contacts. Replace a defective switch before continuing to operate the unit.

⚠ CAUTION

Never operate the unit with a defective safety shutdown switch or by shorting over a switch.

COMPRESSOR OIL COOLER

The compressor lubricating and cooling oil is cooled by means of the fin and tube-type oil cooler, located beside the engine radiator. The oil cooler is so arranged that the lubricating and cooling oil, flowing internally through the core section, is cooled by the air stream from the cooling fan flowing past the core section. When grease, oil and dirt accumulate on the exterior surfaces of the oil cooler, its efficiency is impaired. Each month it is recommended that the oil cooler be cleaned by directing compressed air which contains a non-flammable safety solvent through the core of the oil cooler. This should remove the accumulation of grease, oil and dirt from the exterior surfaces of the oil cooler core so that the entire cooling area can transmit the heat of the lubricating and cooling oil to the air stream.

In the event foreign deposits, such as sludge and lacquer, accumulate in the oil cooler to the extent that its cooling efficiency is impaired, a resulting high discharge air temperature is likely to occur, causing shutdown of the unit. To correct this situation it will be necessary to clean it using a cleaning compound in accordance with the manufacturer's recommendations. Use only a dependable cleaning compound. This is of prime importance because different cleaners vary in concentration and chemical composition. After completing the cleaning procedure, the oil cooler must be flushed before returning to service.

HOSES

Each month it is recommended that all of the intake lines to and from the air cleaners, the engine cooling system hoses and all of the flexible hoses used for air, oil, brake and fuel be inspected.

To insure freedom from air leaks all rubber hose joints and the screw-type hose clamps must be absolutely tight. Regular inspection of these connections for wear or deterioration is a definite "must" if regular servicing of the air cleaners is not to prove futile. Premature wear of both the engine and compressor is assured whenever dust-laden air is permitted to enter the engine's combustion chamber or the compressor intake practically unfiltered.

All components of the engine cooling system, in addition to radiator maintenance, should be checked periodically to keep the engine operating at peak efficiency. The cooling system hoses should be checked for wear or deterioration and replaced if necessary. At

the same time the thermostats as well as the radiator pressure cap should be checked and replaced if necessary. Whenever new hoses are installed, be sure the connecting parts are properly aligned and that the hose is in its proper position before tightening the clamps. All external leaks should be corrected as soon as they are detected.

The flexible hoses used in the fuel, oil and air lines on these units are primarily used for their ability to accommodate relative movement between components. Secondarily, they reduce vibration problems found with fixed piping and they permit much more flexibility in routing. Because these hose lines are flexible it is extremely important they be periodically inspected for wear and deterioration. Clamps are used to prevent hose cover abrasion through vibration. This abrasion may occur when two hose lines cross, or when a hose line rubs against a fixed point; therefore, it is necessary that all clamps be replaced if missing or that new clamps be added if required to prevent further wear. It is also important the operator does not use the hoses as convenient hand holds or steps. Such use can cause early cover wear and hose failure.

COMPRESSOR OIL FILTER

The compressor lubrication and cooling system is equipped with an in-line, canister-type filter with an integral bypass valve. This canister is mounted to the rear of the airend. With a clean element installed all of the oil flows through the full element area, from the outside to inside. As the element becomes contaminated with dirt, the pressure drop across the element increases and the bypass valve cracks open, thus providing proportional filtration. As the element traps additional contaminants the pressure drop increases until the bypass valve fully opens. At this time little filtration is taking place but the oil is allowed to continue flowing through the system thus preventing any damage from loss of oil.

NOTE

The oil filter element must be replaced every 500 hours of operation. On new or overhauled units replace the filter element after the first 50 and 150 hours of operation; thereafter, replace the filter element every 500 hours of operation or three months, whichever comes first.

To service the oil filter it will first be necessary to shut the unit down, open the manual blowdown valve (on end of separator tank) and wipe off any dirt and oil from the exterior of the filter. This will assure that the system is relieved of all pressure and will prevent any contaminants from entering the system. Next, loosen the center bolt at the bottom of the filter canister; then remove the canister and element as a complete assembly. Remove the element from the canister and then clean the canister thoroughly.

CAUTION

If there is any indication of formation of varnishes, shellacs or lacquers on the oil filter element or in the canister, it is a warning that the compressor lubricating and cooling oil has improper characteristics and should be immediately changed. Refer to Section 5 — Lubrication.

Push the center bolt back through the canister far enough to inspect the gasket washer for any nicks or deterioration. Replace if necessary, then place the element assembly into the canister and bolt assembly. Using a new housing O-ring, install the canister/element assembly back into the filter head. Tighten the center bolt snug to tight. Start the unit and check the filter for any leaks. If leakage occurs, excess tightening of the center bolt will not correct the situation. Either the gasket washer on the center bolt or the housing O-ring has been damaged and must be replaced.

FASTENERS

Visually check entire unit in regard to bolts, nuts and screws being properly secured. Spot check several capscrews and nuts for proper torque. If any are found loose a more thorough inspection must be made.

COOLANT (ANTIFREEZE)

The engine cooling system was filled at the factory with a fifty per cent (50%) solution of water and permanent-type antifreeze for protection to some thirty degrees below zero (−30°F/−34°C). Every three months or 500 hours the protection level should be checked and adjusted if necessary. Refer to the engine Operator's Manual for recommendations and specifications on coolants and additives.

NOTE

If antifreeze is not used as the coolant, failure to drain the engine may cause serious damage during freezing weather.

COMPRESSOR OIL

The lubricating and cooling oil must be replaced every 1000 hours of operation or six months, whichever comes first. Refer to Section 5 — Lubrication, for detailed instructions and specifications.

RUNNING GEAR

The tie rod ends and steering knuckles are equipped with grease fittings and should be lubricated every six months.

Every six months the wheel bearings, grease seals and axle spindles should be inspected for damage and wear (i.e., from corrosion, scratches, metal particles, etc.). Replace any damaged or worn parts. Repack wheel bearings using a wheel bearing grease conforming to specification MIL-G-10924 and suitable for all ambient temperatures.

Grease can be replaced in a wheel bearing using a special fixture or by hand as follows. Place a spoonful of grease in the palm of one hand and take the bearing in the other hand. Push a segment of the wider end of the bearing down into the outer edge of the grease pile closest to the thumb. Keep lifting and pushing the bearing down into the edge of the grease pile until grease oozes out both from the top and from between the rollers. Then rotate the bearing to repeat this operation on the next segment. Keep doing this until you have the entire bearing completely filled with grease. Before installing bearing, place a light coat of grease on the bearing cups which are pressed in the hub.

NOTE

Excessive grease in the hub or grease cap serves no purpose due to the fact that there is no way to force the grease into the bearing. The manufacturer's standard procedure is to thoroughly pack the inner and outer bearing with grease and then to apply only a very small amount of grease into the grease cap.

If bearing adjustment is required or the hub has been removed for any reason, the following procedure must be followed to insure a correct bearing adjustment of .001 to .012 end play.

(1) While rotating hub slowly to seat the bearings, tighten spindle nut to approximately 50 ft. lbs.

(2) Loosen nut slightly to remove preload torque. Do not rotate hub.

(3) Finger tighten nut until just snug and place cotter pin in the first nut castellation which lines up with cotter pin hole in spindle.

(4) Bend over cotter pin legs to secure nut and clear grease or oil cap.

(5) Nut should be free to move with only restraint being the cotter pin.

RECEIVER-SEPARATOR SYSTEM

WARNING
HOT PRESSURIZED FLUID

Before performing any service on the compressor lubricating system:

- Open manual blowdown valve on separator tank cover.
- Insure pressure is relieved, with BOTH:
  - — Discharge air pressure gauge reads zero (0).
  - — No air discharging from manual blowdown valve.
- When draining oil, remove and replace (make tight) plug at bottom of separator tank.
- When adding oil, remove and replace (make tight) plug on side of separator tank.

In the compressor lubricating and cooling system, separation of the oil from the compressed air takes place in the receiver-separator tank. As the compressed air enters the tank, the change in velocity and direction drop out most of the oil from the air. Additional separation takes place in the oil separator element which is located in the top of the tank. Any oil accumulation in this separator element is continuously drained off by means of a scavenger line which returns the accumulated oil to the compressor.

The life of the oil separator element is dependent upon the operating environment (soot, dust, etc.) and should be replaced every twelve months or 2000 hours. To replace the element proceed as follows:

- Insure manual blowdown valve is open.
- Disconnect large hose from fitting in service valve.
- Remove (12) cover mounting screws.
- Remove cover and remove element.
- Remove any gasket material left on cover or tank.
- Install new element with drain hole at the bottom, as marked on element.
- Re-position cover.
- Replace (12) mounting screws; tighten in a criss-cross pattern to 600 ft. lbs. (800 Nm).
- Reconnect large hose.
- Replace scavenger line.

When replacing the element, the scavenger line should be thoroughly cleaned and the oil changed.

SCAVENGER LINE

The scavenger line originates at the receiver-separator tank cover and terminates at the compressor. Once a year or every 2000 hours of operation, whichever comes first, remove this line, thoroughly clean, then re-assemble.

NOTE

Excessive oil carry-over may be caused by an oil-logged separator element. Do not replace element without first performing the following maintenance procedure:

1. Check oil level. Maintain as indicated earlier in this section.
2. Thoroughly clean scavenger line.
3. Assure minimum pressure valve has proper setting.
4. Run unit at rated operating pressure for 30 to 40 minutes to permit element to clear itself.

SECTION 5 — LUBRICATION

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General Information 1
Compressor Oil Change 1
Fluids & Lubricants Table 2

GENERAL INFORMATION

Lubrication is an essential part of preventive maintenance, affecting to a great extent the useful life of the unit. Different lubricants are needed and some components in the unit require more frequent lubrication than others. Therefore, it is important that the instructions regarding types of lubricants and the frequency of their application be explicitly followed. Periodic lubrication of the moving parts reduces to a minimum the possibility of mechanical failures.

The lubrication chart on page 5-2 shows those items requiring regular service and the interval in which they should be performed. A regular service program should be developed to include all items and fluids. These intervals are based on average operating conditions. In the event of extremely severe (hot, cold, dusty or wet) operating conditions, more frequent lubrication than specified may be necessary. Details concerning lubrication of the running gear are in Section 4 — Maintenance.

All filters and filter elements for air and compressor lubricant must be obtained through Ingersoll-Rand to assure the proper size and filtration for the compressor.

COMPRESSOR OIL CHANGE

These units are normally furnished with an initial supply of oil sufficient to allow operation of the unit for approximately 1000 hours; however, if a unit has been completely drained of all oil, it must be refilled with new oil before it is placed in operation. Refer to specifications in table on page 5-2.

NOTE

Some oil types are incompatible when mixed and result in the formation of varnishes, shellacs, or lacquers which may be insoluble. Such deposits can cause serious troubles including clogging of the filters. Where possible, do not mix oils of different types and avoid mixing different brands. A type or brand change is best made at the time of a complete oil drain and refill.

If the unit has been operated for 1000 hours, it should be completely drained of oil. If the unit has been operated under adverse conditions (high temperature/high humidity) or under long shutdown periods, an earlier change period may be necessary as oil deteriorates with time as well as by operating conditions. Complete replacement of the old oil with clean new oil every 1000 operating hours (or every six months, whichever comes first), depending upon operating conditions, is not only desirable, but is good insurance against the accumulation of dirt, sludge, or oxidized oil products.

Do not, under any circumstances, remove any drain plugs, or the oil filler plug from the compressor lubricating and cooling oil system without first making sure the air receiver system has been completely relieved of all air pressure.

Insure the following conditions are met:

— Discharge air pressure gauge reads zero (0).

— No air discharging from manual blowdown valve.

Completely drain the receiver-separator, piping, and oil cooler. If the oil is drained immediately after the unit has been run for some time, most of the sediment will be in suspension and, therefore, will drain more readily. However, the fluid will be hot and care must be taken to avoid contact with the skin or eyes.

After the unit has been completely drained of all old oil, close the drain valve (under the receiver tank). Add oil in the specified quantity at the filler plug. Tighten the filler plug and run the machine to circulate the oil. Shut the machine down and after some 5 minutes check the oil level. Top-up as required to put the level in the middle of the sight window. DO NOT OVERFILL.

CAUTION

When using a synthetic lubricant, insure that all downstream components (hoses, valves, etc.) will be compatible.

FLUIDS AND LUBRICANTS TABLE

ITEM	FLUID	AMBIENT TEMP.	SPECIFICATION	INTERVAL	QUANTITY
Compressor	Lubricant	125°F to −10°F (52°C to −23°C)	• DEXRON® or DEXRON® II ATF	1000 hours*	42 U.S. gals. (159 litres)
		125°F to 0°F (52°C to −18°C)	• I-R XHP 505 Synthetic	1000 hours*	
Engine	• Oil • Coolant • Fuel	Refer to Engine Operator's Manual or Manufacturer's Representative			55 quarts (52 litres) 144 U.S. gals. (540 litres)
Running Gear					
• Wheel Bearings	Grease	All	MIL-G-10924	6 months	As Required
• Other	Grease	All	Multi-Purpose	6 months	As Required

DEXRON® — Reg. T.M. of General Motors Corp.

*Or every 6 months, whichever comes first.

SECTION 6 — SPEED AND PRESSURE REGULATION ADJUSTMENTS

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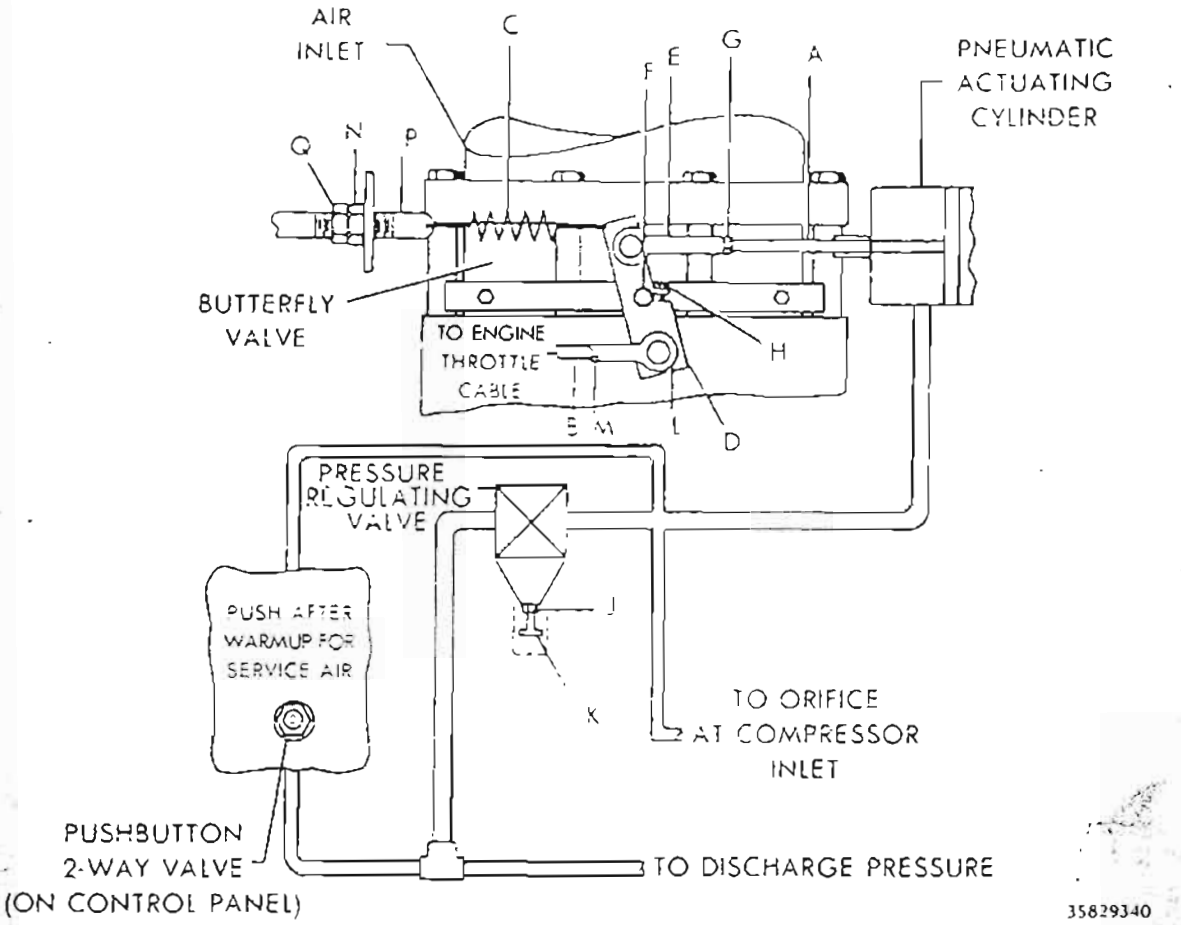
Before Starting Unit 1
After Starting Unit 2



The operating pressure of this unit was set at the factory to the maximum rating (at full speed). However, this pressure may be reset down to 150 psi (10.5 kgf per cm²).

Normally, regulation requires no adjusting, but if proper adjustment is lost, proceed as follows:

BEFORE STARTING UNIT:

1. With unit stopped, assure pneumatic actuating cylinder rod (A) is fully extended by adjusting engine throttle cable (B). NOTE: Engine governor must be at full speed position.
2. Disconnect ballast spring (C) from butterfly valve pivot lever (D).
3. Adjust rod end bearing (E) until butterfly valve pivot lever (D) moves approximately 30° past vertical toward engine side of butterfly valve shaft (F). Tighten locknuts (G) to protect adjustment.
4. Loosen screw(H) on butterfly valve pivot lever (D) and turn shaft (F) until scribed

end of shaft is approximately 70° above the horizontal.

5. Tighten screw (H). Rotate butterfly valve open and closed several times to assure that linkages are not binding.

AFTER STARTING UNIT:

6. Allow engine to warm up. Push "service air" button (2-way valve) on control panel.

7. Adjust service valve to obtain 300 psi (21.1 kgf per cm^2) on the discharge pressure gauge. NOTE: Pneumatic cylinder must be fully extended and discharge pressure at 300 psi (21.1 kgf per cm^2) during steps 8 and 9. If this pressure cannot be obtained without pneumatic cylinder beginning to retract, loosen pressure regulator locknut (J) and adjust adjusting screw (K) "in" until 300 psi (21.1 kgf per cm^2) can be maintained with pneumatic cylinder rod fully extended.

8. Adjust regulator adjusting screw (K) "in" an additional revolution. Adjust engine throttle cable (B) to obtain full load engine speed at 300 psi (21.1 kgf per cm^2). Throttle cable adjustment can be made by screwing rod end bearing (L) "in" for increased speed and "out" for lower speed. Screw locknut (M) against rod end to protect adjustment.

9. When full load engine speed is attained, readjust pressure adjusting screw (K) "out" until pneumatic cylinder just begins to retract while still maintaining 300 psi (21.1 kgf per cm^2). This adjustment is important to limit regulation range. Tighten locknut (J) to protect adjustment.

10. Close service valve. Engine will slow to idle speed and butterfly valve will close. Observe idle speed, then shut unit down.

11. Adjust butterfly valve opening to change idle speed by first loosening screw (H) and then adjusting butterfly valve shaft (F). Open butterfly valve to reduce idle speed and close it to increase idle speed. Retighten screw (H). Restart unit and, after warm-up, push "service air" button. Recheck idle speed and repeat step, if necessary. NOTE: Idle speed should not be adjusted unless unit is fully warmed up.

⚠ WARNING

Do not attempt to adjust idle speed while engine is running, as personal injury may result.

12. Connect ballast spring (C) to butterfly valve pivot lever (D). Adjust spring using nut (N) on threaded rod (P) to assure there is no tension on spring when unit is operating at full load condition.

13. Slowly open service valve. If engine speed does not stabilize, increase tension on ballast spring (C). After speed stabilizes, lock adjustment with locknut (Q).

14. To select any pressure range between 150 and 300 psi (10.5 and 21.1 kgf per cm^2), change adjustment of screw (K) to obtain desired discharge pressure at full load engine speed. Always lock and protect pressure setting of adjustment screw (K).

SECTION 7 — TROUBLE SHOOTING

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Introduction 1
Action Plan 1
Chart 2

INTRODUCTION

Trouble shooting for a portable air compressor is an organized study of a particular problem or series of problems and a planned method of procedure for investigation and correction. The trouble shooting chart that follows includes some of the problems that an operator may encounter during the operation of a portable compressor.

The chart does not attempt to list all of the troubles that may occur, nor does it attempt to give all of the answers for correction of the problems. The chart does give those problems that are most apt to occur. To use the trouble shooting chart:

A. Find the "complaint" in the top horizontal line.

B. Follow down that column to find the potential cause or causes. The numbers (1, 2, 3, etc.) suggest an order to follow in trouble shooting.

C. A reference for most causes is indicated in the extreme right column and the footnotes. For example, "M" stands for Maintenance — Section 4 in this manual.

For trouble shooting electrical problems refer to the Wiring Diagram Schematic found in the Parts List section of this manual.

ACTION PLAN

A. THINK BEFORE ACTING

Study the problem thoroughly and ask yourself these questions:

(1) What were the warning signals that preceded the trouble?

(2) Has a similar trouble occurred before?

(3) What previous maintenance work has been done?

(4) If the compressor will still operate, is it safe to continue operating it to make further checks?

B. DO THE SIMPLEST THINGS FIRST

Most troubles are simple and easily corrected. For example, most complaints are "low capacity" which may be caused by too low an engine speed or "compressor overheats" which may be caused by low oil level.

Always check the easiest and most obvious things first; following this simple rule will save time and trouble.

C. DOUBLE CHECK BEFORE DISASSEMBLY

The source of most compressor troubles can be traced not to one component alone, but to the relationship of one component with another. Too often, a compressor can be partially disassembled in search of the cause of a certain trouble and all evidence is destroyed during disassembly. Check again to be sure an easy solution to the problem has not been overlooked.

D. FIND AND CORRECT BASIC CAUSE

After a mechanical failure has been corrected, be sure to locate and correct the cause of the trouble so the same failure will not be repeated. A complaint of "premature breakdown" may be corrected by repairing any improper wiring connections, but something caused the defective wiring. The cause may be excessive vibration.

TROUBLE SHOOTING I-R PORTABLE COMPRESSOR

CAUSE \ COMPLAINT	Short Air Cleaner Life	Excessive Oil In Air	Oil Seal Leak	Oil In Air Cleaner	Excessive Comp. Oil Temperature	Engine RPM Down	Will Not Unload	Safety Valve Relieves	Low CFM	Unit Shutdown	Unit Fails To Shutdown	Excessive Vibration	Won't Start Run	Alternator Lamp Stays On	Alternator Lamp Stays Off	Low Water Lamp Stays On	Low Water Lamp Stays Off	Engine Water Temp. Too High	Engine Oil Pressure Too Low	*REFER TO: SECTION
Dirty Operating Conditions	1		1		7				4									4		M
Wrong Air Filter Element	6					8			13											P
Defective Service Indicator	3																			P
Inadequate Element Cleaning	2								4											M
High Oil Level		1																		M
Out Of Level > 15°		2			3													6	3	O
Clogged Scavenge Orifice		3																		M
Defective Separator Element		8				9		7	12											P
Scavenge Tube Blocked		4																		M
Defective Scavenge Check Valve		5																		M
Defective Minimum Pressure Valve		7			15				11											P
Contaminated Lube Oil			2																	M
Malfunctioning Seal			6																	P
Scored Shaft			7																	P
Malfunctioning Inlet Unloader	5			3			5	6	9											P
Incorrect Stopping Procedure	4			1																O
Dirty Cooler					6													5		M
Low Oil Level					4														2	M
Clogged Oil Filter Elements					8														5	M
Wrong Lube Oil			3		5														4	L
Malfunctioning Thermostat					13													11		P
Defective Oil Cooler Relief Valve					14															P
Recirculation Of Cooling Air					11													10		RA
Operating Pressure Too High			5		10	2		1	8									8		O A
Loose Or Broken Belts					9						1		1					7		M P
Blocked Or Restricted Oil Lines			4		16														6	—
Incorrect Linkage Adjustment						5			5											A
Clogged Fuel Filters						1						5								EM
Incorrect Pressure Regulator Adjustment						3	3	3	6											A
Ruptured Inlet Unloader Diaphragm				2			2	5												P
Defective Discharge Air Temp. Switch										7	1	11								P M
Defective Engine Water Temp. Switch										8	2	12								P M
Defective Engine Oil Pressure Switch										9	3	13								P M
Defective Shutdown Solenoid										10	4	14								P M
Malfunctioning Relay										11	5	15								P M
Loose Wire Connection										6		10	2	2		3				W P
Defective Master Off-On Switch										12	6	16		3		2				P
Blown Fuse										1		3								P
Low Battery Voltage												2	3							—
Malfunctioning Start Switch												4								P
Defective Safety Bypass Switch											7	17								P
<16 Volts At Shutdown Solenoid										13		1								—
Malfunctioning Alternator													4							P
Bulb Burnt Out														1		1				P
Low Water Level															1			3		M
Malfunctioning Probe															3	5				P
Malfunctioning Circuit Module															2	4				P
Ambient Temp. >125°F (52°C)					2													2		RA
Ice In Regulation Lines/Orifice						10	6	8	14											RA
Sep. Tank Blown Down Too Quickly		6																		O
Malfunctioning Gauge					1													1	1	P
Dirty Air Filter						6			1											M
Malfunctioning Pressure Regulator						4	4	4	7											P
Malfunctioning Air Cylinder						7			10											P
Leaks In Regulator Piping							1	2	2											—
Compressor Oil Temp. Too High										3		7								TC
Engine Water Temp. Too High										4		8								TC
Engine Oil Pressure Too Low										5		9								TC
Out Of Fuel										2		6								—
Malfunctioning Fan					12						3							9		P
Rubber Mounts Damaged											2									P
Engine Malfunctioning						11				14	5	18						12	7	EM
Drive Coupling Defective											4									P
Airend Malfunctioning					17	12					6	19								P
Defective Safety Valve								9												P

Numbers (1, 2, 3, Etc.) Suggest Order To Follow In Trouble Shooting

M – Maintenance (4) O – Operating (3) RA – Review Application EM – Engine Manual TC – Trouble Complaint
P – Parts (9) L – Lubrication (5) A – Adjustments (6) W – Wiring Diagram (9)

SECTION 8 — PARTS ORDERING INFORMATION

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How To Order	2
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Airend Exchange Program	3

GENERAL

This publication, which contains an illustrated parts breakdown, has been prepared as an aid in locating those parts which may be required in the maintenance of the unit. All of the compressor parts, listed in the parts breakdown, are manufactured with the same precision as the original equipment. For the greatest protection always insist on genuine Ingersoll-Rand Company parts for your compressor.

Ingersoll-Rand Company service facilities and parts are available worldwide. There are Ingersoll-Rand Company Construction Equipment Group Sales Offices and authorized distributors located in the principal cities of the United States. In Canada our customers are serviced by the Canadian Ingersoll-Rand Company, Limited. There are also Ingersoll-Rand International autonomous companies and authorized distributors located in the principal cities throughout the free world.

All parts orders pertaining to your engine should be referred to your particular engine manufacturer's authorized distributor or dealer.

DESCRIPTION

The illustrated parts breakdown illustrates and lists the various assemblies, subassemblies and detailed parts which make up this particular air compressor. This includes the standard unit along with some of the options that are available. A series of illustrations show each part clearly and in its correct location relative to the other parts in the illustration. The part number, the description of the part, the quantity of parts required, and the part number of the next higher assembly in which a particular part is used are shown on each illustration. The quantities specified are the number of parts used per one assembly and are not necessarily the total number of parts used in the overall unit. Where no quantity is specified the quantity is assumed to be one.

Each description of a part is based upon the "noun first" method, i.e., the identifying noun or item name is always the first part of the description. In the event the item is an assembly or subassembly, the abbreviation "assy" or "subassy" follows the noun name. If the previous conditions do not exist, the noun name is followed by a single descriptive modifier. The descriptive modifier may be followed by words or abbreviations such as upper, lower, inner, outer, front, rear, RH, LH, etc. when they are required to modify the part noun.

In referring to the rear, the front or to either side of the unit, always consider the flywheel end of the engine as the rear of the unit. Standing at the rear of the unit facing the flywheel end of the engine, will determine the right and left sides.

FASTENERS

Both SAE/inch and ISO/metric hardware have been used in the design and assembly of these units. In the disassembly and reassembly of parts, extreme care must be taken to avoid damaging threads by the use of wrong fasteners. In order to clarify the proper usage and for exact replacement parts, all fasteners have been identified by part number, size and de-

scription. This will enable a customer to order fasteners that may be available locally rather than factory replacement parts. These parts are identified in tables that will be found at the rear of the parts illustrations. Any fastener that has not been identified by both part number and size is a specially engineered part that must be ordered by part number to obtain the exact replacement part. Refer to Section 10 — Common Fasteners.

MARKINGS AND DECALS

Exterior marking and decal (instructions and safety warnings) sets are listed with the enclosure in Section 9 — Parts List. The complete set of original equipment decals are available only as long as a particular model is in production. Afterwards, service decal sets (corporate signatures, safety warnings, etc.) are available. Contact the product support group at Mocksville for your particular needs and availability.

HOW TO USE PARTS LIST

a. Turn to Section 9 — Parts List.

b. Locate the area or system of the compressor in which the desired part is used and find illustration page number.

c. Locate the desired part on the illustration by visual identification and make note of part number and description.

HOW TO ORDER

The satisfactory ordering of parts by a purchaser is greatly dependent upon the proper use of all available information. By supplying your nearest sales office, autonomous company or authorized distributor, with complete information, you will enable them to fill your order correctly and to avoid any unnecessary delays. In order that all avoidable errors may be eliminated, the following instructions are offered as a guide to the purchaser when ordering replacement parts:

a. Always specify the model number of the unit as shown on the general data decal attached to the unit.

b. Always specify the serial number of the unit. THIS IS IMPORTANT. The serial number of the unit will be found stamped on a plate attached to the unit. (The serial number of the unit is also permanently stamped in the metal of the frame side rail.)

c. Always specify the number of the parts list publication.

d. Always specify the quantity of parts required.

e. Always specify the part number, as well as the description of the part, or parts, exactly as it is given on the parts list illustration.

In the event parts are being returned to your nearest sales office, autonomous company or authorized distributor, for inspection or repair, it is important to include the serial number of the unit from which the parts were removed.

TERMS AND CONDITIONS ON PARTS ORDERS

Acceptance: Acceptance of this offer is expressly limited to the exact terms contained herein. If purchaser's order form is used for acceptance of this offer, it is expressly understood and agreed that the terms and conditions of such order form shall not apply unless expressly agreed to by Ingersoll-Rand Company ("Company") in writing. No additional or contrary terms will be binding upon the Company unless expressly agreed to in writing.

Taxes: Any tax or other governmental charge now or hereafter levied upon the production, sale, use or shipment of material and equipment ordered or sold is not included in the Company's price and will be charged to and paid for by the Purchaser.

Delivery: Shipping dates are approximate. The Company will use best efforts to ship by the dates specified; however, the Company shall not be liable for any delay or failure in the estimated delivery or shipment of material and equipment or for any damages suffered by

reason thereof. Shipping dates shall be extended for delays due to acts of God, acts of Purchaser, acts of Government, fires, floods, strikes, riot, war, embargo, transportation shortages, delay or default on the part of the Company's vendors, or any other cause beyond the Company's reasonable control. Should Purchaser request special shipping instruction, such as exclusive use of shipping facilities, including air freight when common carrier has been quoted and before change order to purchase order can be received by the Company, the additional charges will be honored by Purchaser.

Warranty: The Company warrants that parts manufactured by it will be as specified and will be free from defects in materials and workmanship. The Company's liability under this warranty shall be limited to the repair or replacement of any part which was defective at the time of shipment provided Purchaser notifies the Company of any such defect promptly upon discovery, but in no event later than three (3) months from the date of shipment of such part by the Company.

Repairs and replacements shall be made by the Company F.O.B. point of shipment. The Company shall not be responsible for costs of transportation, removal or installation.

Warranties applicable to material and equipment supplied by the Company but wholly manufactured by others shall be limited to the warranties extended to the Company by the manufacturer which are able to be conveyed to the Purchaser.

THE COMPANY MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED. THE ONLY EXCEPTION TO THE PREVIOUS STATEMENT IS THE EXTENDED WARRANTY AS IT APPLIES TO THE SPECIAL AIREND EXCHANGE PROGRAM.

Limitation of Liability: The remedies of the Purchaser set forth herein are exclusive, and the total liability of the Company with respect to this order whether based on contract, warranty, negligence, indemnity, strict liability or otherwise, shall not exceed the purchase price of the part upon which such liability is based.

The Company shall in no event be liable to the Purchaser, any successors in interest or any beneficiary of this order for any consequential, incidental, indirect, special or punitive damages arising out of this order or any breach thereof, or any defect in, or failure of, or malfunction of the parts hereunder, whether based upon loss of use, lost profits or revenue, interest, lost goodwill, work stoppage, impairment of other goods, loss by reason of shutdown or non-operation, increased expenses of operation or claims of customers of Purchaser for service interruption whether or not such loss or damage is based on contract, warranty, negligence, indemnity, strict liability or otherwise.

AIREND EXCHANGE PROGRAM

Your Ingersoll-Rand Company Construction Equipment Group Sales Offices and authorized distributors as well as Ingersoll-Rand International autonomous companies and authorized distributors now have an airend exchange program to benefit portable compressor users.

On the airend exchange program the exchange price is determined by the age and condition of the airend and may be classified by one of the following categories.

Category "A"
The airend must not be over two years old and must have reusable rotor housing(s) and rotor(s).

Category "B"
The airend must be between two and five years old and returned with two or more reusable major castings.

Category "C"
The airend must be over five years old.

Your nearest sales office, autonomous company or authorized distributor must first contact the Parts Service Department at the factory at which your portable air compressor was manufactured for an airend exchange number. The airend must be tagged with this preassigned number and returned to the factory prepaid. The airend must be intact, with no excluded parts, otherwise the exchange agreement may be cancelled. The warranty on an exchange or factory rebuilt airend is 365 days.

NOTE

Airends being returned to the factory in connection with a warranty claim

must be processed through the Customer Service Department. **If returned as an exchange airend, no warranty claim will be considered.**

SECTION 9 — PARTS LIST

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Airend Complete	35864529	9-6
Airend Assembly,		
(Sheet 1)	36505865	9-7
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Airend Piping,		
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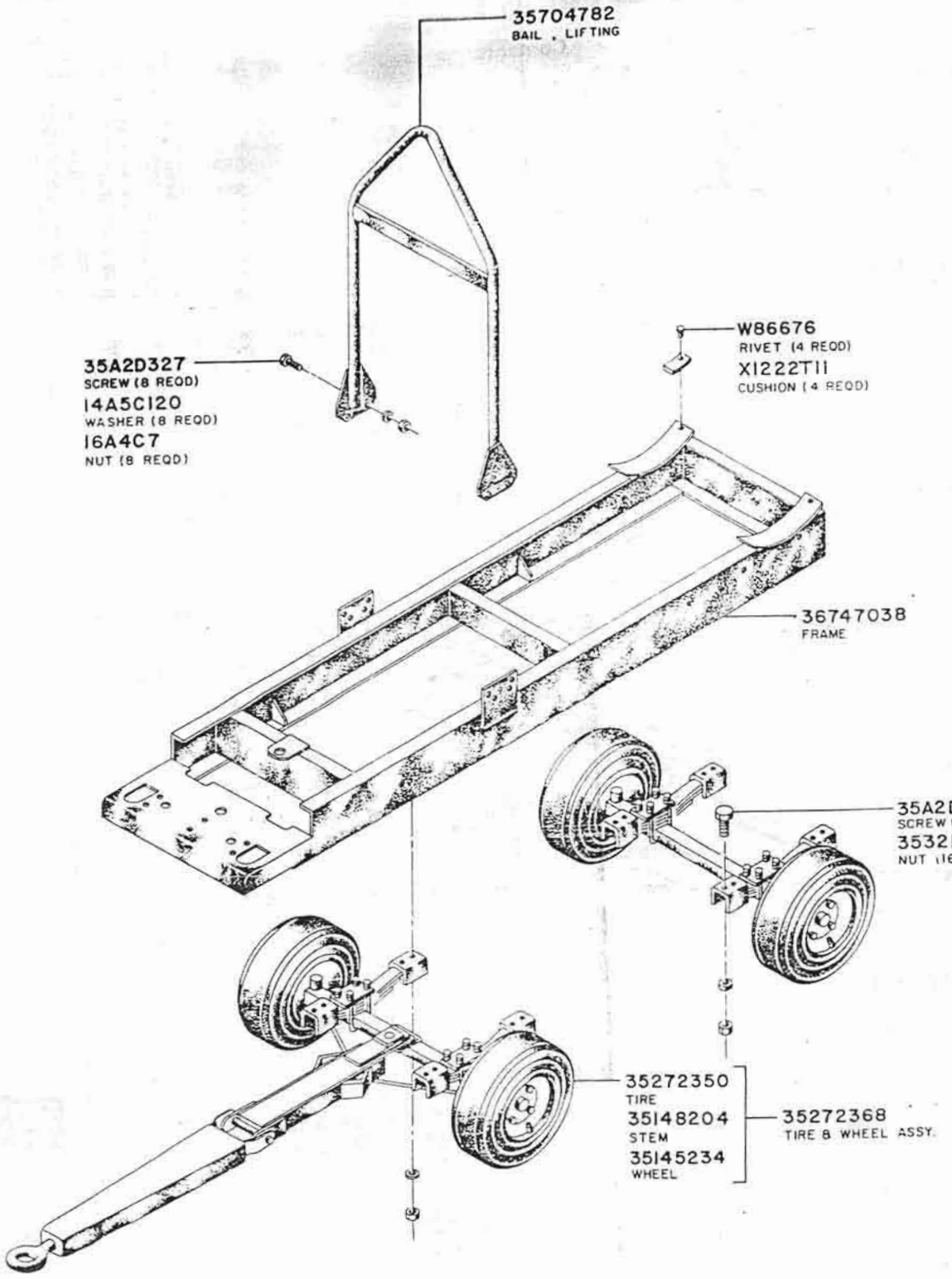
Oil Temperature Bypass Valve Piping	35864578	9-23
Engine Piping	35864586	9-24
Oil Filter Complete	35864818	9-25
Battery and Mounting	35864594	9-26
Instrument Panel Assembly	35864602	9-27
Control Panel Assembly	35864610	9-28
Wiring Diagram	36502201	9-29
Enclosure Complete,		
(Sheet 1)	35864636	9-30
(Sheet 2)	35864636	9-31
(Sheet 3)	35864636	9-32
(Sheet 4)	35864636	9-33



REVISIONS		DATE	E/C NO
A	ORIGINAL RELEASE	6-28-85	
WEP	PER E/C 21493		
B			
C			
D			

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

CHANGE NOS.

DESCRIPTION: FRAME AND RUNNING GEAR

MODEL NO. XHP-750-S-CAT

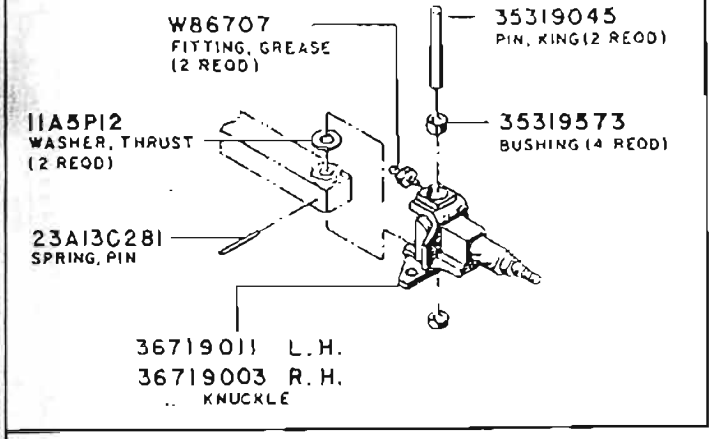
ILLUSTRATION NO. 35864495

SHEET NO. 1 of 1

E/C NO.

FRONT AXLE ASSEMBLY
PART NO. 35335439

INGERSOLL-RAND COMPANY	
DESCRIPTION	FRONT & REAR AXLE
REFER TO PARTS LIST NO.	
DATE	6-28-85
ILLUSTRATION NO	35864503
SHEET NO	1 of 2
E/C	21993



25A13C298
PIN, SPRING

35324326
PIN, GUIDING ARM

35319003
BUSHING, BRONZE (2 REQD)

36719631 R.H.
36719649 L.H.
KNUCKLE ASSY

W86707
FITTING, GREASE

35324789
GUIDING ARM ASSY.

35588961 L.H.
ROD END
(2 REQD)

35588953 R.H.
ROD END,
(2 REQD)

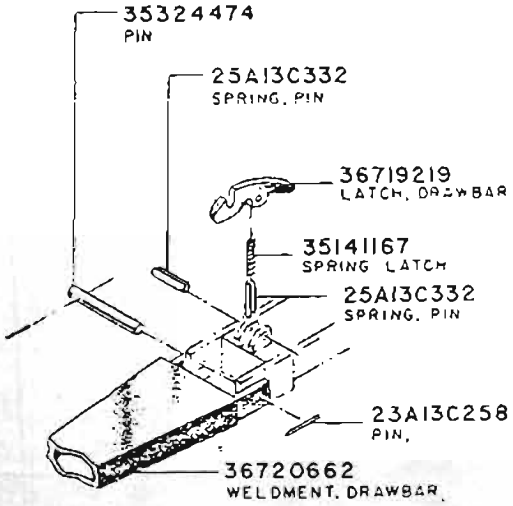
35335488
AXLE WELDMENT, FRONT

35324805
ROD, TIE (2 REQD)

35140722 R.H.
35140730 L.H.
NUT, JAM (2 EA. REQD)

W86707
FITTING, GREASE
(4 REQD)

35324466
DRAW BAR ASSY

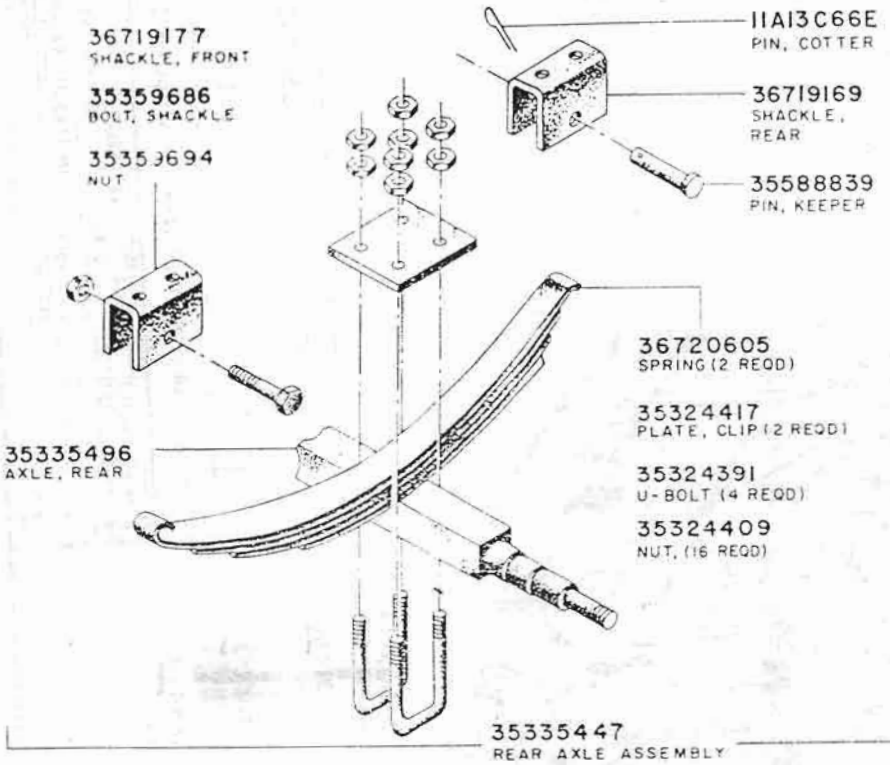


INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

DESCRIPTION: FRONT & REAR AXLE

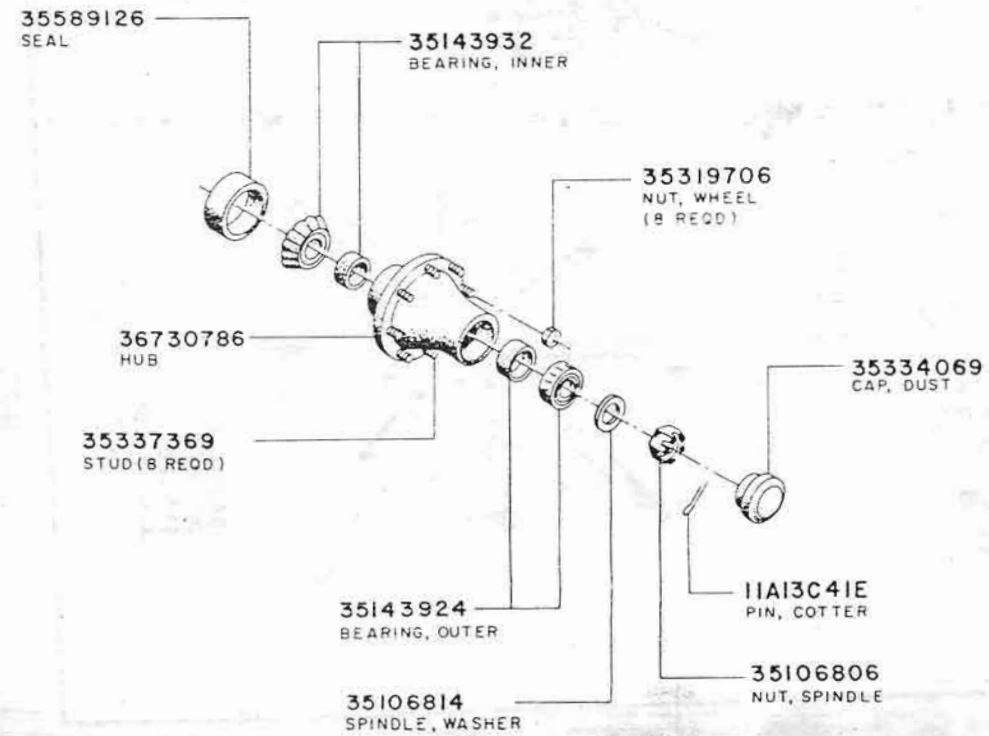
REFER TO PARTS LIST NO

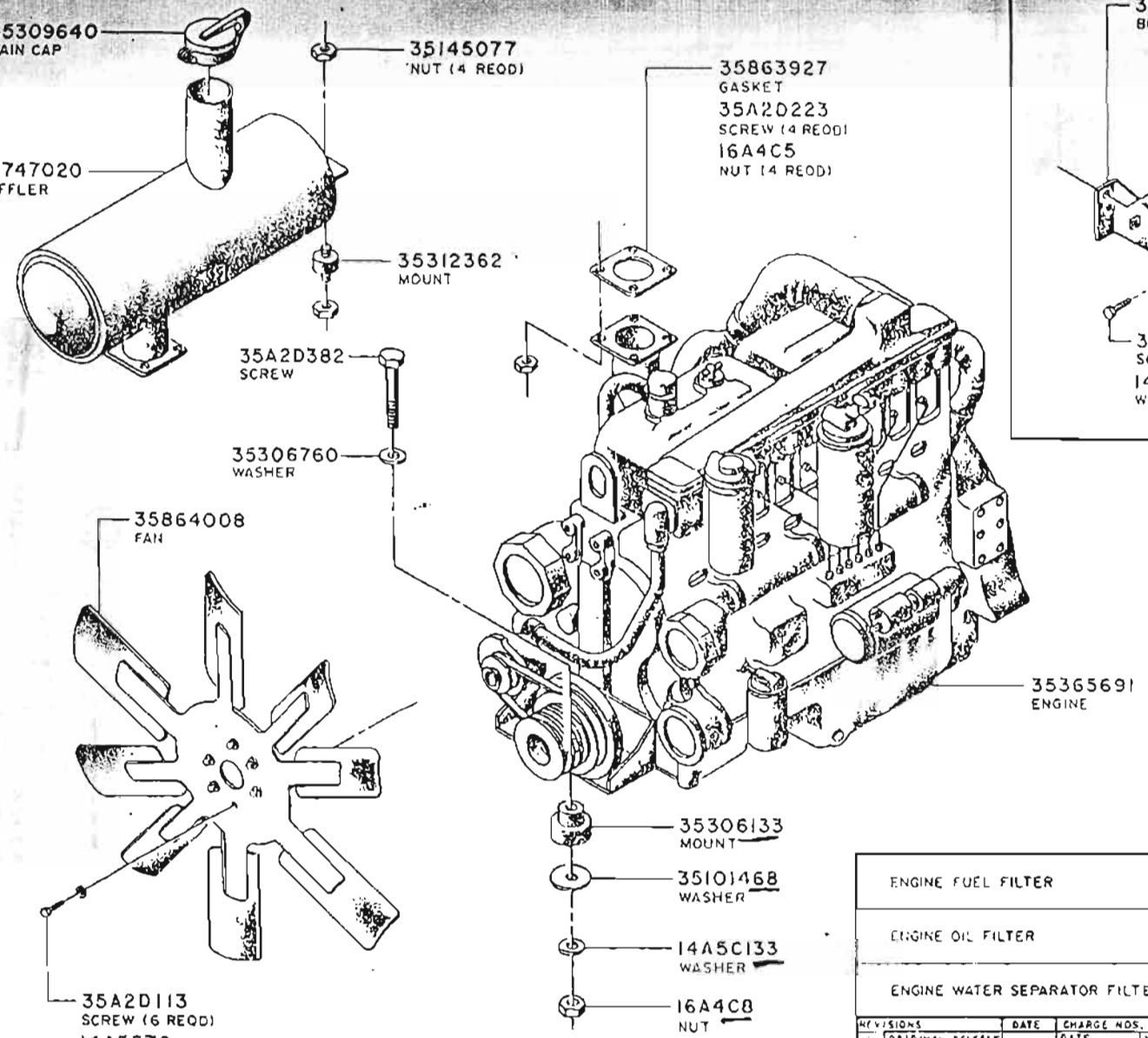
DATE	ILLUSTRATION NO	SHEET NO	E/C
6-28-85	35864503	2 OF 2	Z1993



35335447
REAR AXLE ASSEMBLY

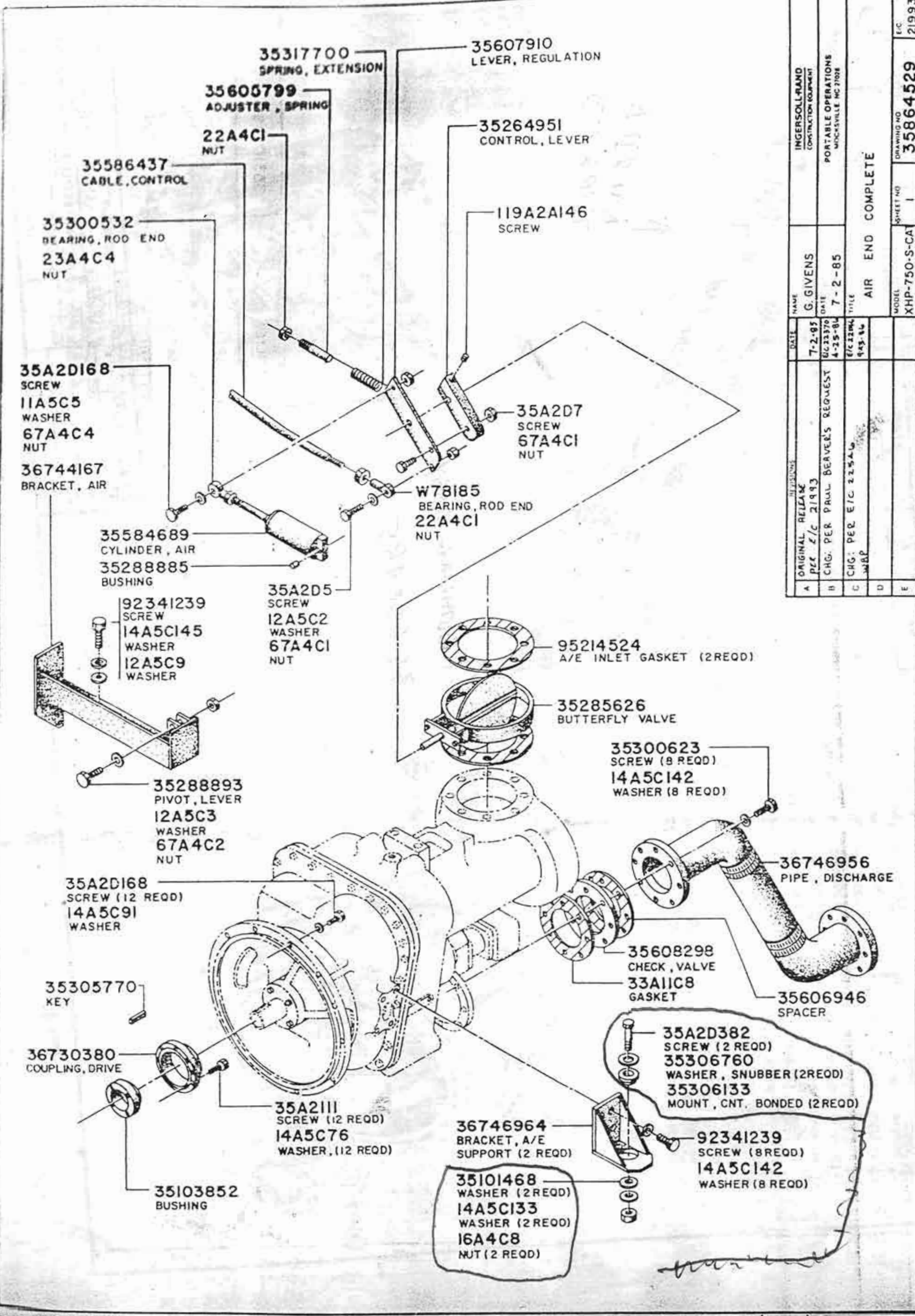
35335454
HUB ASSEMBLY





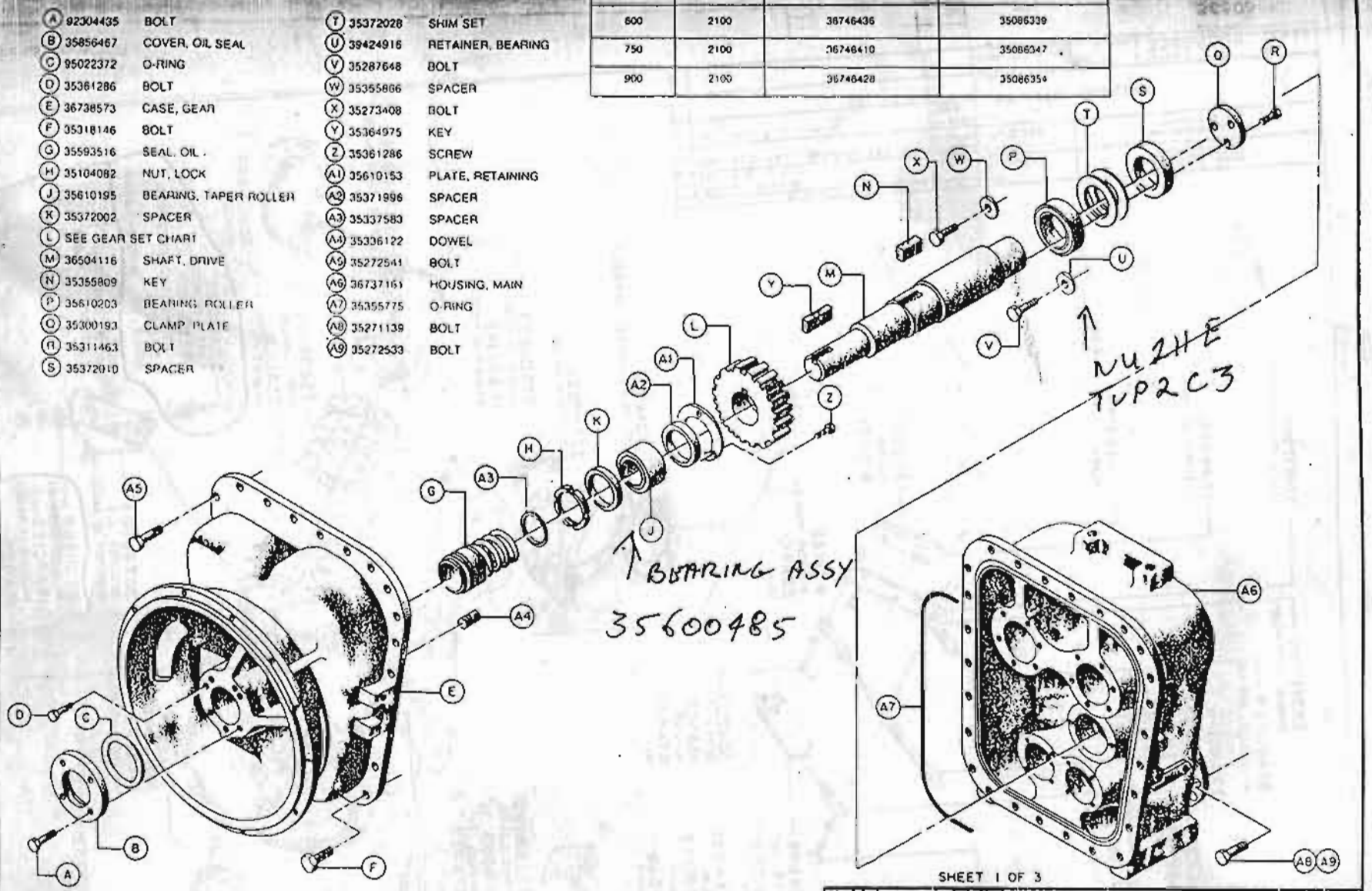
ENGINE FUEL FILTER	35310549
ENGINE OIL FILTER	35310556
ENGINE WATER SEPARATOR FILTER	35607605

REVISIONS		DATE	CHARGE NOS.	
A	ORIGINAL RELEASE PER E/C 21993	6-28-85	DATE 5-30-85	NAME OF PART ENGINE ASSEMBLY
B			NAME W. POOLE	INGERSOLL-RAND COMPANY ROCKSVILLE PLANT
C			E/C NO.	MODEL NO. XHP-750-S-CAT / DRAWING NO. 35864511
D				


35317700
SPRING, EXTENSION
35607910
LEVER, REGULATION
35605799
ADJUSTER, SPRING
22A4C1
NUT
35264951
CONTROL, LEVER
35586437
CABLE, CONTROL
119A2A146
SCREW
35300532
BEARING, ROD END
23A4C4
NUT
35A2D168
SCREW
11A5C5
WASHER
67A4C4
NUT
36744167
BRACKET, AIR
35A2D7
SCREW
67A4C1
NUT
W78185
BEARING, ROD END
22A4C1
NUT
35584689
CYLINDER, AIR
35288885
BUSHING
35A2D5
SCREW
12A5C2
WASHER
67A4C1
NUT
92341239
SCREW
14A5C145
WASHER
12A5C9
WASHER
95214524
A/E INLET GASKET (2 REQD)
35285626
BUTTERFLY VALVE
35300623
SCREW (8 REQD)
14A5C142
WASHER (8 REQD)
35288893
PIVOT, LEVER
12A5C3
WASHER
67A4C2
NUT
36746956
PIPE, DISCHARGE
35A2D168
SCREW (12 REQD)
14A5C91
WASHER
35608298
CHECK, VALVE
33A11C8
GASKET
35606946
SPACER
35305770
KEY
35A2D382
SCREW (2 REQD)
35306760
WASHER, SNUBBER (2 REQD)
35306133
MOUNT, CNT. BONDED (2 REQD)
36730380
COUPLING, DRIVE
35A2111
SCREW (12 REQD)
14A5C76
WASHER, (12 REQD)
36746964
BRACKET, A/E
SUPPORT (2 REQD)
92341239
SCREW (8 REQD)
14A5C142
WASHER (8 REQD)
35101468
WASHER (2 REQD)
14A5C133
WASHER (2 REQD)
16A4C8
NUT (2 REQD)
35103852
BUSHING
INGERSOLL-RAND
PORTABLE OPERATIONS
G. GIVENS
7-2-85
AIR END COMPLETE
XHP-750-S-CA
SHEET NO 1
DRAWING NO 35864529
E/C 21993
A ORIGINAL RELEASE PER E/C 21993 7-2-85
B CHG: PER PAUL BEAVER'S REQUEST
C CHG: PER E/C 22546

CFM	INPUT SPEED	GEAR SET PART NO.	A/E ASSY. NO.
600	2100	36746436	35086339
750	2100	36746410	35086347
900	2100	36746428	35086354

A	92304435	BOLT	
B	35856467	COVER, OIL SEAL	
C	95022372	O-RING	
D	35361286	BOLT	
E	36738573	CASE, GEAR	
F	35018146	BOLT	
G	35593516	SEAL, OIL	
H	35104082	NUT, LOCK	
J	35610195	BEARING, TAPER ROLLER	
K	35372002	SPACER	
L	SEE GEAR SET CHART		
M	36504116	SHAFT, DRIVE	
N	35355809	KEY	
P	35610203	BEARING, ROLLER	
Q	35300193	CLAMP, PLATE	
R	35311463	BOLT	
S	35372010	SPACER	
T	35372028	SHIM SET	
U	39424916	RETAINER, BEARING	
V	35287648	BOLT	
W	35355866	SPACER	
X	35273408	BOLT	
Y	35364975	KEY	
Z	35361286	SCREW	
A1	35610153	PLATE, RETAINING	
A2	35371996	SPACER	
A3	35337583	SPACER	
A4	35336122	DOWEL	
A5	35272541	BOLT	
A6	36737161	HOUSING, MAIN	
A7	35355775	O-RING	
A8	35271139	BOLT	
A9	35272533	BOLT	



SHEET 1 OF 3

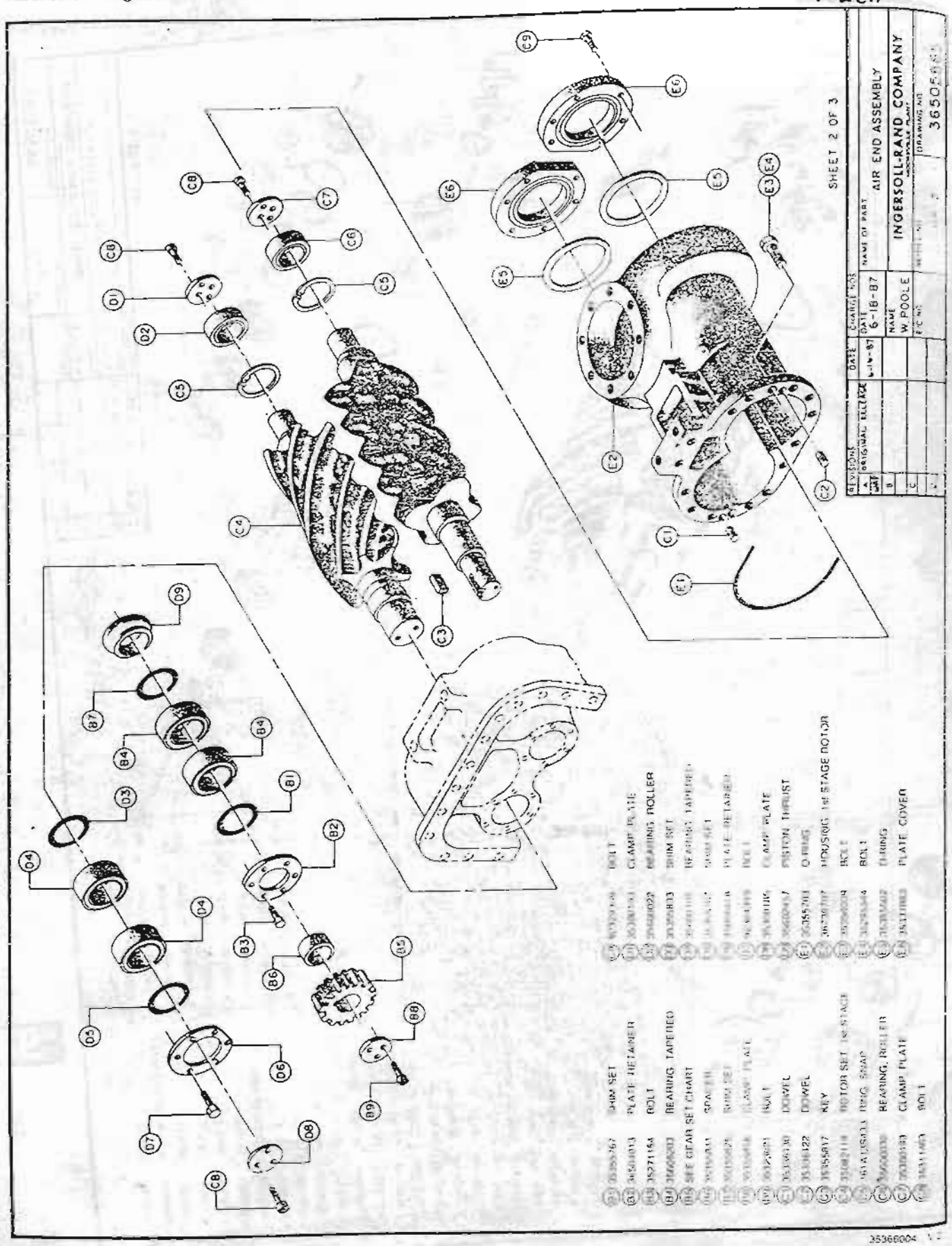
REVISIONS		DATE	CHARGE NOS	
A WAT	ORIGINAL RELEASE	6-16-87	DATE 6-16-87	NAME OF PART AIR END ASSEMBLY
B			NAME W. POOLE	INGERSOLL-RAND COMPANY WOODCLIFF PLANT
C			E/C NO	MODEL NO HR-2 / DRAWING NO 36505865
D				

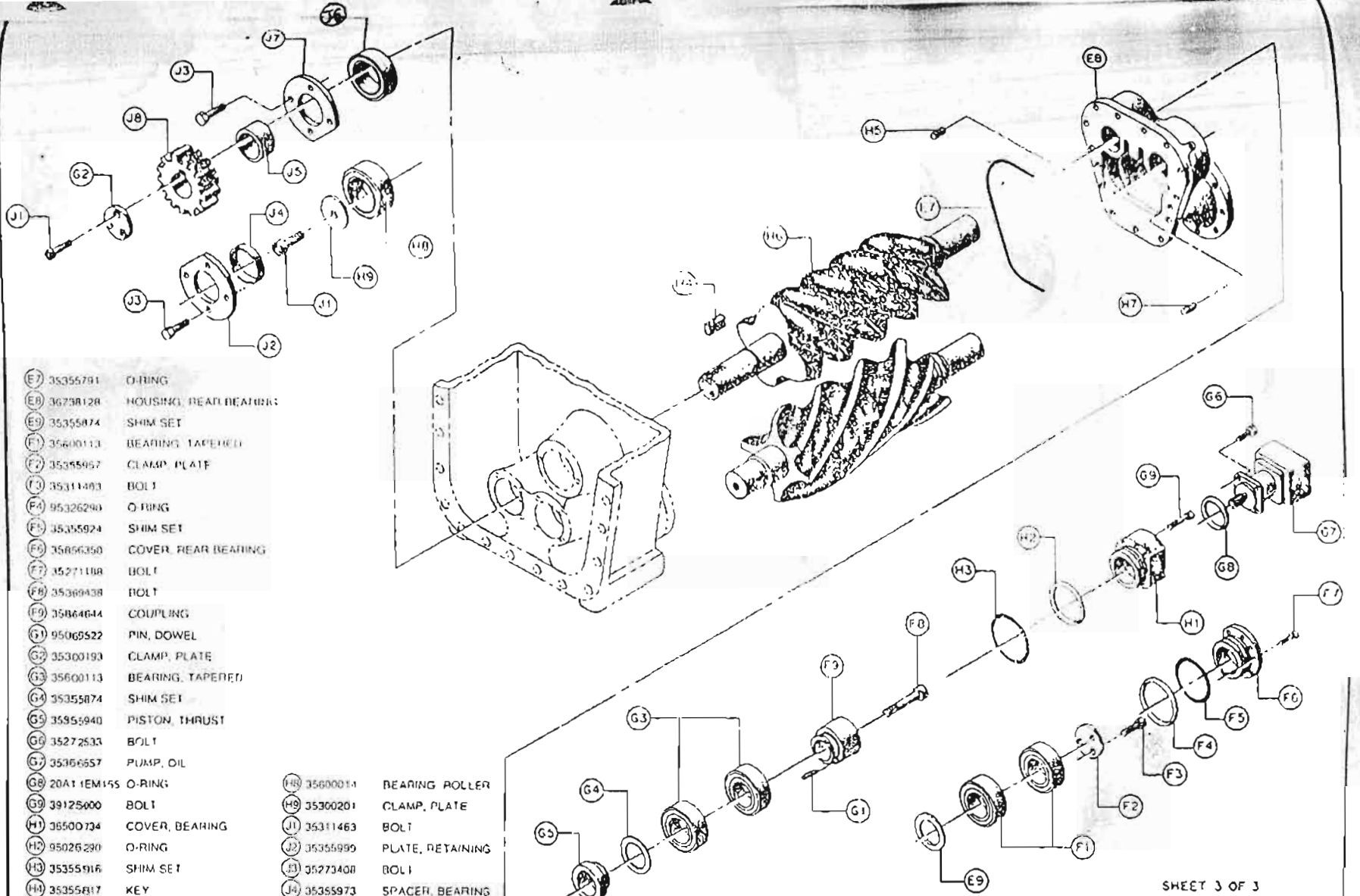
IN PUT SHAFT .003 TOTAL .003 MAX END FLOAT MIN

HI DISCHARGE SIDE HOUSING END FLOAT .001 - .002

HI STAGE ROTOR & HOUSING .005

LO STAGE " " .005 to .007 ← .007 DIGITAL HI AMBIENT SCREWS WON'T TOUCH

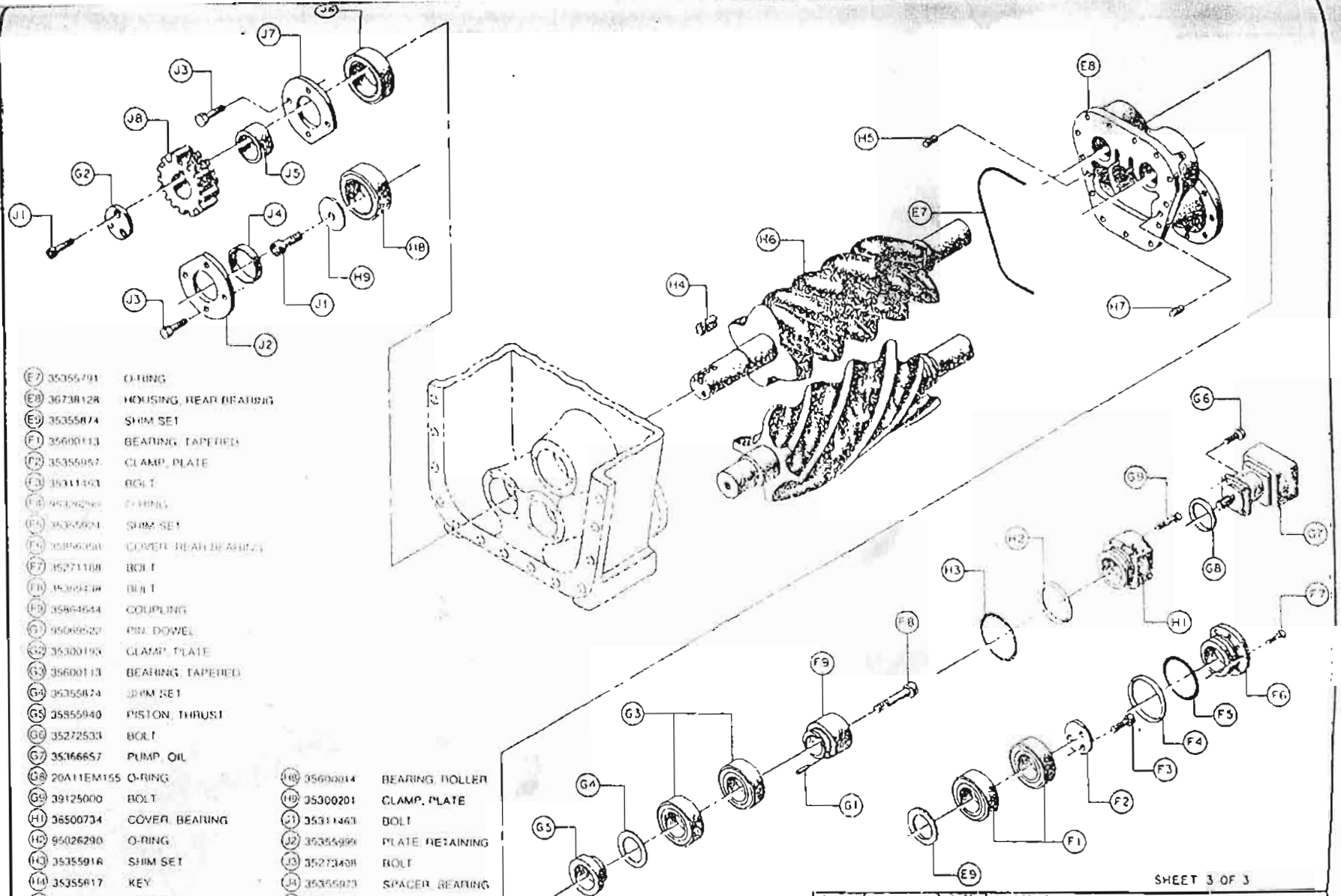




E7	35355781	O-RING	H8	35600014	BEARING, ROLLER
E8	36738128	HOUSING, REAR BEARING	H9	35300201	CLAMP, PLATE
E9	35355874	SHIM SET	J1	35311463	BOLT
F1	35600113	BEARING, TAPERED	J2	35355999	PLATE, RETAINING
F2	35355957	CLAMP, PLATE	J3	35273408	BOLT
F3	35311463	BOLT	J4	35355973	SPACER, BEARING
F4	95326290	O-RING	J5	35355866	SPACER
F5	35355924	SHIM SET	J6	35600022	BEARING, ROLLER
F6	35856350	COVER, REAR BEARING	J7	35355965	PLATE, RETAINING
F7	35271108	BOLT			
F8	35369438	BOLT			
F9	35864644	COUPLING			
G1	95069522	PIN, DOWEL			
G2	35300193	CLAMP, PLATE			
G3	35600113	BEARING, TAPERED			
G4	35355874	SHIM SET			
G5	35955940	PISTON, THRUST			
G6	35272533	BOLT			
G7	35366657	PUMP, OIL			
G8	20A1 1EM155	O-RING			
G9	39125000	BOLT			
H1	36500734	COVER, BEARING			
H2	95026290	O-RING			
H3	35355916	SHIM SET			
H4	35355817	KEY			
H5	35336122	DOWEL			
H6	35088954	ROTOR SET, 2nd STAGE			
H7	35336130	DOWEL			

SHEET 3 OF 3

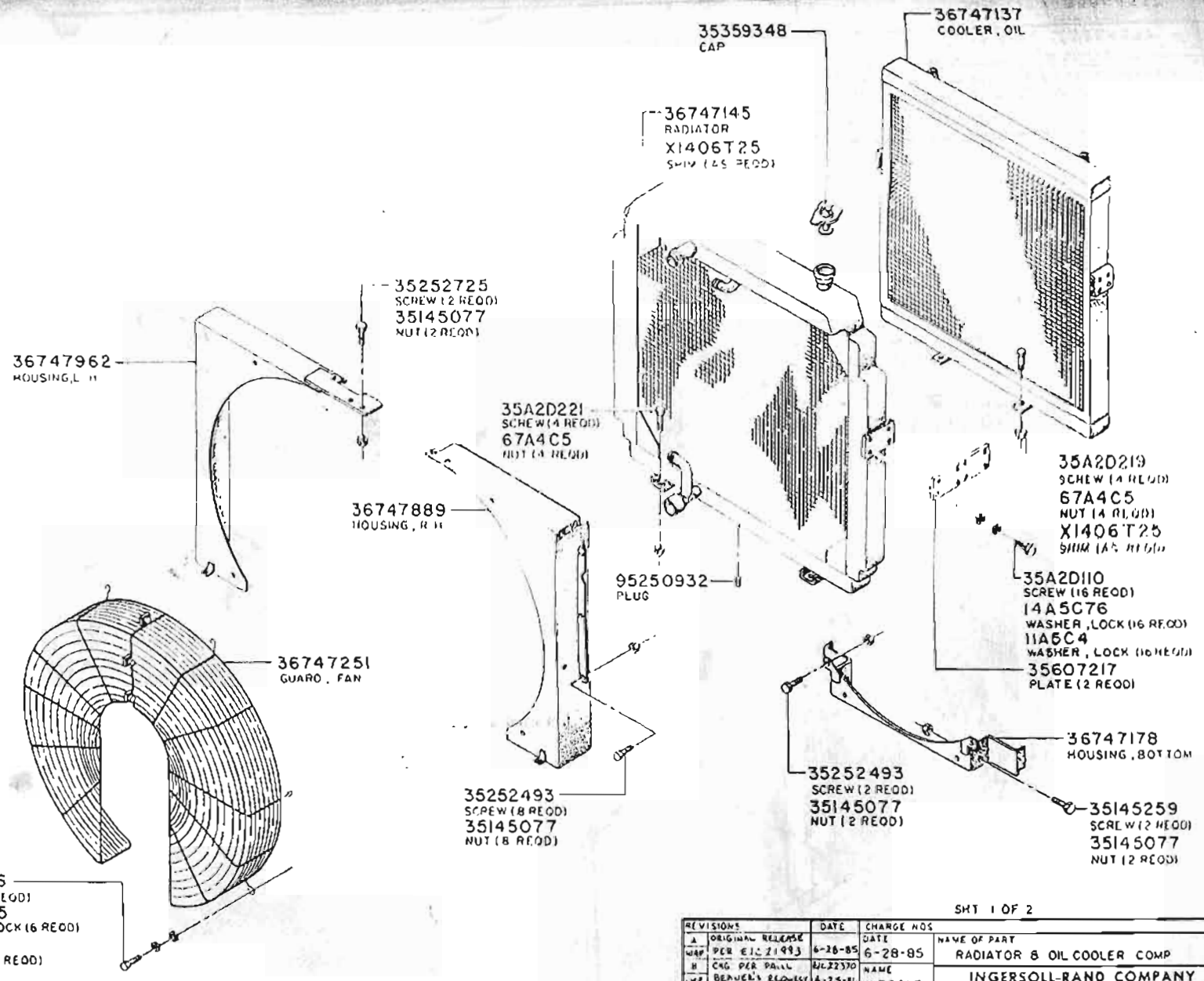
REVISIONS		DATE	CHARGE NOS		
A	ORIGINAL RELEASE	6-16-87	DATE 6-16-87	NAME OF PART AIR END ASSEMBLY	
B			NAME W.POOLE	INGERSOLL-RAND COMPANY WOODCLIFF PLANT	
C			EIC NO	MODEL NO HR-2	DRAWING NO 36505865
D					



E7	35355791	O-RING	
E8	36738128	HOUSING, REAR BEARING	
E9	35355874	SHIM SET	
F1	35600113	BEARING, TAPERED	
F2	35355957	CLAMP, PLATE	
F3	35311363	BOLT	
F4	95026290	O-RING	
F5	35355921	SHIM SET	
F6	35356091	COVER, REAR BEARING	
F7	35271188	BOLT	
F8	35300194	BOLT	
F9	35864644	COUPLING	
G1	95069520	PIN, DOWEL	
G2	35300193	CLAMP, PLATE	
G3	35600113	BEARING, TAPERED	
G4	35355874	SHIM SET	
G5	35855940	PISTON, THRUST	
G6	35272533	BOLT	
G7	35366657	PUMP, OIL	
G8	20A11EM155	O-RING	
G9	39125000	BOLT	
H1	36500734	COVER, BEARING	
H2	95026290	O-RING	
H3	35355916	SHIM SET	
H4	35355817	KEY	
H5	35336122	DOWEL	
H6	35088954	ROTOR SET, 2nd STAGE	
H7	35336130	DOWEL	
H8	35600014	BEARING, ROLLER	
H9	35300201	CLAMP, PLATE	
J1	35311363	BOLT	
J2	35355999	PLATE, RETAINING	
J3	35272408	BOLT	
J4	35355973	SPACER, BEARING	
J5	35355866	SPACER	
J6	35600022	BEARING, ROLLER	
J7	35355865	PLATE, RETAINING	

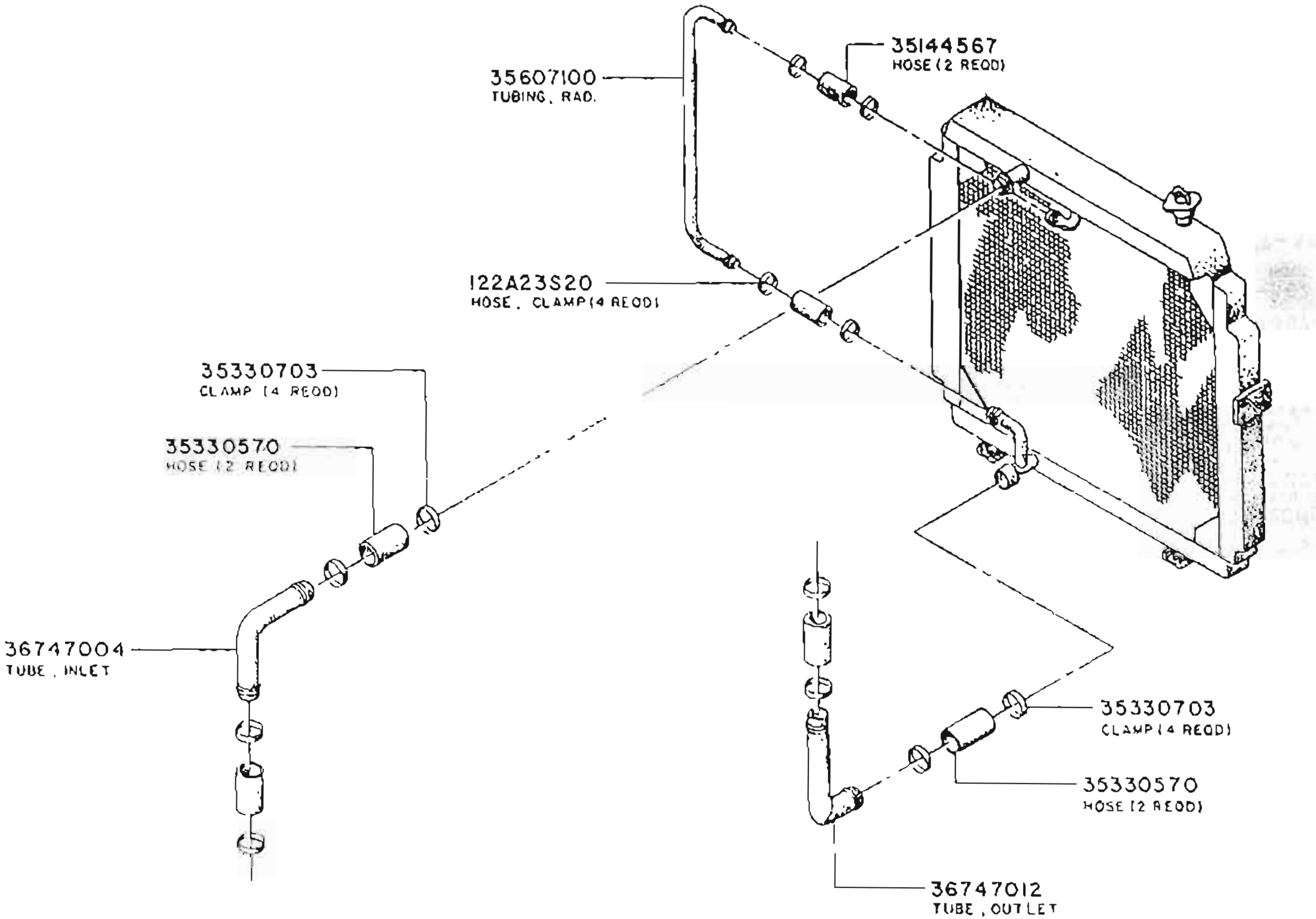
SHEET 3 OF 3

REVISIONS		DATE	CHARGE NOS		
A	ORIGINAL RELEASE	6-16-87	DATE 6-16-87	NAME OF PART AIR END ASSEMBLY	
B			NAME W.POOLE	INGERSOLL-RAND COMPANY	
C			E/C NO	MODEL NO HR-2	DRAWING NO 36505865
D					



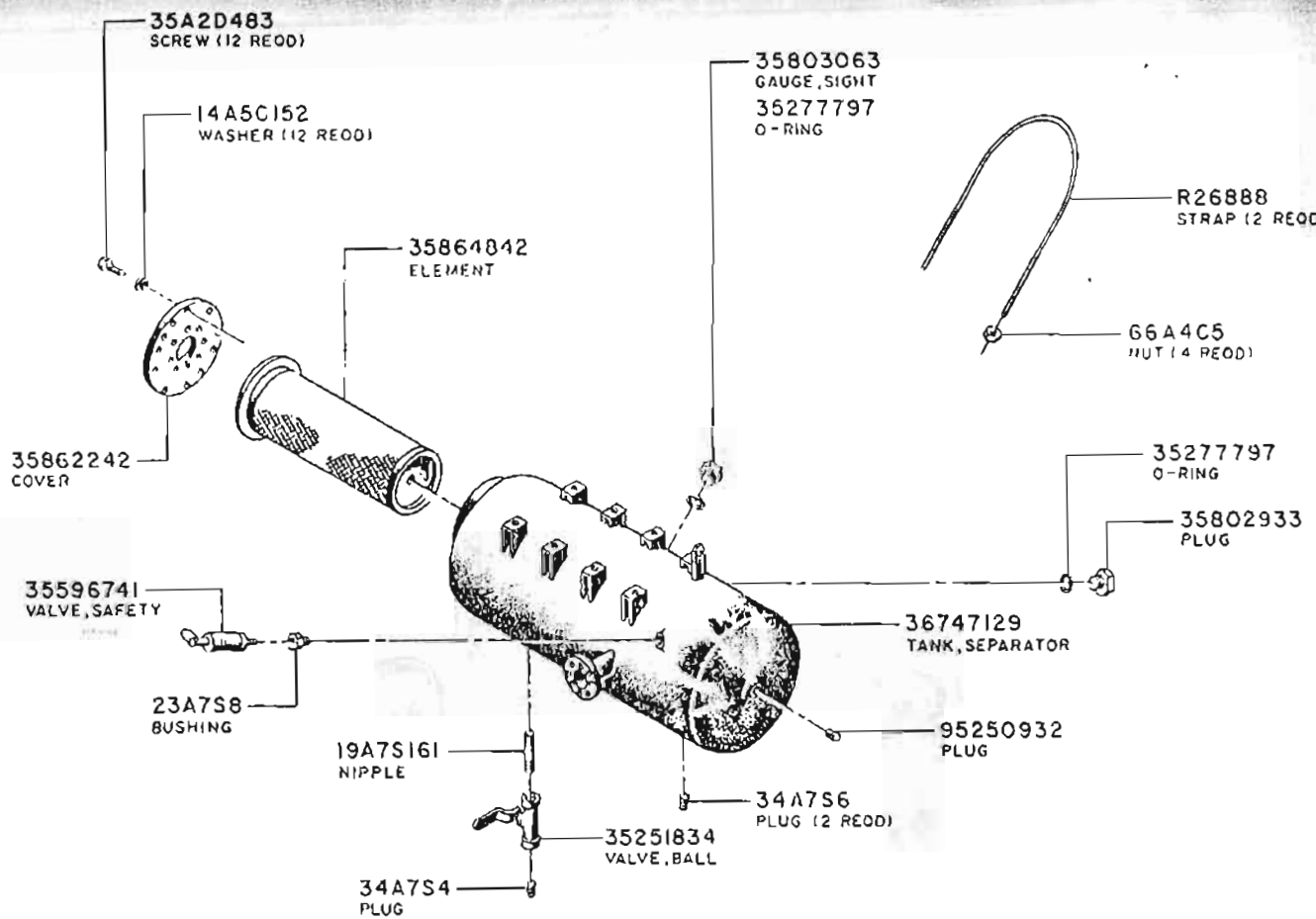
SHT 1 OF 2

REVISIONS		DATE	CHARGE NOS	
A	ORIGINAL RELEASE		DATE 6-28-85	NAME OF PART RADIATOR & OIL COOLER COMP
WAP	PER E/C 21993	6-28-85		
B	CHG PER PAUL BEAVER'S REQUEST	E/C 22370 6-25-86	NAME W. POOLE	INGERSOLL-RAND COMPANY
WAP			E/C NO.	MODEL NO. XHP-750-S-CAT
C				DRAWING NO. 35864537
D				



SHT 2 OF 2

REVISIONS		DATE	CHARGE NOS		
A	ORIGINAL RELEASE PER E/C 21993	6-28-85	DATE 6-28-85	NAME OF PART RADIATOR & OIL COOLER COMP.	
B			NAME W POOLE	INGERSOLL-RAND COMPANY	
C			E/C NO	MODEL NO [illegible]-710-S-CAT	DRAWING NO 35864537
D					



REVISIONS		DATE	ECN NO
A	ORIGINAL RELEASE		
B	PER ECN 71993	6-28-85	
C	ERROR CORRECTION	11-5-86	
D	ADD PLUG PART L		

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

CHARGE NOS:

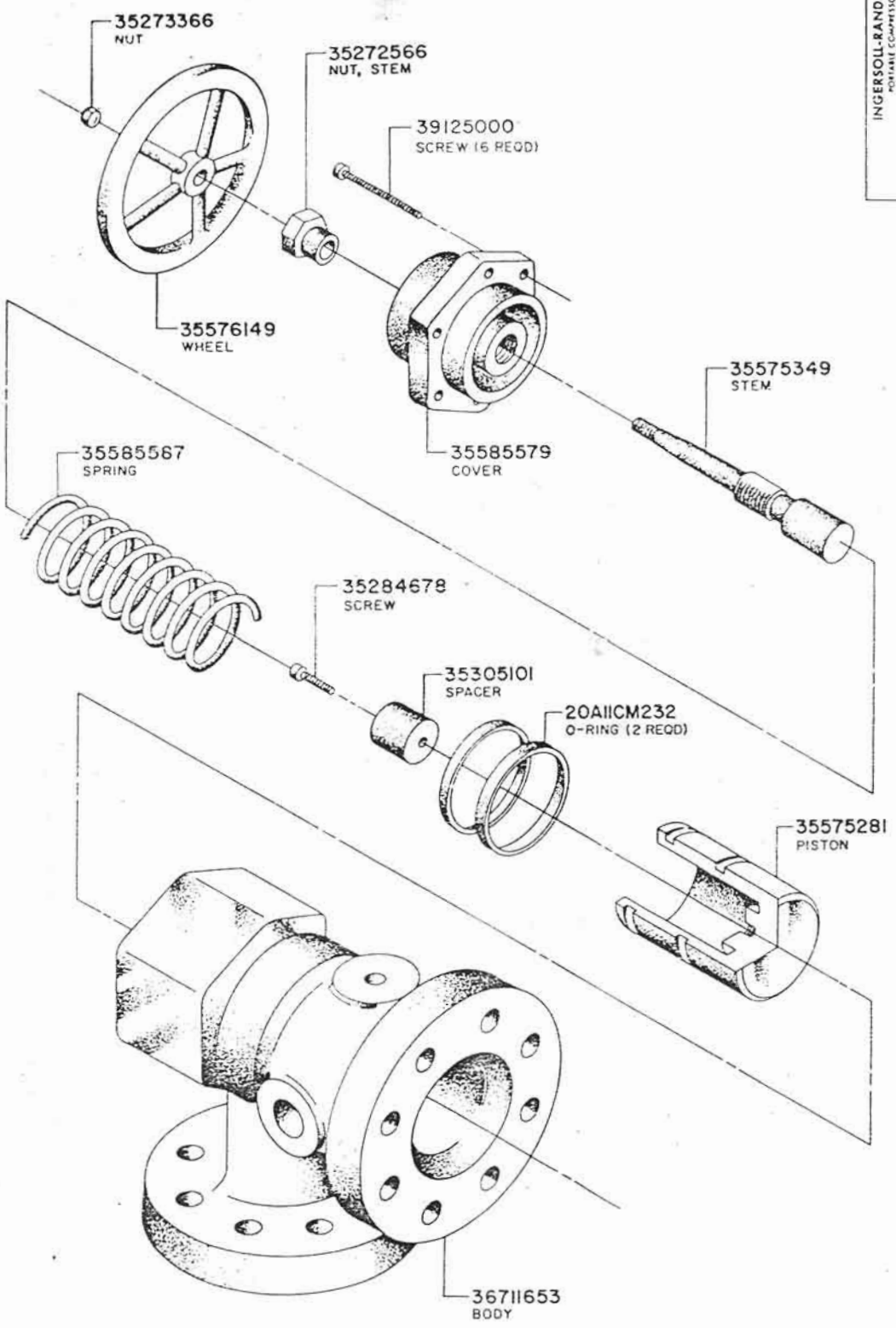
DESCRIPTION
SEPARATOR TANK ASSEMBLY

MODEL NO	ILLUSTRATION NO.	SHEET NO	ECN NO
XHP-750-S-CAT	35864545	1 of 1	

MINIMUM PRESSURE VALVE COMPLETE
PART NO. 35820901

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

DESCRIPTION: MINIMUM PRESSURE VALVE ASSEMBLY
REFER TO PARTS LIST NO. 35057579
DATE: 3 8 82
ILLUSTRATION NO. 35830926
SHEET NO. 1 OF 1
F/C



INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

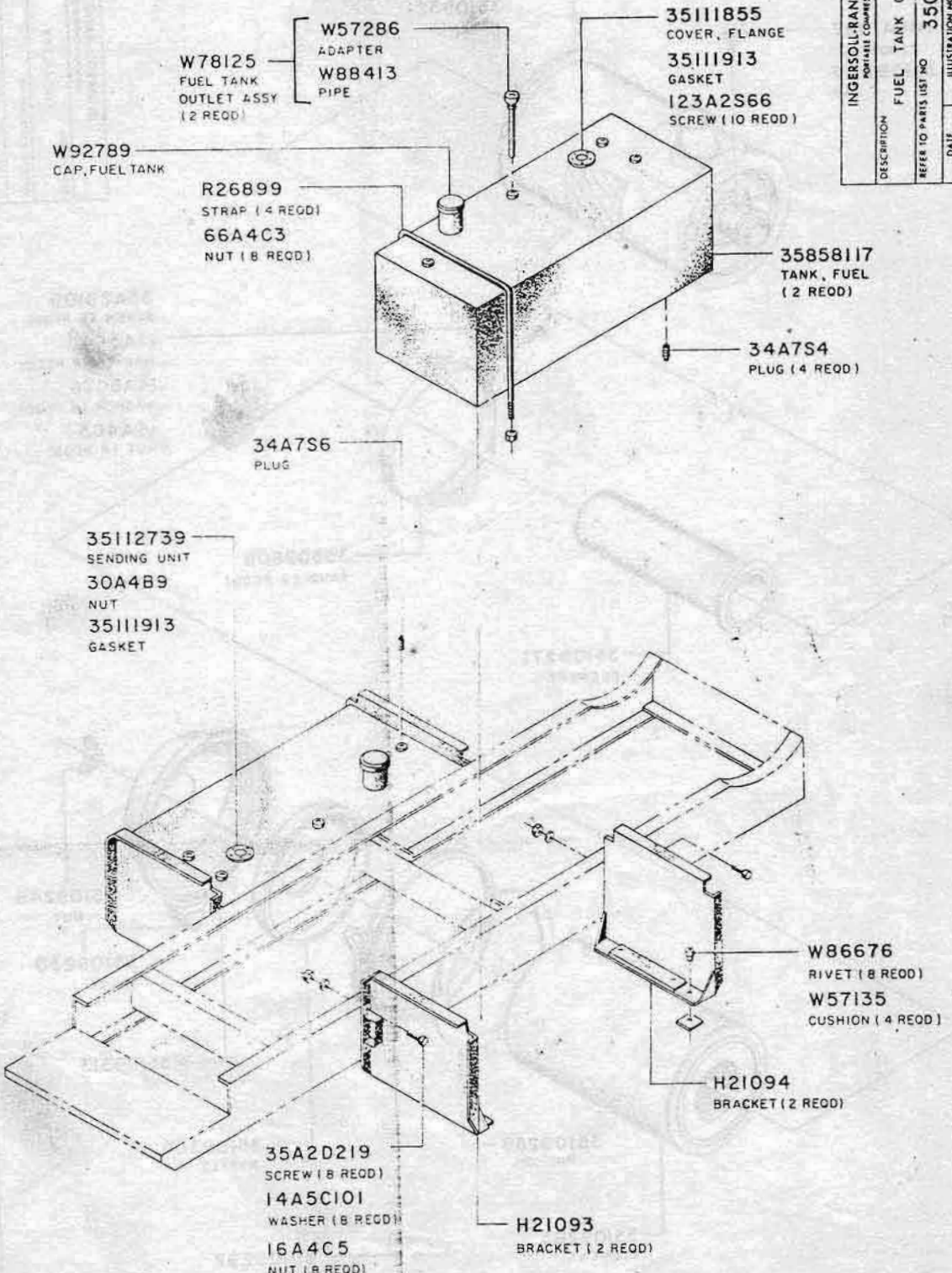
DESCRIPTION: FUEL TANK COMPLETE

REFER TO PARTS LIST NO. 35057587

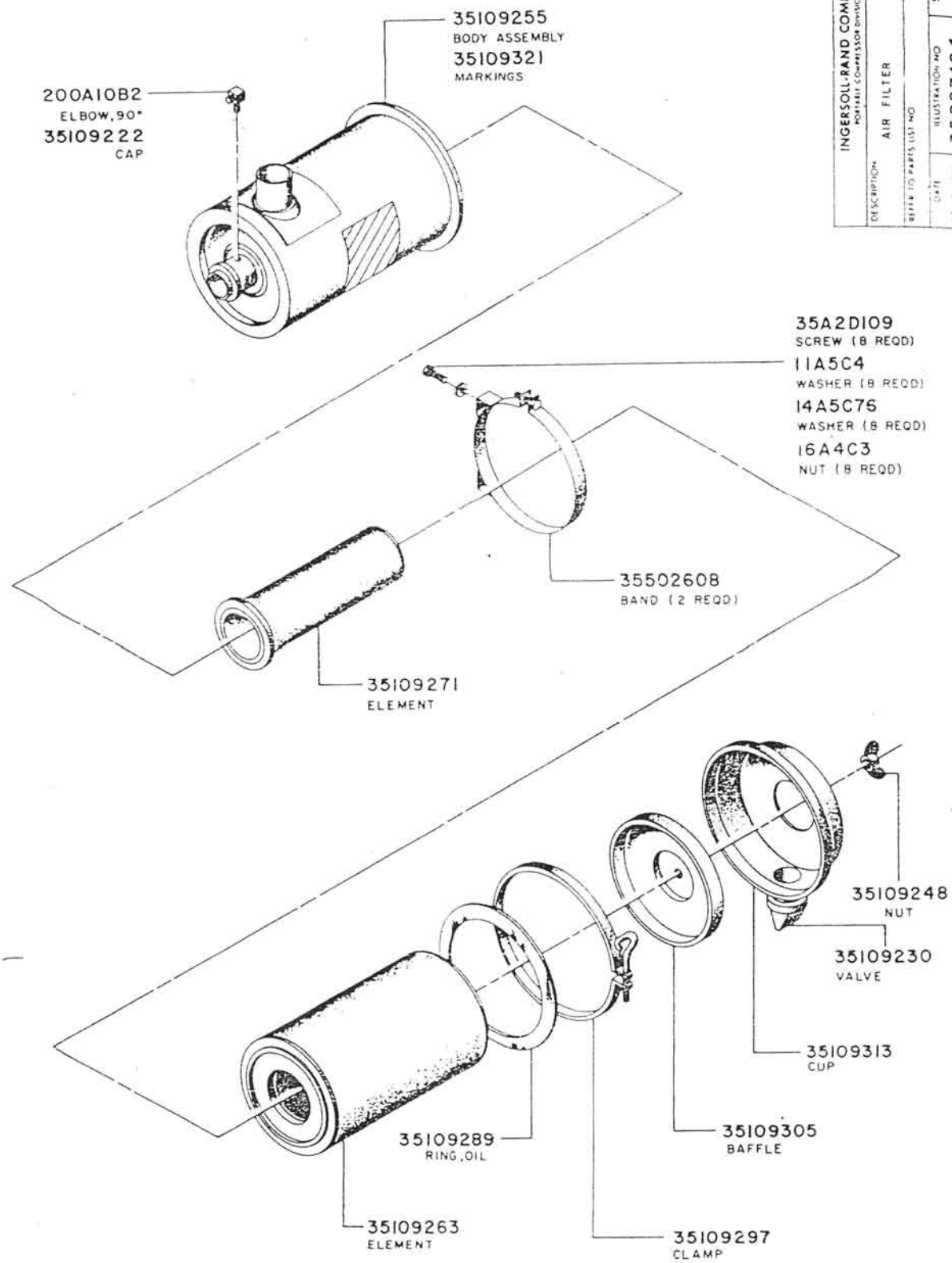
DATE: 4-25-86

ILLUSTRATION NO. 35832955

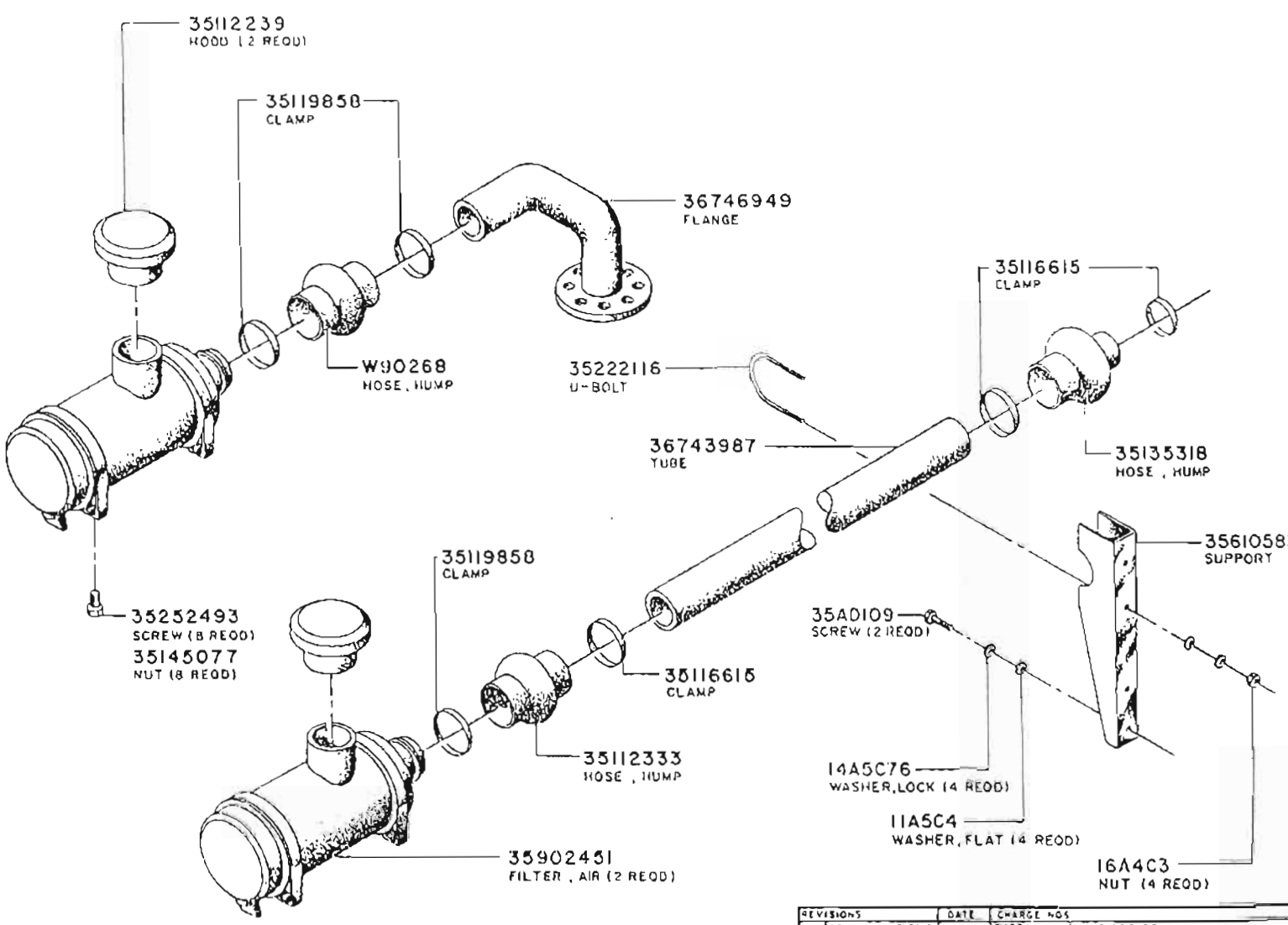
SHEET NO. 1 OF 1



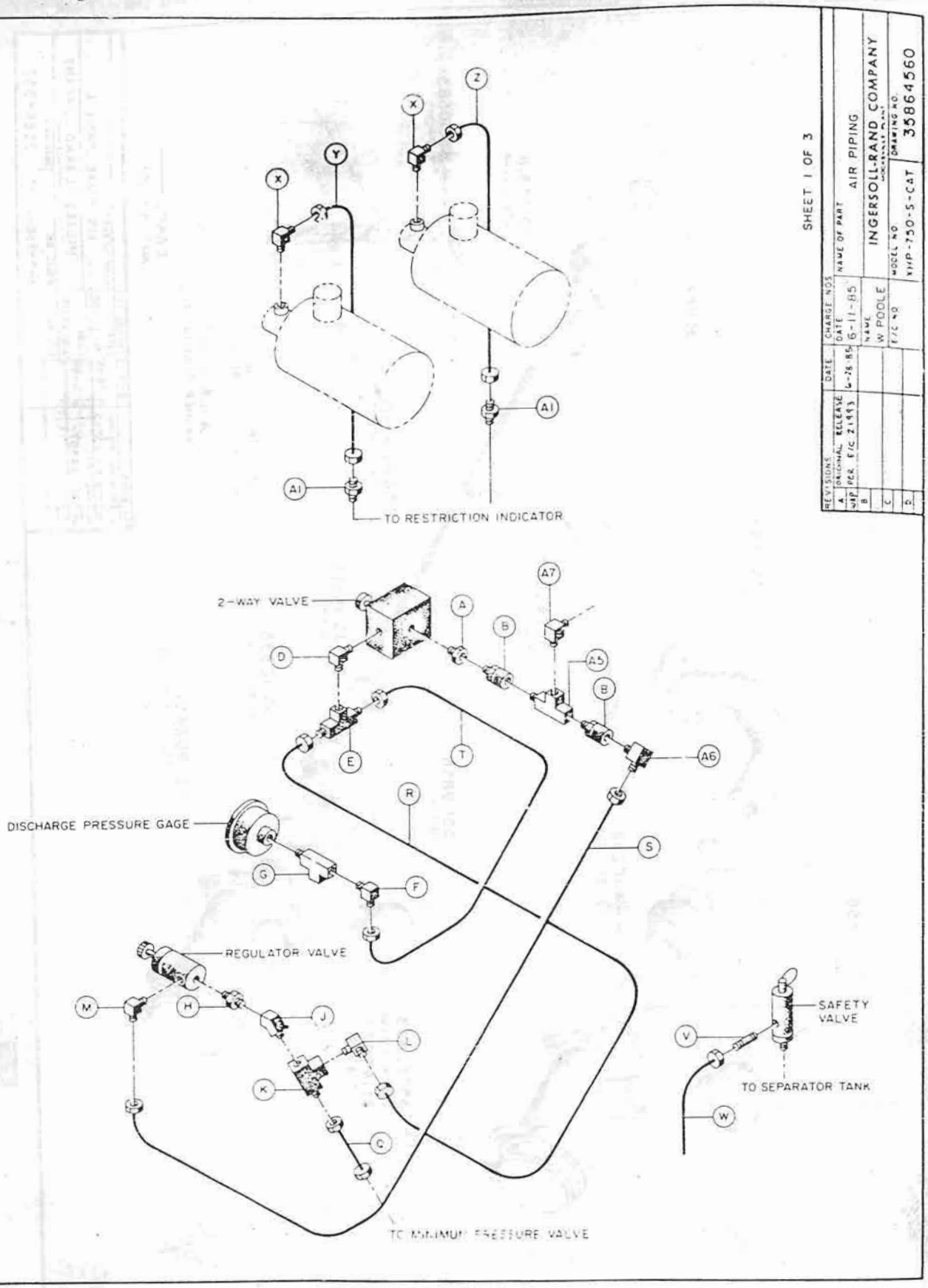
AIR FILTER COMPLETE
PART NO. 35902451
(2 REQD)

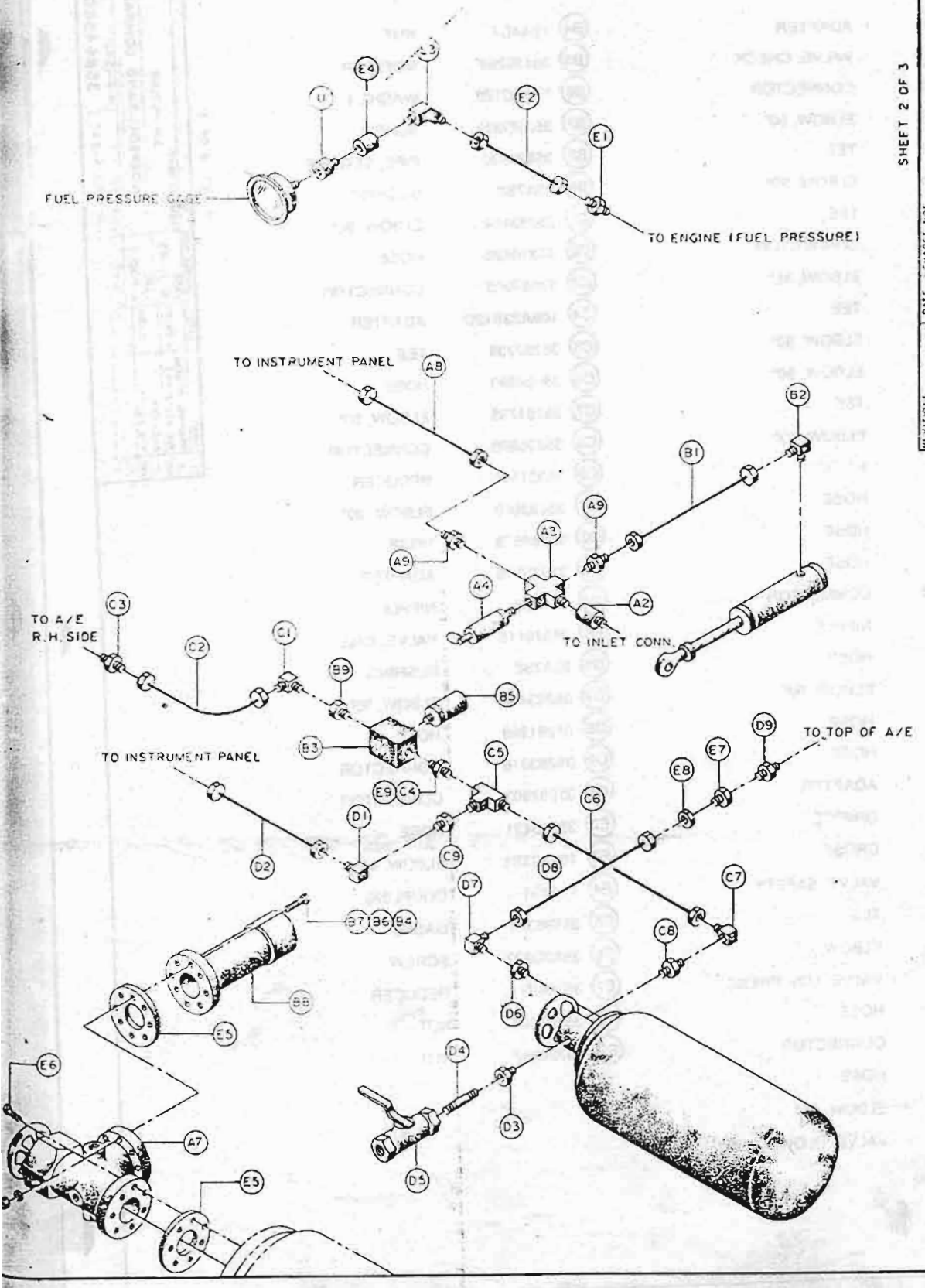


INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION
DESCRIPTION: AIR FILTER
REFER TO PARTS LIST NO
DATE: 12 2 80
ILLUSTRATION NO: 35827484
SHEET NO: 1 OF 1



REVISIONS		DATE	CHARGE NOS		
A	ORIGINAL RELEASE PER E/C 21993	6-28-85	DATE 5-30-85	NAME OF PART AIR INTAKE COMPLETE	
B	CHG PER E/C 22887	4-16-87	NAME G. GIVENS	INGERSOLL-RAND COMPANY	
C			E/C NO.	MODEL NO. XHP-750-S-CAT	DRAWING NO. 35864552
D					


SHEET 1 OF 3
REVISIONS
A ORIGINAL RELEASE PER E/C 2.1443
DATE 6-28-85
CHARGE NOS
DATE 6-11-85
NAME W POOLE
E/C NO
NAME OF PART AIR PIPING
INGERSOLL-RAND COMPANY
MODEL NO XHP-750-S-CAT
DRAWING NO. 35864560
TO RESTRICTION INDICATOR
2-WAY VALVE
DISCHARGE PRESSURE GAGE
REGULATOR VALVE
SAFETY VALVE
TO SEPARATOR TANK
TO MINIMUM PRESSURE VALVE



SHEET 2 OF 3

REVISIONS	DATE	CHARGE NOS	NAME OF PART
A ORIGINAL RELEASE	6-28-85	DATE 6-11-85	AIR PIPING
B PER E/C 21995 CHG PER E/C 22119	1-2-86	NAME W. POOLE	INGERSOLL-RAND COMPANY
C CHG PER E/C 22274	3-21-86	E/C NO	MODEL NO XHP-750-S-CAT
D			DRAWING NO 35864560

A	35302314	ADAPTER
B	35248145	VALVE, CHECK
C	35287143	CONNECTOR
D	35279827	ELBOW, 90°
E	35283084	TEE
F	35279934	ELBOW, 90°
G	105A7M1	TEE
H	35284082	CONNECTOR
J	35283100	ELBOW, 45°
K	35283084	TEE
L	35283068	ELBOW, 90°
M	35301126	ELBOW, 90°
N	35283084	TEE
P	35283068	ELBOW, 90°
Q	35294701	HOSE
R	35282961	HOSE
S	35283282	HOSE
T	35282961	HOSE
U	X1086T110	CONNECTOR
V	19A7S55	NIPPLE
W	35316363	HOSE
X	35301225	ELBOW, 90°
Y	35310226	HOSE
Z	35306661	HOSE
A1	108A23S2	ADAPTER
A2	35248319	ORIFICE
A3	35321264	CROSS
A4	35325133	VALVE, SAFETY
A5	35321272	TEE
A6	35280098	ELBOW
A7	35820901	VALVE, MIN. PRESS.
A8	35283001	HOSE
A9	35287143	CONNECTOR
B1	35283282	HOSE
B2	35301126	ELBOW, 90°
B3	35849215	VALVE, BLOWDOWN
B4	16A4C7	NUT
B5	35132299	MUFFLER
B6	14A5C120	WASHER
B7	35A2D331	SCREW
B8	35824630	PIPE, SERVICE
B9	23A7S2	BUSHING
C1	35283464	ELBOW, 90°
C2	35310226	HOSE
C3	35287903	CONNECTOR
C4	108A23S12D	ADAPTER
C5	35287739	TEE
C6	35294693	HOSE
C7	35294735	ELBOW, 90°
C8	35295880	CONNECTOR
C9	35321165	REDUCER
D1	35283068	ELBOW, 90°
D2	35289578	HOSE
D3	35279116	ADAPTER
D4	19A7S5	NIPPLE
D5	35576115	VALVE, BALL
D6	23A7S2	BUSHING
D7	35283464	ELBOW, 90°
D8	35291269	HOSE
D9	35283076	CONNECTOR
E1	35287903	CONNECTOR
E2	35315431	HOSE
E3	104A23S1	ELBOW, 45°
E4	11A7S1	COUPLING
E5	35586304	GASKET
E6	35A2D327	SCREW
E7	35306091	REDUCER
E8	35306109	NUT
E9	35324987	NUT

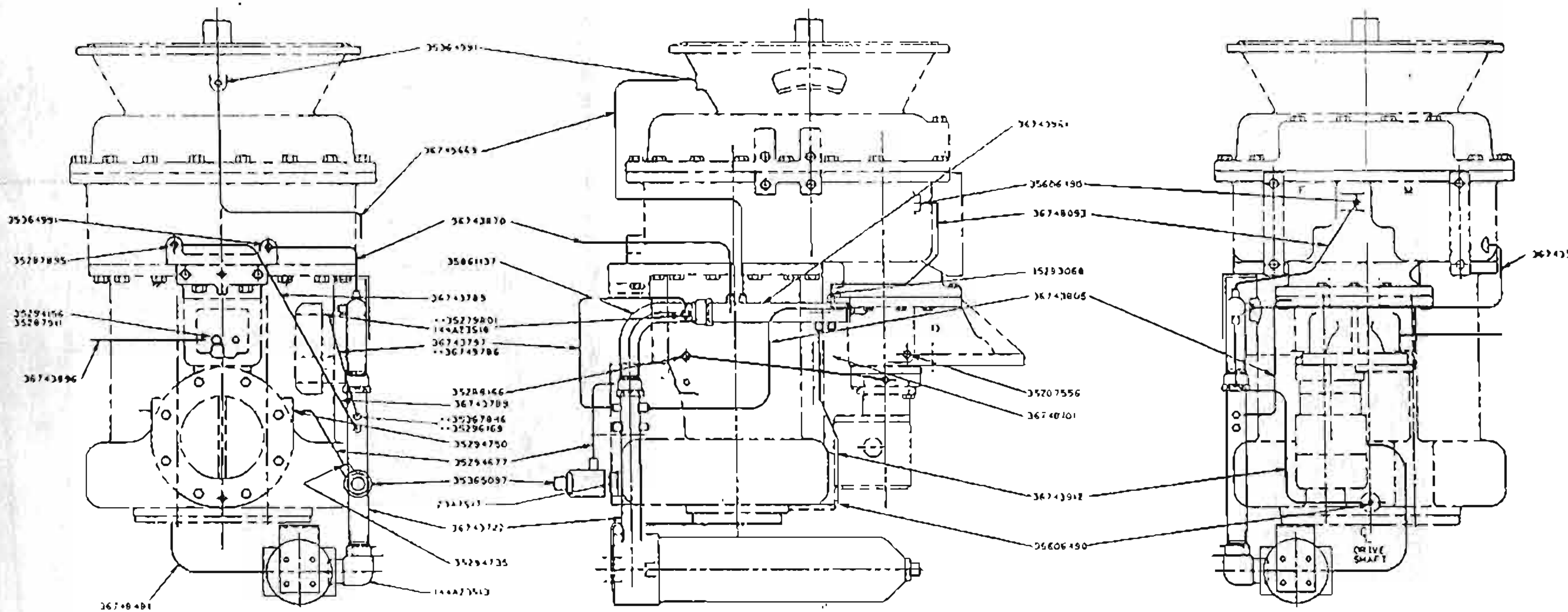
SHEET 3 OF 3

REVISIONS	DATE	CHARGE NOS
A ORIGINAL RELEASE E/C 21943	4-26-85	DATE 6-11-85
B CHG. PER E/C 22179	1-2-86	NAME OF PART AIR PIPING
		DRAWN W. POOLE
		TRACED NO
		MODEL NO
		DRAWING NO 35864560

INGERSOLL-RAND COMPANY

35366004 V.2 E C 22534

REVISIONS					
ZONE	REV.	DESCRIPTION	DATE	DWN	E.C.
	A	ORIGINAL RELEASE		MF	22078
	B	ADDED NOTE		MF	22133
	C	REVISED TO AS BUILT		MF	22534



** NOTE USED ON 900 CFM UNITS ONLY

UNLESS OTHERWISE SPECIFIED
TOLERANCES ON DRAWING

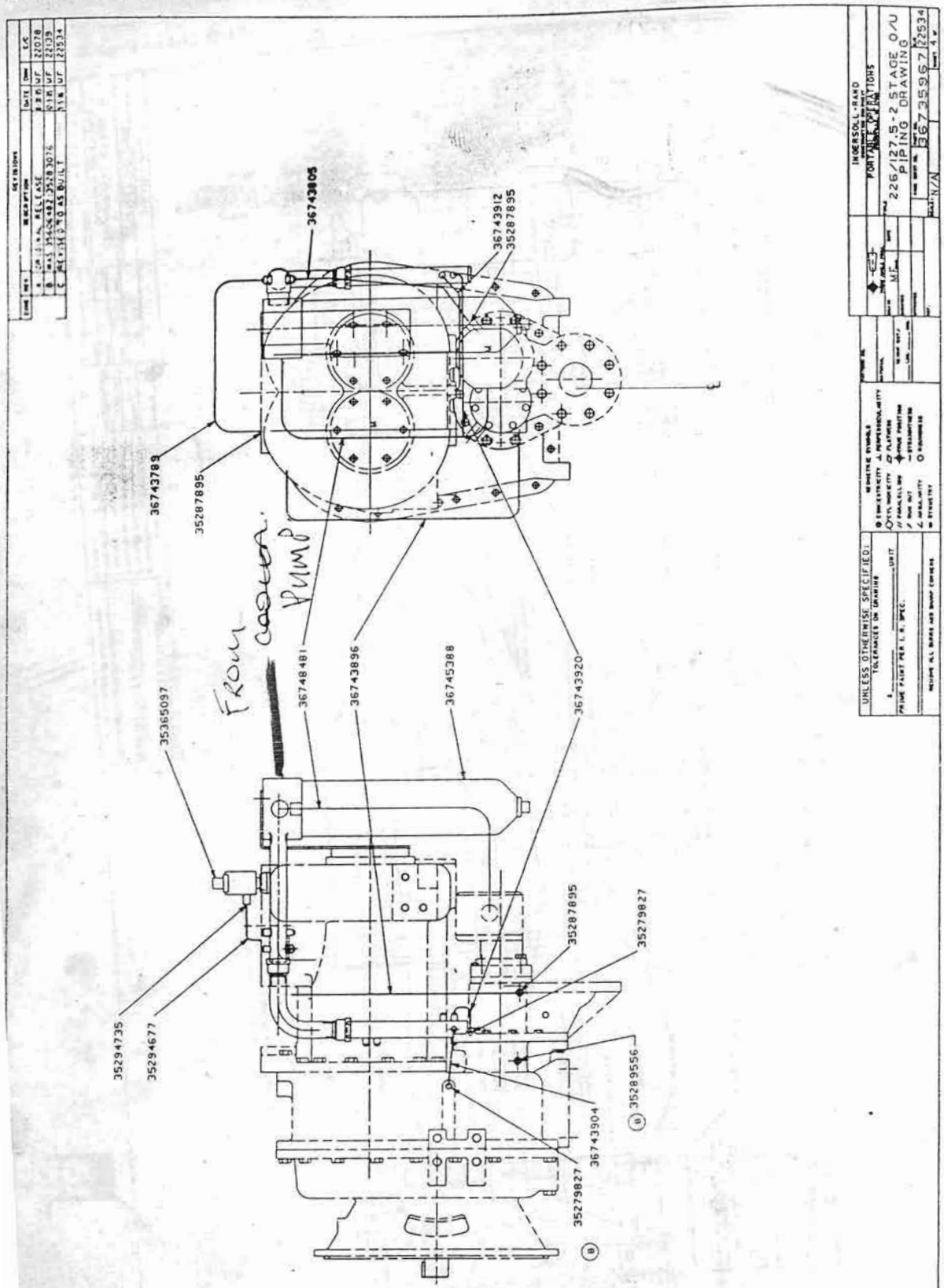
PRIME PAINT PER I.R. SPEC.

MF

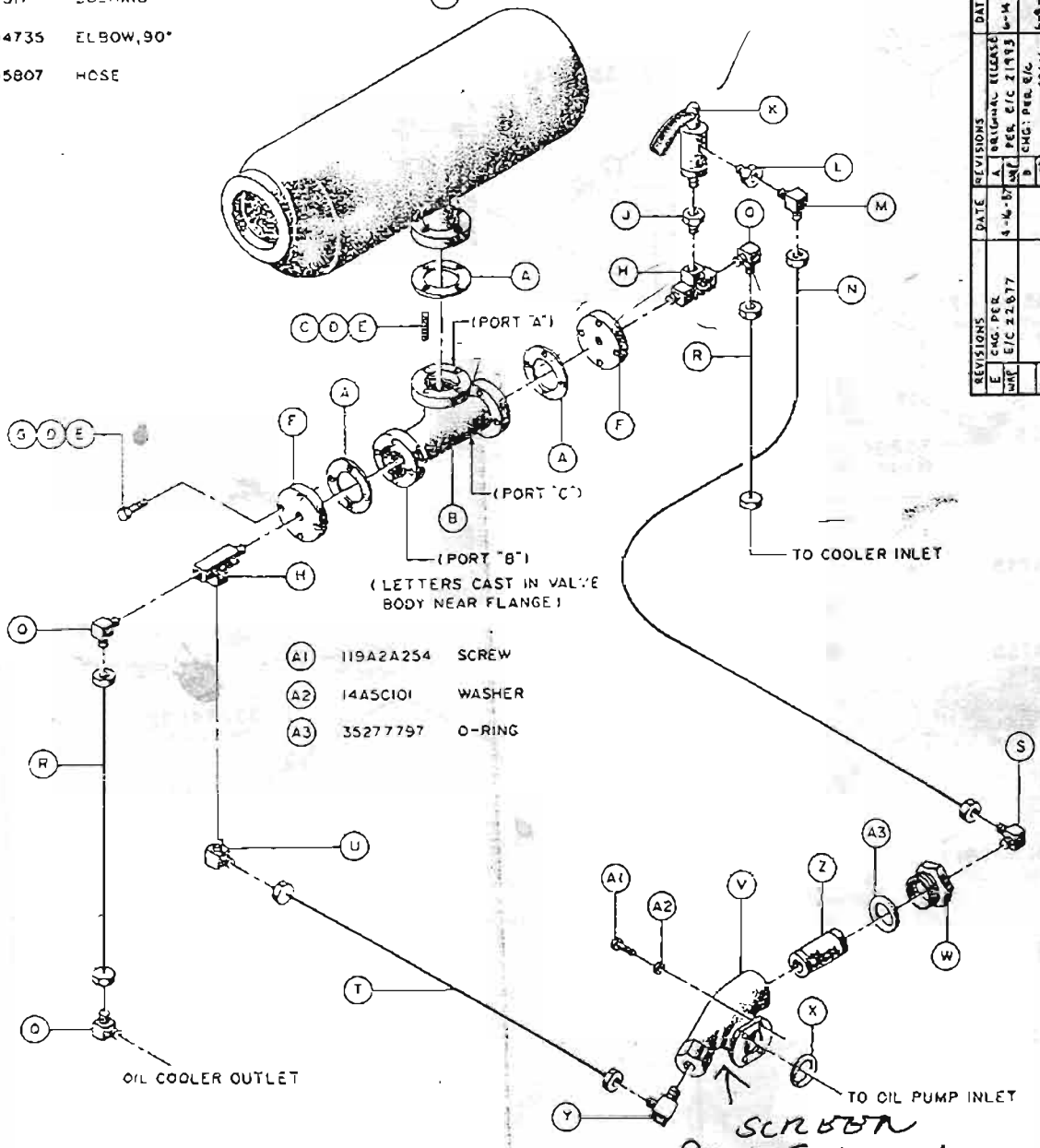
INGERSOLL-RAND
PORTABLE

226/127.5-2 STAGE
PIPING DRAWING

N/A


36743805
36743912
35287895
36743789
35287895
FROM CASTING PUMP
36748481
36743896
36745388
36743920
35365097
35294735
35294677
35287895
35279827
35289556
36743904
35279827
INGERSOLL-RAND
PORTABLE COMPRESSORS
226/127.5-2 STAGE O/U
PIPING DRAWING
36735967
22534
UNLESS OTHERWISE SPECIFIED:
TOLERANCES ON DRAWING

A	95746434	GASKET
B	35863620	VALVE, TEMP BY-PASS
C	11A3J466	STUD
D	14A5C133	WASHER
E	16A4C8	NUT
F	35370394	FLANGE
G	35A2D380	SCREW
H	95433751	TEE
J	23A7S23	BUSHING
K	35321876	VALVE, PRESS RELIEF
L	23A7S11	BUSHING
M	35294735	ELBOW, 90°
N	35295807	HOSE
P	14A5C101	WASHER
O	109A23S24	ELBOW, 90°
R	35113729	HOSE
S	35294750	ELBOW, 90°
T	35309236	HOSE
U	35100664	ELBOW, 90°
V	36751295	STRAINER
W	35609098	PLUG
X	204110 2M225	O-RING
Y	35296417	ELBOW, 90°
Z	35370063	FILTER

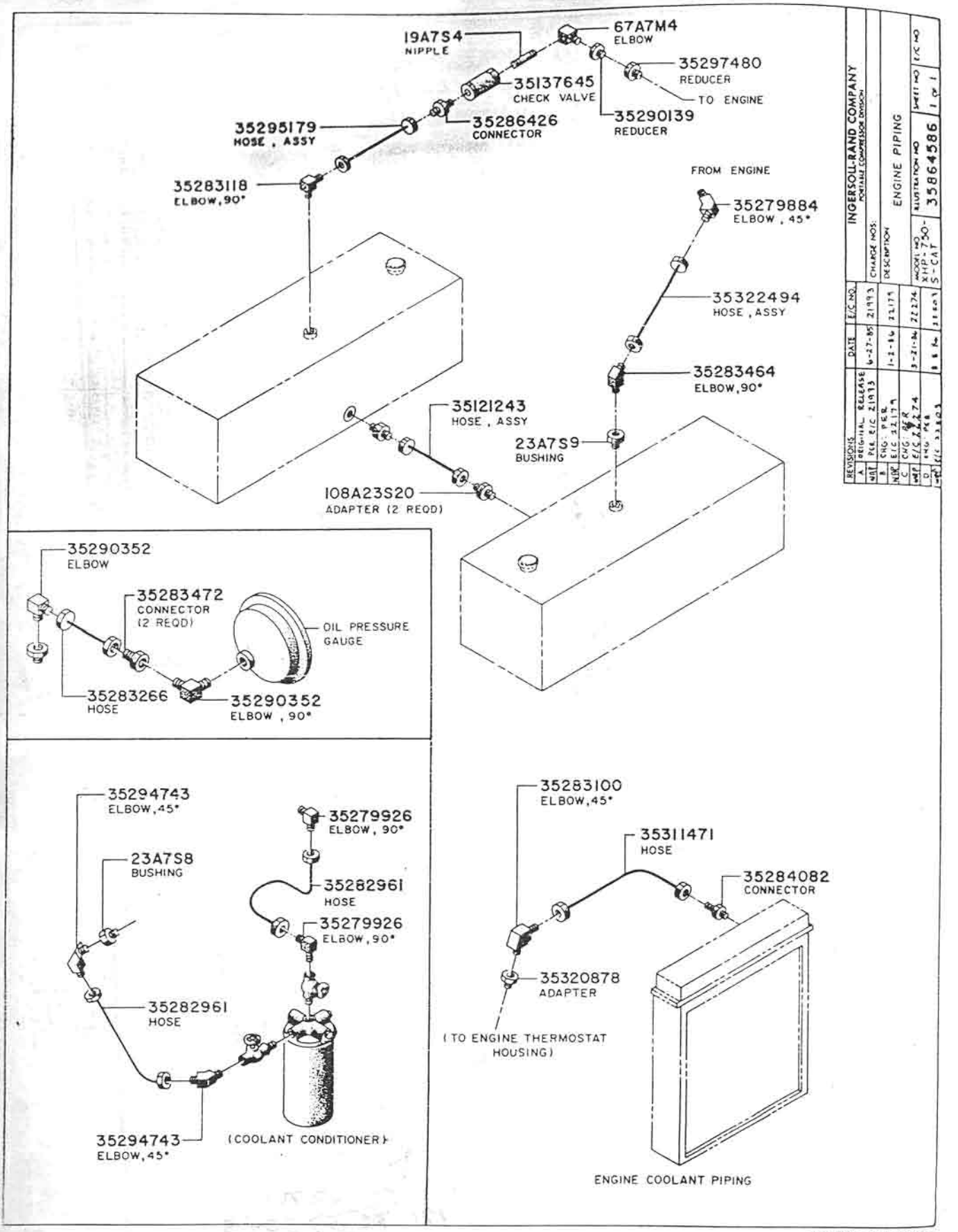


SCREEN PN 35370063

REVISIONS		DATE	CHARGE NOS:
E	CHG. PER E/C 22877	4-16-87	DATE 6-14-85
			NAME W. POOLE
			E/C NO.

REVISIONS		DATE
A	ORIGINAL RELEASE	6-14-85
B	CHG: PER E/C 21993	6-19-86
C	CHG: PER E/C 22416	9-23-86
D	CHG: PER E/C 22564	11-20-86
E	CHG: PER E/C 22877	

NAME OF PART: OIL TEMP. BY-PASS VLV. PIPING
INGERSOLL-RAND COMPANY
MODEL NO.: XHP-750-S-CAT
DRAWING NO.: 35864578

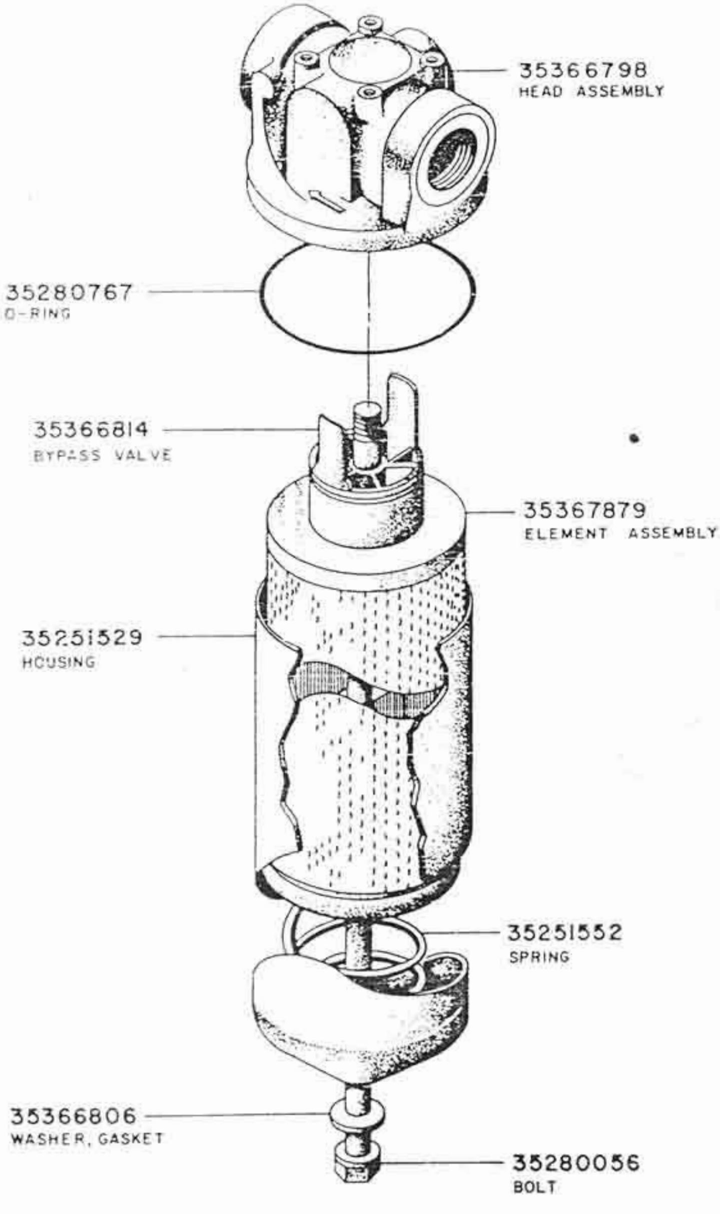

19A7S4
NIPPLE
67A7M4
ELBOW
35297480
REDUCER
TO ENGINE
35137645
CHECK VALVE
35290139
REDUCER
35295179
HOSE , ASSY
35286426
CONNECTOR
35283118
ELBOW,90°
FROM ENGINE
35279884
ELBOW , 45°
35322494
HOSE , ASSY
35283464
ELBOW,90°
35121243
HOSE , ASSY
23A7S9
BUSHING
108A23S20
ADAPTER (2 REQD)
INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION
ENGINE PIPING
ILLUSTRATION NO 35864586
MODEL NO XHP-750-S-CAT
REVISIONS
A ORIGINAL RELEASE 6-27-85 E/C NO. 21993
B CHG. PER E/C 22179 1-2-86 22179
C CHG. PER E/C 22274 3-21-86 22274
D CHG. PER E/C 22603 8-8-86 22603
35290352
ELBOW
35283472
CONNECTOR
(2 REQD)
OIL PRESSURE
GAUGE
35283266
HOSE
35290352
ELBOW , 90°
35294743
ELBOW,45°
23A7S8
BUSHING
35279926
ELBOW, 90°
35282961
HOSE
35279926
ELBOW,90°
35282961
HOSE
35294743
ELBOW,45°
(COOLANT CONDITIONER)
35283100
ELBOW,45°
35311471
HOSE
35284082
CONNECTOR
35320878
ADAPTER
(TO ENGINE THERMOSTAT
HOUSING)
ENGINE COOLANT PIPING

Rev.	Revision	Date
A	ORIGINAL RELEASE PER [illegible]	[illegible]
B	CHANGED PER E/C 22149	11-3-85 WAP
C		
D		
E		

INGERSOLL-RAND
PORTABLE OPERATIONS

NAME: G. GIVENS
DATE: 7-29-85
TITLE: OIL FILTER COMPLETE
MODEL: XHP-750-S-CAT
SHEET NO: 1
DRAWING NO: 35864818

36745388
OIL FILTER ASSEMBLY



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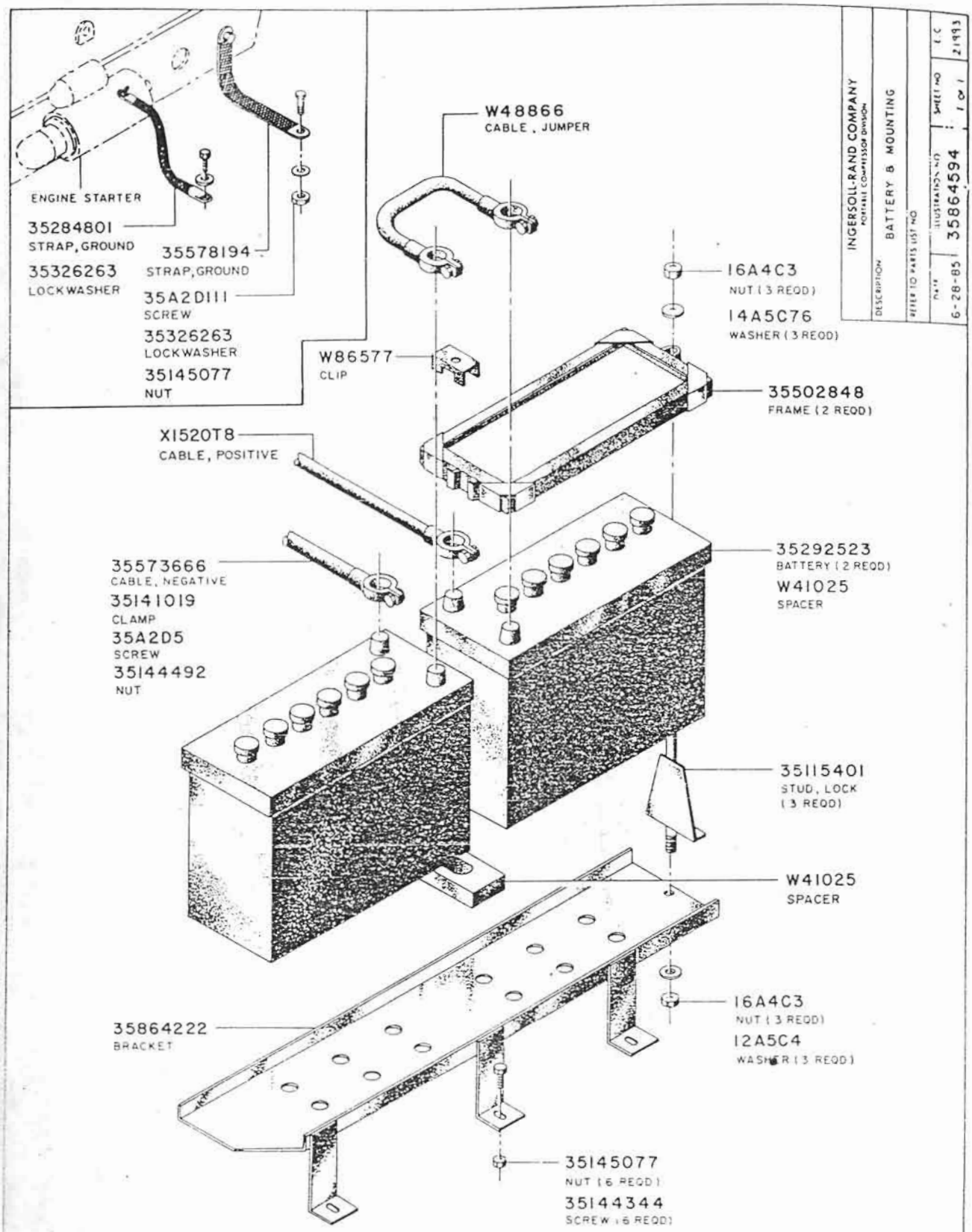
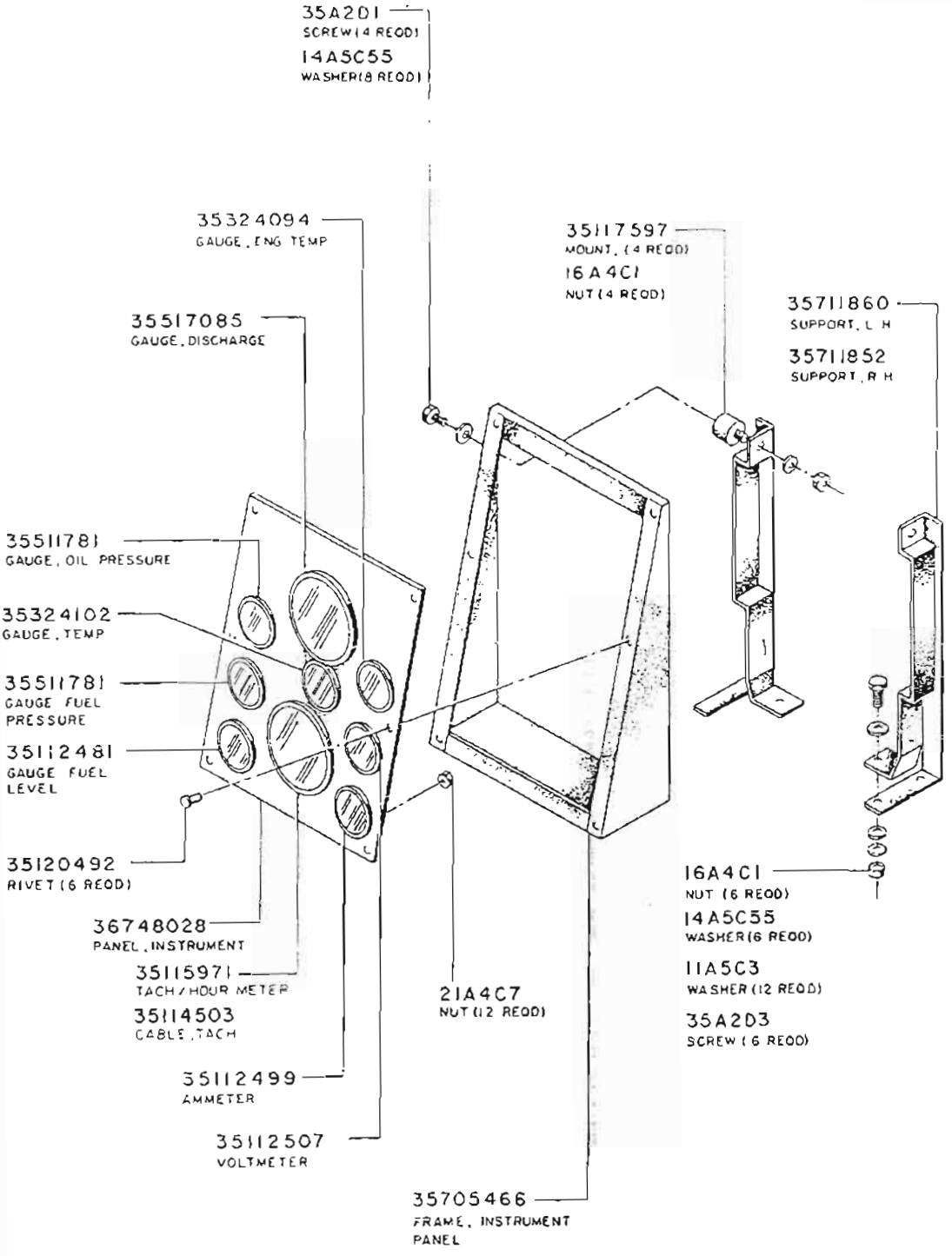
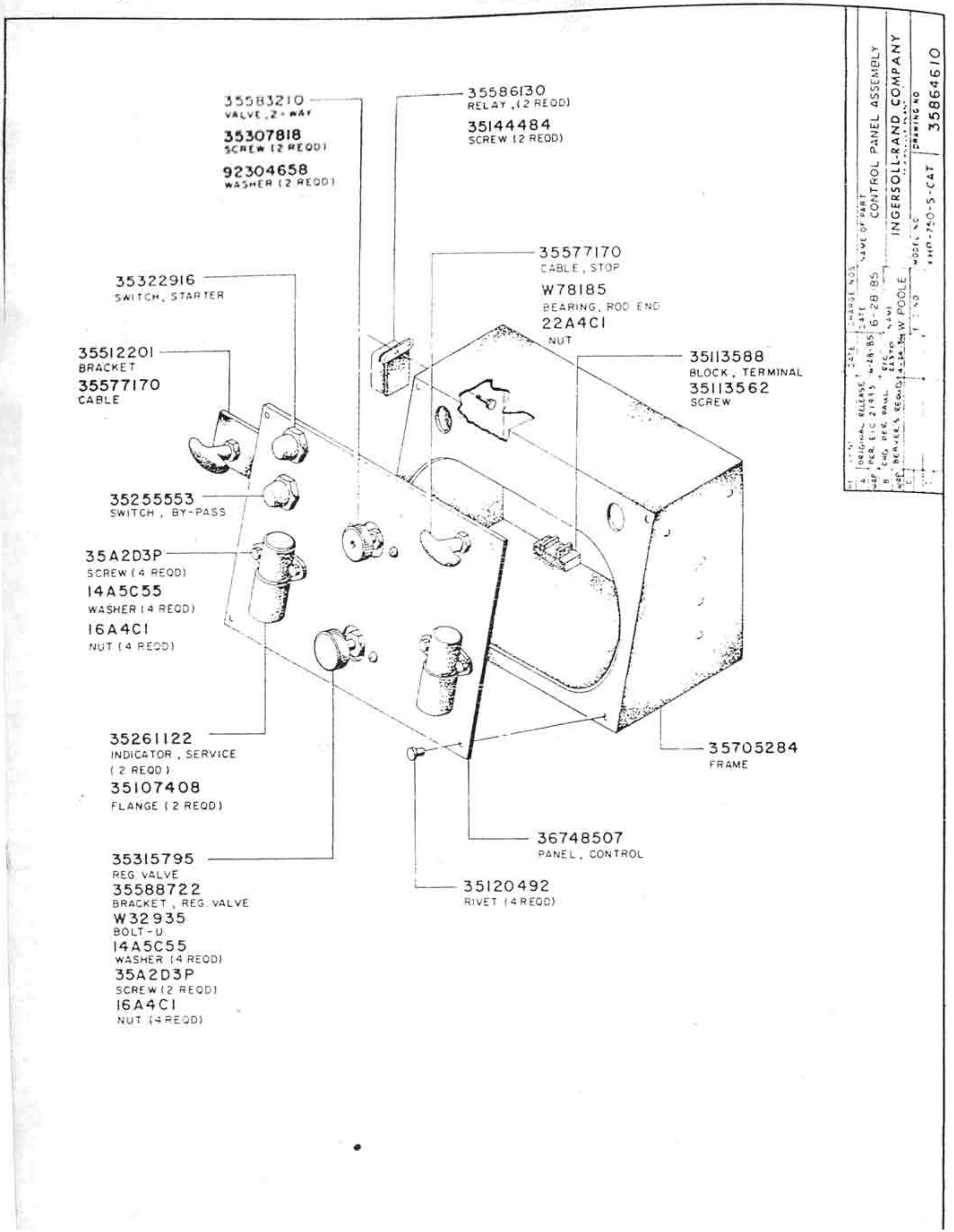
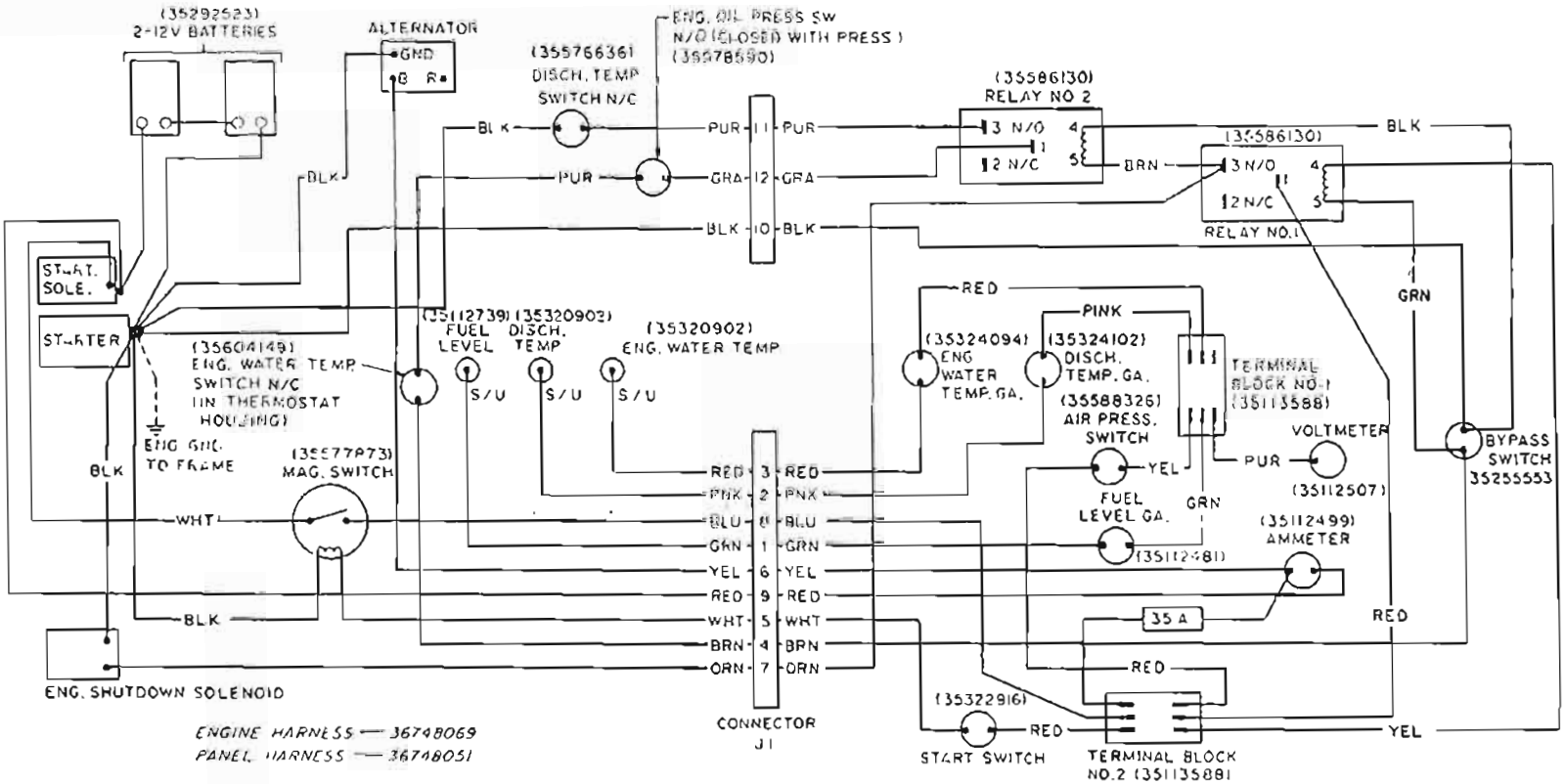

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION
DESCRIPTION BATTERY & MOUNTING
REFER TO PARTS LIST NO
DATE 6-28-85
ILLUSTRATION NO 35864594
SHEET NO 1 OF 1
EC 21993
ENGINE STARTER
35284801
STRAP, GROUND
35326263
LOCKWASHER
35578194
STRAP, GROUND
35A2D111
SCREW
35326263
LOCKWASHER
35145077
NUT
W48866
CABLE, JUMPER
16A4C3
NUT (3 REQD)
14A5C76
WASHER (3 REQD)
W86577
CLIP
35502848
FRAME (2 REQD)
X1520T8
CABLE, POSITIVE
35573666
CABLE, NEGATIVE
35141019
CLAMP
35A2D5
SCREW
35144492
NUT
35292523
BATTERY (2 REQD)
W41025
SPACER
35115401
STUD, LOCK
(3 REQD)
W41025
SPACER
16A4C3
NUT (3 REQD)
12A5C4
WASHER (3 REQD)
35864222
BRACKET
35145077
NUT (6 REQD)
35144344
SCREW (6 REQD)


35A201
SCREW (4 REQD)
14A5C55
WASHER (8 REQD)
35324094
GAUGE, ENG TEMP
35117597
MOUNT, (4 REQD)
16A4C1
NUT (4 REQD)
35711860
SUPPORT, L H
35711852
SUPPORT, R H
35517085
GAUGE, DISCHARGE
35511781
GAUGE, OIL PRESSURE
35324102
GAUGE, TEMP
35511781
GAUGE FUEL PRESSURE
35112481
GAUGE FUEL LEVEL
35120492
RIVET (6 REQD)
36748028
PANEL, INSTRUMENT
35115971
TACH/HOUR METER
35114503
CABLE, TACH
35112499
AMMETER
35112507
VOLTMETER
21A4C7
NUT (12 REQD)
35705466
FRAME, INSTRUMENT PANEL
16A4C1
NUT (6 REQD)
14A5C55
WASHER (6 REQD)
11A5C3
WASHER (12 REQD)
35A203
SCREW (6 REQD)


35583210
VALVE, 2-WAY
35307818
SCREW (2 REQD)
92304658
WASHER (2 REQD)
35586130
RELAY, (2 REQD)
35144484
SCREW (2 REQD)
35322916
SWITCH, STARTER
35512201
BRACKET
35577170
CABLE
35577170
CABLE, STOP
W78185
BEARING, ROD END
22A4C1
NUT
35113588
BLOCK, TERMINAL
35113562
SCREW
35255553
SWITCH, BY-PASS
35A2D3P
SCREW (4 REQD)
14A5C55
WASHER (4 REQD)
16A4C1
NUT (4 REQD)
35261122
INDICATOR, SERVICE
(2 REQD)
35107408
FLANGE (2 REQD)
35705284
FRAME
36748507
PANEL, CONTROL
35315795
REG. VALVE
35588722
BRACKET, REG. VALVE
W32935
BOLT-U
14A5C55
WASHER (4 REQD)
35A2D3P
SCREW (2 REQD)
16A4C1
NUT (4 REQD)
35120492
RIVET (4 REQD)
ORIGINAL RELEASE PER EIC 21995
CHG PER PAUL BEAVER'S REQUEST
6-28-85
W POOLE
NAME OF PART
CONTROL PANEL ASSEMBLY
INGERSOLL-RAND COMPANY
MODEL NO
DRAWING NO
35864610



REVISIONS		DATE	CHARGE NOS.	
A	ORIGINAL RELEASE PER E/C 21993	6-26-84	DATE 5-10-85	NAME OF PART DECAL - WIRING DIAGRAM
B	CHG PER PAUL BEAVER	E/C 23330 6-24-85	NAME W. POOLE	INGERSOLL-RAND COMPANY
C			E/C NO.	MODEL NO. XHP-750-S-CAT
D				DRAWING NO. 36502201

(A)	35252568	SCREW	(L)	35145259	SCREW
(B)	35252618	NUT	(M)	35252758	SCREW
(C)	35144344	SCREW	(N)	11A5C4	WASHER
(D)	35252493	SCREW	(P)	14A5C76	WASHER
(E)	35145077	NUT			
(F)	35144484	SCREW			
(G)	35144492	NUT			
(H)	35420111	SCREW			
(J)	W30033	SPRING			
(K)	67A4C3	NUT			

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

DESCRIPTION: ENCLOSURE COMPLETE

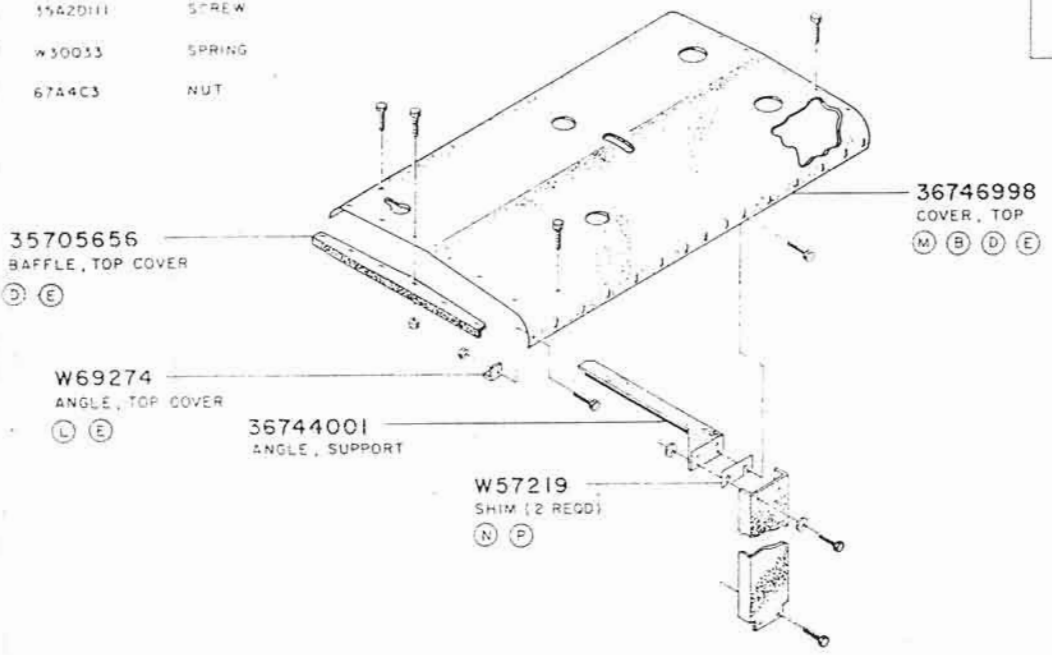
REFER TO PARTS LIST NO

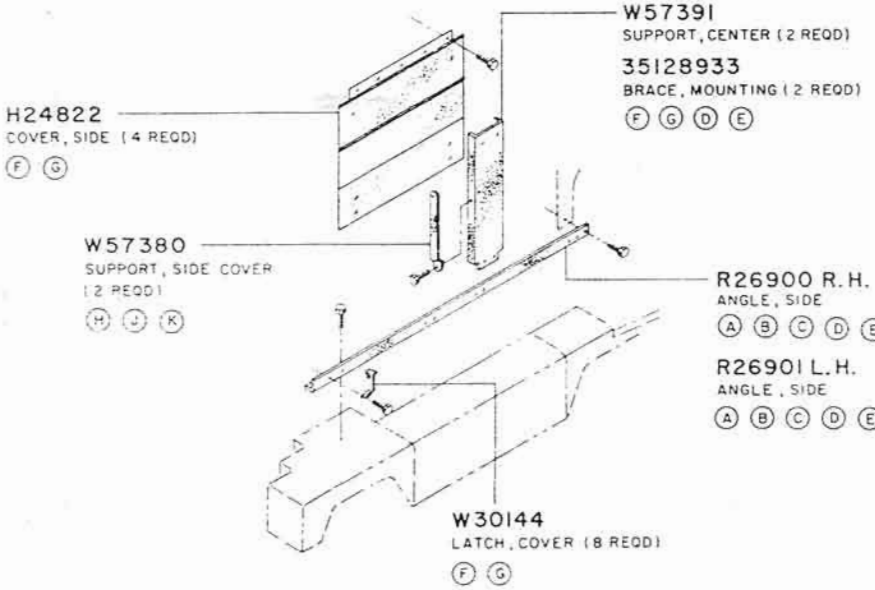
DATE: 6-27-85

ILLUSTRATION NO: 35864636

SHEET NO: 1 OF 4

E.C.





(A)	35252493	SCREW
(B)	35145077	NUT
(E)	35144344	SCREW
(D)	35A2D109	SCREW
(F)	144SC76	WASHER
(G)	35A2055	SCREW
(J)	35252600	NUT
(H)	35252618	NUT
(L)	35144336	SCREW

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

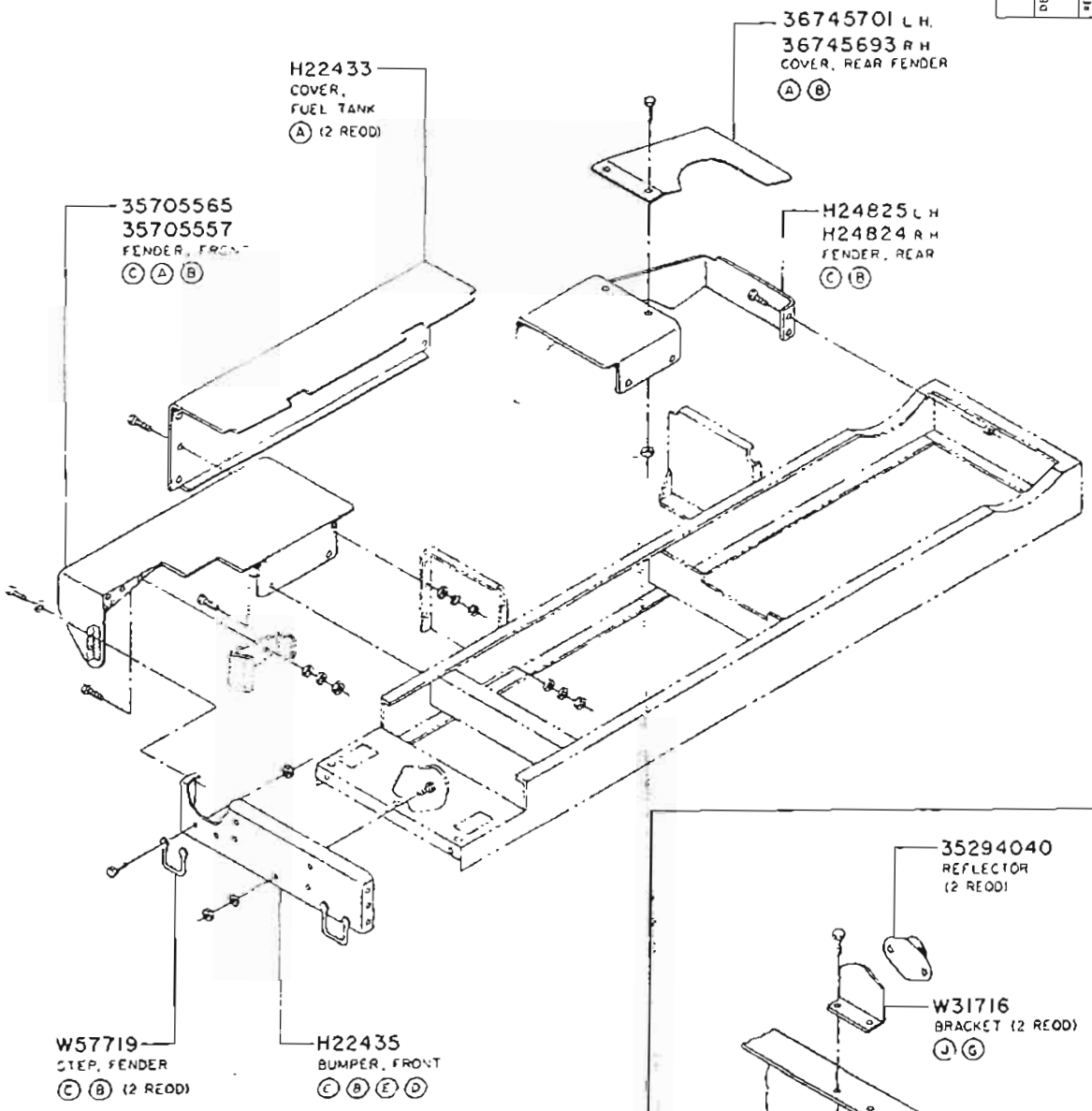
DESCRIPTION: ENCLOSURE COMPLETE

REFER TO PARTS LIST NO

DATE: 6-28-85

ILLUSTRATION NO: 35864636

SHEET NO.



9

(A)	35252493	SCREW	(K)	35A20H07	SCREW
(B)	35145077	NUT	(L)	11A5C4	WASHER
(C)	35252725	SCREW	(M)	14A5C76	WASHER
(D)	35144484	SCREW	(N)	35252568	SCREW
(E)	35144492	NUT	(P)	35252618	NUT
(F)	83A2C97	SCREW			
(G)	14A5C36	WASHER			
(H)	21A4C9	NUT			
(J)	35144344	SCREW			

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

DESCRIPTION: ENCLOSURE COMPLETE

REFER TO PARTS LIST NO

DATE	ILLUSTRATION NO	SHEET NO	E.C.
1-8-86	35864636	J 9-4	

35705441
PANEL, TOP FILLER
(K) (L) (M)

35704766
SUPPORT, REAR
(J) (B)

35504604
STRIP, L.H. FILLER
(A) (B)

36746972
SUPPORT, REAR HOUSING
(N) (P)

35504596
STRIP, R.H. FILLER
(A) (B)

35518885
BRACE

35705623
HOUSING, L.H. REAR
(A) (B)

35705615
HOUSING, R.H. REAR
(A) (B)

DECAL SET PART NO. 35086933

(A)	35252568	SCREW
(B)	35252618	NUT
(C)	35252758	SCREW
(D)	35A20224	SCREW
(E)	14ASC101	WASHER
(F)	35252493	SCREW
(G)	35A20140	SCREW
(H)	14ASC76	WASHER
(J)	35144344	SCREW
(K)	35134527	NUTSERT
(L)	35A20115	SCREW
(M)	16A4C3	NUT
(N)	35A20109	SCREW
(P)	11A5C4	WASHER
(Q)	14A5C101	WASHER

INGERSOLL-RAND COMPANY
PORTABLE COMPRESSOR DIVISION

DESCRIPTION: ENCLOSURE COMPLETE

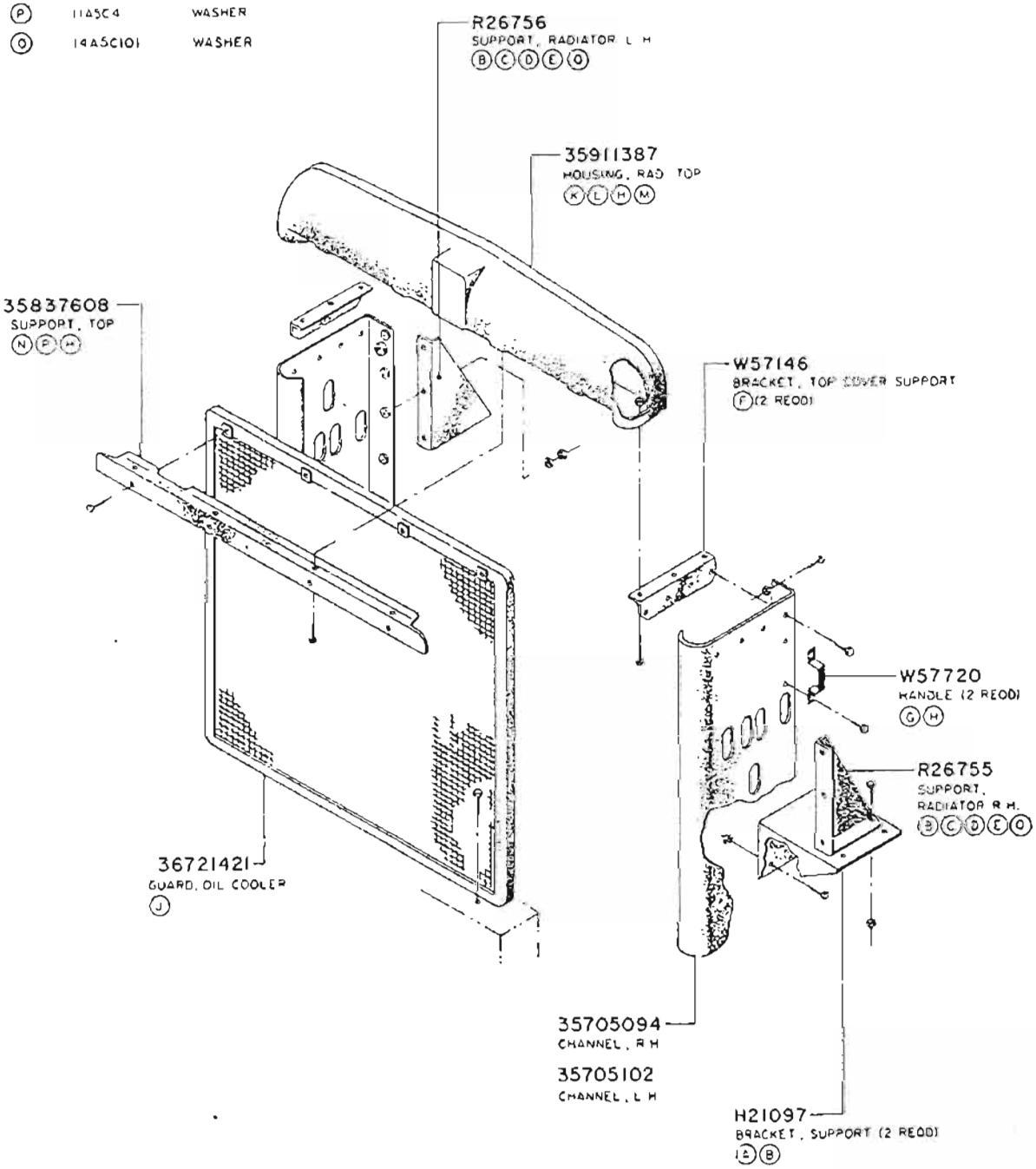
REFER TO PARTS LIST NO

DATE: 6-28-85

REGISTRATION NO: 35864636

PAGE NO: 4 OF 4

ECN



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SECTION 10 — COMMON FASTENERS

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TABLE 1
SAE/Inch Screws

Part Number	Size	Description
109A2A311N	#10—24 UNC—3A × ½"	Hex Socket Head (Nylon Insert)
119A2A146	⅜"—20 UNC—3A × ⅝"	Hex Socket Head
119A2A148	½"—20 UNC—3A × ¾"	Hex Socket Head
119A2A198N	¼"—16 UNC—3A × ½"	Hex Socket Head (Nylon Insert)
119A2A206N	¼"—16 UNC—3A × 1"	Hex Socket Head (Nylon Insert)
119A2A251	½"—13 UNC—3A × 1¼	Hex Socket Head
121A2A175	⅜"—16 UNC—3A × 1"	Hex Socket Head
125A2C1012	#10—24 UNC—3A × 1½"	Hex Socket Head
133A2C44	#4—40 UNC—3A × ½"	Hex Socket Head
35A2D110	⅜"—16 UNC—2A × ¾"	Hex Head
35A2D111	⅜"—16 UNC—2A × 1"	Hex Head
35A2D112	⅜"—16 UNC—2A × 1⅛"	Hex Head
35A2D113	⅜"—16 UNC—2A × 1¼"	Hex Head
35A2D117	⅜"—16 UNC—2A × 2"	Hex Head
35A2D118	⅜"—16 UNC—2A × 2¼"	Hex Head
35A2D119	⅜"—16 UNC—2A × 2½"	Hex Head
35A2D120	⅜"—16 UNC—2A × 2¾"	Hex Head
35A2D122	⅜"—16 UNC—2A × 3½"	Hex Head
35A2D127	⅜"—16 UNC—2A × 4½"	Hex Head
35A2D131	⅜"—16 UNC—2A × 6"	Hex Head
35A2D168	7/16"—14 UNC—2A × 1½"	Hex Head
35A2D174	7/16"—14 UNC—2A × 3"	Hex Head
35A2D215	½"—13 UNC—2A × ¾"	Hex Head
35A2D216	½"—13 UNC—2A × ⅞"	Hex Head
35A2D217	½"—13 UNC—2A × 1"	Hex Head
35A2D219	½"—13 UNC—2A × 1½"	Hex Head
35A2D221	½"—13 UNC—2A × 1½"	Hex Head
35A2D223	½"—13 UNC—2A × 2"	Hex Head
35A2D229	½"—13 UNC—2A × 3½"	Hex Head
35A2D231	½"—13 UNC—2A × 4"	Hex Head
35A2D232	½"—13 UNC—2A × 4½"	Hex Head
35A2D3	¼"—20 UNC—2A × ½"	Hex Head
35A2D323	⅝"—11 UNC—2A × 1¼"	Hex Head
35A2D325	⅝"—11 UNC—2A × 1½"	Hex Head
35A2D326	⅝"—11 UNC—2A × 1¾"	Hex Head
35A2D327	⅝"—11 UNC—2A × 2"	Hex Head
35A2D328	⅝"—11 UNC—2A × 2¼"	Hex Head
35A2D329	⅝"—11 UNC—2A × 2½"	Hex Head
35A2D330	⅝"—11 UNC—2A × 2¾"	Hex Head
35A2D331	⅝"—11 UNC—2A × 1¼"	Hex Head
35A2D380	¼"—10 UNC—2A × 2½"	Hex Head
35A2D382	¼"—10 UNC—2A × 3"	Hex Head
35A2D384	¼"—10 UNC—2A × 3½"	Hex Head
35A2D386	¼"—10 UNC—2A × 4"	Hex Head
35A2D388	¼"—10 UNC—2A × 4½"	Hex Head
35A2D390	¼"—10 UNC—2A × 5"	Hex Head
35A2D4	¼"—20 UNC—2A × 7/8"	Hex Head
35A2D5	5/16"—18 UNC—2A × 3"	Hex Head
35A2D54	5/16"—18 UNC—2A × ½"	Hex Head
35A2D57	5/16"—18 UNC—2A × ⅞"	Hex Head
35A2D58	5/16"—18 UNC—2A × 1"	Hex Head
35A2D60	5/16"—18 UNC—2A × 1¼"	Hex Head
35A2D62	5/16"—18 UNC—2A × 1½"	Hex Head
35A2D64	5/16"—18 UNC—2A × 2"	Hex Head
35A2D7	¼"—20 UNC—2A × 1¼"	Hex Head
35A2D8	¼"—20 UNC—2A × 1⅜"	Hex Head
35130293	⅛"—16 × ¼"	Hex Head Self-Tapping
35130301	5/32"—18 × ¼"	Hex Head Self-Tapping
35141365	5/32"—18 × ½"	Hex Head Self-Tapping
35144328	¼"—20 × ⅜"	Whiz-Lock®
35144336	7/32"—18 × ½"	Whiz-Lock®
35144344	⅛"—16 × 1"	Whiz-Lock®
35144484	¼"—20 × 1"	Whiz-Lock®
35145242	¼"—20 × 1¼"	Whiz-Lock®
35148030	⅞"—13 × 1"	Hex Head Self-Tapping
35252451	¼"—20 × 1"	Whiz-Lock®
35252493	⅛"—16 × ¼"	Whiz-Lock®
35252568	⅜"—13 × 1¼"	Whiz-Lock®
35252741	⅜"—13 × 1½"	Whiz-Lock®
35252758	⅜"—13 × 1"	Whiz-Lock®
35287119	¼"—14 × ¼"	Hex Head Self-Tapping
35321108	5/32"—18 × 1"	Whiz-Lock®
35334879	5/32"—18 × 1"	Hex Head Self-Tapping
36A2A275	5/16"—18 × 2"	Hex Head
87A2C93P	10—24 × ⅜"	Round Head Phillips
95095659	10—24 × ½"	Round Head Phillips

Whiz-Lock® is a Registered T.M. of MacLean-Fogg Nut Co.
(Alternate Suppliers are Acceptable for this Part Number)

SAE/Inch Nuts

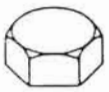
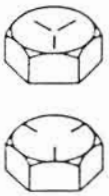
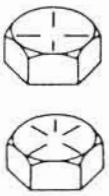
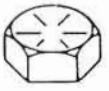
Part Number	Size	Description
16A4C1	¼"—20 UNC—2B	Hex
16A4C2	5/16"—18 UNC—2B	Hex
16A4C3	⅜"—16 UNC—2B	Hex
16A4C5	½"—13 UNC—2B	Hex
16A4C7	⅝"—11 UNC—2B	Hex
16A4C8	¾"—10 UNC—2B	Hex
16A4H7	⅝"—11 UNC—2B	Hex
21A4C10	12—24 UNC—2B	Hex
21A4C5	4—40 UNC—2B	Hex
21A4C8	8—32 UNC—2B	Hex
21A4C9	10—24 UNC—2B	Hex
22A4C1	¼"—28 UNC—2B	Hex
22A4C2	5/16"—24 UNF—2B	Hex
22A4C3	⅜"—24 UNC—2B	Hex
22A4C5	½"—20 UNC—2B	Hex
23A4C3	⅜"—24 UNC—2B	Hex
23A4C4	7/16"—20 UNC—2B	Hex
23A4C5	½"—20 UNC—2B	Hex
23A4C8	¾"—16 UNC—2B	Hex
35144492	¼"—20	Whiz-Lock*
35145077	⅜"—16	Whiz-Lock*
35252600	5/16"—18	Whiz-Lock*
35252618	½"—13	Whiz-Lock*
35265388	10—24	Whiz-Lock*
35321504	⅝"—11	Hex
35326420	½"—13	Hex
35332980	½—13	Hex
35336700	9/16"—18	Torque/Grade 8
66A4C3	⅜"—24	Nyloc
66A4C5	¼"—20	Nyloc
67A4C1	¼"—20	Nyloc
67A4C2	5/16"—18	Nyloc
67A4C3	⅜"—16	Nyloc
67A4C5	½"—13	Nyloc

SAE/Inch Washers

Part Number	Size	Description
11A5C1	#10	Flat (Commercial)
11A5C2	¼"	Flat (Commercial)
11A5C3	5/16"	Flat (Commercial)
11A5C4	⅜"	Flat (Commercial)
11A5C6	½"	Flat (Commercial)
11A5C8	¾"	Flat (Commercial)
12A5C2	¼"	Flat (SAE)
12A5C3	5/16"	Flat (SAE)
12A5C4	⅜"	Flat (SAE)
12A5C6	½"	Flat (SAE)
12A5C13	1.25"	Flat (SAE)
12A5C15	1.50"	Flat (SAE)
12A5D24	#10	Flat (SAE)
14A5C101	½"	Spring Lock
14A5C110	5/16"	Spring Lock
14A5C119	⅜"	Spring Lock
14A5C120	⅜"	Spring Lock
14A5C133	¼"	Spring Lock
14A5C28	#8	Spring Lock
14A5C36	#10	Spring Lock
14A5C55	¼"	Spring Lock
14A5C55P	¼"	Spring Lock, Cadmium Plate
14A5C63	5/16"	Spring Lock
14A5C63P	5/16"	Spring Lock, Cadmium Plate
14A5C76	⅜"	Spring Lock
14A5C9	#4	Spring Lock
14A5C91	7/16"	Spring Lock
35326233	⅛"	Spring Lock

SAE/Inch Capscrews
Grade Identification

Grade identification markings are normally stamped on the heads of capscrews, however these marks may vary slightly from manufacturer to manufacturer.

SAE Grade	1 or 2	5	6 or 7	8
				
QUALITY OF MATERIAL	MATERIAL INDETERMINATE	MINIMUM COMMERCIAL	MEDIUM COMMERCIAL	BEST COMMERCIAL
USAGE	UNACCEPTABLE	PREFERRED	ALTERNATE IF PREFERRED NOT AVAILABLE	*

* Due to their material and hardness, grade 8 capscrews are not suitable for use on the pressurized air systems on an Ingersoll-Rand Portable Air Compressor. On uses other than pressure applications, grade 8 capscrews are acceptable.

TABLE 2

ISO/Metric Screws

Part Number	Size (mm)	Description
35271139	M12 × 1.75 × 40	Hex Head, Class 8.8
35271147	M12 × 1.75 × 30	Hex Head, Class 8.8
35271154	M10 × 1.50 × 30	Hex Head, Class 8.8
35271162	M8 × 1.25 × 30	Hex Head, Class 8.8
35271188	M10 × 1.5 × 25	Hex Head, Class 8.8
35272533	M12 × 1.75 × 35	Hex Head, Class 8.8
35272541	M16 × 2.25 × 40	Hex Head, Class 8.8
35273408	M8 × 1.25 × 20	Hex Head, Class 8.8
35273416	M8 × 1.25 × 25	Hex Head, Class 8.8
35273945	M10 × 1.5 × 55	Hex Head, Class 8.8
35275007	M6 × 1 × 25	Hex Head, Class 8.8
35279025	M8 × 1.25 × 20	Self-Tapping
35284678	M8 × 1.25 × 20	Hex Head, Class 8.8
35284793	M8 × 1.25 × 70	Hex Head, Class 8.8
35285584	M12 × 1.75 × 25	Hex Head, Class 12.9
35287648	M8 × 1.25 × 16	Hex Head, Class 8.8
35288422	M8 × 1.25 × 80	Hex Head, Class 8.8
35291640	M14 × 2 × 40	Hex Head, Class 8.8
35290113	M16 × 2.25 × 75	Hex Head, Class 8.8
35295013	M10 × 1.5 × 70	Hex Head, Class 8.8
35295351	M10 × 1.5 × 25	Hex Head, Class 8.8
35295484	M12 × 1.75 × 16	Hex Head, Class 8.8
35295757	M12 × 1.75 × 20	Hex Head, Class 8.8
35300623	M16 × 2.25 × 140	Hex Head, Class 8.8
35300771	M6 × 1 × 20	Self-Tapping
35301746	M12 × 1.75 × 55	Hex Head, Class 8.8
35307818	M6 × 1 × 10	Hex Head, Class 8.8
35309715	M16 × 2.25 × 25	Hex Head, Class 8.8
35317106	M6 × 1 × 25	Hex Head, Class 8.8
35317148	M8 × 1.25 × 60	Hex Head, Class 8.8
35321520	M16 × 2.25 × 30	Hex Head, Class 8.8
35322908	M6 × 1 × 20	Hex Head, Class 8.8
35327550	M8 × 1.25 × 70	Hex Head, Class 8.8
35330539	M12 × 1.75 × 100	Hex Head, Class 8.8
35353978	M10 × 1.25 × 50	Hex Head, Class 8.8
35356518	M20 × 2.5 × 90	Hex Head, Class 8.8
35358266	M10 × 1.5 × 160	Hex Head, Class 8.8
35358274	M16 × 2.25 × 25	Hex Head, Class 8.8
35361807	M16 × 2.25 × 120	Hex Head, Class 8.8
92304385	M10 × 1.5 × 16	Hex Head, Class 8.8
92304393	M10 × 1.5 × 20	Hex Head, Class 8.8
92304419	M10 × 1.5 × 40	Hex Head, Class 8.8
92304435	M12 × 1.75 × 25	Hex Head, Class 8.8
92304450	M12 × 1.75 × 50	Hex Head, Class 8.8
92329309	M10 × 1.5 × 35	Hex Head, Class 8.8
92341239	M20 × 2.5 × 40	Hex Head, Class 8.8
92367663	M16 × 2.25 × 35	Hex Head, Class 8.8
92368687	M6 × 1 × 72	Hex Head, Class 8.8

ISO/Metric Nuts

Part Number	Size (mm)	Description
35273366	M10 × 1.5	Lock, Nylon Insert
35275023	M8 × 1.25	Lock, Nylon Insert
35304047	M12 × 1.75	Lock, Nylon Insert
35356526	M20 × 2.5	Lock, Nylon Insert
35361815	M16 × 2.0	Lock, Nylon Insert
90103839	M16 × 2.0	Hex
90103854	M12 × 1.75	Hex
92304500	M6 × 1	Hex
92304526	M10 × 1.5	Hex

ISO/Metric Washers

Part Number	Size (mm)	Description
35317114	6	Flat
92304658	6	Spring Lock
92304674	10	Flat

ISO/Metric Capscrews
Grade Identification

Capscrews shall be identified with their property class symbol with the manufacturer's identification symbol at his option. Grade identification markings (8.8, etc.) are normally located at the top of the screw head, or alternatively, on the side of the head, and may either be raised or depressed at option of the manufacturer.

CLASS	4.6	5.8	8.8	9.8	10.9	12.9
SAE EQUIVALENT	EQUIVALENT TO SAE GRADE 1	EQUIVALENT TO SAE GRADE 2	EQUIVALENT TO SAE GRADE 5	APPROXIMATELY 9 PER CENT STRONGER THAN SAE GRADE 5	EQUIVALENT TO SAE GRADE 8	NO EQUIVALENT SAE GRADE
USAGE	UNACCEPTABLE	UNACCEPTABLE	PREFERRED	ALTERNATE IF PREFERRED NOT AVAILABLE	*	*

* Due to the material and hardness, class 10.9 and 12.9 capscrews are not suitable for use on the pressurized air systems on an Ingersoll-Rand Portable air Compressor. On uses other than pressure applications, class 10.9 and 12.9 capscrews are acceptable.