



Technical Manual

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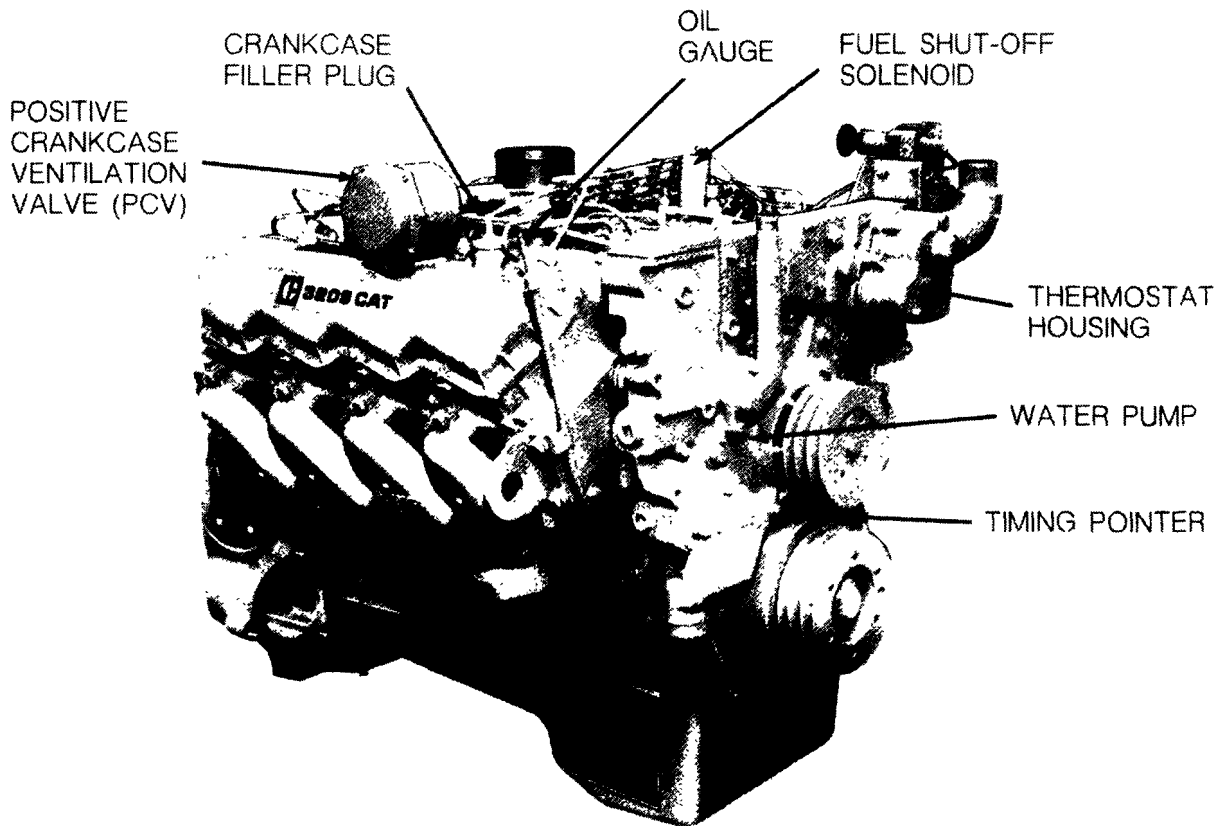


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Model Views

3208 NATURALLY ASPIRATED ENGINE



NOTICE

Do not use excessive starting fluid during starting or after the engine is running.

After every 30 seconds of engine cranking, allow 2 minutes for the starter motor to cool.

If oil pressure does not rise within 15 seconds after the engine starts, stop the engine and make necessary corrections.

4. As soon as the engine starts, release the starter switch and reduce rpm to low idle.

5. Do not apply load to the engine or increase engine rpm until the oil pressure gauge indicates normal.

6. Operate the engine at low load and rpm until the coolant temperature is 66°C (150°F) or higher. Check all gauges during the warmup period.

For starting below -18°C (0°F), use of optional cold weather starting aids are recommended. A coolant heater or extra battery capacity may be required.

Temperatures below -23°C (-10°F) consult your Caterpillar dealer, or refer to the Cold Weather Operation Guide, Form SEBU5338, available from your Caterpillar dealer.

Starting From External Electrical Source

 **WARNING**

Always wear protective glasses when working with batteries.

Prevent sparks near the batteries. They could cause vapors to explode. Do not allow cable ends to contact each other or the engine.

Batteries give off flammable fumes that can explode.

Do not smoke when observing the battery electrolyte levels.

Electrolyte is an acid and can cause personal injury if it contacts skin or eyes.

Do not allow the free end of booster cables to make contact with each other or touch the engine. This will help avoid sparks.

NOTICE

Be sure the main power switch is in the OFF position before attaching the booster cables to the engine being started.

When using booster cables, be sure to connect in parallel: POSITIVE (+) to POSITIVE (+) and NEGATIVE (-) to NEGATIVE (-).

Use only equal voltage for boost starting. The use of a welder or higher voltage will damage the electrical system.

Cooling System Specifications

Electrical System

Engines installed without an engine-to-frame ground strap can be damaged by electrical discharge.

To prevent electrical discharge damage, check to make sure the engine's electrical system has an engine-to-frame ground strap. For engines which have the alternator connected to an engine component, the ground strap must connect that component to the frame.

NOTICE

Some engines have starter-to-frame ground straps. But, many of these starters are not electrically grounded to the engine. They have electrical insulation systems. For this reason, the starter-to-frame ground strap may not be an acceptable ground. Use a separate engine-to-frame ground strap.

When boost starting the engine, follow the instructions in the "Starting From An External Source" in the "Starting the Engine" section to properly start the engine.

Your engine may have a 12 or 24 Volt starting system. Use only the same voltage for boost starting. The use of a higher voltage or a welder will damage the electrical system.

Cooling System Information

NOTICE

Ethylene glycol antifreeze raises the boiling point of water.

All water is corrosive at engine operating temperature. The cooling system should be protected with a 3% to 6% concentration of cooling system conditioner at all specified maintenance intervals regardless of the concentration of antifreeze.

To prevent burns and to prevent damage to the engine, never add coolant to an overheated engine. Allow the engine to cool first.

Check the specific gravity of the antifreeze solution frequently in cold weather to ensure adequate freeze protection.

If the engine is to be stored in, or shipped to, an area with below freezing temperatures, the cooling system must be protected against freezing to the lowest expected outside (ambient) temperature or else drain the cooling system and engine.

Only use a greater concentration (above 30%) of Caterpillar Antifreeze as needed for anticipated ambient temperatures. Do not exceed a coolant mixture of 65% antifreeze to water since a concentration above 65% antifreeze will reduce the engine's freeze protection and increase the possibility of deposit formation in the cooling system.

Filling at over 5 U.S. gallons (20 liters) per minute can cause air pockets in the cooling system.

After draining and refilling the cooling system, run the engine with the filler cap off until the coolant reaches normal operating temperature and the coolant level stabilizes. Add coolant as necessary to fill the system to the proper level.

Operate with a thermostat in the cooling system all year-round. Cooling system problems can arise without a thermostat.

Do not use Caterpillar Liquid Cooling System Conditioner or a coolant conditioner element with Dowtherm 209 Full-Fill coolant.

Engine Specifications

ENGINE SPECIFICATIONS	
Operating Range (rpm)	1500 to 2800 rpm
Number of Cylinders	V-8
Bore	114 mm (4.5 in)
Stroke	127 mm (5.0 in)
Aspiration	NA and Turbocharged
Displacement	10.4 L (636 cu in)
Firing Order	1-2-7-3-4 5-6-8
Rotation (viewed from flywheel)	Counterclockwise

Oil and Filter Change Interval (Service Hours of Engine Operation)

OIL AND FILTER CHANGE INTERVAL - SERVICE HOURS For Engines Manufactured December 1986 and Later	
Crankcase Refill Capacity Including Filters - Liters (U.S. Quarts) ¹	Minimum API Oil Classification When Diesel Fuel Sulfur Content is 0.5% or Less CD/SE or CD/SF
17 L (18 qt) and 19 L (20 qt) Turbocharged Engines	300 Service Hours
17 L (18 qt) Non-Turbocharged Engines	300 Service Hours
13 L (14 qt) Non-Turbocharged Engines	200 Service Hours

¹ Refer to the 'Refill Capacities' chart for determining the correct engine crankcase capacity.

6. Install the new filter elements by hand until the gasket contacts the base. Tighten the filters 3/4 of a turn more. Do not overtighten.

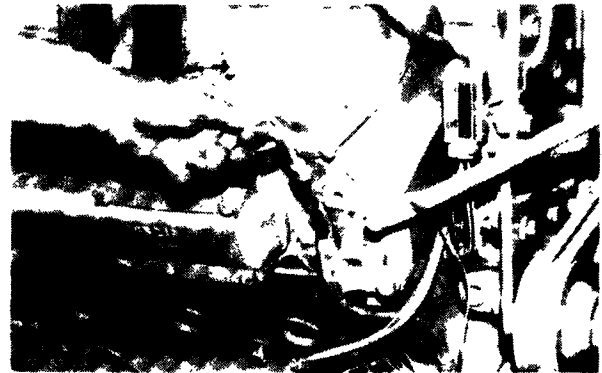


7. Fill the crankcase. See "Refill Capacities"

NOTICE

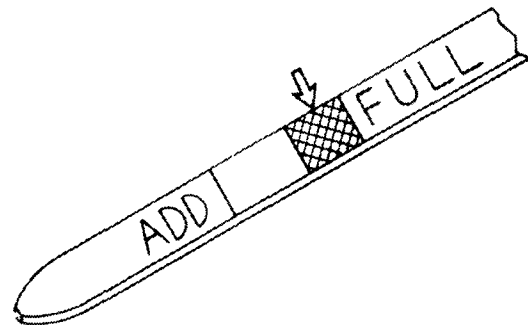
If equipped with auxiliary oil filters, extra oil must be added when filling the crankcase.

If the extra oil is not added, the auxiliary oil filter will take priority and the engine may starve for oil.



8. Before starting the engine, check the oil level. The oil level should be at the FULL mark on the dipstick.

9. Start and run the engine at low idle for two minutes. Inspect for oil leaks. Stop the engine.



10. Wait 10 minutes to allow the oil to drain back into the crankcase. Check the oil level. Maintain the oil level to the FULL mark on the dipstick.

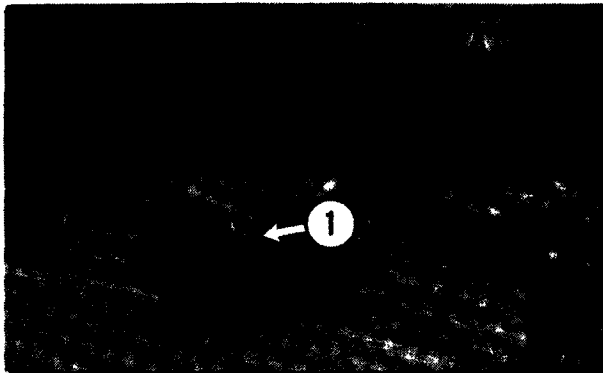
Water Separator

Replace Element

It is recommended that the water separator element be replaced at this Preventive Maintenance interval. Refer to Water Separator in the Daily Preventive Maintenance section of this guide for the proper procedure.

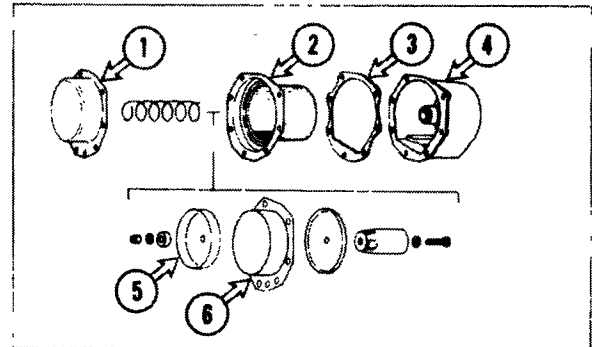
PCV Valve

Check Diaphragms – Replace If Necessary



1. Clean the outside of the PCV valve(s) and the area around it. Inspect PCV hoses for deterioration or damage, replace if necessary.

2. Remove the screws and washers that hold cover ① in place.



3. Remove cover ① and the spring

4. Remove the diaphragm assembly, inner sleeve ② and gasket ③ from housing ④

5. Disassemble the diaphragm assembly.

6. Clean and inspect all parts. Replace any part that is worn or damaged. Always install a new gasket and diaphragm when the PCV valve is disassembled.

7. Assemble the diaphragm assembly using a new diaphragm ⑥.

8. To prevent diaphragm ⑥ from distorting and tearing during assembly, coat both flange sides of the diaphragm with gasket cement. Install it with the side marked "piston face" towards piston ⑤.

9. Coat new gasket ③ with gasket cement and install it against the rear face of inner sleeve ②.

10. Install the diaphragm assembly in housing ④.

11. Install the spring and cover ① with the washers and screws that hold cover ① in place.

Starter, Turbocharger (if equipped) and Water Pump

Rebuild or Exchange (if necessary)

If you operate the engine until one of these components fail, you could cause severe damage to these components and/or your engine. For example: severe damage to the turbocharger compressor wheel could cause parts from the compressor wheel to enter the engine cylinder and cause additional damage to the piston, valve and cylinder head.

Maintenance Options

Repair Kits – These useful kits can be obtained from your Caterpillar dealer. These kits include all the necessary parts and instructions to repair the components in either your own maintenance shop or at your servicing dealer's facility. Repair kits simplify parts ordering, help speed repairs and reduce parts costs.

Remanufactured - This process uses manufacturing techniques and procedures to restore your components to like-new performance capability. This process always involves an end product which conforms to the manufacturer's "original" functional specification.

New – Replace with a new component.

Before deciding which method is best, you should make sure you have considered all of the options and costs associated with repair. Some considerations are:

- The costs associated with using separate parts from inventory versus the cost of a repair kit.
- Downtime costs while the product is being rebuilt or repaired.
- Total parts and labor costs for repairs versus the actual Remanufactured cost.
- Remanufactured components from Caterpillar are covered by a national factory warranty.

Caterpillar Recommendation

To minimize downtime, Caterpillar recommends the use of a Remanufactured component.

There are two levels of pricing for Remanufactured components. The first level is primarily based on damage to the component before failure. The second level is primarily based on damage to the component after failure. If you choose to operate your engine until the component fails, your repair cost could be as much as ten times the repair before failure cost due to additional component and engine damage that could have been prevented.

Refer to the Service Manual for your engine to remove and install the component.

Preventive Maintenance for Standby Generator Set Engines To Be Performed By An Authorized Operator

Item	Service
Weekly: Before Starting the Engine	
Walk-Around Inspection	Check the engine, radiator and generator for debris, foreign objects, loose or broken fittings, guards and components. Repair as necessary.
Belts	Inspect for worn, broken or loose belts (alternator fan, drive, etc.).
Cooling System	Maintain proper coolant level.
Block Heater	Check for proper operation. Maintain 32°C (90°F) coolant temperature in the block at all times.
Air Cleaner Indicator	Check the indicator. Change the air cleaner elements when the indicator diaphragm remains locked.
Engine Crankcase	Check the oil level. Maintain the oil level between the add and full marks on the engine stopped side of the dipstick.
Governor	Check and maintain the oil level (if required).
Fuel System	Check for leaks and drain water separator (if equipped). Keep fuel tank full. Check fuel filter indicator (if equipped).
Air System (If Equipped) <i>start?</i>	<i>for Kiki</i> Drain condensate; check air pressure.
Batteries	Maintain electrolyte level. Clean batteries if necessary, check for tight connections.
Gauges	Check the condition of all gauges. Repair or replace any broken gauge.
Battery Charger	Check for proper operation. Disconnect charger before starting the engine if it is not capable of handling a cranking load.
Weekly: With Engine Running	
Start the Engine	Run the engine for approximately five minutes while performing these checks. If required, the engine may be operated for as long as 30 minutes. The engine must be loaded if a period longer than 30 minutes is required.
Oil Pressure	Check for proper operating oil pressure. Refer to the Operation section of this guide for the correct pressure reading.
Fuel Pressure	Check for proper operating fuel pressure. Refer to the Operation section of this guide for the correct pressure reading.
Frequency (rpm) and Generated Voltage	Check and record readings. NOTE: The operating voltage of a cold (just started) generator will be slightly higher than the operating voltage of a generator that has been under load and warm. The full load voltage of a SR4 Generator will decrease a maximum of 1% when this generator stabilizes at 100°C (212°F). Most of the voltage decrease occurs in about 30 minutes. Generally, temperatures of generators stabilize within two hours.
Radiator Louvers	Check for proper operation (able to open and close freely).
Leaks and Noises	Check for leaks and unusual noises. NOTE: Engine must be stopped before making necessary repairs.
Weekly: After Stopping the Engine	
Automatic Switches (If Equipped)	Check that all switches are in proper position for automatic start.
Fuel Level	Check the fuel level; refill when below three-fourths full.
Battery Charger	Connect if charger had previously been disconnected. Record charging amperage reading.
Malfunctions	Report any malfunction and make necessary repairs.

15. Too Much Valve Lash (cont'd)

Cause	Correction
Valve lifter worn.	If there is too much wear, install new valve lifters Make adjustment of valve clearance.
Bridges for valves worn.	Make an adjustment or replacement as necessary.
Broken or worn valve lifters.	Clean engine thoroughly. Install new valve lifters. Check camshaft for wear. Check for free movement of valves or bent valve stem. Make adjustment of valve clearance.
Worn cams on camshaft.	Check valve clearance. Check for free movement of valves or bent valve stems. Install a new camshaft. Install new valve lifters. Make adjustment of valve clearance.

16. Little Or No Valve Clearance

Cause	Correction
Worn valve seat or face of valve.	Reconditioning of cylinder head is needed. Make adjustment of valve clearance.

17. Valve Spring Lock Is Free

Cause	Correction
Broken locks.	Broken locks can cause the valve to slide into the cylinder. This will cause much damage.
Broken valve spring(s).	install new valve spring(s).
Broken valve.	Replace valve and other damaged parts.

Parts Manual

3208 INDUSTRIAL ENGINE

3Z1-10092



REMANUFACTURED COMPONENTS

As an option when making repairs consider Caterpillar Remanufactured Components. Components that are available through the Caterpillar Remanufactured Program are identified three ways in the parts book:

- **with the letter R in the note field of the parts list**
- **with an R* at the beginning of the first line of the caption**
- **with an *R at the end of the first line of the caption**

Typical components included in the Remanufacturing Program include:

**ALTERNATORS
CONNECTING RODS
CRANKSHAFTS - UNDERSIZE
CRANKSHAFTS - UPGRADE TO NEW
CYLINDER HEADS
ELECTRONIC CONTROL MODULES (ECM)
ELECTRONIC SENSORS
FUEL INJECTORS
FUEL NOZZLES
FUEL PUMPS
GOVERNORS
OIL PUMPS
PISTONS
SHORT BLOCKS
STARTERS
TURBOCHARGERS - COMPLETE
TURBOCHARGER CARTRIDGES
WATER PUMPS**

Caterpillar Remanufactured engines for many engine arrangements are also available.

INDEX ALPHABETIQUE

Designation	Page	Designation	Page
	81.03.02	KIT DE BOULONNERIE DE	
	97.03	L'ALTERNATEUR	89B.08
KIT DE BALAIS DU DEMARREUR	74N	KIT DE BOULONNERIE DU DEMARREUR	74N
KIT DE BORNE	73D.04.03	KIT DE BROCHE DE DEMARREUR	74
	73D.09		74N
	74D	KIT DE CARTOUCHE	52D.01.04
	74F		52D.02
	78		52F
	81		53D
	81.03.05	KIT DE COMPRESSEUR D'AIR	109
	81.03.07	KIT DE COMPTEUR D'ENTRETIEN	111.02
	83		113E.02
	89B.04.05		116.00.01
	89B.04.07		116.04
	89B.06	KIT DE CONDENSATEUR	89B.04.02
	92D		89B.04.08
	93D	KIT DE CONDENSATEUR DE	
	94B.02	L'ALTERNATEUR	89B.07
	97.03	KIT DE CONNEXION DE DIODE	89B.04.10
	97.04.02	KIT DE COUSSINET	44
	97.04.04		44.03
KIT DE BORNE - REGULATEUR -			52D.01.08
ALTERNATEUR	89B.07		52D.01.0C
KIT DE BORNE DE BATTERIE	97		52E
	97.02		52F
	101		53
	101A		53A
KIT DE BORNE DE L'ALTERNATEUR	89B.06		53B
	89B.08		73D.06
KIT DE BORNE DE MASSE	89B.04.02		73D.06.01
	89B.04.08		73D.13A
KIT DE BORNE DE MISE A LA MASSE DE			74
L'ALTERNATEUR	89B.07		81.03.02
KIT DE BORNE DE REGULATEUR	89B.04.02		89B.04.05
	89B.04.08		89B.04.07
KIT DE BORNE DE RELAIS	89B.04.02		97.03
	89B.04.04	KIT DE COUSSINETS DE L'ALTERNATEUR	89B.08
	89B.04.08	KIT DE COUSSINETS DU DEMARREUR	74N
	89B.04.10	KIT DE DIODE POSITIF	89B.04.04
			89B.04.10
KIT DE BORNE DE RELAIS DE		KIT DE FIXATION	97.03
L'ALTERNATEUR	89B.07	KIT DE JOINT DE DEMARREUR	74
KIT DE BORNE DE SORTIE	89B.04.02	KIT DE JOINT DU DEMARREUR	74N
	89B.04.04	KIT DE JOINT TORIQUE	109
	89B.04.08	KIT DE JOINTS	73D.06
	89B.04.10		73D.06.01
KIT DE BORNE DE SORTIE DE			73D.13A
L'ALTERNATEUR	89B.07		81.03.02
KIT DE BOULONNERIE	73D.06	KIT DE LEVIER	73D.06
	73D.06.01		73D.06.01
	73D.13A		73D.08
	74		73D.12
	81.03.02		73D.13
	89B.04.05		73D.13A
	89B.04.07		74G.03
	92D		74G.06
	93D		74H
	94B.02		74J.02
	97.03		

INDICE

Nombre	Pagina	Nombre	Pagina
	89B.04.08		59.02
	89B.04.10		59A
JUEGO DE TERMINAL DE RELE DEL ALTERNADOR.....	89B.07	MANDO DE REGULADOR Y DE LA BOMBA DE COMBUSTIBLE.....	59
JUEGO DE TERMINAL DE SALIDA DEL ALTERNADOR.....	89B.07		59.01
JUEGO DE TERMINAL DEL ALTERNADOR	89B.06		59.02
	89B.08		59A
JUEGO DE TERMINAL REGULADOR DEL ALTERNADOR.....	89B.07	MANDO DE TACOMETRO	23A.02
JUEGO DE TORNILLERIA	73D.06	MANDO DE TACOMETRO (GR)	23A.02
	73D.06.01	MANOMETRO	111.02
	73D.13A		113E.02
	74	MANOMETRO DE ACEITE (CONJ)	111.05
	81.03.02		111.06
	89B.04.05	MANOMETRO DE COMBUSTIBLE	111.05
	89B.04.07	MAZO DE CABLES DEL MOTOR (CONJ)	73C
	92D		73D.01
	93D	MECANISMO DE VALVULAS (GR)	22
	94B.02		22A
	97.03	MECANISMO DE VALVULAS - TAPA DEL	23
JUEGO DE TORNILLERIA DEL ALTERNADOR.....	89B.08		23A.01
JUEGO DE TORNILLERIA DEL MOTOR DE ARRANQUE.....	74N	MEDIDOR DE HORAS DE SERVICIO (GR)	116.00.01
JUEGO DE VENTILADOR DEL ALTERNADOR	89B.07		116.01
JUEGO DE 2 CORREAS TRAPECIALES	44	MEDIDOR DE SERVICIO	89B.01
	92		89B.02.02
	93		116
	93A		116.01
JUEGO DE 2 CORREAS TRAPEZOIDALES	38B	MONTAJE DE CONTACTOR (GR)	103.03
	90A	MONTAJE DE LA DIRECCION HIDRAULICA (GR).....	116B
	90A.01		117
	92A		117.01
	92B		117.02
	92C	MONTAJE DE LA TRANSMISION (GR)	118
	94	MONTAJE DE TACOMETRO (GR)	116A
	94A	MONTAJE DEL CONVERTIDOR DE PAR (GR).....	119
	94B		119.01
	94B.01	MONTAJE DEL RADIADOR (GR)	48.02
	116B	MONTAJE DEL TURBOALIMENTADOR (GR)	54
	117.01	MOTOR (CONFIG)	2
JUEGO DEL COMPRESOR DE AIRE	109		3.01
			3.03
			3.05
			3.07
			4
			6
			8
			10
			11.01
			11A
			11C
			11E
			11G
			11J
			11L
			11M.01
			11N
			11P.01

M

MANDO DE ACCESORIOS	43A		
MANDO DE ALTERNADOR	89B.04		
MANDO DE BOMBA	38A		
MANDO DE BOMBA (GR)	38A		
MANDO DE LA BOMBA DE AGUA (GR)	38B		
	39		
MANDO DE REGULADOR	58B.02		
MANDO DE REGULADOR (GR)	58B.02		
	59A		
MANDO DE REGULADOR Y BOMBA DE COMBUSTIBLE (GR).....	59		
	59.01		

INDICE

Designacao	Pagina	Designacao	Pagina
	89B.04.07		89B.04.08
	97.03		89B.04.10
JOGO DE MANUTENCAO	120	JOGO DE TERMINAL RELE DO	
JOGO DE MARCADOR DE HORAS DE		ALTERNADOR.....	89B.07
SERVICO	111.02	JOGO DE TERMINAL TERRA	89B.04.02
	113E.02		89B.04.08
	116.00.01	JOGO DE TERMINAL TERRA DO	
	116.04	ALTERNADOR.....	89B.07
JOGO DE PECAS PARA MANUTENCAO		JOGO DE TERMINAL/BORNE DE BATERIA	97
PREVENTIVA.....	120A		97.02
JOGO DE PINO DO MOTOR DE PARTIDA	74		101
	74N		101A
JOGO DE PRISIONEIRO DIODO DE		JOGO DE 2 CORREIAS EM "V"	38B
JUNCAO.....	89B.04.04		90A
JOGO DE REPARO DO TERMINAL RELE DO			90A.01
ALTERNADOR.....	97.04.02		92B
JOGO DE RETENTOR	73D.06		92C
	73D.06.01		94
	73D.13A		94A
	81.03.02		94B
	97.03		94B.01
JOGO DE RETENTOR DO MOTOR DE			116B
PARTIDA	74N		117.01
JOGO DE RETENTOR TIPO ANEL-O	109	JOGO DO MANCAL DO ALTERNADOR	89B.08
JOGO DE SOLENOIDE	73D.06.01	JOGO DO MANCAL DO MOTOR DE PARTIDA ..	74N
	81.03.02	JOGO DO RETENTOR DO MOTOR DE	
JOGO DE TERMINAL	73D.04.03	PARTIDA	74
	73D.09	JOGO DO VENTILADOR/ALTERNADOR	89B.07
	74D		
	74F	L	
	78	LEVANTAMENTO DO MOTOR	23B
	81		23B.01
	81.03.05		23B.02
	81.03.07		24
	83	LIMITADOR DO COMBUSTIVEL	72
	89B.04.05		72B
	89B.04.07		
	89B.06	M	
	92D	MANOMETRO	111.02
	93D		113E.02
	94B.02	MANOMETRO DO COMBUSTIVEL	111.05
	97.03	MANOMETRO DO OLEO	111.05
	97.04.02		111.06
	97.04.04	MANUTENCAO - CONTROLE DE RAZAO DE	
JOGO DE TERMINAL DE SAIDA	89B.04.02	COMBUSTIVEL	73A
	89B.04.04	MARCADOR DE HORAS DE	
	89B.04.08	SERVICO/HOROMETRO	89B.01
	89B.04.10		89B.02.02
JOGO DE TERMINAL DE SAIDA DO			116
ALTERNADOR.....	89B.07		116.01
JOGO DE TERMINAL DO ALTERNADOR ..	89B.06	MECANISMO DAS VALVULAS	22
	89B.08		22A
JOGO DE TERMINAL DO REGULADOR ..	89B.04.02	MGUA - SEPARADOR	71.01
	89B.04.08		72
JOGO DE TERMINAL DO REGULADOR DO		MOLA DE CONTROLE DO TORQUE	60
ALTERNADOR.....	89B.07		60A
JOGO DE TERMINAL RELE	89B.04.02		
	89B.04.04		

INHALTSVERZEICHNIS

Bezeichnung	Seite	Bezeichnung	Seite
	11A		112
	11C		113A
	11E		113B.01
	11G		113C
	11J		113D.01
	11L		113E
	11M.01		113E.01
	11N		113E.02
	11P.01	OELDRUCKSCHALTER	89B.02.02
MOTORBLOCK	12		89B.03
	12A		89B.03.01
	12B		92
	12C.02		94B.01
	12D		103.01
	13A		112
	13B		113D.01
MOTORBLOCKDECKEL	13		113E.01
MOTORHUBOESE	23B		116.00.01
	23B.01		116.00.02
	23B.02	OELFUELLSTUTZENKAPPE	22B
	24		22C
MOTOROELDRUCKANZEIGE	111.02		22C.01
	113E.02		23
MOTOROELDRUCKGEBER	119.04		23A
MOTOROELDRUCKSCHALTER	119.04	OELMESSSTAB	32
MOTOROELFILTER	34.02		32.02
MOTOROELKUEHLER	36B		33
	37A		33.01
MOTOROELLEITUNGEN	35		33A
	35A		33B
	35B		33C
	36		33D
	36A	OELMESSSTABFUEHRUNG	32.01
	36A.01	OELWANNE	31
			31.01
			31.02
N			
NEBENANTRIEBS-RIEMENSCHLEIBE	114A		
	115		
	115.01		
	116		
NOCKENWELLE	18.02		
	19		
NOCKENWELLEN-REPARATURSATZ	18.02		
NOTABSCHALTER, ELEKTR.	85		
	85.01		
	85.02		
	86		
O			
O-RING-DICHTUNGSSATZ	109		
OELABLASSANSCHLUSS	33D		
OELDRUCKANZEIGE	111.05		
	111.06		
OELDRUCKGEBER	110		
	111.01		
	111.02		
P			
		PLEUELSTANGE UND KOLBEN	19
			19.01
			19.02
		PLUS-DIODEN-EINBAUSATZ	89B.04.04
			89B.04.10
		PUMPENANTRIEB	38A
R			
		REGELKLEMMEN -	
		DREHSTROMLICHTMASCHINE	89B.07
		REGLER - ANSCHLUSSKLEMMENSATZ ..	89B.04.02
			89B.04.08
		REGLER U. KRAFTSTOFFEINSPRITZPUMPE ..	61
			61A
			61B
			61B.01
			61B.02
			61B.03

ENGINE ARRANGEMENT

	PAGE
1 9N3612 MANIFOLD GP-EXHAUST.....	51
1 9N6297 MANIFOLD GP-INLET.....	51.04
1 1W7530 MOUNTING GP-TURBOCHARGER.....	54
1 9N6314 PAN GP-ENGINE OIL.....	31
1 4N4314 PUMP GP-FUEL PRIMING.....	60
S/N 3Z4785-6412	
1 4W5621 PUMP GP-GOVERNOR & FUEL INJECTION.....	61B.07
S/N 3Z4785-5826	
1 7C9496 PUMP GP-GOVERNOR & FUEL INJECTION.....	61B.01
S/N 3Z5827-UP	
1 1N4254 PUMP GP-OIL.....	34
1 9N3654 PUMP GP-WATER.....	40
8 9N6435 ROD & PISTON GP.....	19
1 9N0542 SEAL GP-CRANKSHAFT.....	16
1 9N5224 SUPPORT GP-ENGINE.....	26
1 9N5314 TURBOCHARGER GP.....	52A
1 9N3603 VALVE MECHANISM GP.....	22

GASKET KITS AVAILABLE:

6V3788 CENTRAL & LOWER STRUCTURE
6V3789 FRONT STRUCTURE
6V2909 FUEL SYSTEM
8T3383 MULTIPLE CYLINDER HEAD
6V1857 REAR STRUCTURE
 S/N 3Z4785-7212
9X8576 REAR STRUCTURE
 S/N 3Z7213-UP
8T3384 SINGLE CYLINDER HEAD
6V8045 TURBOCHARGER MOUNTING

462682 P

1151

7C4091 ENGINE AR-PART 2 OF 2
S/N 3Z4785-Up
186.5 Brake Kw (250 Bhp) At 2800 RPM

ENGINE ARRANGEMENT

CONSISTS OF: PAGE

COOLING SYSTEM

1	9N3593 OIL COOLER GROUP.....	36B
1	6N0466 WATER LINES GROUP.....	38.OO.01
1	9N3654 WATER PUMP GROUP.....	40

INTAKE & EXHAUST SYSTEM

1	9N6299 AIR LINES GROUP.....	50
1	9N3612 EXHAUST MANIFOLD GROUP.....	51
1	9N6297 INLET MANIFOLD GROUP.....	51.04
1	9N6107 TURBOCHARGER GROUP.....	52
1	9N5315 TURBOCHARGER MOUNTING GROUP.....	54
	SERIAL NO. 3Z1 TO 3Z2058 INCLUSIVE	
1	1W7530 TURBOCHARGER MOUNTING GROUP.....	54
	SERIAL NO. 3Z2059-UP	

FUEL SYSTEM & GOVERNOR

1	9L6743 GOVERNOR CONTROL GROUP.....	59
1	9N3607 GOVERNOR & FUEL PUMP DRIVE GROUP.....	59
1	9L6925 FUEL SYSTEM FASTENER GROUP.....	71
1	4N5868 FUEL FILTER GROUP.....	71
1	9N0552 FUEL FILTER LINES GROUP.....	70
1	1W2777 FUEL INJECTION LINES GROUP.....	68
	SERIAL NO. 3Z1 TO 3Z2058 INCLUSIVE	
1	9N3880 FUEL INJECTION LINES GROUP.....	69A
	SERIAL NO. 3Z2059-UP	
1	4N4314 FUEL PRIMING PUMP GROUP.....	60
1	1N3105 GOVERNOR & FUEL INJECTION PUMP GROUP....	61

NOTE: REFER TO FOR PAGE 119.03
FOR GASKET KITS

107376 P

1151

8N7094 ENGINE AR-PART 2 OF 2
S/N 3Z1-2473
186.4 Brake Kw (250 Bhp)

SEBP1304

7

ENGINE ARRANGEMENT

		PAGE
COOLING SYSTEM		
1	9N3593 COOLER GP-ENGINE OIL.....	36B
1	6N0466 LINES GP-WATER.....	38.00.01
1	9N3654 PUMP GP-WATER.....	40
INTAKE & EXHAUST SYSTEM		
1	9N6755 LINES GP-AIR.....	50B
1	9N3612 MANIFOLD GP-EXHAUST.....	51
1	9N6619 MANIFOLD GP-INLET.....	51.07
1	2W7470 TURBOCHARGER GP.....	52D
1	9N6606 LINES GP-PCV.....	58A
	S/N 3Z2551-3979	
1	7N8464 LINES GP-PCV.....	58A.02
	S/N 3Z3980-UP	
FUEL SYSTEM & GOVERNOR		
1	9L6743 CONTROL GP-GOVERNOR.....	59
1	9N3607 DRIVE GP-GOVERNOR & FUEL PUMP.....	59
1	9L6925 FASTENER GP-FUEL PUMP HOUSING.....	71
1	4N5868 FILTER GP-FUEL.....	71
1	1W4436 LINES GP-FUEL FILTER.....	70A
1	9N3880 LINES GP-FUEL INJECTION.....	69A
	S/N 3Z2551-3471	
1	4W5800 LINES GP-FUEL INJECTION.....	69C.01
	S/N 3Z3472-5826	
1	7W1998 LINES GP-FUEL INJECTION.....	69E.01
	S/N 3Z5827-UP	
1	4N4314 PUMP GP-FUEL PRIMING.....	60
1	1N3105 PUMP GP-GOVERNOR & FUEL INJECTION.....	61
	S/N 3Z2551-3471	
1	4W5621 PUMP GP-GOVERNOR & FUEL INJECTION.....	61B.07
	S/N 3Z3472-5826	
1	7C9496 PUMP GP-GOVERNOR & FUEL INJECTION.....	61B.01
	S/N 3Z5827-UP	
GASKET KITS AVAILABLE		
	6V6401 CENTRAL & LOWER STRUCTURE	
	6V3789 FRONT STRUCTURE	
	6V2909 FUEL SYSTEM	
	6V8043 MULTIPLE CYLINDER HEAD	
	6V6402 REAR STRUCTURE	
	S/N 3Z2551-7210	
	9X8576 REAR STRUCTURE	
	S/N 3Z7211-UP	
	6V8044 SINGLE CYLINDER HEAD	
	6V6414 TURBOCHARGER MOUNTING	

623713 P

1151

2W8219 ENGINE AR-PART 2 OF 2
 S/N 3Z2551-Up
 186.4 Brake Kw (250 Bhp) At 2600 RPM

ENGINE ARRANGEMENT

		PAGE
1	4N6808 LIFTING GP.....	23B
1	9N6755 LINES GP-AIR.....	50B
1	9N6336 LINES GP-ENGINE OIL.....	35
	S/N 3Z3472-6343	
1	7C6256 LINES GP ENGINE OIL.....	35A
	S/N 3Z6344-UP	
1	1W4436 LINES GP FUEL FILTER.....	70A
1	4W5800 LINES GP-FUEL INJECTION.....	69C.01
	S/N 3Z3472-5826	
1	7W1998 LINES GP-FUEL INJECTION.....	69E.01
	S/N 3Z5827-UP	
1	9N6606 LINES GP-PCV.....	58A
	S/N 3Z3472-3979	
1	7N8464 LINES GP-PCV.....	58A.02
	S/N 3Z3980-UP	
1	6N0466 LINES GP-WATER.....	38.00.01
1	9N3612 MANIFOLD GP-EXHAUST.....	51
1	9N6619 MANIFOLD GP-INLET.....	51.07
1	9N6314 PAN GP-ENGINE OIL.....	31
1	4N4314 PUMP GP-FUEL PRIMING.....	60
1	4W5625 PUMP GP-GOVERNOR & FUEL INJECTION.....	61B.10
	S/N 3Z3472-5826	
1	7C9494 PUMP GP-GOVERNOR & FUEL INJECTION.....	61B.09
	S/N 3Z5827-UP	
1	1N4254 PUMP GP-OIL.....	34
1	9N3654 PUMP GP-WATER.....	40
8	9N6435 ROD & PISTON GP.....	19
1	9N0542 SEAL GP-CRANKSHAFT.....	16
1	9N5224 SUPPORT GP-ENGINE.....	26
1	2W7470 TURBOCHARGER GP.....	52D
1	9N3603 VALVE MECHANISM.....	22

GASKET KITS AVAILABLE:

6V6401 CENTRAL & LOWER STRUCTURE
 6V3789 FRONT STRUCTURE
 8T1635 FUEL SYSTEM
 8T3383 MULTIPLE CYLINDER HEAD
 6V6402 REAR STRUCTURE
 S/N 3Z3472-7212
 9X8576 REAR STRUCTURE
 S/N 3Z7213-UP
 8T3384 SINGLE CYLINDER HEAD
 6V8045 TURBOCHARGER MOUNTING
 9N3654 WATER PUMP

463067 P

1151

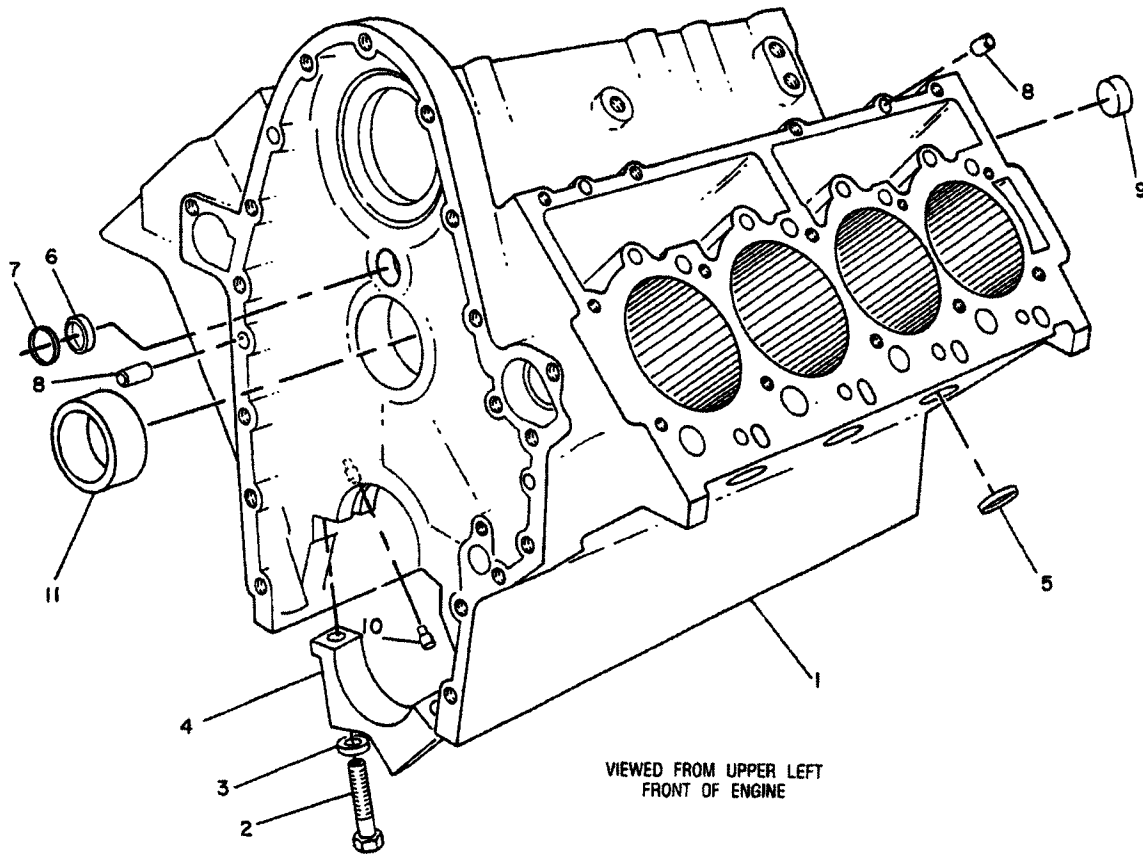
4W9003 ENGINE AR-PART 2 OF 2

Sperry-New Holland

S/N 3Z3472-7213

167.8 Brake Kw (240 Bhp) At 2450 RPM (2520 RPM High Idle)

BASIC ENGINE



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
C	1	2W8123	1	CYLINDER BLOCK AS					
	2	9L7831	10	BOLT					
	3	9L9009	10	WASHER					
	4	9N3759	5	CAP-CRANKSHAFT BEARING					
	5	3H5552	6	PLUG-CUP					
	6	4K8603	1	PLUG-CUP					
	7	4D1322	1	RING-RETAINING					
	8	9L8002	8	DOWEL-HOLLOW					
	9	2B0858	1	PLUG-PIPE					
	10	8M3023	8	ORIFICE-JET					
	11	9N5246	5	BEARING-CAMSHAFT					
FY		9L6065	1	COVER GP-CYLINDER BLOCK					

C-CHANGE FROM PREVIOUS TYPE
F-NOT SHOWN
Y-SEPARATE ILLUSTRATION

B-456468 EP

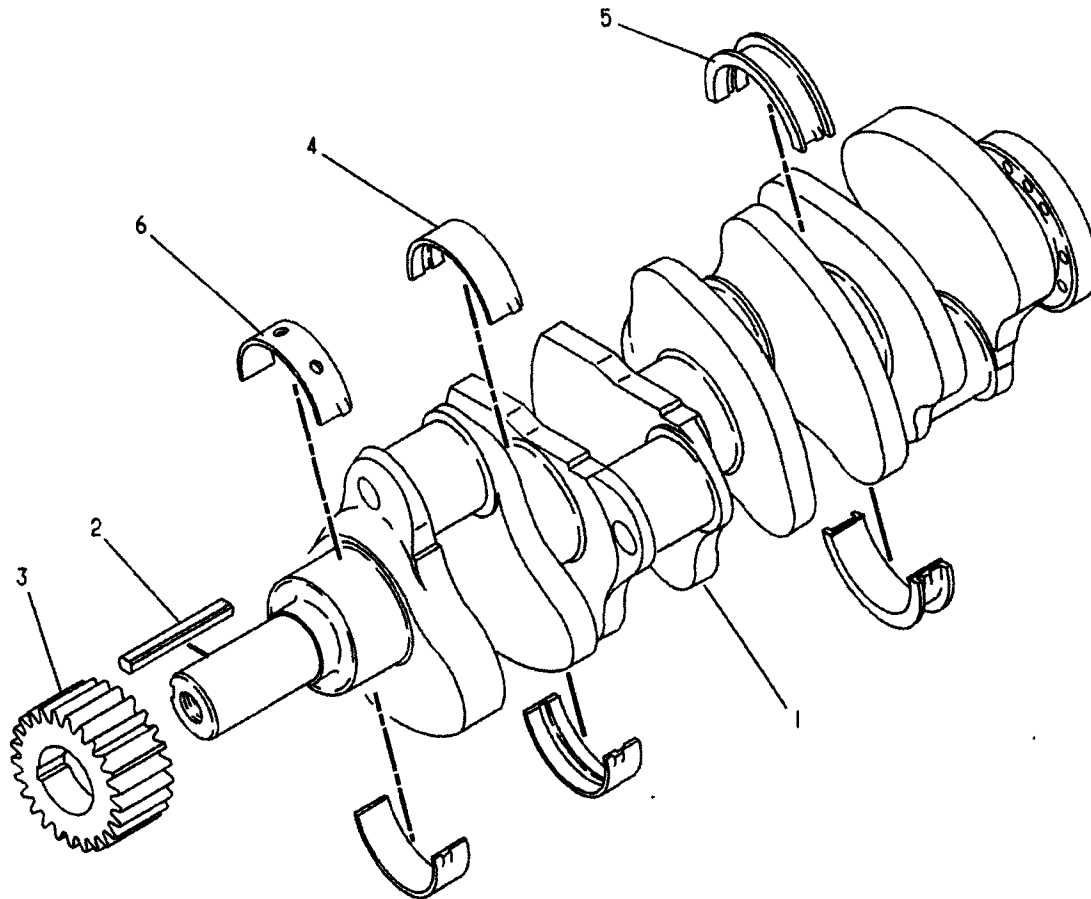
1201

9N6356 CYLINDER BLOCK GP*R

S/N 3Z2786-8551. 9L6065-Page 13

For Replacement Order 2W8035 Cylinder Block-Page 13A &
2W0051 Block Kit. Also Part Of 2W1864 Short Block

BASIC ENGINE



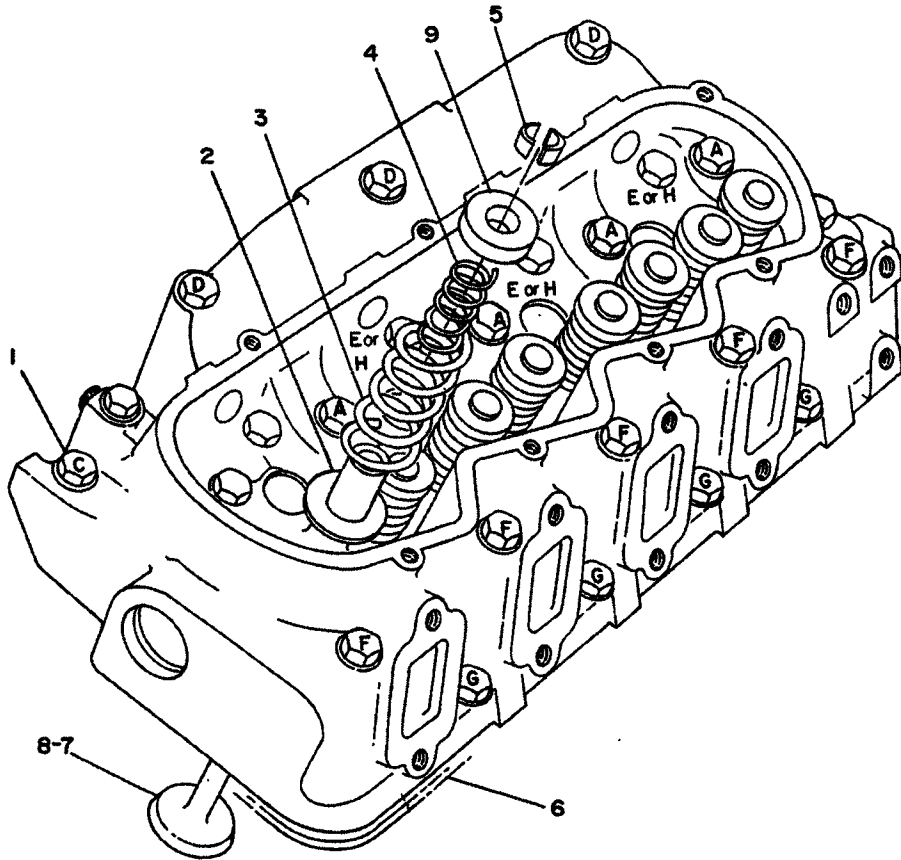
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
R	1	9N6221	1	CRANKSHAFT AS					
	2	9N6677	1	KEY-CRANKSHAFT					
	3	7N6290	1	GEAR (51 TEETH)					
C	4	4W8092	3	BEARING-MAIN					
C	5	4W8091	1	BEARING-THRUST					
C	6	4W8093	1	BEARING-MAIN					

C-CHANGE FROM PREVIOUS TYPE
R-REMG PART MAY BE AVAILABLE

A-456460 EP

1202 **9N6222 CRANKSHAFT GP**
 S/N 3Z1014-Up
 Also Part Of 1W1862, 2W1864 Short Block
 For Field Replacement Of 9N6221 Crankshaft As Order 2W0085-Page 15A

BASIC ENGINE



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	0S1571	1	BOLT 4.44CM(1.75IN)LONG (LOCATION "C"-LEFT HEAD)					
		9L9166	1	STUDBOLT 9.14CM(3.6IN)LONG (RIGHT HEAD)					
	2	9N5565	16	WASHER-SPRING SEAT					
	3	9N5496	16	SPRING-VALVE OUTER					
	4	9N5495	16	SPRING-VALVE INNER					
	5	2A4429	32	LOCK-RETAINER					
	6	6N8505	2	GASKET-CYLINDER HEAD					
	7	9N5125	8	VALVE-EXHAUST					
	8	9L7682	8	VALVE-INLET					
	9	9N5497	16	RETAINER-VALVE SPRING					

B-229509 EP

1100

9N3600 CYLINDER HEAD GP-PART 2 OF 2*R
S/N 321-1803 & 322244-2251

MEMORANDA

BASIC ENGINE

NOTE	REF NO	PART NUMBER	QTY	PART NAME
Y	1	9L8790	1	VALVE AS-PCV
	2	9L8786	1	GASKET
	3	9L7430	1	COVER-ROCKER ARM
	4	9L8020	1	GASKET-COVER
	5	9N3388	4	LOCKSCREW

Y-SEPARATE ILLUSTRATION

A-327858 EP

1107

4W6968 COVER GP-VALVE MECHANISM

S/N 3Z3951-5573

9L8790-Page 57

Part Of 8N0913 & 7W8031 Covers-Valve Mechanism

NOTE	REF NO	PART NUMBER	QTY	PART NAME
Y	1	7C6353	1	VALVE AS-PCV
	2	9L8786	1	GASKET
	3	9L7430	1	COVER-ROCKER ARM
	4	9L8020	1	GASKET-COVER
	5	9N3388	4	LOCKSCREW

VIEWED FROM
UPPER LEFT FRONT
OF ENGINE

Y-SEPARATE ILLUSTRATION

A-456456 EP

1107

4W6968 COVER GP-VALVE MECHANISM

S/N 3Z5574-Up

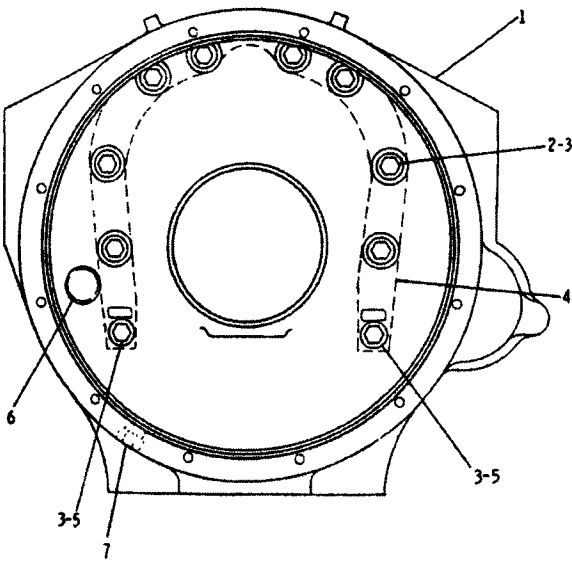
7C6353-Page 57.01

Part Of 8N0913 & 7W8031 Covers-Valve Mechanism

MEMORANDA

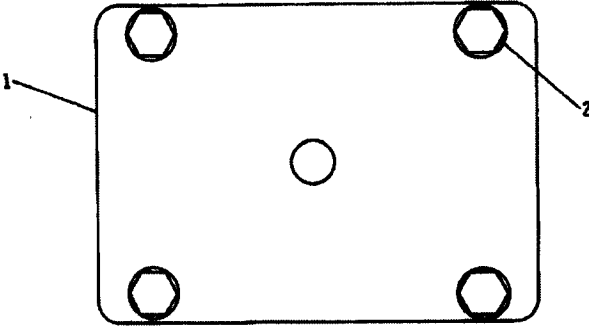
MEMORANDA

BASIC ENGINE

	NOTE	REF NO	PART NUMBER	QTY	PART NAME
		1	7E8912	1	HOUSING-FLYWHEEL
		2	1A2029	8	BOLT
		3	9X6458	10	WASHER-HARD
	C	4	1U8846		GASKET-LIQUID (8ML)
		5	OS1571	2	BOLT
		6	1B5170	1	PLUG-PIPE
	C	7	1P1669	2	PLUG-SEAL
C-CHANGE FROM PREVIOUS TYPE					
B-519855 EP					

1157

4N5870 HOUSING GP-FLYWHEEL
 Replaced By 2W0488-Page 28B
 An Attachment

	NOTE	REF NO	PART NUMBER	QTY	PART NAME
		1	9L7859	1	COVER
		2	1C0569	4	BOLT (.50 IN LONG)
			2H3755	4	BOLT (.625 IN LONG)
			9M1974	4	WASHER-HARD
B-201708 EP					

1157

9L7861 COVER GP-FLYWHEEL HOUSING

LUBRICATION SYSTEM

CENTER SUMP
OIL PAN

NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1S2563	3	PLUG
C	2	8N8018	1	GAUGE-OIL LEVEL (DIPSTICK)
	3	2N2994	1	GUIDE-OIL LEVEL GAUGE
	4	8F8997	1	NUT-FITTING

C-CHANGE FROM PREVIOUS TYPE

B-227284 EP

1326

4N8855 OIL LEVEL GAUGE GROUP

CENTER SUMP
OIL PAN

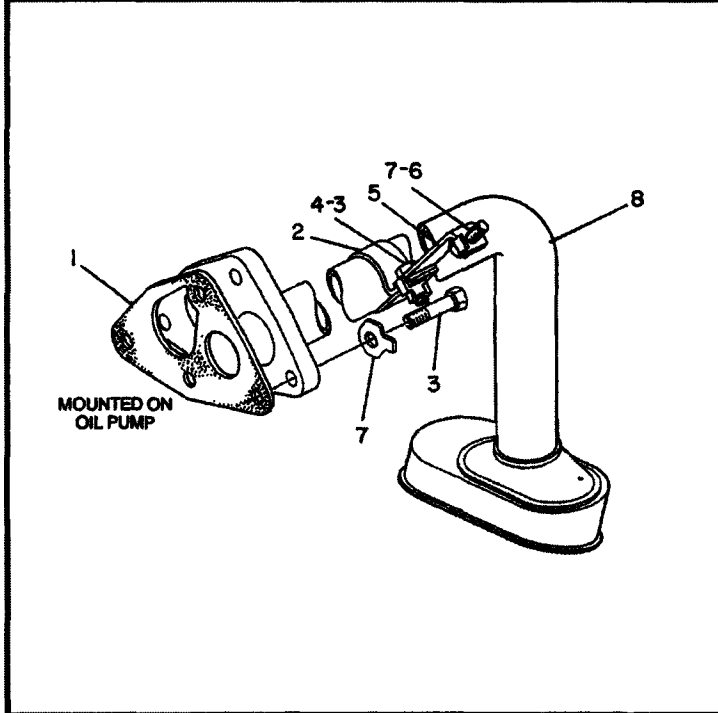
NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1S2563	3	PLUG
	2	1W7475	1	GAUGE-OIL LEVEL (DIPSTICK)
	3	2N2994	1	GUIDE-OIL LEVEL GAUGE
	4	8F8997	1	NUT-FITTING

B-306851 EP

1326

1W6782 OIL LEVEL GAUGE GROUP

LUBRICATION SYSTEM

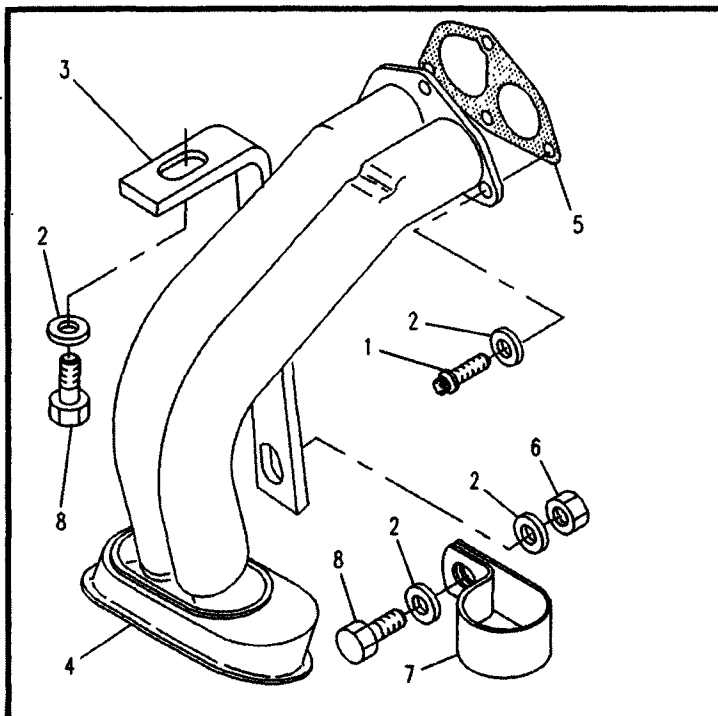


NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9N0241	1	GASKET (OIL PUMP INLET)
	2	9N6629	1	CLIP
	3	OS1617	5	BOLT
	4	1D4716	1	NUT-FULL
		9L9470	1	LOCK
	5	9N6595	1	SUPPORT-SUCTION BELL
	6	1A9136	1	BOLT
	7	2A5328	5	LOCK
	8	9N6630	1	BELL AS (OIL PUMP SUCTION)

B-228471 EP

1307

9N6336 LINES GP-ENGINE OIL
Rear Sump. S/N 321-1274



NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1T0416	4	BOLT
	2	9M1974	7	WASHER-HARD
	3	1N4994	1	SUPPORT-BELL
	4	7C6489	1	BELL AS-SUCTION
	5	9N0241	1	GASKET
	6	1D4716	1	NUT-FULL
	7	9N6629	1	CLIP
	8	OS1617	2	BOLT

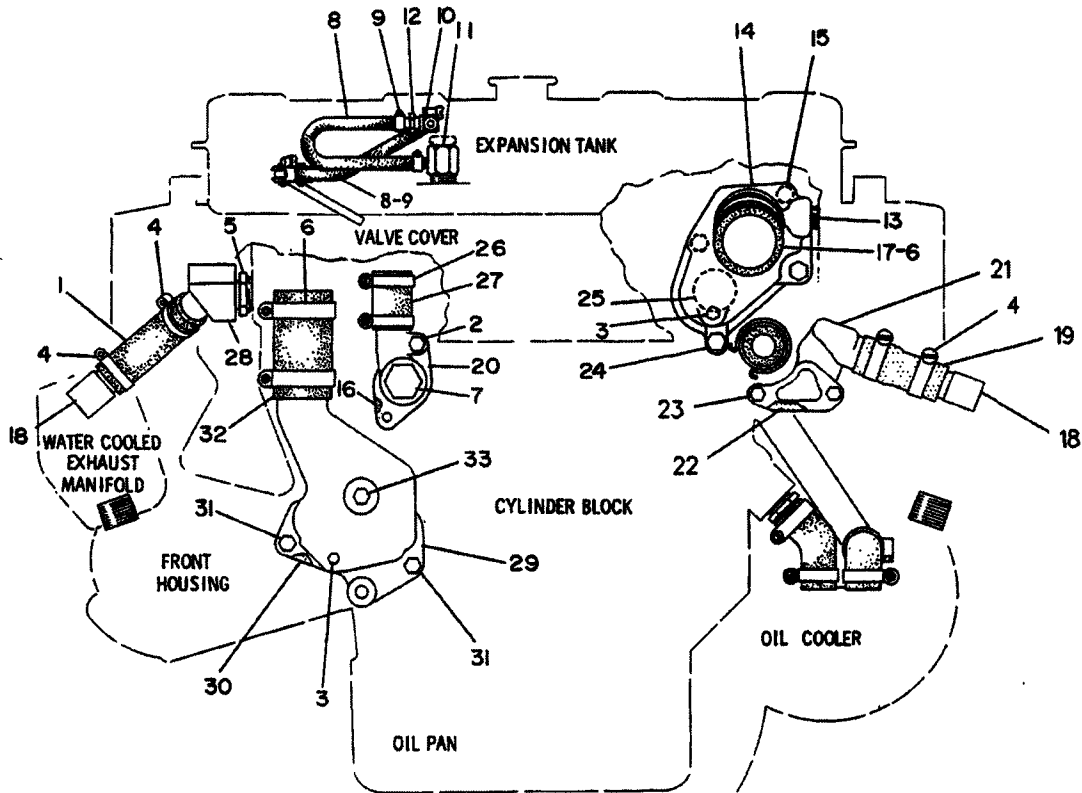
F- 625401 P

1307

7C6490 LINES GP-ENGINE OIL
Center Sump
Also An Attachment

MEMORANDA

COOLING SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
C	1	9Y4058	1	HOSE	C	25	1028392	2	REGULATOR-TEMPERATURE
	2	7X0282	1	BOLT		26	5P2230	2	CLAMP-HOSE
	3	8T6764	2	PLUG-PIPE		27	6N4103	1	HOSE
C	4	8T8117	4	SEAL-FACE	C	28	1031746	1	ELBOW-45 DEGREE
	5	6B9081	1	BUSHING-TERMINAL		29	2N5658	1	ELBOW-INLET
	6	9M0164	4	CLAMP-HOSE		30	9L6467	1	GASKET-ELBOW
	7	7X7731	1	PLUG-PIPE		31	4M6425	2	BOLT (5/16-18X1IN)
C	8	6K0713	2	HOSE		32	5B2624	1	HOSE
C	9	1P4278	4	CLAMP		33	7X0280	1	BOLT (5/16-18X5IN)
	10	9L9045	1	TEE					
	11	6N3802	1	ADAPTER AS					
C	12	8N4784	2	TUBE AS					
	13	8T6762	1	PLUG-PIPE (9.52 CF SQ HOLE)					
	14	8N8078	1	CONNECTOR-OUTLET					
	15	9N5429	1	GASKET-REGULATOR HOUSING					
	16	7X0291	2	BOLT (3/8-16X3.75IN)					
	17	9L8015	1	GASKET-LINE					
	18	6N3792	1	HOSE					
	19	7W1890	2	ELBOW-90 DEGREE					
C	20	9Y1642	1	HOSE					
	21	4N5948	1	CONNECTOR-LINE					
C	22	9Y3332	1	ELBOW					
	23	9N0237	1	GASKET					
	24	4M6424	2	BOLT (3/8-16X.750IN)					
		4L6454	2	BOLT (3/8-16X1.0IN)					

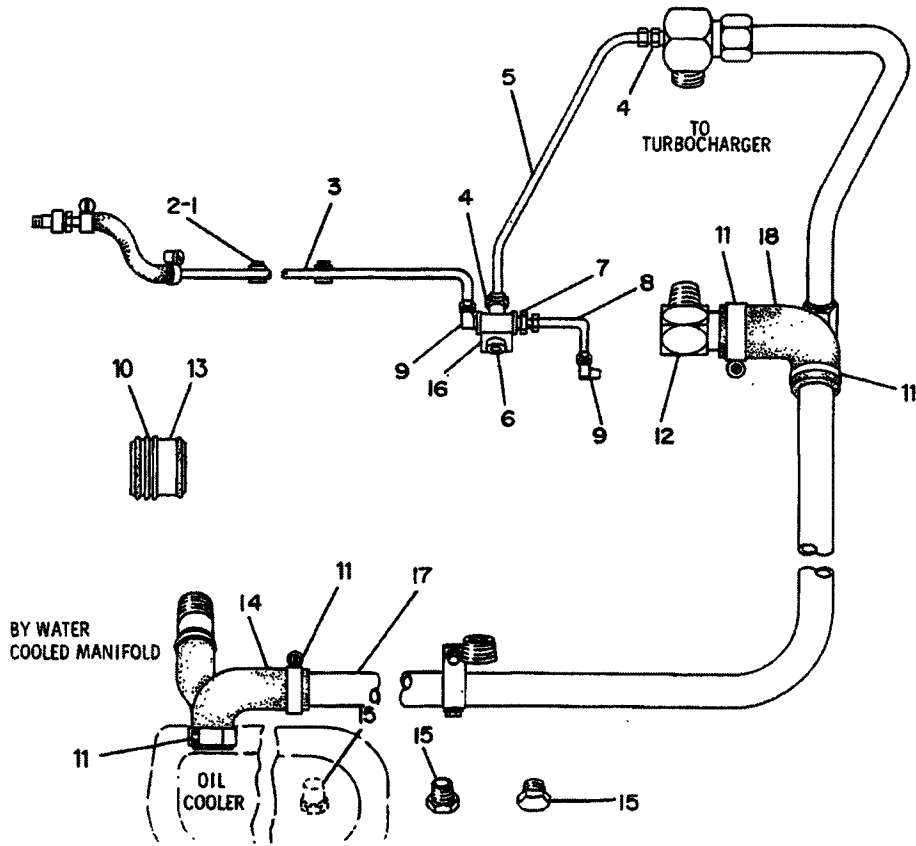
C-CHANGE FROM PREVIOUS TYPE

R- 667990 P

1380

4W1959 LINES GP-WATER-PART 1 OF 3
S/N 3Z3028-3369

COOLING SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	5P4939	2	SCREW AS-MACHINE					
	2	9L8715	2	CLAMP					
		9L8716	2	CLAMP (THREADED)					
C	3	7C3399	1	TUBE AS					
	4	8L6557	2	CONNECTOR					
	5	7N9816	1	TUBE AS					
	6	2B0941	1	SPACER					
	7	6L3616	1	CONNECTOR-FLARED					
	8	7N9817	1	TUBE AS-AIR VENT					
	9	5K9243	2	ELBOW-FLARED					
	10	1188586	4	SEAL-O-RING					
C	11	8T1117	4	CLAMP-HOSE					
	12	7W1890	1	ELBOW-90 DEGREE					
	13	1097279	2	SLEEVE-OUTLET					
		9L7631	2	CLIP-SPRING					
C	14	4W7080	1	HOSE					
	15	8T6767	3	PLUG-PIPE					
	16	6V0471	1	TEE AS-PIPE					
	17	4W0104	1	TUBE					
	18	4W7081	1	HOSE					

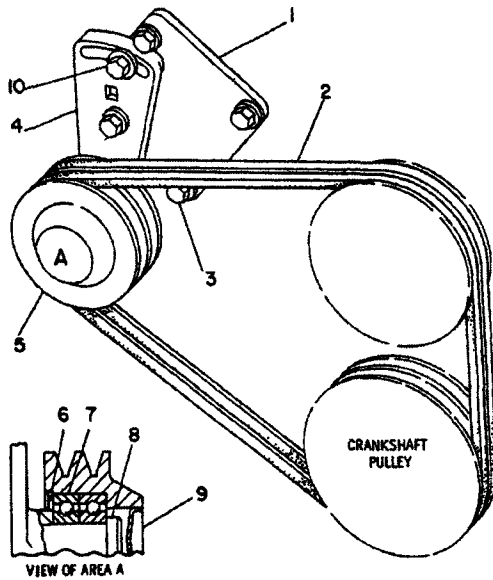
C-CHANGE FROM PREVIOUS TYPE

R- 667991 P

1380

4W1959 LINES GP-WATER-PART 2 OF 3
S/N 3Z4882-Up

COOLING SYSTEM

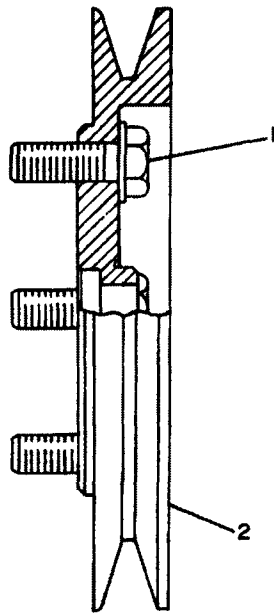


B-354864 EP

1358

7N7613 DRIVE GP-WATER PUMP
Also An Attachment

NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	0S1618	4	BOLT
B		9M1974	4	WASHER-HARD
BC	2	9N5012	1	PULLEY-AUXILIARY DRIVE
B-USE AS REQUIRED C-CHANGE FROM PREVIOUS TYPE				

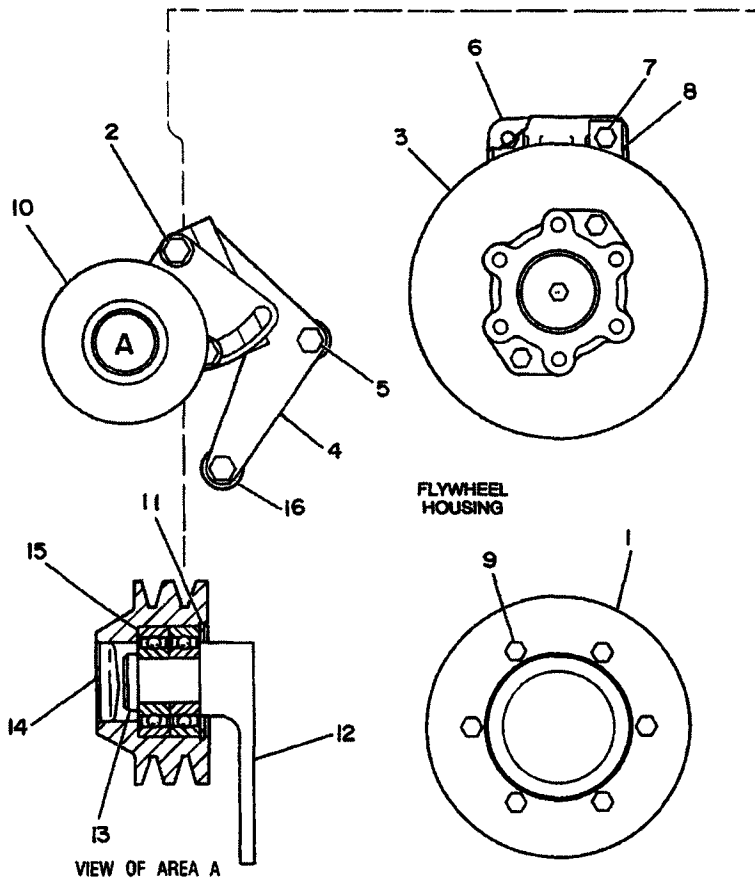


B-219840 EP

1384

9L7462 PULLEY GP-PUMP
An Attachment

COOLING SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4N6663	1	PULLEY-AUXILIARY					
	2	1A2029	2	BOLT					
Y		9M6527	2	WASHER-HARD					
	3	6N7691	1	PULLEY GP (FAN)					
	4	4N8180	1	BRACKET					
	5	3H5368	3	BOLT					
	6	6N6882	1	BRACKET-FAN MOUNTING					
		OS1585	4	BOLT					
	7	3B1915	4	BOLT					
		5M2894	4	WASHER					
	8	4N6661	2	PLATE					
	9	OS1619	6	BOLT					
	10	9N3345	1	PULLEY AS-IDLER					
		9N3343	1	PULLEY					
	11	2D1523	1	RING-RETAINING					
	12	9N3344	1	BRACKET-PULLEY					
	13	9N3342	1	SHAFT-GOVERNOR CONTROL					
	14	4K0149	1	PLUG-CUP					
	15	5P7807	2	BALL BEARING					
B	16	8A2615	3	SPACER					

B-USE AS REQUIRED
Y-SEPARATE ILLUSTRATION

R-508459 EP

1359

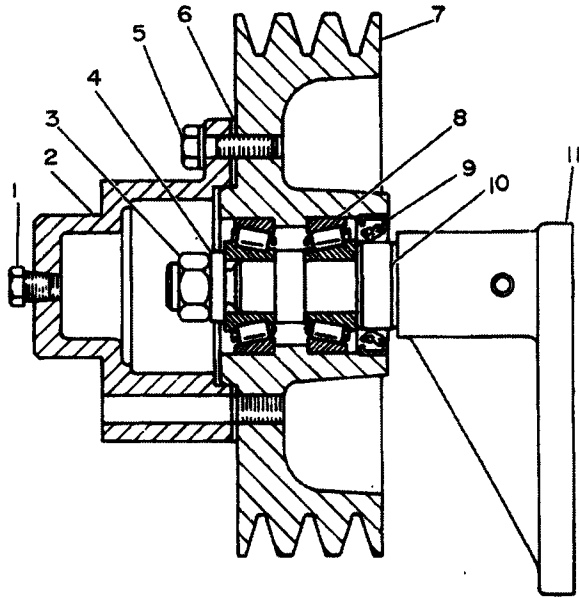
6N8622 DRIVE GP-FAN-.85:1 RATIO

For Use With Customer Supplied Radiator & 24 Or 26 Inch Fan

6N7691-Page 44

Also An Attachment

COOLING SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	8T6764	1	PLUG-PIPE
	2	9L5615	1	HUB-FAN
	3	5P0540	1	NUT-HEX FULL
	4	7M0242	1	WASHER
	5	4B3388	2	BOLT
		9M1974	2	WASHER-HARD
	6	9L2006	1	GASKET
	7	9N1347	1	PULLEY-FAN DRIVE
	8	4N8527	1	KIT-BEARING (INCL CUP, CONE, SEAL & SPACER KIT)
	9	3N2105	1	SEAL-LIP
	10	6N7679	1	SLEEVE-SEAL
	11	6N7682	1	BRACKET AS

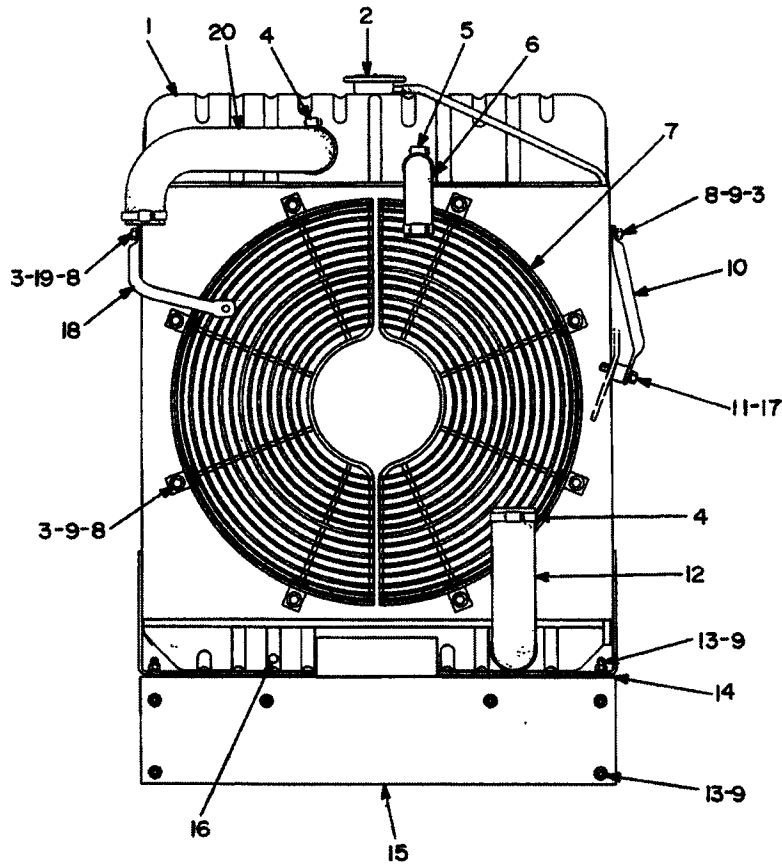
B- 696339 P

1359

8N8603 PULLEY GP-DRIVE FAN

Part Of 8N8599, 7C7884, 1W6319 Drive-Fan & 4W7336 Parts-Miscellaneous

COOLING SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1N4343	1	RADIATOR AS					
C		9F6445	6	NUT (SMALL)					
	2	6L8617	1	CAP-RADIATOR					
C	3	9F2978	18	NUT-WELD (LARGE)					
	4	5P0597	4	CLAMP (HOSE)					
	5	9M7958	2	CLAMP-HOSE (HOSE)					
	6	4N6742	1	HOSE-SHUNT					
	7	1N9358	2	GUARD AS-FAN					
	8	OS0509	10	BOLT					
	9	5M2894	26	WASHER					
10		2N0199	1	BRACE-RADIATOR-RH					
11		OT0319	1	BOLT					
		6H7062	1	SPACER					
12		2N0193	1	HOSE-RADIATOR					
13		OS1588	8	BOLT					
		1D4717	8	NUT (FULL)					
14		2N1322	2	DAMPER-VIBRATION					
15		2N0170	1	SUPPORT AS-RADIATOR					
16		5B7890	1	PLUG-PIPE					
17		4S9191	1	WASHER					
18		4N6910	1	BRACE-RADIATOR-LH					
19		4B4278	2	WASHER					
20		4N8146	1	HOSE					

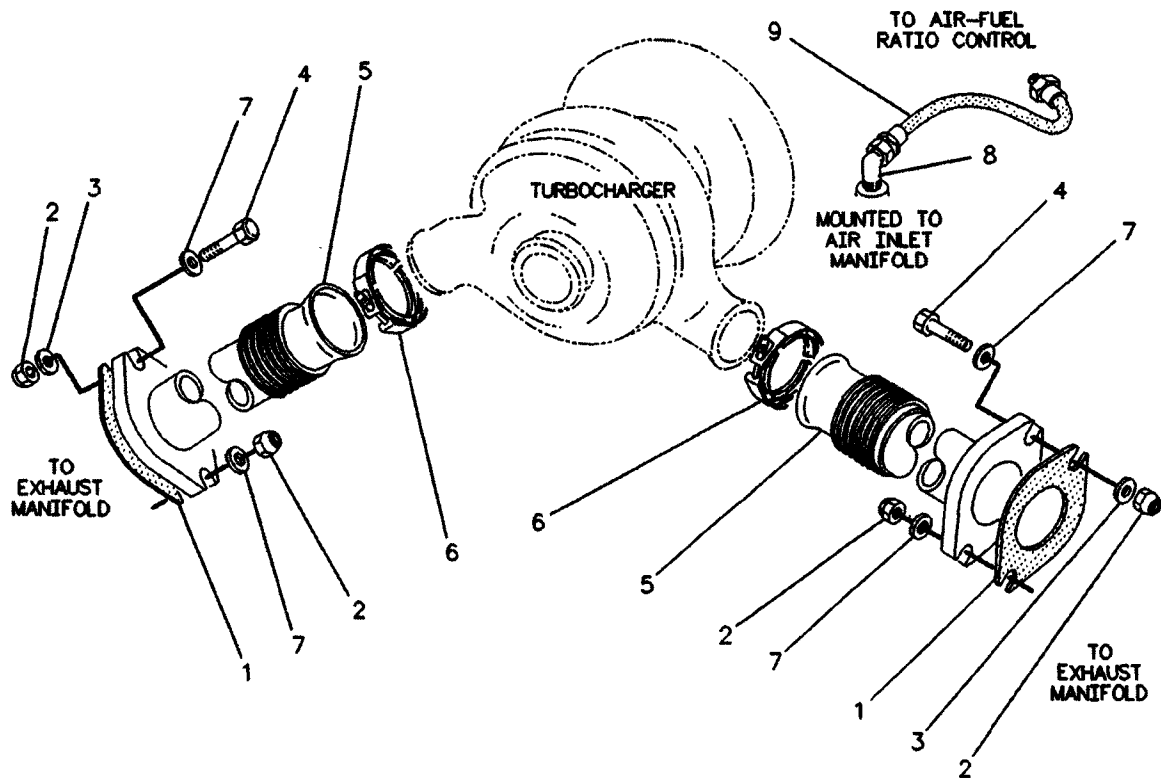
C-CHANGE FROM PREVIOUS TYPE

B-355680 EP

1353

1N4342 RADIATOR GP
An Attachment

AIR INLET AND EXHAUST SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1W7810	2	GASKET-DUTLET					
	2	2N2766	4	LOCKNUT					
	3	5M2894	2	WASHER					
	4	6L8550	2	BOLT-HIGH TEMPERATURE					
	5	1W7792	2	TUBE AS-INLET					
	6	1W2430	2	CLAMP					
	7	5P1075	4	WASHER-HARD					
I	8	9L5125	1	ELBOW					
	9	3N4579	1	HOSE AS					

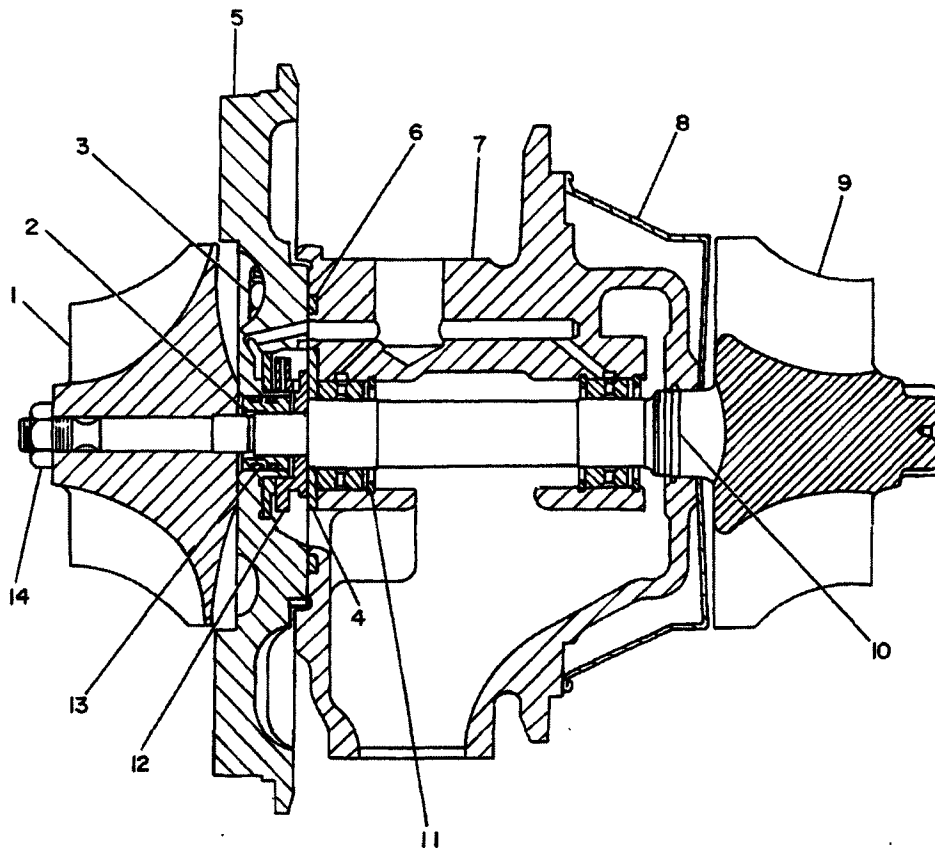
I-SEE HOSE FABRICATION GUIDE

F-492249 EP

MEMORANDA

MEMORANDA

AIR INLET AND EXHAUST SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9N6278	1	WHEEL-COMPRESSOR					
	2	9N2046	1	SPACER-THRUST					
	3	OS1616	4	BOLT					
	4	9N2036	4	PLATE-LOCKING					
	4	6N5004	1	BEARING-THRUST					
	5	9N6231	1	PLATE AS-BACKING					
	6	1P1120	1	RING-SEAL					
	7	9N6274	1	HOUSING AS-BEARING					
	7	4M6646	2	PIN-GROOVED					
	8	7N3760	1	SHROUD-TURBINE WHEEL					
R	9	6N6611	1	WHEEL & SHAFT AS					
	10	7N3759	1	RING-PISTON					
	11	9M8915	3	RING-RETAINING					
	12	9M8911	1	COLLAR-THRUST					
	13	9M8919	2	RING-SEAL					
FJ	14	3S4484	1	LOCKNUT-TURBOCHARGER					
FJ		9N2047	1	PLATE-CARTRIDGE IDENTIFICATION					
FJ		2F0808	2	SCREW					
C		9N2041	1	THE FOLLOWING REPAIR KIT IS AVAILABLE: KIT-BEARING					

J-MOUNTED ON CARTRIDGE AS
C-CHANGE FROM PREVIOUS TYPE
F-NOT SHOWN

R-REMFG PART MAY BE AVAILABLE

B-355648 EP

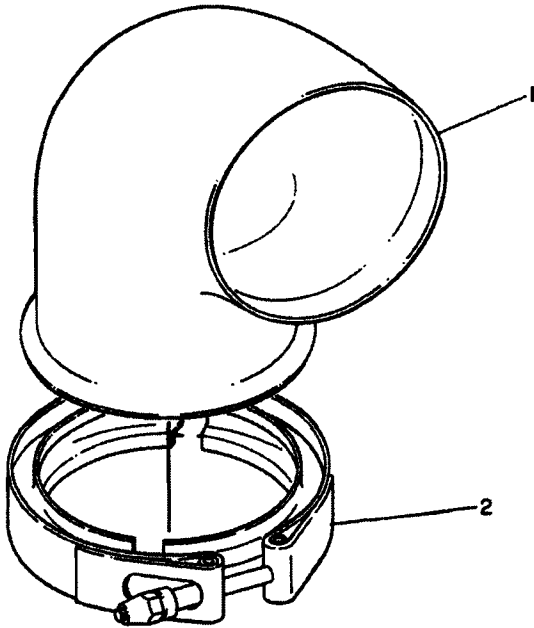
1052

9N6230 CARTRIDGE GP-TURBOCHARGER*R

S/N 3Z1-2544

Part Of 9N6053 Turbocharger

AIR INLET AND EXHAUST SYSTEM

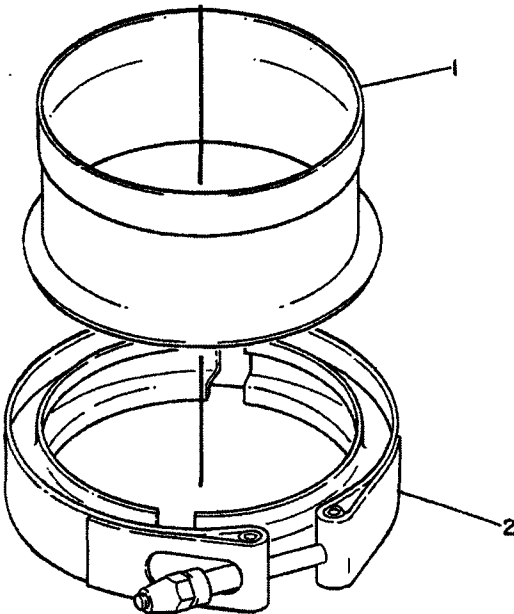


NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1W4625	1	ELBOW-EXHAUST
	2	1W5455	1	CLAMP

B-235375 EP

1061

1W7741 ELBOW GP-EXHAUST-90 DEGREES
An Attachment



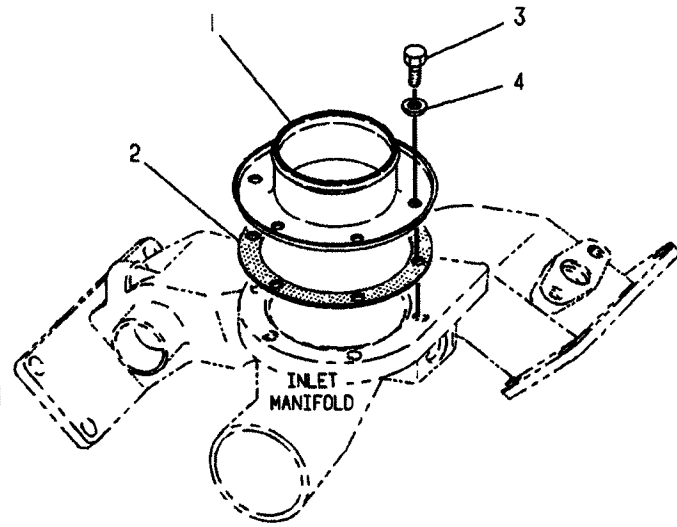
NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9N6325	1	ADAPTER-EXHAUST
	2	1W2431	1	CLAMP

B-230488 EP

1061

9N6328 EXHAUST EXTENSION GP
An Attachment

AIR INLET AND EXHAUST SYSTEM



VIEWED FROM
UPPER RIGHT REAR
OF ENGINE

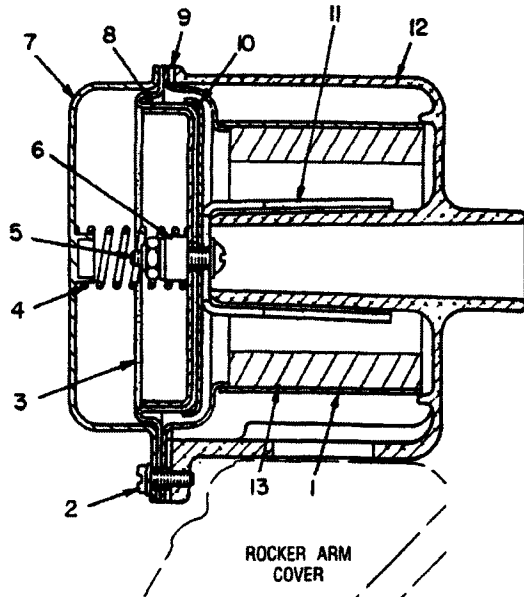
NOTE	REF NO	PART NUMBER	QTY	PART NAME
B	1	3N2902	1	ADAPTER-AIR CLEANER
	2	3N2903	1	GASKET-AIR INLET
	3	2B2695	6	BOLT
	4	9M1974	6	WASHER-HARD

B-USE AS REQUIRED

A-456534 EP

1051

3N2915 ADAPTER GP-AIR CLEANER
S/N 3Z4303-Up



NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9L8836	1	SLEEVE-VALVE
	2	7W5938	7	SCREW-TAPPING
		3B4502	7	LOCKWASHER
	3	9L7873	1	DIAPHRAGM
	4	9L9285	1	SPRING-PCV
	5	4B1233	1	SCREW
		310249	1	LOCKNUT
		4B4274	2	WASHER
	6	9L9013	1	SPACER
	7	9L9066	1	COVER AS
		7M5839	1	PLUG-CUP (CORE)
	8	9L8731	1	PISTON
	9	9L8837	1	GASKET
	10	9L8735	1	PLATE-RETAINER
	11	9L9004	1	SLEEVE
	12	9L8996	1	HOUSING-VALVE
	13	7W7965	1	ELEMENT-BREATH

344611 EP

1074

9L8790 VALVE AS
Crankcase Ventilation
Part Of 8N1151, 9N5214, 9N6606 Lines-PCV
And 4W6968 Cover-Valve Mechanism

MEMORANDA

FUEL SYSTEM AND GOVERNOR

NOTE	REF NO	PART NUMBER	QTY	PART NAME
C	1	6V1866	1	BOLT
	2	1W3605	1	SPACER-TORQUE SPRING
C	3	2S7390	1	SPACER
	4	6N8451	1	INSULATOR
	5	8H0708	1	BOLT
C	6	8N5083	1	SPRING
	7	4N3881	1	SCREW
	8	9M1311	1	NUT-JAM
C	9	8N5203	1	BELLOWS AS
C	10	8N5234	1	BRACKET AS

C-CHANGE FROM PREVIOUS TYPE

B-508544 EP

1257

8N2901 TORQUE CONTROL GP

Part Of 1N3107, 2W9017, 4W5623, 4W5625, 7C9492 & 7C9494
Pumps-Governor & Fuel Injection
Also An Attachment

NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4L6458	1	NUT-FULL
	2	4L7124	1	BOLT
	3	4N3882	1	CONTACT-STOP
	4	8M9064	1	SHIM-SPRING 1.63MM(.064IN)THK
	5	1P6452	2	INSULATOR
	6	9L7235	3	SHIM-TORQUE SPRING .99MM(.039IN)THK
	7	4N7777	3	SPACER .25MM(.010IN)THK
	8	4N9098	1	SPACER 12.7MM(.5IN)THK
	9	1P6453	1	BAR-LOAD STOP
	10	5S2619	1	SPRING-TORQUE .25MM(.010IN)THK
	11	8L8601	6	SPACER .06MM(.002IN)THK
	12	9L9347	1	SHIM-TORQUE SPRING .51MM(.020IN)THK

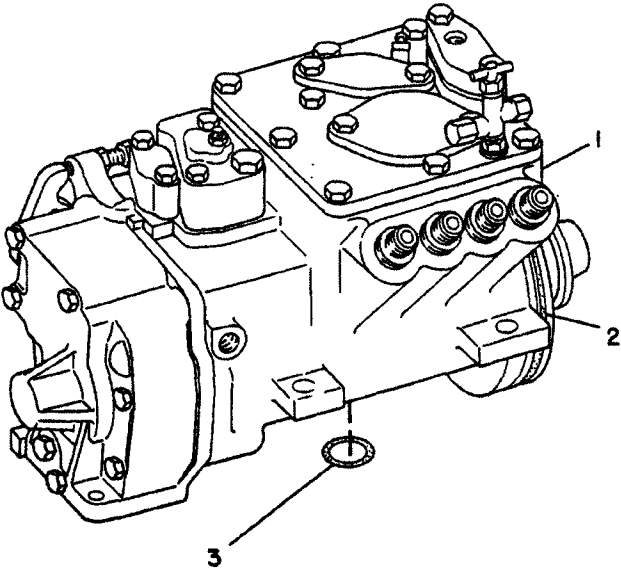
B-205636 EP

1257

6N0640 TORQUE CONTROL GP

146 Kw At 1750 RPM Fire Pump Rating
An Attachment

FUEL SYSTEM AND GOVERNOR



NOTE	REF NO	PART NUMBER	QTY	PART NAME
Y	1	7C8973	1	PUMP GP-GOV & FUEL INJ
	2	9M9729	1	SEAL-O-RING
	3	8M8157	1	SEAL 9.19MM(.362IN)ID
F		8M5661	1	SEAL-O-RING (TACH DRIVE) 47.22MM(1.86IN)ID
F		9L7630	2	GASKET-AIR INLET

B-406647 EP

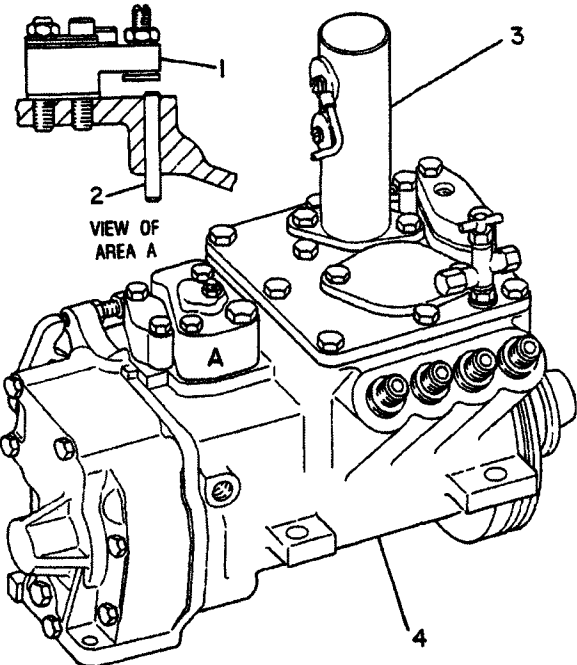
1286

7C8972 PUMP GP-GOVERNOR & FUEL INJECTION* R

7C8973-Page 62B.08

Field Replacement For 7C9492 & 7C9496 Page 61B.01

7C9494 Page-61B.09 & 7C9500, 7C9506 Page-61B.02



NOTE	REF NO	PART NUMBER	QTY	PART NAME
Y	1	6N0509	1	TORQUE CONTROL GP
	2	4N0443	1	PIN-LOAD STOP
Y	3	9N0683	1	SHUTOFF GP-ELECTRICAL
Y	4	9Y6445	1	PUMP GP-GOV & FUEL INJ

B-462388 EP

1286

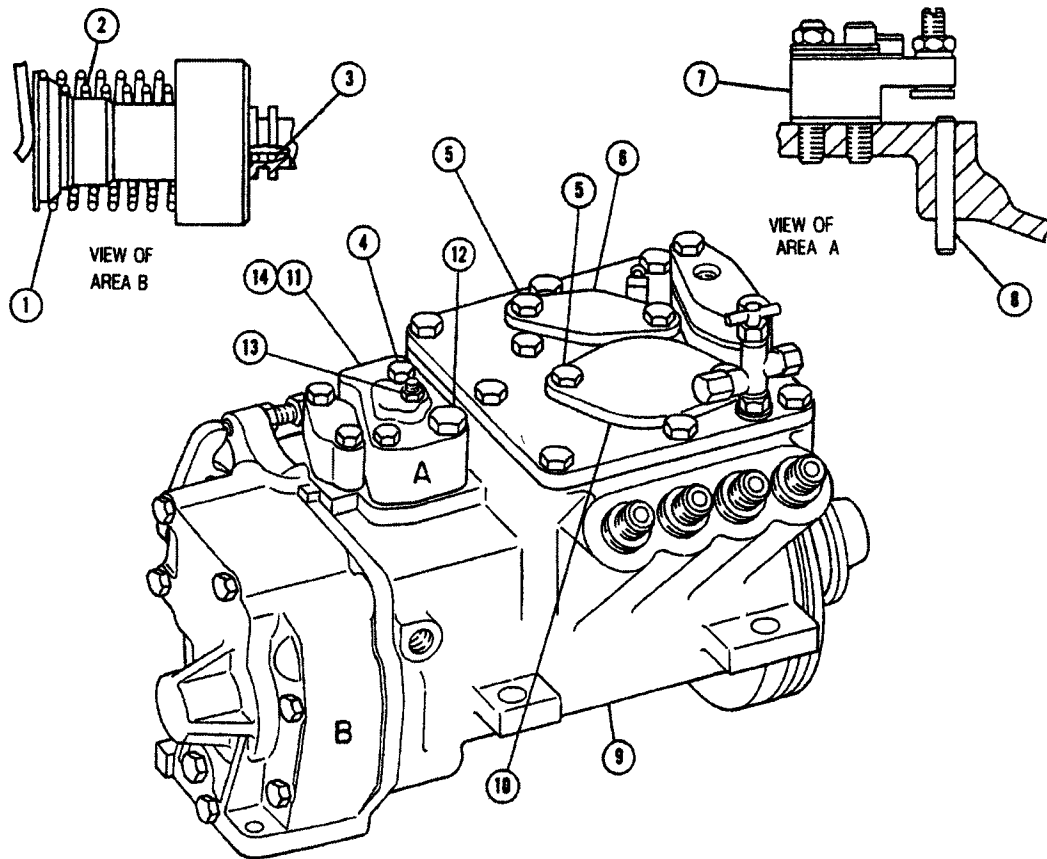
9Y6444 GOVERNOR & FUEL INJECTION PUMP GP

6N0509-Page 60, 9N0683-Page 85, 9Y6445-Page 67.19.01

FUEL SYSTEM AND GOVERNOR

	PAGE
1 9N5863 PUMP GP-GOVERNOR & FUEL INJECTION.....	62A
1 4N0556 GASKET-GOVERNOR HOUSING	
1 4N0532 GASKET-IDLE SCREW COVER	
1 4N0508 GASKET-TORQUE SPRING COVER	
2 9L7630 GASKET-CROSS OVER PIPE	
1 8M8157 SEAL-GOVERNOR HOUSING TO CYLINDER BLOCK	
1 9M9729 SEAL-FUEL PUMP HOUSING	
1 8M5661 SEAL-TACHOMETER DRIVE	
1 7N3807 SPRING-GOVERNOR HIGH IDLE (1.23 N/MM)	
1 6N2129 SPRING-GOVERNOR HIGH IDLE (1.576 N/MM)	
1 4N6119 SPRING-GOVERNOR HIGH IDLE (2.10 N/MM)	
1 4N5661 SPRING-GOVERNOR HIGH IDLE (2.452 N/MM)	
1 6N6662 SPRING-OVER FUELING	
1 FORM SMHS7595	

FUEL SYSTEM AND GOVERNOR



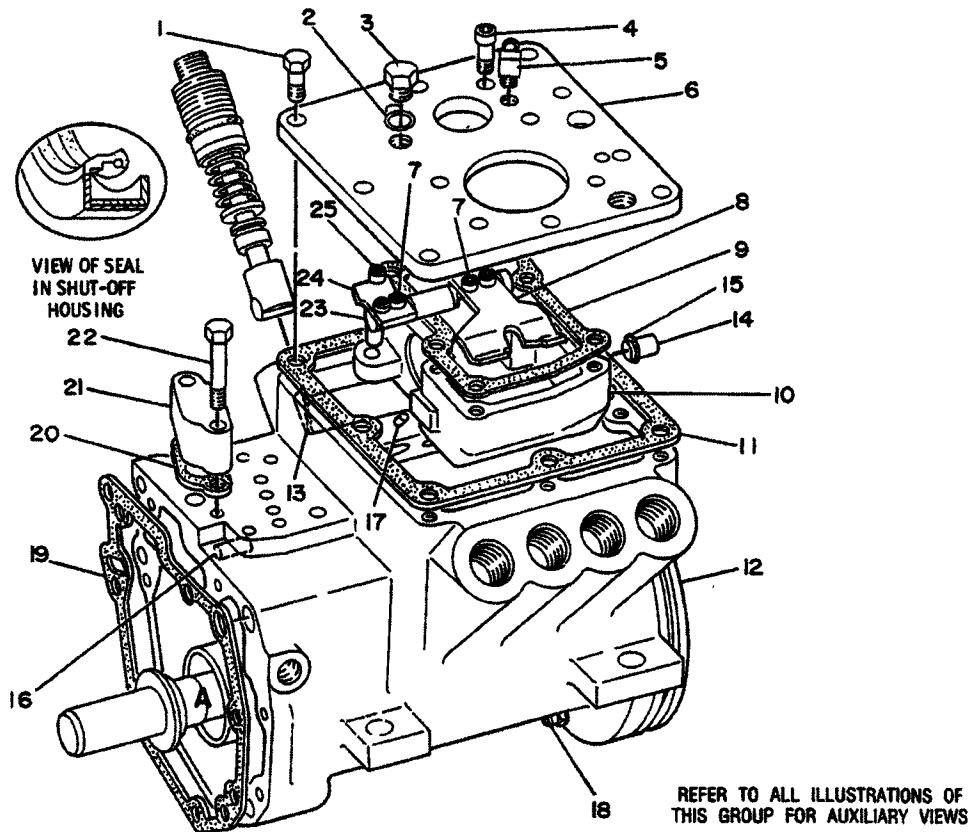
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4N9226	1	SPRING (OUTER)					
	2	4N5663	1	SPRING (INNER)					
	3	4N0527	1	SPRING					
	4	2M5471	2	BOLT					
	5	4F7957	4	BOLT					
	6	4N8507	1	COVER					
		2W1706	1	GASKET-SOLENOID					
Y	7	6N0509	1	TORQUE CONTROL GP					
	8	4N0443	1	PIN-LOAD STOP					
Y	9	4W5634	1	PUMP GP-GOV & FUEL INJ					
	10	3L5987	1	COVER					
		6L5773	1	GASKET					
	11	4N1591	1	COVER AS-SPRING HOUSING					
		6N0411	1	COVER-TORQUE SPRING					
	12	2P3200	1	BOLT-WASHER HEAD					
		1J9671	1	SEAL-O-RING					
	13	4B2042	1	NUT					
		6N0412	1	SCREW AS-MACHINE					
		3B4501	1	LOCKWASHER					
		8F1326	1	WASHER					
				.813MM (.032IN.) THK.					
		1P7326	1	WASHER					
				1.52MM (.06IN.) THK					
	14	4N0508	1	GASKET-COVER					

Y-SEPARATE ILLUSTRATION

B-327695 EP

1286 **4W5639 PUMP GP-GOVERNOR & FUEL INJECTION**
 6N0509-Page 60 & 4W5634-Page 67.01
 Part Of 4W5638 Pump-Governor & Fuel Injection

FUEL SYSTEM AND GOVERNOR



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	0S1615	7	BOLT		24	4N0940	1	LEVER-SHUTOFF
	2	3J7354	1	SEAL-O-RING		25	4N0937	1	SHAFT-LEVER
	3	9S4182	1	PLUG					
	4	8H3127	2	BOLT					
	5	9S9332	1	FITTING-ELBOW					
	6	6N1729	1	COVER-PUMP HOUSING					
	7	6D3031	4	SCREW-SOCKET HEAD					
	8	4N0941	1	LEVER-LIMITER					
	9	4N0505	1	GASKET-HOUSING					
	10	4N0935	1	HOUSING AS (SHUT-OFF)					
		4N3713	1	SEAL-LIP					
	11	4N0595	1	GASKET-TOP COVER					
	12	1W2585	1	HOUSING AS-PUMP					
		9S4180	1	PLUG-O-RING					
		4J7533	1	SEAL-O-RING					
	13	9N5821	1	DEFLECTOR-PULSE					
	14	4N1826	2	DOWEL					
	15	2D6392	2	SEAL-O-RING					
	16	4N2333	1	PIN-SPRING					
	17	8N0984	8	PIN-SPRING					
	18	1P4001	1	FITTING					
	19	4N0556	1	GASKET-GOVERNOR HOUSING					
	20	4N0532	1	GASKET-COVER					
	21	4N0531	1	COVER-IDLE SCREW					
	22	6L1756	2	BOLT					
	23	4N0938	1	SHAFT-LEVER					

B-309495 EP

1286

1W2584 PUMP GP-GOVERNOR & FUEL INJECTION-PART 3 OF 5
Part Of 1N3106 & 2W9018 Pumps-Governor & Fuel Injection

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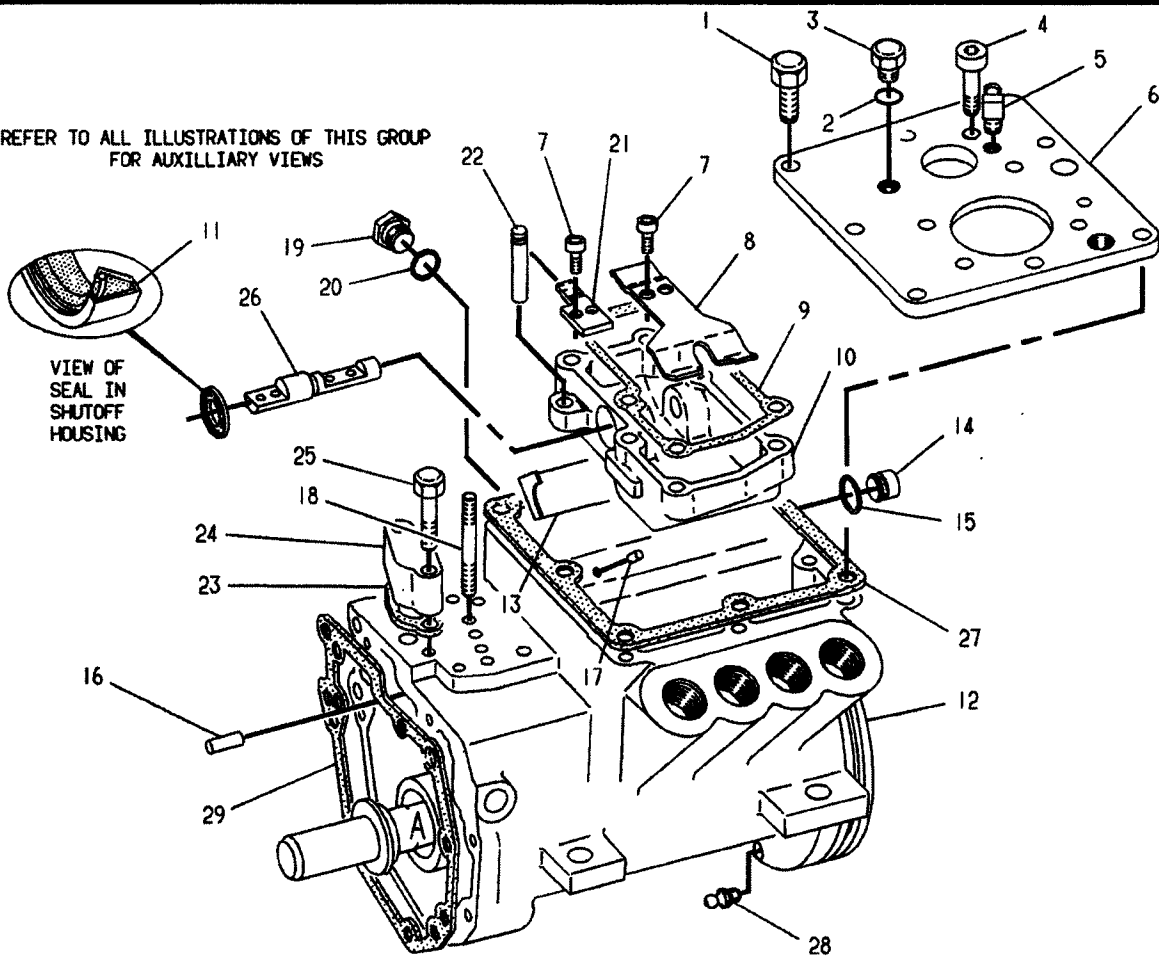


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FUEL SYSTEM AND GOVERNOR

REFER TO ALL ILLUSTRATIONS OF THIS GROUP FOR AUXILLIARY VIEWS



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	0S1615	7	BOLT		27	1277139	1	GASKET-TOP COVER
	2	3J7354	1	SEAL-O-RING		28	1P4001	1	FITTING
	3	9S4182	1	PLUG		29	4N0556	1	GASKET-GOVERNOR HOUSING
	4	8H3127	2	BOLT					
	5	9S9332	1	FITTING-ELBOW					
	6	1245939	1	COVER-FUEL PUMP HOUSING					
	7	6D3031	4	SCREW-SOCKET HEAD					
	8	4N0941	1	LEVER-LIMITER					
	9	4N0505	1	GASKET-HOUSING					
	10	1282974	1	HOUSING AS					
	11	4N3713	1	SEAL-LIP					
	12	1322117	1	HOUSING AS-PUMP					
	13	9N5821	2	DEFLECTOR-PULSE					
	14	4N1826	2	DOWEL					
	15	2D6392	2	SEAL-O-RING					
	16	3H0703	1	DOWEL					
	17	8N0984	8	PIN-SPRING					
	18	4N5481	1	STUD					
	19	9S4180	1	PLUG-O-RING					
	20	4J7533	1	SEAL-O-RING					
	21	4N0940	1	LEVER-SHUTOFF					
	22	1245942	1	SHAFT-SOLENOID					
	23	4N0532	1	GASKET-COVER					
	24	4N0531	1	COVER-IDLE SCREW					
	25	6L1756	2	BOLT					
	26	4N0938	1	SHAFT-LEVER					

A-632637 CP

1286

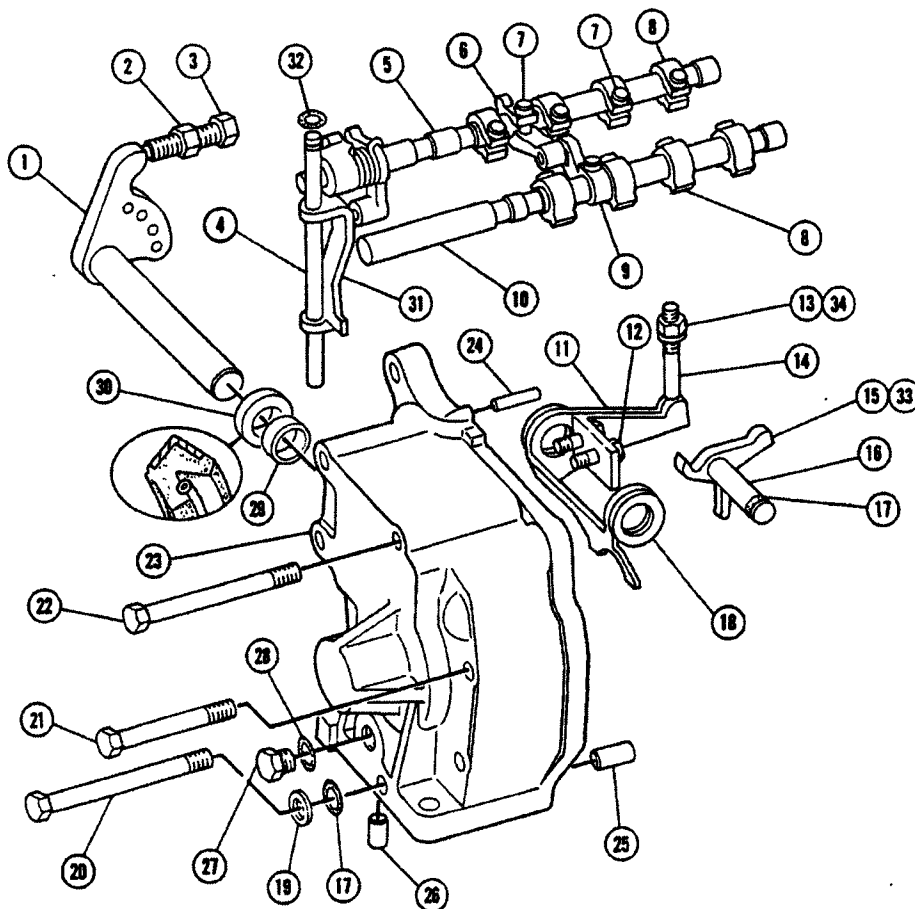
7C8928 GOVERNOR & FUEL INJECTION PUMP GP-PART 3 OF 5

Type 2

Part Of 7C8973, 7C9497, 7C9501, 7C9507

Governor & Fuel Injection Pump

FUEL SYSTEM AND GOVERNOR

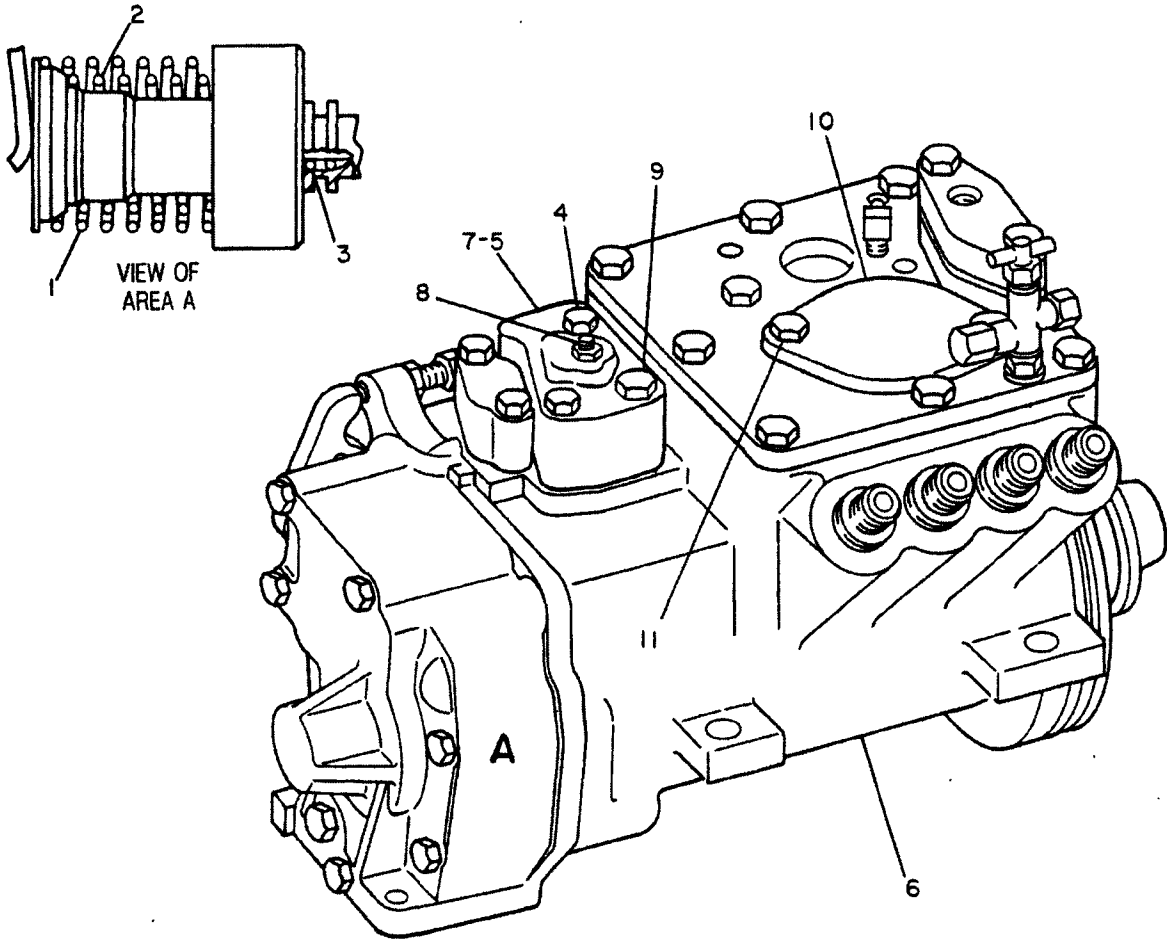


NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4N2773	1	SHAFT AS-CONTROL		23	8N3946	1	HOUSING AS-GOVERNOR
	2	1D4716	1	NUT-FULL		24	4N2333	1	PIN-SPRING
	3	4N2708	1	SETSCREW		25	8S6814	2	PIN
	4	4N0528	1	SHAFT-LEVER		26	9L9503	1	DOWEL-HOLLOW
	5	4N9828	1	SHAFT AS-CONTROL		27	9S4182	1	PLUG
	6	4N3922	1	LEVER AS-CONNECTION		28	3J7354	1	SEAL-O-RING
	7	2N2658	10	BOLT-SOCKET HEAD		29	8N3945	1	BUSHING-TERMINAL
	8	9N5820	8	LEVER-CONTROL		30	2W4037	1	SEAL-LIP
	9	4N0563	1	LEVER-SHAFT		31	4N2677	1	LEVER AS-RISER
	10	9L6807	1	SHAFT-CONTROL		32	3H0442	1	SEAL-O-RING
	11	4N1809	1	LEVER AS-SEAT		33	2M7819	1	RING-RETAINING
	12	310214	2	BOLT-LOCKING		34	6L3921	1	WASHER-SEAL
	13	9M1311	1	NUT-JAM					
	14	6N4176	1	SETSCREW					
	15	4N0445	1	LEVER-LOAD STOP					
	16	4N0523	1	DOWEL-STOP SUPPORT					
	17	2D6392	2	SEAL-O-RING					
	18	4N3329	2	WASHER					
	19	6N7523	1	WASHER					
	20	8F8178	1	BOLT					
	21	1D4533	3	BOLT					
	22	2A4781	3	BOLT					

B-327698 EP

1286 4W5634 PUMP GP-GOVERNOR & FUEL INJECTION-PART 2 OF 5
 Part Of 4W5622, 4W5628, 4W5639 & 7C1494 Pumps-Governor & Fuel Injection

FUEL SYSTEM AND GOVERNOR



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	6N2129	1	SPRING-GOVERNOR					
	2	4N5663	1	SPRING					
	3	4N0527	1	SPRING					
	4	2M5471	2	BOLT					
	5	4N0508	1	GASKET-COVER					
CY	6	7C1645	1	PUMP GP-GOV & FUEL INJ					
	7	4N1591	1	COVER AS-SPRING HOUSING					
		6N0411	1	COVER-TORQUE SPRING					
	8	6N0412	1	SCREW AS-MACHINE					
		4B2042	1	NUT					
		3B4501	1	LOCKWASHER					
		1P7326	1	WASHER					
		8F1326	1	WASHER					
	9	2P3200	1	BOLT-WASHER HEAD					
		1J9671	1	SEAL-O-RING					
	10	3L5987	1	COVER					
	11	4F7957	2	BOLT					

C-CHANGE FROM PREVIOUS TYPE
Y-SEPARATE ILLUSTRATION

B-404739 EP

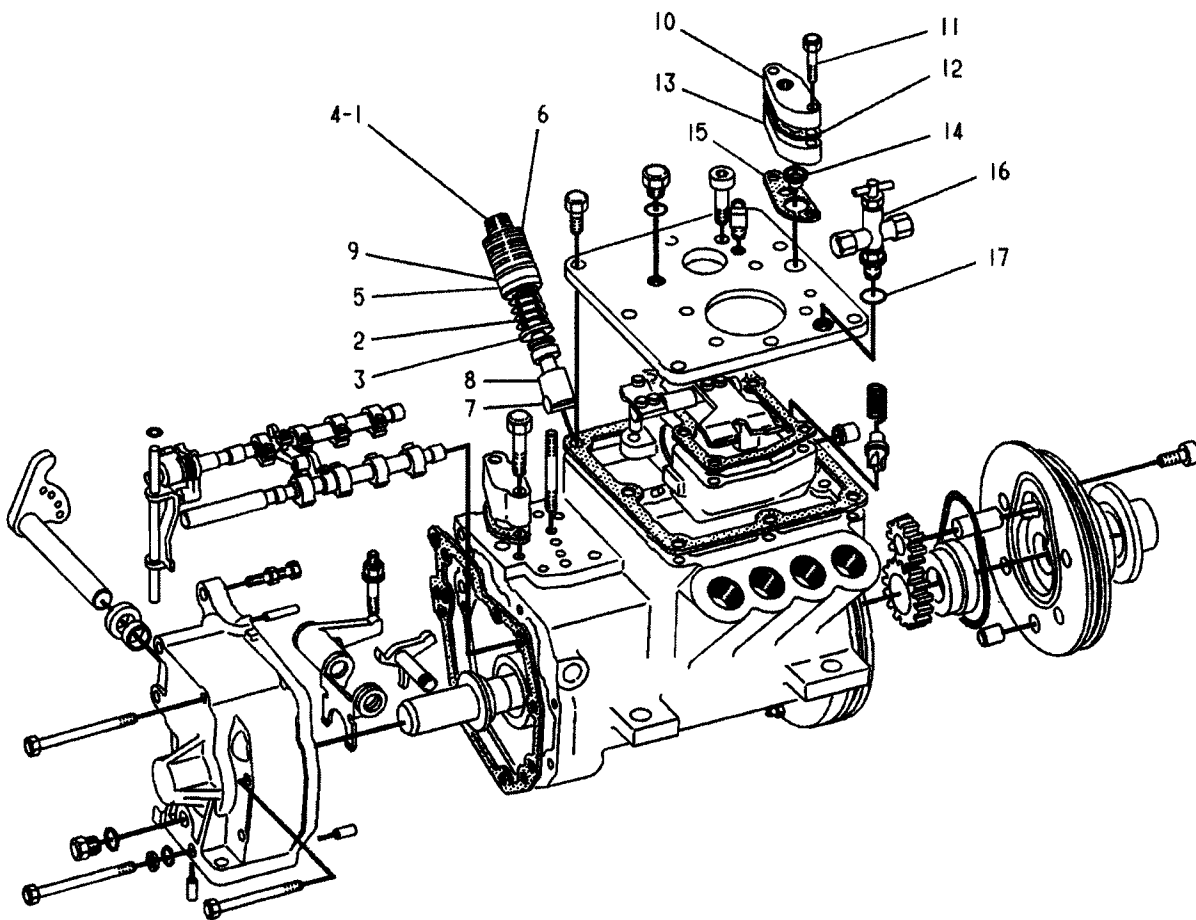
1286

7C4960 PUMP GP-GOVERNOR & FUEL INJECTION

7C1645-Page 67.13

Part Of 7C4959 Pump-Governor & Fuel Injection

FUEL SYSTEM AND GOVERNOR



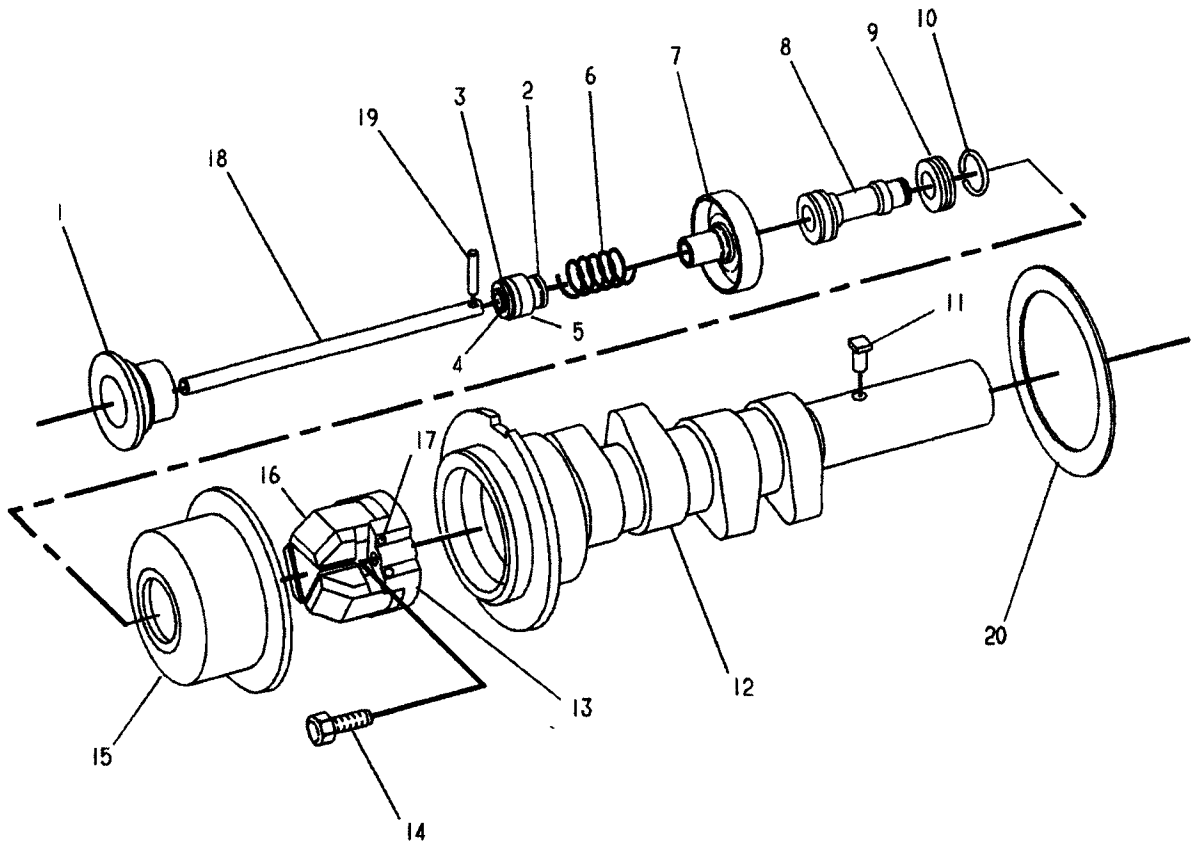
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	1W3010	8	PUMP AS-FUEL INJECTION (EACH INCLUDES)					
	2	9N5862	1	SPRING-LIFTER					
	3	4N2728	1	WASHER-RETAINER					
	4	7W8039	8	BONNET-VALVE					
		8N1415	8	SPRING-CHECK					
		1W6987	8	VALVE AS-CHECK					
		7W8038	8	INSERT					
	5	4N0224	8	RING-RETAINER					
	6	7W8120	8	BUSHING-TERMINAL					
	7	9N5827	8	ROLLER-FUEL PUMP LIFT					
	8	9N5817	8	LIFTER-PLUNGER					
	9	6F6672	8	SEAL-O-RING					
	10	7N1359	1	FLANGE-INLET					
	11	2M5471	2	BOLT					
	12	4N3088	1	GASKET-INLET					
	13	7N1364	1	FLANGE AS-CHECK VALVE					
	14	1P2298	1	VALVE AS					
	15	4N0975	1	GASKET-CHECK VALVE					
	16	6N1716	1	VALVE AS					
	17	3J7354	1	SEAL-O-RING					

A-406610 EP

1286 **7C8930 GOVERNOR & FUEL INJECTION PUMP GP-PART 1 OF 5**
 Type 1
 Part Of 7C9499 & 9Y6445 Governor & Fuel Injection Pump

MEMORANDA

FUEL SYSTEM AND GOVERNOR



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4N4276	1	SEAT-SPRING					
	2	4N6408	1	PISTON AS					
	3	4N6406	1	RING-SPACER					
	4	4N6404	1	RING-RETAINING					
	5	4N6407	1	SPOOL-DASHPOT					
	6	6N2517	1	SPRING-DASHPOT					
	7	2W8623	1	SEAT-SPRING					
	8	4N0434	1	RISER-GOVERNOR					
	9	4N2927	2	RACE-THRUST BEARING					
		7M7219	1	BEARING-THRUST					
	10	4N2953	1	LOCKRING					
	11	4N3779	1	KEY-CAMSHAFT					
	12	9N5858	1	CAMSHAFT-FUEL PUMP					
	13	8N2663	1	CARRIER-WEIGHT					
	14	8N2662	3	BOLT-SOCKET HEAD					
	15	4N1723	1	SHIELD-CARRIER					
	16	4N0425	3	WEIGHT-GOVERNOR					
	17	4N0511	3	DOWEL					
	18	4N5482	1	SHAFT-WEIGHT CARRIER					
	19	4N9019	1	DOWEL					
	20	9N5822	1	WASHER-THRUST					

A-474103 EP

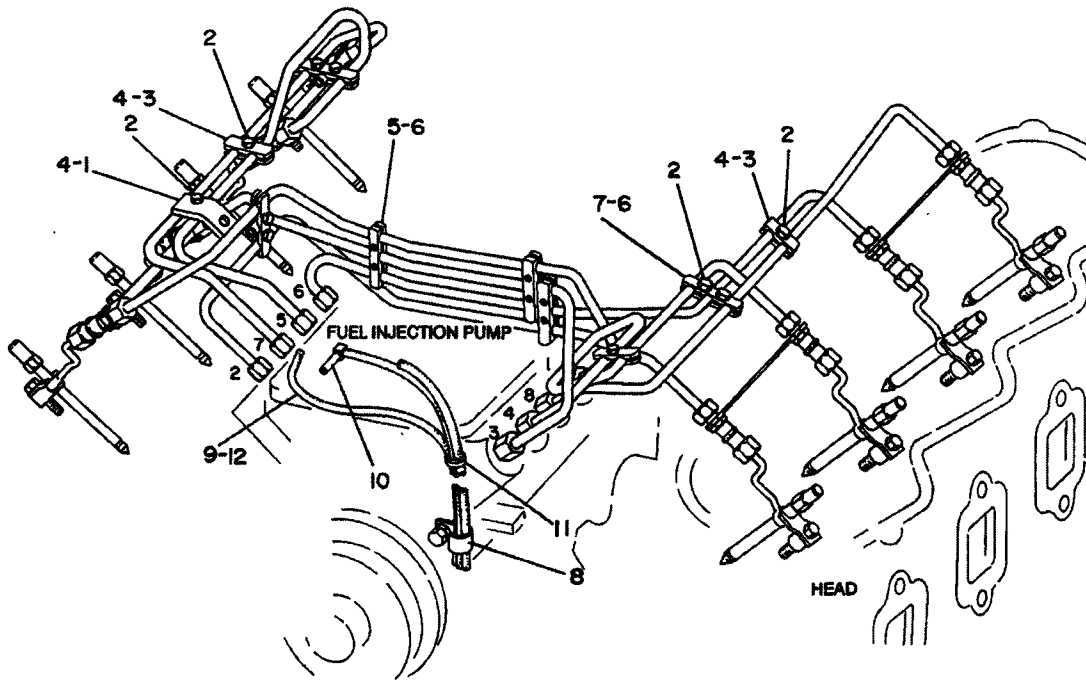
1286

7C9451 PUMP GP-GOVERNOR-PART 5 OF 5

Type 2

Part Of 7C9493 & 7C9495 Pumps-Governor & Fuel Injection

FUEL SYSTEM AND GOVERNOR



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9N2050	1	BRACKET					
	2	5P4939	16	SCREW-MACHINE					
	3	9L8715	3	CLAMP					
	4	9L8716	4	CLAMP (TAPPED)					
	5	9L8713	3	CLAMP-FUEL LINE					
	6	9L8714	6	CLAMP-FUEL LINE (TAPPED)					
	7	9L9160	3	CLAMP AS-LINE					
	8	9L9251	1	CLIP					
		9M1974	1	WASHER-HARD					
	9	9N2064	1	TUBE AS-BLEED					
	10	5P3395	1	ELBOW					
	11	8L8413	6	STRAP-CABLE					
	12	7K8332	1	INSERT-TUBE SUPPORT					
F		6H3687	8	CAP-PROTECTION (FUEL NOZZLE TIP)					
F		9L7663	8	PLUG-PROTECTION (FUEL NOZZLE INLET)					

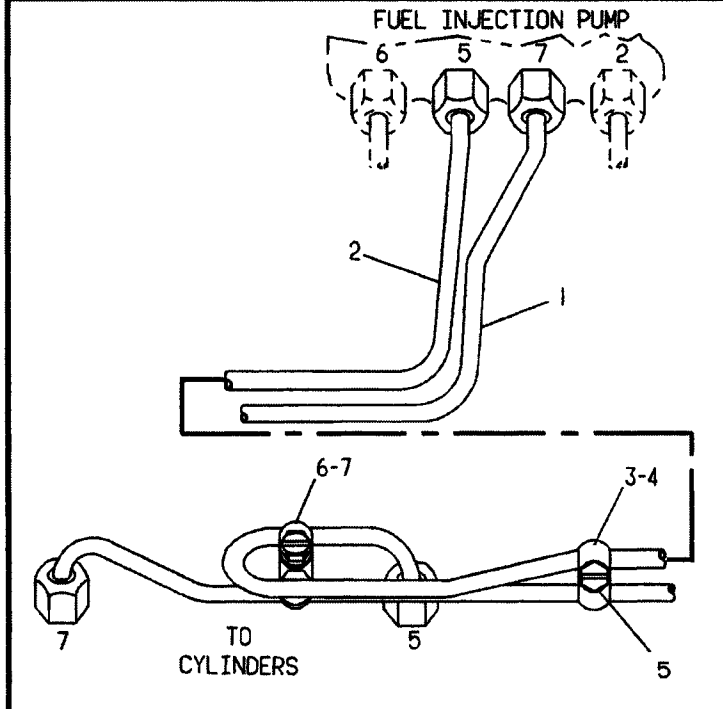
F-NOT SHOWN

B-227151 EP

1252

9N3880 FUEL INJECTION LINES GROUP-PART 2 OF 2
S/N 3Z1878-3Z2460

FUEL SYSTEM AND GOVERNOR



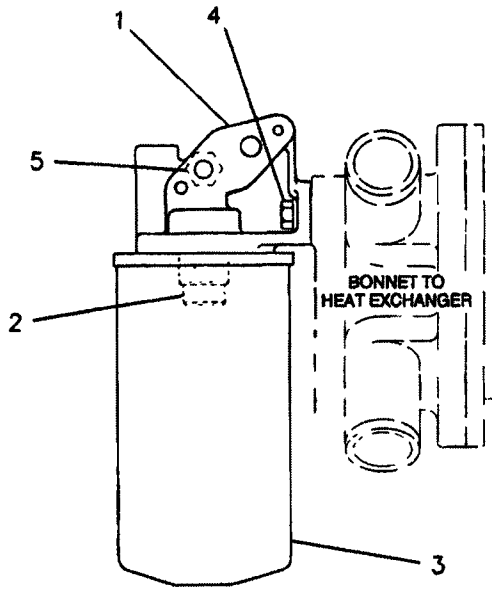
NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9L6047	1	LINE AS-FUEL INJ (NO. 7)
	2	9L6045	1	LINE AS-FUEL INJ (NO. 5)
	3	9L8715	1	CLAMP
	4	9L8716	1	CLAMP
	5	5P4939	3	SCREW AS-MACHINE
	6	9L9160	1	CLAMP AS-LINE
	7	9L8714	1	CLAMP-FUEL LINE

A-306386 EP

1252

2W0770 LINES GP-FUEL INJECTION
 S/N 322461-Up
 Part Of 9N3880 Lines-Fuel Injection

FUEL SYSTEM AND GOVERNOR



NOTE	REF NO	PART NUMBER	QTY	PART NAME
C	1	7W7392	1	BASE AS-FILTER
C	2	9S4167	1	STUD-HOLLOW
C	3	1P2299	1	FILTER AS-FUEL
	4	2B2695	2	BOLT
		9M1974	2	WASHER-HARD
C	5	5M6213	1	PLUG

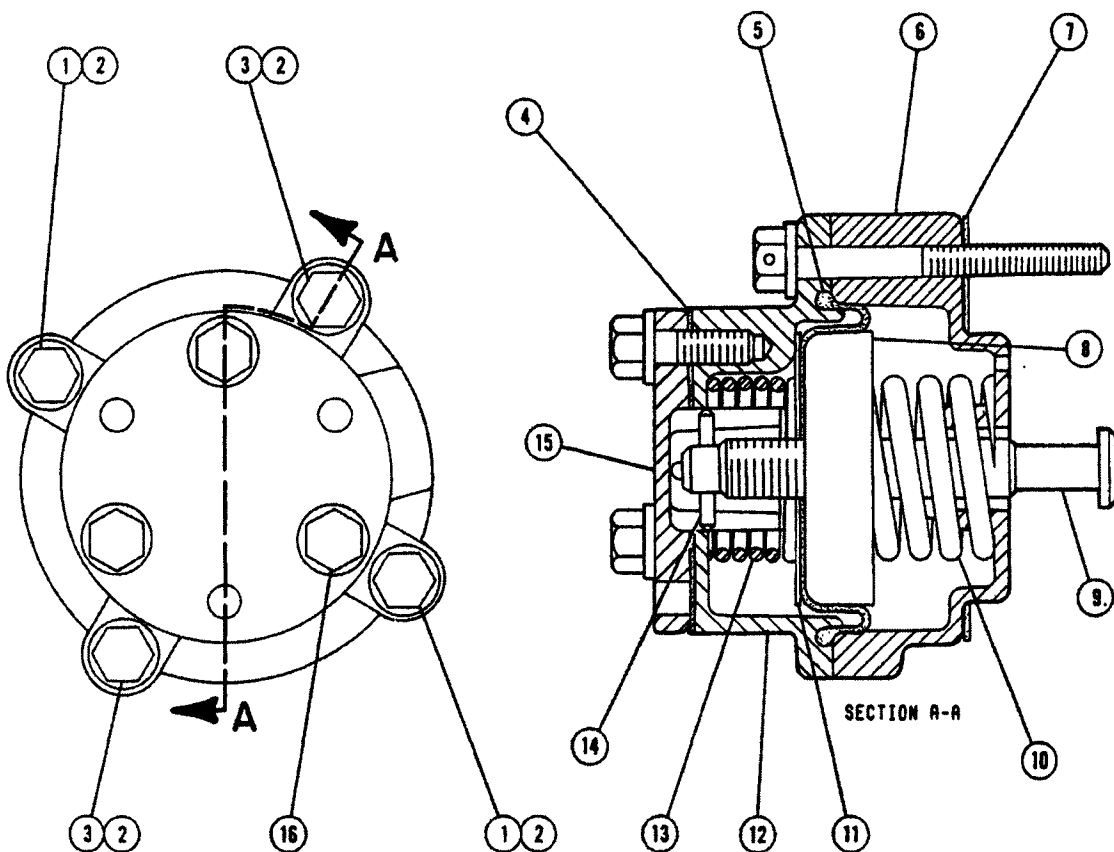
C-CHANGE FROM PREVIOUS TYPE

R-496339 EP

1261

6N3178 FILTER GP-FUEL
S/N 327569-Up

FUEL SYSTEM AND GOVERNOR



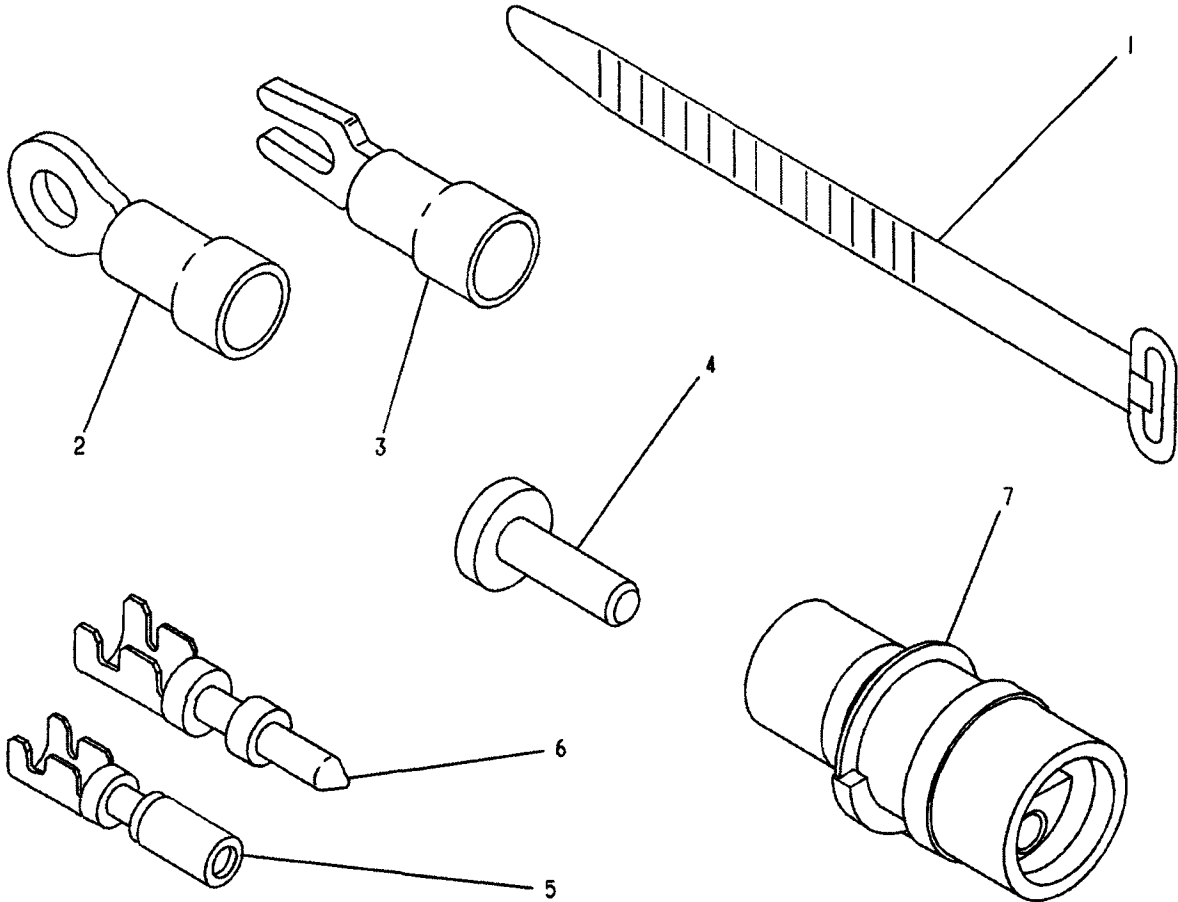
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4F7957	2	BOLT					
	2	5P0537	4	WASHER					
	3	6V2380	2	BOLT					
	4	6L5766	1	GASKET					
	5	4S7458	1	DIAPHRAGM					
	6	6N1603	1	HOUSING AS					
	7	6L5773	1	GASKET					
	8	5S6120	1	RETAINER AS					
	9	9N6060	1	BOLT-CONTROL ADJUSTMENT					
	10	6N0968	1	SPRING					
	11	6L5769	1	WASHER					
	12	6L5767	1	COVER-DIAPHRAGM					
	13	6N1606	1	SPRING					
	14	5S6458	1	DOWEL					
	15	6L5764	1	COVER-ADJUSTMENT					
	16	2N5919	3	BOLT					
		6N7523	3	WASHER					

B-315412 EP

1278

9N6055 FUEL RATIO CONTROL GP-TYPE 2
Part Of 1W3041 Fuel Ratio Control

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
B	1	8L8413	11	STRAP-CABLE		7	7N7782	1	HOUSING-PLUG (1 PIN, 2 SOCKET)
	2	2L8069	3	TERMINAL (10 GA) 9.5MM(.38IN)DIA			7N9737	1	HOUSING-PLUG (1 PIN, 1 SOCKET)
		2L8067	1	TERMINAL (10 GA) 6.4MM(.25IN)DIA					
		2L8071	2	TERMINAL (10 GA) 12.7MM(.50IN)DIA					
		2L8066	2	TERMINAL (10 GA) (#10 SCREW)					
		3T4696	1	TERMINAL (10 GA) 11MM(.44IN)DIA					
	3	5P1476	2	TERMINAL (16 GA) (#10 SCREW)					
		5P1478	5	TERMINAL (10 GA) (#10 SCREW)					
		9G3186	2	TERMINAL-SPADE (18 GA) (#8 SCREW)					
		5P1475	11	TERMINAL (14-16 GA) (#8 SCREW)					
		5P3059	6	TERMINAL (18 GA) (#6 SCREW)					
		5P1477	6	TERMINAL (10 GA) (#8 SCREW)					
	4	9G3695	1	PLUG-SEAL					
	5	7N7779	2	SOCKET					
6	7N7780	2	PIN-CONNECTOR						

B-USE AS REQUIRED

A-567727 EP

1408

7W3286 HARNESS AS-ENGINE-PART 2 OF 2

Type 2

For Use With Fire Pump Engines
An Attachment

STARTING AND ELECTRICAL SYSTEM

NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
			4	BOLT (1/4-20X.5IN)					THE FOLLOWING REPAIR KITS ARE AVAILABLE: 1 KIT-BRUSH (INCL PARTS MARKED J) 1 KIT-BUSHING (INCL PARTS MARKED P) 1 KIT-LEVER (INCL PARTS MARKED N) 1 KIT-INSULATOR (INCL PARTS MARKED L)
NP	1	5S7349	1	GASKET					
	2	7L2894	1	RING-RETAINING			8C3655	1	
	3	2H3429	2	NUT (15.85MM OD)					
	4	4B2049	2	LOCKWASHER (5MM ID)					
	5	8F1434	2	CONNECTOR			7T3267	1	
	6	7T3271	1	WASHER-HARD (2MM THK)					
	7	8T4205	4	BOLT			7T3268	1	
	8	369823	5	COIL AS-FIELD					
	9	7T3277	1	SCREW-POLE SHOE			8T9884	1	
	10	3F0379	8	ARMATURE AS					
	11	7T3276	1	SHOE-POLE					
	12	8H1141	4	INSULATOR					
	13	7T3454	1	HOUSING AS					
	14	7T3279	1	HOLDER AS-BRUSH					
	15	7T3278	1	WIRE AS					
	16	3T3422	1	TERMINAL AS					
	17	8T8566	1	WASHER-HARD (1MM THK)					
	18	8T0328	2	NUT (1/2-13 THD)					
	19	6V8188	4	WASHER-HARD					
	20	7X0562	4	BOLT (5/16-18X.88IN)					
	21	7X3373	6	INSULATOR-TERMINAL					
	22	7T3451	1	INSULATOR-TERMINAL					
	23	8T8569	1	SOLENOID AS					
	24	9X9511	1	WASHER					
	25	369821	1	BOOT					
	26	7T3269	1	PLUNGER AS					
	27	7T3270	1	SPRING					
	28	9M7609	1	RETAINER-SPRING					
	29	4M1828	1	RETAINER-SPRING					
	30	4M1827	1	PLUG-LEVER HOUSING					
	31	4M1831	1	HOUSING AS-LEVER					
	32	7T3973	1	HOUSING AS-DRIVE					
	33	7T3974	1	PLUG					
	34	3T3434	6	DRIVE AS-MOTOR					
	35	6N3827	1	STRIP-INSULATION					
	36	1H2629	2	SPRING					
JZ	37		4	BRUSH					
JZ	38		4	SCREW					
JZ	39		6	SCREW AS					
JPZ	40		1	SEAL(O-RING)					
JPZ	41		3	INSULATOR					
LZ	42		1	BUSHING					
NZ	43		1	LEVER AS					
NZ	44		1	LEVER AS					
NPZ	45		1	NUT					
NPZ	46		1	SEAL(O-RING)					
PZ	47		1	SEAL(O-RING)					
NZ	48		1	RETAINER					
PZ	49		1	GASKET(WASHER)					
PZ	50		1	BUSHING					
PZ	51		2	CUP(PLUG)					
PZ	52		1	CUP(PLUG)					
PZ	53		1	PLUG					
PZ	54		1	PLUG					
PZ	55		1	PLUG					
PZ	56		1	BUSHING					
PZ	57		1	WASHER					
NZ	58		1	SEAL(O-RING)					
NZ	59		1	SEAL(O-RING)					
PZ	60		1	RETAINER(SEAL)					
PZ	61		1	SPACER					
PZ	62		1	BUSHING					
Z	63		1	HOUSING					

Z-NOT SERVICED SEPARATELY

561763 EP

1453

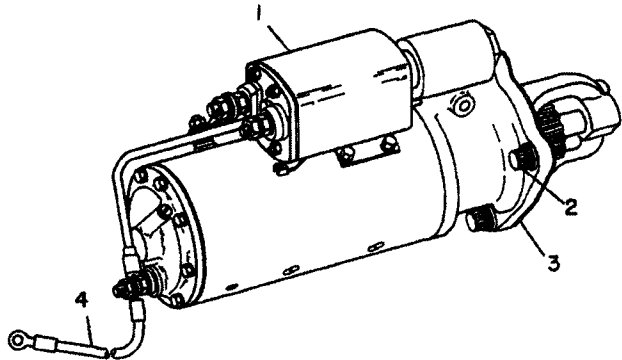
8C3651 STARTING MOTOR GP-ELECTRIC-24 VOLT
 Part Of 4N3181 Starting Motor-Electric
 An Attachment

MEMORANDA

STARTING AND ELECTRICAL SYSTEM

NOTE	REF NO	PART NUMBER	QTY	PART NAME
YR	1	4N3181	1	STARTING MOTOR GP-ELECTRIC
	2	7J8902	3	BOLT-12 POINT HEAD
		8D5054	3	WASHER-HARD
		8S2332	3	BOLT-12 POINT HEAD
	3	4H7869	1	GASKET
	4	3N0539	1	WIRE AS
R-REMFG PART MAY BE AVAILABLE Y-SEPARATE ILLUSTRATION				

B-562121 EP



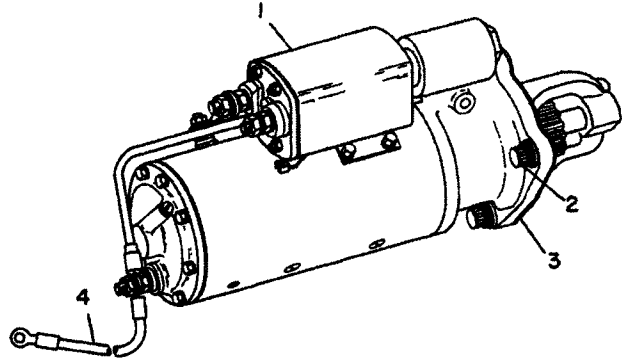
1453

7S3622 STARTING MOTOR GP-ELECTRIC-24 VOLT

Type 1
4N3181-Page 73D.05
An Attachment

NOTE	REF NO	PART NUMBER	QTY	PART NAME
RYC	1	6V5227	1	STARTING MOTOR GP-ELECTRIC
	2	7J8902	3	BOLT-12 POINT HEAD
		2S0736	3	WASHER-HARD
		8S2332	3	BOLT-12 POINT HEAD
	3	4H7869	1	GASKET
	4	3N0539	1	WIRE AS
C-CHANGE FROM PREVIOUS TYPE R-REMFG PART MAY BE AVAILABLE Y-SEPARATE ILLUSTRATION				

B-580490 EP



1453

7S3622 STARTING MOTOR GP-ELECTRIC-24 VOLT

Type 2
6V5227-Page 74J
An Attachment

STARTING AND ELECTRICAL SYSTEM

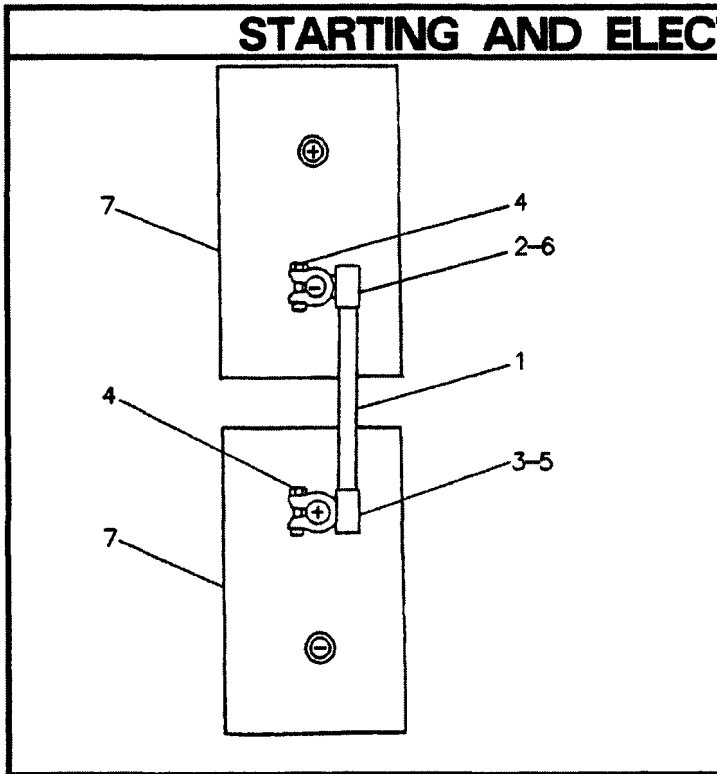
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	8F1434	2	LOCKWASHER (5MM ID)					
	2	6V8188	4	NUT (1/2 X 13 THD)					
	3	8T8566	1	TERMINAL AS					
	4	7X0562	4	WASHER-HARD					
	5	3T3422	1	WIRE AS					
		2L8066	1	TERMINAL (10 GA)					
		2L8071	1	TERMINAL (10 GA)					
	6	7T3278	1	HOLDER AS-BRUSH					
	7	5S7349	4	BOLT (1/4-20 X.5 IN)					
	8	8T4205	4	WASHER-HARD (2MM THK)					
	9	7T3276	1	ARMATURE AS					
	10	4M1831	1	PLUG-LEVER HOUSING					
	11	7L2894	1	GASKET					
	12	9X9511	1	SOLENOID AS					
	13	369821	1	WASHER					
	14	7T3269	1	BOOT					
	15	4M1828	1	RETAINER-SPRING					
	16	9M7609	1	SPRING					
	17	4M1827	1	RETAINER-SPRING					
	18	2H3429	1	RING-RETAINING					
	19	4B2049	3	NUT					
	20	6N3827	1	DRIVE AS-MOTOR					
	21	9X4824	1	COVER-STARTING MOTOR					
	22	8T0328	3	WASHER-HARD (1MM THK)					
	23	7T3277	1	COIL AS-FIELD					
	24	7T3454	1	INSULATOR					
	25	8H1141	4	SHOE-POLE					
	26	3F0379	8	SCREW-POLE SHOE					
	27	7T3271	1	CONNECTOR					
	28	8T8569	1	INSULATOR-TERMINAL					
	29	7T3451	1	INSULATOR-TERMINAL					
	30	3E7775	1	HOUSING AS					
	31	369823	5	BOLT					
	32	7T3974	1	HOUSING AS-DRIVE					
	33	3T3434	6	PLUG					
	34	7X3373	6	BOLT (5/16-18 X.88 IN)					
	35	7T3270	1	PLUNGER AS					
	36	7T3279	1	HOUSING AS					
				THE FOLLOWING REPAIR KITS ARE AVAILABLE:					
		8C3655	1	KIT-BRUSH (STARTER) (INCLUDES SPRINGS, BRUSH ASSEMBLIES, & SCREWS)					
		7T3267	1	KIT-BUSHING (STARTER)					
		7T3268	1	KIT-LEVER (STARTER) (INCLUDES RETAINER, LEVER ASSEMBLIES, NUT & SEALS)					
		8T9884	1	KIT-INSULATOR (STARTER) (INCLUDES BUSHING & INSULATORS)					

611719 CP

1453

6V5537 MOTOR GP-ELECTRIC
24 Volt
Part Of 6V5227 Starting Motor-Electric

STARTING AND ELECTRICAL SYSTEM



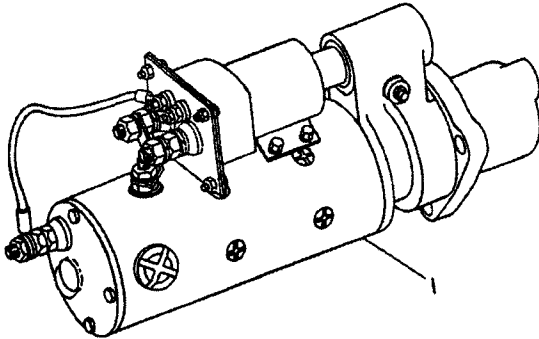
NOTE	REF NO	PART NUMBER	QTY	PART NAME
BE	1	2V7397 5P0747	1	CABLE AS CABLE (00 GA)
	2	5M9205	1	TERMINAL AS (NEG)
	3	5M9204	1	TERMINAL AS (POS) (EA TERM AS INCL)
	4	1M6119	1	BOLT-BATTERY TERMINAL
		1M6120	1	NUT-BATTERY TERMINAL
	5	9G0004	2	COVER (POS)
	6	9G0003	2	COVER (NEG)
7	3T5760	2	BATTERY-MAINTENANCE FREE (12 VOLT)	

B-USE AS REQUIRED
E-ORDER BY THE CENTIMETER

R-504135 EP

1401 7C1900 BATTERY GP-24 VOLT, 100 AMPERE - MAINTENANCE FREE
 Type 2
 For Use With Battery Support
 An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME
Y	1	7T0798	1	STARTING MOTOR GP-ELECTRIC
				-OR-
CY		8C3647	1	STARTING MOTOR GP-ELECTRIC

C-CHANGE FROM PREVIOUS TYPE
Y-SEPARATE ILLUSTRATION

B-567922 EP

1453

3T2652 STARTING MOTOR GP-ELECTRIC*R

24 Volt. Type 3. 7T0798-Page 81.03.02 & 8C3647-Page 81.03
Part Of 4N9312 Starting Motor-Electric. An Attachment
Field Replacement Order 6V5227-Page 74J

STARTING AND ELECTRICAL SYSTEM

NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9G6770	1	CONTACT AS
	2	4M1815	1	SPRING-CONTACT
	3	6V8373	3	SCREW-MACHINE (6-32X.187 IN)
	4	7T9123	1	GASKET-PLATE
	5	454065	4	SCREW-MACHINE
		4B4274	8	WASHER (1.2MM THK)
		4B2049	4	NUT
	6	6T1120	1	BUSHING-TERMINAL
	7	6T1119	1	TERMINAL AS
	8	8T0328	3	WASHER-HARD (1MM THK)
		8F1434	2	LOCKWASHER (5MM ID)
	9	4B2049	3	NUT (10-32 THD)
		7X0562	6	WASHER-HARD
		6V8188	3	NUT (1/2-13 THD)
	10	6T0362	1	INSULATOR

B-626560 CP

1467

3T4704 SOLENOID AS

24 Volt. Part Of 3T2652 & 7T0799 Starting Motor-Electric
For Field Replacement Order 3T3421-Page 81.04
An Attachment

NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9G6770	1	CONTACT AS
	2	4M1815	1	SPRING-CONTACT
	3	4M5274	3	SCREW-MACHINE
	4	6T1121	1	GASKET-TERMINAL PLATE
	5	454065	4	SCREW-MACHINE
		4B4274	8	WASHER
		4B2049	4	NUT
	6	6T1120	1	BUSHING-TERMINAL
	7	6T1119	1	TERMINAL AS
	8	3H3680	3	NUT-JAM
		4B4280	3	WASHER
		9F4976	2	LOCKWASHER
	9	4B2049	3	NUT
		4B4274	3	WASHER
		3B4502	2	LOCKWASHER
	10	6T0362	1	INSULATOR

B-302523 EP

1467

3T3421 SOLENOID AS

24 Volt

Provides Field Replacement For 3T4704-Page 81.04
An Attachment

STARTING AND ELECTRICAL SYSTEM

CONSISTS OF:

- 1 7N8884 SOLENOID GP-SHUT-OFF..... 88
- OR-
- 1 7N8885 SOLENOID GP-SHUT-OFF..... 89
- OR-
- 1 6T6122 SOLENOID GP-SHUT-OFF..... 89A
- OR-
- 1 7N8886 SOLENOID GP-SHUT-OFF..... 89
- OR-
- 1 6T4126 SOLENOID GP-SHUT-OFF..... 88

321033 P

1259

6N9987 SOLENOID GP-SHUT-OFF
24 Volt. Type 1
Part Of 4N9314 Electrical Shut-Off
An Attachment

CONSISTS OF:

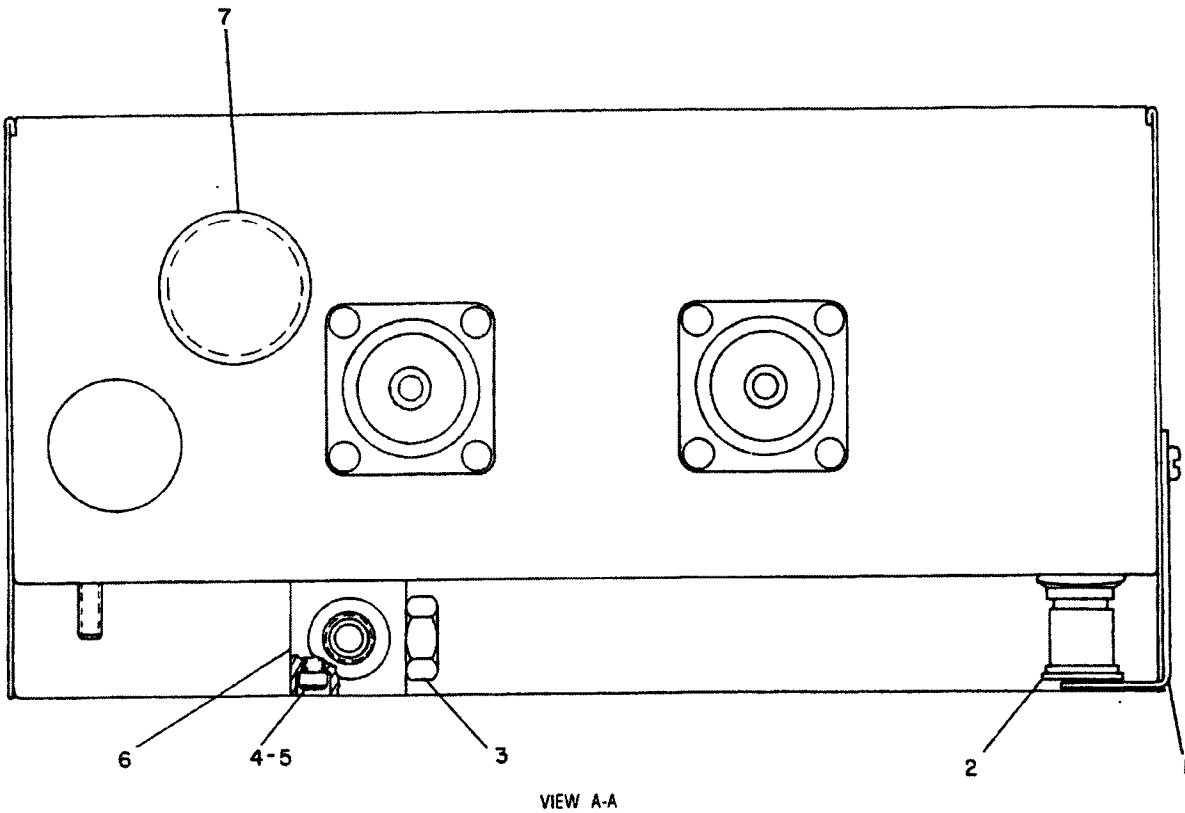
- 1 7N8884 SOLENOID GP-SHUT OFF..... 88
- OR-
- 1 6T4126 SOLENOID GP-SHUT OFF..... 88

522025 P

1259

6N9987 SOLENOID GP-SHUT-OFF
24 Volt. Type 2
Part Of 4N9314 Electrical Shut-Off
An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4W3969	1	BRACKET-RETAINER					
		2N3479	2	SCREW					
	2	6V2673	2	CAP-PROTECTION					
	3	9S4684	5	PLUG-O-RING					
		3J1907	5	SEAL-O-RING					
	4	7L0688	2	BOLT-SOCKET HEAD					
	5	5J1714	1	BOLT					
	6	5N9222	1	MANIFOLD-PRESSURE					
	7	4F8711	1	PLUG					

B-351609 EP

7426

7W9608 JUNCTION BOX GP-PART 2 OF 2

Type 1

For Use With Fire Pump Engines
An Attachment

STARTING AND ELECTRICAL SYSTEM

NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
		1 9S2438	2	SCREW-TAPPING					
		2 7H2079	7	LOCKWASHER					
		3 9S2255	1	COVER					
		4 9S2262	1	GASKET					
		5 9S9830	6	SCREW-FORMING					
		6 8H0878	6	LOCKWASHER					
		7 8F1326	3	WASHER (0.8MM THK)					
		8 9B7233	3	LOCKWASHER (SHAKEPROOF)(NO.8)					
		9 7N0129	1	REGULATOR AS					
		10 9S2250	1	GROMMET					
		11 9S2542	1	SCREW-TAPPING					
C		12 9L6770	1	CAP					
		13 9S2011	1	SCREW-MACHINE					
		14 9S9829	1	SCREW AS					
		15 9S2246	1	LEAD AS					
		16 4B2043	4	NUT (8-32 THD)					
		17 9S2389	1	STUD AS					
		18 7N0174	1	HOUSING AS					
		19 9N0943	1	PLUG-BEARING WELL					
		20 5P3418	1	BEARING-ROLLER					
		21 9S2396	1	BUSHING-TERMINAL					
		22 9S2007	3	LOCKSCREW					
		23 9S2301	1	INSULATION					
		24 9S2292	1	HEAT SINK AS					
		25 9S2300	4	INSULATOR					
		26 9S2247	4	WASHER-SPRING					
		27 9S2437	5	SCREW-TAPPING					
		28 9S2544	4	SCREW-HEX HEAD					
		29 9S2260	1	PLATE-COVER					
		30 5P3419	1	RACE-BEARING INNER					
		31 9S2004	1	STATOR AS					
		32 9S2006	1	INSULATOR					
		33 9S2005	1	GROMMET					
		34 9S2014	3	CLIP					
		35 9S2248	1	COIL & SUPPORT AS					
		36 9S2302	1	ROTOR AS					
		37 9S2390	1	RETAINER					
		38 9S2256	1	GASKET					
		39 9S2261	1	COLLAR-SHAFT					
		40 9S2008	4	SCREW-HEAD					
		41 9S2258	1	FAN & BAFFLE AS					
		42 7F7621	1	WASHER					
		43 2K4821	1	LOCKNUT (5/8-18 THD)					
		44 9S2254	1	COLLAR-SHAFT					
		45 9S2252	1	SLINGER					
		46 9S2009	4	SCREW-HEAD					
		47 3B4502	4	LOCKWASHER (.047IN THK)					
		48 2P5616	1	FRAME-DRIVE END					
		49 5P7807	1	BALL BEARING					
C		50 1L4789	1	LOCKWASHER					
		51 4B4863	4	WASHER (PLAIN)(1.2MM THK)					
				THE FOLLOWING REPAIR KITS ARE AVAILABLE:					
		9S2013	1	KIT-RELAY TERMINAL ((INCLUDES BUSHING, O-RING & HARDWARE))					
		9S2012	1	KIT-OUTPUT TERMINAL ((INCLUDES GASKETS, TERMINALS & HARDWARE))					
		9S2290	3	KIT-DIODE JUNCTION STUD (HEAT SINK-HARDWARE)					
		9S2291	3	KIT-POSITIVE DIODE (HEAT SINK-HARDWARE)					

C-CHANGE FROM PREVIOUS TYPE

693319 P

1405

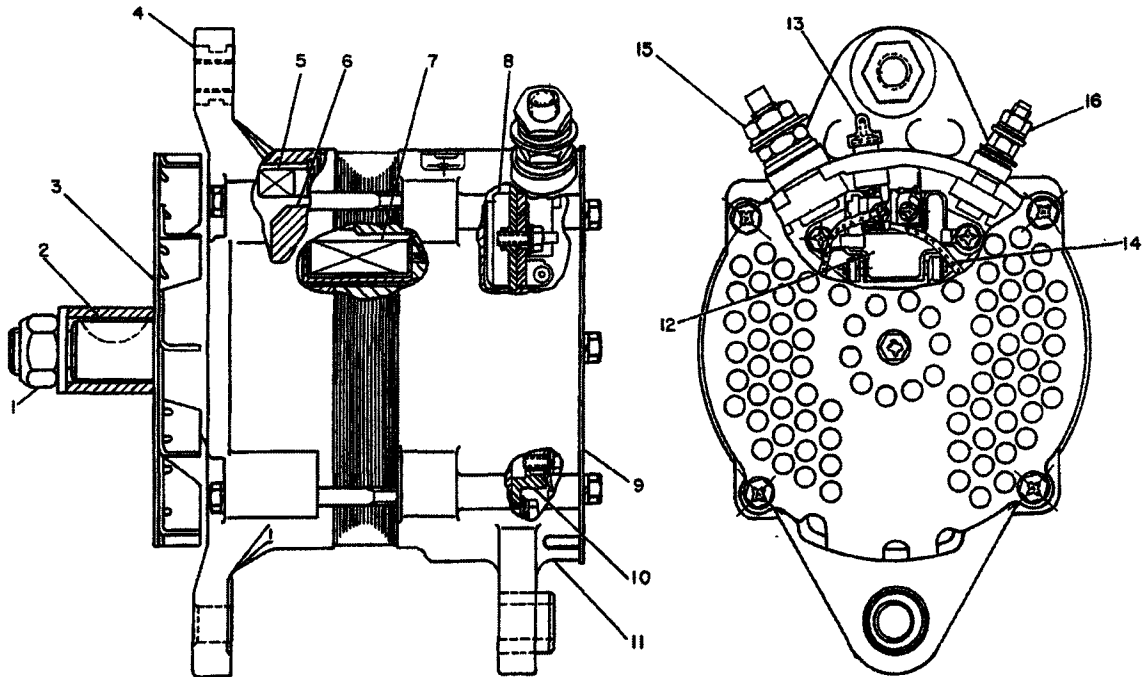
3T1888 ALTERNATOR GP-CHARGING

24 Volt, 50 Ampere

Part Of 5S9088 Alternator

An Attachment

STARTING AND ELECTRICAL SYSTEM



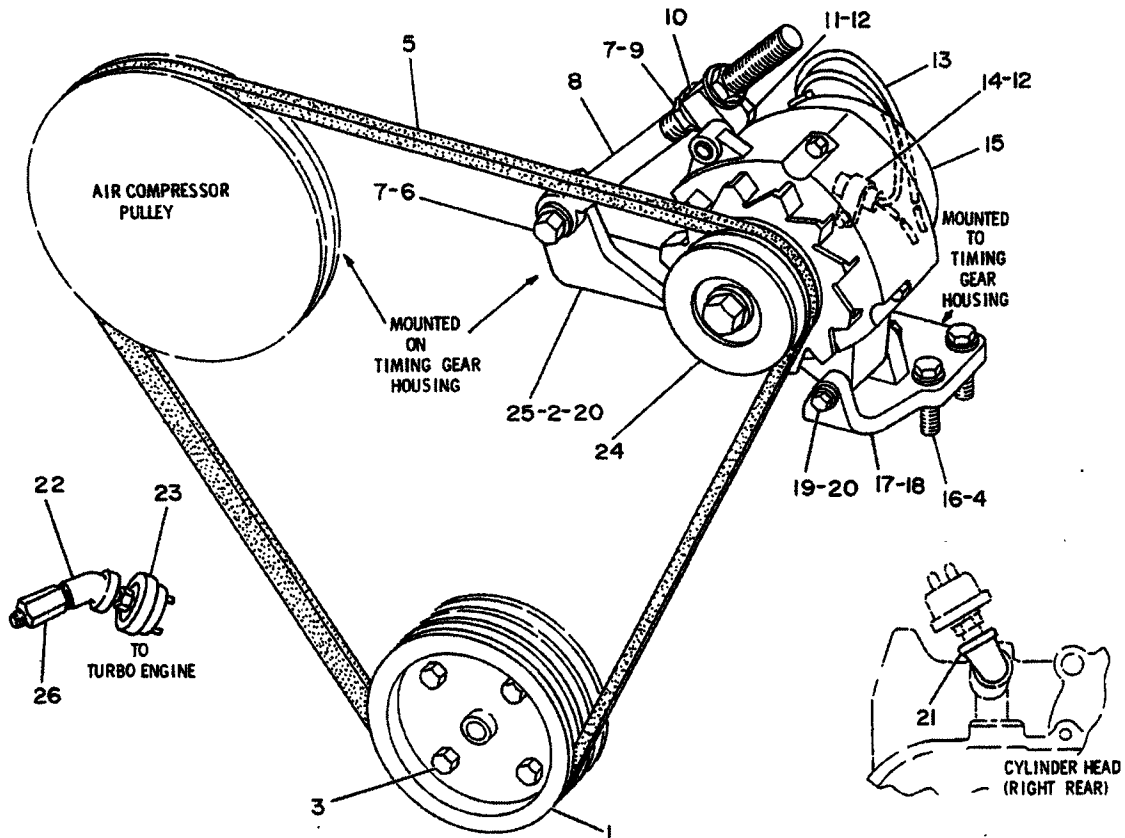
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	2K4821	1	LOCKNUT					THE FOLLOWING REPAIR KITS ARE AVAILABLE:
	2	5P8247	1	WASHER-HARD					1 KIT-TERMINAL ALTERNATOR (POS)
	3	1B8705	1	KEY-WOODRUFF			7T2800	1	(INCLUDES INSULATORS NUTS, LOCKWASHERS & WASHERS)
	4	7T2793	1	FAN AS					1 KIT-TERMINAL ALTERNATOR (RELAY)
	5	7T2792	1	FRAME AS			7T2804	1	(INCLS. WIRE AS CAP BOLT & INSULATOR)
	6	7T2794	1	STATOR AS					1 KIT-TERMINAL ALTERNATOR (NEG)
	7	7T2790	1	ROTOR AS					(INCLUDES INSULATORS, NUTS, WASHERS & LOCKWASHERS)
	8	7T2791	1	COIL AS					1 KIT-BEARING ALTERNATOR (INCLUDES BEARINGS)
	9	7T2798	1	REGULATOR AS					1 KIT-HARDWARE ALTERNATOR (INCLS. SCREW AS & BOLT AS)
	10	7T2797	1	COVER					1 KIT-HARDWARE ALTERNATOR (INCLS. PLATE AS PLATE BOLT AS WASHERS SPACERS & RING)
	11	7T2796	1	HOLDER AS					
	12	7T2795	1	FRAME AS					
	13	7T2801	1	CONDENSER					
	14	9L6770	1	CAP					
	15	7T2802	1	WIRE AS					
	16	7X0447	1	NUT					
		2H3920	1	LOCKWASHER			7T2799	1	
		6V8185	1	NUT			7T2803	1	
		1H3244	1	LOCKWASHER			7T2816	1	

B-595417 EP

1405

9G4574 ALTERNATOR GP
Part Of 6N9294 Alternator

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9N5012	1	PULLEY-AUXILIARY DRIVE		24	9L7311	1	PULLEY-ALTERNATOR
	2	OS1594	2	BOLT		25	9N5024	1	SUPPORT
	3	2B2695	4	BOLT	C	26	3P1823	1	ADAPTER-PIPE
	4	4S9191	4	WASHER					
	5	9L6130	1	V-BELT SET (2 BELTS)					
	6	1A1460	1	BOLT					
	7	1D4719	1	NUT-FULL					
	7	2M0849	4	WASHER					
	8	6L5874	1	ROD-PULLEY ADJUSTMENT					
	9	1B4205	2	NUT					
	10	9N2166	1	BLOCK					
	11	1B9575	1	BOLT					
	12	9M1974	2	WASHER-HARD					
	13	6N0012	1	HARNES AS					
	14	9M8406	1	CLIP					
		OS1617	1	BOLT					
RY	15	9G6081	1	ALTERNATOR GP-CHARGING					
	16	3H5368	4	BOLT					
	17	9N2173	1	BRACKET					
	18	1P3890	1	SPACER					
	19	8S9191	1	BOLT					
		1D4717	1	NUT					
	20	5M2894	5	WASHER					
CJ	21	7J8611	1	ELBOW					
CJ	22	2N1931	1	ELBOW-PIPE					
CJ	23	2L3402	1	SWITCH AS (PRESSURE)					

J-USE WITHOUT SAFETY PANEL
 C-CHANGE FROM PREVIOUS TYPE
 R-REMG PART MAY BE AVAILABLE

Y-SEPARATE ILLUSTRATION

B-337587 EP

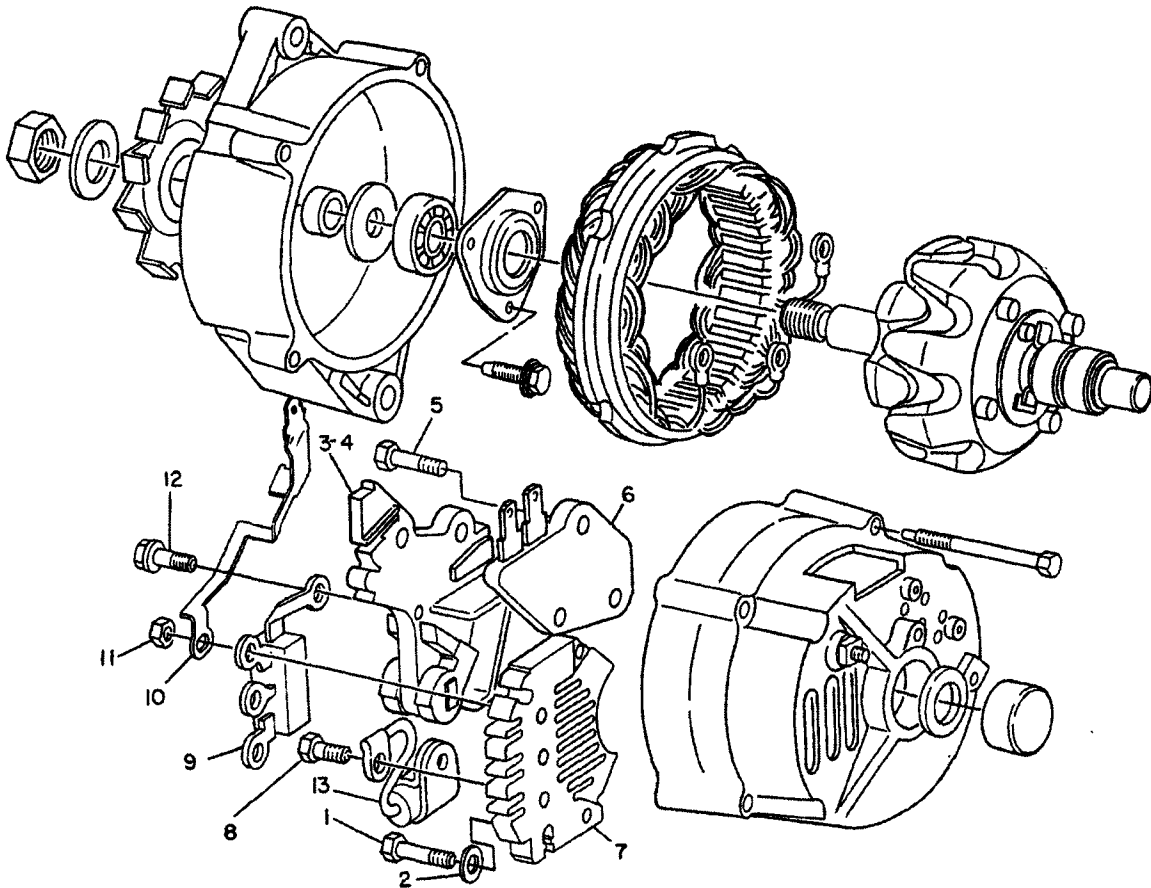
1405

9N0147 ALTERNATOR GP

24 Volt, 40 Ampere. Type 2. Replaced By 7C5796-Page 94B.01
 9G6081-Page 100

For Use With Air Compressor & Requires Electrical Shut-Off
 An Attachment

STARTING AND ELECTRICAL SYSTEM



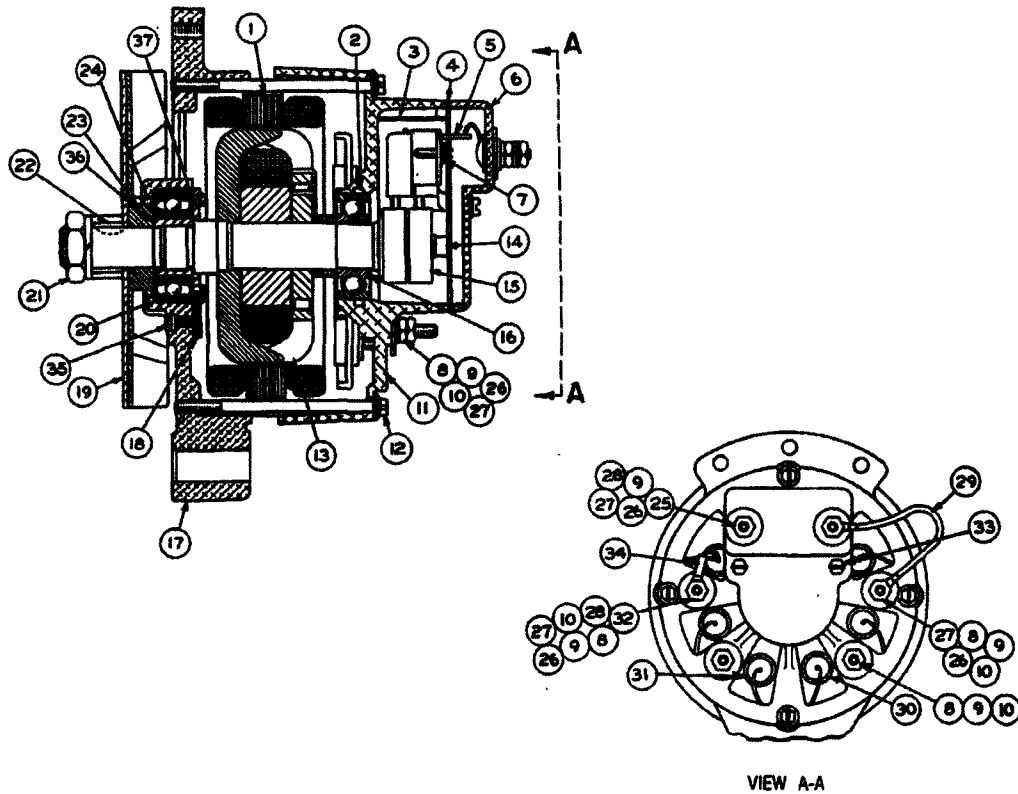
NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	6V7345	1	SCREW-MACHINE					
	2	8F1326	1	WASHER					
	3	7N6692	1	HOLDER AS-BRUSH					
	4	7N9657	1	SCREW-MACHINE					
	5	7N7123	1	SCREW					
	6	358228	1	REGULATOR					
	7	6T1394	1	RECTIFIER					
	8	6N6117	2	SCREW					
	9	9N1202	1	DIODE AS					
	10	6T1393	1	TERMINAL-RELAY					
	11	4B2043	3	NUT					
	12	3N3718	2	SCREW AS					
	13	3N3745	1	CAPACITOR AS					
		9G4354	1	THE FOLLOWING REPAIR KIT IS AVAILABLE: KIT-BATTERY TERMINAL (INCLUDES STUD, INSULATOR & NUT ASSEMS.)					

311714 EP

1405

6T1194 ALTERNATOR GP-PART 2 OF 2
 12 Volt, 60 Ampere. Replaced By 8T9700-Page 97.03
 Part Of 4N7231 & 4N7256 Alternators
 An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
C	1	8L9659	1	STATOR AS		24	8L9663	1	SEAL-GREASE
	2	9G5208	1	RETAINER-REAR BEARING		25	8L9375	2	BOLT-CARRIAGE
	3	8L9348	1	INSULATOR-SHUNT			8L9377	2	WASHER
	4	8L9362	1	GASKET-COVER		26	7H2079	7	LOCKWASHER
	5	2N6399	1	BRUSH AS		27	4B2047	7	NUT
	6	8L9361	1	COVER-HOUSING		28	8L9347	3	INSULATOR
	7	8L9381	2	SCREW-TAPPING		29	8L9358	1	CABLE AS
	8	8L9380	4	NUT & LOCK AS		30	8L9365	1	DIODE AS (3 DIODES-NEG)
	9	8L9352	10	WASHER		31	8L9363	1	DIODE AS (3 DIODES-POS)
	10	3N1204	4	INSULATOR-SLEEVE		32	8L9359	1	BOLT-CARRIAGE
	11	8L9368	1	HOUSING-REAR		33	8L9376	2	SCREW-TAPPING
	12	2N7367	4	BOLT		34	8L9709	1	CABLE AS
	13	3N1202	1	ROTOR AS		35	5L7200	3	SCREW
	14	3K6168	1	BOLT			3B4501	3	LOCKWASHER
C				LOCKWASHER	36	8L9654	1	SLEEVE-SHAFT	
				WASHER	37	8L9656	1	WASHER-BEARING SEAL	
	15	3N1200	1	RING AS-SLIP					
	16	5P6836	1	BEARING					
	17	8L9655	1	HOUSING-FRONT					
	18	8L9657	1	RETAINER-FRONT BEARING					
	19	8L9661	1	FAN					
	20	1S7056	1	BALL BEARING					
	21	8L9357	1	NUT-HEX					
	22	5D3184	1	LOCKWASHER					
23	1B8704	1	KEY-WOODRUFF						
	1N9087	1	SPACER-FAN						

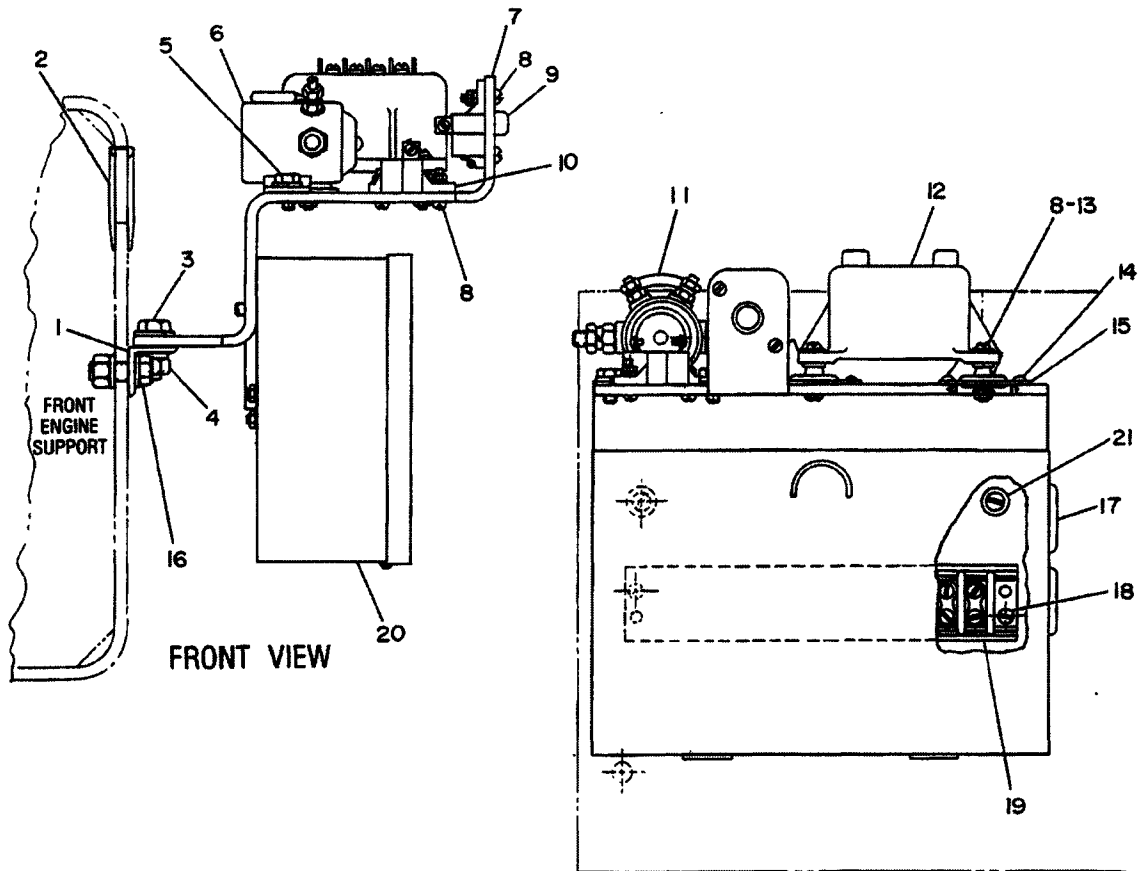
C-CHANGE FROM PREVIOUS TYPE

B-230251 EP

1405

2N6398 ALTERNATOR ASSEMBLY
 24-Volt, 35 Ampere
 Part Of 4N9313 Alternator
 An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
BD	1	4W9349	1	BRACKET	14	4S8264	8	RIVET-POP	
	2	5P5816	1	SEAL	15	8N9300	4	MOUNT AS (RESILIENT)	
	3	2B2695	2	BOLT	16	OS1594	2	BOLT	
		5P4116	2	WASHER		5M2894	4	WASHER	
	4	1D4716	2	NUT-FULL		1D4717	2	NUT	
		9M1974	2	WASHER-HARD	17	1H4318	2	GROMMET	
	5	OS1614	2	BOLT	18	9B7155	2	SCREW-MACHINE	
		5P0537	2	WASHER		3B4502	2	LOCKWASHER	
	6	9F3099	1	SWITCH AS (MAGNETIC)		4B2047	2	NUT	
		4B2043	2	NUT (SMALL)	19	4D1260	1	STRIP-TERMINAL	
		4F2294	2	NUT-JAM (LARGE)			21.4CM(8.44IN)LG		
	7	2W0970	1	BRACKET		5L8546	1	STRIP-MARKER	
	8	3K8106	8	SCREW-MACHINE			22.4CM(8.84IN)LG		
	9	6T3644	1	CIRCUIT BREAKER AS (20 AMP)	20	8L4236	1	BOX-CONNECTION	
		6V8376	2	SCREW-MACHINE	21	4B1320	2	SCREW-MACHINE	
		9B7233	2	LOCKWASHER		4B4276	2	WASHER	
	10	1N9770	1	CIRCUIT BREAKER AS (12.5 AMP)					
		6V8376	2	SCREW-MACHINE					
		9B7233	2	LOCKWASHER					
	11	1W9070	1	DIODE AS					
		7N9194	2	TERMINAL					
12	4W8471	1	RELAY-TIME DELAY						
13	4B4863	12	WASHER						
	4B2043	4	NUT						

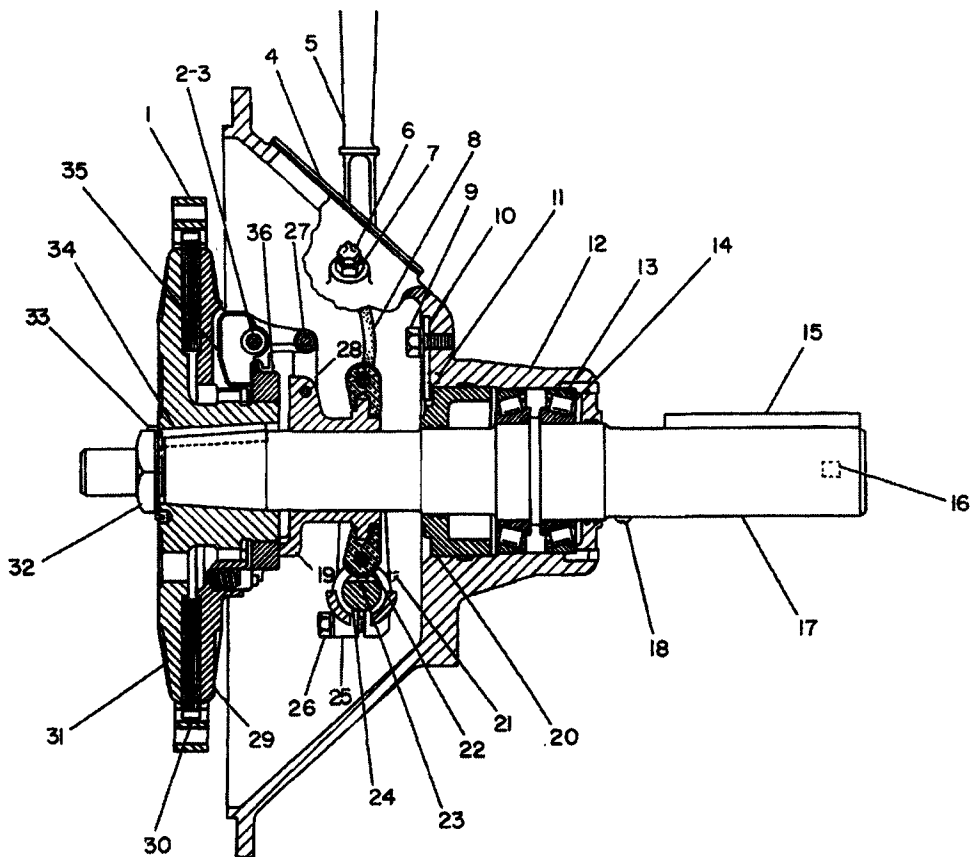
B-USE AS REQUIRED
D-ORDER BY THE METER

B-337737 EP

7426

7W1223 JUNCTION BOX & CONTACTOR GP
For Use With 3208 Fire Pump Engine
An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	4B4805	1	RING		21	8B7121	2	FITTING-HYDRAULIC
	2	6L3966	3	PIN		22	4B4715	1	COLLAR AS
		6L3964	3	COTTER			0L0639	2	BOLT
	3	5D2751	6	WASHER-SPRING			2L6267	2	LOCKNUT
	4	4L2849	1	PLATE-PTO INFORMATION (INSTRUCTION)			4B4722	2	SHIM
		1L6931	2	SCREW AS-MACHINE		23	6L5151	2	KEY-WOODRUFF
	5	4B4787	1	LEVER AS		24	4B4756	1	SHAFT-GOVERNOR CONTROL
		0S1587	1	BOLT		25	4B4725	1	YOKE
	6	3B8489	2	FITTING-GREASE		26	0S1591	2	BOLT
	7	9S1354	1	NUT			9F5644	2	LOCKWASHER
		6F0253	1	LOCKWASHER		27	6L3965	6	PIN
	8	4B4775	1	HOSE AS			6L3960	6	COTTER
	9	1A9136	1	BOLT		28	5B5251	6	LINK
		3F9556	1	LOCKWASHER		29	3N7953	1	PLATE AS
	10	7L0116	1	LOCK		30	3N7952	1	PLATE-DRIVE
	11	5B6159	1	SETScrew-POINT		31	2L8256	1	PLATE-HUB & BACK
	12	5L4202	1	HOUSING-CLUTCH		32	2L8257	1	NUT-HUB
	13	6B3224	2	CUP-BEARING		33	4B4771	1	LOCK
	14	4B7255	2	CONE-BEARING		34	1L9087	1	KEY
	15	4L4866	1	KEY-SQUARE		35	2L8259	3	LEVER
	16	7F9504	1	PLUG-PIPE		36	2L8262	1	RING-ADJUSTMENT
	17	1L9088	1	SHAFT-CLUTCH			5N3789	1	THE FOLLOWING REPAIR KIT IS AVAILABLE: CLUTCH AS (INCL LEVERS, PINS, LINK, COLLAR AS, SLEEVE, RINGS & PLATES)
	18	2L6010	1	PLUG-PIPE	C				
	19	2L8260	1	SLEEVE-SLIDING					
	20	2N9363	1	RETAINER-BEARING					

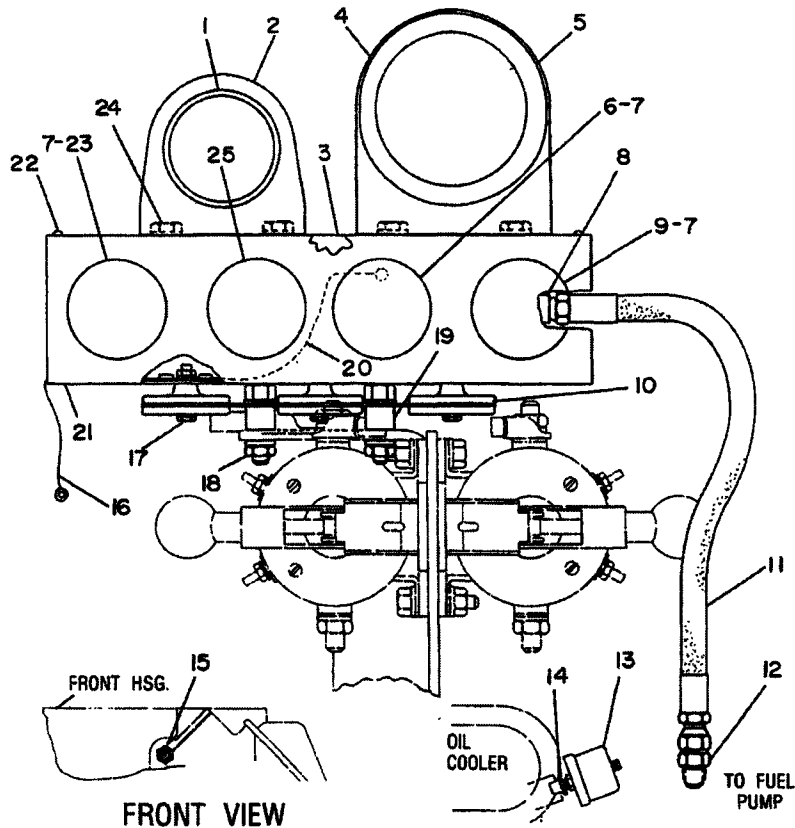
C-CHANGE FROM PREVIOUS TYPE

B-221488 EP

3055

3N7840 CLUTCH GP-POWER TAKE-OFF
 Replaced By 4W2650-Page 104A.01
 Part Of 5N4657 Power Take Off-Rear
 An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	3T8323	1	METER AS-SERVICE		19	2Y5575	2	SPACER
		9G6762	1	METER-SERVICE		20	6N0359	1	WIRE AS
		9W1413	1	WIRE AS		21	2N0816	1	PANEL-INSTRUMENT
	2	6L2845	1	BRACKET-MOUNTING		22	5S7348	2	SCREW-MACHINE
	3	2N0821	1	COVER-PANEL			4B2041	2	NUT (6-32 THD)
	4	7L4536	1	BRACKET-TACHOMETER			6V9499	2	WASHER-HARD
Y	5	5N9035	1	TACHOMETER GP-ELECTRIC		23	1W7143	1	INDICATOR-PRESSURE
	6	5L7444	1	INDICATOR		24	2H3755	4	BOLT (5/16-18X.625IN)
	7	6V3507	3	SEAL-RECTANGULAR			1D4716	4	NUT-FULL (5/16-18 THD)
		2N0794	3	RETAINER			9M1974	8	WASHER-HARD (2MM THK)
	8	3B6769	1	ELBOW		25	1F7307	1	GAUGE AS-AMMETER
	9	2W3687	1	INDICATOR (FUEL)			6V3507	1	SEAL-RECTANGULAR
I	10	2N5848	1	BASE AS					
	11	3N4622	1	HOSE AS					
	12	3O7941	1	ELBOW (7/16-20 STR THD)					THE FOLLOWING REPAIR KITS ARE AVAILABLE:
		3J7354	1	SEAL-O-RING (8.92MM ID)					
	13	3O2010	1	SENDER AS (PRESSURE)					
	14	4M5317	1	BUSHING-TERMINAL					
	15	5L7442	1	SENDING UNIT			9W1491		KIT-SERVICE METER (INCLUDES METER, FILMS, AND WIRE AS)
	16	6N0360	1	WIRE AS					
	17	9F6580	3	BOLT (1/4-20X1.125IN)					
		1B4330	3	NUT (1/4-20 THD)					
		5P0537	6	WASHER (2MM THK)			9W1490		KIT-SERVICE METER (INCLUDES METER AND FILM)
	18	OS1591	2	BOLT (3/8-16X1.5IN)					
		1D4717	2	NUT (3/8-16 THD)					
		5M2894	4	WASHER (2.5MM THK)					

I-SEE HOSE FABRICATION GUIDE
Y-SEPARATE ILLUSTRATION

B- 707077 P

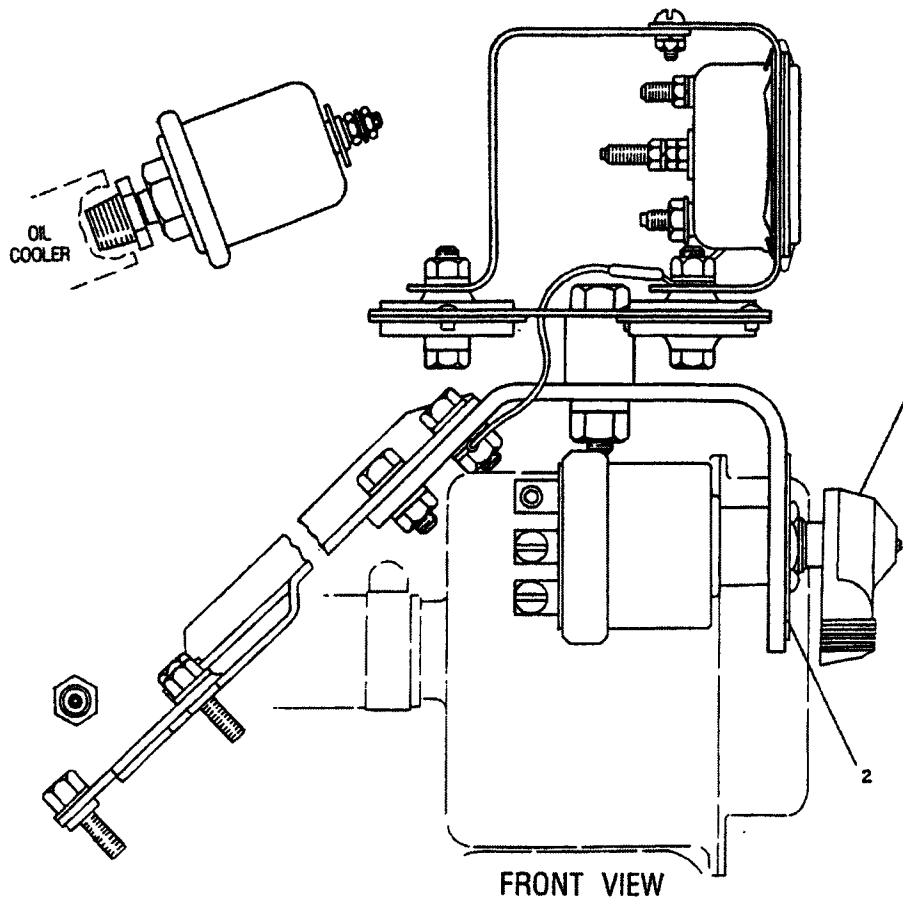
7451

4W9540 PANEL GP-INSTRUMENT

24 Volt

5N9035-Page 109.01. For Use With Fire Pump Engines
An Attachment

STARTING AND ELECTRICAL SYSTEM



NOTE	REF NO	PART NUMBER	QTY	PART NAME	NOTE	REF NO	PART NUMBER	QTY	PART NAME
CY	1	9W1077	1	SWITCH AS-START					J-NO. 8 SCREW
	2	8J4785	1	PLATE-INSTRUCTION					H-NO. 10 SCREW
F		6N0349	1	WIRING GP-INSTRUMENT					L-12.7MM(.5IN)SCREW
BD		5P5621		WIRE (12 GA)					V-7.87MM(.31IN)SCREW
BD		5P5622		WIRE (10 GA)					N-6.35MM(.25IN)SCREW
BD		5P5675		WIRE (6 GA)					P-12 GA WIRE
BD		5P5624		WIRE (14 GA)					X-10 GA WIRE
PJ		2L8065	1	TERMINAL					S-6 GA WIRE
PH		2L8066	4	TERMINAL					T-14 GA WIRE
L		2L8071	1	TERMINAL					
SL		2L8054	3	TERMINAL					
SH		2L8049	4	TERMINAL					
SV		2L8051	2	TERMINAL					
SN		2L8050	1	TERMINAL					
TH		2L8076	9	TERMINAL-CRIMP					
TJ		2L8075	4	TERMINAL					
TL		2L8081	1	TERMINAL					
		6L3483	2	COVER-TERMINAL					
		98708	2	BOOT-TERMINAL					
		3S2093	10	STRAP-CABLE					
		8L8413	40	STRAP-CABLE					
		1H5166	3	CLIP					
		2L9724	3	CLIP-WIRE					
				USED WITH:					

B-USE AS REQUIRED
 C-CHANGE FROM PREVIOUS TYPE
 D-ORDER BY THE METER

F-NOT SHOWN
 Y-SEPARATE ILLUSTRATION

B-404253 EP

7451

2W1162 PANEL GP-INSTRUMENT-PART 2 OF 2
 12 Volt. R.H. Or L.H. Mounted. Type 2
 9W1077-Page 113G
 An Attachment

STARTING AND ELECTRICAL SYSTEM

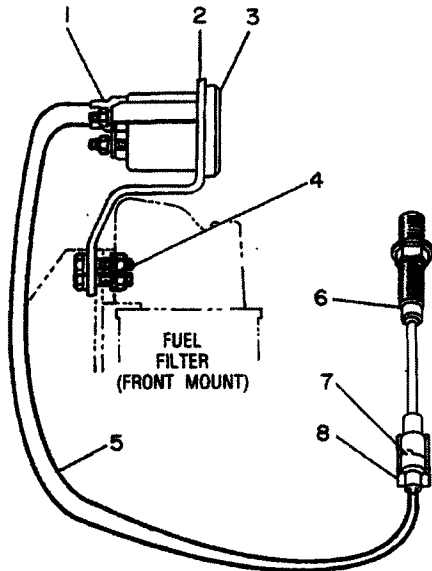
2 2L8065 TERMINAL (RELAY SWITCH "C" & "B")
1 2L8066 TERMINAL (START SWITCH "1")
1 2L8065 TERMINAL (FUEL SOLENOID)
1.6 M 5P5622 WIRE-10 GAUGE
1 2L8066 TERMINAL (START SWITCH "B")
1 2L8071 TERMINAL (START MOTOR SOLENOID)
1.6 M 5P5622 WIRE-10 GAUGE
1 2L8066 TERMINAL (START SWITCH "5")
1 2L8066 TERMINAL (START MOTOR SOLENOID)
1.6 M 5P5675 WIRE-6 GAUGE
1 2L8054 TERMINAL (START MOTOR SOLENOID)
1 2L8049 TERMINAL (AMMETER)
.6 M 5P5675 WIRE-6 GAUGE
1 2L8054 TERMINAL (START MOTOR)
1 2L8051 TERMINAL (PAN RAIL)
1 2L8054 TERMINAL (ALTERNATOR MOUNTING BRACKET)
1 2L8049 TERMINAL (ALTERNATOR)
1 2L8051 TERMINAL (DELCO 10 SI)
1.6 M 5P5675 WIRE-6 GAUGE
1 2L8049 TERMINAL (ALTERNATOR OUTPUT)
1 2L8049 TERMINAL (AMMETER)
1 2L8050 TERMINAL
2 6L3483 TERMINAL-COVER
2.8 M 5P5624 WIRE-14 GAUGE
2 2L8076 TERMINAL-SENDER
2 2L8076 TERMINAL-GAUGE
.6 M 6A3626 WIRE-14 GAUGE
.6 M 5P5624 WIRE-14 GAUGE
1 2L8074 TERMINAL (WATER TEMPERATURE SWITCH)
1 2L8081 TERMINAL (LIFTING EYE BOLT)
1 2L8075 TERMINAL (OIL PRESSURE SWITCH)
1 2L8078 TERMINAL (OIL COOLER COVER)
40 8L8413 STRAP-CABLE
10 3S2093 STRAP-CABLE
3 1H5166 CLIP-WIRE
3 2L9724 CLIP-WIRE
3.6 M 5P5624 WIRE-14 GAUGE
1 2L8074 TERMINAL (WATER TEMPERATURE SWITCH)
1 2L8075 TERMINAL (OIL PRESSURE SWITCH)
3 2L8076 TERMINAL (GAUGE)
2 2L8075 TERMINAL (RELAY SWITCH "B" & "S")
1 2L8075 TERMINAL (ALTERNATOR HARNESS TO RELAY C)
1 2L8076 TERMINAL (ALTERNATOR HARNESS TO ALT. NEG)
1 2L8081 TERMINAL (HARNESS TO START SOLENOID)
2 98708 BOOT

108475 P

1408

6N0350 WIRING GP-INSTRUMENT
Part Of 1W5918, 2W1163 & 2W2856 Panels-Instrument

STARTING AND ELECTRICAL SYSTEM



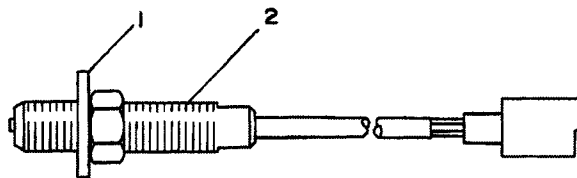
NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	5P4571	2	TERMINAL
	2	6N0223	1	BRACKET
	3	6T7337	1	METER-SERVICE
	4	1B7182	2	BOLT
		1D4716	2	NUT-FULL
		9M1974	4	WASHER-HARD
BD	5	5P5624		WIRE (14 GAUGE)
CY	6	7W3354	1	MAGNETIC PICKUP GP
	7	7N9737	1	HOUSING-PLUG
		7N7779	1	SOCKET
		7N7780	1	PIN-CONNECTOR
	8	9G9151	1	CLIP

B-USE AS REQUIRED
 C-CHANGE FROM PREVIOUS TYPE
 D-ORDER BY THE METER
 Y-SEPARATE ILLUSTRATION

B-346896 EP

7480

7W4335 METER GP-HOUR
 S/N 3Z3980-Up
 7W3354-Page 116.01
 An Attachment



NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	5P8248	1	WASHER-HARD
Y	2	2W8918	1	MAGNETIC PICKUP AS

Y-SEPARATE ILLUSTRATION

B-528498 EP

7462

7W3354 MAGNETIC PICKUP GP
 2W8918-Page 116.02
 Part Of 7W4335 Meter-Hour & 7W8515 Tachometer-Electric
 Also An Attachment For Fire Pump Engines

STARTING AND ELECTRICAL SYSTEM

NOTE	REF NO	PART NUMBER	QTY	PART NAME
C	1	9L9191	1	ADAPTER
	2	OS1588	12	BOLT
	3	4N8547	1	FLYWHEEL AS
	4	9L8113	1	GEAR-FLYWHEEL RING (134 TEETH)
	5	9L7816	10	BOLT

C-CHANGE FROM PREVIOUS TYPE

B-221491 EP

1156

4N849 MOUNTING GP-TORQUE CONVERTER

Replaced By 4W7596-Page 119.01
For Use With SAE No.2 Flywheel Housing
An Attachment

NOTE	REF NO	PART NUMBER	QTY	PART NAME
	1	9L7868	1	RING
	2	6V6955	10	BOLT-12 POINT HEAD
	3	1D2328	1	KEY
	4	5N1929	1	SHAFT-STUB

A-306985 EP

1237

5N1930 SHAFT GP-STUB

Rear
For Use With Fire Pump Engines
An Attachment

PART NUMBER INDEX

Number	Page	Number	Page	Number	Page	Number	Page
	67.21		56A		92B		70D.02
	67.26		73D.06		93		71.01
	67.31		73D.13		93A		72
	103.04		74H		93B		72A
	111.02		76	1H2629 ..	73D.08		72A.01
	113E.02		81		74J.02		81.06
	116.00.01		83		81	1K2673	104B
	116.00.02		90		81.02		104D
	116.01		90A		81.03.01	1K2811	104B
1D4717	32		90A.01		81.03.05		104D
	33B		90B		81.03.07	1K3621	104D
	33C		91	1H3244	89B.04.05	1K4649	32.02
	36B		91.01		89B.04.07		49.02
	37A		94		89B.04.10	1K6730	106
	38.03.03		94A		89B.08	1L3583	38A
	38.03.06		94B		94B.02	1L4762	38.04
	38.03.09		95		97.03	1L4775	40
	38A		95A		97.04.02		40A
	38B		95B		97.04.04	1L4789	81
	40B		97.04	1H3338	104D		89B.04.04
	40B.01		97.04.01	1H4318	103.04	1L6561	113F
	40B.04		102	1H5166	73D.04.02	1L6931 ..	104A.01
	43		103		108		105
	43A		119.01		111		107
	44.02	1D4720	102		113B	1L9048	89B.04.05
	49		103		113B.02		89B.07
	58B	1D5117	81		113H		97.06
	71.01	1D5118	102	1H5514	60	1L9087 ..	104A.01
	90		103	1H8128 ..	52D.01		105
	90A	1F0073	84		58B.01	1L9088	105
	90A.01	1F5730	106	1J9671	18.02	1L9112	116A
	90B	1F6296	38.03.01		43.01	1L9899	73D.04.02
	91		38.03.04		61B.12	1M6119	75.01
	91.01	1F7307	111.02		62		75.01.01
	94		111.05		62A		75.01.02
	94A		113E.02		62B		75.02
	94B	1F7958	26		62B.01		75.02.01
	95		26A		62B.02		75.02.02
	95A		38.04		62B.03	1M6120	75.01
	95B		103.01		62B.04		75.01.01
	97.04	1F7960	92B		62B.05		75.01.02
	97.04.01		93B		62B.06		75.02
	103.03	1H1023	68		62B.07		75.02.01
	103.04		69A		62B.08		75.02.02
	110		69C		62B.09	1M9968	73D.04.04
	111.01		73D.04.04		62B.10		73D.10
	111.02		73D.10		62B.11		74G.01
	111.03		74D		62B.12		78
	111.04		74G.01		62B.13		81
	112		78		67.12		82
	113A		81		67.19	1M9971	73D.04.04
	113C		81.02		67.19.01		73D.10
	113E		81.03.05		70		74D
	113E.01		81.03.07		70.01		74G.01
	113E.02		82		70.02		78
1D4718	97.05	1H2387	92		70A		81
1D4719	40B		92A		70B		81.02

PART NUMBER INDEX

Number	Page	Number	Page	Number	Page	Number	Page
	53A		73D.13A		73D.08	3T4700	73D.04.04
	53B		74H		73D.09		81.02
358664	.. 40B.01		81.03.02		73D.12		81.03.05
358888	..... 73D	3T0865	.. 73D.06		74C		81.03.07
3T0842	.. 73D.06		73D.06.01		74F	3T4701	73D.04.03
	73D.06.01		81.03.02		74G.03		73D.09
	73D.13	3T0867	.. 73D.06		74G.06		74B
	73D.13A		73D.06.01		74J.02		74F
	74H		81.03.02		74L		81.02
3T0844	.. 73D.06	3T0868	.. 73D.06		81.02		81.03.05
	73D.06.01	3T1885	89B.04.02		81.03.01		81.03.07
	81.03.02		89B.04.08		81.03.05	3T4702	..... 74D
3T0847	.. 73D.06	3T1886	89B.04.02		81.03.07		74G.01
	73D.06.01		89B.04.08	3T3423	73D.04.03	3T4703	.... 81.02
	73D.13	3T1887	89B.04.02		73D.04.04		81.03.05
	73D.13A		89B.04.08		73D.09		81.03.07
	74H		89B.07		73D.10	3T4704	.... 81.02
	81.03.02	3T1888	89B.04.01		74B		81.03.05
3T0848	.. 73D.06		89B.04.03		74D		81.04
	73D.13		89B.04.04		74F	3T4705	73D.04.03
	74H	3T2161	.... 109.01		74G.01		73D.09
3T0849	.. 73D.06		116.02		81.02		74C
	73D.06.01	3T2652	..... 75		81.03.05		74G
	73D.13		81.01		81.03.07		81.02
	73D.13A		81.02		83		81.03.05
	74H		81.02.01	3T3424	73D.04.03		81.03.07
	81.03.02		81.02.02		73D.04.04	3T4706	73D.04.03
3T0850	.. 73D.06	3T2655	73D.04.03		73D.09		73D.09
	73D.06.01		73D.04.04		73D.10		74C
	73D.13		73D.05		74B		74G
	73D.13A		73D.15		74D		81.02
	74H	3T2657	..... 74A		74F		81.03.05
	81.03.02		74B		74G.01		81.03.07
3T0851	.. 73D.06		74C		81.02	3T4709	73D.04.03
	73D.13		74D		81.03.05		73D.09
	74H		74E		81.03.07		74C
3T0853	.. 73D.06	3T2768	.. 73D.06		83		74G
	73D.13		73D.06.01	3T3433	73D.04.04		81.02
	74H		73D.13A		73D.10		81.03.05
3T0858	.. 73D.06		81.03.02		74D		81.03.07
	73D.06.01	3T2769	.. 73D.06		74G.01	3T4710	73D.04.03
	73D.13		73D.06.01		81.02		73D.09
	73D.13A		73D.13A		81.03.05		74C
	74H		81.03.02		81.03.07		74G
	81.03.02	3T3106	73D.04.03	3T3434	.. 73D.08		81.02
3T0862	.. 73D.06		73D.09		73D.12		81.03.05
	73D.06.01		74C		74G.03		81.03.07
	81.03.02		74F		74G.06	3T4711	73D.04.03
3T0863	.. 73D.06		81.02		74J.02		73D.09
	73D.06.01		81.03.05		74L		74C
	73D.13		81.03.07		81.03.01		74G
	73D.13A	3T3419	.. 73D.10	3T3453	.. 89A.02		81.02
	74H		74D	3T3976	..... 72A		81.03.05
	81.03.02		74G.01	3T4060	.... 109.01		81.03.07
3T0864	.. 73D.06		83		116.02	3T4712	73D.04.03
	73D.06.01	3T3421	.... 81.04	3T4696	.. 73D.01		73D.09
	73D.13	3T3422	73D.04.03		73D.04		74C

PART NUMBER INDEX

Number	Page	Number	Page	Number	Page	Number	Page
	44		111.01		50C	5N6441	3.05
	44.02		111.02		51.04		89B.04
	46		111.03		103.03	5N8007	73C
	47		111.04	5M6509	62F		73D
	48		112		62L	5N8185	32.02
	49		113		62M.04	5N8194	32.02
	50		113A		63		33D
	50A		113B		67.04	5N8266	26E
	50B		113B.01		67.09	5N8353	40B.01
	50C		113C		67.16	5N8566	37B
	50D		113D		67.23	5N8567	37B
	50E		113D.01		67.24.04	5N8568	37B
	50F		113D.02		67.28	5N8597	89B.03
	51.01		113E		67.29.04	5N8857	89B.03
	51.02		113E.01		67.33		89B.03.01
	51.03		113E.02		109	5N9035	109.01
	51.04		116B	5M7516	59.02		111.02
	51.05		117.01		59A		111.03
	51.06		118	5M9204	75.01		113E.02
	51.07	5M3034	73D.04.04		75.01.01	5N9065	73D.01
	52B		73D.10		75.01.02		73D.02
	52D		74D		75.02		73D.03
	52D.01.01		74G.01		75.02.01	5N9066	73D.01
	52D.01.03A		81.02		75.02.02		73D.03
	54		81.03.05	5M9205	75.01	5N9067	73D.01
	58B		81.03.07		75.01.01		73D.02
	59B	5M3062	38.03.06.3		75.01.02		73D.03
	70D.02		38.03.09		75.02	5N9068	73D.01
	71		49.02		75.02.01		73D.03
	71.01		119.02		75.02.02	5N9069	73D.02
	90	5M5693	59B	5N0599	43B		73D.03
	90A	5M6213	20	5N1929	119	5N9070	73D.01
	90A.01		21A	5N1930	11Q		73D.03
	90A.02		21B		119	5N9071	73D.03
	90B		21E	5N3340	38.04	5N9072	73D.01
	91		21G	5N3789	104A.01		73D.02
	91.01		21I		105		73D.03
	91.02		36B	5N4657	104	5N9073	73D.01
	92B		37A	5N4737	56A		73D.03
	93B		51.01	5N4806	85.01	5N9117	73D.02
	94		51.02		103.05		73D.03
	94A		51.04		103.06	5N9176	11Q
	94B		58A.02	5N4821	85.01		89B.03
	94B.01		70D.01		103.05	5N9222	89B.02
	95		73A	5N4858	11Q		89B.02.02
	95A	5M6214	20	5N4988	89B.01	5N9315	104A.01
	95B		25		89B.02.02	5N9351	111.01
	97.04		25.01	5N5159	89B.01		113F
	97.04.01		36B		89B.02.02	5P0060	109
	102		37A	5N5326	3	5P0524	26B
	103		38.00.01		119.01	5P0537	40B.01
	103.01		38.03.01	5N5739	11Q		49.01
	103.03		38.03.02		37B		58B.02
	103.04		38.03.03	5N5740	11Q		60
	104		38.03.04		37B		70.01
	110		38.03.05	5N6094	104B		70B
	111		50B		104D		72B

PART NUMBER INDEX

Number	Page	Number	Page	Number	Page	Number	Page
	74G.06		74G.06	7W1642	.... 51.02	7W3468	.. 89B.01
	74J.02		74J.02	7W1820	38.03.01		89B.02.02
	74L		74L		38.03.04	7W3469	.. 89B.01
	81.03.01		81.03.01	7W1889	..... 26A		89B.02.02
7T3269	.. 73D.08	7T3973	.. 73D.08	7W1890	.... 38.01	7W3470	.. 89B.01
	73D.12		73D.12		38.02		89B.02.02
	74G.03		74G.03		38.03	7W3472	.. 89B.01
	74G.06		74J.02		38.03.01		89B.02.02
	74J.02	7T3974	.. 73D.08		38.03.02	7W3581	.... 111.03
	74L		73D.12		38.03.04		111.04
	81.03.01		74G.03		38.03.05		111.05
7T3270	.. 73D.08		74G.06		38.03.06.1		111.06
	73D.12		74J.02		38.03.06.2	7W3582	.... 111.05
	74G.03		74L		38.03.07		111.06
	74G.06		81.03.01		38.03.08	7W3583	.... 111.05
	74J.02	7T6365	89B.02.02	7W1998	..... 2		111.06
	74L	7T6416	89B.04.05		3.01	7W3614	..... 11Q
	81.03.01		89B.04.07		3.04		111.03
7T3271	.. 73D.08	7T6417	89B.04.05		3.05		111.04
	73D.12		89B.04.07		3.07	7W3841	52D.01.0B
	74G.03	7T6418	89B.04.05		11B		52D.01.0C
	74G.06		89B.04.07		11D	7W3842	52D.01.0B
	74J.02	7T8579	..... 116		11F		52D.01.0C
	74L	7T8854	81.03.07		11H	7W3999	..... 2
	81.03.01		81.05		11K		3.01
7T3275	.. 73D.12	7T9123	.. 73D.14		11M		3.03
	74G.04		81.04		11M.02		11A
	74G.06		81.05		11N		11C
7T3276	.. 73D.08	7T9254	.. 73D.05		11P.02		11E
	74J.02		73D.09		69E.01		11G
	74L		73D.10		69E.02		11J
	81.03.01	7T9255	..... 74E	7W2059	..... 21B		11M.01
7T3277	.. 73D.08		74F	7W2060	..... 113F		28.00.01
	74J.02		74G	7W2061	..... 114	7W4000	28.00.01
	74L		74G.01		115	7W4151	.. 69C.01
	81.03.01	7T9517	.. 89A.02	7W2731	.... 111.05		69E.01
7T3278	.. 73D.08	7W0407	.... 75.01		111.06	7W4184	..... 23A
	74J.02	7W0408	.... 75.01	7W2743	.. 89B.01		23A.02
	74L	7W0409	.... 75.01	7W2874	52D.01.03A	7W4335	.... 116.01
	81.03.01	7W0410	.... 75.01	7W2875	52D.01.01	7W4873	..... 52F
7T3279	.. 73D.08	7W0451	.... 51.02	7W2878	52D.01.01	7W5183	.... 49.01
	73D.12	7W0718	..... 11L		52D.01.03A	7W5184	.... 49.01
	74G.04		11N		52F	7W5447	..... 2
	74G.06		26B	7W2880	..... 52F		3.01
	74J.02	7W0864	.... 85.01	7W2953	.... 51.02		3.03
	74L		103.05	7W3200	..... 16		3.05
	81.03.01	7W0913	.... 59.01		28B		3.07
7T3451	.. 73D.08	7W0994	..... 11Q		28C		11G
	73D.12		59.01	7W3286	..... 11Q		25.01
	74G.04	7W1155	..... 22C		73D.01	7W5806	..... 11N
	74G.06	7W1171	.. 89B.01		73D.02		38.03.07
	74J.02		89B.02.02		73D.03		38.03.08
	74L	7W1223	.... 103.04		73D.04		38.03.09
	81.03.01	7W1298	..... 11Q	7W3354	..... 11Q	7W5938	..... 57
7T3454	.. 73D.08		40B.01		116.01		57.01
	73D.12	7W1368	.... 119.01		116.02	7W5993	.. 23A.02
	74G.04	7W1641	.... 51.02		116.03	7W6332	.. 72A.01

PART NUMBER INDEX

Number	Page	Number	Page	Number	Page	Number	Page
9N0783	.... 3.06		23B.02		95		117.02
	3.08		24.01		95A	9N3343	..... 38A
	115		24.02		95B		38B
9N0793	..... 43		90B		103.01		41
9N0794	.... 117.01		91	9N2172	.... 91.02		42
9N0855	..... 70		91.01	9N2173	..... 43A		43.01
	70.01		91.02		90		44.01
9N0856	..... 70		95		90A	9N3344	..... 38B
	70.01		95A		90A.01		41
	70A		95B		90A.02		42
	70B		102		90B		44.01
9N0861	..... 68		108		91	9N3345	.... 18.02
	69A	9N1856	.. 23A.02		91.01		38A
	69D		58B.02		94		38B
9N0863	..... 68		59		94A		41
	69A		59.02		94B		42
	69D		59A		95		43.01
9N0869	..... 30	9N2017	..... 4		95A		44.01
	59B		6		95B	9N3346	..... 38A
9N0875	..... 19		8		103.01	9N3352	..... 36B
	19.01		10	9N2281	..... 36B	9N3354	..... 36B
9N0943	89B.04.04		11.01		37		37A
	89B.04.10		14	9N2367	..... 43	9N3388	..... 22D
9N0983	..... 59	9N2036	..... 53	9N2417	..... 70		23A.01
9N0984	..... 59	9N2038	..... 52		70A		57.02
9N1068	.... 86.02	9N2039	..... 52	9N2508	..... 72A		58A
	87	9N2041	..... 53		72A.01		58B
9N1192	..... 96	9N2044	..... 52C		81.06		89B.04.10
	97.01	9N2046	..... 53	9N2538	.... 3.01		89B.05
	100	9N2047	..... 53		3.03		97.04.03
	101B		53B		4	9N3504	..... 19
9N1196	..... 96	9N2050	..... 69		8		19.01
	97.01		69B		10	9N3586	..... 36B
	101B		69C		11B	9N3587	..... 36B
9N1197	..... 96		69C.01		11C		37A
	97.01		69E.01		11F	9N3593	..... 2
	100		69E.02		32		3.01
	101B	9N2061	.... 70.01	9N2834	..... 30		3.03
9N1202	..... 97		70B	9N2837	..... 20		3.05
	97.02	9N2064	..... 69		21D		3.07
	101		69B		21E		5
	101A		69C		21H		7
9N1210	..... 96		69C.01	9N2923	.... 44.04		9
	97.01		69E.01	9N3076	..... 40A		11
	100		69E.02	9N3078	..... 40		11.01
	101B	9N2166	..... 90		40A		11B
9N1330	..... 38A		90A	9N3079	..... 40		11D
9N1347	..... 44		90A.01		40A		11F
	44.03		90A.02	9N3341	..... 38A		11H
9N1374	..... 68		90B		38B		11J
	69A		91	9N3342	..... 38A		11M
	69D		91.01		38B		11M.01
9N1387	.. 40B.04		91.02		41		11N
9N1827	.... 24.01		94		42		11P.01
	24.02		94A		43.01		36B
9N1828	..... 23B		94B		44.01		37
	23B.01		94B.01		117	9N3595	..... 36B

Page 2
INDEX - VENDOR ITEMS
PARTS LISTS AND SERVICE INFORMATION

1402885	Track Assby.
1402886	Roller, Track
1402888	Motor, Hyd
1402982	Hyd. Cyl., Feed Ext.
1403001	Engine, Cat. 3208T
1403376	Differential, Planetary
1403377	Hyd. Motor, Piston
1403568	Flow Regulator
1403862	Hyd. Motor
1403881	Filter, Hyd., Return
1404158	Valve, Subplate Relief
1404773	Valve, Hyd, 4 Way-3 Pos.
1404794	Planetary Gear Drive
1404846	Track Idler Group
1405602	Valve, Hyd., Boom Control
1405606	Pump, Hyd.
1405608	Drive, Pump
1405609	Bevel Gear Drive
1405610	Motor, Hyd.
1405611	Valve, Hyd.
1405629	Valve, Hyd.
1405630	Filter, Air

VENDOR REFERENCE LIST

SCH3500BV

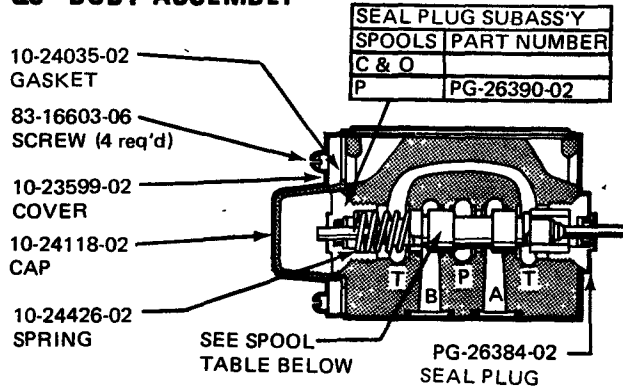
CARRIER PARTS

<u>G.D. No.</u>	<u>Part Description</u>	<u>Vendor</u>	<u>Vendor Part No.</u>
1157312	Washer, Shock Mount	Lord Corporation	J-2049-58
1157322	Filter Mounting Band	Air-Maze Div.	CD1017612-240
1157866	Air & Oil Separator	Technolab, Inc.	DV147-2
1400377	Hydraulic Valve, 4-Way	Vickers, Inc.	DG4V-3-2A-W-H-10
1400378	Subplate, HPPA D01	Vickers, Inc.	DGVM-3-10-S
1400379	Bolt Kit	Vickers, Inc.	BKDG03-698
1400449	Hydraulic Oil Filter	Hyon Corp.	RFP160G10B2.1/5
1400517	Filter Service Indicator	Donaldson	RBX00-2275
1400731	Toggle Switch	Micro Switch	2TL1-2
1401046	Breather Cap	UCC Inc.	UC-SPA-1731-10-5
1402611	Hydraulic Pump	Vickers, Inc.	PVD45CL-1D-21C20V-113
1402657	Brake, Spring Applied	Ausco	30381
1402667	Radiator & Oil Cooler Package	General Thermodynamics	831
1402840	Air Filter	Donaldson Co., Inc.	FVG16-0376
1402841	Engine Muffler	Donaldson Co., Inc.	MOM12-0186
1402844	Air Reducer Fitting	Huntington Rubber Co.	90HL55R40
1402845	Air Reducer Fitting	Donaldson Co., Inc.	P10-5609
1402846	Air Reducer Fitting	Huntington Rubber Co.	90HL70R55
1402847	Fan, Engine Cooling	Crowley Co.	30-12-4ZL-PAG-45
1402853	Drive Coupling, Flexible	Lovejoy, Inc.	C-226
1402885	Track Chain Assembly	Caterpillar Tractor	D-4 Cat.-Type Sealed Link Asm.
1402886	Track Roller	Rotek-Berco	38 Total Links (incl. 1 Master)
1402888	Hydraulic Motor	Vickers, Inc.	PC377A
1402899	Check Valve, Hydraulic	Fluid Controls, Inc.	MFD35-1-20
1403001	Diesel Engine, 3208T	Caterpillar Tractor Co.	3C15-8-15 9E1877

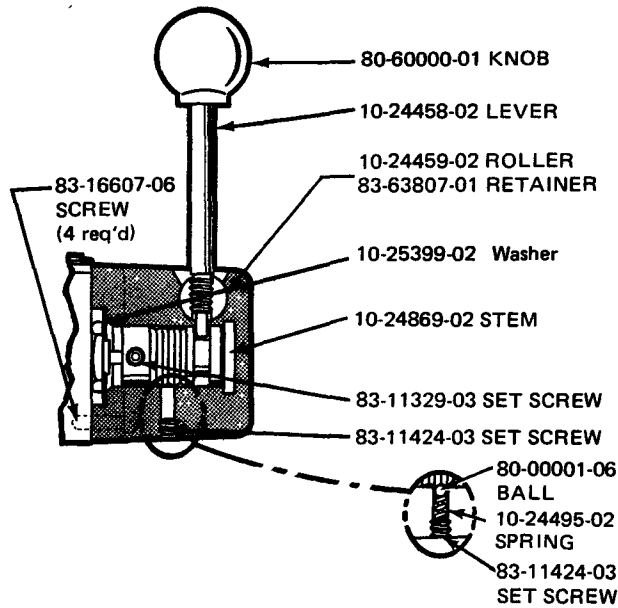
SPECIFICATION INFORMATION

DOUBLE A
FEED OVERRIDE VALVE #QJR-005-P-10AZ

QJ* BODY ASSEMBLY



TYPE	MODEL	PART NUMBER	SYMBOL
P	QJ*	PG-23900-15	



SPECIFICATION INFORMATION

VICKERS DG4V-3-2A-W-H-10 DIRECTIONAL VALVE

SPOOL KIT ALSO INCLUDES PARTS PREFIXED WITH EITHER ▲ OR ■

INCLUDED IN	
SPOOL SPOOL DIAGRAM	
TYPE KIT PLATE	
2A	942358 705044
2A(LH)	421787

INCLUDED IN COIL KIT (INCLUDES COILS/S/A)

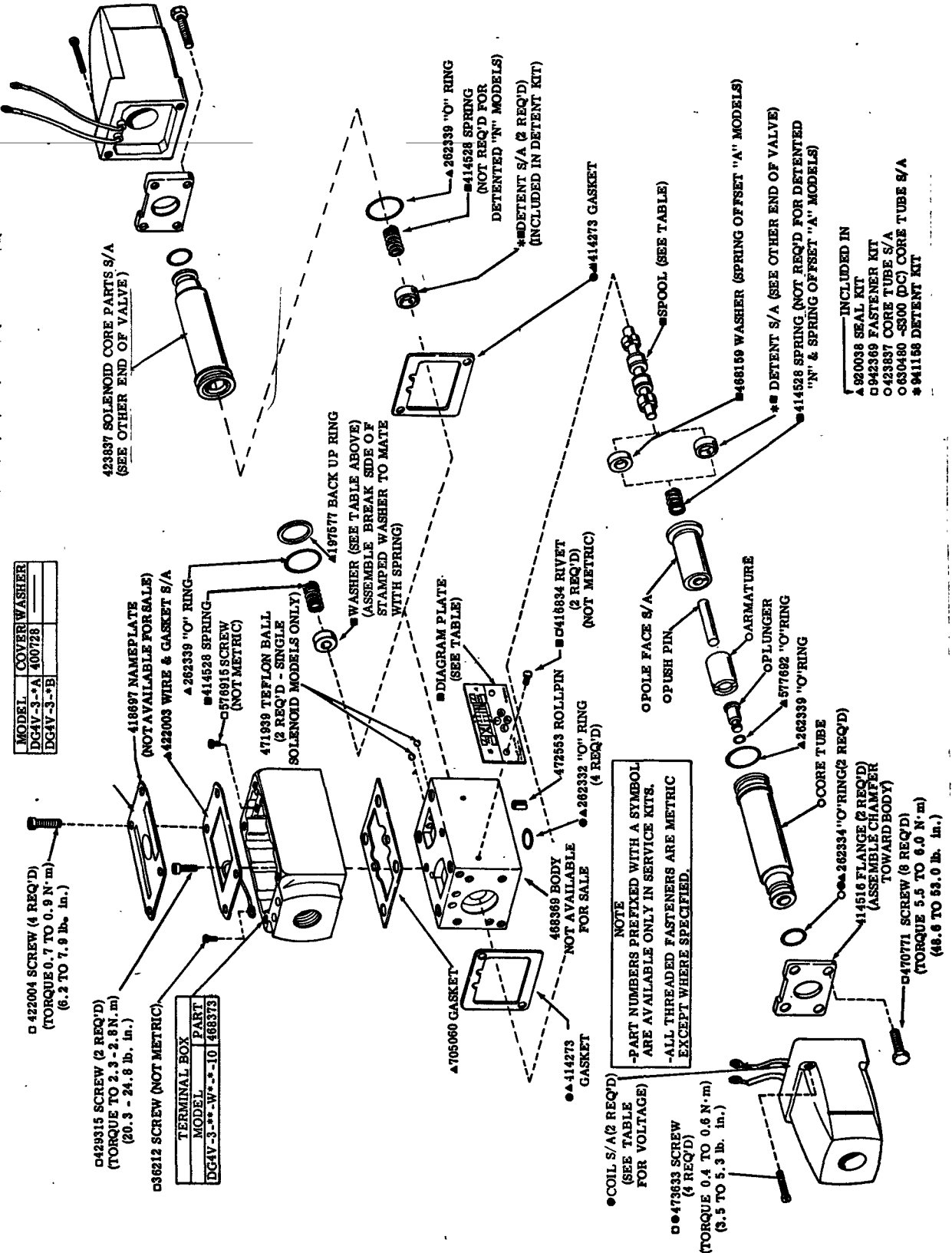
COIL S/A	AC VOLT Hz	DC VOLT CODE
468483	942390	H

COVER WASHER

MODEL	400728
DG4V-3-A	
DG4V-3-B	

TERMINAL BOX

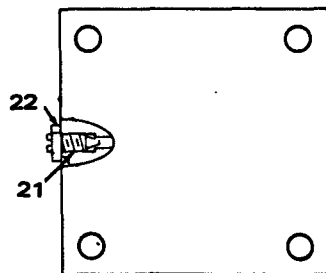
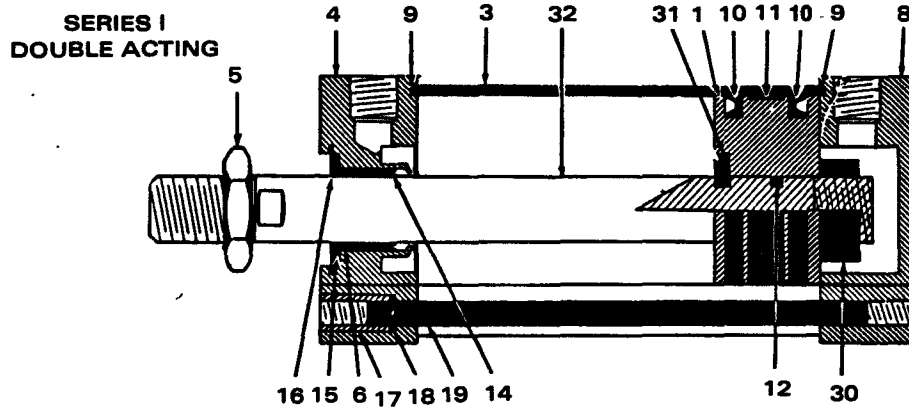
MODEL	PART
DG4V-3-W	10 468373



SPECIFICATION INFORMATION

SPRINGVILLE MFG. CO., INC.
 AIR CYLINDER - SERIES "I", DOUBLE ACTING
 BORE - 5.0", STROKE - 1.5", STANDARD ROD (1" DIA.)

SERIES "I" 250 P.S.I. Air Cylinder



**SERIES I
 CUSHION
 ADJUSTMENT**

REPAIR KITS INCLUDE

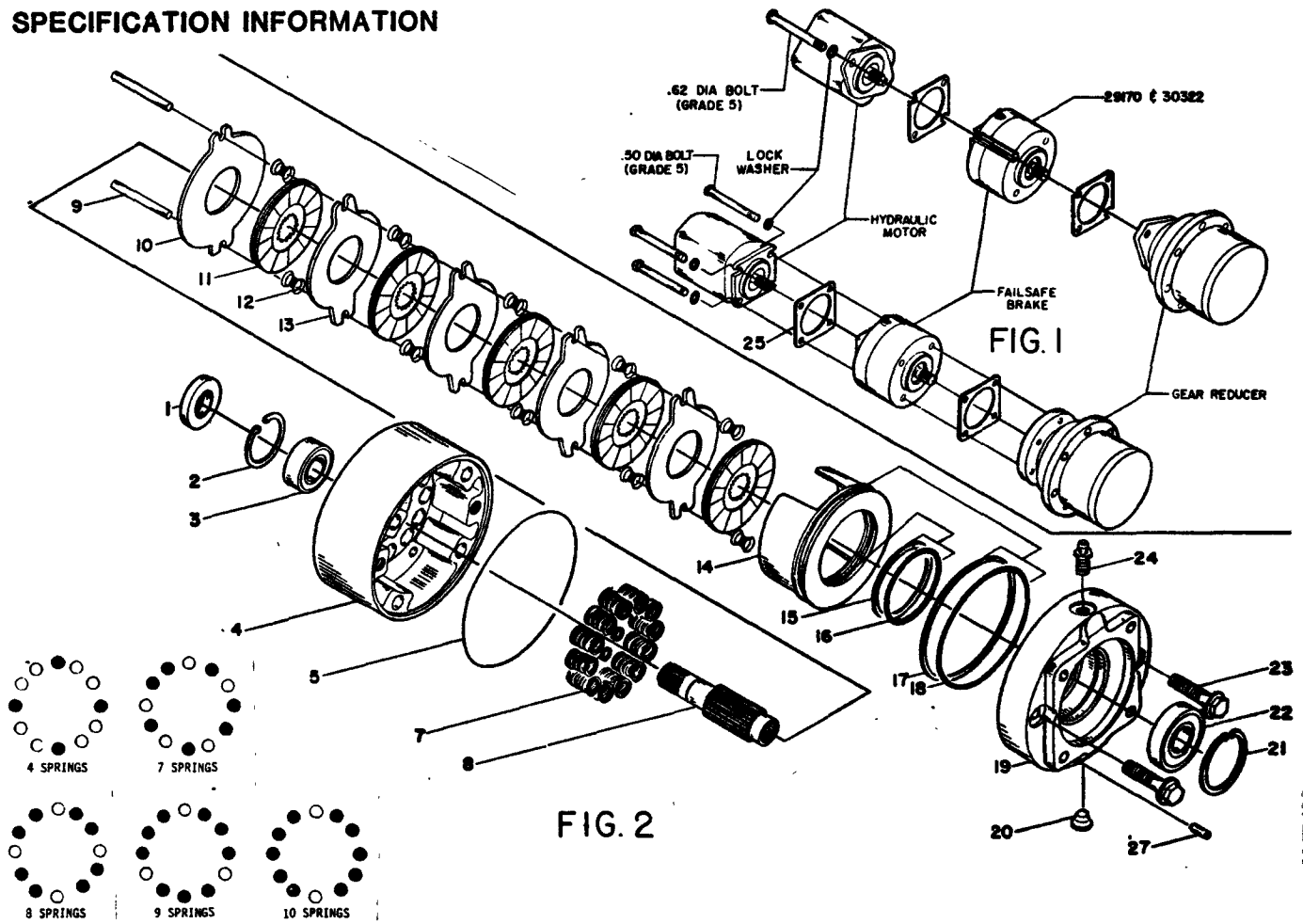
Seals, gaskets, bearing strip, rod wipers.
 When ordering - specify if cylinder is

Single or Double ended
 Front Rear Double Cushioned

ITEM	DESCRIPTION	REQUIRED
1	Piston	1
2	Piston Rod Cushioned	1
3	Cylinder	1
4	Front Head	1
5	Jam Nut	1
6	Rod Bearing	1
7	Piston Nut Rear Cushion	1
8	Blind Head	1
9	Cylinder Seal Gaskets	2
10	Piston Seals	2
11	Piston Glide Ring	1
12	Piston-Rod Seal	1
13	Piston Support Cushioned	1
14	Rod Seal	1
15	Rod Wiper	1

ITEM	DESCRIPTION	REQUIRED
16	Bearing Retaining Ring	1
17	Tie Rod Nut	4
18	Tie Rod Lock Washer	4
19	Tie Rod	4
21	Cushion Screw	1
22	Cushion Screw Jam Nut	1
23	Cushion Stop Tube	1
25	Front Cushion	1
26	Cushion Spring	2
27	Split Threaded Washer (Cushion)	1
28	Cushion Seal	1
29	Rear Cushion Retaining Clip	1
30	Piston Retaining Nut	1
31	Piston Retaining Ring	1
32	Piston Rod	1
35	Cushion "O" Ring	1

SPECIFICATION INFORMATION



ITEM	PART NAME	QTY.	PART NO.
1	SEAL	1	28406
2	RING-RETAINING	1	28289
3	BEARING-BALL	1	28288
4	HOUSING	1	28286
5	O-RING	1	28407
7	SPRING-COMPRESSION	9	28963
8	SHAFT-SPLINED	1	28290
9	PIN-TORQUE	2	27948
10	DISC-PRIMARY	1	28405
11	DISC-ROTATING	5	27944
12	SPRING-COMPRESSION	10	29284
13	DISC - STATIONARY	4	28404
14	PISTON	1	27937
15	RING-PACKING BACKUP	1	27941
16	O-RING	1	27940
17	RING-PACKING BACKUP	1	27939
18	O-RING	1	27938
19	PLATE-POWER	1	29674
20	PLUG-PROTECTIVE	1	28435
21	RING-RETAINING	1	28285
22	BEARING-BALL	1	28284
23	SCREW-HEX FLANGE	2	31218
24	SCREW-BLEEDER	1	29035
25	GASKET	2	28427
27	PLUG-VINYL	1	34151



GARDNER-DENVER
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ITEM DATA SHEET

SHEET 3 OF 3
PART NO. 1402657

SPECIFICATION INFORMATION

CROWLEY COMPANY

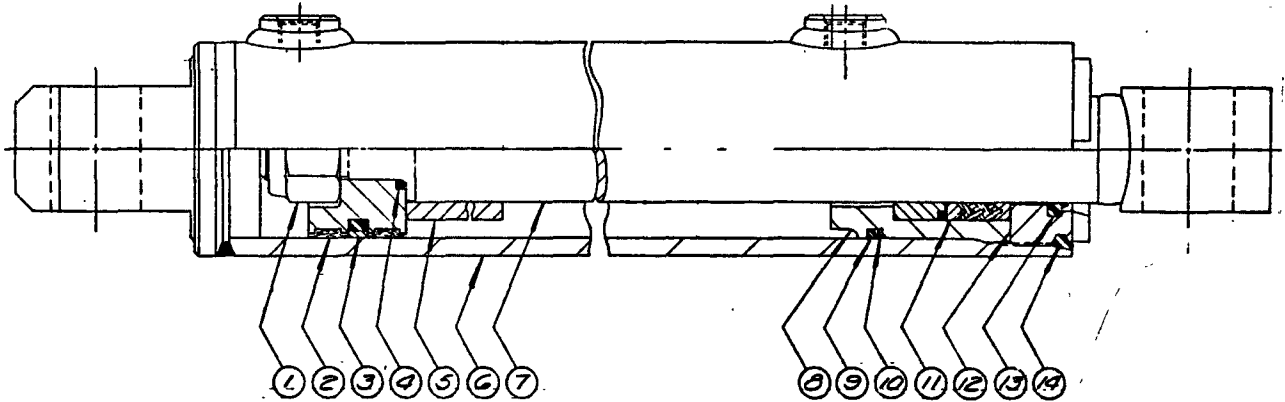
MULTI WING. FAN-ENGINE MODEL NO. 30-12-4ZL-PAG-450

<u>Part Name</u>	<u>Quantity</u>	<u>Description</u>
Hub:	(1)	HZ12.05, 2.003/2.000 pilot (6) .406 holes on 3.50 BCD
Retainer:	(1)	HZ12.06
Blades:	(12)	4ZL-PAG, trimmed 30" dia. on Z12 hub
Hardware:	(12)	1/4-20 x 1" hexhead cap screw plated
	(12)	1/4-20 locknuts plated



SPECIFICATION INFORMATION

STAR DYNAMICS, INC.
 STAR P/N C10497-37, BORE DIA. 2.50",
 ROD DIA. 1.50", STROKE LENGTH 36.00"



ITEM	DESCRIPTION	QTY	PART NO.
1	LOCKNUT	1	5575
2	PISTON ASS'Y (SEE NOTE)	1	10118
*3	SEAL ASS'Y (SEE NOTE)	1	7834-026
*4	O-RING	1	5018-212
5	SPACER	1	10632-010
6	BARREL ASSEMBLY	1	11029-STROKE
7	PISTON ROD ASSEMBLY	1	11033-STROKE
8	CYLINDER HEAD	1	11025
*9	O-RING	1	5018-228
*10	BACKUP RING	1	5019-228
*11	SEAL ROD	1	8509-017
12	RETAINER RING	1	10775
*13	ROD WIPER	1	5020-150
*14	O-RING	1	5018-331

* INCLUDED IN SERVICE KIT NO. 5318-352

NOTE: ITEM # 2, PISTON ASSEMBLY, IF PURCHASED
 INCLUDES, ITEM # 3, SEAL ASSEMBLY



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 MINING & CONSTRUCTION

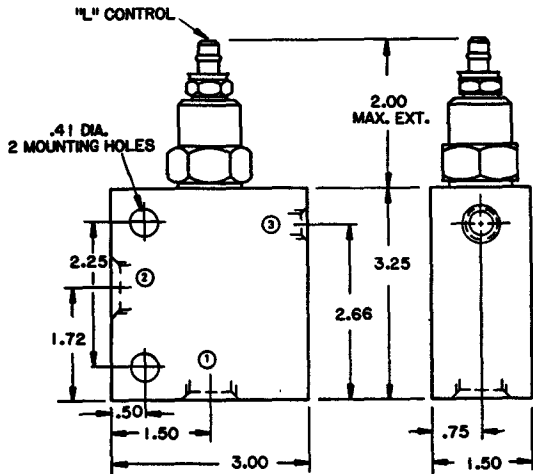
ITEM DATA SHEET

SHEET 1 OF 1
 PART NO. 1402982

SPECIFICATION INFORMATION

SUN HYDRAULICS
 LINE MFG. FLOW REGULATOR, SUN # FRDA-LAN-BAK-10.0
 REPLACEMENT CARTRIDGE # FRDA-LAN

LINE-MOUNTED



MAIN PORTS ① ②	CONTROLLED FLOW PORT ③	BASIC VALVE MODEL (a)
3/8" NPTF	3/8" NPTF	FRDA *A* BAB**
1/2" NPTF	1/2" NPTF	FRDA *A* BAC**
3/4" NPTF	1/2" NPTF	FRDA *A* BAD**
SAE- 8	SAE- 8	FRDA *A* BAJ**
SAE-10	SAE-10	FRDA *A* BAK**
SAE-12	SAE-10	FRDA *A* BAL**
3/8" BSPP	3/8" BSPP	FRDA *A* BAU**
1/2" BSPP	1/2" BSPP	FRDA *A* BAV**
3/4" BSPP	1/2" BSPP	FRDA *A* BAW**

MODEL FRDA *A* B***

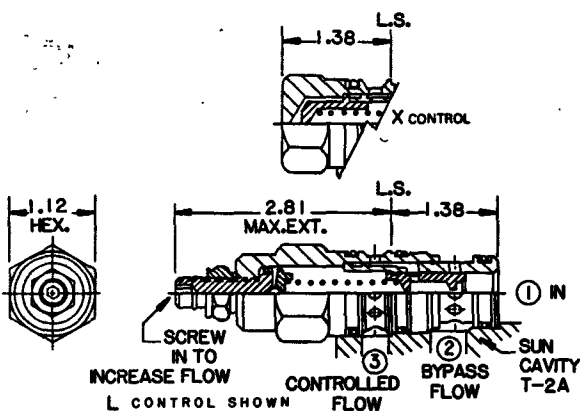
See FRDA Cartridge Model Coding (p. 7.18)

PORTS
SEE CHART

FLOW REGULATOR CARTRIDGE OPTIONS

① CONTROLS (See p. xii)			② SEALS			③ FLOW SETTING	
CODING	FRCA FRDA	FREA FRFA	CODING	FRCA FRDA	FREA	SPECIFY ON ORDER-GPM	ALL MODELS
X Non-adjustable Factory set at customer specified flow ($\pm 10\%$)	+ .00	+ .00	N Buna N	+ .00	+ .00	Calibration Charge Per Flow Setting (1-9) (10 & over)	+10.00 + .00
L "Tuning" adjustment. ($\pm 30\%$) Factory set at customer specified flow ($\pm 10\%$)	+4.00	+4.00	V Viton	+1.50	+2.00		
K Handknob with lock knob	+6.00	+6.00					

NOTE: Controlled flow must always have a path to tank, either through the valving or over a relief valve. Blocking the controlled port will also block the by-pass flow.



**0.2 TO 12 GPM ($\pm 10\%$)—FACTORY SET
 CONTROLLED FLOW
 MAXIMUM INPUT FLOW—30 GPM
 SUN CAVITY T-2A**

MODEL FRDA *A* **

- ① CONTROLS
- ② SEALS
- ③ FLOW RATE-GPM
Specify on order
Range: 0.2 to 12 GPM ($\pm 10\%$)



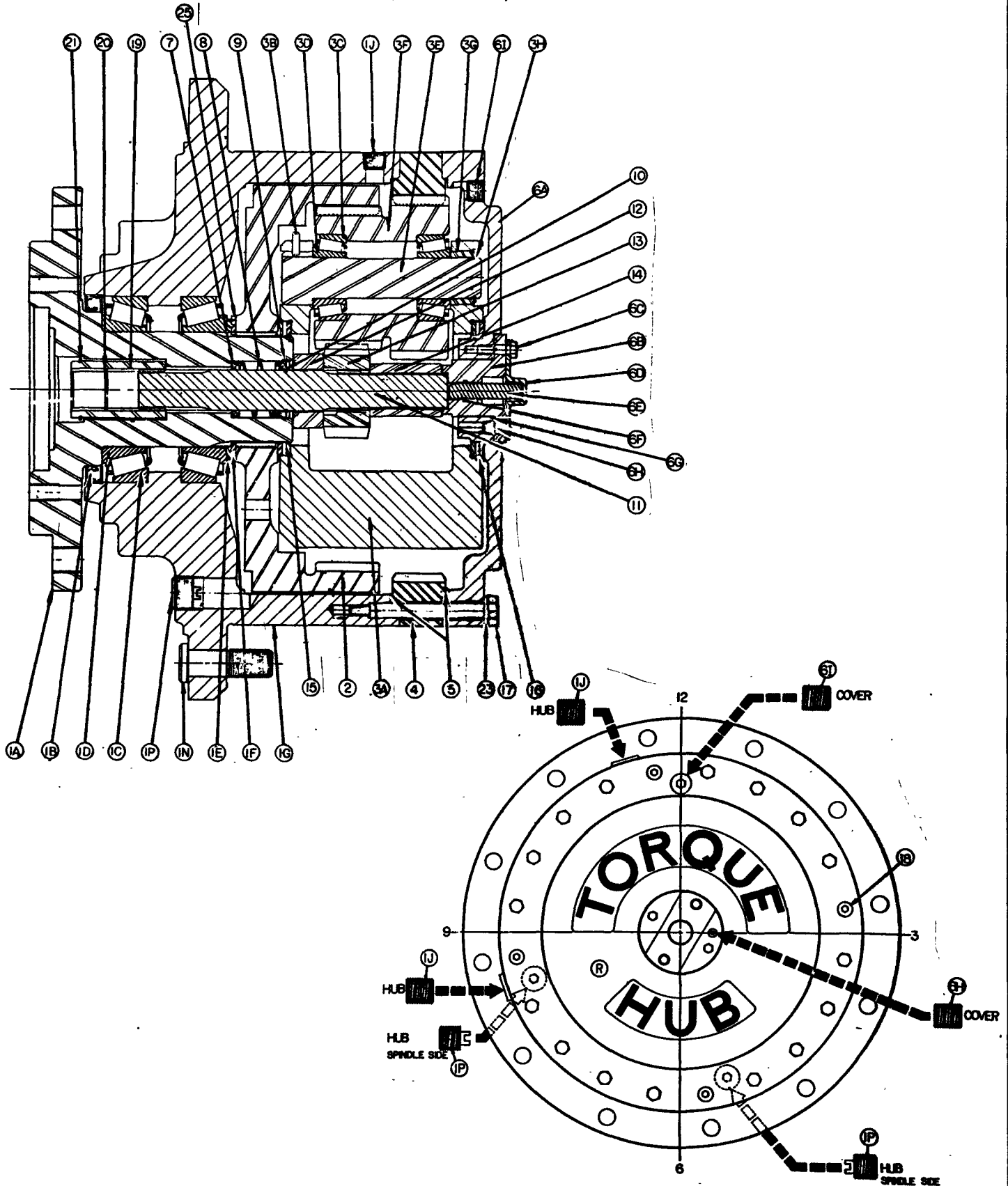
GARDNER-DENVER
MINING & CONSTRUCTION

ITEM DATA SHEET

SHEET 1 OF 1
 PART NO. 1403568

SPECIFICATION INFORMATION

FAIRFIELD MFG. CO., INC.
 PLANETARY GEAR DRIVE - TORQUE HUB P/N W7C110458



SPECIFICATION INFORMATION

FUNK MANUF.
PUMP DRIVE, 28211BB SPEC # 11223B

REFERENCE NO.	LINE	COMPONENT PART	DESCRIPTION	QTY.	DRAWING	QOH
0	2	11223B	C/S 28211BB			
			SHIPPED LOOSE	1.00		
			1 PER 4028056 SLV, 1 PER 4028055 SLV			
			STAMP ID TAG SPEC 11223B			
0-0	5	28211XB	ASM, PUMP DRIVE	1.00		
			ASM PER 28211XB DWG			
0-0-1	7	40281135	TAG GROUP	1.00		
0-0-1-1	8	4028947	TAG, WARNING	1.00		
0-0-1-2	9	4003228	TAG, APPROVAL	1.00		
0-1	10	40281340	HOUSING GROUP	1.00		
			ASM PER MODEL DWG			
0-1-1	12	40282003	HSG, TPL PUMP	1.00		
0-1-2	14	F202004	PLUG, MAGNETIC	1.00		
0-1-3	15	F190034	PLUG, PIPE	4.00		
0-1-4	16	F190038	PLUG, PIPE	1.00		
0-1-5	17	F323004	ELBOW, 90	1.00		
0-1-6	18	F321004	BUSHING, REDUCER	1.00		
0-1-7	19	F68300	BTHR, 1-5 PSI	1.00		
0-1-8	20	4A1050	PLT NAME SERIAL	1.00		
0-1-9	21	F310063	SCREW, DRIVE	2.00		
0-1-12	22	F210045C	PLUG, EXPANSION	2.00		
0-2	23	4028845	GRP, GEAR	1.00		
			ASM PER APPLICABLE MODEL DWG			
			REF 1-POS A, B & C; REF 2-2 EA POS A, B, C			
			& H; REF 3-POS H			
0-2-1	26	4059031	GEAR	3.00		
0-2-2	27	F40211	BEARING	8.00		
0-2-5	28	4059032	GEAR	1.00		
0-3	29	40281381	GRP, PUMP ADAP "	2.00		
			ASM PER MODEL DWG, N/A 40281370 SEL			
			SEE UNIT NARRATIVE FOR MTG POS			
			SHIPPED LOOSE			
			1 PER F37030248 O RING			

CONTINUED



GARDNER-DENVER
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ITEM DATA SHEET

SHEET 1 OF 3
PART NO. 1405608

SPECIFICATION INFORMATION

M4D PARTS LIST

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	4	358-24300	Socket head cap screw, 5/8-11x2 1/4"
2			
	1	034-49753"A"	End cap, external drain, SAE 4-bolt
3	1	691-10250"	Square Section seal #250
4	1	230-82002	Needle bearing BH-1212
5	1	324-21612"A"	Dowel pin 1/4"x3/4"
6	1	See below	Cartridge assembly
7	1	324-21612	Dowel pin 1/4"x3/4"
8	1	S14-26066"A"	Front port plate assembly
8a	1	034-53343"A"	Front port plate
8b	1	034-53346	Valve adaptor
8c	1	312-35056	Setscrew 5/8-24xUNF x 3/4"
8d	1	201-06001	Chrome ball 3/16" dia.
9	1	691-00246"	O-ring
10	1	691-10232"A"	Square section seal
11	1	356-32283	Internal snap ring
12	1	034-70853	External snap ring
13	1	230-00207	Shaft ball bearing
14	1		
	1	034-70983	#3 shaft with 14 tooth spline
16	1	637-00003"	Shaft seal
17	1	605-10020"	Felt wiper
19	1	034-59843"B"	Belleville washer
	1		
	1	S14-26721	#3 Shaft assembly (12, 13, 14)
	1	S24-10916"	M4D Seal kit

STANDARD M4D CARTRIDGE ASSEMBLY

UNIT MODEL NO.	ITEM 6 CARTRIDGE ASSEMBLY "A" Model "B" Model	THESE PARTS ARE A COMPLETE CAM RING ASSEMBLY				
		6a "A" Mod. CAM RING	6a "B" Mod. CAM RING	6b ROTOR	6c VANES	6d VANE SPRINGS
M4D or M4D1-088	S14-28764	034-70320				
Quantity Per Unit		1	1	1	10	30



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