

Hitachi EX120-5 Sample File.

This single sample file contains samples for

Brochure - 7 pages

Electrical drawings - 10 pages

Troubleshooting manual - 346 pages

Workshop manual - 554 pages

HITACHI

SUPER
EX120-V

Rated Engine HP

81 hp (60 kW)

Max Power: 88 hp (66 kW)

Operating Weight

EX120: 26,700 lbs

(12 100 kg)

Bucket Capacity

0.25 – 0.85 yd³

(0.19 – 0.66 m³)



| Model | Operating Weight | Travel Speeds | Max. Lift Capacity | Gradeability | Traction Force |
|-------|---------------------------|-------------------------------|--------------------------|--------------|----------------------------|
| EX120 | 26,700 lbs (12 100 kg) | 0 - 3.4 mph (0 - 5.5 km/h) | 14,290 lbs (6 480 kg) | 35° (70%) | 22,000 lbf (10 000 kgf) |

You'll like the powerful Hitachi EX120. It is fast, extremely powerful for its size, and very responsive. The EX120 features the most advanced computerized horsepower and control system available: Hitachi's exclusive *Dash-5* system. This system is renowned for its smooth multi-function control. The proven Isuzu engine is perfectly matched to the hydraulic system for years of reliable and yet outstanding performance.

1. Low noise design eliminates high-pitch noise inside the cab.
2. Easy-maintenance HN bushings which are made of sintered composite iron alloy with high-viscosity lubricating oil.
3. Fresh-air type, large-capacity air conditioner standard.
4. Auto-lubrication system for ensured lubrication of boom and arm pins optionally available.
5. Hitachi's original shockless valve and quick warm-up control system for engine and hydraulic oil means highly responsive controls immediately after start-up.
6. Round hydraulic tank provides superior circulation of the hydraulic oil so that it's kept cleaner and cooler.
7. A rugged X-form center frame assures superb durability.
8. Super-strong hydraulic oil piping and hoses provide outstanding reliability and extremely clean machines.
9. All Hitachi excavators feature heavy-duty booms and arms reinforced with bulkheads for extra long life.

Specifics

- Isuzu A-4BG1T turbocharged, direct injection diesel engine is extremely fuel-efficient and reliable. It meets all EPA clean air requirements.
- *Dash-5* engine/hydraulic control with three power modes and four work modes.
- Power modes:
 1. **Normal:** Standard operation
 2. **H/P:** Increased engine rpm and horsepower
 3. **E:** Maximum fuel efficiency in light duty applications
- Work modes:
 1. General Purpose
 2. Grading Mode
 3. Precision Mode
 4. Attachment Mode
- Cab mounted on six fluid-filled, vibration dampening, shock absorbing mounts.
- Compact travel motor design; protected piping reduces opportunity of damage.

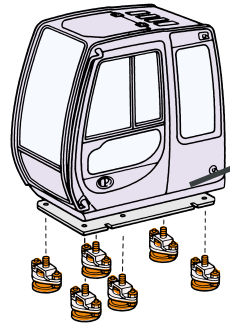
Features

- The updated work modes provide power in the order of inherent priority to do the best job for the project at hand. The Hitachi EX120 has excellent multi-function features which allow multiple jobs such as travel, swing and boom raise all at the same time without any one function stopping.
- The Super EX120, as with all Hitachi excavator models, is built to maximize performance, reliability, and operator comfort through optimum design and quality components. The Isuzu engine is matched to the hydraulic pumps for outstanding multiple function performance. The undercarriage, carbody, and front attachment are all balanced and designed for maximum strength. All of this means that your Hitachi EX120 will work economically and productively for years and for thousands of hours at minimum operating costs.

Operator Comfort: A Top Priority

Sitting in one place, all day, operating a machine productively takes concentration and dedication to doing a good job. It also means that a smart owner is going to do everything possible to make sure his operator is comfortable in the cab. The Hitachi EX120 is an excellent example of how comfortable a well-designed cab can be.

The widest cab in its class: 3 ft. 4 in. (1 005 mm). Lots of leg room, wide side door. The ergonomically-designed seat is fully adjustable with tilting armrests, tilting back, floating or solidly fixed seat, headrest tilt, and seat raise/lower.



The cab floats on six fluid-filled elastic mounts that smooth out shocks and jolts.

The hand control levers can be raised or lowered to match the operator's build, and the controls can either glide forward or back with the seat or remain fixed while the seat moves.

AM-FM Radio

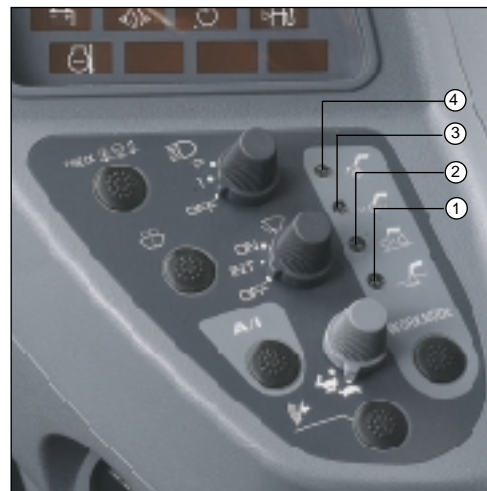


The work modes, power modes, air conditioning controls, and dial-type engine speed control are all located beside the operator.

Work Modes For Increased Performance

The four work modes have been enhanced from prior models.

- ① The General Purpose Mode is appropriate for general digging and truck loading. All circuits work together.
- ② The Grading Mode provides priority to the combined operation of boom raise, stick forward and bucket adjustment while limiting control response so that the movement is smooth.
- ③ The Precision Mode keeps the front attachment moving precisely and slowly.
- ④ The Attachment Mode is designed to automatically match the oil flow requirements of selected attachments such as a hydraulic hammer. Additional piping is required (optional).



H/P and E Modes For Increased Efficiency

- The **Normal** mode is for normal or average applications. The engine runs at an efficient maximum speed for longest life and general economy. The hydraulic pump runs at a baseline 100%.
- The **H/P** mode provides the full power of the EX120 on command. This function increases engine rpm by 6% when activated, thus providing 5% more horsepower when needed.
 - Engine rpm automatically increases when the arm-in function meets resistance.
 - Automatically switches back to normal rpm when resistance is overcome for fuel savings.
- The **E** mode provides 94% of full power while providing 15% more fuel efficiency. It is appropriate for light-duty work because it allows you to work longer before refueling.



Economical Isuzu 81 hp Engine Is Dependable, Long-Lasting

The Isuzu A-4BG1T engine is one of the most widely used, most proven and most dependable engines in the world. In the EX120, it is turbocharged. The 4-cylinder diesel features direct injection, a maximum torque of 231 lbf·ft (32 kgf·m), and a mechanical governor. It meets all EPA and CARB regulations for noise and pollution.



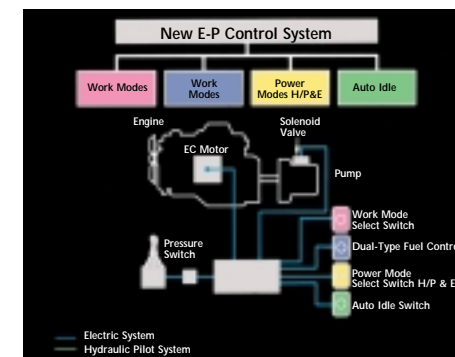
Outstanding Traction Force

The traction force is an impressive 22,000 lbf (10,000 kgf) for excellent maneuvering through mud and over obstacles.



Enhanced E-P Pump Control

A sophisticated micro-computer system guided by multiple actuators is standard on the EX120. Hitachi is renowned for the smooth operation of its excavators and this model is no exception. The new *Dash-5* controls provide quick, accurate response to multi-function swing-lift-bucket curl and travel operations.



Enhanced Cooling Protection

The EX120 features a 4.9 U.S. gallon (18.4 liters) radiator coolant tank, a tightly fitting fan shroud and a high capacity fan. The radiator fins can easily be cleaned without tools and the coolant level can be checked from the ground during normal inspection.





Perfectly Matched Hydraulic System

Hitachi expertly matches the engine to the hydraulic pumps and control valves for the best response and longest life possible. The pumps are designed to work specifically with the Isuzu engine – regardless of rpm or work load.



Longer-Life Undercarriage

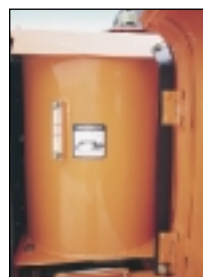
Hitachi undercarriages feature premium grade tracks with large track links fitted with struts for added durability. Pin seals prevent dirt in the bushings and reduce inner wear. The tracks feature heavy-duty track links, front idlers, upper/lower rollers, and track center guard.



Air Cleaner Stored Inside



Remote Lube



Round Hydraulic Tank

A round hydraulic tank provides superior circulation of the hydraulic oil so that it's kept cleaner and more evenly cooled.



Super Strong Piping

Hitachi is legendary for its strong, long-lasting hydraulic hose, piping and fittings. This provides outstanding reliability and cleanliness.



Round Travel Motor Covers

Round travel motor covers provide a higher resistance to deformation.



Premium Quality Design

Hitachi Construction Machinery invests over \$75 million a year in research and development to build ever-better hydraulic excavators.

That research shows itself over and over in the new *Dash-5* EX120. It has an excellent cab that is comfortable. The undercarriage is extremely rugged, and the boom and arm are designed for years of use.



Rugged X-Frame

The tough tractor-type undercarriage and X-form center frame assure superb durability.

Engine

| | |
|--|---|
| Model | Isuzu A-4BG1T |
| Type | 4-cycle water-cooled, direct injection |
| Aspiration | Turbocharged |
| No. of cylinders | 4 |
| Rated flywheel horsepower (DIN 6271, net) | 85 PS (63 kW) at 2,100 rpm (min ⁻¹) |
| Rated flywheel horsepower (SAE J1349, net) | 81 hp (60 kW) at 2,100 rpm (min ⁻¹) |
| Maximum torque | 231 lbf-ft (32 kgf-m) at 1,600 rpm (min ⁻¹) |
| Piston displacement | 264 in ³ (4.329 L) |
| Bore and stroke | 4.13" x 4.92" (105 mm x 125 mm) |
| Batteries | 2 x 12 V, 65 AH |
| Governor | Mechanical, speed control with stepping motor |

Hydraulic System

- Work mode selector: General purpose mode / Grading mode / Precision mode / Attachment mode

| | |
|------------------|--|
| Main pumps | 2 variable displacement axial piston pumps |
| Maximum oil flow | 2 x 25.1 US gpm (95 L/min, 20.9 Imp gpm) |
| Pilot pump | 1 gear pump |
| Maximum oil flow | 9.3 US gpm (35.3 L/min, 7.8 Imp gpm) |

Hydraulic Motors

| | |
|--------|---|
| Travel | 2 variable displacement axial piston motors |
| Swing | 1 axial piston motor |

Relief Valve Settings

| | |
|-------------------|--------------------------------------|
| Implement circuit | 4,980 psi (350 kgf/cm ²) |
| Swing circuit | 4,550 psi (320 kgf/cm ²) |
| Travel circuit | 4,980 psi (350 kgf/cm ²) |
| Pilot circuit | 540 psi (38 kgf/cm ²) |

Hydraulic Cylinders

High-strength piston rods and tubes. Cylinder cushion mechanisms are provided in all cylinders to absorb shock when pistons reach their stroke ends.

Dimensions

| | Qty | Bore | Rod diameter |
|--------|-----|----------------|---------------|
| Boom | 2 | 4.13" (105 mm) | 2.76" (70 mm) |
| Arm | 1 | 4.33" (110 mm) | 3.15" (80 mm) |
| Bucket | 1 | 3.74" (95 mm) | 2.56" (65 mm) |

Hydraulic Filters

Hydraulic circuits use high quality hydraulic filters. A suction filter is incorporated in the suction line, and 10 micron full-flow filters in the return line and swing/travel motor drain lines.

Controls

Pilot controls. Hitachi's original shockless valve and quick warm-up system built in the pilot circuit. Hydraulic warm-up control system for engine and hydraulic oil.

| | |
|---------------------------|---|
| Implement levers | 2 |
| Travel levers with pedals | 2 |

These specifications are subject to change without notice. Illustrations and photos show the standard models, and may or may not include optional equipment, accessories, and all standard equipment with some differences in color and features.

Upperstructure

Revolving Frame

Welded sturdy box construction, using heavy-gauge steel plates for ruggedness. D-section frame for resistance to deformation.

Swing Mechanism

Axial piston motor with planetary reduction gear is bathed in oil. Swing circle is single-row, shear-type ball bearing with induction-hardened internal gear. Internal gear and pinion gear are immersed in lubricant. Swing parking brake is spring-set/hydraulic-released disc type. Swing speed 12.7 rpm (min⁻¹)

Operator's Cab

Independent roomy cab, 40" (1 005 mm) wide by 66" (1 665 mm) high, conforming to ISO* Standards. Reinforced glass windows on 4 sides for excellent visibility. Front windows (upper and lower) can be opened. Adjustable, reclining seat with armrests; movable with or without control levers.

* International Standardization Organization

Undercarriage

Tracks

Tractor-type undercarriage. Welded track frame using carefully selected materials. Side frame welded to track frame. Lubricated track rollers, idlers, and sprockets with floating seals. Track shoes with triple grousers made of induction-hardened rolled alloy. Flat and triangular shoes are also available. Heat-treated connecting pins with dirt seals. Hydraulic (grease) track adjusters with shock-absorbing recoil springs.

Numbers of Rollers and Shoes on Each Side

| | | | |
|---------------|---|-------------|----|
| Upper rollers | 1 | Track shoes | 44 |
| Lower rollers | 7 | | |

Traction Device

Each track driven by 2-speed axial piston motor through planetary reduction gear for counter-rotation of the tracks. Sprockets are replaceable. Parking brake is spring-set/hydraulic-released disc type. Travel shockless relief valve built in travel motor absorbs shocks when stopping travel, ensuring smooth stops.

| | |
|--------------------------------|---|
| Automatic transmission system: | High - Low |
| Travel speeds | High: 0 to 3.4 mph (5.5 km/h) Low: 0 to 2.0 mph (3.2 km/h) |
| Maximum traction force | 22,000 lbf (10 000 kgf) |

Weights and Ground Pressure

Equipped with 15'1" (4.60 m) boom, 8' 3" (2.52 m) arm and 0.72 yd³ (0.55 m³: PCSA heaped) H-type bucket.

| Shoe type | Shoe width | Operating weight | Ground pressure |
|----------------|--------------|-----------------------|--------------------------------------|
| Triple grouser | 20" (500 mm) | 26,000 lb (11 800 kg) | 5.40 psi (0.38 kgf/cm ²) |
| | 24" (600 mm) | 26,700 lb (12 100 kg) | 4.55 psi (0.32 kgf/cm ²) |
| | 28" (700 mm) | 27,100 lb (12 300 kg) | 3.98 psi (0.28 kgf/cm ²) |
| Flat | 20" (510 mm) | 27,100 lb (12 300 kg) | 5.55 psi (0.39 kgf/cm ²) |
| Triangular | 28" (700 mm) | 26,700 lb (12 100 kg) | 3.98 psi (0.28 kgf/cm ²) |

Weight of the basic machine [including 4,960 lb (2 250 kg) counterweight and triple grouser shoes, but excluding front-end attachment, fuel, hydraulic oil, engine oil, and coolant etc.] is:

| | |
|-------|--|
| EX120 | 20,500 lb (9 300 kg) with 20" (500 mm) shoes |
|-------|--|

Specifications: EX120

Service Refill Capacities

| | US gal | Liters | Imp gal |
|---------------------------------------|--------|--------|---------|
| Fuel tank | 66.1 | 250.0 | 55.0 |
| Engine coolant | 4.9 | 18.4 | 4.0 |
| Engine oil | 4.3 | 16.2 | 3.6 |
| Swing mechanism | 0.8 | 3.2 | 0.7 |
| Travel final drive device (each side) | 0.9 | 3.5 | 0.8 |
| Hydraulic system | 35.4 | 134.0 | 29.5 |
| Hydraulic tank | 18.2 | 69.0 | 15.2 |

Bucket Selection Chart

Bucket capacity indicated is SAE heaped.

| Material (loose weight) | General-Purpose Bucket* | | Heavy-Duty Bucket* | |
|--|---|--|--|--|
| 3,400 - 3,100 lb/yd³ (2 020 - 1 840 kg/m³) Sand and gravel, wet Sand, wet | 0.63 yd ³ | 0.5 m ³ | 0.50 yd ³ | 0.4 m ³ |
| 2,900 - 2,550 lb/yd³ (1 720 - 1 510 kg/m³) Sand and gravel, dry Sand, moist Rock, granite, blasted and broken Clay, wet Earth, wet Limestone, broken or crushed Earth, dry | 0.75 yd ³ 0.75 yd ³ 0.63-0.88 yd ³ 0.75 yd ³ 0.75 yd ³ 0.50-0.75 yd ³ 0.63-0.75 yd ³ | 0.6 m ³ 0.6 m ³ 0.5-0.7 m ³ 0.6 m ³ 0.6 m ³ 0.4-0.6 m ³ 0.5-0.6 m ³ | 0.63 yd ³ 0.63 yd ³ 0.50-0.75 yd ³ 0.63 yd ³ 0.63 yd ³ 0.50-0.63 yd ³ 0.63 yd ³ | 0.5 m ³ 0.5 m ³ 0.4-0.6 m ³ 0.5 m ³ 0.5 m ³ 0.4-0.5 m ³ 0.5 m ³ |
| 2,500 - 2,100 lb/yd³ (1 480 - 1 250 kg/m³) Clay, dry Sand, dry Shale Earth, loam Caliche | 0.63-0.88 yd ³ 0.88 yd ³ 0.88 yd ³ 0.88 yd ³ 0.63-0.88 yd ³ | 0.5-0.7 m ³ 0.7 m ³ 0.7 m ³ 0.7 m ³ 0.5-0.7 m ³ | 0.75 yd ³ 0.75 yd ³ 0.75 yd ³ 0.75 yd ³ 0.50-0.75 yd ³ | 0.6 m ³ 0.6 m ³ 0.6 m ³ 0.6 m ³ 0.4-0.6 m ³ |
| 1,780 - 1,170 lb/yd³ (1 050 - 690 kg/m³) Coal Topsoil Peat, wet | 1.25 yd ³ 1.38 yd ³ 1.75 yd ³ | 1.0 m ³ 1.1 m ³ 1.3 m ³ | - - - | - - - |
| 950 - 700 lb/yd³ (560 - 420 kg/m³) Cinders Peat, dry Wood chips | 2.00 yd ³ 2.75 yd ³ 3.25 yd ³ | 1.5 m ³ 2.1 m ³ 2.5 m ³ | - - - | - - - |

* Contact your Hitachi dealer for optimum, bucket and attachment selections. These recommendations are for general conditions and average use. Larger buckets may be possible for flat and level operations, less compacted materials, and volume loading applications such as mass excavation applications in ideal conditions. Smaller buckets are recommended for adverse conditions such as off-level applications and uneven surfaces.

Buckets

| Capacity | | Width | | No. of teeth | Weight | Recommendation EX120 | | |
|--|---------------------|----------------------|-------------------|--------------|-------------------|----------------------|--------------------|---------------------|
| PCSA heaped | CECE heaped | Without side cutters | With side cutters | | | 6' 11" (2.10 m) arm | 8' 3" (2.52 m) arm | 9' 11" (3.01 m) arm |
| 0.25 yd ³ (0.19 m ³) | 0.17 m ³ | 18" (450 mm) | 22" (550 mm) | 3 | 530 lb (240 kg) | ● | ● | ● |
| 0.39 yd ³ (0.30 m ³) | 0.25 m ³ | 23" (580 mm) | 28" (700 mm) | 3 | 620 lb (280 kg) | ● | ● | ● |
| 0.52 yd ³ (0.40 m ³) | 0.33 m ³ | 27" (680 mm) | 31" (800 mm) | 4 | 730 lb (330 kg) | ● | ● | ● |
| 0.60 yd ³ (0.46 m ³) | 0.40 m ³ | 33" (850 mm) | 38" (970 mm) | 5 | 840 lb (380 kg) | ● | ● | ◆ |
| 0.72 yd ³ (0.55 m ³) | 0.45 m ³ | 35" (890 mm) | 40" (1 010 mm) | 5 | 880 lb (400 kg) | ● | ● | ◆* |
| 0.77 yd ³ (0.59 m ³) | 0.50 m ³ | 37" (950 mm) | 42" (1 070 mm) | 5 | 900 lb (410 kg) | ● | ◆ | - |
| 0.86 yd ³ (0.66 m ³) | 0.55 m ³ | 41" (1 030 mm) | - | 5 | 900 lb (410 kg) | ■ | - | - |
| *1 0.72 yd ³ (0.55 m ³) | 0.45 m ³ | 35" (890 mm) | 40" (1 010 mm) | 5 | 1,010 lb (460 kg) | ● | ● | ◆* |
| *2 0.72 yd ³ (0.55 m ³) | 0.45 m ³ | 35" (890 mm) | 40" (1 010 mm) | 5 | 1,080 lb (490 kg) | ● | ● | ◆* |
| *3 0.72 yd ³ (0.55 m ³) | 0.45 m ³ | 35" (890 mm) | 40" (1 010 mm) | 5 | 1,040 lb (470 kg) | ● | ● | ◆* |
| *1 0.77 yd ³ (0.59 m ³) | 0.50 m ³ | 37" (950 mm) | 42" (1 070 mm) | 5 | 1,060 lb (480 kg) | ● | ◆ | - |
| V-Type bucket: 0.46 yd ³ (0.35 m ³ : CECE heaped) | | | | 3 | 820 lb (370 kg) | ◆ | ◆ | ◆ |
| One point ripper | | | | 1 | 710 lb (320 kg) | ✘ | ✘ | - |
| Clamshell bucket: 0.39 yd ³ (0.30 m ³ : CECE heaped), Width 22" (560 mm) | | | | 6 | 1,520 lb (690 kg) | ● | ● | - |
| Slope-finishing blade: Width-39" (1 000 mm), Length-63" (1 600 mm) | | | | | 950 lb (430 kg) | ◆ | ◆ | ◆ |

* With 28" (700 mm) shoes only

*1 Reinforced bucket

*2 Level-pin-reinforced bucket

*3 H-bucket

Backhoe Attachments

Boom and arms are of welded, box-section design.

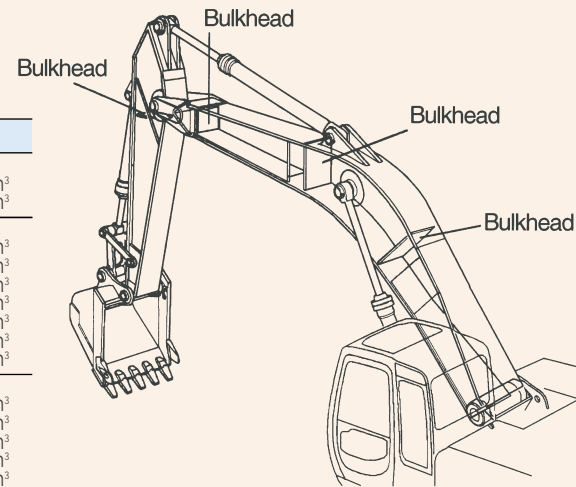
Boom length: 15' 1" (4.60 m)

Arms available in lengths: 6' 11" (2.10 m)

8' 3" (2.52 m)

9' 11" (3.01 m)

Bucket is of welded steel structure. Side clearance adjustment mechanism provided on the bucket joint bracket.



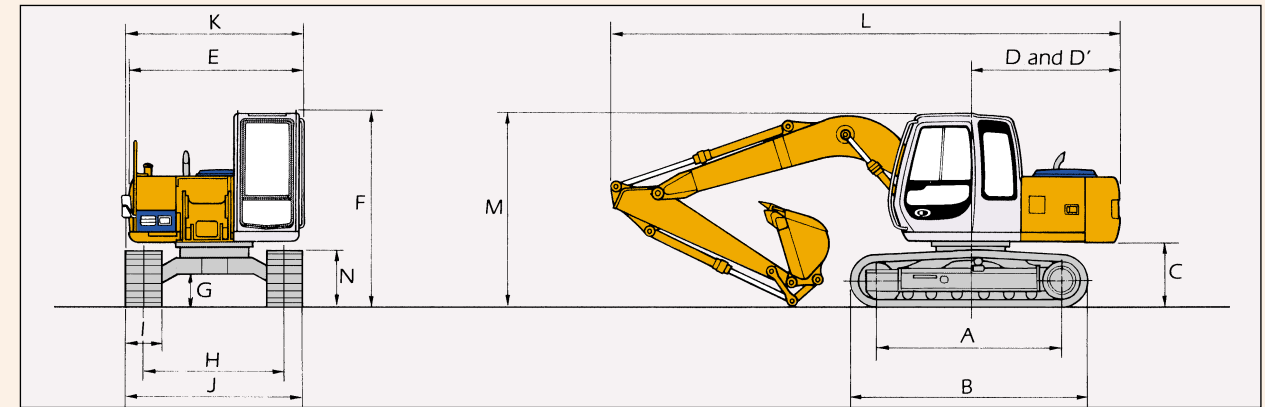
Reinforced Front Attachment

Bulkheads are provided inside the front attachment to resist torsion and thickened plates are used in areas subject to stress concentration for added durability in tough operations.

Specifications: EX120

BACKHOE EX120

Dimensions



| | | EX120 | | | |
|----|---------------------------------|-------------------|-----------------|------------------|-----------------|
| A | Distance between tumblers | 9'5" (2 880 mm) | | | |
| B | Undercarriage length | 11'9" (3 580 mm) | | | |
| *C | Counterweight clearance | 2'11" (890 mm) | | | |
| D | Rear-end swing radius | 7'0" (2 130 mm) | | | |
| D' | Rear-end length | 6'11" (2 100 mm) | | | |
| E | Overall width of upperstructure | 8'1" (2 460 mm) | | | |
| F | Overall height of cab | 8'11" (2 720 mm) | | | |
| *G | Min. ground clearance | 1'5" (440 mm) | | | |
| H | Track gauge | 6'6" (1 990 mm) | | | |
| I | Track shoe width | G 20" (500 mm) | G 24" (600 mm) | G 28" (700 mm) | F 20" (510 mm) |
| J | Undercarriage width | 8'2" (2 490 mm) | 8'6" (2 590 mm) | 8'10" (2 690 mm) | 8'2" (2 500 mm) |
| K | Overall width | 8'2" (2 500 mm) | 8'6" (2 590 mm) | 8'10" (2 690 mm) | 8'2" (2 500 mm) |
| L | Overall length | | | | |
| | With 6'11" (2.10 m) arm | 24'10" (7 570 mm) | | | |
| | With 8'3" (2.52 m) arm | 24'10" (7 580 mm) | | | |
| | With 9'11" (3.01 m) arm | 24'11" (7 590 mm) | | | |
| M | Overall height of boom | | | | |
| | With 6'11" (2.10 m) arm | 8'5" (2 570 mm) | | | |
| | With 8'3" (2.52 m) arm | 8'10" (2 680 mm) | | | |
| | With 9'11" (3.01 m) arm | **8'9" (2 670 mm) | | | |
| N | Track height | | | | |
| | With triple grouser shoes | 2'7" (790 mm) | | | |

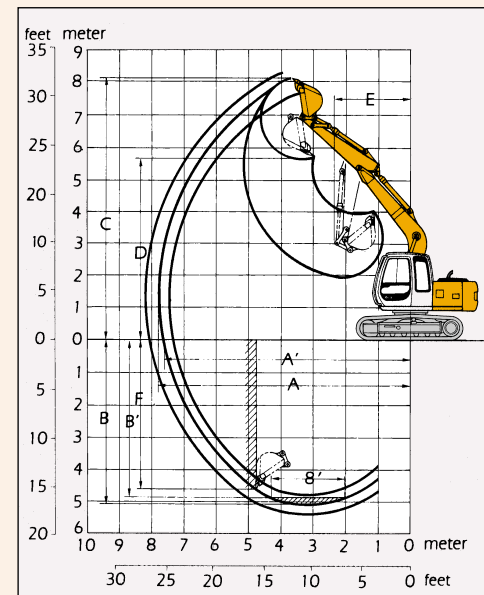
*Excluding track shoe lug

** This dimension is shown in the transportation hole position of the arm

G: Triple grouser shoe

F: Flat shoe

Working Ranges



| | | EX120 | | |
|----------------------|--------------------------------|------------------------|------------------------|------------------------|
| Arm length | | 6'11" (2.10 m) | 8'3" (2.52 m) | 9'11" (3.01 m) |
| A | Max. digging reach | 25'11" (7 900 mm) | 27'2" (8 270 mm) | 28'8" (8 740 mm) |
| A' | Max. digging reach (on ground) | 25'6" (7 770 mm) | 26'8" (8 140 mm) | 28'3" (8 620 mm) |
| B | Max. digging depth | 16'11" (5 160 mm) | 18'3" (5 570 mm) | 19'11" (6 060 mm) |
| B' | Max. digging depth (8° level) | 16'2" (4 920 mm) | 17'7" (5 360 mm) | 19'3" (5 880 mm) |
| C | Max. cutting height | 27'5" (8 350 mm) | 28'1" (8 550 mm) | 29'2" (8 880 mm) |
| D | Max. dumping height | 19'6" (5 940 mm) | 20'2" (6 140 mm) | 21'3" (6 470 mm) |
| E | Min. swing radius | 7'7" (2 310 mm) | 7'8" (2 330 mm) | 8'6" (2 590 mm) |
| F | Max. vertical wall | 15'3" (4 640 mm) | 16'5" (5 010 mm) | 18'0" (5 480 mm) |
| Bucket digging force | ISO | 20,100 lbf (9 100 kgf) | | |
| | SAE: PCSA | 17,600 lbf (8 000 kgf) | | |
| Arm crowd force | ISO | 15,000 lbf (6 800 kgf) | 13,400 lbf (6 100 kgf) | 11,900 lbf (5 400 kgf) |
| | SAE: PCSA | 14,600 lbf (6 600 kgf) | 13,000 lbf (5 900 kgf) | 11,700 lbf (5 300 kgf) |

Excluding track shoe lug

HITACHI

The *Best* You Can Buy

-
- Manufacturing Plant
 - Sales Office
 - Parts/Distribution Facility
 - Dealership Facilities

Hitachi of North America

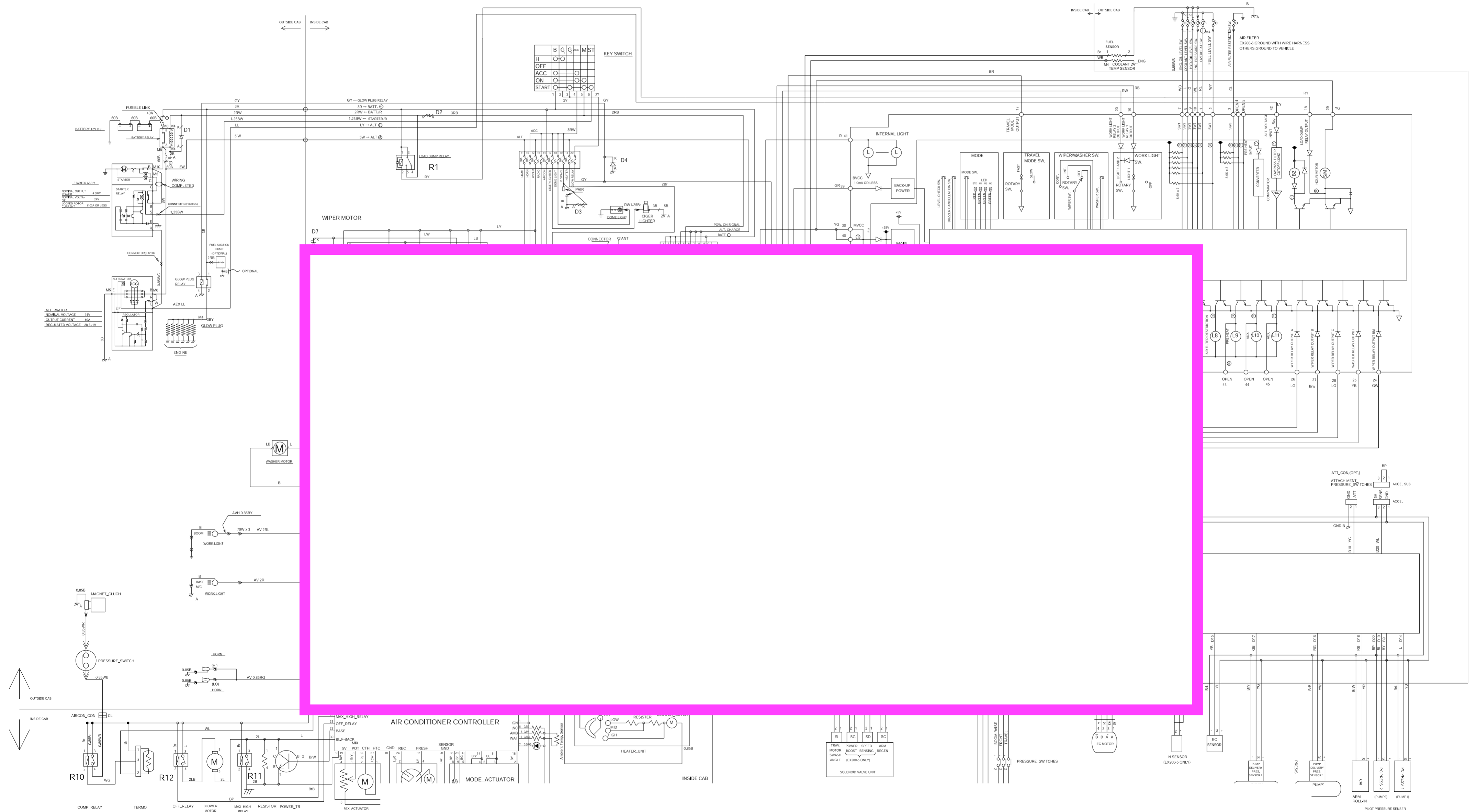
■ Hitachi excavators, mini excavators, mining shovels, cranes and forestry machines are the best you can buy. Our commitment to superior product support is equally outstanding.

- 37 Dealers
- 194 Dealer Facilities
- Parts Warehouses
 - Houston, Texas
 - Vancouver, B.C.

- Manufacturing Plants
 - Tsuchiura, Japan
 - Tierra, Japan
 - Kernersville, North Carolina
 - Langley, B.C.
 - Saltillo, Mexico

ELECTRICAL CIRCUIT DIAGRAM

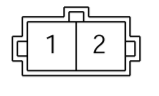
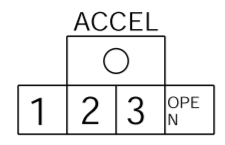
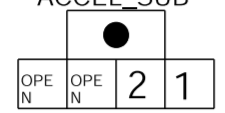
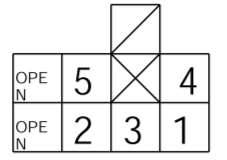
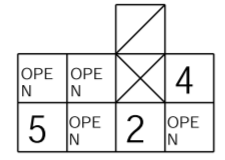
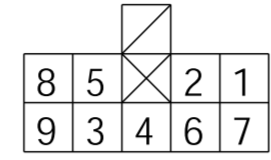
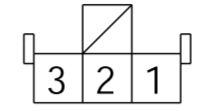
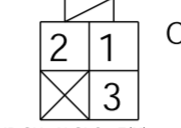
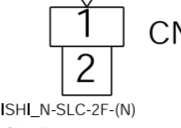
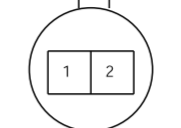
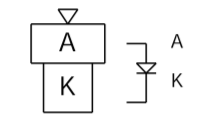
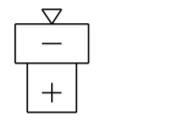
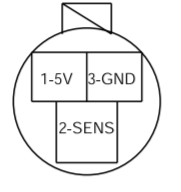
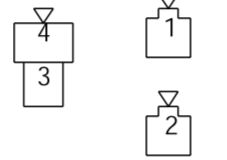
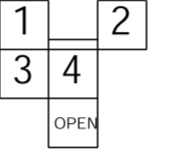
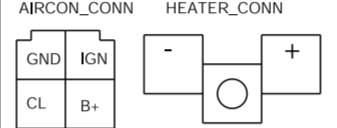
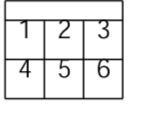

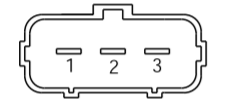

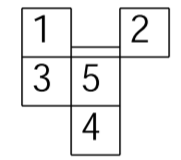

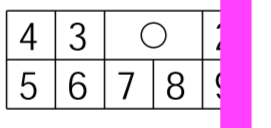
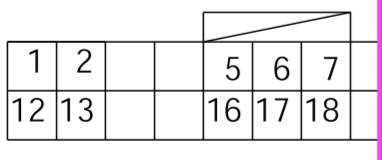
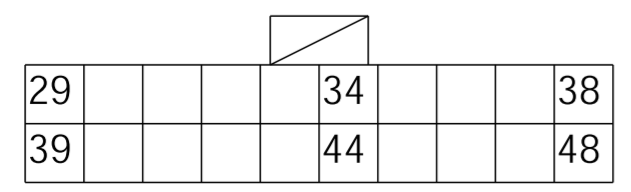
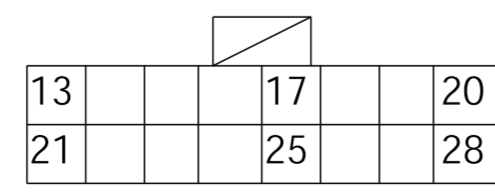
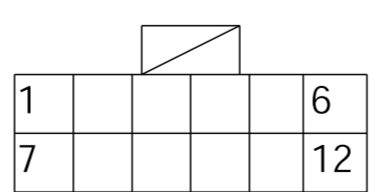
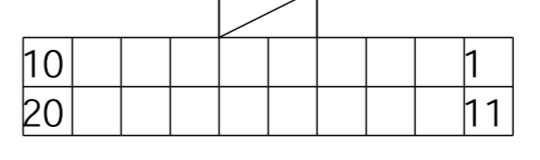
EX200-5, EX120-5 (Machines produced from beginning Aug. '98)



CONNECTORS

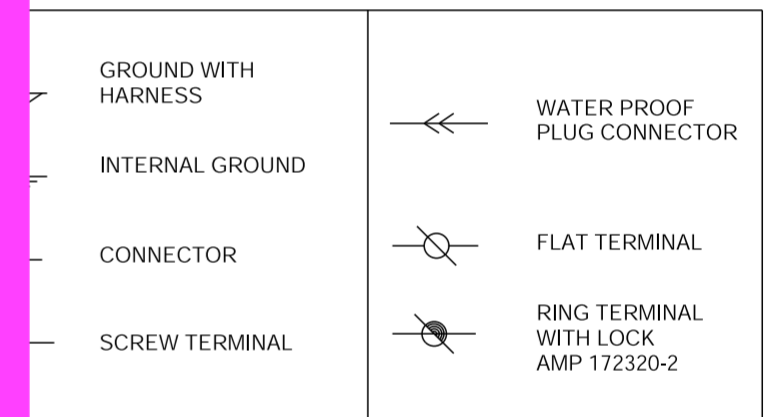
EX120-5(Machines produced up to end of July '98)

(These connectors are the harness end connectors, unless otherwise specified)

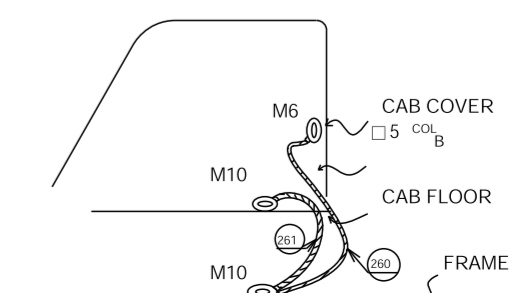
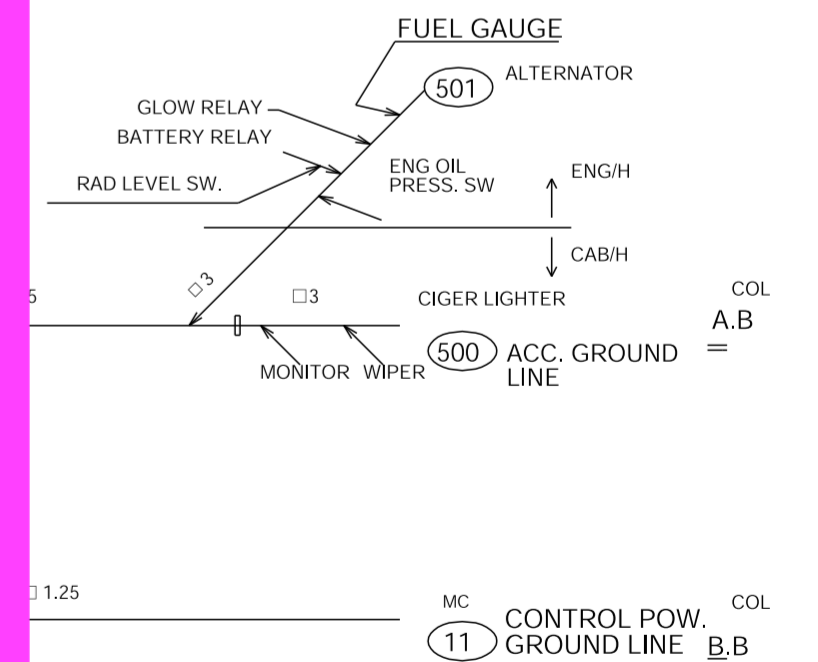
| | | | | | | | | | |
|--|--|--|---|--|---|--|---|--|---|
| SOLENOID VALVE  JFC02P-GY PB185-02326-B | ACCEL  C04FW ACCEL_SUB  C04MW | MIX_ACTUATOR (AIRCON)  7119_3070 | INTAKE_ACTUATOR (AIR-CON)  7119_3070 | MODE_ACTUATOR (AIR-CON)  7119_3090 | THERMOSTAT (AIR-CON)  SDL03F 7123-8335 | POWER_TRANSISTOR (AIR-CON)  CN04F MITSUBISHI_N-SLC-4F(N) MITSUBISHI_PH065-04010 7123-2246 | BLOWER_MOTOR (AIR-CON)  CN02F MITSUBISHI_N-SLC-2F-(N) MITSUBISHI_PH065-02010 7123-2228 | PRESSURE SW (AIR-CON)  7219_3320 | |
| DIODE  PH065-02010 | SPEAKER  PH065-02010 | PILOT PRESSURE SENSER  | | GLOW PLUG RELAY  | COMP_RELAY MAX_HL_RELAY OFF_RELAY (AIR-CON)  | HEATER /AIR CONDITIONER  | OPTION POWER  M06_FW | LEARNING SW  C06_FW | |
| PUMP DELIVERY PRESSURE SENSOR  AMP EJ<II>070 | PRESSURE SW (TRAVEL,BOOM-RA)  7323-9327 OR 090-2-W | [Redacted Area] | | | | | | | |
| RELAY # 4251588  M05-FB-R | ENG. OIL LEVEL  7323-7414-40 | | | | | | | | |
| ENG. CONTROL  C10FW | | | | | | | | | |
| CONTROLLER-D  AMP-174515-6 | | | | | | | | | |
| MONITOR  AMP-174047-2 | MONITOR  AMP-174046-2 | | | | | | | MONITOR  AMP-174045-2 | MONITOR  AMP_174047-2 040_MULTI_LOCK |

WIRE HARNESS NO.

| PARTS | TERMINAL NO. | HARNESS NO. |
|--------------------|--------------|-------------|
| CONTROLLER-A | 1-26 | 1-26 |
| CONTROLLER-B | 1-16 | 31-46 |
| CONTROLLER-D | 1-22 | 51-72 |
| OTHER | | 100-199 |
| MONITOR CONTROLLER | 1~35 | 201-235 |
| ACCESSORY | | 500-600 |
| VALVE_SUB/H | | 700-800 |



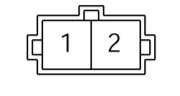
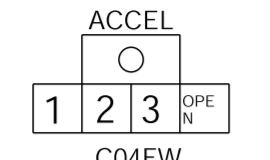

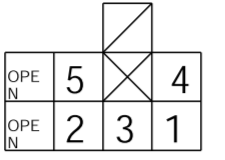
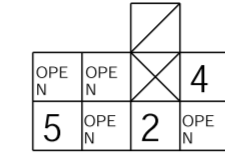
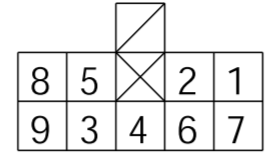
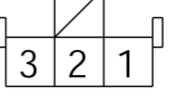
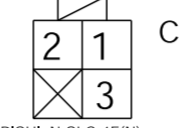
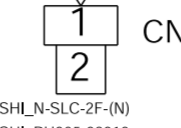
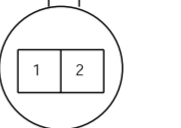
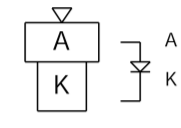
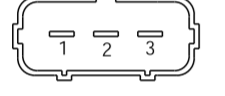
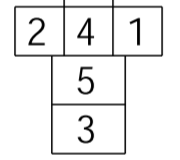
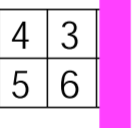
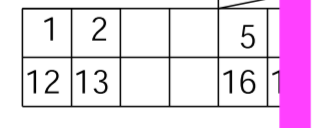
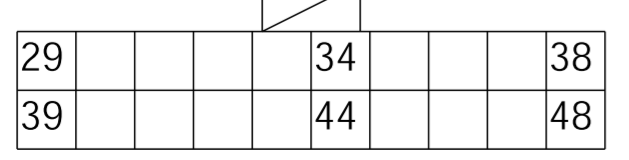
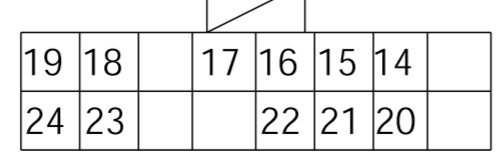
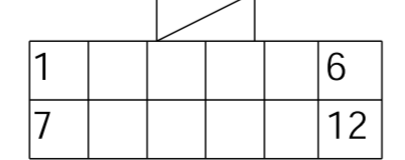
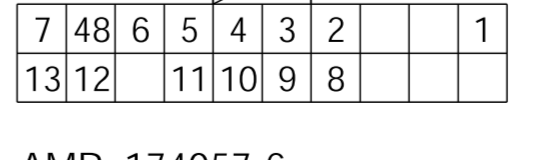
Meanings of the ground symbols above are different from the meanings in IEC.

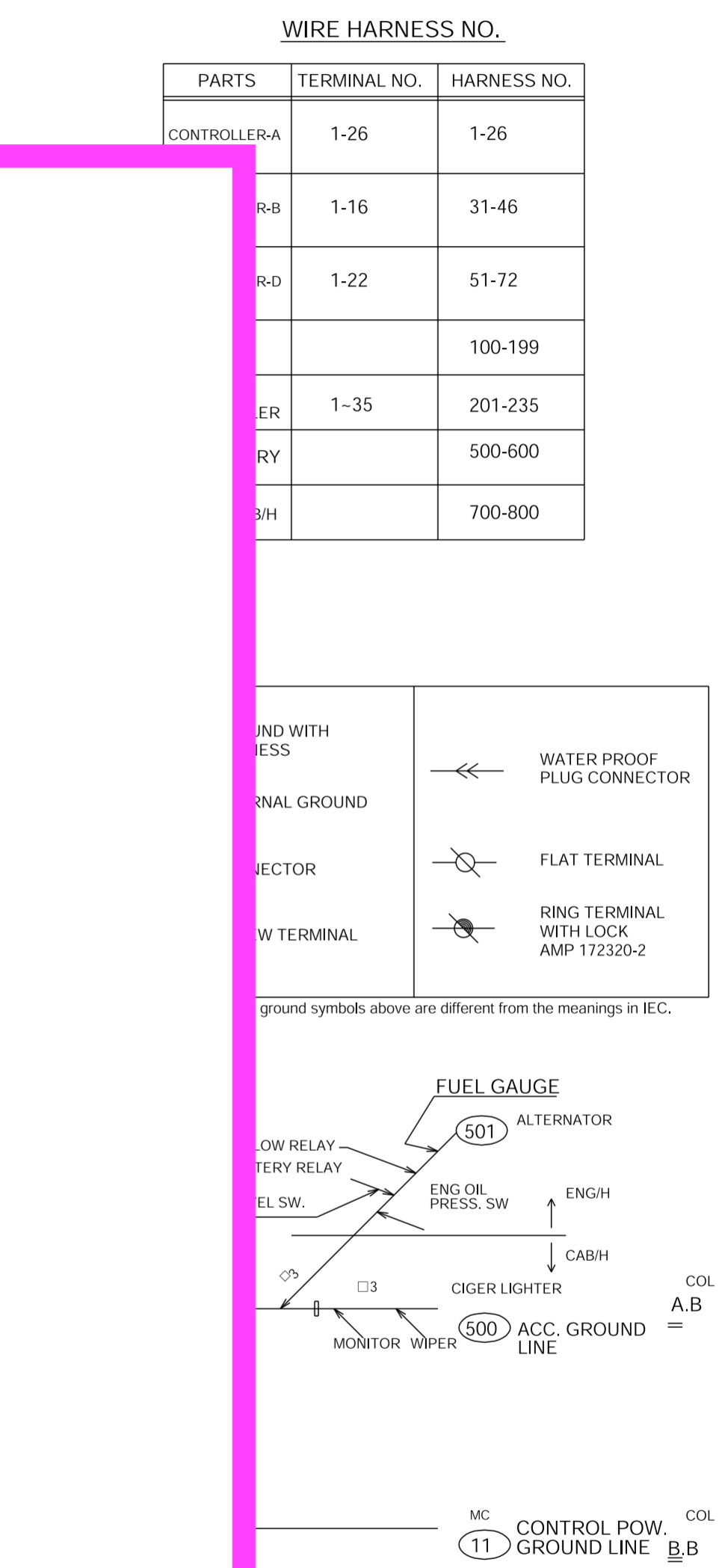


CONNECTORS

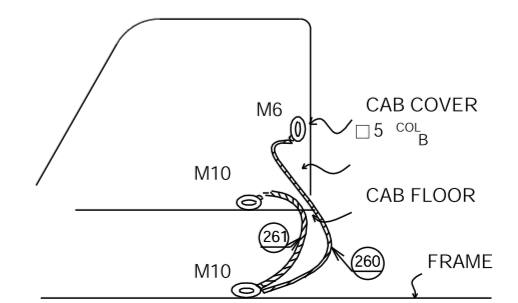
EX120-5(Machines produced from beginning Aug. '98)

(These connectors are the harness end connectors, unless otherwise specified)

| <p>SOLENOID VALVE</p>  <p>JFC02P-GY PB185-02326-B</p> | <p>ACCEL</p>  <p>C04FW ACCEL_SUB</p>  | <p>MIX_ACTUATOR (AIRCON)</p>  <p>7119 3070</p> | <p>INTAKE_ACTUATOR (AIR-CON)</p>  <p>7119 3070</p> | <p>MODE_ACTUATOR (AIR-CON)</p>  <p>7119 3090</p> | <p>THERMOSTAT (AIR-CON)</p>  <p>SDL03F</p> | <p>POWER_TRANSISTOR (AIR-CON)</p>  <p>CN04F MITUBISHI_N-SLC-4F(N) MITUBISHI_PH065-04010</p> | <p>BLOWER_MOTOR (AIR-CON)</p>  <p>CN02F MITUBISHI_N-SLC-2F-(N) MITUBISHI_PH065-02010</p> | <p>PRESSURE SW (AIR-CON)</p>  <p>7219 3320</p> | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|--|--|--|---|--|--|--------------|-------------|--------------|------|------|-----|------|-------|-----|------|-------|--|--|---------|-----|------|---------|----|--|---------|-----|--|---------|------------|
| <p>DIODE</p>  <p>PH065-02010</p> | <p>SP</p> | <p>WIRE HARNESS NO.</p> <table border="1" data-bbox="2300 357 2686 787"> <thead> <tr> <th>PARTS</th> <th>TERMINAL NO.</th> <th>HARNESS NO.</th> </tr> </thead> <tbody> <tr> <td>CONTROLLER-A</td> <td>1-26</td> <td>1-26</td> </tr> <tr> <td>R-B</td> <td>1-16</td> <td>31-46</td> </tr> <tr> <td>R-D</td> <td>1-22</td> <td>51-72</td> </tr> <tr> <td></td> <td></td> <td>100-199</td> </tr> <tr> <td>LER</td> <td>1-35</td> <td>201-235</td> </tr> <tr> <td>RY</td> <td></td> <td>500-600</td> </tr> <tr> <td>3/H</td> <td></td> <td>700-800</td> </tr> </tbody> </table> | | | | | | PARTS | TERMINAL NO. | HARNESS NO. | CONTROLLER-A | 1-26 | 1-26 | R-B | 1-16 | 31-46 | R-D | 1-22 | 51-72 | | | 100-199 | LER | 1-35 | 201-235 | RY | | 500-600 | 3/H | | 700-800 | <p>732</p> |
| PARTS | TERMINAL NO. | | | | | | | HARNESS NO. | | | | | | | | | | | | | | | | | | | | | | | | |
| CONTROLLER-A | 1-26 | | | | | | | 1-26 | | | | | | | | | | | | | | | | | | | | | | | | |
| R-B | 1-16 | | | | | | | 31-46 | | | | | | | | | | | | | | | | | | | | | | | | |
| R-D | 1-22 | 51-72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 100-199 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LER | 1-35 | 201-235 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RY | | 500-600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/H | | 700-800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>PUMP DELIVERY PRESSURE SENSOR</p>  <p>AMP EJ<II>070</p> | <p>PRES. (TRAVEL, E)</p> | <p>732</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>RELAY</p>  <p>6098-1493</p> | <p>ENG. OIL</p> | <p>7323-</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ENG. C</p>  <p>C10F</p> | <p>7323-</p> | <p>7323-</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>CONTROL</p>  <p>AMP-17</p> | <p>7323-</p> | <p>7323-</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>MONITOR</p>  <p>AMP-174047-2</p> | <p>AIRCON_CONTROLLER</p>  <p>AMP_179054-6</p> | <p>MONITOR</p>  <p>AMP-174045-2</p> | <p>AIRCON_CONTROLLER</p>  <p>AMP_174057-6 040_MULTI_LOCK</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

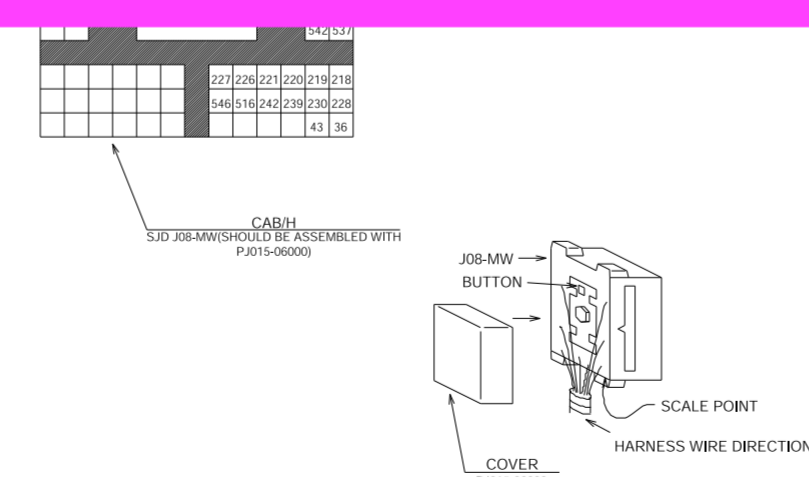
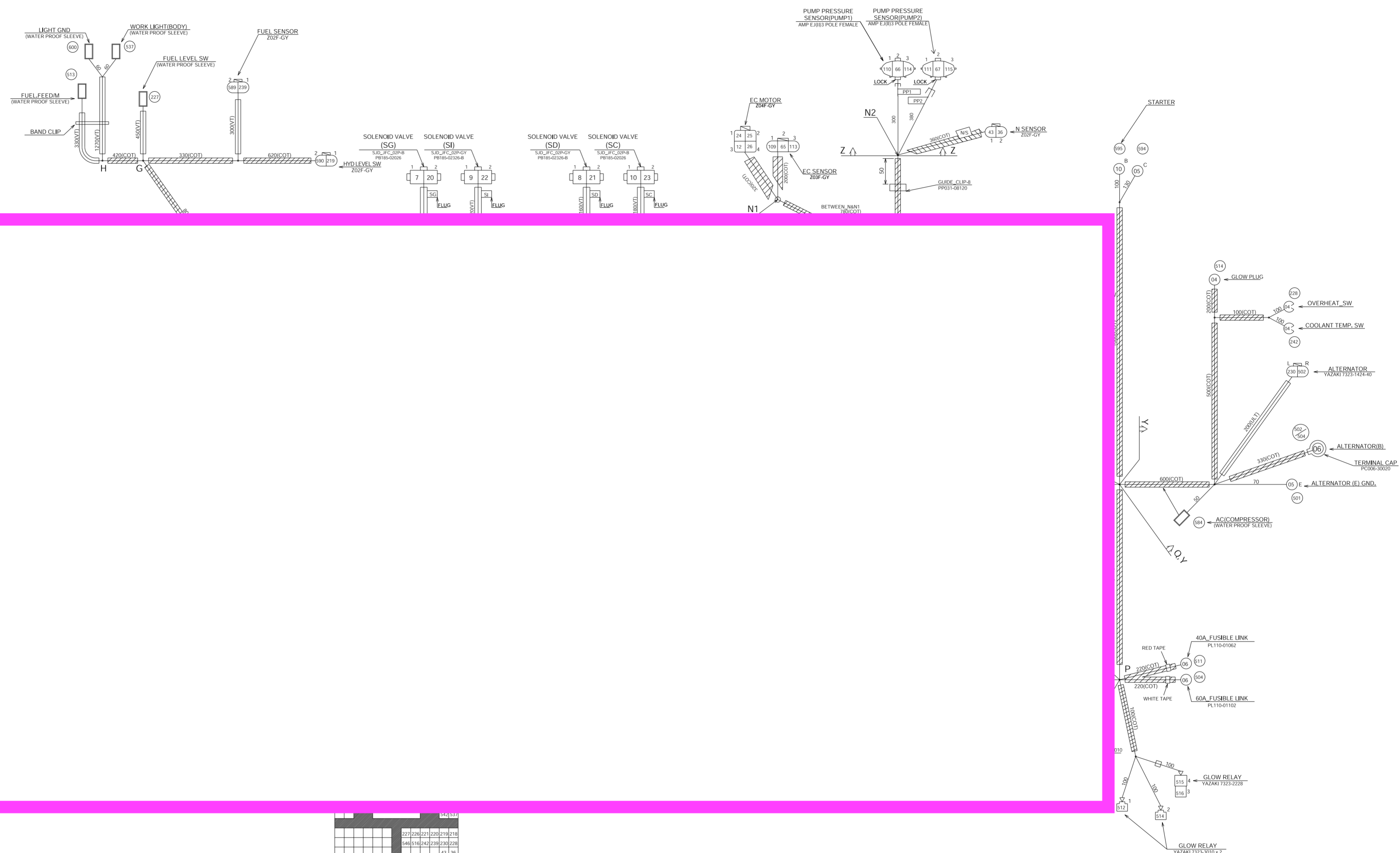


DETAIL 2



EX120-5 ENG. HARNESS

| NO. | SIZE | COLOR | FROM | TO | COMMENT |
|-----|------|-------|-----------------|------------|---------|
| 7 | 0.5 | LR | CABH | SOL (SG)-1 | |
| 8 | 0.5 | RW | CABH | SOL (SD)-1 | |
| 9 | 0.5 | LgB | CABH | SOL (SI)-1 | |
| 10 | 0.5 | LdO | CABH | SOL (SC)-1 | |
| 12 | 0.5 | Or | CABH | EC MOTOR-3 | |
| 20 | 0.5 | LB | CABH | | |
| 21 | 0.5 | RY | CABH | | |
| 22 | 0.5 | LgR | CABH | | |
| 23 | 0.5 | LW | CABH | | |
| 24 | 0.5 | BfR | CABH | | |
| 25 | 0.5 | R | CABH | | |
| 26 | 0.5 | Y | CABH | | |
| 36 | 0.5 | B | CABH | | |
| 39 | 0.5 | BY | CABH | | |
| 43 | 0.5 | W | CABH | | |
| 57 | 0.5 | BR | CABH | | |
| 58 | 0.5 | BW | CABH | | |
| 59 | 0.5 | WB | CABH | | |
| 64 | 0.5 | L | CABH | | |
| 65 | 0.5 | YB | CABH | | |
| 66 | 0.5 | RG | CABH | | |
| 67 | 0.5 | GB | CABH | | |
| 68 | 0.5 | RB | CABH | | |
| 69 | 0.5 | BL | CABH | | |
| 72 | 0.5 | BP | CABH | | |
| 100 | 0.5 | OB | CABH | | |
| 101 | 0.5 | DL | CABH | | |
| 109 | 0.5 | YL | CABH | | |
| 110 | 0.5 | W | CABH | | |
| 111 | 0.5 | WR | CABH | | |
| 112 | 0.5 | YR | CABH | | |
| 113 | 0.5 | BfL | CABH | | |
| 114 | 0.5 | RY | CABH | | |
| 115 | 0.5 | YB | CABH | | |
| 116 | 0.5 | BfW | CABH | | |
| 117 | 0.5 | YB | CABH | | |
| 118 | 0.5 | BfL | CABH | | |
| 119 | 0.5 | Or | CABH | | |
| 218 | 0.5 | WR | CABH | | |
| 219 | 0.5 | G | CABH | | |
| 220 | 0.5 | L | CABH | | |
| 221 | 0.85 | WB | CABH | | |
| 226 | 0.5 | GL | CABH | | |
| 227 | 0.5 | WY | CABH | | |
| 228 | 0.5 | RL | CABH | | |
| 230 | 0.5 | LY | CABH | | |
| 239 | 0.5 | Bf | CABH | | |
| 242 | 0.5 | WB | CABH | | |
| 260 | 5 | B | FRAME | | |
| 261 | 5 | B | FRAME | | |
| 501 | 3 | B | CAB | | |
| 502 | 0.5 | W | ALTERN | | |
| 503 | 0.85 | WG | (50) | | |
| 504 | 8 | W | 60A FUSIBLE | | |
| 505 | 1.25 | BW | CAB | | |
| 506 | 5 | W | (60A) | | |
| 507 | 2 | B | (60) | | |
| 508 | 2 | RW | CAB | | |
| 509 | 2 | B | (60) | | |
| 510 | 2 | RW | (60) | | |
| 511 | 3 | R | 40A FUSIBLE | | |
| 512 | 3 | R | (51) | | |
| 513 | 2 | RB | (51) | | |
| 514 | 3 | BY | GLOW R | | |
| 515 | 0.5 | B | (60) | | |
| 516 | 0.5 | GY | CAB | | |
| 536 | 2 | RL | CAB | | |
| 537 | 2 | R | CAB | | |
| 542 | 0.85 | RG | CAB | | |
| 543 | 0.85 | RG | (42) | | |
| 546 | 0.5 | Pu | CAB | | |
| 547 | 0.5 | B | (60) | | |
| 583 | 0.85 | W | CAB | | |
| 584 | 0.85 | WR | AC | | |
| 589 | 0.5 | B | (60) | | |
| 590 | 0.5 | B | (60) | | |
| 591 | 0.5 | B | (60) | | |
| 592 | 0.5 | B | ENG OIL PRES SW | | |
| 593 | 0.5 | B | COOLANT LEV-2 | | |
| 594 | 5 | RB | STARTER-C | | |
| 595 | 5 | RL | STARTER-B | | |
| 596 | 1.25 | B | STARTER RELAY | | |
| 600 | 2 | B | LIGHT_GND | | |



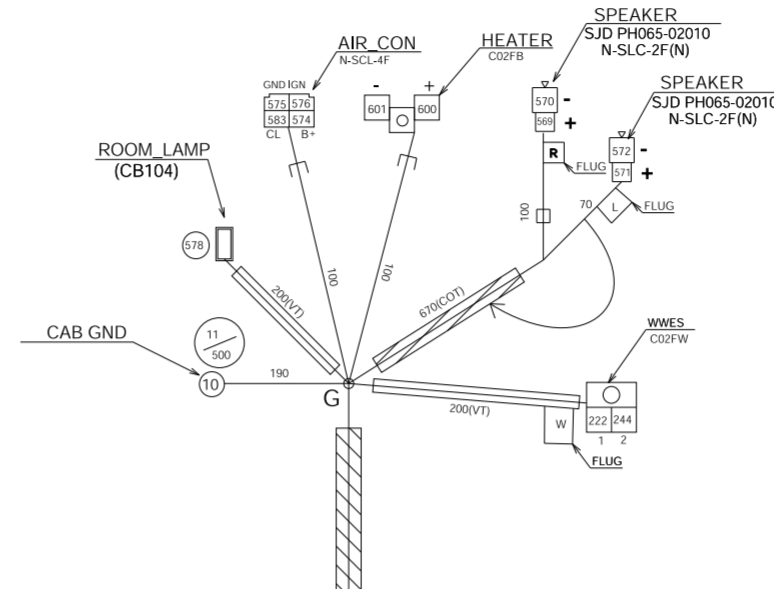
- NOTE.
1. UNDER □1.25 WIRE MAY BE AVS WIRE,IF NO COMMENT. OVER □2 WIRE MAY BE AV WIRE.
 2. NO ELECTRIC TURNING POINT MAY BE OUT SIDE OF Q-Q POINT.
 3. PUT THE PART No. LABEL ON THE HARNESS.
 4. NO PLATE ON THE CB TYPE CONNECTORS.
 5. COLOR SIGN DUE TO JASO D607
 6. WRAP CPRRUGATED TUBE (COT) IN TYPE BETWEEN G- F-E-A-A-B.
 7. ANTI-RUST GREASE MAY BE PUT IN ☆ POINTS.
 8. WRAP UP THE AREAS,POINTED BY ARROWS ON Y-Y AND ON Z-Z,WITH HEAT RESISTANCE TAPES.
 9. SHIELD WIRE (APEXSP-1A OR EQUIV.).
 10. A-R AREA MAY BE INTERVAL WRAPPING OR PITCH WRAPPING. 11. (⊗)MARKED JOINT MAY BE WRAPPED BY SELF-FUSION TAPE OR MAY BE PUT ON R DIRECTION FROM U POINT,OR MAY BE DOUBLE JOINT ON THE HOLE TYPE CONNECTOR.

CAB HARNESS EX120-5

| NO. | SIZE | COL. | FROM | TO | COMMENT |
|-----|------|------|--------|---------|---------|
| 1 | 0.5 | BR | MC-A1 | FUSE-4 | |
| 2 | | | | | NO_USE |
| 3 | | | | | NO_USE |
| 4 | | | | | NO_USE |
| 5 | | | | | NO_USE |
| 6 | | | | | NO_USE |
| 7 | 0.5 | LR | MC-A7 | EH | |
| 8 | 0.5 | RW | MC-A8 | EH | |
| 9 | 0.5 | LqB | MC-A9 | EH | |
| 10 | 0.5 | LqB | MC-A10 | EH | |
| 11 | 1.25 | B | MC-A11 | CAB GND | |
| 12 | 0.5 | OR | MC-A12 | EH | |
| 13 | 1.25 | BW | MC-A13 | FUSE-3 | |
| 14 | 1.25 | B | MC-A14 | (1) | |
| 15 | | | | | NO_USE |
| 16 | | | | | NO_USE |
| 17 | | | | | NO_USE |
| 18 | | | | | NO_USE |
| 19 | | | | | NO_USE |
| 20 | 0.5 | LB | MC-A20 | EH | |
| 21 | 0.5 | RY | MC-A21 | EH | |
| 22 | 0.5 | LqR | MC-A22 | EH | |
| 23 | 0.5 | LW | MC-A23 | EH | |
| 24 | 0.5 | BR | MC-A24 | EH | |
| 25 | 0.5 | R | MC-A25 | EH | |
| 26 | 0.5 | Y | MC-A26 | EH | |

| NO. | SIZE | COL. | CIRCUIT FROM | TO | COMMENT |
|-----|------|------|--------------|--------|---------|
| 201 | | | | | NO_USE |
| 202 | | | | | NO_USE |
| 203 | | | | | NO_USE |
| 204 | | | | | NO_USE |
| 205 | | | | | NO_USE |
| 206 | | | | | NO_USE |
| 207 | | | | | NO_USE |
| 208 | | | | | NO_USE |
| 209 | | | | | NO_USE |
| 210 | | | | | NO_USE |
| 211 | | | | | NO_USE |
| 212 | | | | | NO_USE |
| 213 | | | | | NO_USE |
| 214 | | | | | NO_USE |
| 215 | | | | | NO_USE |
| 216 | | | | | NO_USE |
| 217 | | | | | NO_USE |
| 218 | 0.5 | WR | RELAY1-1 | EH | |
| 219 | 0.5 | G | RELAY1-2 | EH | |
| 220 | 0.5 | L | RELAY1-3 | EH | |
| 221 | 0.5 | WB | RELAY1-4 | EH | |
| 222 | 0.5 | P | RELAY1-5 | WWES-1 | |
| 223 | | | | | NO_USE |
| 224 | | | | | NO_USE |
| 225 | | | | | NO_USE |
| 226 | 0.5 | GL | RELAY1-6 | EH | |
| 227 | 0.5 | WY | RELAY1-7 | EH | |
| 228 | 0.5 | RL | RELAY1-8 | EH | |

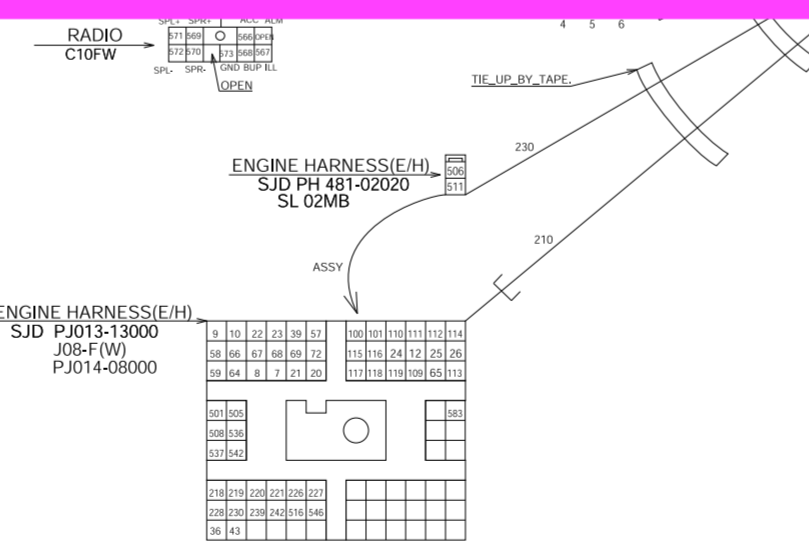
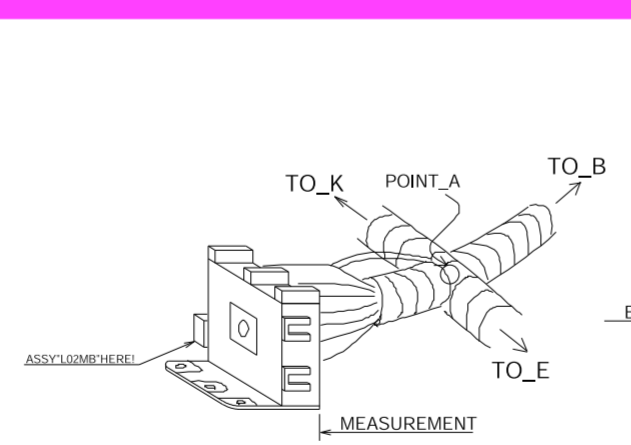
| NO. | SIZE | COL. | CIRCUIT FROM | TO | COMMENT |
|-----|------|------|--------------------|------------|---------|
| 572 | 0.5 | LqR | RADIO- SPL- | SPL- | |
| 573 | 0.5 | B | RADIO-GND | (60) | |
| 574 | 0.5 | WH | FUSE14 | AIRCON-SP | |
| 575 | 2 | B | AIRCON_GND | (60) | |
| 576 | 2 | BR | FUSE13 | AIRCON-IGN | |
| 577 | 1.25 | BR | FUSE17 | RELAY4 | |
| 578 | 0.5 | RW | FUSE18 | ROOMLAMP | |
| 579 | 0.5 | R | FUSE19 | AUXLAMP | |
| 580 | 0.5 | B | (60) | AUXLAMP | |
| 581 | 0.5 | R | (60) | DIODE-D3A | |
| 582 | 0.5 | B | (60) | DIODE-D3A | |
| 583 | 0.85 | WB | AIRCON-CL | EH | |
| 585 | 0.5 | YW | ENG CONTROL DMAL-2 | (60) | |
| 586 | 0.5 | R | ENG CONTROL DMAL-3 | (60) | |
| 587 | 0.5 | B | ENG CONTROL DMAL-9 | (60) | |
| 600 | 0.85 | BR | HEATER | (60) | |
| 601 | 0.85 | B | HEATER | (60) | |
| 602 | | | | | NO_USE |
| 603 | | | | | NO_USE |
| 604 | | | | | NO_USE |
| 605 | | | | | NO_USE |
| 606 | | | | | NO_USE |
| 607 | | | | | NO_USE |
| 608 | | | | | NO_USE |
| 609 | | | | | NO_USE |
| 610 | 1.25 | WR | OPT-1 | FUSE-7 | |



| | | | | | |
|----|-----|-----|--------------------|----|--|
| 31 | | | | | |
| 32 | 0.5 | G | MC-B2 | | |
| 33 | 0.5 | B | POWER BOOST SW-GND | | |
| 34 | 0.5 | WFL | MC-B4 | PO | |
| 35 | 0.5 | WG | MC-B5 | L | |
| 36 | 0.5 | B | MC-B6 | | |
| 37 | 0.5 | BR | MC-B7 | | |
| 38 | 0.5 | BR | MC-B8 | | |
| 39 | 0.5 | BY | MC-B9 | | |
| 40 | 0.5 | GR | MC-B10 | | |
| 41 | 0.5 | OR | MC-B11 | | |
| 42 | 0.5 | BR | MC-B12 | | |
| 43 | 0.5 | W | MC-B13 | | |
| 44 | | | | | |
| 45 | 0.5 | RL | MC-B15 | | |
| 46 | 0.5 | BL | MC-B16 | | |

| | | | | | |
|----|------|-----|--------|----|--|
| 51 | 1.25 | BY | MC-D1 | | |
| 52 | 1.25 | BY | MC-D2 | | |
| 53 | 0.5 | CYL | MC-D3 | | |
| 54 | 0.5 | CYR | MC-D4 | | |
| 55 | 0.5 | W | MC-D5 | | |
| 56 | 0.5 | OR | MC-D6 | | |
| 57 | 0.5 | BR | MC-D7 | | |
| 58 | 0.5 | BW | MC-D8 | | |
| 59 | 0.5 | WB | MC-D9 | | |
| 60 | 0.5 | YG | MC-D10 | | |
| 61 | | | | | |
| 62 | 1.25 | B | MC-D12 | | |
| 63 | 1.25 | B | MC-D13 | | |
| 64 | 0.5 | L | MC-D14 | | |
| 65 | 0.5 | YB | MC-D15 | | |
| 66 | 0.5 | RC | MC-D16 | | |
| 67 | 0.5 | GB | MC-D17 | | |
| 68 | 0.5 | RB | MC-D18 | | |
| 69 | 0.5 | BL | MC-D19 | | |
| 70 | 0.5 | WL | MC-D20 | | |
| 71 | 0.5 | WR | MC-D21 | EN | |
| 72 | 0.5 | BP | MC-D22 | | |

| | | | | | |
|-----|-----|-----|------------|-----------|--------|
| 340 | 0.5 | P | HORN_SW | RELAY1-11 | |
| 541 | 0.5 | B | HORN_SW | (60) | |
| 542 | 0.5 | RG | RELAY1-12 | EH | |
| 544 | 0.5 | LY | FUSE12 | RELAY1-15 | |
| 545 | | | | | NO_USE |
| 546 | 0.5 | Pj | RELAY2-2 | EH | |
| 549 | | | | | NO_USE |
| 550 | | | | | NO_USE |
| 551 | | | | | NO_USE |
| 552 | | | | | NO_USE |
| 553 | | | | | NO_USE |
| 554 | | | | | NO_USE |
| 555 | | | | | NO_USE |
| 556 | | | | | NO_USE |
| 557 | | | | | NO_USE |
| 558 | | | | | NO_USE |
| 559 | | | | | NO_USE |
| 560 | | | | | NO_USE |
| 561 | | | | | NO_USE |
| 562 | | | | | NO_USE |
| 563 | | | | | NO_USE |
| 564 | | | | | NO_USE |
| 565 | | | | | NO_USE |
| 566 | 0.5 | BR | RADIO-ACC | FUSE16 | |
| 567 | 0.5 | R | RADIO-BLL | (60) | |
| 568 | 0.5 | GR | RADIO-LUP | (70) | |
| 569 | 0.5 | LqW | RADIO-SPR+ | SPR+ | |
| 570 | 0.5 | LqB | RADIO-SPR- | SPR- | |
| 571 | 0.5 | LqY | RADIO-SPL+ | SPL+ | |

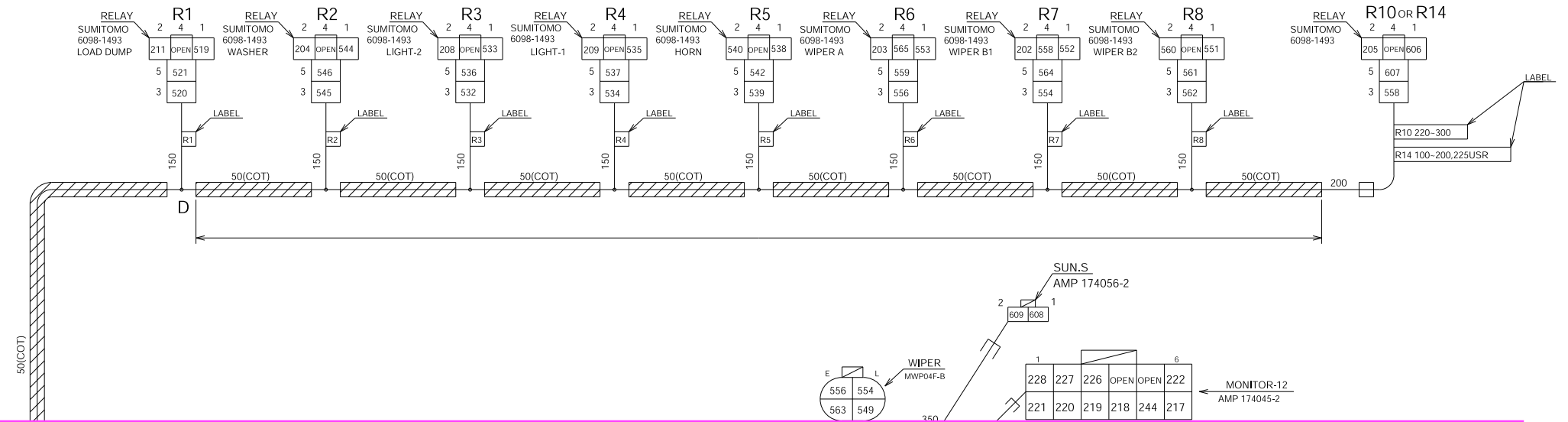


RELAY HARNESS

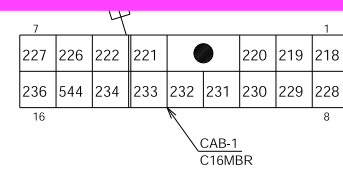
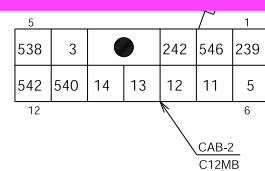
EX120-5 (Machines produced from beginning Aug. '98)

| NO. | SIZE | COL. | CIRCUIT | |
|-----|------|------|------------|----------|
| | | | FROM | TO |
| 3 | 0.5 | GyL | MONITOR-21 | CAB 2-4 |
| 5 | 0.5 | OrB | MONITOR-13 | CAB 2-6 |
| 11 | 0.5 | GyR | MONITOR-22 | CAB 2-7 |
| 12 | 0.5 | BR | MONITOR-17 | CAB 2-8 |
| 13 | 0.5 | OrL | MONITOR-23 | CAB 2-9 |
| 14 | 0.5 | W | MONITOR-15 | CAB 2-10 |
| 201 | 0.5 | LOr | MONITOR-28 | (203) |
| 202 | 0.5 | BrW | MONITOR-27 | R7-2 |
| 203 | 0.5 | LG | MONITOR-26 | R6-2 |
| 204 | 0.5 | YB | MONITOR-25 | R2-2 |
| 205 | 0.5 | GW | MONITOR-24 | R10-2 |

| NO. | SIZE | COL. | CIRCUIT | |
|-----|------|------|---------|------------|
| | | | FROM | TO |
| 558 | 0.5 | BR | R10-3 | R7-4 |
| 559 | 0.5 | B | (500) | R6-5 |
| 560 | 0.5 | BrW | (202) | R8-2 |
| 561 | 0.5 | BrW | (202) | R8-5 |
| 562 | 0.5 | LR | D4-A | R8-3 |
| 563 | 0.5 | LB | D4-K | WIPER-S |
| 564 | 0.5 | LY | (644) | R7-5 |
| 565 | 0.5 | BrB | (663) | R6-4 |
| 577 | 1.25 | Br | CAB 4 | LIGHTER(+) |
| 602 | 0.5 | LgW | D5-K | (556) |
| 603 | 0.5 | LW | D6-K | (554) |



| | | | | |
|-----|-----|-----|---------|------|
| 551 | 0.5 | LY | (644) | R8-1 |
| 552 | 0.5 | LY | (644) | R7-1 |
| 553 | 0.5 | LY | (644) | R6-1 |
| 554 | 0.5 | LW | WIPER-L | R7-3 |
| 556 | 0.5 | LgW | WIPER-E | R6-3 |

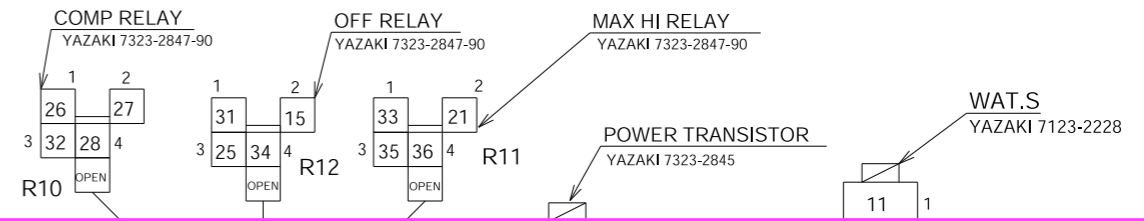


- SYMBOL OF THIS DRAWING DUE TO #X4259303.
- LABEL OF R1~R8, R10 MAY BE 120mm FROM CONNECT END. No208,209,211 WIRE MAY BE +10mm BETWEEN CONNECTOR - LABEL.

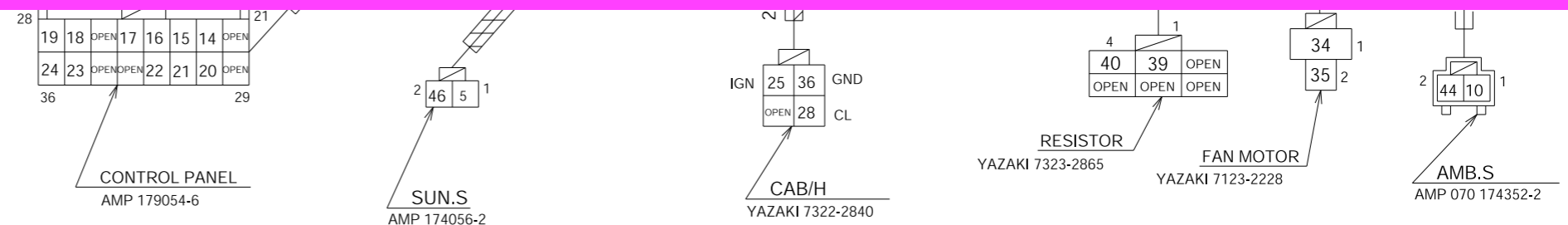
A/C HARNESS

EX120-5 (Machines produced from beginning Aug. '98)

| NO. | SIZE | COL. | FROM | TO | COMMENT |
|-----|------|------|--------|------------|---------|
| 1 | 0.5 | Br | C/P-1 | (25) | |
| 2 | 0.5 | BG | C/P-4 | MODE ACT-5 | |
| 3 | 0.5 | BL | C/P-5 | MODE ACT-3 | |
| 4 | 0.5 | G | C/P-6 | INC.S-1 | |
| 5 | 0.5 | GW | C/P-7 | SUN.S-1 | |
| 6 | 0.5 | BrY | C/P-8 | MIX ACT-3 | |
| 7 | 0.5 | B | C/P-10 | (36) | |
| 8 | 0.5 | BrY | C/P-14 | MODE ACT-4 | |
| 9 | 0.5 | BY | C/P-15 | MODE ACT-2 | |
| 10 | 0.5 | V | C/P-16 | AMB.S-1 | |
| 11 | 0.5 | OL | C/P-17 | WAT.S-1 | |



| | | | | | |
|----|-----|-----|------------|------------|--|
| 34 | 2 | LB | OFF/R-4 | FAN/M-1 | |
| 35 | 2 | L | FAN/M-2 | MAX HI/R-3 | |
| 36 | 2 | B | MAX HI/R-4 | CAB/H-GND | |
| 37 | 2 | L | P/TR-1 | (35) | |
| 38 | 2 | B | P/TR-3 | (36) | |
| 39 | 2 | L | RESISTOR-1 | (35) | |
| 40 | 2 | B | RESISTOR-4 | (36) | |
| 41 | 0.5 | BrY | MODE ACT-1 | (8) | |
| 42 | 0.5 | BrR | MODE ACT-7 | (13) | |
| 43 | 0.5 | BL | MODE ACT-6 | (3) | |
| 44 | 0.5 | BrR | AMB.S-2 | (13) | |
| 45 | 0.5 | BrR | WAT.S-2 | (13) | |
| 46 | 0.5 | BrR | SUN.S-2 | (13) | |
| 47 | 0.5 | BrR | MIX ACT-5 | (13) | |
| 48 | 0.5 | B | C/P-9 | (38) | |



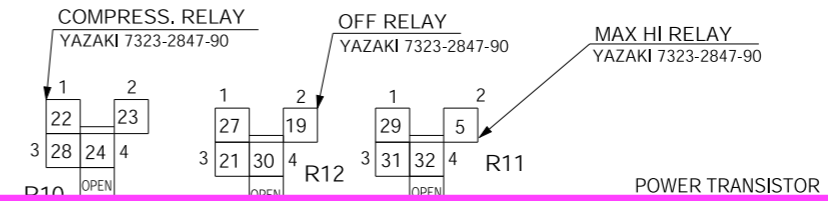
NOTE

1. WIRE SHALL BE AVS WIRE.
2. PUT THE LABEL FOR THE HARNESS.

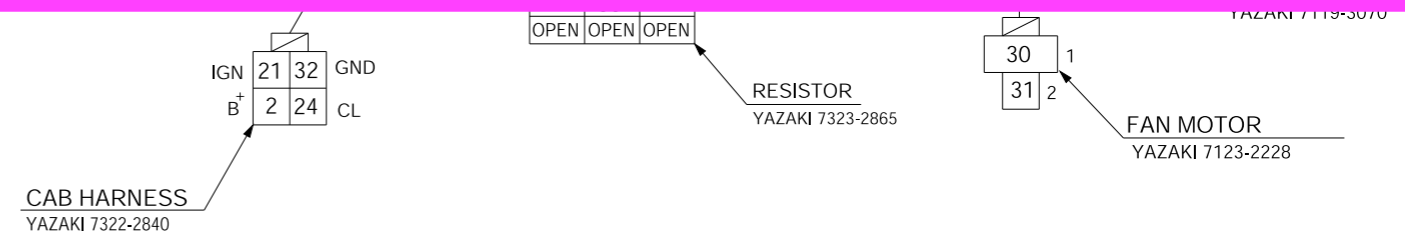
A/C HARNESS

EX120-5(Machines produced up to end of July '98)

| NO. | SIZE | COL. | FROM | TO | COMMENT |
|-----|------|------|-----------------|----------------------|---------|
| 1 | 0.5 | Br | CONTROL PANEL-1 | (21) | |
| 2 | 0.5 | WY | CONTROL PANEL-2 | CAB/H-B ⁺ | |
| 3 | 0.5 | WL | CONTROL PANEL-3 | THERMOSTAT-2 | |

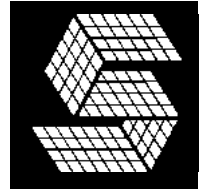


| | | | | | |
|----|------|----|--------------------|----------------|--|
| 27 | 0.5 | Br | OFF RELAY-1 | (21) | |
| 28 | 0.85 | Br | COMPRESS. RELAY-3 | (21) | |
| 29 | 0.5 | Br | MAX HI RELAY-1 | (21) | |
| 30 | 2 | LB | OFF RELAY-4 | FAN MOTOR-1 | |
| 31 | 2 | L | FAN MOTOR-2 | MAX HI RELAY-3 | |
| 32 | 2 | B | MAX HI RELAY-4 | CAB/H-GND | |
| 33 | 2 | L | POWER TRANSISTOR-1 | (31) | |
| 34 | 2 | B | POWER TRANSISTOR-3 | (32) | |
| 35 | 2 | L | RESISTOR-1 | (31) | |
| 36 | 2 | B | RESISTOR-4 | (32) | |
| 37 | 0.5 | BG | MODE ACT-4 | (17) | |
| 38 | 0.5 | BL | MODE ACT-2 | (16) | |
| 39 | 0.5 | BY | MODE ACT-1 | (18) | |
| 40 | 0.5 | BW | MODE ACT-7 | (12) | |



NOTE:IF NO COMMENT,0.5 to 1.25 AVS WIRE MAY BE USED.

SECTION 1 GENERAL



—CONTENTS—

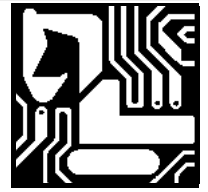
Group 1 Specification

| | |
|---|--------|
| Specifications | T1-1-1 |
| Working Ranges and Machine Dimensions for Transportation | T1-1-2 |
| Component Specification | T1-1-3 |

Group 2 Component Layout

| | |
|--|--------|
| Main Components..... | T1-2-1 |
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| Electrical System (Relays) | T1-2-3 |
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| Other Components | T1-2-6 |

SECTION 2 SYSTEM



—CONTENTS—

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| | |
|-----------------------------|---------|
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| Valve Control..... | T2-1-8 |
| Other Control Function..... | T2-1-11 |

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| | |
|--------------------------------|--------|
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| Neutral Circuit..... | T2-2-3 |
| Single Actuator Operation..... | T2-2-3 |
| Combined Operation..... | T2-2-4 |

Group 3 Electrical System

| | |
|---------------------------------------|---------|
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| Bulb Check Circuit..... | T2-3-3 |
| Preheat Circuit..... | T2-3-4 |
| Starting Circuit..... | T2-3-6 |
| Charging Circuit..... | T2-3-8 |
| Surge Voltage Prevention Circuit..... | T2-3-11 |
| Accessory Circuit..... | T2-3-12 |
| Engine Stop Circuit..... | T2-3-13 |

SYSTEM / Hydraulic System

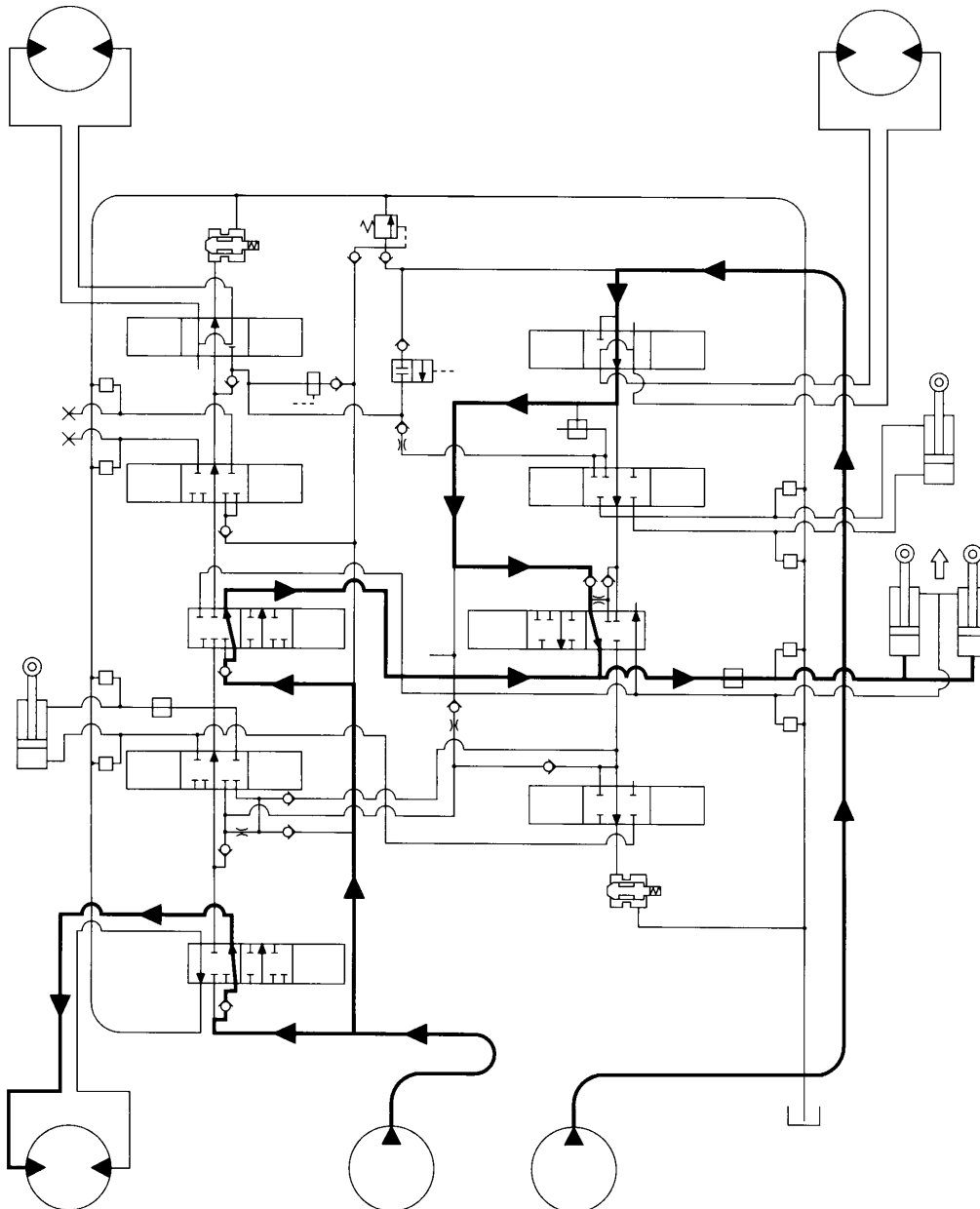
COMBINED OPERATION

Swing and Boom Raise Operation

When swing and boom raise operations are performed at the same time, pilot pressure shifts the swing, boom 1, and boom 2 spools in the control valves.

Then, pressure oil from pump 1 flows into the boom cylinder via the parallel passage in the 4-spool side section in the control valve to raise the boom. Pressure oil from pump 2 flows into the swing motor to swing the upperstructure. A portion of the pressure oil from pump 2 is detoured to the boom cylinder.

The detoured oil flow is combined with the oil flow from pump 1 after flowing through the parallel passage and boom 2 spool in the 5-spool control valve. The boom is raised by combined oil flow from pump 1 and pump 2.

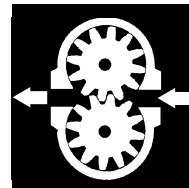


T155-04-03-008

T2-2-4

SECTION 3

COMPONENT OPERATION



—CONTENTS—

Group 1 Pump Device

| | |
|-------------------------------------|---------|
| Outline..... | T3-1-1 |
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| Regulator..... | T3-1-5 |
| Pilot Pump..... | T3-1-12 |
| Pump Delivery Pressure Sensor | T3-1-12 |

Group 2 Swing Device

| | |
|----------------------------|--------|
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| Brake Valve | T3-2-4 |
| Swing Parking Brake | T3-2-6 |
| Swing Reduction Gear | T3-2-7 |

Group 3 Control Valve

| | |
|---|---------|
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Group 4 Pilot Valve

| | |
|----------------|--------|
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| | |
|----------------------------|---------|
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| Travel Reduction Gear..... | T3-5-2 |
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| Travel Brake Valve..... | T3-5-10 |
| Parking Brake..... | T3-5-14 |

Group 6 Others (Upperstructure)

| | |
|---------------------------|--------|
| Pilot Shut-Off Valve..... | T3-6-1 |
| Shockless Valve..... | T3-6-2 |
| Solenoid Valve Unit..... | T3-6-4 |
| Pilot Relief Valve..... | T3-6-6 |
| EC Motor | T3-6-6 |

Group 7 Others (Undercarriage)

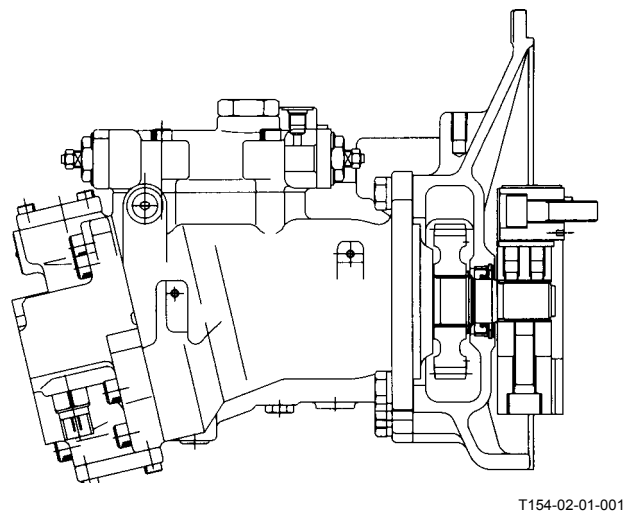
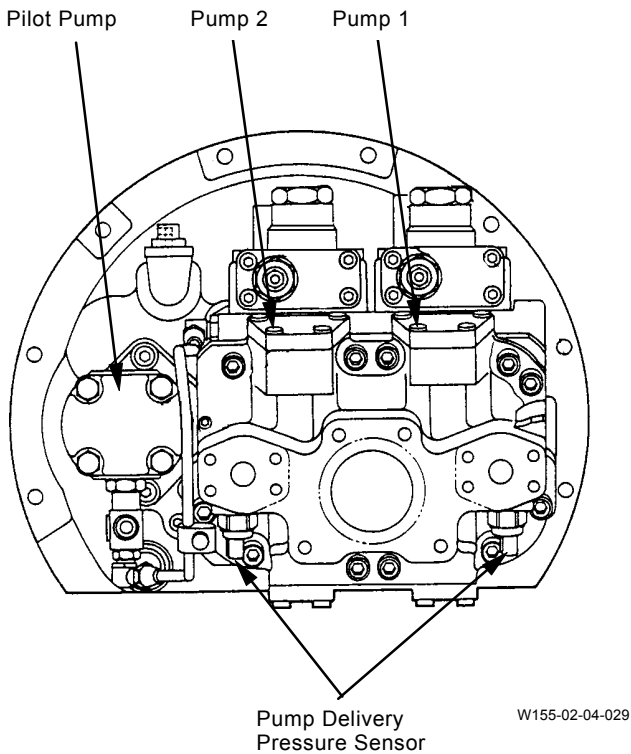
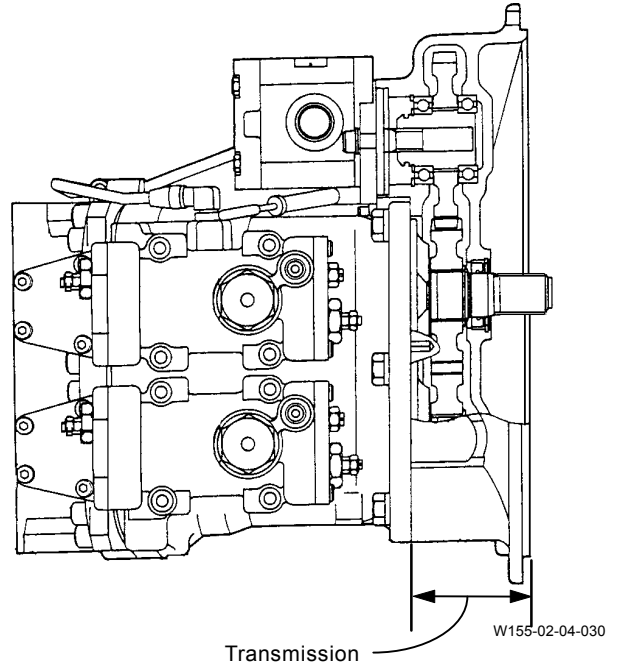
| | |
|----------------------|--------|
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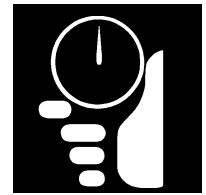
OUTLINE

The pump device consists of a transmission, main pump, and pilot pump. The transmission receives engine power via coupling, then divides and transmits the power to the pump 1, the pump 2 and the pilot pump via gears. Gear ratios on the main pump drive side is 1, the pilot pump side is 0.871. The transmission is lubricated with gear oil.

The main pumps are variable displacement, bent-axis plunger-type pumps equipped with the pump delivery pressure sensors for controlling of the valves. These main pumps are incorporated into a single housing. Pilot pump is a gear-type pump.



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OPERATIONAL PERFORMANCE TEST / Engine Test

ENGINE SPEED


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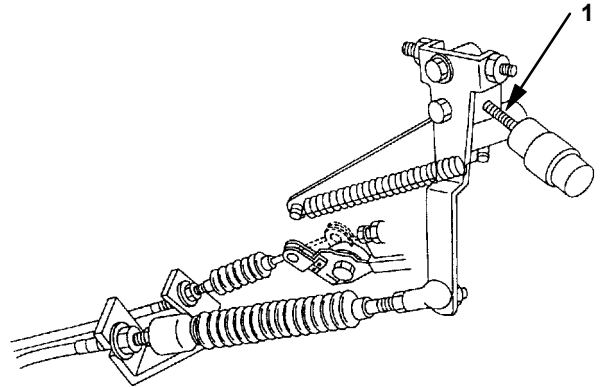
1. Use an engine tachometer.
2. Measure the engine speeds in each mode.

 **NOTE:** Measure the engine speed before performing all other tests to check that the engine speed meets specification. Because, if the engine speed is not adjusted correctly, all other performance data will be unreliable.

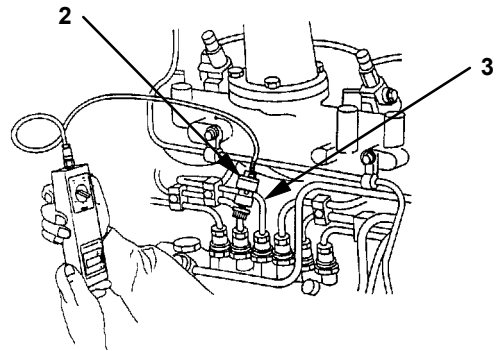
Preparation:

1. Install speed pickup (2) of an engine tachometer to injection pipe (3).
2. Warm up the machine until the engine coolant temperature reaches 50 °C (122 °F) or more, and hydraulic oil is 50±5 °C (122±9 °F).

 **NOTE:** Never attempt to the readjust stopper (1).



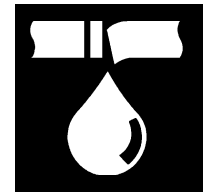
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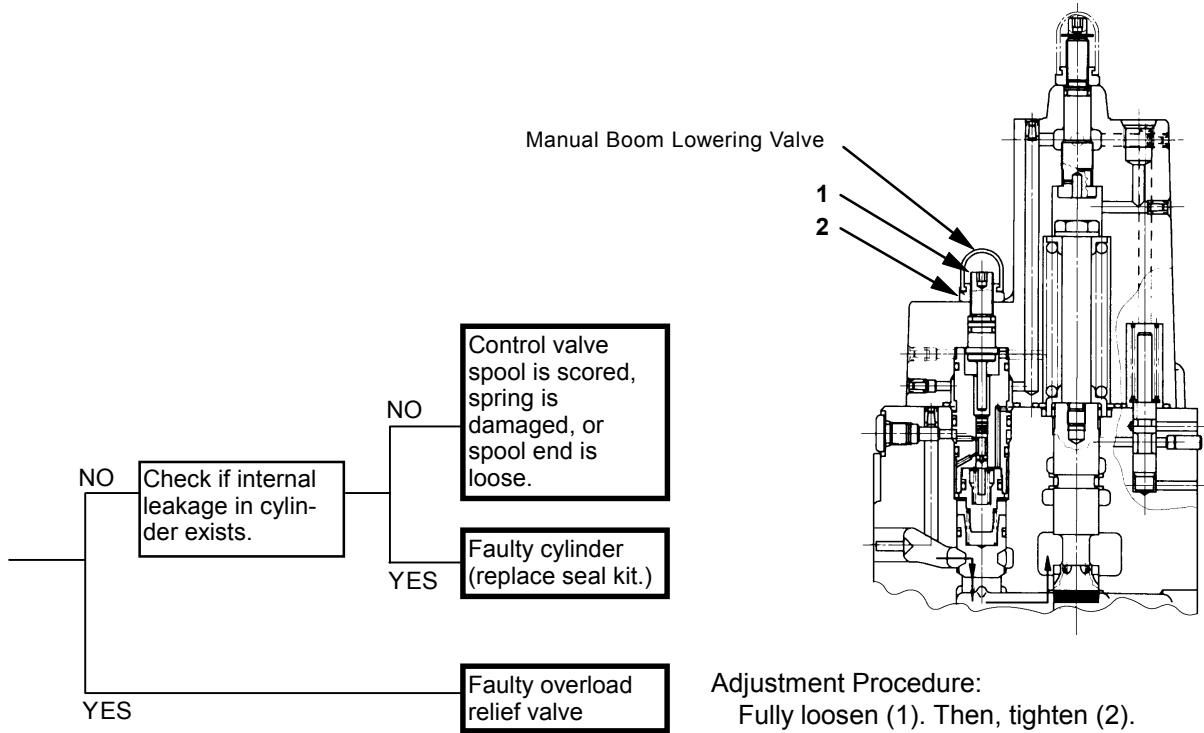
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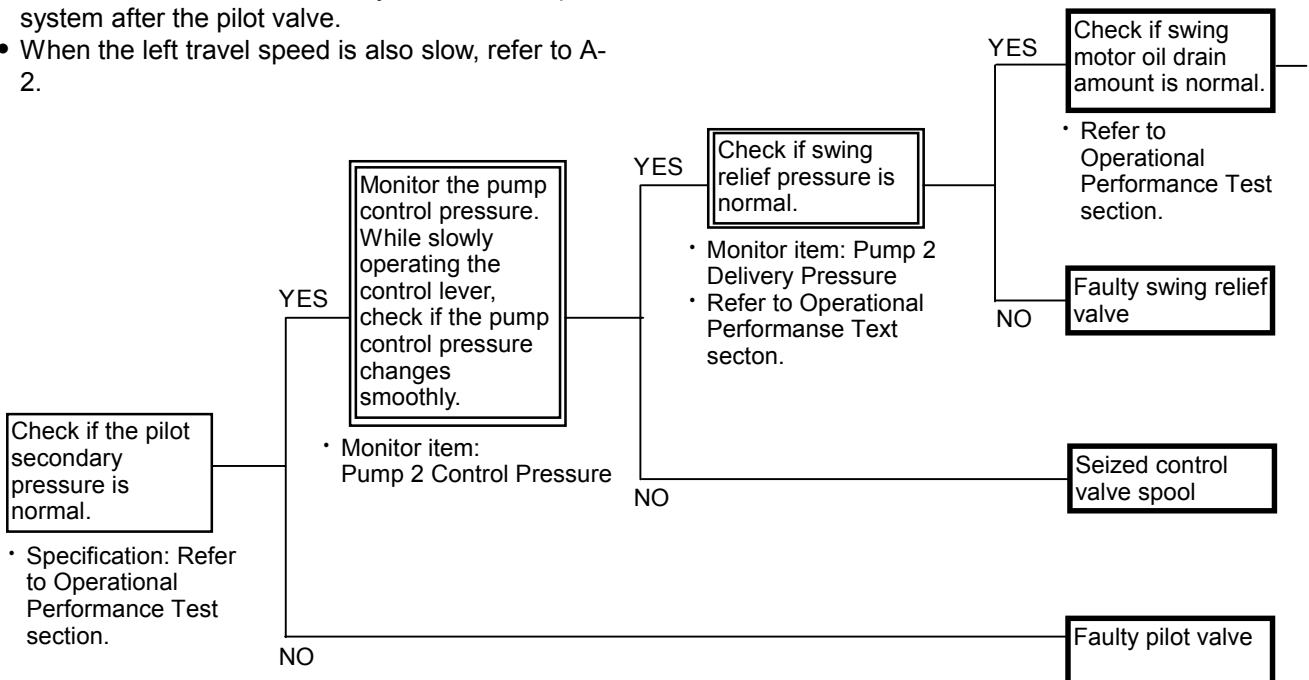
TROUBLESHOOTING / Troubleshooting B

SWING SYSTEM TROUBLESHOOTING

S-1 Swing Speed is Slow or Swing Function Does not Operate.

Related Fault Code: None

- Check whether the pilot system is malfunctioning or the main hydraulic system is malfunctioning.
- If other functions (front attachment or travel) operate normally, the pilot pump is considered to be normal. If the pilot system is malfunctioning, the cause of the trouble may exist in the pilot system after the pilot valve.
- When the left travel speed is also slow, refer to A-2.



SECTION 1

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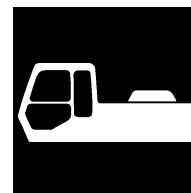
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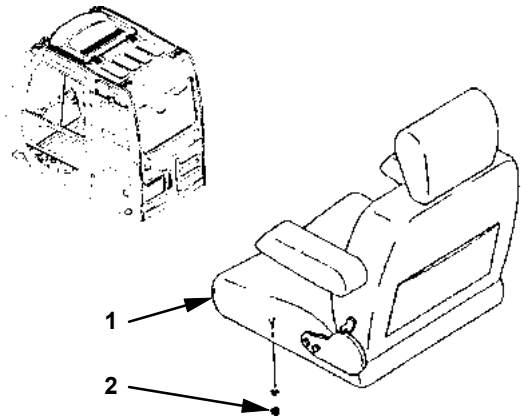
UPPERSTRUCTURE / Cab

REMOVE AND INSTALL CAB

Removal


1. Remove nuts (2) and seat (1).

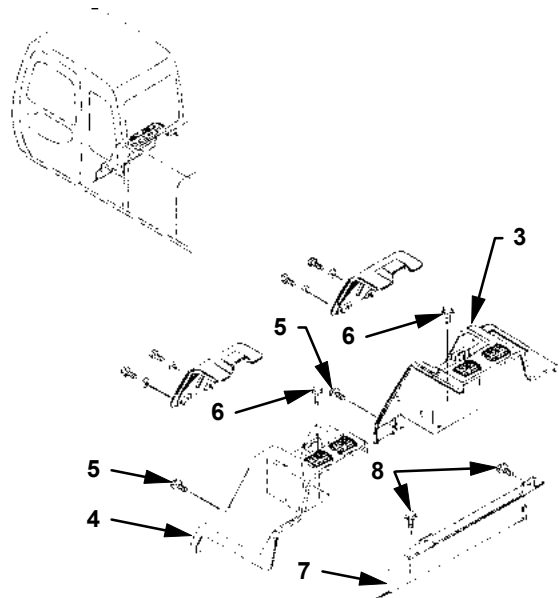
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2. Loosen bolts (5) behind the cab and bolts (6) in rear boxes (3 and 4).
Remove rear boxes (3 and 4).

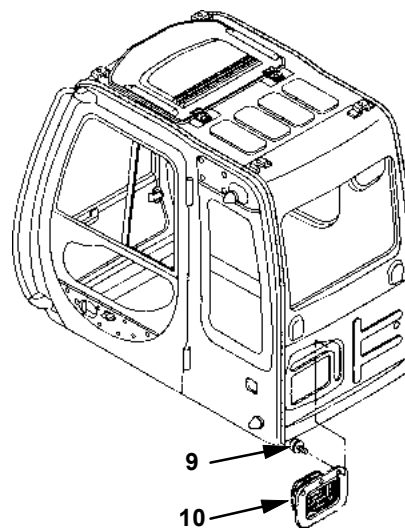
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3. Loosen bolts (8) to remove rear box under cover (7).

 : 13 mm



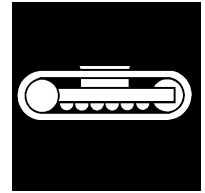
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4. Loosen screw (9) to remove duct (10) from the cab.



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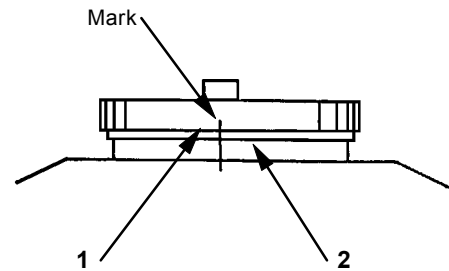
UNDERCARRIAGE / Swing Bearing

REMOVE AND INSTALL SWING BEARING

Before removing the swing bearing, the upperstructure must be removed first. For removal and installation of the upperstructure, refer to "Remove and Install Frame" section. In this section, the procedure starts on the premise that the upperstructure has already been removed.


Removal

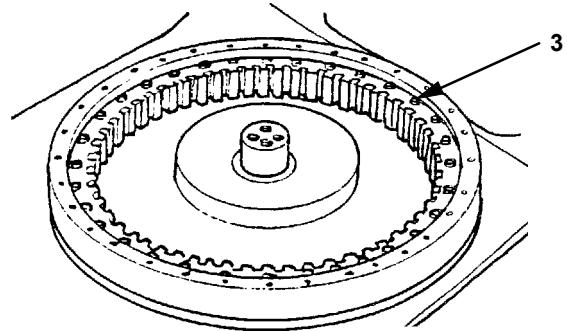
1. Put alignment marks on inner race (1) of swing bearing and track frame (2).




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2. Remove bolts (3).

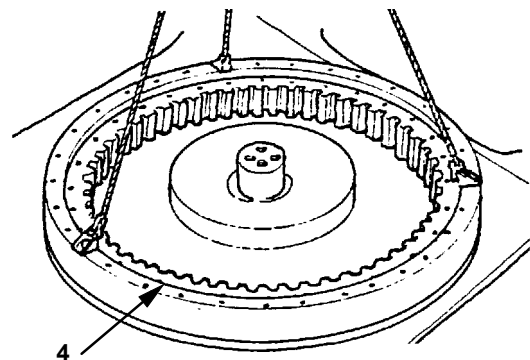
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 **CAUTION: Swing bearing weight:
156 kg (344 lb)**

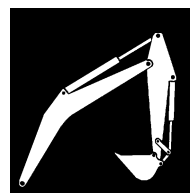
3. Attach lifting tools (ST 0050), hoist swing bearing (4) and remove it.



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FRONT ATTACHMENT / Front Attachment

REMOVE AND INSTALL FRONT ATTACHMENT



CAUTION: Escaping fluid under pressure can penetrate the skin, causing serious injury.

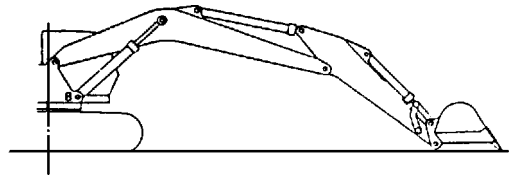
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines.

Hydraulic oil may be hot just after operation. Hot hydraulic oil may spout, possibly causing severe burns. Be sure to wait for oil to cool before starting work.


The hydraulic oil tank cap may pop off if removed without releasing internal pressure first. Push the air release valve on top of the hydraulic oil tank to release any remaining pressure.

Preparation

1. Park the machine on a firm, level surface. Position the front attachment as illustrated and lower the bucket to the ground.
2. Stop the engine. Push the air release valve on top of the hydraulic oil tank to release any remaining pressure.
3. Remove hydraulic oil tank cap. Connect a vacuum pump to maintain negative pressure in the hydraulic oil tank.

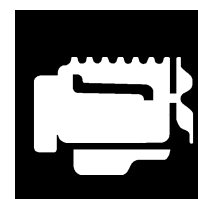


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 **NOTE:** Be sure to run the vacuum pump continuously while working.

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SECTION 1

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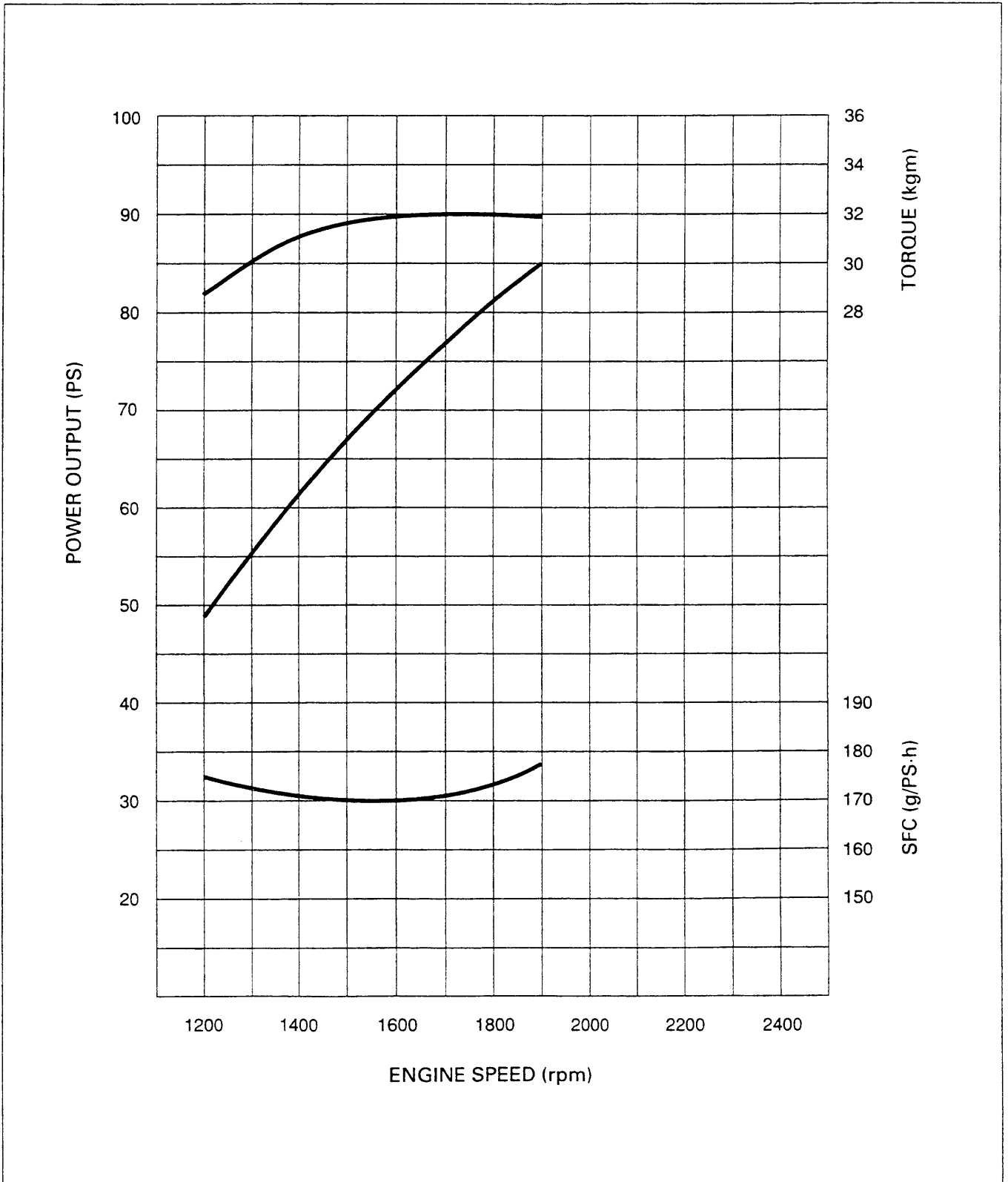
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PERFORMANCE CURVE

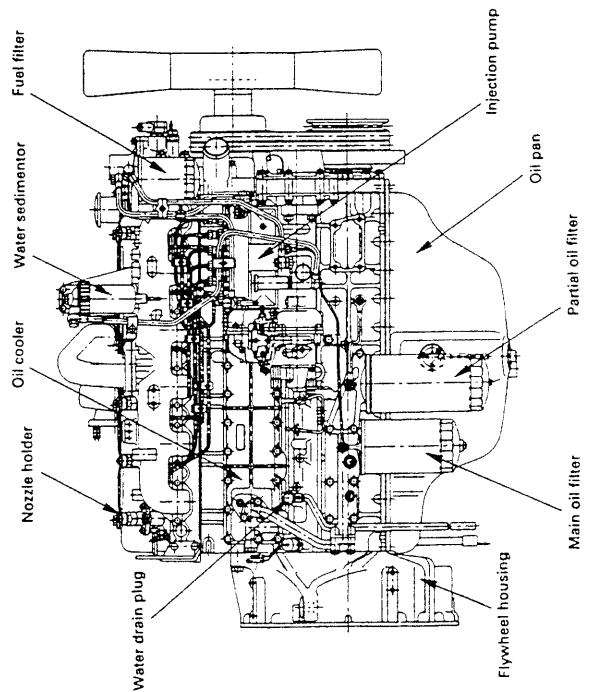
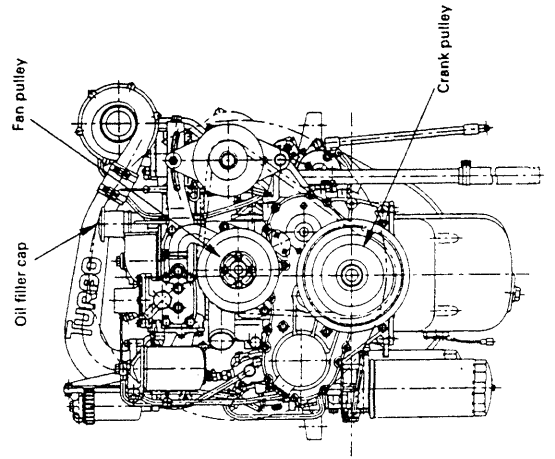
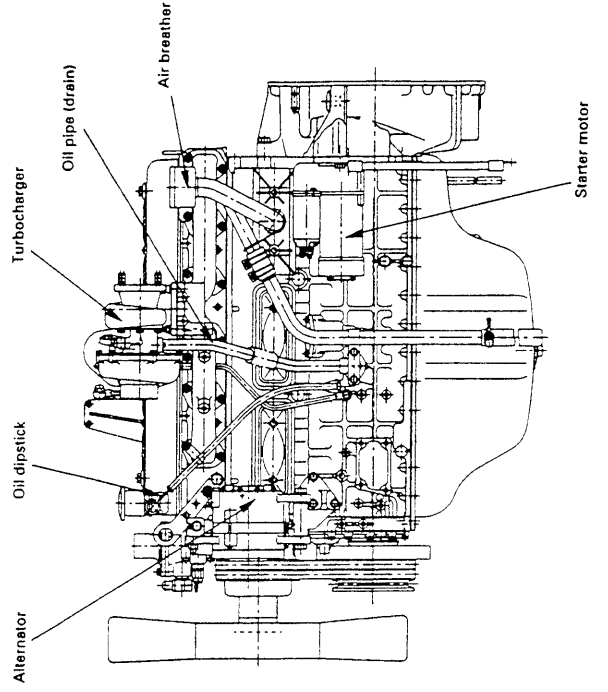
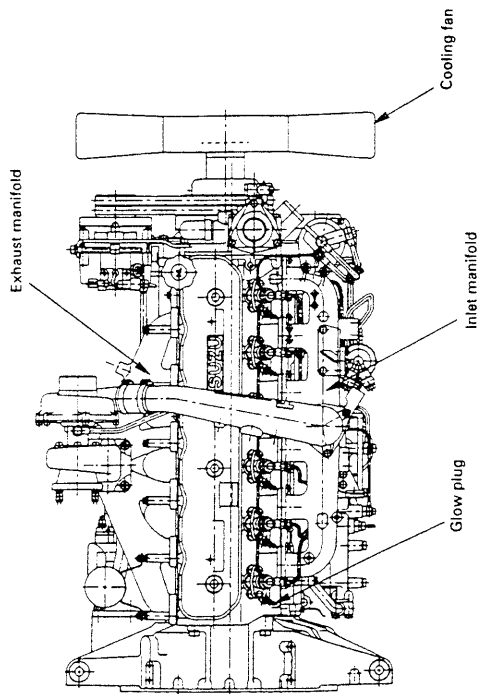
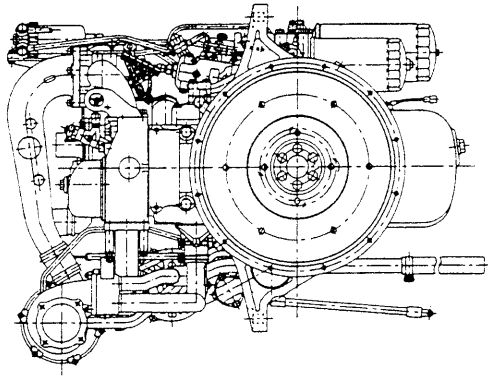
5. MODEL A-4BG1TPG-01

CONDITION:

| | | | |
|-------------------|----------------------|------------------|-----------|
| Ambient condition | : JIS standard | Air cleaner | : None |
| Break-in | : More than 30 hours | Generator | : No Load |
| Cooling fan | : 545φ | Exhaust silencer | : None |

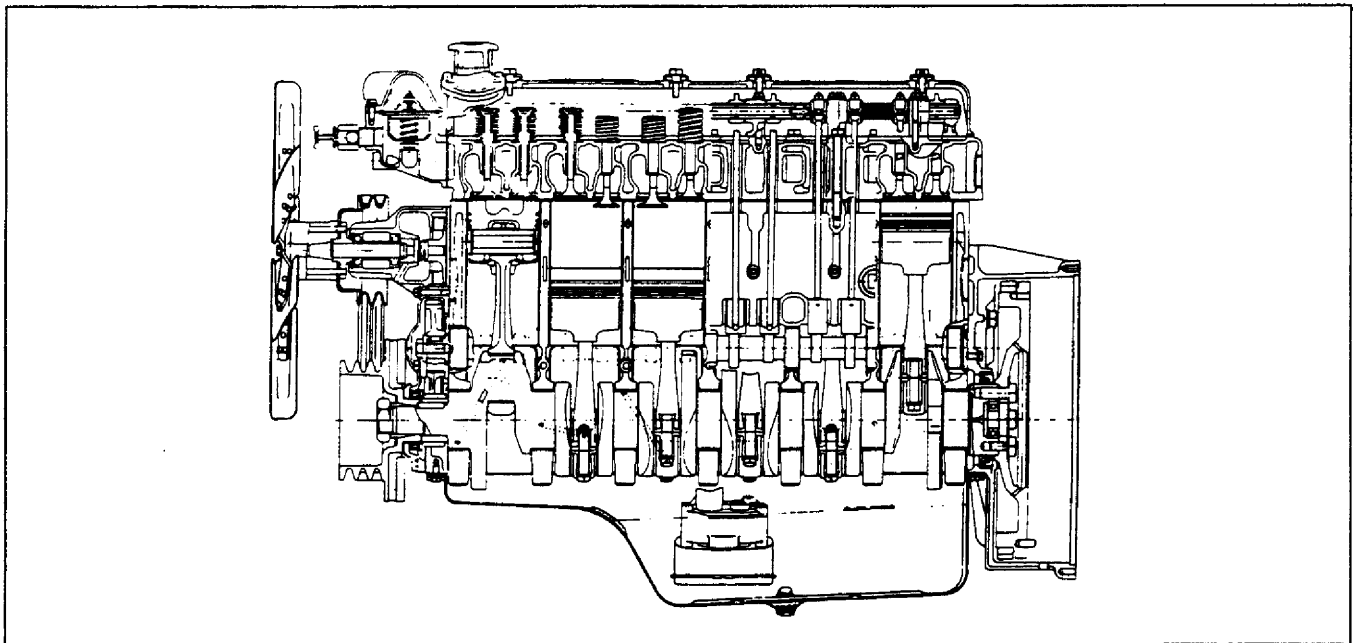
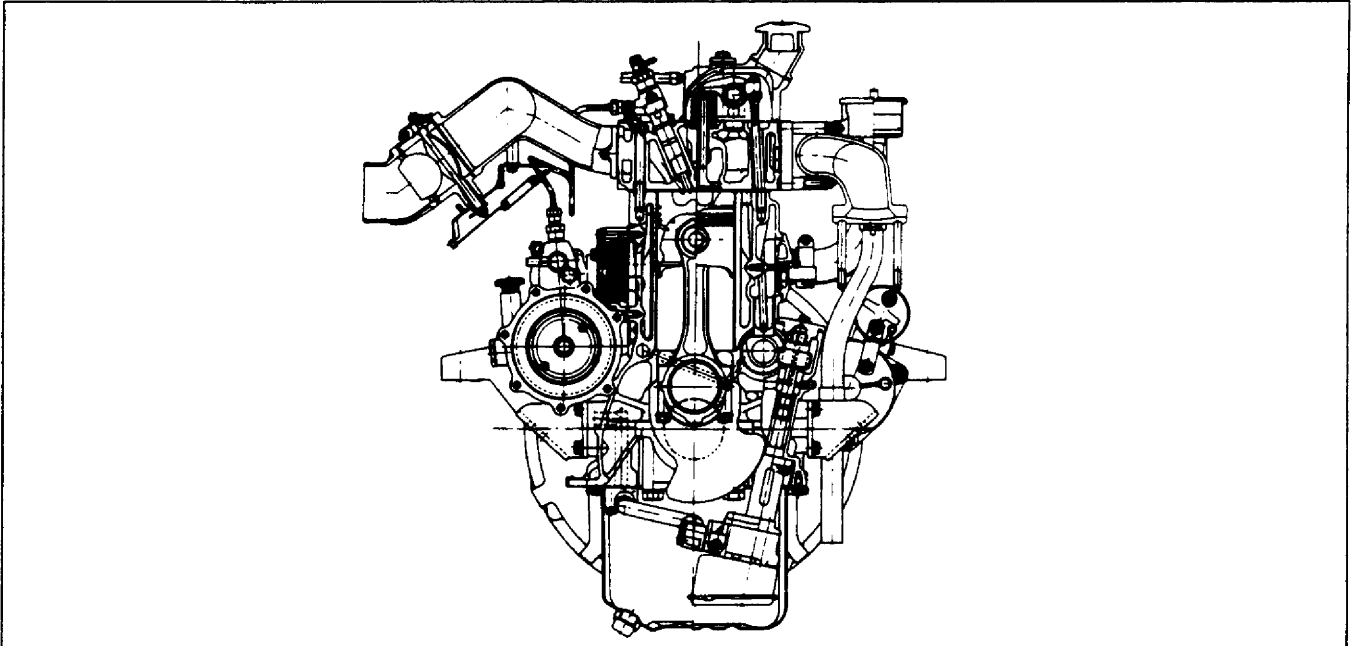


EXTERNAL VIEW
MODEL A-6BG1TQ



ENGINE SECTIONAL VIEW

For your reference:



Note: This sectional drawing is based on 6BG1 standard engine.

SECTION 6

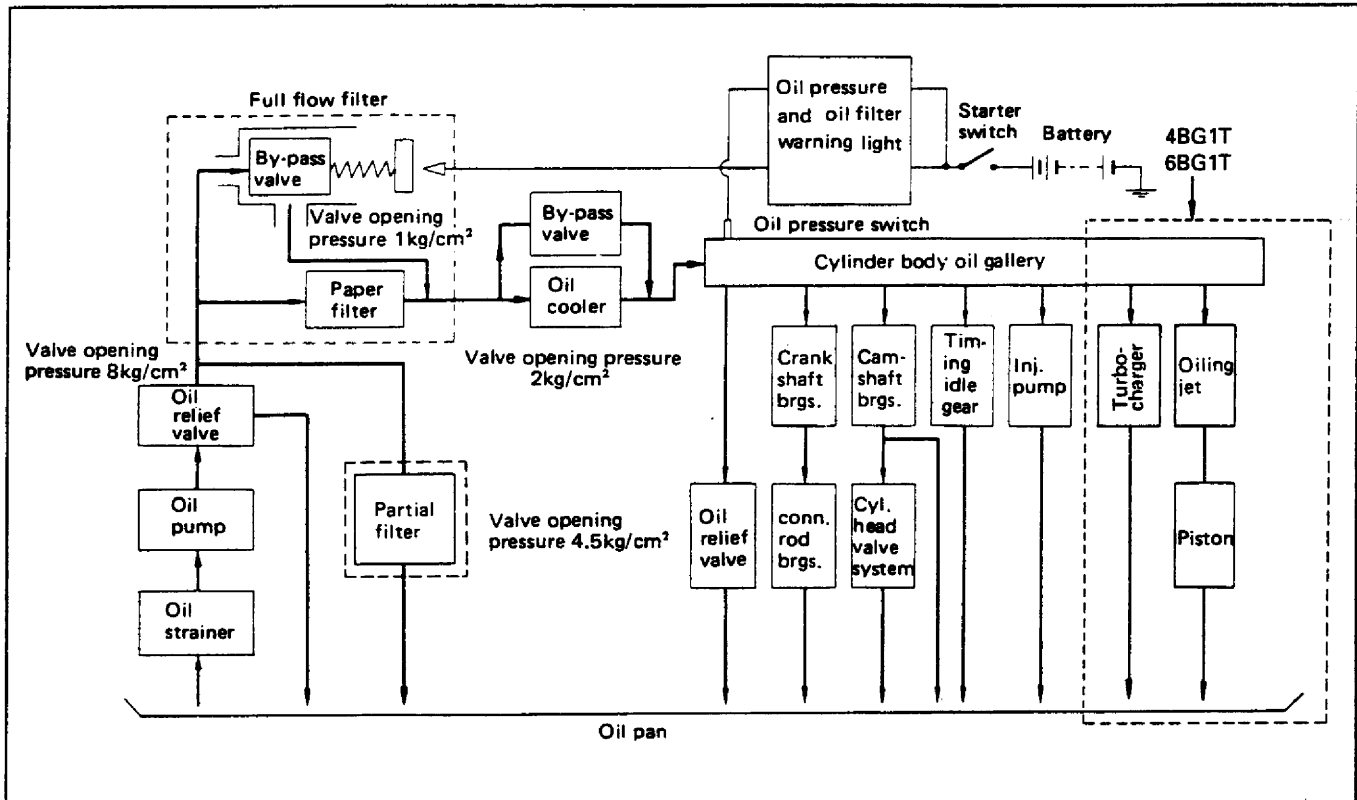
LUBRICATING SYSTEM

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GENERAL DESCRIPTION



This family of engines uses a normal forced circulation lubricating system.

The gear type oil pump is driven by the camshaft oil pump drive.

Either a center bolt type full flow oil filter or a cartridge (spin-on) type oil filter is used.