

Furukawa Rock Drill

Hydraulic Crawler Drill

1200-ED / 1500-ED



PARTS LIST

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OPERATION MANUAL

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SERVICE MANUAL

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CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

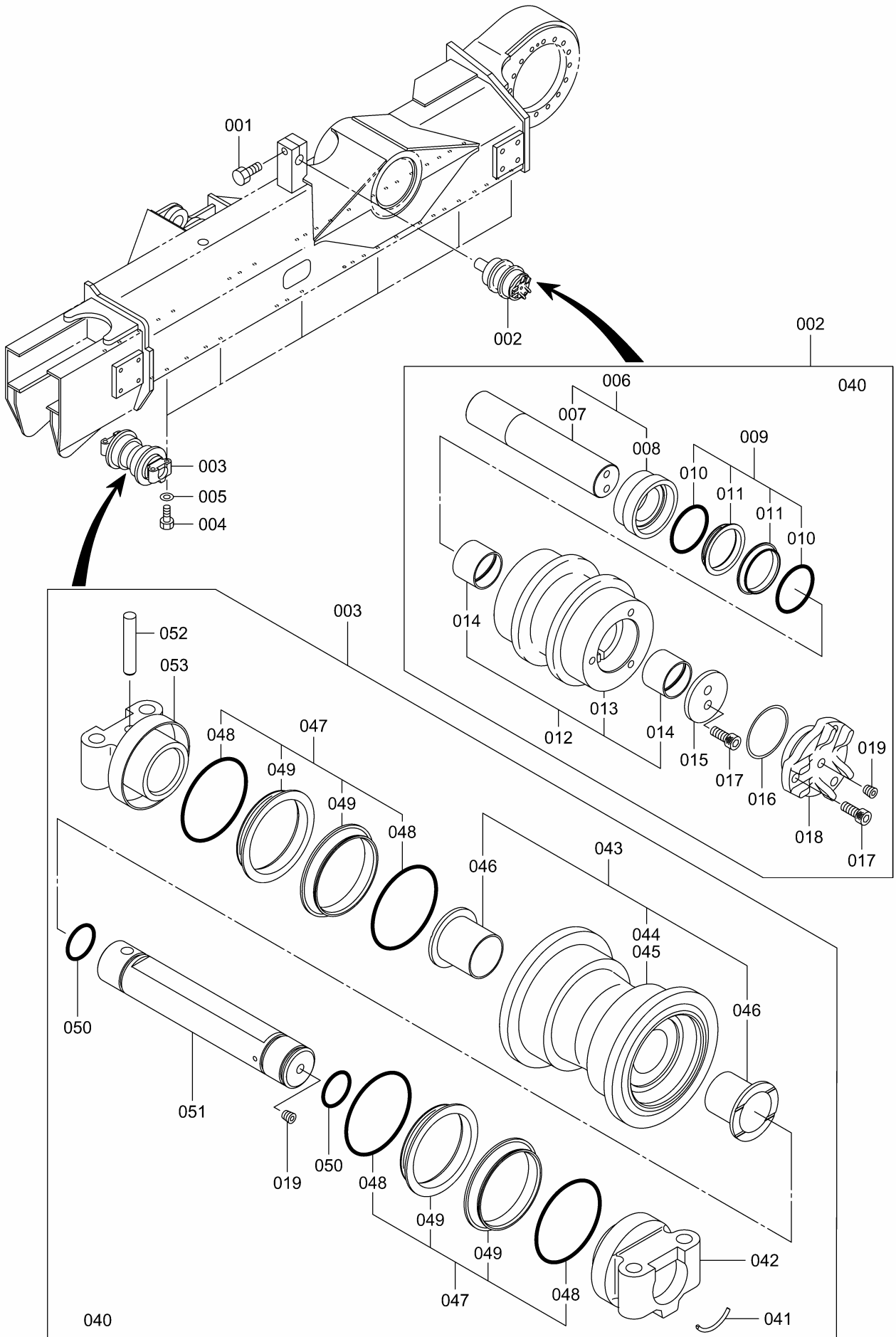
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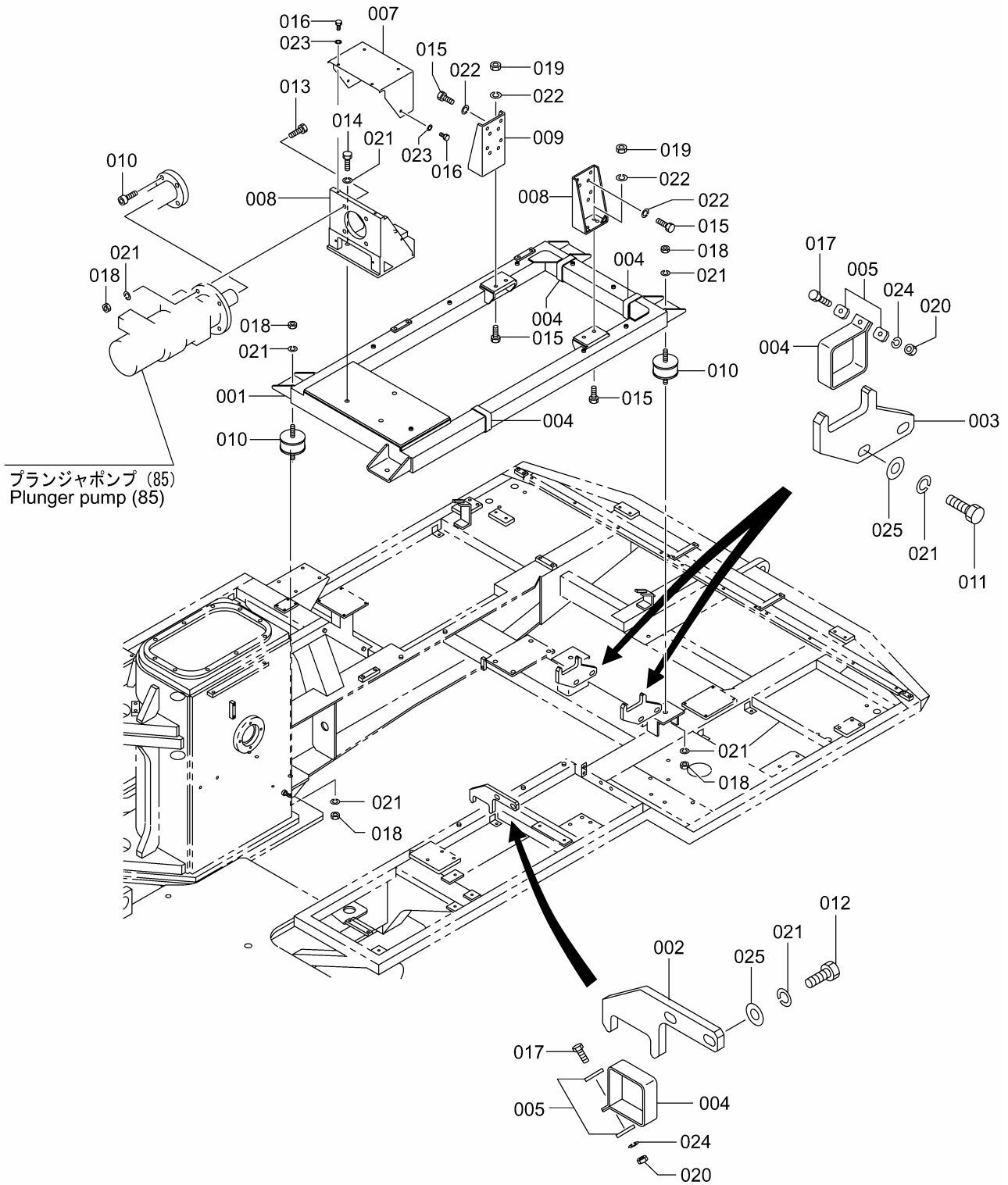
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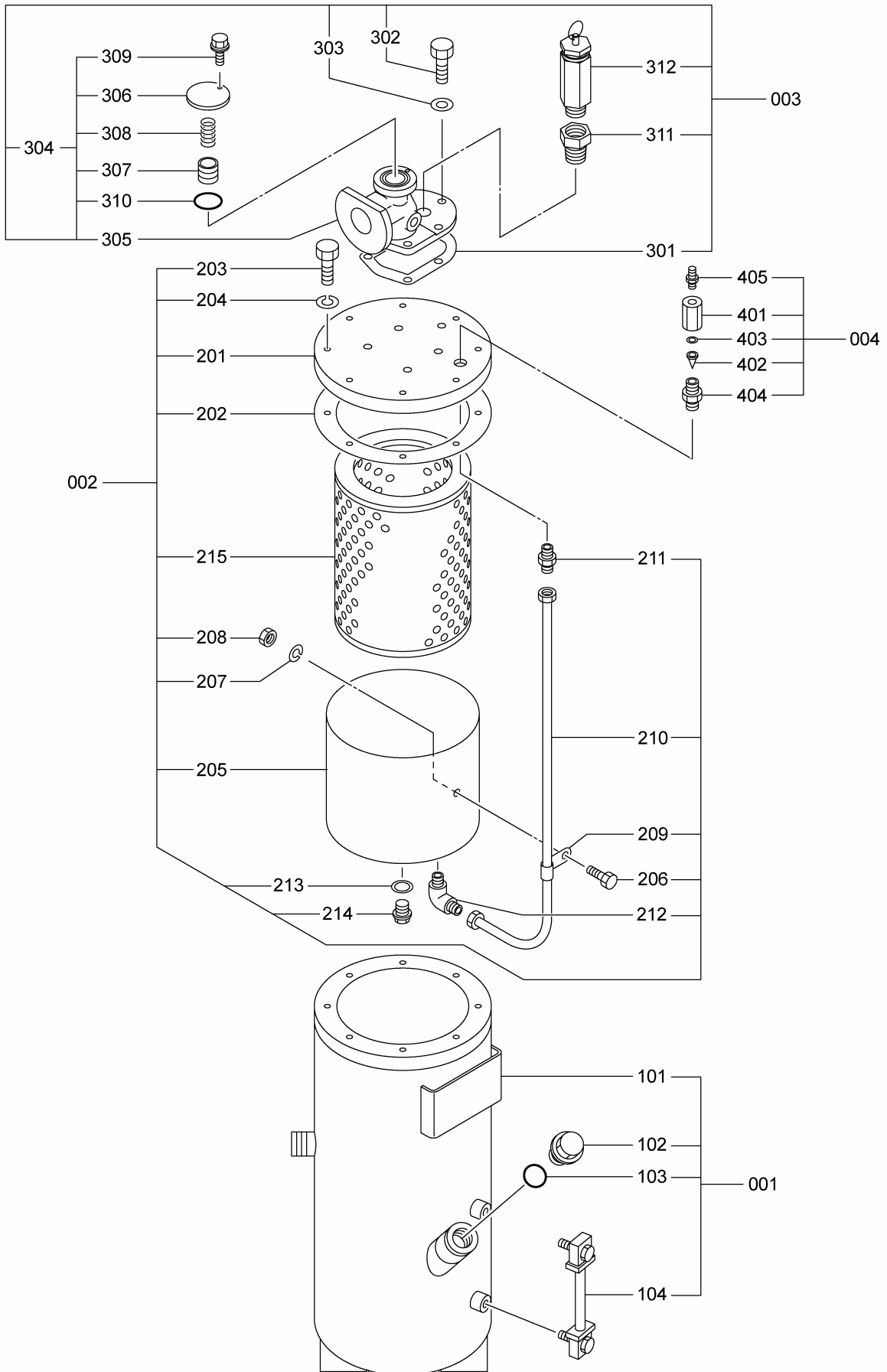
ローラ ASS'Y ROLLER ASS'Y



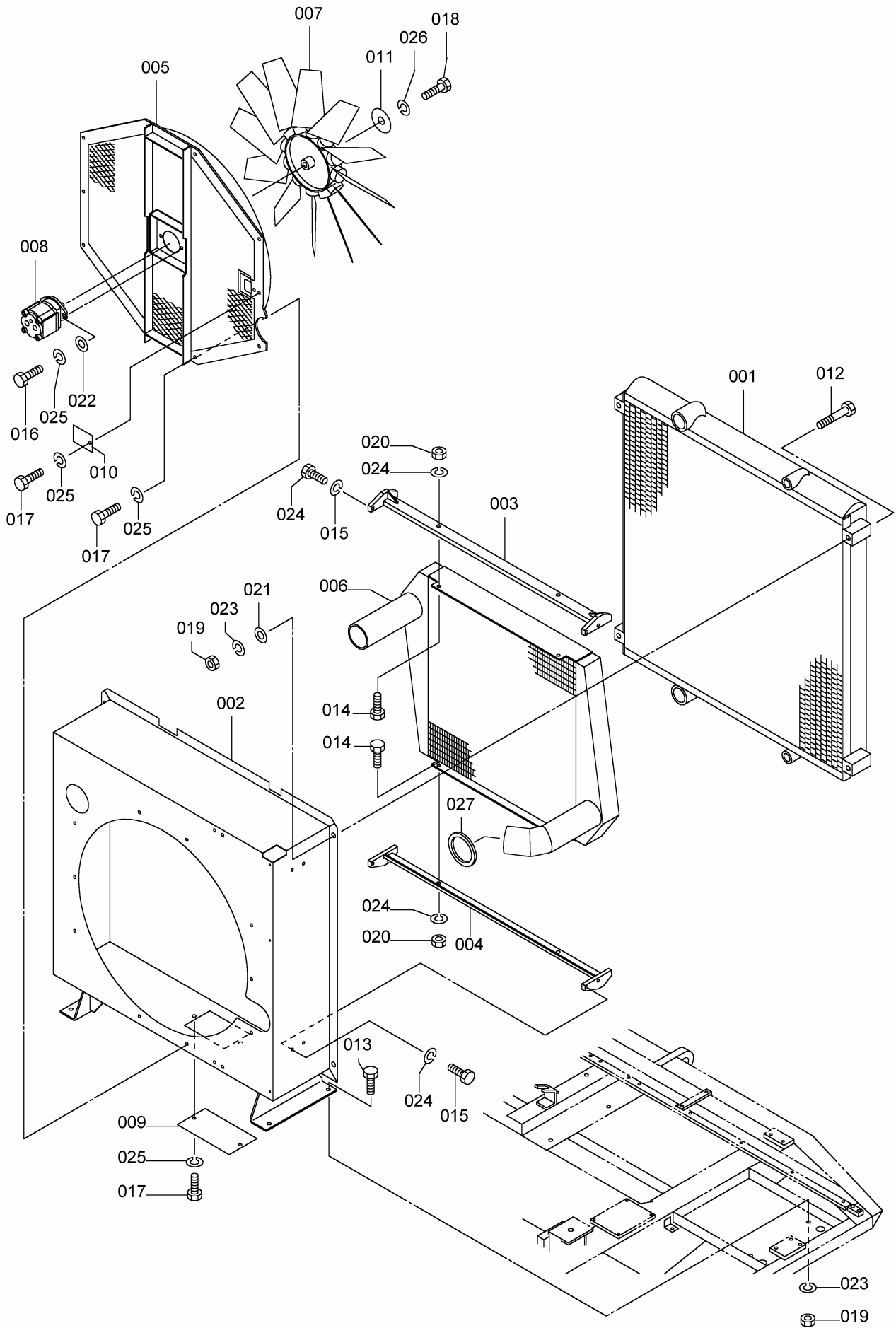
エンジン マウンティング ASS'Y
ENGINE MOUNTING ASS'Y



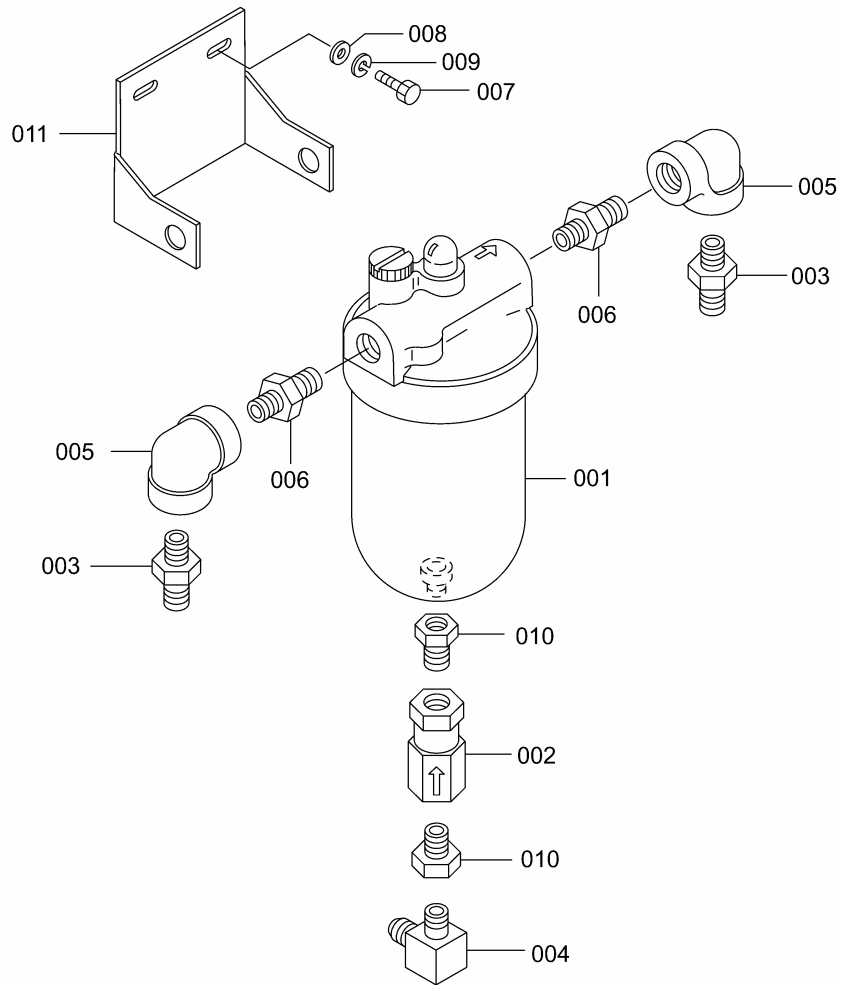
レシーバ タンク (E) RECEIVER TANK (E)



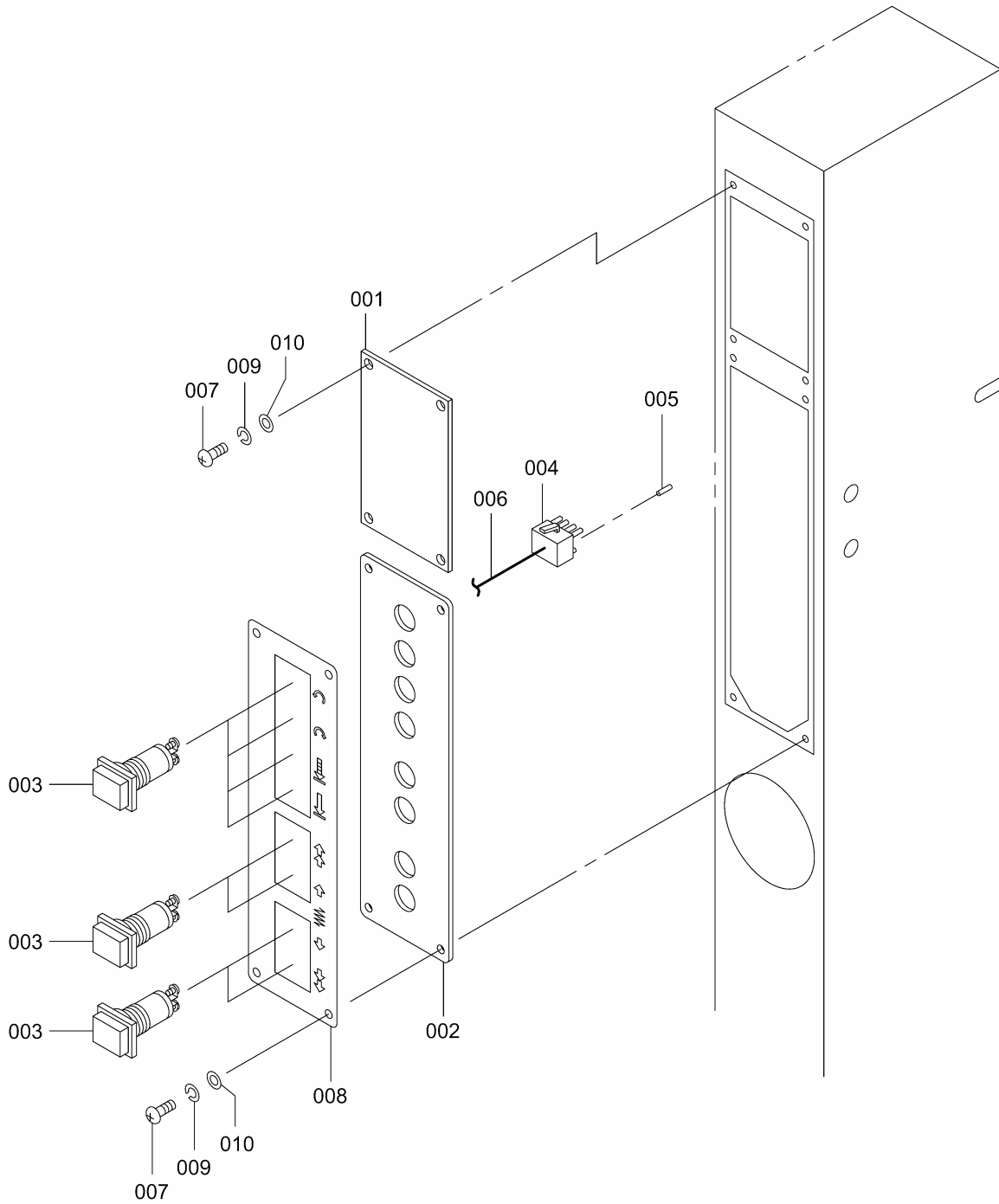
オイルクーラ ASS'Y
OIL COOLER ASS'Y



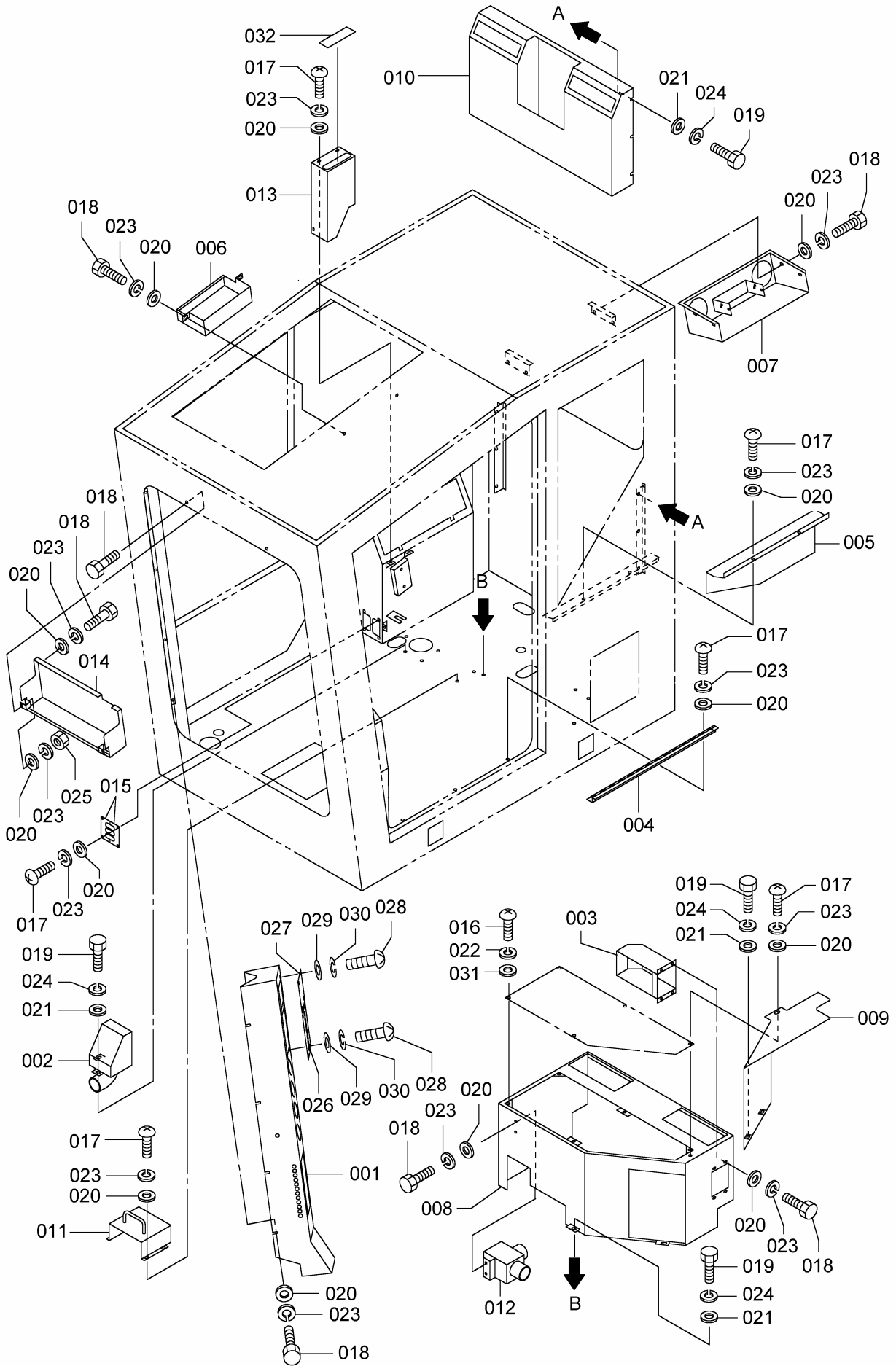
ルブリケーター LUBRICATOR



インジケータ ボックス
INDICATOR BOX

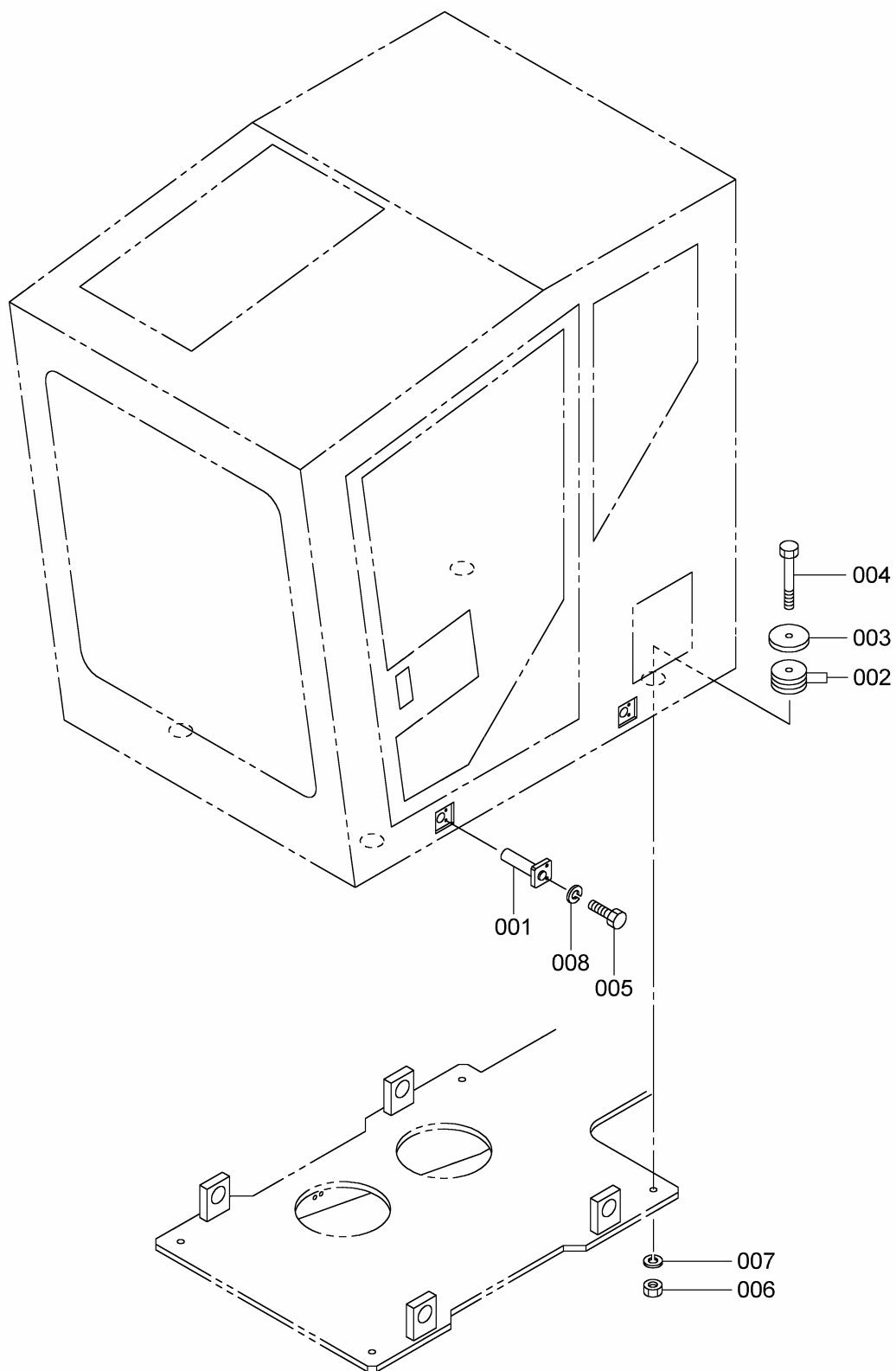


キャビン ナイ パーツ ASS'Y
CABIN INSIDE PARTS ASS'Y



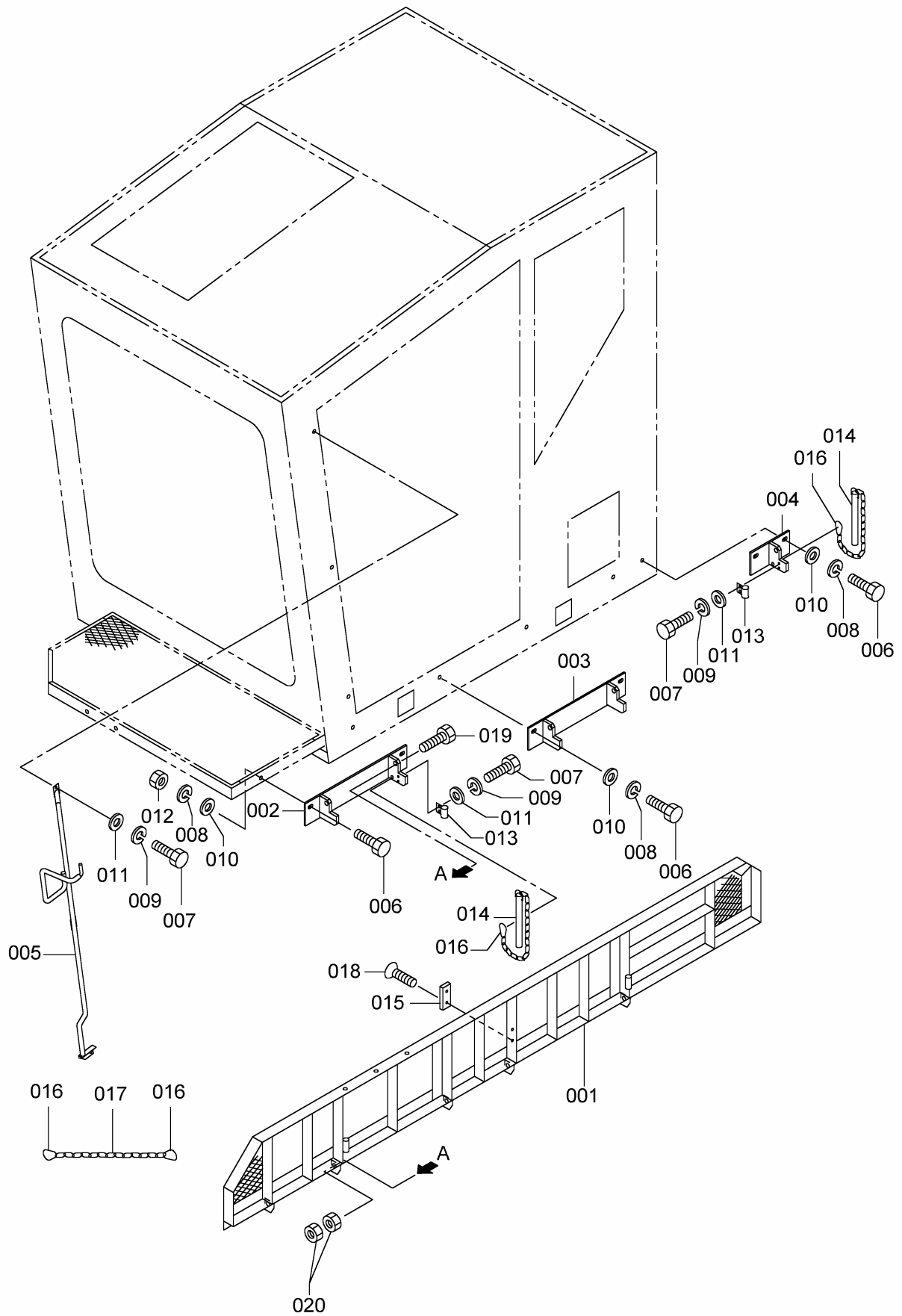
マウント パーツ
MOUNT PARTS

940602-04001

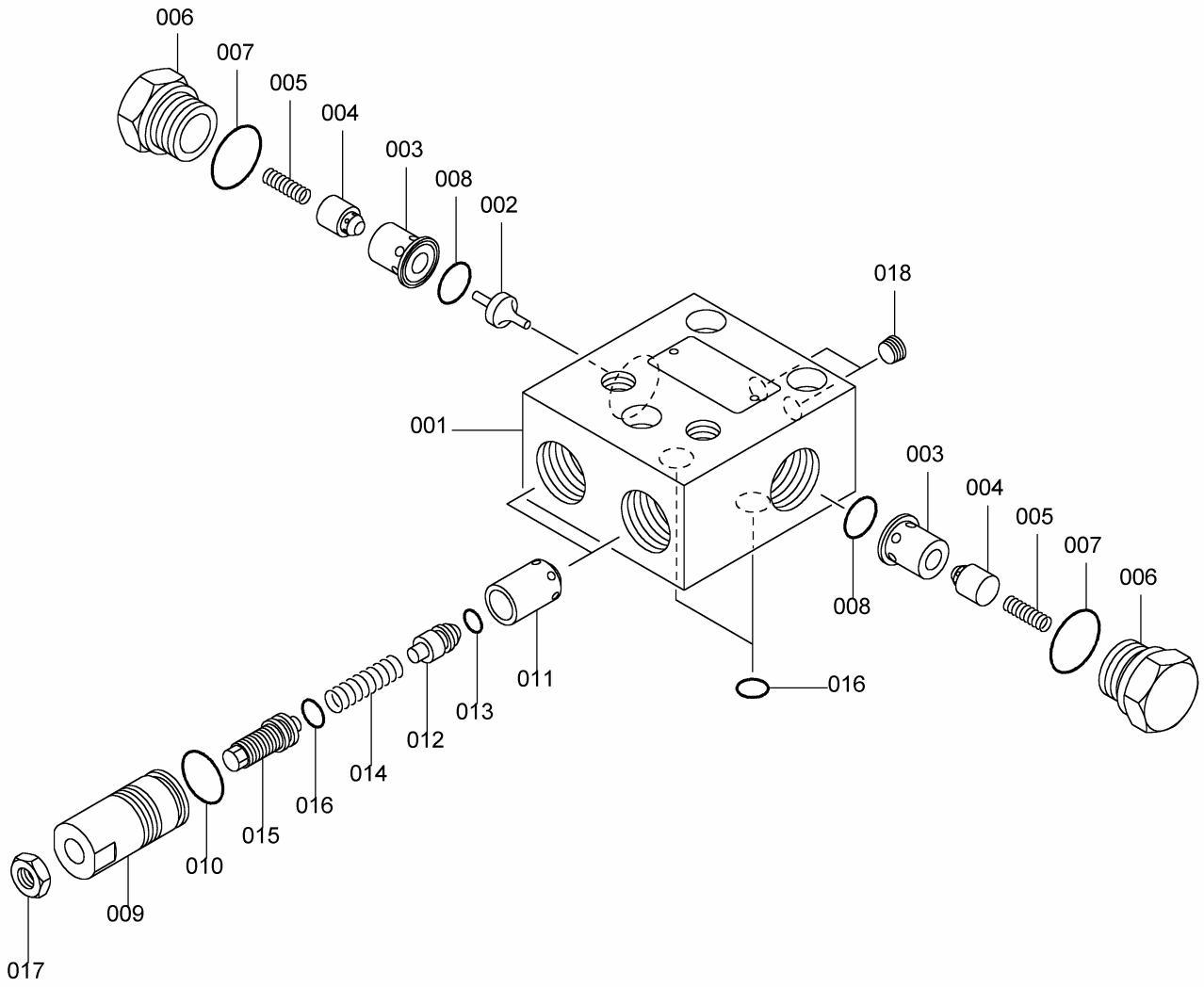


サイド ステップ
SIDE STEP

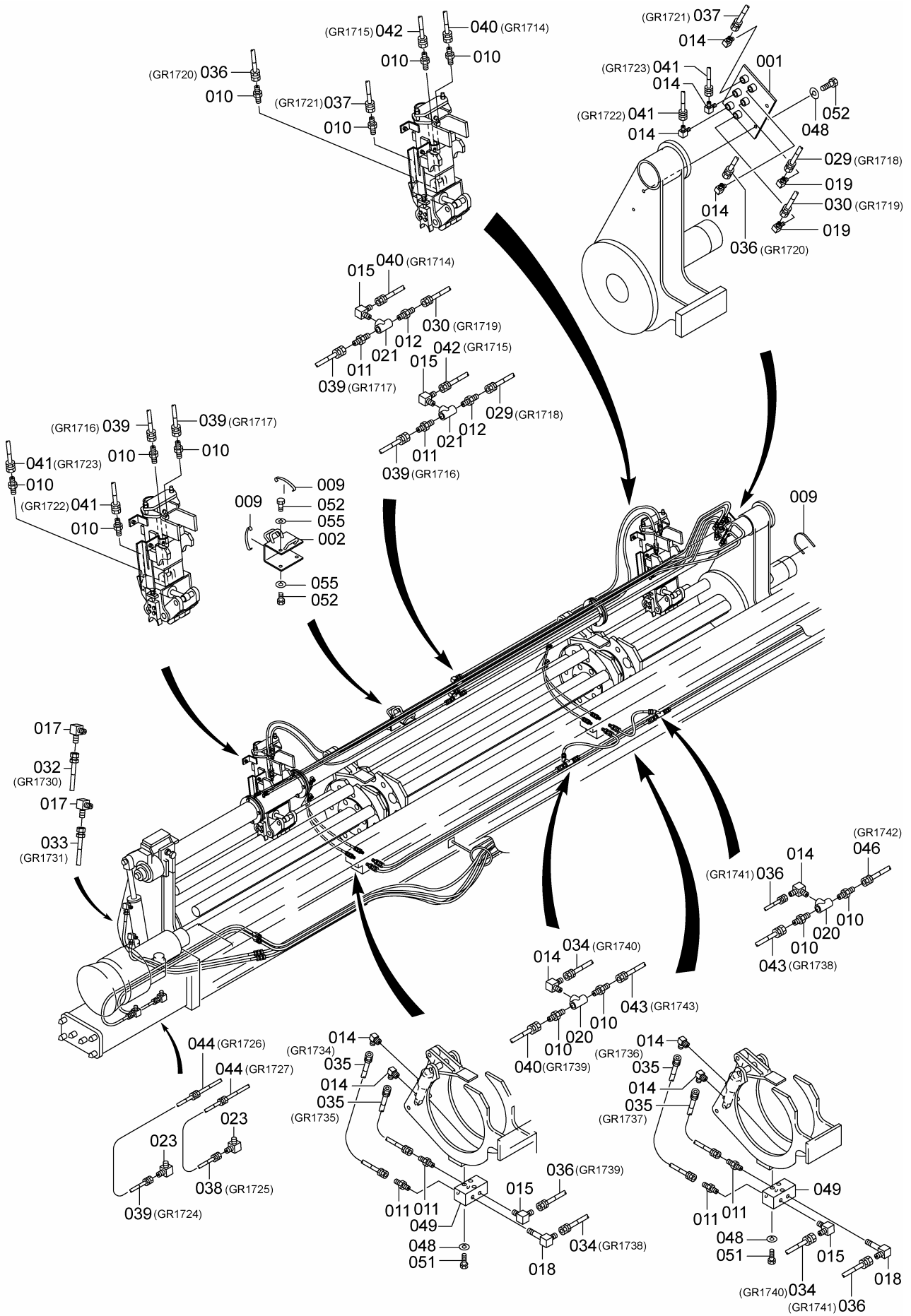
940606-05001



リリース付 パイロット チェック バルブ
PILOT CHECK VALVE (W/RELIEF)



チェンジャ パイピング CHANGER PIPING



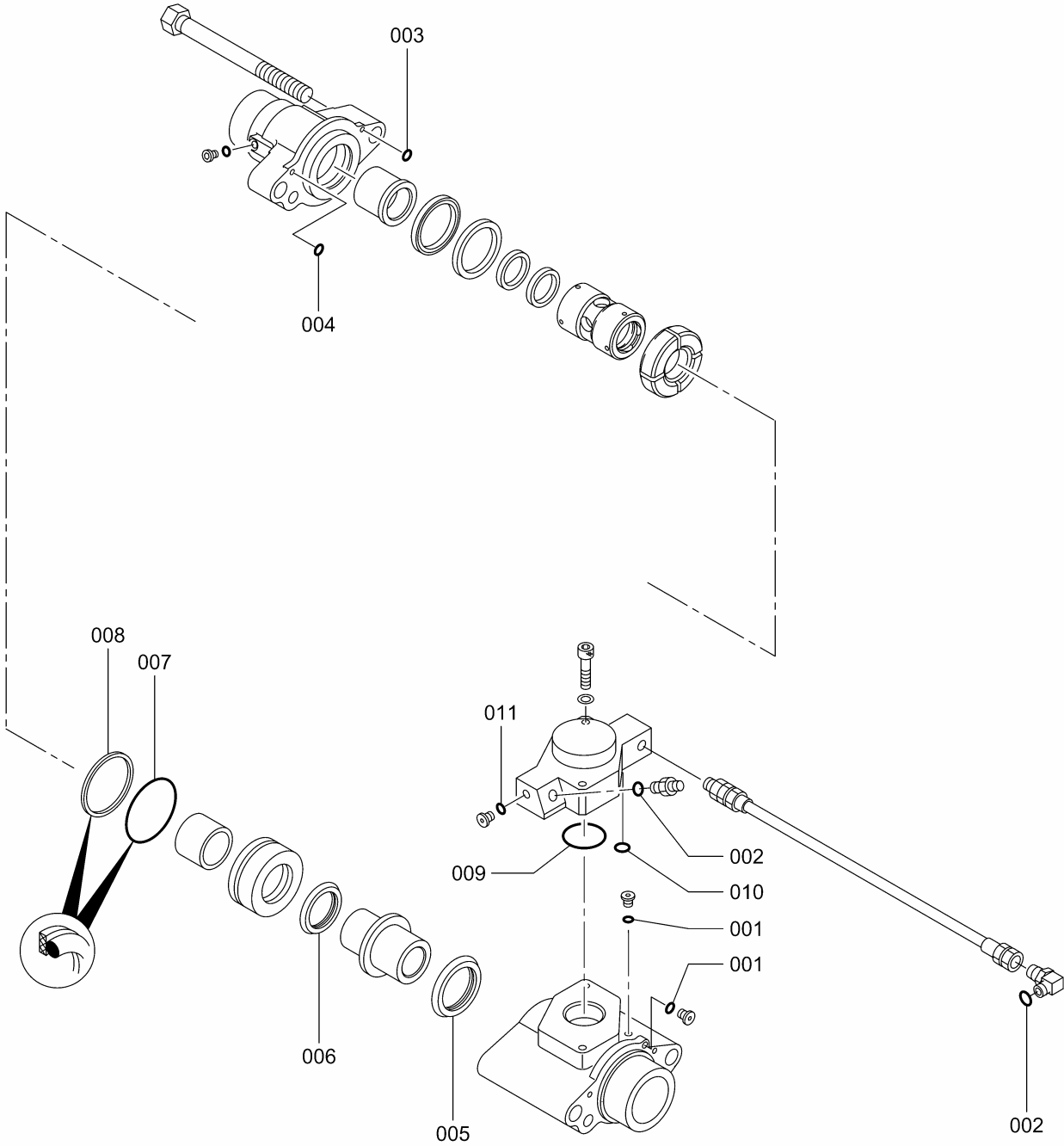
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085	236050-16041	ローチェーン	CHAIN, ROLLER	1	
086	081505-01020	ワッシャ	WASHER	2	
087	081505-01024	ダストシール	SEAL, DUST	2	
088	160011-00015	オーリング	O-RING	2	
089	160011-00020	オーリング	O-RING	4	
090	262021-00015	バックアップリング	RING, BACK-UP	2	
091	262021-00020	バックアップリング	RING, BACK-UP	4	
092	141112-10000	10ワッシャ	WASHER	6	
093	166152-01000	1/8ホロープラグ	PLUG, HOLLOW	1	
094	150020-70725	キー	KEY	1	
095	104012-08016	8サラボルト	BOLT, FLAT	2	
096	101022-08030	8ボルト	BOLT	6	
097	122122-12000	12ナット	NUT	4	
098	101022-12025	12ボルト	BOLT	4	

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
041	145012-08000	8スプリングワッシャ WASHER, SPRING	10		

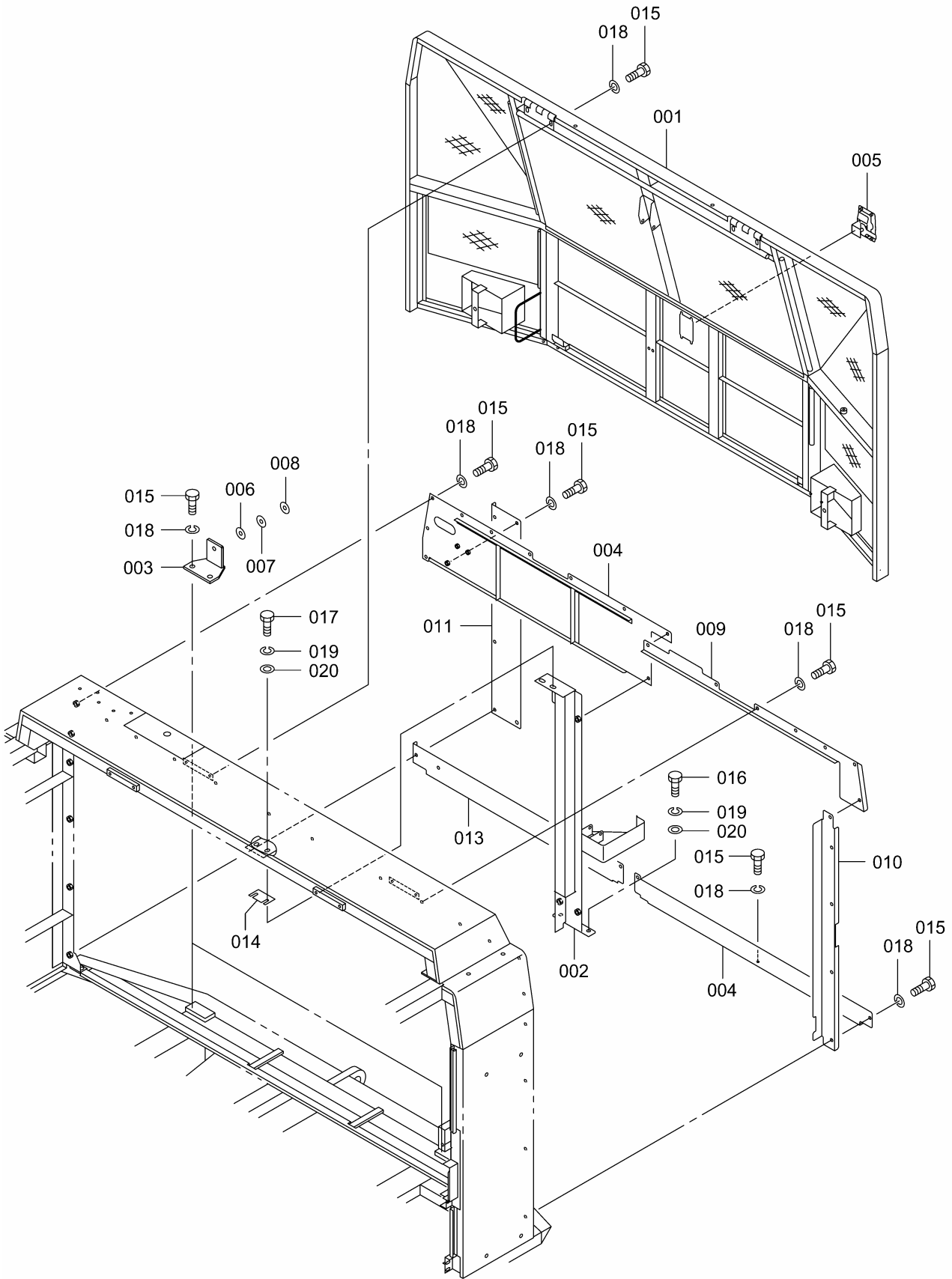
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101	HD712-01001	シリンダ	1		
102	160011-00008	オーリング	4		
103	084891-01000	1/8 GPFプラグ	4		
104	160011-00014	オーリング(1A-P14)	1		
105	084891-03000	3/8 GPFプラグ	1		
106	160011-00018	オーリング(1A-P18)	2		
107	084891-04000	1/2 GPFプラグ	2		
108	160011-00024	オーリング(1A-P24)	6		
109	084891-06000	3/4 GPFプラグ	6		
110	HD712-01002	ブッシュ(F)	1		D HD712-01012
110-1	HD712-01012	ブッシュ(F)	1		
111	HD712-01003	47.0Uパッキン	1		D HD712-01041
111-1	HD712-01041	47ステップシール	1	1149-	
112	HD712-01004	47.0ダストシール	1		D HD712-01042
112-1	HD712-01042	47グライドリング	1	1149-	
113	160021-00070	オーリング(1A-G70)	1		
114	262022-00070	バックアップリング(T2-G70)	1		
115	HD712-01005	シールリテーナ(F)	1		D HD712-01040
115-1	HD712-01040	シールリテーナ(F)	1	1149-	
116	HD712-01006	39.5Uパッキン	1		D HD712- 01044
116-1	HD712-01044	39.5ステップシール	1	1149-	
117	HD712-01007	39.5ダストシール	1		D HD712-01045
117-1	HD712-01045	39.5グライドリング	1	1149-	
118	160021-00060	オーリング	1		
119	262022-00060	バックアップリング	1		
120	HD712-01008	シールリテーナ(R)	1		D HD712-01043
120-1	HD712-01043	シールリテーナ(R)	1	1149-	
122	HD712-01060	バルブ	1		D HD712-01062
122-1	HD712-01062	バルブ	1	1149-	
123	160021-00040	オーリング	1		
124	262022-00040	バックアップリング	1		
125	HD712-01061	プラグ	1		
126	HD715-01012	ストロークアジャスタ	1		
127	050300-02034	シールワッシャ(A)	1		
128	HD715-01013	ナット	1		
129	160011-00020	オーリング	1		
130	161011-00024	オーリング(1B-P24)	2		
131	007520-10007	3/4オスメスユニオンアダプタ	2		
132	160021-00030	オーリング OG-30	1		
133	262022-00030	バックアップリング	1		
151	HD712-01101	ピストン	1		
201	HD712-02021	フロントヘッド	1	1086-	

R. P. シール キット
R. P. SEAL KIT

R. P. (逆打)廻りのシールがセットになっています。
Seals in the vicinity of R. P. (Reverse Percussion) are provided as a set.

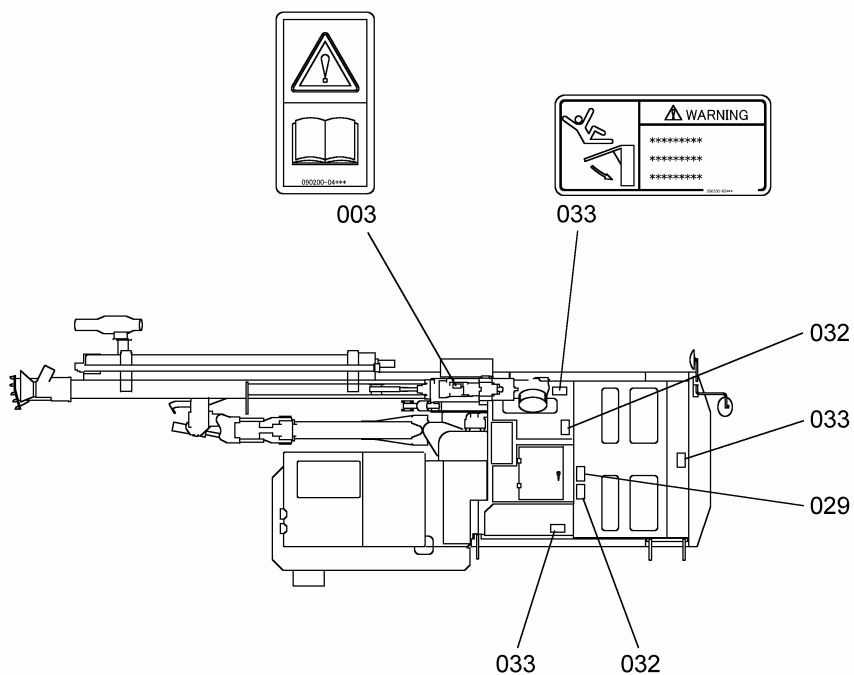
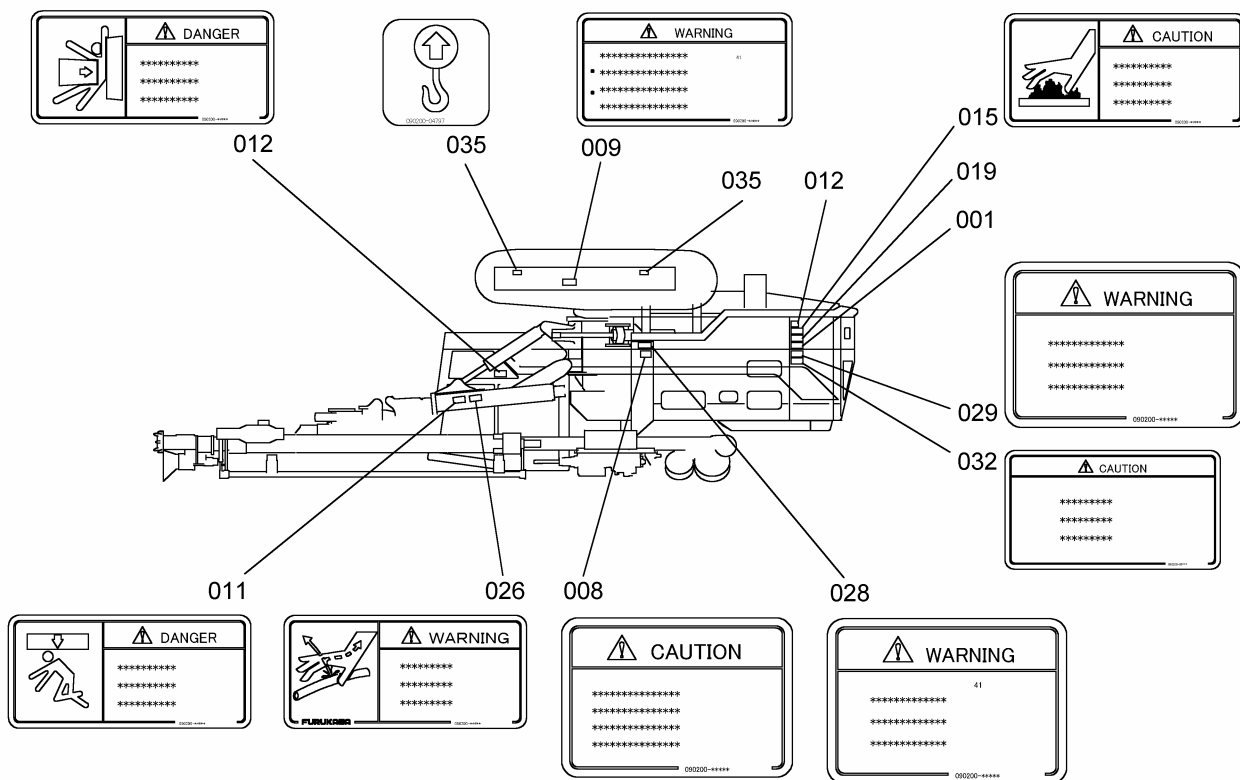


カバー リヤASS'Y
COVER REAR ASS'Y



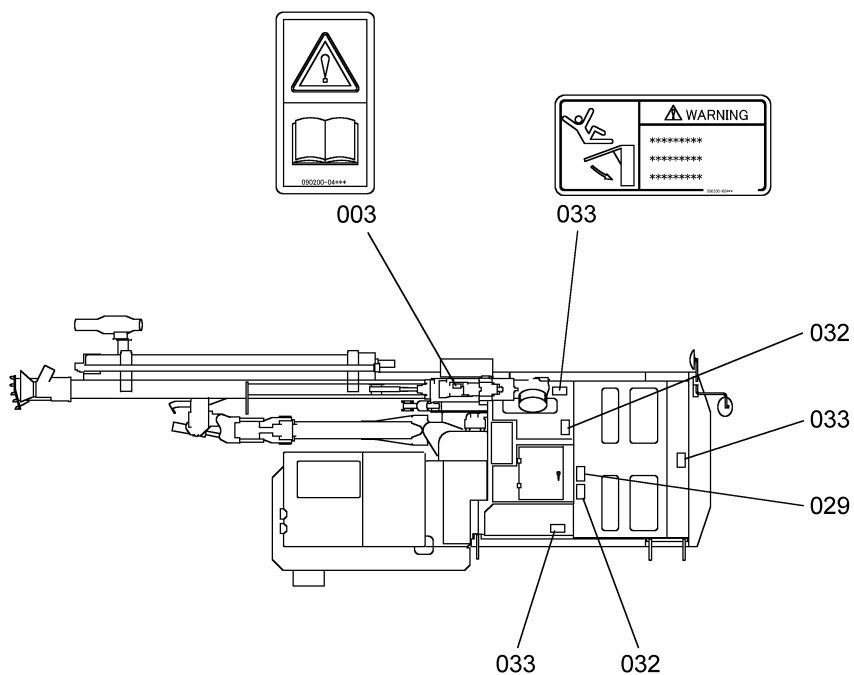
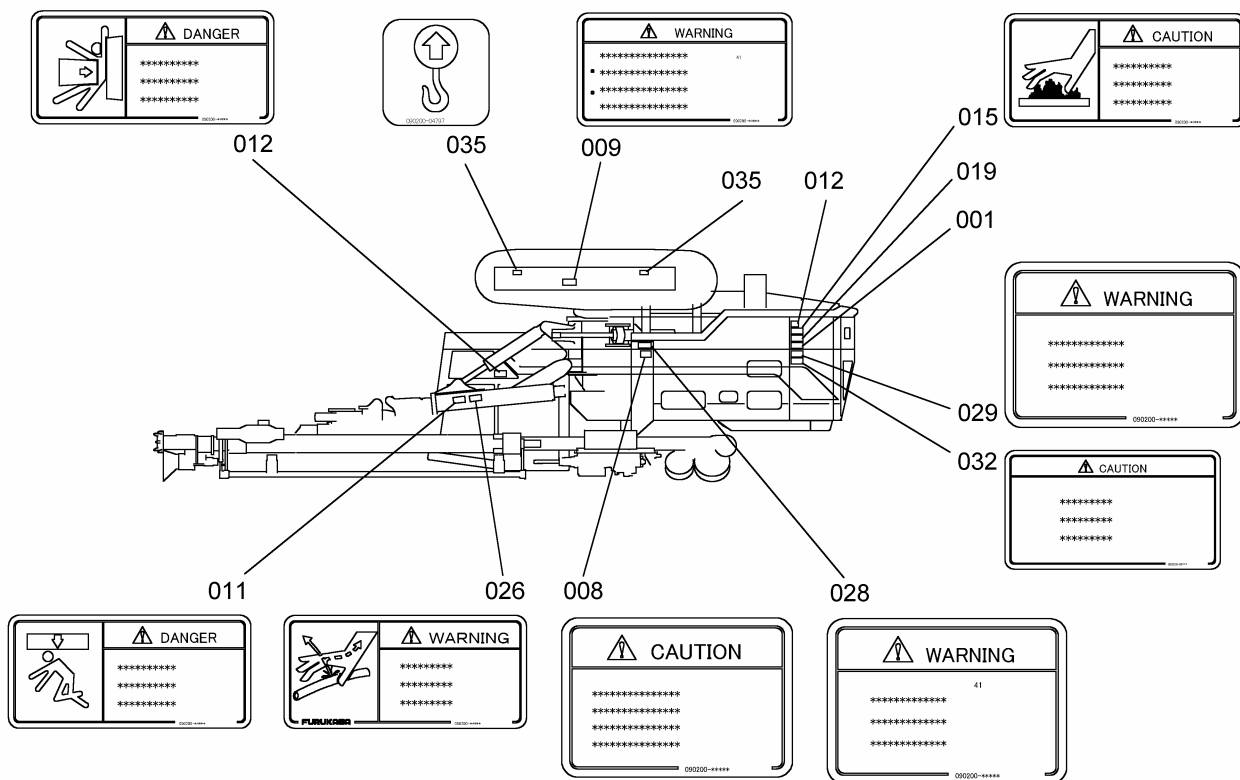
ステッカ ASS'Y STICKER ASS'Y

917307-05001

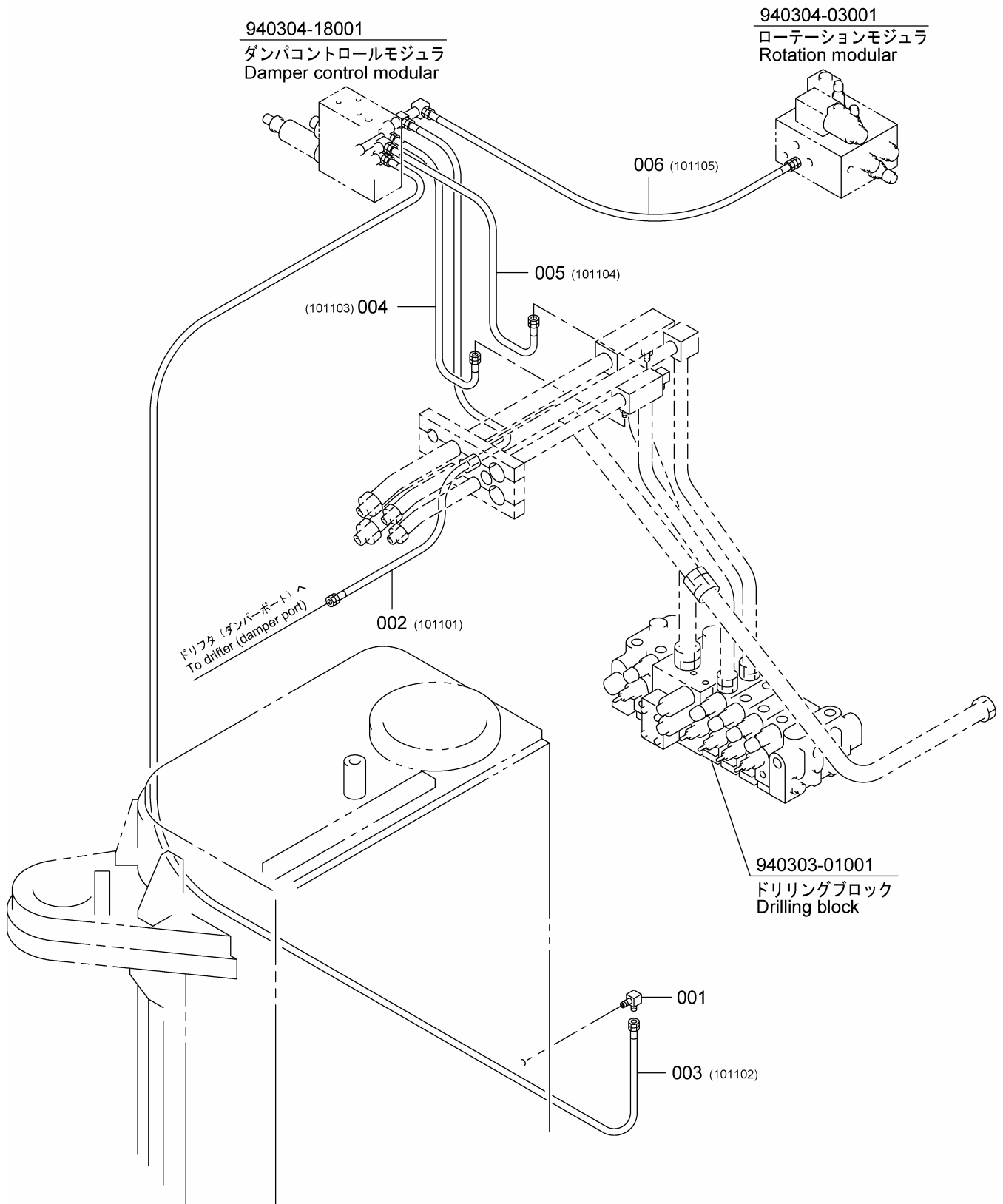


ステッカ ASS'Y STICKER ASS'Y

917307-05010

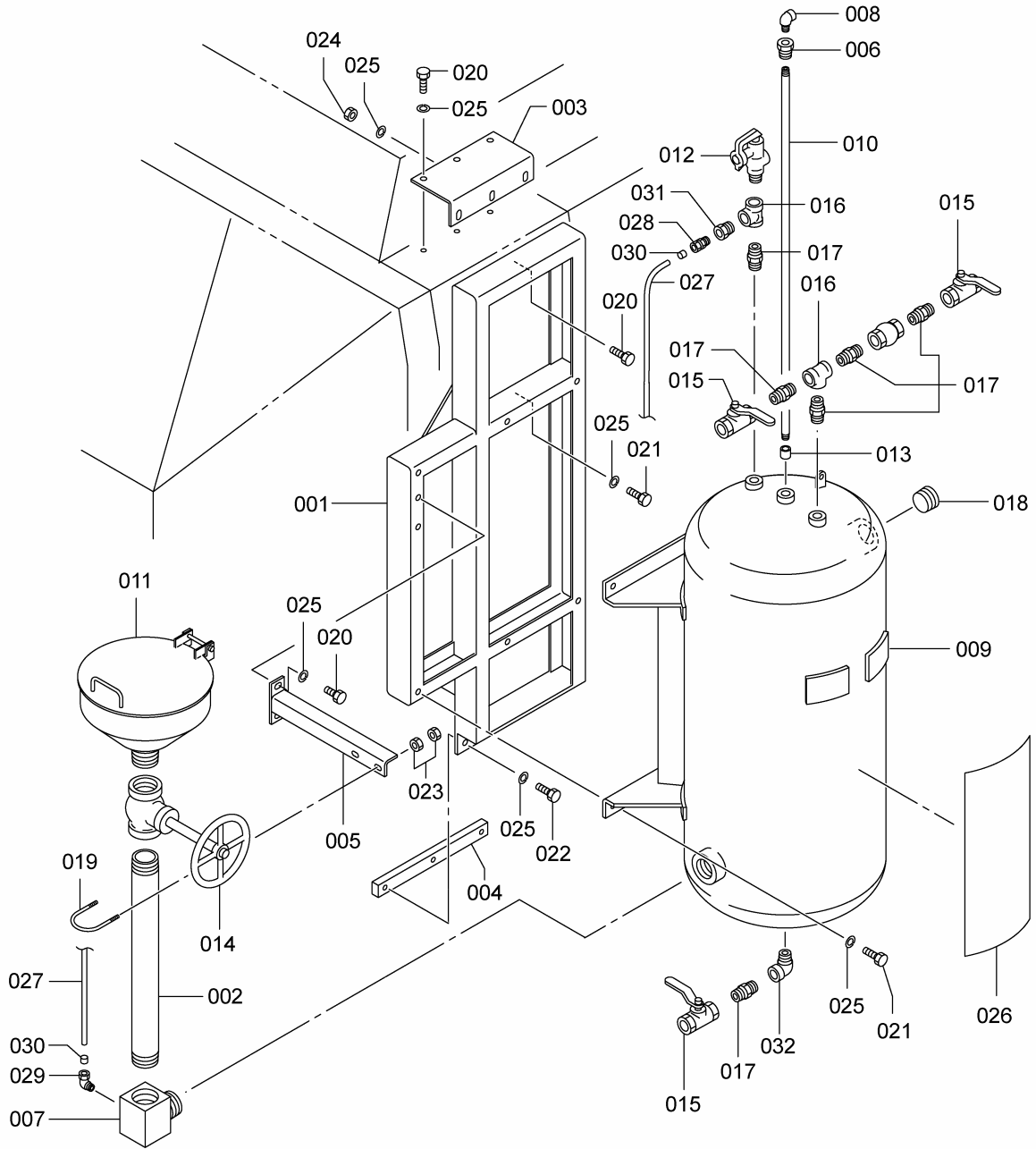


ダンパ ホース ライン ASS'Y
DUMPER HOSE LINE ASS'Y



() 内はホースNo. を示す。
The number in () shows the hose number.

ウォーター タンク ASS'Y
WATER TANK ASS'Y



符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
043	145012-12000	12スプリングワッシャ	Washer, Spring	10	
044	145012-16000	16スプリングワッシャ	Washer, Spring	10	
045	153008-04025	4ワリピン	Pin, Split	2	
046	153008-05025	5ワリピン	Pin, Split	3	
047	153008-08055	8ワリピン	Pin, Split	2	
048	170312-00000	グリースニップル	Nipple, Grease	7	
049	170322-00000	グリー ニップル	Nipple, Grease	2	
050	081300-05012	セットスクリュ	Screw, Set	(4)	
051	081300-05035	ハーフブッシング (51)	Bushing, Half (51)	(1)	
	081300-05036	ハーフブッシング (51)	Bushing, Half (51)	(1)	
052	083002-07013	シールラバー (T51)	Rubber, Seal (T51)	(1)	
053	120122-16000	16ナット	Nut	(4)	
054	145012-16000	16スプリングワッシャ	Washer, Spring	(4)	
055	083204-04032	プレート (A)	Plate (A)	1	
056	083204-04033	プレート (B)	Plate (B)	1	
057	083204-04034	プレート (C)	Plate (C)	1	
058	101032-16060	16ボルト	Bolt	4	

■ **Prevention of Fire**

- If inflammables such as dry leaves and waste paper are allowed to accumulate, they might cause a fire. Clear any such inflammables from around engine and compressor.
- Oil leakage might cause fire. Inspect the piping and hoses in the fuel and hydraulic oil lines and immediately repair or replace any non-conformity such as oil leakage or hose degradation.
- No smoking while filling fuel or oil.



SS-006

■ **Inspection before Operation**

Performing the daily inspection before starting daily work can prevent troubles or failures prevented in advance.

Inspect the surrounding and lower part of the machine for oil leakage, missing bolts and nuts, conditions of the working equipment and hydraulic system.

If any non-conformity is found in the daily inspection, always repair and adjust it before the engine start.

■ **Get On/Off Machine Carefully**

- Before getting on the machine, check around and behind the machine and make sure that there are no workers or obstacles.
- If any worker is standing in the way of the machine, move them out of the way to a safe place.
- Completely wipe any dirt or oil on the handrails, steps, or floor; if slippery you might fall.
- Wipe any dirt or oil from the soles of your shoes before getting on the machine.
- When getting on or off the machine, constantly face the machine and support yourself by three or more points, using handrails and steps.
- Do not jump off or on the machine. Get on or off the machine only when it is stopped completely.



SS-012

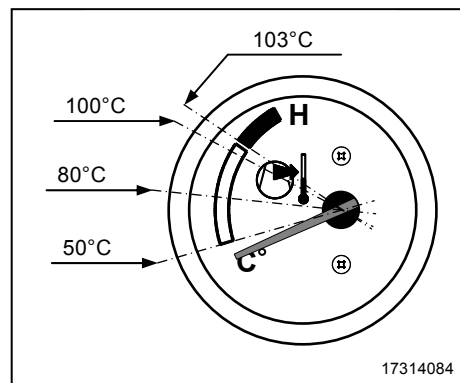
2. Compressor Discharge Air Temperature Gauge

It indicates the compressor air temperature.

If the dial hand enters the red range during operation, stop operation immediately and wait until the hand returns to white range. Then stop the compressor.

(Check)

- After the engine is stopped, check the amount and quality of compressor oil and, if low, add more.
- Check for oil leaks.



NOTICE

When the compressor discharge air temperature rises to 110°C or more, the engine is stopped in emergency.

3. Hydraulic Oil Temperature Gauge

It shows the hydraulic oil temperature.

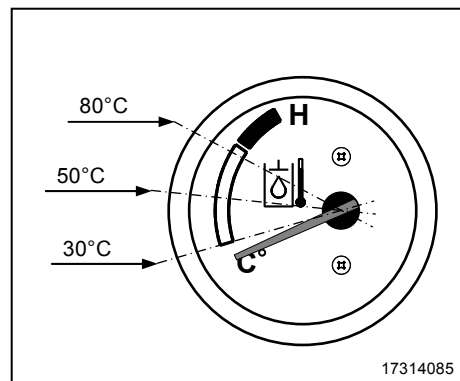
Before full operation, operate the drill with light load until the hydraulic oil temperature rises to about 30°C.

If the hand enters the red range during operation, stop full operation immediately and continue with engine at low idle.

Wait until the hand returns to white range, then stop the engine.

(Check)

- After the engine is stopped, check the amount and quality of hydraulic oil and, if low, add more.
- Check that there is no clog in the oil cooler.
- Check for oil leakage.



NOTICE

When the quantity of hydraulic oil falls to 175L or less, the engine is stopped in emergency.

■ Cooling Operation

⚠ CAUTION

It is said that the healthiest cab temperature is about 5 - 6°C different from the open air temperature. It is not healthy to lower the temperature excessively or blow cold air on your body for a long time.

Take the greatest care of temperature adjustment.

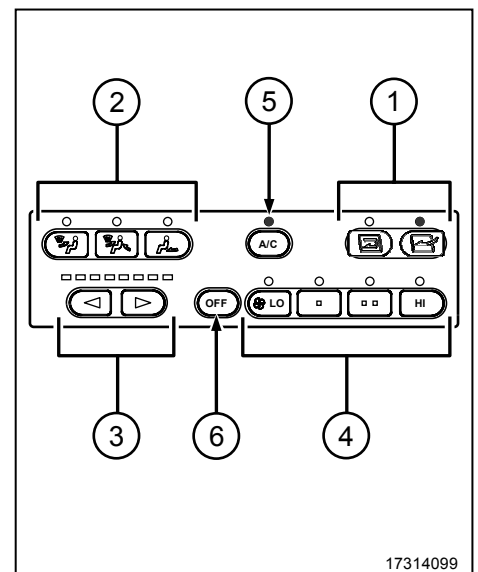
Inside the cab may become dry because of the dehumidifying effect of the air-conditioner. When the air-conditioner is operated, open the door about once an hour for ventilation.

If inside the cab is dry, you might get pain in your eyes with cigarette smoke.

If you smoke, open the window slightly for ventilation.

The air-conditioner cools the cabin by circulating the outside in the cab and dehumidifying.

1. Set the internal/external air selector switch (1) to "External Air Introduction".
Make sure the indicator is turned on.
★ When quick cooling, temporarily set to "Internal Air Circulation".
2. Change the mode selector switch (2) and select the desired air-blow outlet.
3. Press the temperature control switch (3) and set the blown air temperature to the lowest.
Make sure that all eight indicators are turned on in green.
4. Press the fan switch (4) to adjust the flow rate.
Press the air-conditioning switch (5) to activate the air-conditioner. Make sure the indicator is turned on.
★ When operation of the air-conditioner is to be stopped, press the OFF switch (6).
5. The air temperature in the cab is adjusted by using the temperature control switch (3) and fan switch (4).



3.10 Operator's Seat

3.10.1 Seat Adjustment

! WARNING

Adjust the seat position so that the operator can step on the pedals easily with his back on the back of the seat.

Before travelling or operation or when the operator is changed, adjust the seat position.

There are two kinds of seat, suspension seat and high back seat.
Make adjustment properly for the installed seat.

■ Suspension Seat

! CAUTION

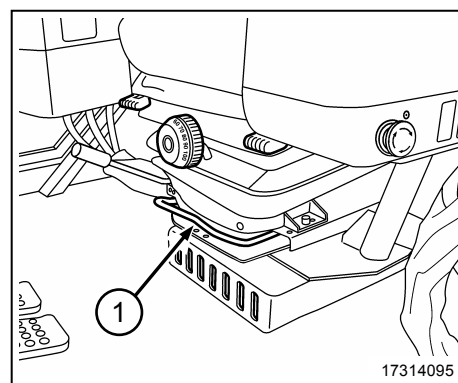
A finger might get caught between the tilt lever and the seat stand, so use your palm to press the tilt lever (3).

When the reclining lever (2) is pulled right up the back seat will suddenly fall forward.
Adjust the reclining range with your back firmly against the back seat.

Seat forward/backward adjustment

Pull up the slide lever (1), and slide seat to forward and backwards. Set to desired position and release hand from slide lever (1).

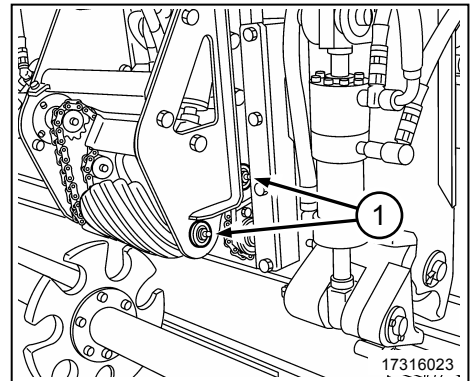
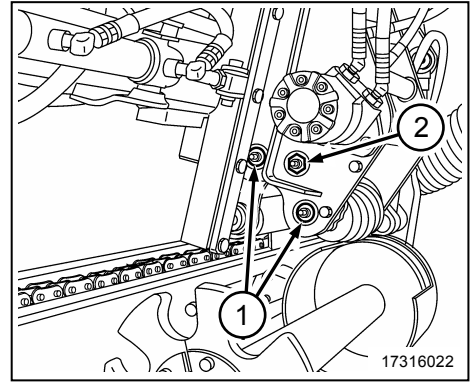
Adjustment range: 160 mm (10 steps)



17314095

● **Rotator (If Equipped)**

- (1) Rotator shaft (4 points)
- (2) Chain tensioner (1 point)



■ Drilling Precautions

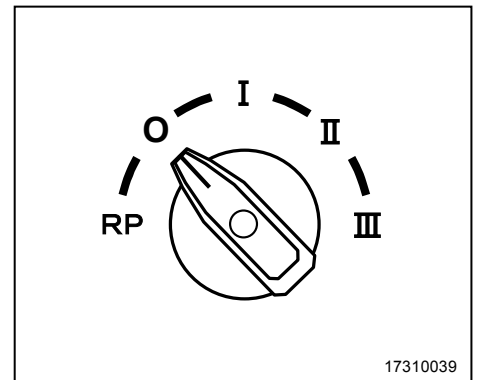
● Beware with Blow Up of Cuttings

Check if cuttings are blows up by means of flushing air during drilling.

If the blowhole at the bit tip is stuffed, the flushing air pressure is increased.

If the blowout of the flushing air becomes weak, cuttings cannot be discharged normally to easily result in hole stuffing and jamming.

★ When the anti-jamming switch is set to [I] or [II], the drifter moves backward automatically when the flushing air pressure has dropped, or the airflow has dropped due to stuffing of bit tip.



● Clean the Drilling Hole

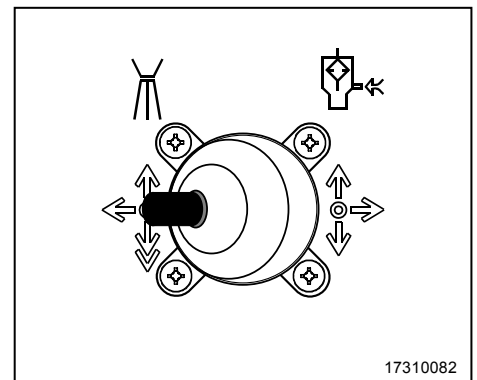
If the cuttings cannot be discharged normally or the flushing air pressure increases, stop the impact and move the drifter up and down 2 – 3 times to clean the hole before re-starting drilling.

★ When the anti-jamming switch is set to [II], the drifter is automatically stopped moving forward if the rotation pressure is excessively increased.

● Beware of Spring Water

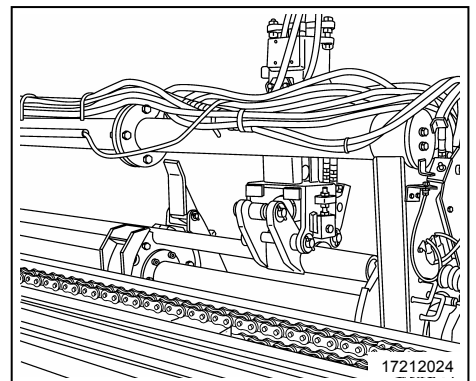
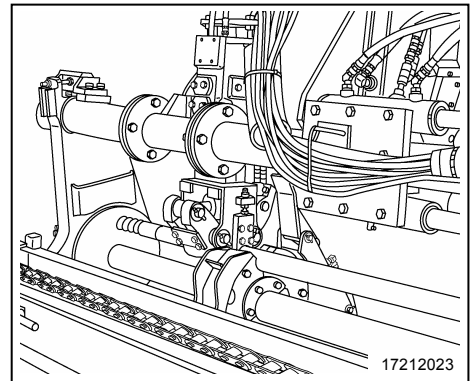
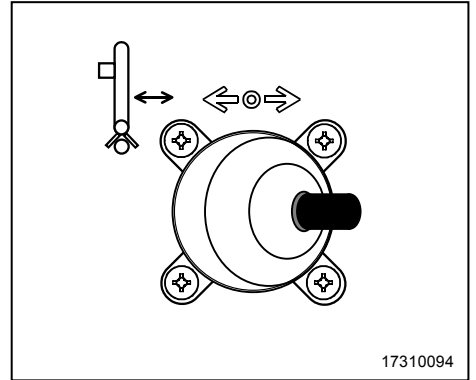
If dirty water is collected, the filter element in the dust collector may be clogged and dust collection degraded.

If spring water comes out during drilling, tilt the flushing lever to the left and stop the dust collector operation.

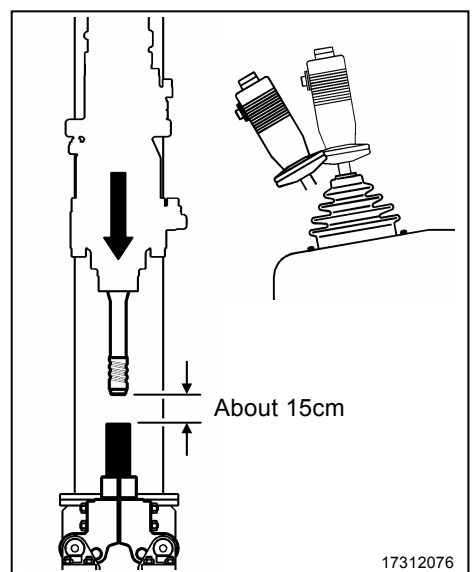


Rod Changer Operation Push-drilling Specification

20. When the rod is separated, tilt the rod changer control lever (5) to the right and load the rod held at the drilling center into the magazine.



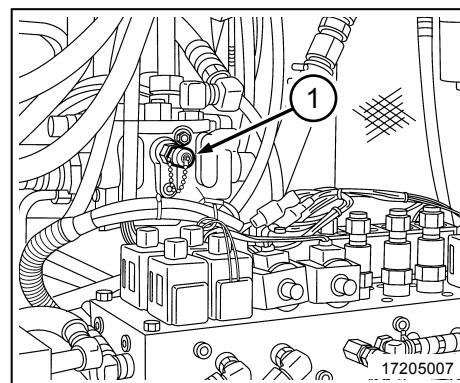
21. Push the control grip (3) forward fully and move the drifter fast forward until the distance between shank rod and sleeve is about 15cm. Then stop the drifter.



● P2 Gauge Port

The P2 gauge port (1) is to measure the relief pressure of PV pump P2.

★ The PV pump P2 is the hydraulic source for rotation.



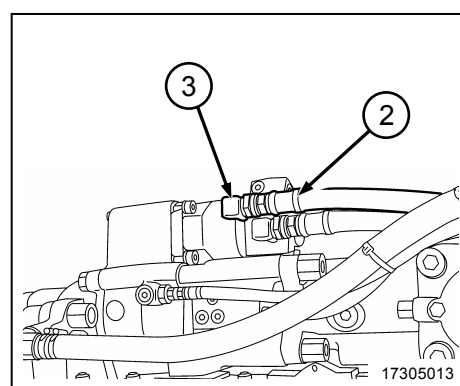
The relief pressure is measured by the following procedure.

1. Remove the oil hose (2) connected to the orbit motor of the drifter.

Install the hose adapter into the oil hose (2).

★ Install the union cap into the adapter (3) to prevent dust.

2. Remove the cap and install the pressure measure tester on the gauge port (1).

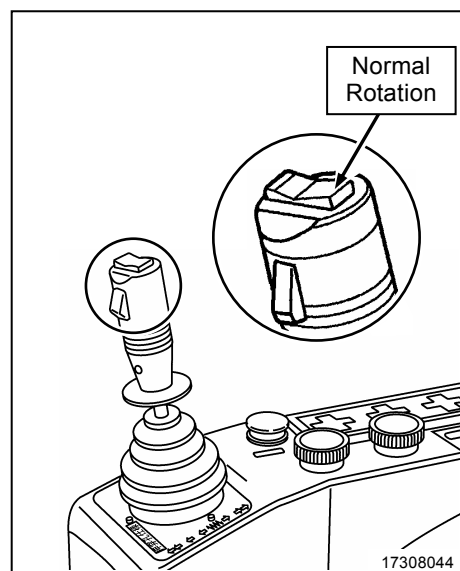


3. Start the engine.

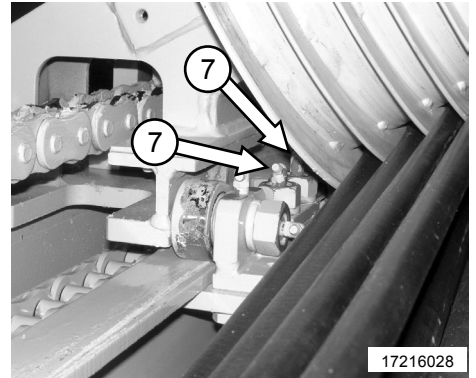
Set the engine throttle switch to [V] position.

4. Press the left side of the rotation switch to turn the shank rod normally and measure the relief pressure.

Relief pressure: 14 MPa

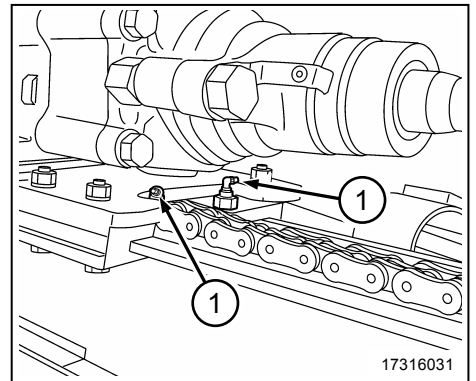


(7) Cam follower (4 points)

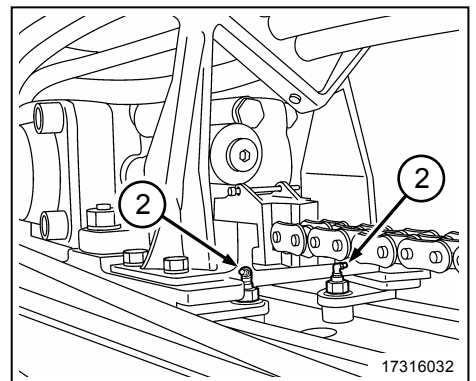


● Carriage

(1) Roller, front (2 points)



(2) Roller, rear (2 points)

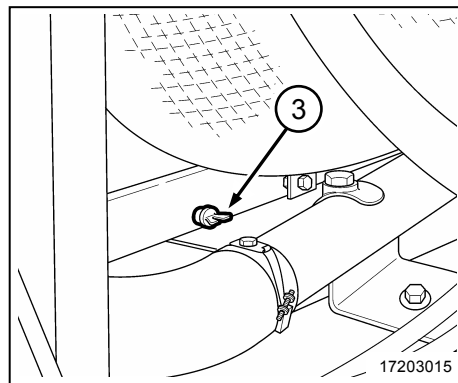


3. Open the engine cover that is located on the right side of the machine.

Place a suitable container to receive the drained coolant under the radiator drain cock (3). The radiator drain cock (3) is located on the bottom of the radiator.

Open the drain cock (3) and drain the coolant.

★ Capacity is approximately 30 liters.



4. Close the drain cock (2).

5. Flush the cooling system with any available cleaning solvent. For the flushing procedure, comply with the instructions of the cleaning solvent manufacturer.

6. Start the engine. Keeping the engine coolant temperature at 80°C, operate the engine for 5 minutes and then stop the engine.

Open the drain cock (3) and drain the cleaning solvent.

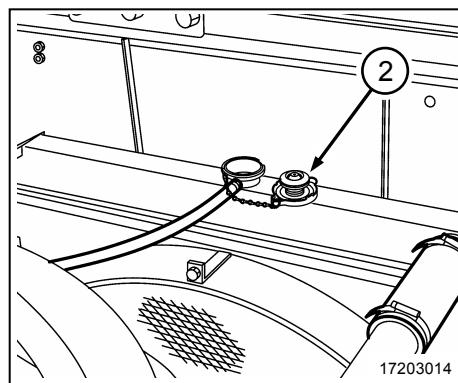
Close the drain cock (3).

7. Fill the soft water into the radiator until the water reaches just under the hole.

The coolant level gauge (3) is located on the left side of reservoir tank.

8. Start the engine with the reservoir tank cap (2) opened. Keeping the engine coolant temperature at 80°C, operate the engine for 5 minutes and then stop the engine.

9. Drain the water by opening the drain cock (3). Flush system with soft water until draining water becomes clean.



10. Close the drain cock (3). Fill the coolant slowly until the water reaches just under the hole.

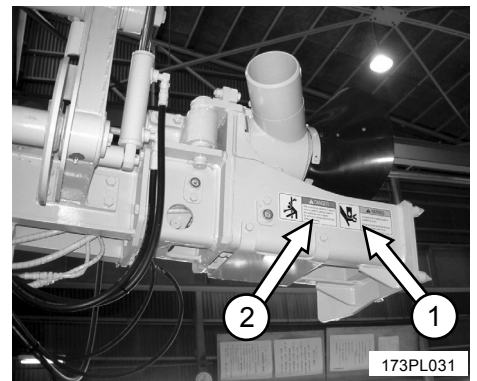
Coolant capacity: 28 liters.

★ For the coolant, refer to 12. "Coolant".

■ Working Equipment

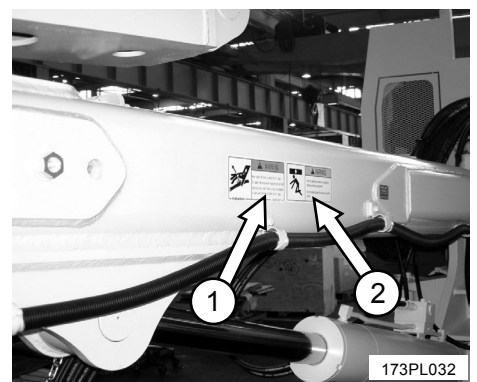
● Food Pad

1. 090200-04381
2. 090200-04378



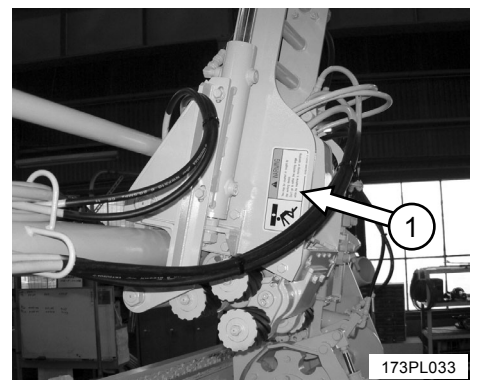
● Boom

1. 090200-04379
2. 090200-04747



● Rotator (If Equipped)

1. 090200-06213



■ **Beware of the Radiator**

If the cap of the reservoir tank is opened when the engine is hot, hot steam and water burst out and might cause scalding.

- Check the coolant in the reservoir tank before starting the engine and after it has dropped to normal temperature.
- Only check the cooling system after the engine has stopped and you are sure that the radiator has completely cooled to a normal temperature.
- When the cap of the reservoir tank is to be opened, place a cloth over the cap and only gradually release the inside pressure.



SS-037

■ **Secure Drop-Prevention Measures**

Maintenance under the machine can cause crushing injury or death.

- Do not service, perform maintenance or make adjustments under the machine without secure supports.
- Do not stand under the boom or guide shell.
Put down the guide shell on the ground or hold it with safely props or wooden blocks.



SS-038

■ **Don't Get on Covers**

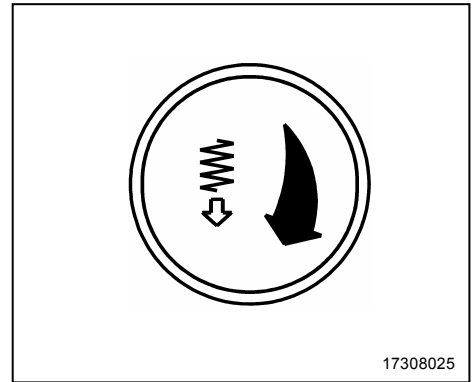
- When you have to open the engine side covers, top cover or rear cover for inspection and repair, open the covers until the stopper works.
- Slip can occur easily on the top cover or the opened cover. If you get on the cover carelessly, you may drop. Do not get on the covers.
- Do not get on the engine top cover.
The cover may be damaged.



SS-059

3. Feed Speed Adjusting Dial

This dial adjusts the drifter feed forward speed in drilling.



The feed speed is adjusted to stop idle blows, hole bend or jamming in the drifter, when the drilling control grip is set to one step front, "Forward, Normal Feeding" condition.

When the feed speed is slower than the drilling speed, idle blows tend to occur in the drifter.

If idle blows occur in the drifter, increase the feed speed.

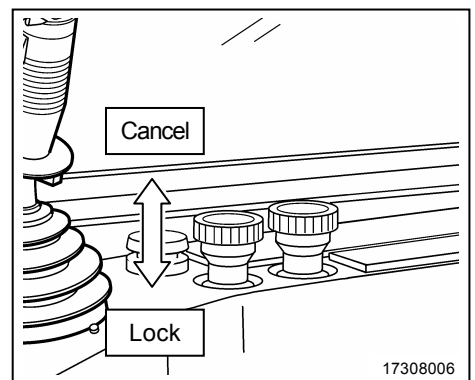
When the feed speed is too fast for the drilling speed, hole bend or jamming may occur if the drill encounters soft rock, fracture zone, or hollow.

Adjust the feed speed, paying attention to changes in drilling sound and rotation pressure.

The feed speed is adjusted with the dial raised and the lock undone.

When the dial is turned clockwise the drifter moving forward speed is increased.

When the dial is turned counterclockwise the drifter moving forward speed is decreased.



● **Clamp Cylinder Operation**

The clamp cylinder can grasp and fix the rod (or sleeve) using the tooth and prevent the rod from deviating from the drilling center.

The clamp cylinder has the following three movements

Tooth [Close] Movement

In the tooth (close) movement, the piston rod of the clamp cylinder is extended and the tooth grasps and fixes the rod (or sleeve).

Tooth [Open] Movement

In the tooth (open) movement, the piston rod of the clamp is retracted and the tooth is opened fully.

Half Clamp Movement

The half-clamping mode shows that the piston rod is extended and the tooth is closed softly to hold the rod.

In the half clamp mode, the rod is held and supported. Therefore, this operation is different from one where the tooth on the clamp (F) grasps and fixes the rod.

■ Check Fan Belt**⚠ WARNING**

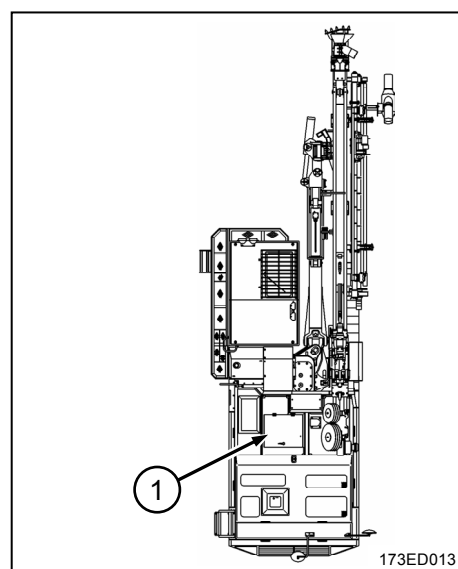
To check the fan belt (1) stop the engine and thoroughly prohibit the start of engine.

NOTICE

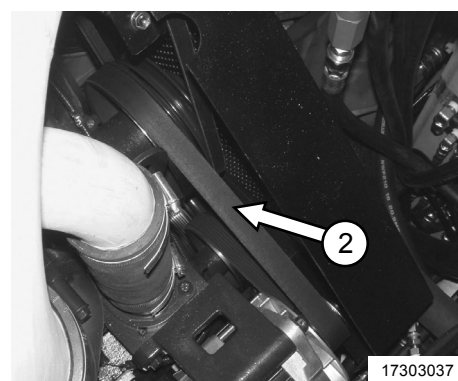
If the fan belt (1) slips, it might shorten its life.

Take the greatest care no oil or grease is on the fan belt (2).

1. Open the roof cover (1) that is located on the top of the machine.



2. Visually inspect the fan belt (2).
Replace the fan belt (2) if the fan belt (2) is frayed or has pieces of material missing.



3. Close the roof cover (1).

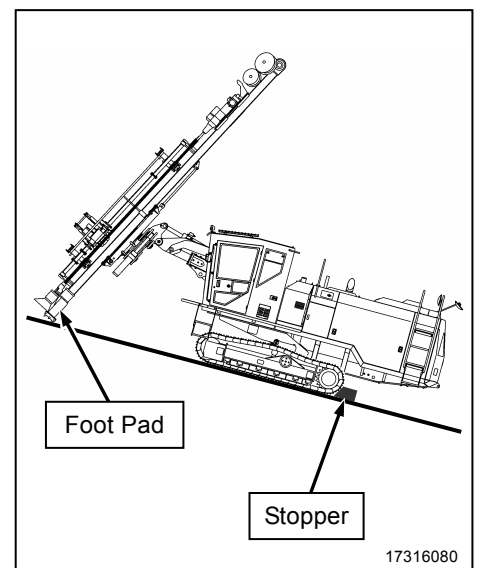
4.5 Parking the Machine

WARNING

Do not park the crawler drill anywhere they may be landslide or lower place where collapse of scaffold might occur.

Park the crawler drill on the flat and solid ground.

If the crawler drill has to be parked on an inclined plane, set the guide shell to downward, press the end of the foot pad against the ground and apply a stopper to each crawler track shoes.

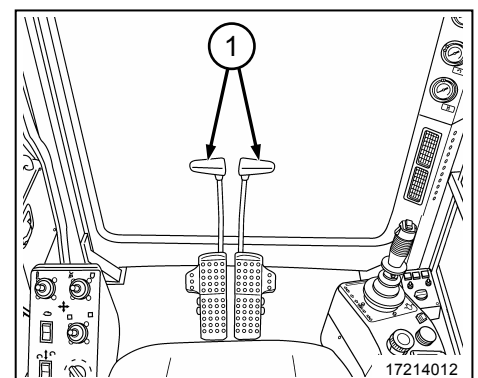


1. Select a solid flat place and slowly return the right and left travel levers (1) to neutral to stop the crawler drill.

★ The travel levers (1) are returned automatically to the neutral when hands are released from the levers.

2. Presses the touch switches on the hydraulic cylinder control to set the traveling posture or guide shell to down and press the end of the foot pad against the ground.

★ For the travel position, refer to Item 4.4.1 “Traveling Posture”.

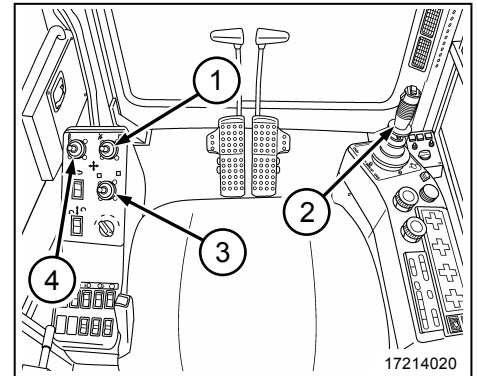


3. Set all operation levers and switches to “Neutral” or “OFF”.

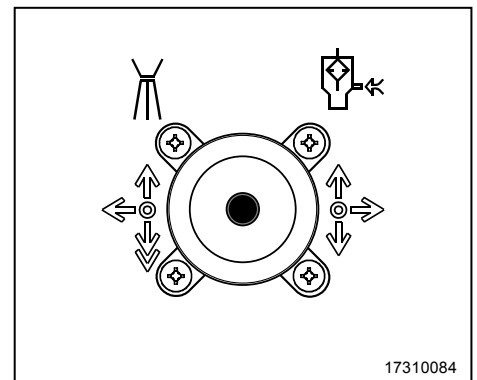
■ **Adding of Rod**

When the rod is added, open the centralizer for rotation-free impact and loosen the shank rod and sleeve.

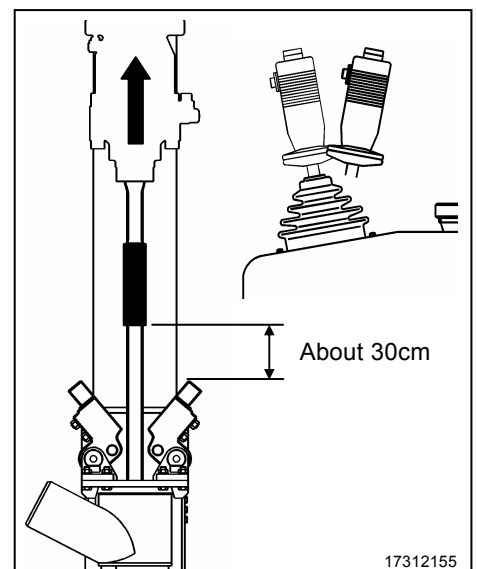
★ For the levers and switches in the rod adding, refer to the right hand figure.



1. Return the flushing lever (1) to neutral and stop the air flushing.



2. Pull the control grip (2) to this side fully.
Move the drifter fast backward until the lower end of the sleeve reaches 30cm above the centralizer.
Then stop the drifter.



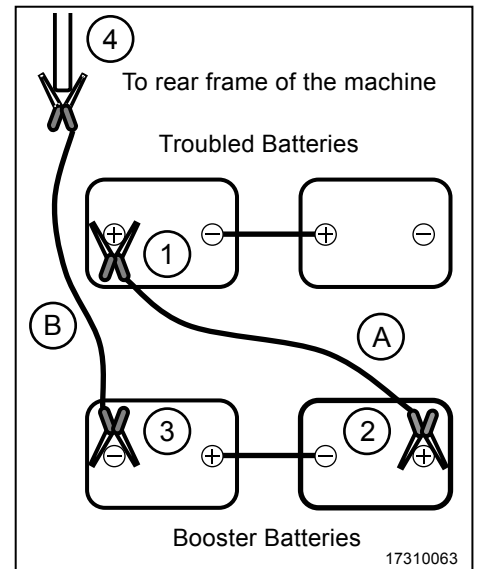
The machine to be started should be parked on the flat and solid place.

Set the machine to travelling posture or guide shell to downward, and press the foot pad against the ground. Pull up the safety lever to set it to LOCK.

● Connecting the Booster Batteries

Connect the booster cable in following order.

1. Stop the engine of the machine on which booster batteries is mounted.
2. Connect a one cable (A) to the positive terminal (1) of the battery.
3. Connect the opposite end of cable (A) to the positive terminal (2) of the booster battery.
4. Connect the other cable (B) to the negative terminal (3) of the booster battery.
5. Connect the opposite end of cable (B) to the frame (4) of machine.
6. After connecting, check if the clamps are securely connected to the battery terminals before starting the engine.
7. Start the engine.



■ Inspect and Adjust Track Shoes Tension

WARNING

If the relief valve (2) is loosened carelessly, high-pressure grease bursts out.
Do not loosen relief valve (2) more than 1 turn.

If the track shoes tension cannot be adjusted, ask your nearest distributor for adjustment.

The wear conditions of the pins and bushes of the carriage vary with the work conditions and soil quality.

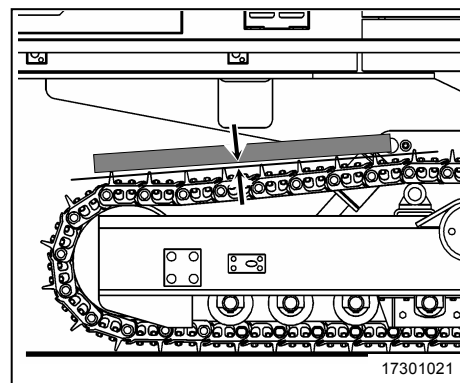
Inspect and adjust the track shoes tension under the present working conditions and maintain the standard tension.

● Inspection

Move the machine 10m forward and stop the machine.

Place a straight bar on the center between the carrier roller and idler and if the distance between the bar and shoe plate is 10 - 15mm, it is standard.

If the track shoes are too tense or too slack, adjust.



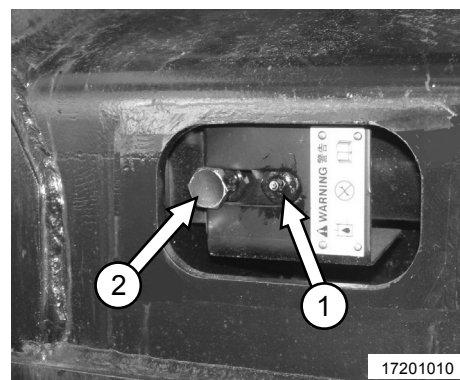
● Adjustment

1. Clean the grease nipple (1) and supply grease through grease nipple (1).

The idler is moved forward to tighten the track shoes.

2. If the track shoes tension decreases loosen the relief valve (2) 1 turn and discharge grease.

3. Tighten the relief valve (2) at the specified torque.
Tightening Torque: 34 ± 5 N·m



■ Clean Fuel Filter

! WARNING

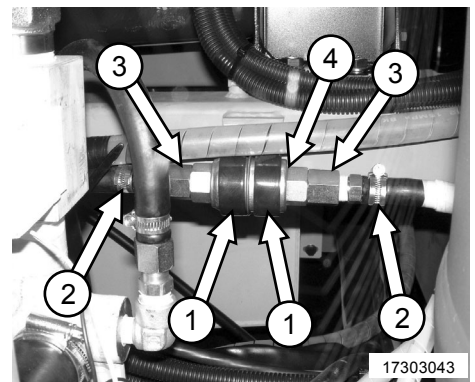
**Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire.
Clean up all leaked or spilled fuel.**

Do not smoke while working on the fuel system.

The strainer (2) prevents dust from entering the engine fuel system.

★ The fuel filter (3) is located on the bottom of the engine.

1. Open the engine cover that is located on the left side of the machine.
2. Remove the clamps (1).
3. Loosen the hose bands and remove the hoses (2) .
4. Remove the adapters (3) from the fuel filter (4).
5. Wash the fuel filter (4) in clean, light oil.
Inspect the fuel filter (4) for damage.
Replace the fuel filter (4) if it is necessary.
6. Install the adapters (3).
7. Install the hoses (2) and tighten the hose bands.
Install the clamps (1).
8. Close the engine cover.



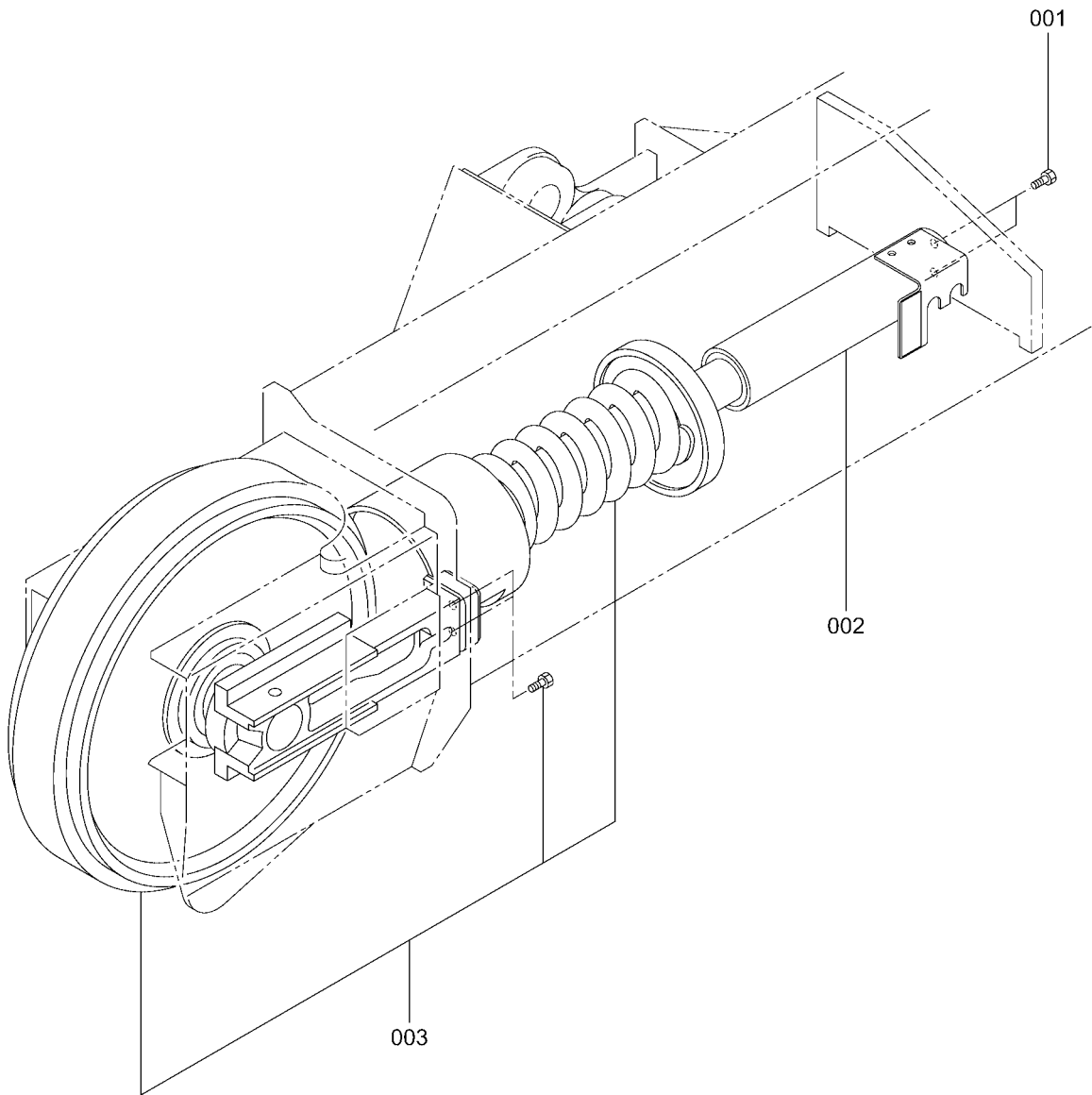
PARTS LIST
HCR 1500-ED

SERIAL NO.

DATE

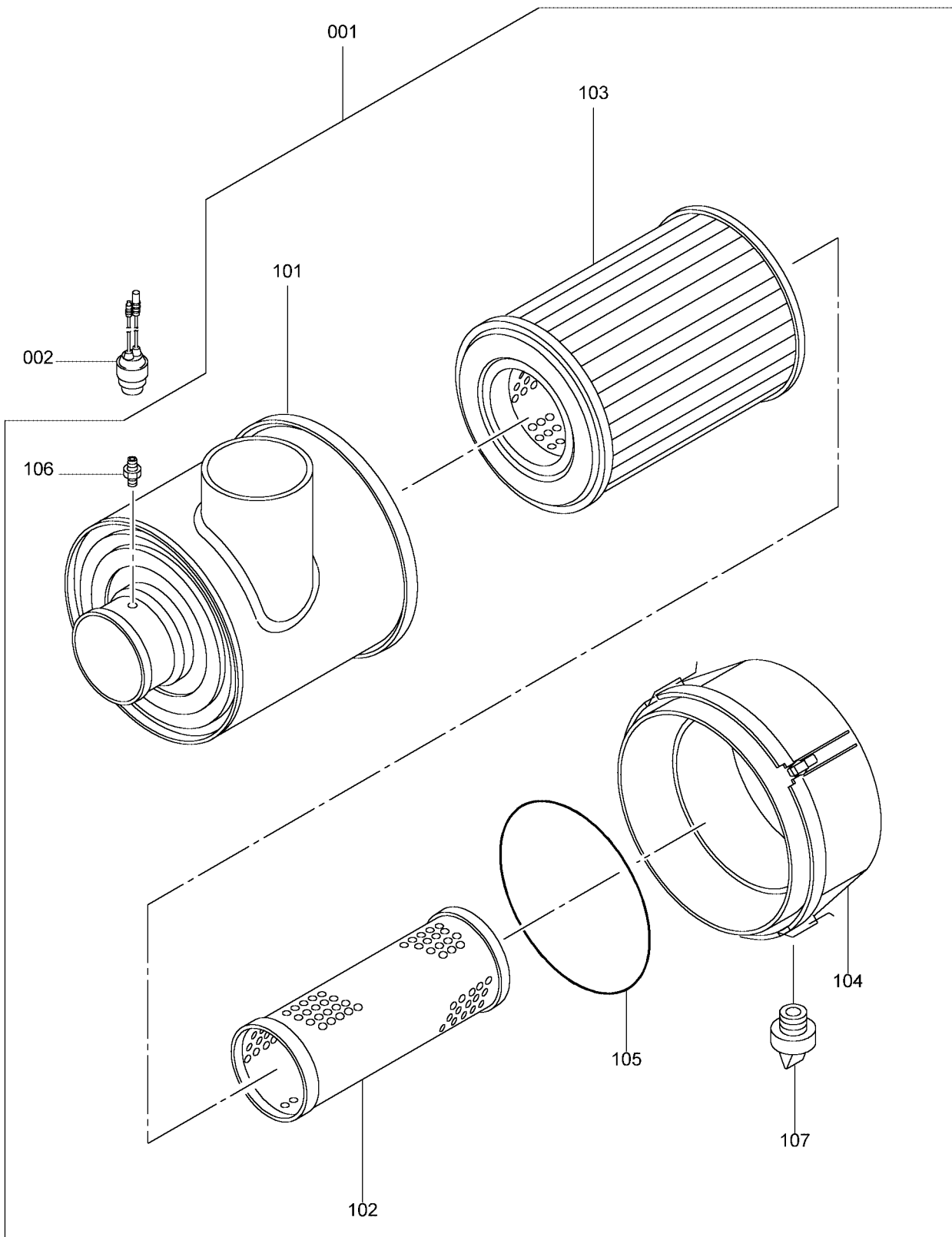
FURUKAWA

アイドルアッセンブリ
IDLER ASS'Y



符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	040114-030440	ホルダ ^ハ アリング	1		
002	040114-03031	シャフト	1		
003	040114-03032	ハブ ^エ ントウ	1		
004	040114-030430	ハブ ^フ ランジ	1		
005	040114-030410	ポン ^プ マウンチング(QSC)	1		
006	040113-03043	スクリュ ^フ ランジ	4		
007	040113-03034	カラー	1		
008	040113-03035	リング	1		
009	040113-03036	リング	1		
010	040113-03037	プラグ	1		
011	040113-030560	アダ ^プ タ	1		
012	087102-06075	6 ^オ イルホース(750)	1		
013	040114-03037	19 ^エ ルホ ^コ ネクタ	1		
014	024203-02061	オイル ^シ ール	1		
015	150021-81170	キー	2		
016	160021-00035	オー ^リ ング	1		
017	160021-00130	オー ^リ ング	1		
018	264010-00065	65 ^S スナッ ^プ リング	1		
019	264020-00040	40 ^H スナッ ^プ リング	1		
020	264020-00088	88 ^H スナッ ^プ リング	1		
021	280030-06913	フカミ ^ジ タマ ^シ クウケ	1		
022	040114-03012	ゴ ^ム タイ	1		
023	040114-03016	16 ^ソ ケット ^ボ ルト	8		
024	154037-05010	5 ^ス プリング ^ピ ン	12		
025	152025-10020	10 ^ピ ン	1		
026	160011-00011	オー ^リ ング(1A-P11)	(2)		
027	084842-02000	6 ^ロ ング ^エ ルホ ^ア ダ ^プ タ	1		
028	033100-07020	1/4 ^オ ス ^ア ダ ^プ タ(1.5)	1		
029	084862-02000	6 ^ロ ング ^エ ルホ ^コ ネクタ	2		
030	111010-12015	12 ^ホ ロー ^セ ット ^ス クリュ	2		
031	160011-00018	オー ^リ ング(1A-P18)	(1)		
032	040113-030550	ホ ^ー ル ^ハ アリング(カタ ^シ ール ^ト)	1		

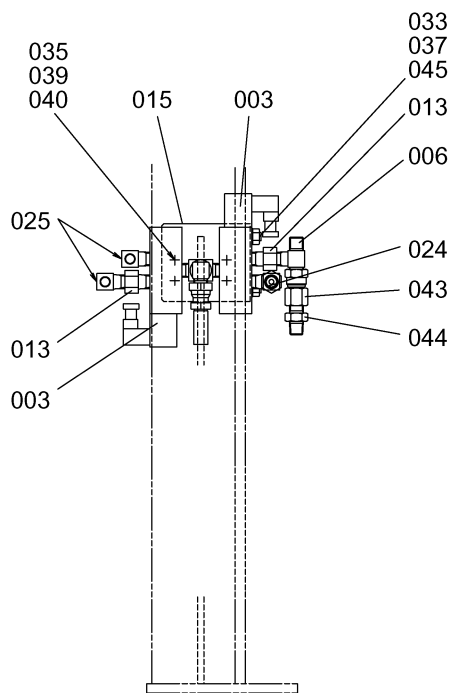
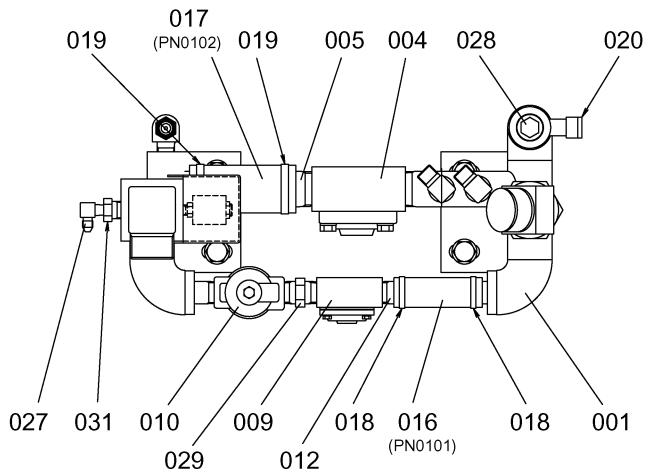
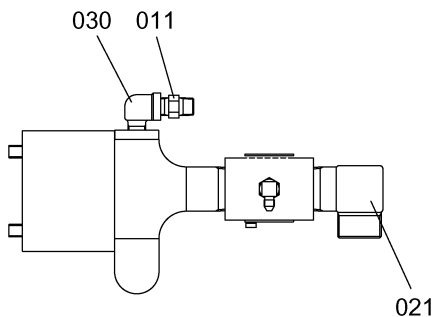
エヤクリーナ
AIR CLEANER



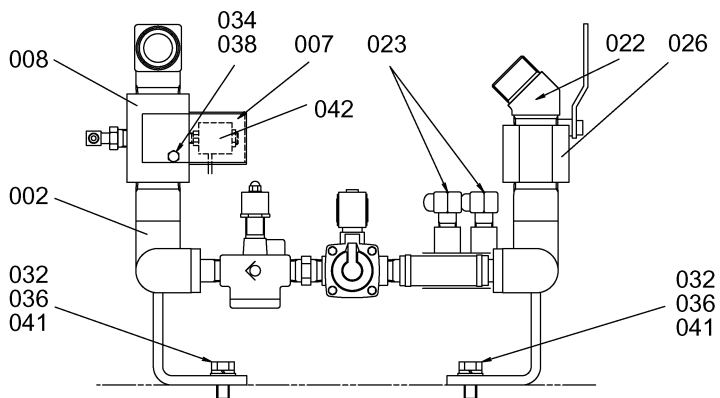
オイルクーラ
OIL COOLER

符号 Item	部品番号 Part No.	部 品 名 Part Name	個数 Q'ty	適用号機 Serial No.	補 給 性 Remarks
001	040304-10011	オイル クーラ Oil Cooler	1		
002	040304-10012	ファン Fan	1		
003	940304-10013	オイル モータ Motor, Oil	1		MB7AK692
004	040304-10015	クーラ フレーム Frame, Cooler	1		
005	040304-10016	クーラ ガード Guard, Cooler	1		
006	025204-10015	ワッシャ Washer	1		
007	101022-16110	16 ボルト Bolt	6		M16X110
008	101022-16040	16 ボルト Bolt	4		M16X40
009	101022-10030	10 ボルト Bolt	2		M10X30
010	101022-10020	10 ボルト Bolt	11		M10X20
011	101032-06030	6 ボルト Bolt	1		M6X30
012	120122-16000	16 ナット Nut	10		
013	141112-16000	16 ワッシャ Washer	6		
014	141112-10000	10 ワッシャ Washer	2		
015	145012-16000	16 スプリング ワッシャ Washer, Spring	10		
016	145012-10000	10 スプリング ワッシャ Washer, Spring	13		
017	145012-06000	6 スプリング ワッシャ Washer, Spring	1		
018	040304-10017	カバー Cover	1		
019	040304-10018	カバー Cover	1		

ニューマチックモジュール
PNEUMATIC MODULAR



ダストコレクタブラケット(F)部
DUST COLLECOTOR BRACKET (F)



機体左側前方部
MACHINE BODY L.H. FRONT

()内はホースNo.を示す。
The number in () shows the hose number.

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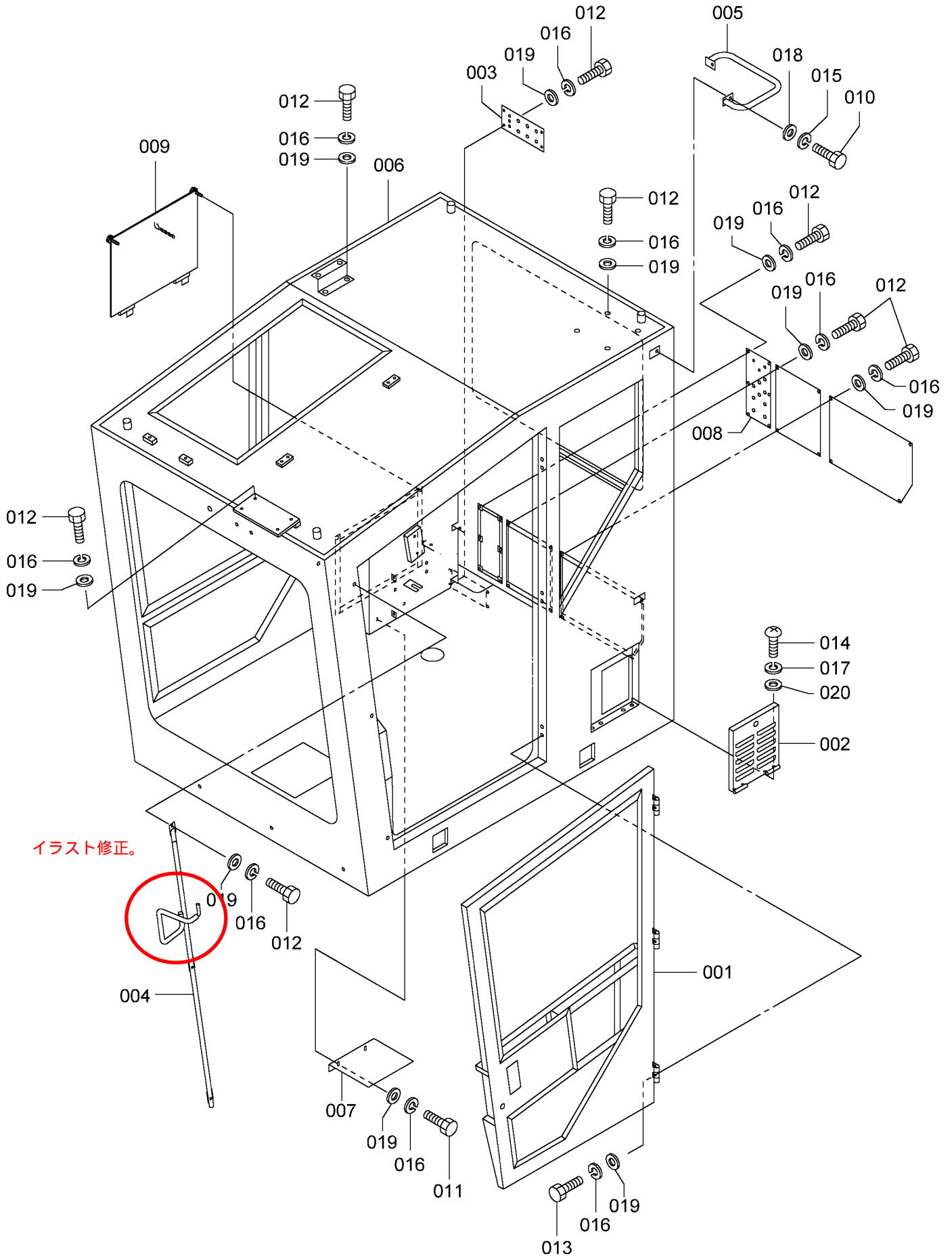


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符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Qty	適用号機 SERIAL NO.	備考：補給性 REMARKS
043	025606-05004	16PハウジングF	HOUSING (F)	9	
044	025606-05006	8PハウジングF	HOUSING	2	
045	025606-05009	6PハウジングF	HOUSING	1	
046	025606-05019	3PハウジングM	HOUSING	1	
047	045065-06016	2Pハウジング F	HOUSING	1	
048	045065-06017	2P ハウジング M	HOUSING	1	
049	025606-05005	リヤホルダ	HOLDER, REAR	15	
050	025606-05007	リアホルダ	HOLDER, REAR	2	
051	025606-05010	リアホルダ	HOLDER, REAR	1	
052	025606-05017	リアホルダ	HOLDER, REAR	1	
053	045065-06018	リヤホルダ	HOLDER, REAR	1	
054	080102-01061	ターミナル(M)	TERMINAL (M)	96	
055	080102-01068	ターミナル(F)	TERMINAL (F)	177	
056	045065-06020	ターミナル(F)	TERMINAL	2	
057	045065-06021	ターミナル(M)	TERMINAL	5	
058	080102-01062	ホースイセ	PLUG, WATER PROOF	273	
059	045065-06019	ホースイセ	PLUG, WATER PROOF	7	
060	113011-03020	3マルビス	SCREW, MACHINE	2	
061	113011-04010	4マルビス	SCREW, MACHINE	34	
062	113011-05020	5マルビス	SCREW, MACHINE	2	
063	101012-10025	ボルト10	BOLT	5	
064	145012-03000	3スプリングワッシャ	WASHER, SPRING	4	
065	145012-04000	4スプリングワッシャ	WASHER, SPRING	34	
066	145012-05000	5スプリングワッシャ	WASHER, SPRING	2	
067	145012-10000	10スプリングワッシャ	WASHER, SPRING	5	
068	141112-03000	3ワッシャ	WASHER	4	
069	141112-04000	4ワッシャ	WASHER	34	
070	120112-10000	10ナット	NUT	5	
071	040504-07023	ディップ スイッチ	SWITCH, DIP	1	
072	040504-07024	ヒューズ	FUSE	1	
073	ZN1520-65111	ヒューズホルダ	HOLDER, FUSE	2	
074	022006-01003	ヒューズ	FUSE	1	
075	023106-03028	タイマー	TIMER	1	10MIN.
076	025206-03047	I/O リレー	RELAY	(1)	
077	025206-10037	リレー	RELAY	(1)	
078	024106-05010	ダイオード	DIODE	2	
079	040504-070390	メモリユニット	MEMORY UNIT	1	
080	040504-07034	DC/DCコンバータ	DC/DC CONVERTER	1	
081	040504-07035	プレート(C)	PLATE	1	
082	113011-03008	3マルビス	SCREW, MACHINE	2	
083	025106-10222	4PハウジングF	HOUSING	1	
084	025106-10223	リアホルダ	HOLDER, REAR	1	

キャビンホワイ
CABIN

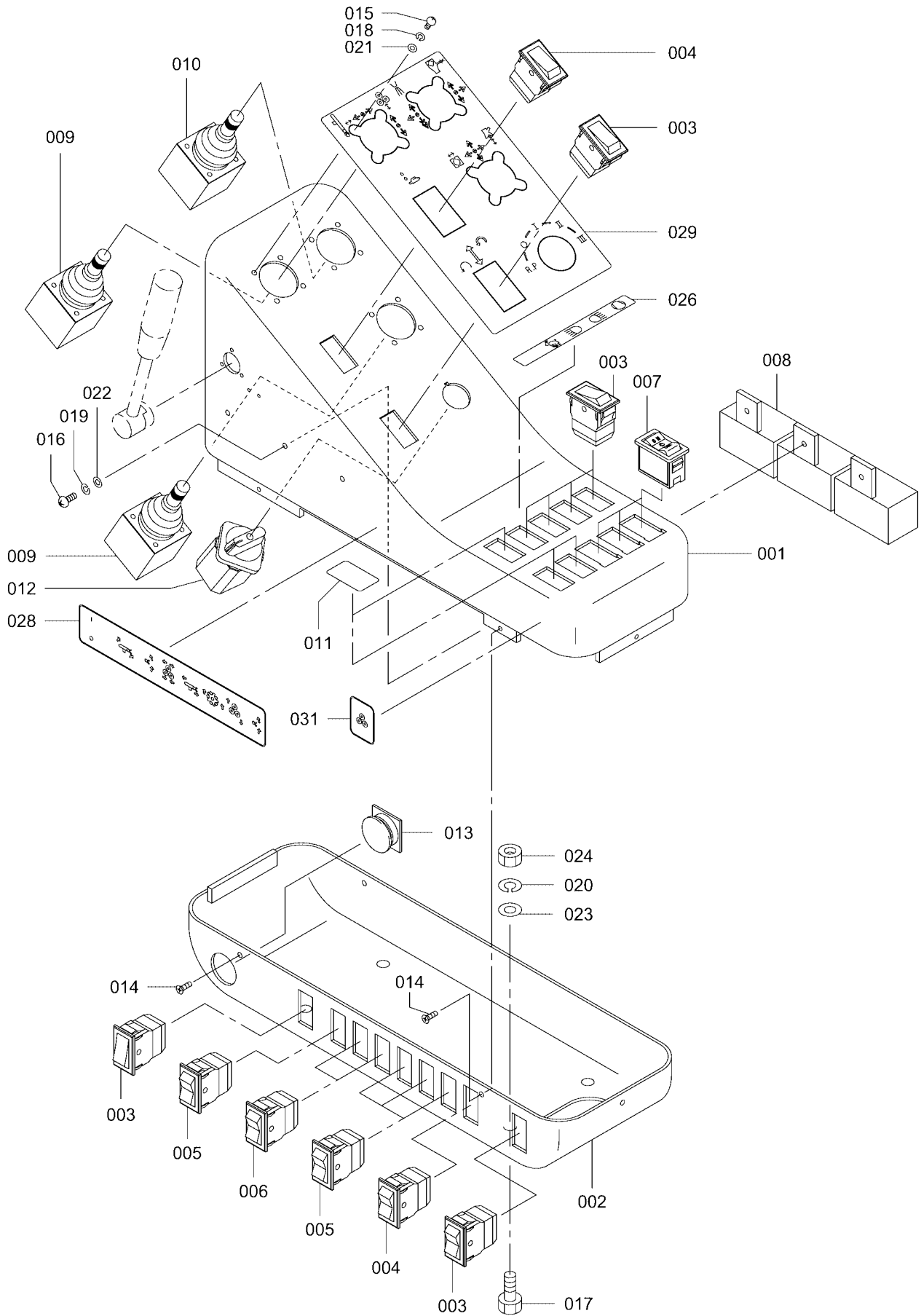


イラスト修正。

940603-01004-0

コントロールボックス(LH) CONTROL BOX (LH)

適用号機 : -1452034
SERIAL NO. : -1452034



符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Qty	適用号機 SERIAL NO.	備考：補給性 REMARKS
043	145012-16000	スプリングワッシャ	23		
044	145012-20000	スプリングワッシャ	8		

ロッドチェンジャ ROD CHANGER

T51-12ft 6-MF WITH ROTATOR

組立品番号 ASS'Y NO.	組立品名 ASS'Y NAME	個数 Q'TY	備考 REMARKS
	ロッドチェンジャ ROD CHANGER	①	980204-00006-0
980204-01003	キャリアアッセンブリ CARRIER ASS'Y	1	
980204-02003	マガジンアッセンブリ MAGAZINE ASS'Y	1	
980204-03002	クランプ(F)アッセンブリ CLAMP (F) ASS'Y	2	
980204-05001	オートグリース ASS'Y AUTO GREASE ASS'Y	1	
980204-06002	チェンジャコントロール(9) CHANGER CONTROL(9)	1	
980200-16002	チェンジャモジュラ(9) CHANGER MODULAR(9)	(1)	
980204-07009	チェンジャパイピング CHANGER PIPING	1	
921006-12021	ダブルオペレートチェックバルブ DOUBLE OPERATE CHECK VALVE	(1)	
980204-08005	ローテータ ROTATOR	1	
980204-09002	アクチュエータ ACTUATOR	1	
985504-21090	スイングシリンダ SWING CYLINDER	(1)	
985503-21055	スライドシリンダ SLIDE CYLINDER	(1)	
985505-22073	クランプシリンダ CLAMP CYLINDER	(1)	
985503-21060	カイヘイシリンダ OPEN/CLOSE CYLINDER	(1)	
980204-09011	ローテーションモータ ROTATION MOTOR	(1)	
980204-10001	ターミナルボックス TERMINAL BOX	1	
980204-12001	電気リックパーツ ELECTRIC PARTS	1	

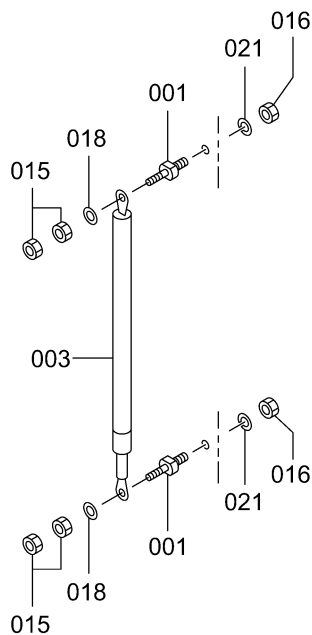
符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	083204-01027	ガイドシェル	1		
002	083204-01012	モータマウンティング	1		
003	083204-01013	スプロケット	1		
004	083204-01014	フィードチェーン	1		
005	083204-01015	スプロケットシャフト	1		
006	083203-01015	ガイドカラー	2		
007	083103-01012	リールチェーン	1		
008	083204-01026	ホースクランプブラケット(A)	1		
009	083204-01019	ホースガード	1		
010	083204-01028	ロッドガード(A)	1		
011	083203-01037	ホースキャリア(C)	1		
012	083204-01022	チェーンジョイント(B)	1		
013	081300-01048	フロントスプロケット(A)	1		
014	081300-01050	フロントシャフトベアリング	1		
015	081300-03015	ジョイントブッシュ	2		
016	081300-03018	ロックワッシャ	1		
017	081600-01007	ホースアジャスタ	2		
018	081600-01010	ロックナット	4		
019	081900-01013	ワッシャ	4		
020	083002-01008	チェーンアジャスタ(A)	2		
021	083003-01007	チェーンアジャスタ(B)	1		
022	083004-01007	ホースアジャスタ	2		
023	GH160-00119	ホースアジャスタ	3		
024	GH160-00120	ロックナット	6		
025	GH500-01010	ホースアジャスタ	1		
026	GH500-01011	ロックナット	6		
027	264020-00056	スナップリング	2		
028	272045-06209	オイルシール	2		
029	153008-08065	ワリピン	1		
030	170312-00000	グリースニップル	1		
031	101032-10030	ボルト	6		
032	101032-12025	ボルト	4		
033	101032-16035	ボルト	4		
034	101022-16045	ボルト	10		
035	101022-24050	ボルト	2		
036	120122-16000	ナット	4		
037	120122-24000	ナット	6		
038	141112-24000	ワッシャ	2		
039	145012-10000	スプリングワッシャ	6		
040	145012-12000	スプリングワッシャ	4		
041	145012-16000	スプリングワッシャ	14		
042	083204-01023	クランプブラケット	1		

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
002	088504-03018	サクシヨソホース	HOSE, SUCTION	1	
002	088504-03021	サクシヨソホース(150) (岩粉サクシヨソホース)	HOSE, SUCTION (ROCK FLOUR SUCTION HOSE)	1	
003	088504-03019	サクシヨソホース	HOSE, SUCTION	1	
003	088504-03022	サクシヨソホース(150) (岩粉サクシヨソホース)	HOSE, SUCTION (ROCK FLOUR SUCTION HOSE)	1	
004	088504-03014	ホースヅヨソ	JOINT, HOSE	1	
005	088504-03015	チエソ(6-1500)	CHAIN	1	
006	088504-03016	チエソ(6-900)	CHAIN	2	
007	088504-05019	スパソラソ(157)	BAND, SPIRAL	4	D 088504-05021
007-1	088504-05021	スパソラソ(157)	BAND, SPIRAL	4	
008	032100-07029	ナスカソ (8)	KARABINER	3	
009	101022-12025	12ボソ	BOLT	4	
010	145012-12000	12スプリソクワッシャ	WASHER, SPRING	4	
011	032602-04003	ガードホース(47)	HOSE, GUARD	3	
012	101022-08035	8ボソ	BOLT	1	
013	141112-08000	8ワッシャ	WASHER	2	
014	141112-10000	10ワッシャ	WASHER	2	
015	120122-08000	8ナツ	NUT	2	
016	089202-01191	ヅェソリクリッソ	CLIP, JUBILEE	2	

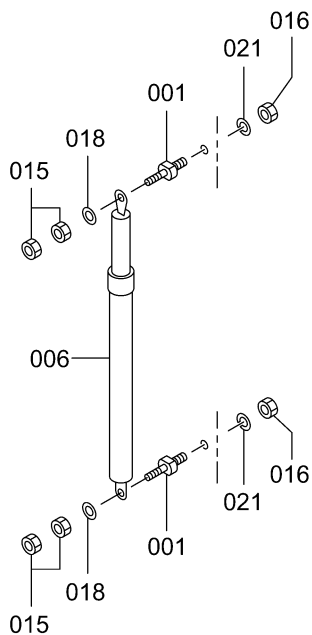
符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Qty	適用号機 SERIAL NO.	備考：補給性 REMARKS
	HD715-99113	シールキット	1	2059-	
001	160011-00008	・オーリング	10		
002	160011-00018	・オーリング(1A-P18)	1		
003	160011-00024	・オーリング(1A-P24)	4		
004	160011-00029	・オーリング	4		
005	HD715-01041	・52.3ステップシール	1		
006	HD715-01042	・52.3グライドリング	1		
007	160021-00075	・オーリング	1		
008	262022-00075	・バックアップリング	1		
009	HD715-01045	・43.7グライドリング	1		
010	HD715-01044	・43.7ステップシール	1		
011	160021-00065	・オーリング(1A-G65)	1		
012	262022-00065	・バックアップリング	1		
013	160011-00046	・オーリング (OP46)	1		
014	262021-00046	・バックアップリング	1		
015	160011-00036	・オーリング (OP36)	1		
016	050300-02034	・シールワッシャ(A)	1		
017	160011-00020	・オーリング	1		
018	161011-00029	・オーリング(1B-P29)	3		
019	HD715-01523	・105グライドリング	1		
020	HD715-01524	・110グライドリング	1		
021	HD715-01526	・75グライドリング	1		
022	HD715-01527	・78グライドリング	1		
024	160011-00014	・オーリング(1A-P14)	9		
025	161011-00014	・オーリング(1B-P14)	2		
026	160021-00030	・オーリング OG-30	2		
027	160011-00009	・オーリング (OP9)	4		
028	HD615-02205	・58 Uパッキン	2		
029	HD615-02203	・90 Uパッキン	2		
030	089800-90012	・オーリング	3		
031	HD500-06157	・モータリヤシールキット	1		
032	HD500-06158	・シャフトシールキット	1		
033	160011-00005	・オーリング(1A-P5)	2		
034	HD715-07002	・ダイヤフラム	2		
035	161021-00090	・オーリング	2		
036	161011-00024	・オーリング(1B-P24)	3		
037	HD715-02304	・90グライドリング	1		
038	HD712-02304	・80グライドリング	1		
039	160021-00115	・オーリング	1		
040	262022-00115	・バックアップリング	1		
041	161021-00055	・オーリング	1		
042	161011-00016	・オーリング(1B-P16)	1		

ENGINE COVER ACCESSORY

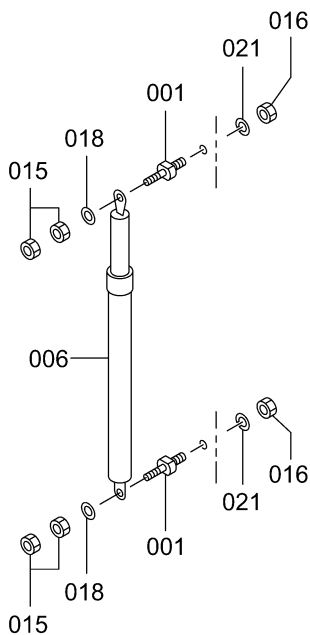
917302-050070-A



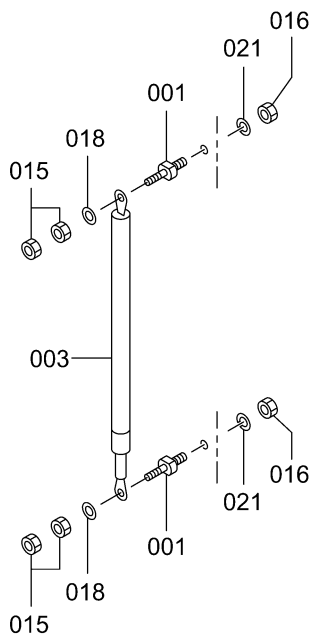
DETAIL A



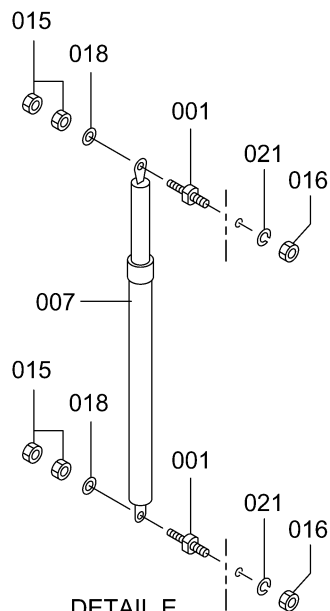
DETAIL B



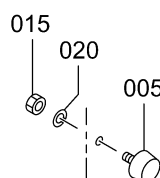
DETAIL C



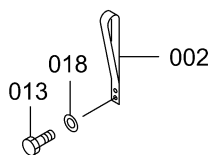
DETAIL D



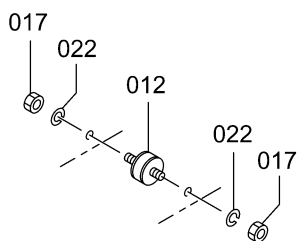
DETAIL E



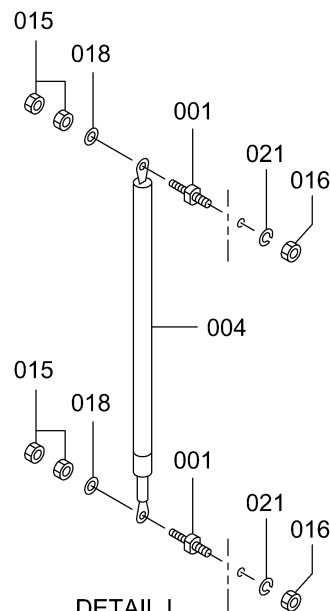
DETAIL F



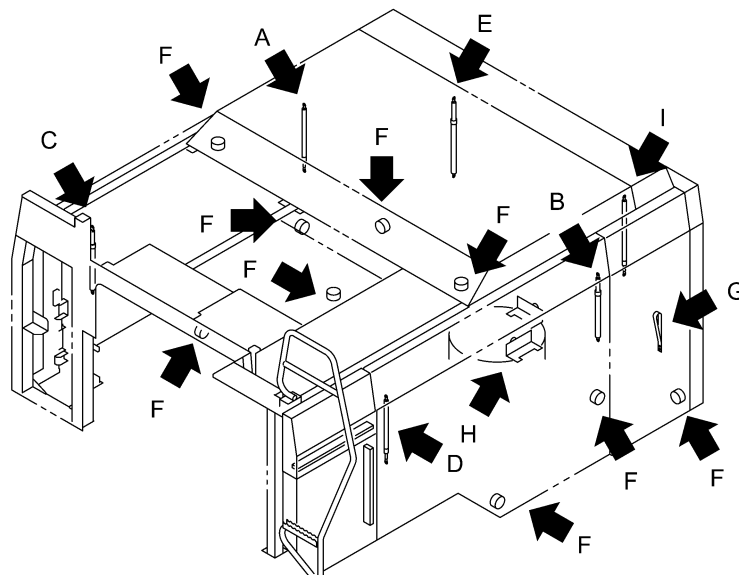
DETAIL G



DETAIL H



DETAIL I



パイピングユニット PIPING UNIT

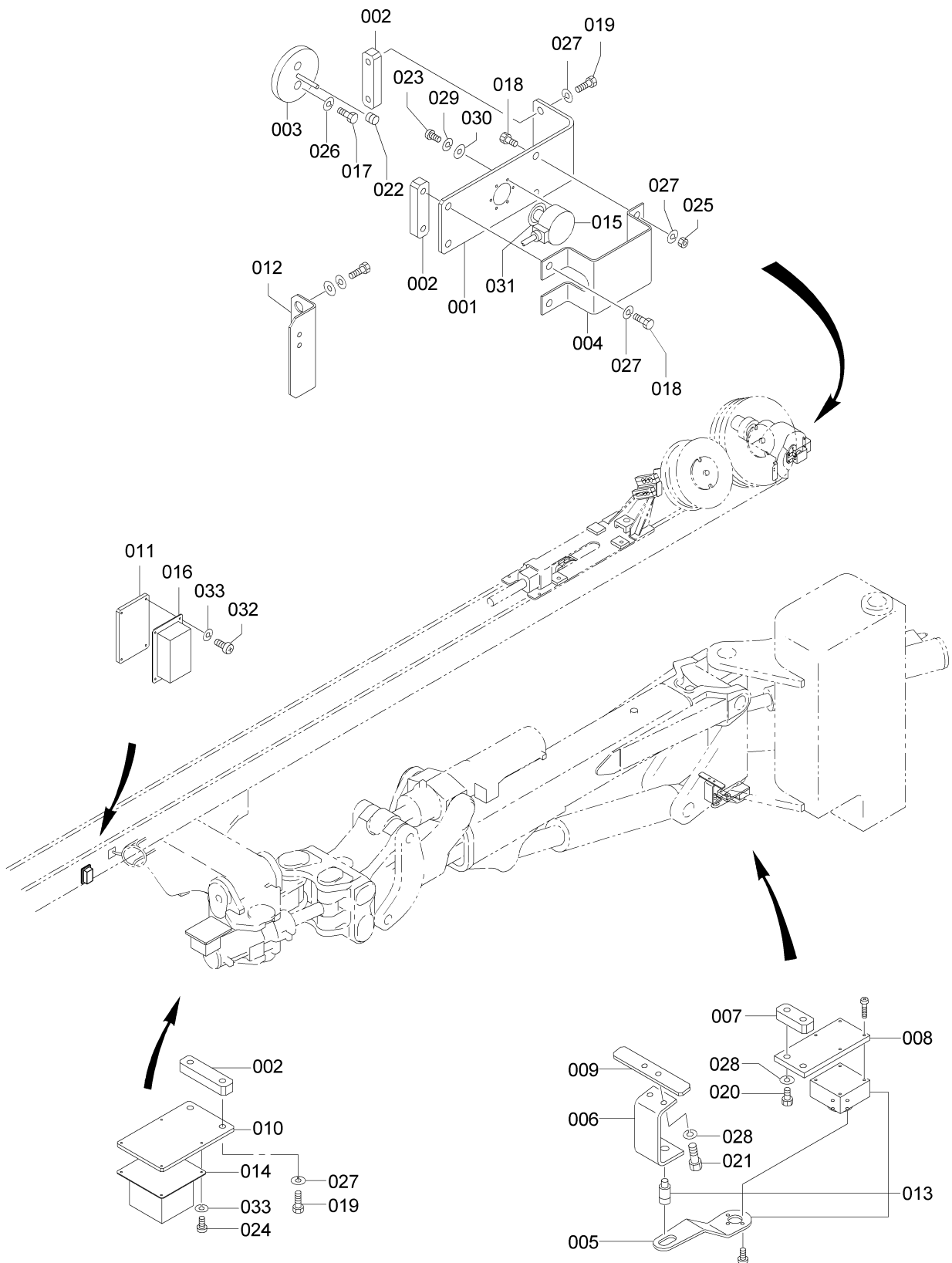
組立品番号 ASS'Y NO.	組立品名 ASS'Y NAME	個数 Q'TY	備考 REMARKS
	パイピングユニット PIPING UNIT	①	917310-000060-C
917310-01002	サクシヨンライン SUCTION LINE	1	
917310-020030	ポンプライン PUMP LINE	1	
917310-04001	ドリリングライン(1) DRILLING LINE(1)	1	
917310-05001	ドリリングライン(2) DRILLING LINE(2)	1	
917310-06001	ドリリングライン(3) DRILLING LINE(3)	1	
917310-07001	トラベリングライン TRAVELING LINE	1	
917310-08001	オシレーチングシリンダライン OSCILLATING CYLINDER LINE	1	
917310-09001	キュウウユライン OIL SUPPLY LINE	1	
917310-10001	リターンライン RETURN LINE	1	
917310-11001	ダンパーホースライン DAMPER HOSE LINE	1	
917310-120020	エンジンホースライン ENGINE HOSE LINE	1	
917310-15003	ニューマチックホースライン PNEUMATIC HOSE LINE	1	
917310-21001	コンプレッサデリバリアライン COMPRESSOR DELIVERY LINE	1	
917310-22001	コンプレッサオイルライン COMPRESSOR OIL LINE	1	
917310-23001	コンプレッサコントロールライン COMPRESSOR CONTROL LINE	1	

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	017310-23011	ホールカバー	COVER, HOLE	1	
002	017310-23012	レギュラブラケット(A)	BRACKET, REGULATOR	1	
003	017310-23013	レギュラブラケット(B)	BRACKET, REGULATOR	1	
004	023109-04022	メタルスリーブ(1/4)	SLEEVE, METAL	10	
005	023109-04028	メーコネクタ (1/4)	CONNECTOR, MALE	1	
006	023109-04029	メーエルホ (1/4)	ELBOW, MALE	9	
007	917310-23019	ソレノイドバルブ	VALVE, SOLENOID	1	
009	025509-02023	ロッド(8-83)	ROD	1	
010	025610-23002	シンフレックスチューブ(1/2)	TUBE, SYNDFLEX	(1)	
011	017310-23014	シンフレックスチューブ(1/4)	TUBE, SYNDFLEX	1	
012	017310-23015	シンフレックスチューブ(1/4)	TUBE, SYNDFLEX	1	
013	017310-23016	シンフレックスチューブ(1/4)	TUBE, SYNDFLEX	1	
014	017310-23017	シンフレックスチューブ(1/2)	TUBE, SYNDFLEX	1	
015	025610-22008	メーエルホ(1/2*3/8)	ELBOW, MALE	4	
016	017310-23018	メーコネクタ(1/2x1/4)	CONNECTOR, MALE	1	
017	025610-22009	メーエルホ(1/2-1/2)	ELBOW, MALE	1	
018	025310-22010	メタルスリーブ(1/2)	SLEEVE, METAL	6	
019	166091-02000	1/4チー	TEE	2	
020	166152-02000	1/4 ホロープラグ	PLUG, HOLLOW	2	
021	166182-02000	1/4 ソケット	SOCKET, HIGH PRESSURE	2	D
021-1	166182-02000	1/4 ソケット	SOCKET, HIGH PRESSURE	1	1452061-
022	166242-02000	1/4 コウアツニップル	NIPPLE, HIGH PRESSURE	3	D
022-1	166242-02000	1/4 コウアツニップル	NIPPLE, HIGH PRESSURE	4	
023	101012-12020	ボルト12	BOLT	2	
024	101012-12025	ボルト12	BOLT	2	
025	101012-10030	ボルト10	BOLT	2	
026	120112-08000	8ナット	NUT	1	
027	120112-06000	6ナット	NUT	2	
028	145012-12000	12スプリングワッシャ	WASHER, SPRING	4	
029	145012-10000	10スプリングワッシャ	WASHER, SPRING	2	
030	145012-06000	6スプリングワッシャ	WASHER, SPRING	2	
031	940214-03011	レギュレータASSY	REGULATOR ASS'Y	(1)	
033	040202-03004	ダイヤフラム	DIAPHRAGM	(1)	
035	024109-03021	ダイヤフラム	DIAPHRAGM	(1)	
036	940204-03019	レギュレータ	REGULATOR	(1)	
037	040204-03020	ダイヤフラム	DIAPHRAGM	(1)	
038	040204-03021	シール ワッシャ	WASHER, SEAL	(1)	
039	940204-03003	オートリリーフバルブ	VALVE, AUTO RELIEF	(1)	
040	023109-03026	ダイヤフラム	DIAPHRAGM	(1)	
041	040204-03005	ドレーンタンク	TANK, DRAIN	(1)	
042	040204-03022	オリフィス	ORIFICE	(1)	
043	023109-03015	ロッドエンド	END, ROD	(1)	

ガイドシェルブームアザク

GUIDE SHELL/BOOM ACCESSORY

917316-02001-A



符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	940404-01011	ソレノイドバルブ	VALVE, SOLENOID	1	
002	025105-01027	オスメスニップル	NIPPLE, MALE FEMALE	1	
003	025105-01028	ナカメスチー	TEE	1	
004	025405-01003	プレート	PLATE	1	
005	084840-02000	ナカオスチーアダプタ	ADAPTER, TEE	1	
006	084807-02000	エルホアダプタ	ADAPTER, ELBOW	4	
007	086105-06230	オイルホース	HOSE, OIL	2	
008	086135-06220	オイルホース	HOSE, OIL	2	
009	086135-06230	オイルホース	HOSE, OIL	2	
010	086135-06500	オイルホース	HOSE, OIL	2	
011	101012-08015	ボルト	BOLT	2	
012	113011-04014	マルビス	SCREW, MACHINE	2	
013	145012-08000	スプリングワッシャ	WASHER, SPRING	2	
014	145012-04000	スプリングワッシャ	WASHER, SPRING	2	
015	141112-04000	ワッシャ	WASHER	2	
016	030800-04003	オスオスアダプタ	ADAPTER, FEMALE	1	
017	084806-02000	メスユニオンアダプタ	ADAPTER, FEMALE UNION	1	

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	040014-02011	ドライブ sprocket(L)	SPROCKET, DRIVE	1	
002	101032-16045	16ボルト	BOLT	15	
003	101032-16055	16ボルト	BOLT	20	
004	102032-16015	16ソケットボルト	BOLT, SOCKET	3	
005	145012-16000	16スプリングワッシャ	WASHER, SPRING	35	
006	972000-15003	ドライブ モータ	MOTOR, DRIVE	1	

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	040114-03038	ホルダーベアリング	1		
002	040114-03031	シャフト	1		
003	040114-03032	ハブエントウ	1		
004	040114-030430	ハブフランジ	1		
005	040114-030410	ポンプマウンティング(QSC)	1		
006	040113-03043	スクリュフランジ	4		
007	040113-03034	カラー	1		
008	040113-03035	リング	1		
009	040113-03036	リング	1		
010	040113-03037	プラグ	1		
011	040113-03049	1/4アダプタ(1.5)	1		
012	040114-03040	10パイプC	1		
013	040114-03037	19エルボコネクタ	1		
014	024203-02061	オイルシール	1		
015	150021-81170	キー	2		
016	160021-00035	オーリング	1		
017	160021-00130	オーリング	1		
018	264010-00065	65Sスナップリング	1		
019	264020-00040	40Hスナップリング	1		
020	264020-00088	88Hスナップリング	1		
021	280030-06913	ファミゾタマシクウケ	2		
022	040114-03012	ゴムタイ	1		
023	040114-03016	16ソケットボルト	8		
024	154037-05010	5スプリングピン	12		
025	166334-02010	10-1/4オスコネクタ	1		
026	166394-02010	10-1/4ロングエルボ	1		
027	084862-02000	6 ロングエルボ コネクタ	1		
028	111010-12015	12ホローセットスクリュ	2		
029	160011-00018	オーリング(1A-P18)	(1)		
030	160011-00011	オーリング(1A-P11)	1		

ハイドロリックユニット HYDRAULIC UNIT

組立品番号 ASS'Y NO.	組立品名 ASS'Y NAME	個数 Q'TY	備考 REMARKS
	ハイドロリック (L1) ユニット HYDRAULIC (L1) UNIT	①	940304-00001
940304-01001	ドリリングブロック (L) DRILLING BLOCK (L)	1	
940300-01001	ドリリングブロック DRILLING BLOCK	1	
940304-02001	パイロットモジュール PILOT MODULAR	1	
940300-02001	パイロットモジュール PILOT MODULAR	1	
940304-03001	ローテーションモジュール ROTATION MODULAR	1	
940300-03001	ローテーションモジュール ROTATION MODULAR	1	
940304-04001	ダストコレクタモジュール DUST COLLECTOR MODULAR	1	
940300-04001	ダストコレクタモジュール DUST COLLECTOR MODULAR	1	
940304-04002	ダストコレクタモジュール DUST COLLECTOR MODULAR	1	
940300-04002	ダストコレクタモジュール DUST COLLECTOR MODULAR	1	
940304-05001	ブームモジュールバルブ BOOM MODULAR VALVE	1	
940300-05001	ブームモジュールバルブ BOOM MODULAR VALVE	1	
940304-07001	リモートコントロール (2) モジュール REMOTE CONTROL (2) MODULAR	1	
940300-07001	リモートコントロール (2) モジュール REMOTE CONTROL (2) MODULAR	1	
940304-08001	リモートコントロール (3) モジュール REMOTE CONTROL (3) MODULAR	1	
940300-08001	リモートコントロール (3) モジュール REMOTE CONTROL (3) MODULAR	1	
940304-10001	オイルクーラ OIL COOLER	1	
940304-10013	オイルモータ OIL MOTOR	1	
940304-11001	パイロットフィルタ PILOT FILTER	1	
940304-11002	パイロットフィルタ PILOT FILTER	1	

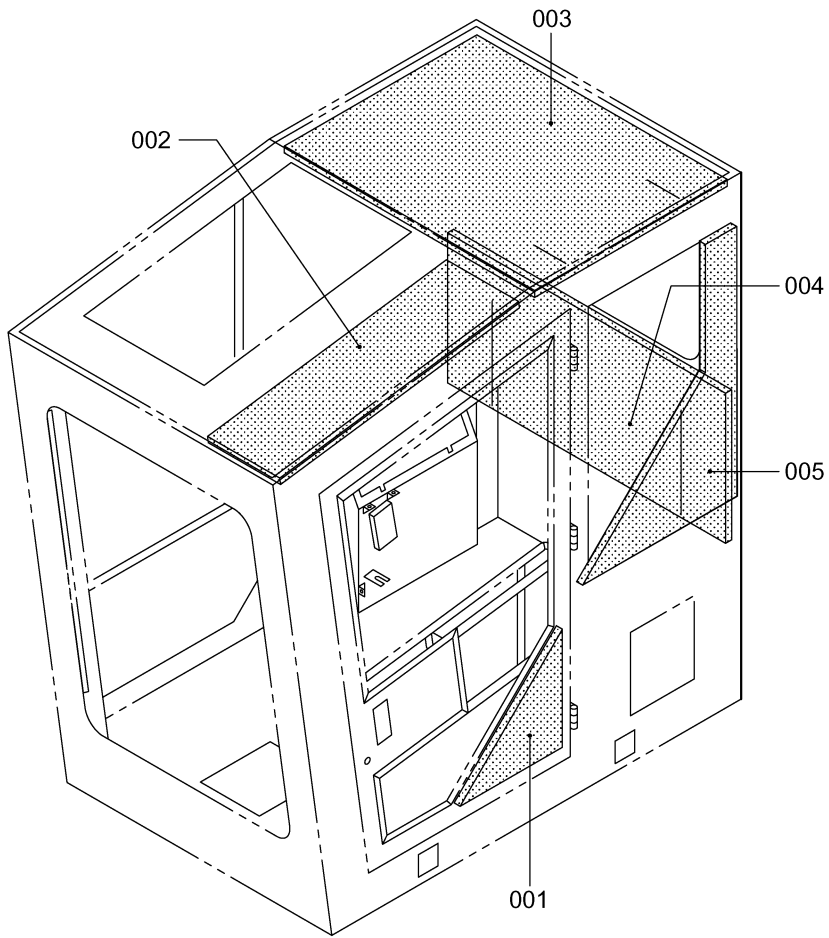
オイルモータ
OIL MOTOR

符号 Item	部品番号 Part No.	部 品 名 Part Name	個数 Q'ty	適用号機 Serial No.	補 給 性 Remarks
	940304-10013	オイル モータ Oil Motor	1		MB7AK692
001	*	フロント カバー * Cover, Front	1		
002	*	ボデー * Body	1		
003	*	リヤ カバー * Cover, Rear	1		
004	*	ドライブ ギヤ * Gear, Drive	1		
005	*	アイドル ギヤ * Gear, Idle	1		
006	*	ブシュ M * Bush	4		
007	*	バランス シール C * Seal, Balance	R 4		
008	*	バランス シール D * Seal, Balance	R 4		
009	*	バックアップ シール C * Seal, Back up	R 4		
010	*	バックアップ シール D * Seal, Back up	R 4		
011	*	オーリング * O-Ring	R 2		
012	*	オイル シール * Seal, Oil	R 1		
013	*	ノック ピン * Pin, Knock	2		
014	*	スナップ リング (穴用) * Ring, Snap (For Hole)	1		
015	*	ソケット ボルト * Bolt, Socket	4		
016	*	ワッシャ * Washer	4		
017	*	キー * Key	1		
018	*	オイル シール バックアップ プレート * Plate, Oil Seal Back-up	1		
019	*	バックアップ リング ケース * Case, Back-up Ring	1		
020	*	バックアップ リング * Ring, Back-up	1		
	925204-10014	シール キット (R) マーク Seal Kit (With R Mark)	1		61-25863

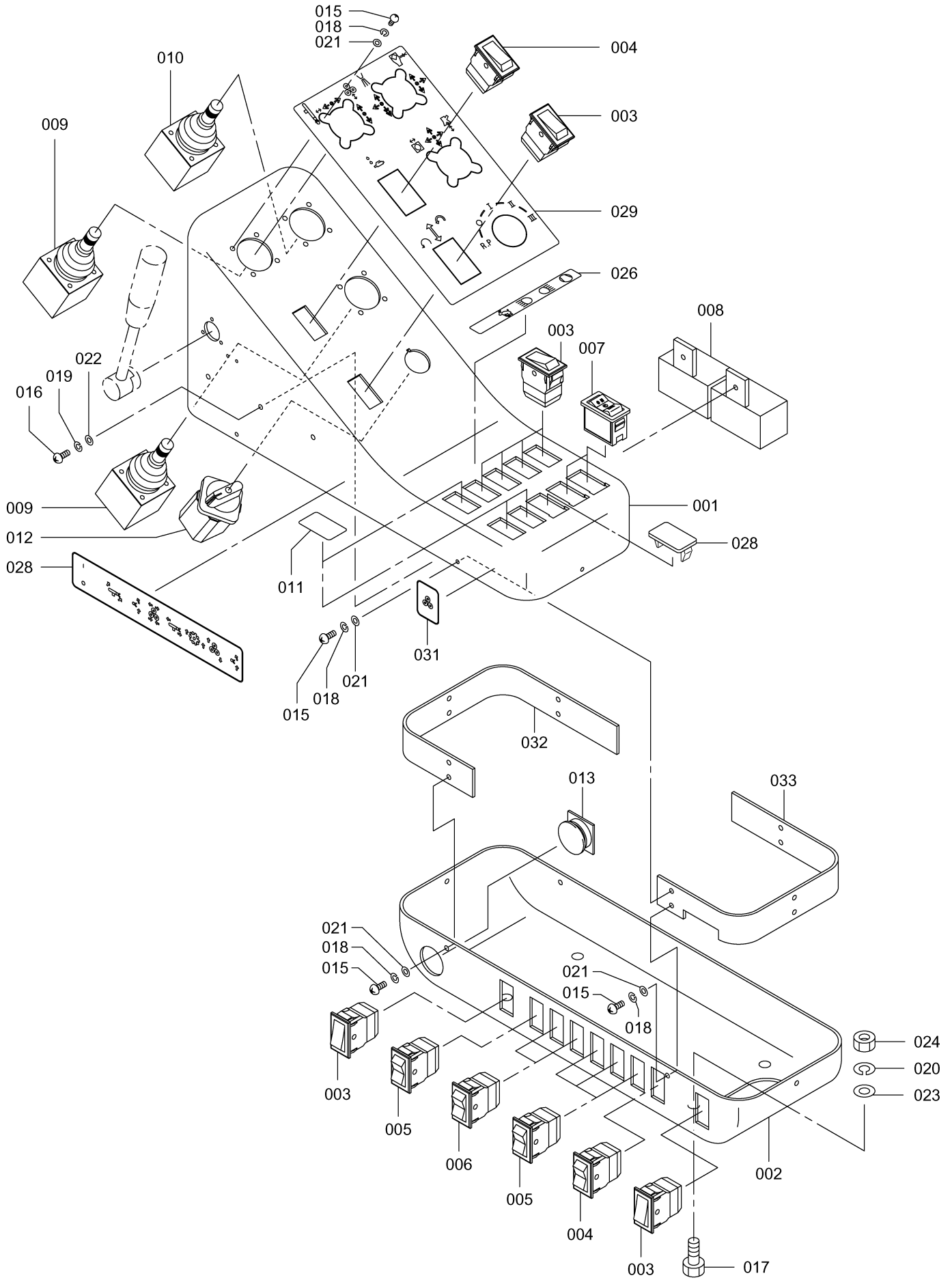
符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Qty	適用号機 SERIAL NO.	備考：補給性 REMARKS
043	084806-02000	6 ムスユニオンアダプタ	ADAPTER, UNION FEMALE	1	
044	030800-04003	1/4 オスオスアダプタ(1.2)	ADAPTER, MALE	1	
045	120112-08000	8ナット	NUT	2	

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
001	040504-11014	カバープレート	PLATE, COVER	(1)	
002	040504-11012	ランプパネル	PANEL, LAMP	(1)	
003	040504-11013	ランプ	LAMP	8	
004	025206-04048	コネクタF(12)	CONNECTOR	1	
005	025206-04049	ターミナル(M)	TERMINAL	9	
006	025106-10231	ケーブル	CABLE	1	
007	113011-04015	マルビス	SCREW, MACHINE	(8)	
008	090200-01770	ネームプレート	PLATE, NAME	(1)	
009	145012-04000	スプリングワッシャ	WASHER, SPRING	(8)	
010	141112-04000	ワッシャ	WASHER	(8)	

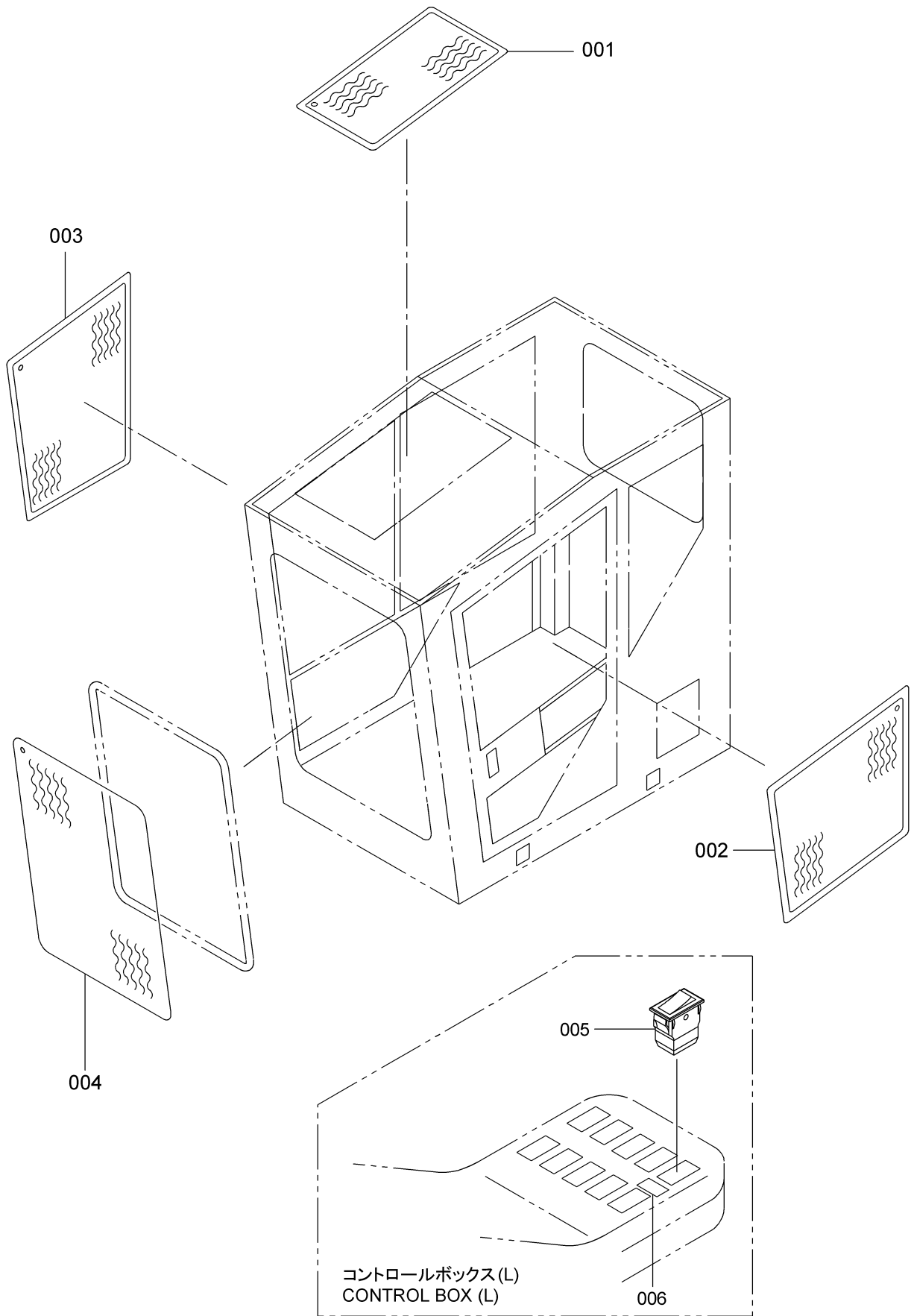
ウチリザイ ASS'Y
UPHOLSTERY ASS'Y



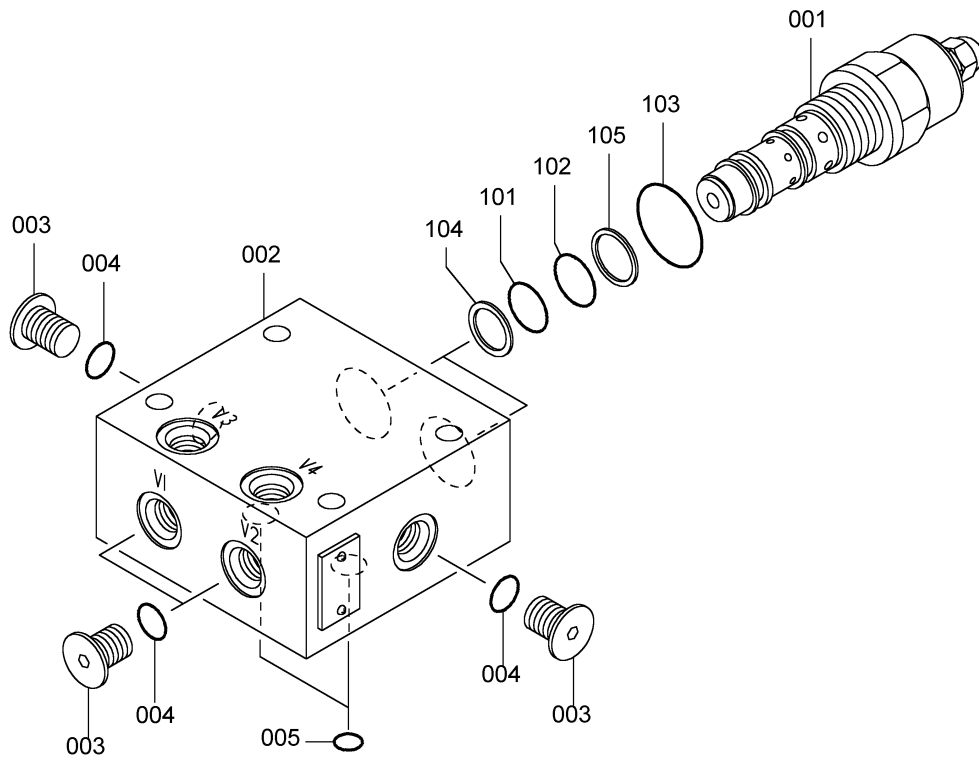
コントロールボックス(LH)
CONTROL BOX (LH)



ヒートガラス ASS'Y
HEAT GLASS ASS'Y

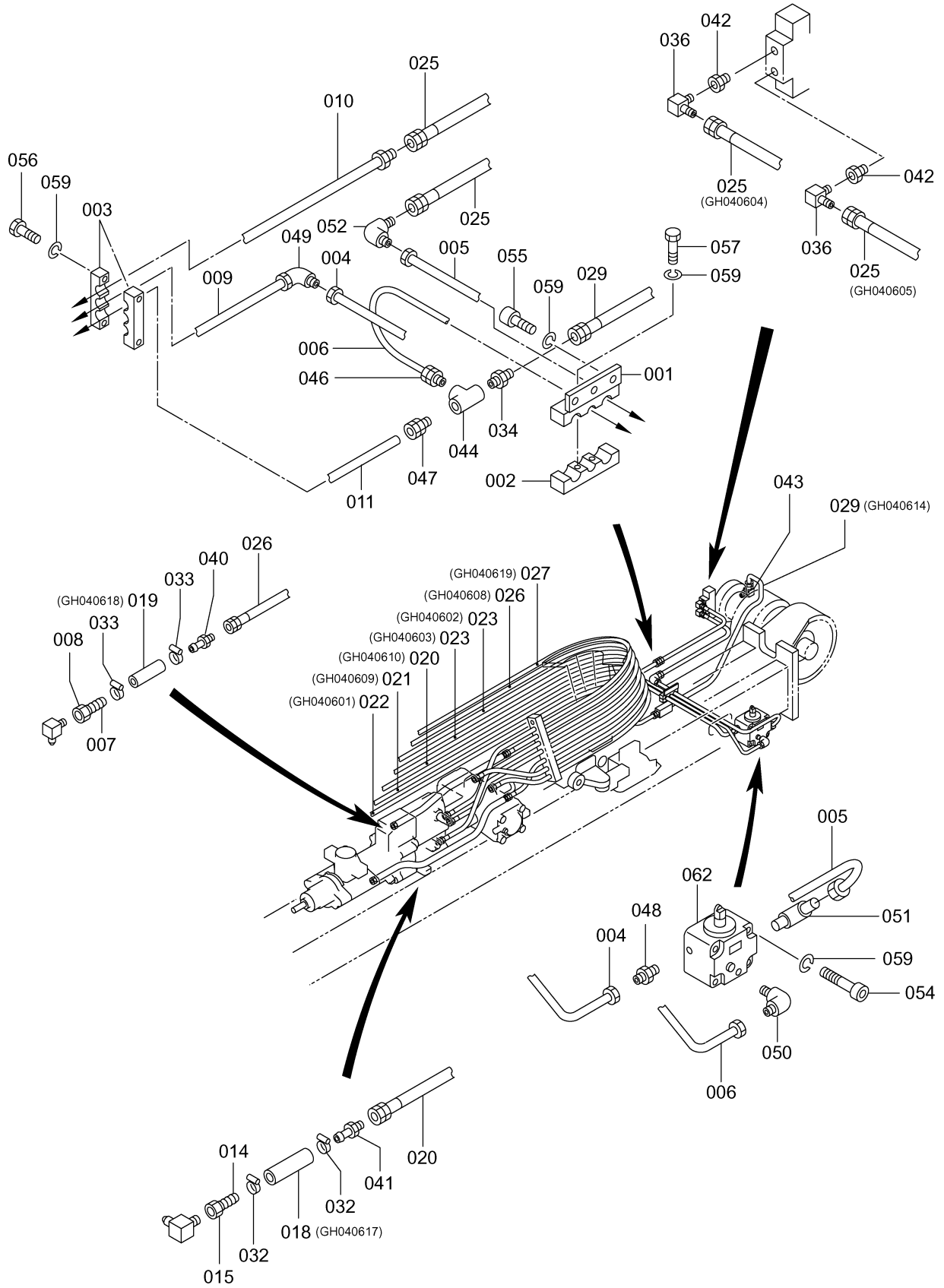


カウンバラ B-H,H
COUNTER BALANCE VALVE



符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
	985500-02019	スリーブクランプシリンダ			
001	085500-02020	・シリンダチューブ	1		
002	085500-02021	・ロッドカバー	1		
003	085500-02022	・ピストンロッド	1		
004	085500-02023	・ピストン	1		
005	154037-03020	・スプリングピン	1		
006	085500-02024	・ロッドパッキン	1		R
007	085500-02025	・バックアップリング	1		R
008	085500-02026	・ダストシール	1		R
009	161011-00024	・オーリング	1		R
010	262021-00024	・バックアップリング	2		R
011	161021-00025	・オーリング	1		R
012	262032-00025	・バックアップリング	1		R
013	160011-00018	・オーリング	1		R
	985503-22003	シールキット	(1)		INC. 006-013

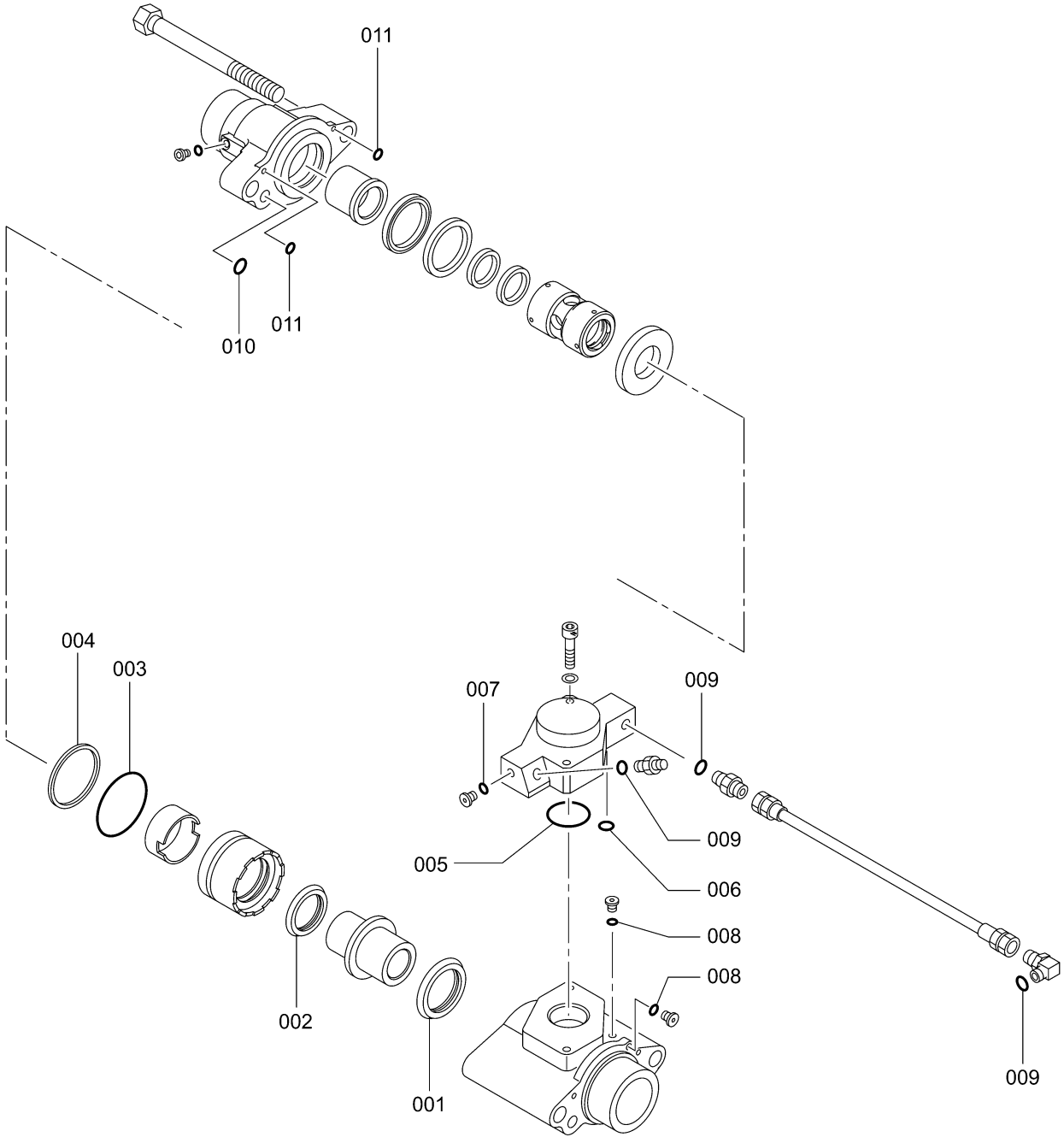
ホースアダプタ ASS'Y
HOSE, HOSE ADAPTER ASS'Y



()内はホースNo.を示す。
The number in () shows the hose number.

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
900	HD715-97001	アキュムレータASS'Y	ACCUMULATOR ASS'Y	2	
911	090200-04856	ステッカ	STICKER	1	
912	090200-04858	ステッカ	STICKER, CAUTION	(2)	ENGLISH
912	090200-04860	ステッカ	STICKER, CAUTION	(2)	JAPANESE
912	090200-04864	ステッカ	STICKER, CAUTION	(2)	SWEDISH
912	090200-04865	ステッカ	STICKER, CAUTION	(2)	ICELANDIC
912	090200-04866	ステッカ	STICKER, CAUTION	(2)	NORWEGIAN
912	090200-04867	ステッカ	STICKER, CAUTION	(2)	PORTUGUESE
912	090200-04868	ステッカ	STICKER, CAUTION	(2)	SPANISH
912	090200-04869	ステッカ	STICKER, CAUTION	(2)	DUTCH
912	090200-04870	ステッカ	STICKER, CAUTION	(2)	FINNISH
912	090200-04912	ステッカ	STICKER, CAUTION	(2)	GERMAN
912	090200-04913	ステッカ	STICKER, CAUTION	(2)	FRENCH
912	090200-04942	ステッカ	STICKER, CAUTION	(2)	ITALIAN
912	090200-04943	ステッカ	STICKER, CAUTION	(2)	GREEK
912	090200-04944	ステッカ	STICKER, CAUTION	(2)	DANISH
912	090200-04945	ステッカ	STICKER, CAUTION	(2)	CHINESE
912	090200-04946	ステッカ	STICKER, CAUTION	(2)	HANGUL
912	090200-04947	ステッカ	STICKER, CAUTION	(2)	TAIWANESE

RP シールキット
RP SEAL KIT



フゾクヒンユニット (1500-QSC) ACCESSORY UNIT (1500-QSC)

組立品番号 ASS'Y NO.	組立品名 ASS'Y NAME	個数 Q'TY	備考 REMARKS
	フゾクヒンユニット (1500-QSC) ACCESSORY UNIT (1500-QSC)	①	917307-000120
917307-01001	フゾクコウグ ACCESSORY TOOLS	1	
917307-02001	フゾクヒンソノタ ACCESSORY AND OTHERS	1	
917307-03002	テンプシリョウ ATTACHED DOCUMENT	1	
917307-040080	サービスパーツ (QSB-250) SERVICE PARTS (QSB-250)	1	
917307-040090	サービスパーツ (QSB-500) SERVICE PARTS (QSB-500)	1	
917307-040100	サービスパーツ (QSB-1000) SERVICE PARTS (QSB-1000)	1	
917307-06001	ネームプレート NAME PLATE	1	
923107-05001	ショウカキ ASS'Y FIRE EXTINGUISHER ASS'Y	1	
925207-05001	ショウカキ (R, C) FIRE EXTINGUISHER (R, C)	1	
HD715-99001	フゾクヒングループ ACCESSORY GROUP	1	
917307-05002	ステッカ STICKER	1	

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Qty	適用号機 SERIAL NO.	備考：補給性 REMARKS
044	166262-06002	3/4X1/4コウアツブシ	BUSH, HIGH PRESSURE	1	
045	166314-00030	30ユニオン	UNION	1	
046	087106-25100	25オイルホース(1000)	HOSE, OIL	1	
047	087106-19120	19オイルホース(1200)	HOSE, OIL	1	
048	087106-19110	19オイルホース(1100)	HOSE, OIL	1	
049	087102-19100	19オイルホース(1000)	HOSE, OIL	2	
050	087102-19090	19オイルホース(900)	HOSE, OIL	2	
051	087102-19070	19オイルホース(700)	HOSE, OIL	4	
052	087106-19050	19オイルホース(500)	HOSE, OIL	1	
053	087102-12080	12オイルホース(800)	HOSE, OIL	1	
054	087102-09110	9オイルホース(1100)	HOSE, OIL	1	
055	087102-09090	9オイルホース(900)	HOSE, OIL	1	
056	087106-06285	6オイルホース(2850)	HOSE, OIL	1	
057	087106-06140	6オイルホース(1400)	HOSE, OIL	2	
058	087136-06140	6オイルホース(1400)	HOSE, OIL	1	
059	087106-06130	6オイルホース(1300)	HOSE, OIL	1	
060	087106-06080	6オイルホース(800)	HOSE, OIL	1	
062	087106-06070	6オイルホース(700)	HOSE, OIL	1	
063	087106-06065	6オイルホース(650)	HOSE, OIL	1	
064	087106-06060	6オイルホース(600)	HOSE, OIL	2	
065	087102-06060	6オイルホース(600)	HOSE, OIL	1	
066	086646-03125	3 オイルホース	HOSE, OIL	1	
067	102032-14040	14ソケットボルト	BOLT, SOCKET	4	
068	102032-12040	12ソケットボルト	BOLT, SOCKET	8	
069	101012-08080	ボルト8	BOLT	10	
070	101012-08055	8ボルト	BOLT	2	
071	101012-06025	6ボルト	BOLT	2	
072	120112-06000	6ナット	NUT	2	
073	145012-08000	8スプリングワッシャ	WASHER, SPRING	12	
074	160021-00050	オーリング	O-RING	2	
075	161011-00009	オーリング(1B-P9)	O-RING	(1)	
076	161011-00011	オーリング(1B-P11)	O-RING	(1)	
077	161011-00018	オーリング(1B-P18)	O-RING	(1)	
078	087102-06090	6オイルホース(900)	HOSE, OIL	1	
079	166246-06004	3/4X1/2コウアツニップル	NIPPLE, HIGH PRESSURE	4	











































アンチジャミングコントロール ANTI-JUMMING CONTROL

組立品番号 ASS'Y NO.	組立品名 ASS'Y NAME	個数 Q' TY	備考 REMARKS
	アンチジャミングコントロール ANTI-JUMMING CONTOROL	①	917311-00001
940304-31001	アンチジャミングブロック ANTI-JUMMING BLOCK	1	
940300-31001	アンチジャミングブロック ANTI-JUMMING BLOCK	1	
917311-02001	アンチジャミングハ°イピング ANTI-JUMMING PIPING	1	

アングルインジケータ(3) ANGLE INDICATOR (3)

3D ANGLE GAUGE

組立品番号 ASS'Y NO.	組立品名 ASS'Y NAME	個数 Q'TY	備考 REMARKS
	アングルインジケータ(3) ANGLE INDICATOR(3)	①	917316-00002-0
917316-01002	アングルインジケータ(3) ANGLE INDICATOR(3)	1	
917316-02002	ガイドシェルブームフック GUIDE SHELL/BOOM ACCESSORY	1	
917316-03002	キャビンフック CABIN ACCESSORY	1	SEE PAGE 20-03-1
917316-04002	フックピン ACCESSORIES	1	

	CHECK		CLEAN		LUBRICATE		CHANGE
	TIGTEH		SERVICE		ELEMENT		Finish
EVERY 1000 HOURS							
SERIAL NUMBER :						ENGINE HOURS	
DATE							
NAME							
Engine	Change the Engine Oil						
	Change the Engine Oil Filter						
	Change the Engine Air Element						
	Change the Engine Fuel Filter						
	Change the Water Coolant						
	Check the Fan belt				 S		
Hydraulics	Change the Return Oil Filter						
	Change the Hyd Oil						
	Change the Strainer for Hyd Tank						
	Clean the Hydraulic Oil Tank						
Compressor	Change the Oil Filter						
	Change the Compressor Oil						
	Clean the Air Filter						
Comp Oil Line	Clean the Compressor line filter						
	Check the Gaskets of Check-Valve						
Flushing Air	Check the Strainer for Receiver						
	Change the Separator for Receiver						
Hydraulic oil Radiator	Clean the Radiator core						
	Check the Oil level						
Comp oil Radiator	Clean the core						
	Check the Oil level				 		
HD700	Clean the Drifter				 		
	Check and Tighten the Bolt				 		
	Check the Shank Rod						
	Check the Chuck & Bush						
	Change the ACC Diaphragm						
	Change the Every Drifter Seal						
Cab Air filter	Clean the element						
Dust Collector	Change the element						
	Drain the water from Diaphragm Acc				S		
Guide Sell	Feed Chain				 S		
	Change the Feed motor Oil						
	Check the Carriage clearance				S		

FURUKAWA HYDRAULIC CRAWLER DRILL

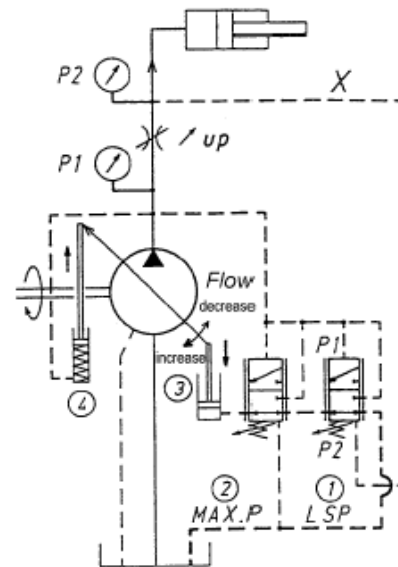
(C) To increase flow:

When activating the orifice to increase flow from the current level, the delivery pressure P_1 decreases and the differential pressure LS , $LS \Delta P$, becomes smaller.

LS valve (1) shifts the spool position back by the P_2 and the spring force, ($P_1 < P_2 + \text{spring force}$), and the hydraulic oil in the angle control piston (3) will flow into the drain line.

Therefore, the return piston (4) moves the plate toward the direction for flow-increase (maximum angle).

<Figure 6>



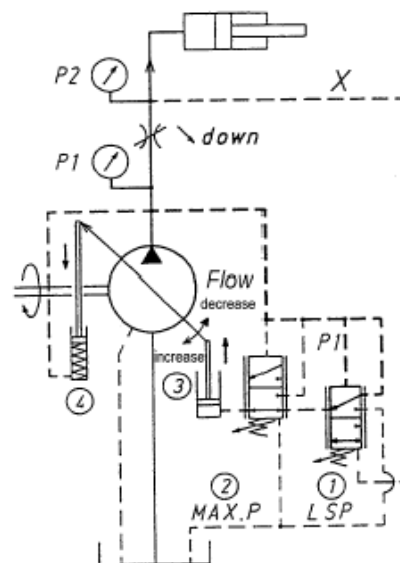
(D) To decrease flow:

When activating the orifice to decrease flow from the current level, the delivery pressure P_1 increases, and, then, the differential pressure LS , $LS \Delta P$, becomes larger.

LS valve (1) switches the spool position because of the delivery pressure P_1 ($P_1 > P_2 + \text{spring force}$). The angle control piston (3) is pressurized by the delivery pressure P_1 .

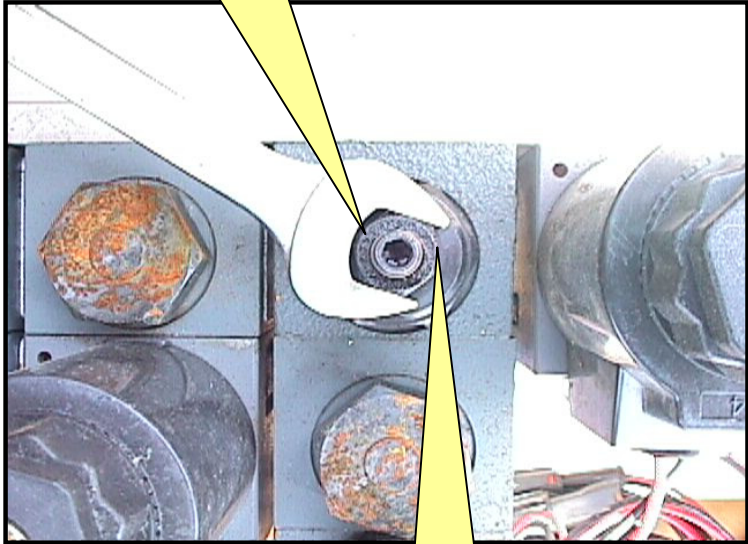
Therefore, the angle control piston (3) pushes down the return piston (4) to move the axial plate toward the direction for delivery flow decrease (minimum angle).

<Figure 7>



3

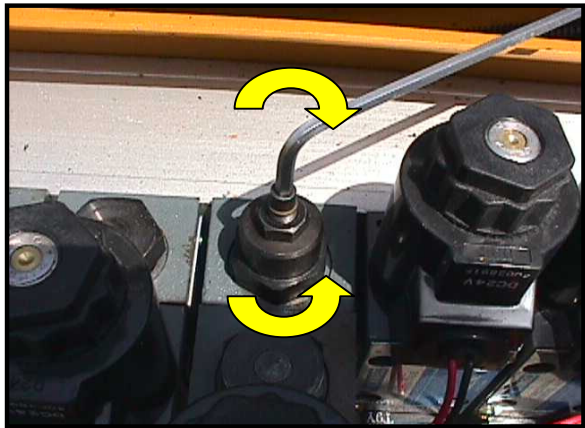
Loosen the lock nut.



4

Adjust the adjuster.

Clockwise: speed decrease

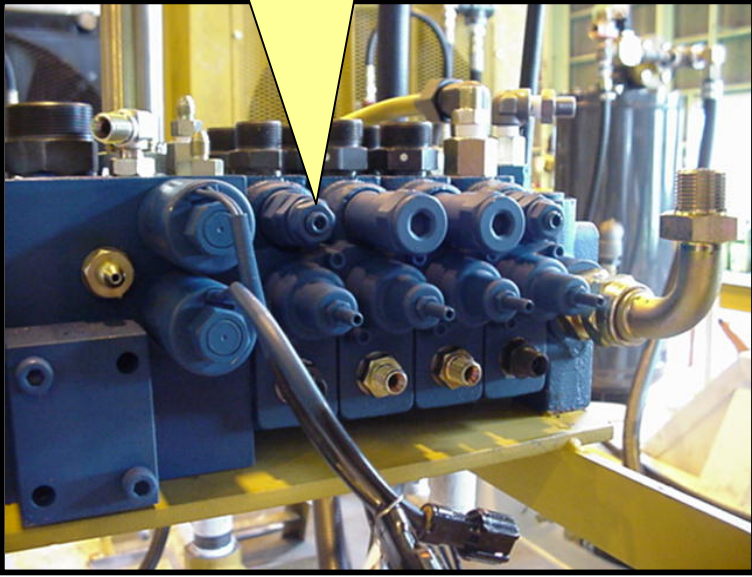


Required tools:
• 13mm spanner
• 4mm hex. wrench

Counterclockwise: speed increase

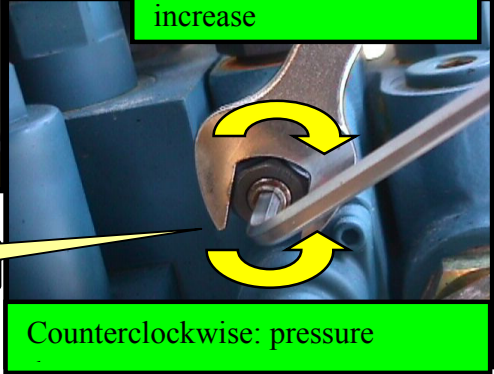
6

Adjust the feed relief



7

Clockwise: pressure increase



Counterclockwise: pressure

8

Adjust the

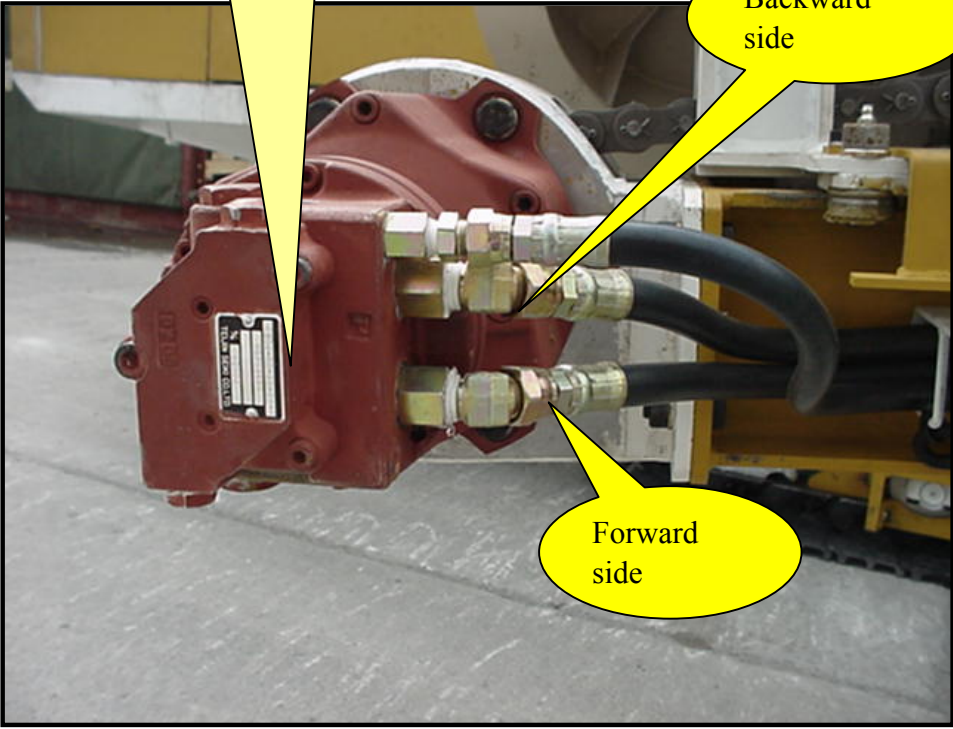
Required tools
• 17mm spanner
• 5mm hex. wrench

Pressure setting:
16MPa

View from
machine

9

Be sure to connect the hose

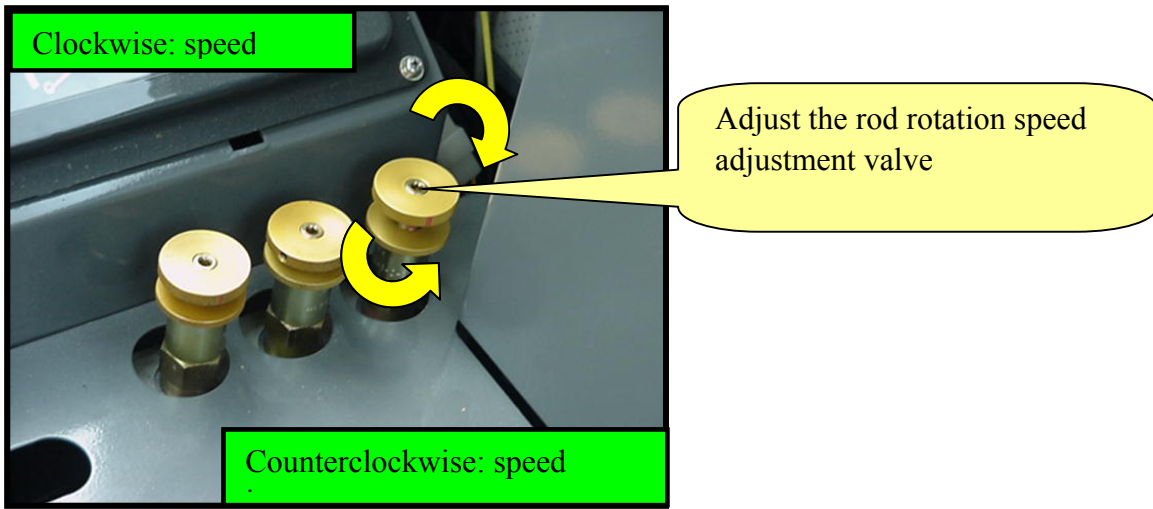


Backward
side

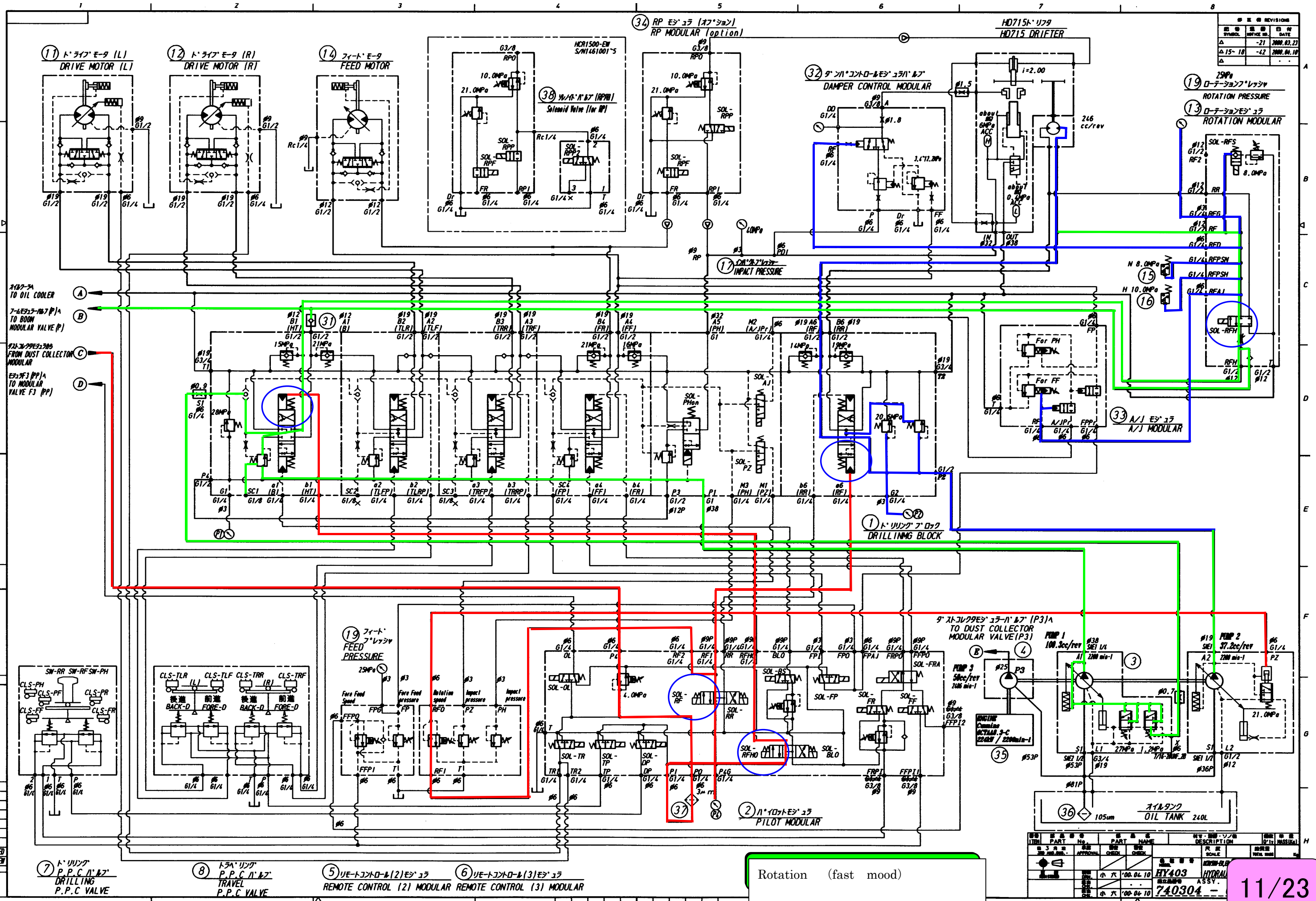
Forward
side

Required tools
• 27mm spanner
• 22mm spanner

3: Rod rotation speed adjustment



Factory setting
HCR900:160 rpm
HCR1200:140 rpm
HCR1500:120 rpm



REV. NO.	DATE	DESCRIPTION
Δ	2000.03.23	
Δ	2000.04.19	

A TO OIL COOLER
 B TO BOOM MODULAR VALVE (P)
 C FROM DUST COLLECTOR MODULAR
 D TO MODULAR VALVE F3 (PP)

7 トリッパ P.P.C.バルブ DRILLING P.P.C. VALVE

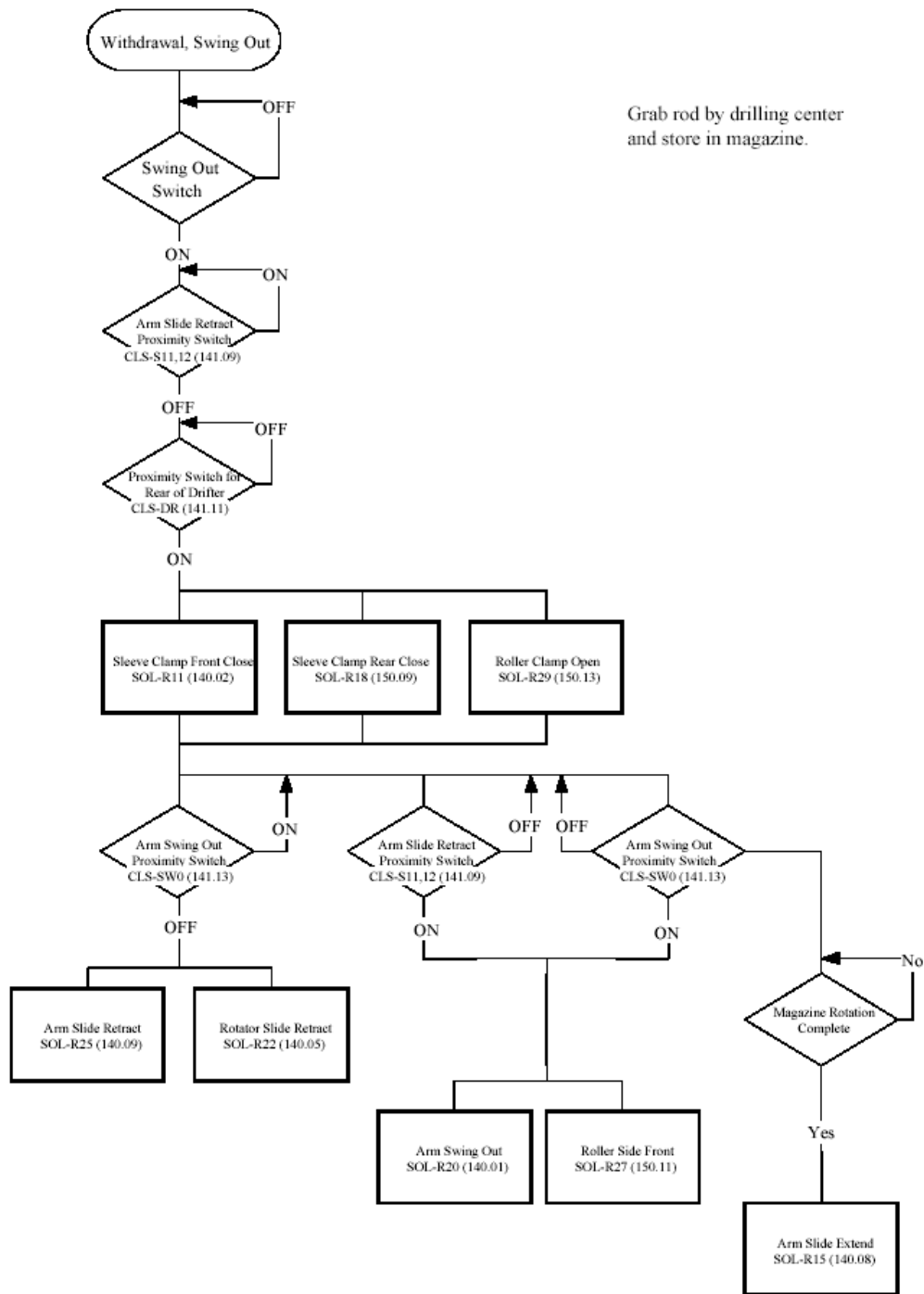
8 トラバ P.P.C.バルブ TRAVEL P.P.C. VALVE

5 リモートコントロール (2) モジュール REMOTE CONTROL (2) MODULAR
 6 リモートコントロール (3) モジュール REMOTE CONTROL (3) MODULAR

Rotation (fast mood)

REV. NO.	DATE	DESCRIPTION
小	00.04.10	
小	00.04.10	

HY403 HYDRAULIC ASSY.
 740304



5 Dual Damper

The dual damper dampens or reduces the rebound impact of blows to the rock spreading out through the rods to stabilize the drifter.

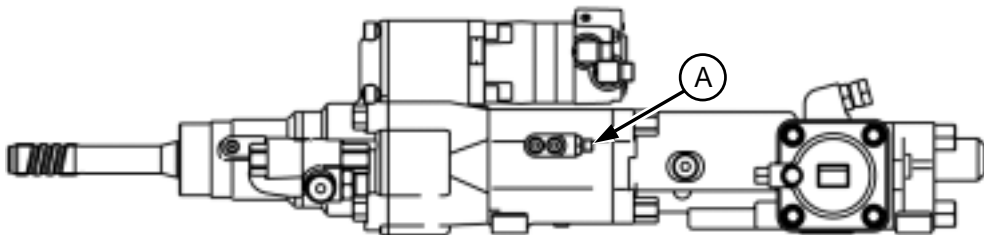
Also, since a mechanism is provided on the drifter that directly provides the thrust to the rods, contact of the bit to the rock surface is increased and energy transmitting efficiency to the drilling rock is improved. At the same time the service life of the consumable parts is lengthened.

The main components of the dual damper are a total of three, i.e. the front cylinder (1), the damping piston (2), and the pushing piston (3).

The damping piston (2) engages with the pushing piston (3) on the same axis inside the front cylinder. The damping piston (2) has the large pressure receiving cavity, and the pushing piston (3) has the small pressure receiving cavity, and each of those moves front and rear.

The slide portion of the front cylinder (1), damping piston (2), and pushing piston (3) is sealed with glide rings (4), (5), and (7).

The hose line to supply damper pressure is connected to the port A.



17713007

2. Place the intake three-way valve.

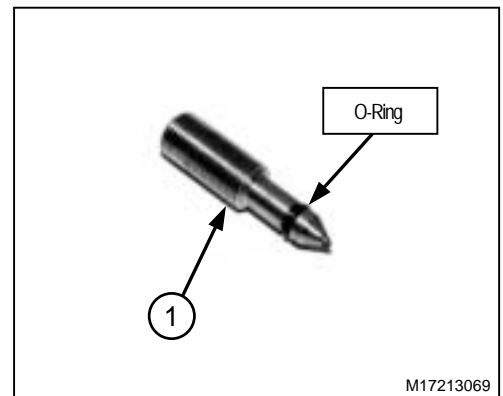
★ **NOTICE** Two kinds of pressure gauges, high pressure and low pressure, are available. Select the suitable pressure gauge according to the required gas pressure to be charged into the accumulator.

★ **NOTICE** The current intake three-way valve may be different from the shape in the picture.

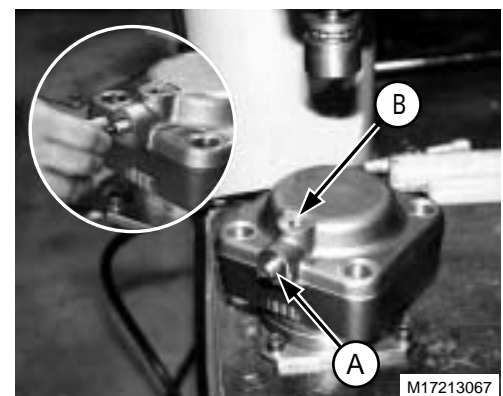


Model	Part No.	Part Name	Remarks
Common	HB20G-92104	Intake Three-Way Valve	With Relief Valve
	907320-90030	Adapter (A)	With O-ring
	269141-02015	Pressure Gauge	For Low Pressure (1.5MPa)
	269141-02150	Pressure Gauge	For High Pressure (15MPa)

3. Apply grease over the O-ring, and fit it into the valve (1).



4. Using a hex wrench, first tighten the valve up to the A position of the accumulator cover, then loosen it by one turn.



b) Changing Shaft Face Seal

Remove and change the shaft face seal on the inner edge of the wear plate.

c) Reassembly

1. Wash up the disassembled bearing housing (spacer) and the shaft sub-assy, using non-petroleum solvent or lamp oil. Remove metal chips, foreign matter, oily dirt etc.
2. Install the new dust seal and oil seal in the bearing housing. Apply grease thinly over the lip of the seals.
3. Press-fit or drive shaft sub-assy into the bearing housing, using a plastic hammer (see Fig. 6).
4. Apply grease over the new O-ring, and install it in the bearing housing.
5. Grip the flange of the bearing housing in a vise again. Fill the output shaft inside and the bearing clearances with hydraulic oil.
6. Install the portion upper from the wear plate once removed on step 2, item a). Install the portion between the wear plate and the valve housing, holding it by hand so as not to allow the O-rings for the wear plate, geroller, valve plate and valve housing to slip off the grooves. Make the spline of the drive to engage with the spline of the shaft inner edge, and tighten the bolts evenly to the specified torque value, 49–54N·m, using a torque wrench. If the spring pin is equipped, be aware of the joining of the bearing housing, wear plate and geroller.

3.9.3 Disassembly and Reassembly of Motor

Generally, for the disassembly and repairs on a spot, only the shaft seal (previously described) may be changed. But if the motor has been disassembled unintentionally or it malfunctions, perform the disassembly, inspection and reassembly in the following manner.

In addition, if it's difficult to perform the repairs on a spot, contact us.

a) Disassembly

Prepare the seal kits necessary for changing.

1. Clean the exterior of the motor.
2. Putting the motor shaft downside, grip the bearing housing flange in a vise. Loosen and remove the bolts (four) on the motor rear side and valve housing.
3. Remove the valve housing, balancing plate, valve, valve plate, valve drive, geroller set, drive, wear plate and bearing housing (with the shaft) in a sequence. Also, remove the O-rings installed between those parts.

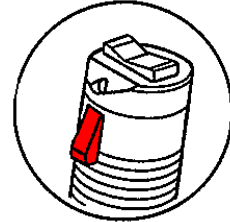
9 Throttle Control

9-1 Blow Switch

When the blow switch (SW-PH) is turned ON, the sequencer 100.09 goes ON.

When the blow flow switch (SN-BF) is turned ON, the sequencer 111.05 goes ON.

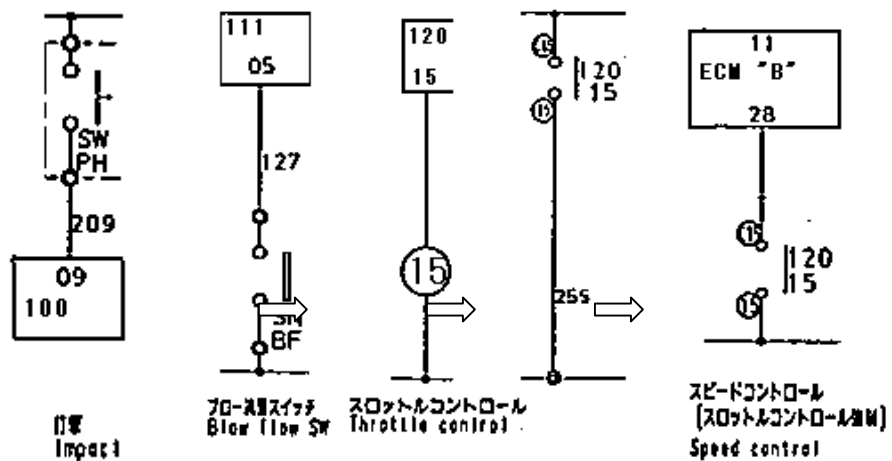
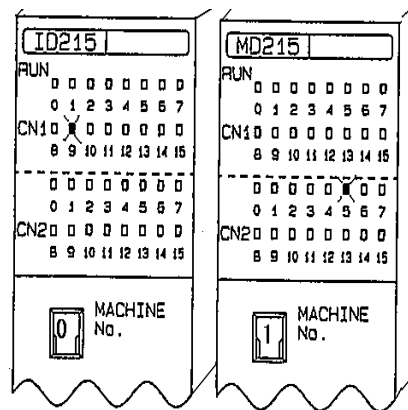
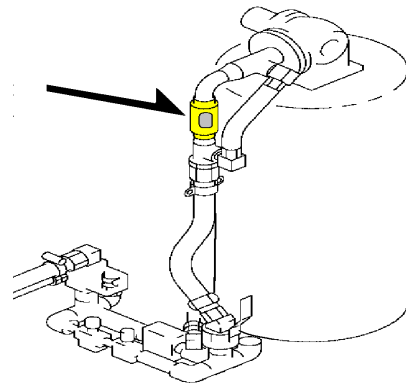
The flow switch turns ON when the flow goes beyond 3m³/min, and the sequencer 111.08 goes ON.



9-2 Computer Control

The engine has an electric dial type engine throttle, and engine's rpm is controlled with the computer incorporated in the engine.

With the relay 120.15 turned ON, the INPUT signal is sent to the ECM "B", which instructs the injection pump to raise engine's rpm.



19- 4 Swing-Out

First check that the joint thread separates in position of 40mm or more from the sleeve clamped with the centralizer, then perform the swing-out.

Move the drifter to the rear end position. The 14111 goes ON. If the rod changer lever <51> is moved to the right position (SW-R10), the 14009 goes ON, and the solenoid valve <23> (SOL-R25) is energized. The pressure oil out of the A port is forced to the cylinders <39> and <40>, and the arm slide retracts.

The proximity switch <11> (CLS-S11, CLS-S12) on the arm slide goes ON, and the sequencer ON.

With the slide end detected, the 14001 goes ON, and the pressure oil out of the A port in the solenoid valve <17> (SOL-R20) is forced to the cylinder <32>, and the arm swing-out is performed.

The proximity switch <14> (CLS-SWO) on the carrier (R) goes ON, and the 14113 ON.

Also, the 14008 goes ON, and the pressure oil out of the B port in the solenoid valve <22> (SOL-R15) is forced to the cylinders <39> and <40>, and the arm slide retracts.

With the slide extension end detected, the proximity switch <11> (CLS-S11, SLS-S12) on the arm slide goes ON, and the 14109 ON. In this condition, if the rod changer lever <51> is moved to the neutral position, the 14002 goes OFF, and the solenoid valve <18>

(SOL-R11) shuts down, and the clamp (F) close stops.

Also, the relay CRC goes OFF, and solenoid valve <27> (SOL-R28) shuts down, and the clamp (R) close stops.

At the same time, the magazine rotates to store the rod. The 14001 goes ON, and the solenoid valve <17> (SOL-R20) is energized, and the pressure oil is forced to the cylinder <32>, and the arm swing-out is performed, and the 14010 goes ON, and the solenoid valve <24> (SOL-R16) is switched, and the pressure oil is forced to the motor <34>, and the magazine rotates reverse (clockwise direction when viewed from the rear side).

If the magazine rotates forward, the proximity switch <47> (CLS-M1) goes from OFF to ON, where the 14114 goes ON, and the solenoid valve <24> (SOL-R16) shuts down, and the magazine reverse rotation stops.

20) Installing Drive Shaft to Power Side Casing

Position the casing up and lift the shaft with a crane and install it.

The shaft will be fitted naturally by striking the outer race with a hammer.



Be sure to set the jig bar outwards when striking with a hammer.

This is to prevent damage to the bearing if the bar is slipped off.

Install the key.

Heat the speed-increasing gear with a hot oil bath, and install it to the shaft as soon as possible. Do not cool it down. The gear will be fitted naturally due to the empty weight. If not, use a plastic hammer or cylindrical jig for this.

(NOTICE)

Same as the former step 17).

Heat the drive shaft bearing inner race with a hot oil bath, and install it to the shaft as soon as possible. Do not cool it down. Use a cylindrical jig to press-fit it.

(NOTICE)

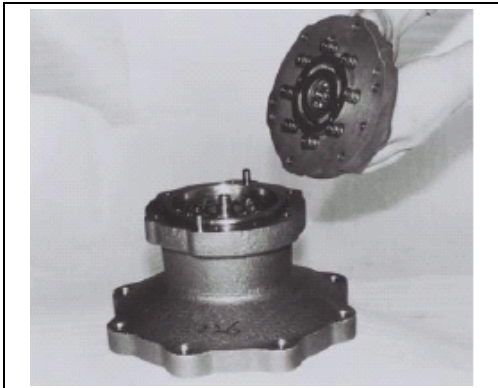
Same as the former step 17).



Direction of the gear: the tapered is up.

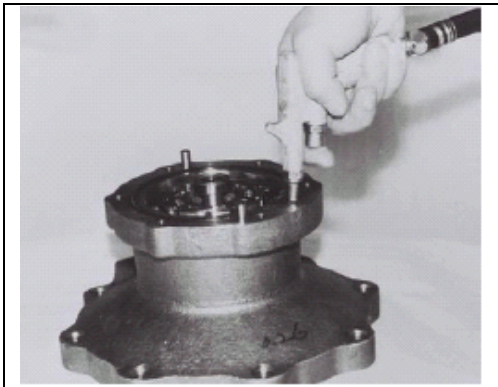
Direction of the bearing inner race: the maker's name, specs marking are up.

- Jig No. 23 pipe.



c) Remove the rear flange [301] from the case [102].

NOTICE The timing plate [109] is positioned with the parallel pin [131] but it may be stuck to the cylinder block [104] because of the oil. Be careful not to drop it.



3) Disassembling the mechanical brake

a) Take out the piston [112] by charging the compression air (3–5kg/cm²) from the pilot pressure path of the case [102].

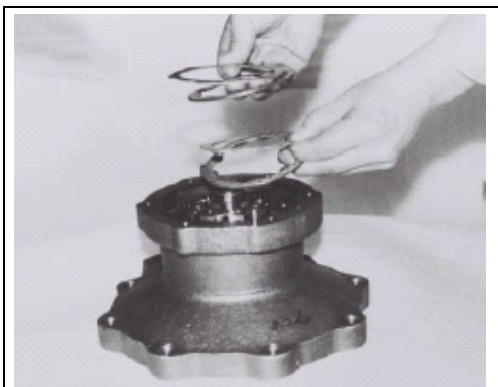


CAUTION Do not charge the air rapidly, which may cause the piston [112] to spring out. To safely remove the piston put a protective cover etc on it.



b) Remove the O-rings [137], [138] from the piston [112].

NOTICE Never reuse the removed O-rings [137], [138].



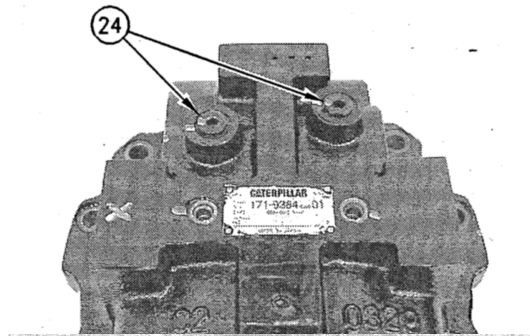
c) Take out the friction plate [115] and the machine plates [116] (two), [169] (one) being put in the periphery of the cylinder block [104].

7-3 Parts List of Feed Motor

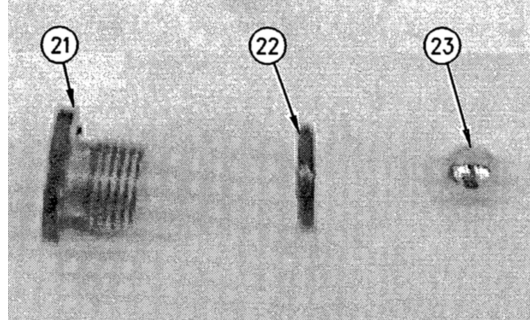
970404-00001

符号 ITEM	部品番号 PART No.	部 品 名 PART NAME	個数 Q'ty	適用号機 SERIAL NO.	備考：補給性 REMARKS
	*	減速機	REDUCTION GEAR	1	
	*	スピンドルキット	SPINDLE KIT	1	
	*	スピンドルアッシー	SPINDLE ASS'Y	1	
002	*	スピンドル	SPINDLE	1	
003	*	ホールドフランジ	FLANGE, HOLD	1	
019	*	リーマボルト	BOLT, REAMER	2	
035	101032-16040	六角ボルト	BOLT	2	
	*	RVギヤアッセンブリ	RV GEAR ASS'Y	1	
004	*	RVギヤ	GEAR	2	
009	*	クランクシャフト	SHAFT, CRANK	2	
012	*	スペーサ	SPACER	4	
022	*	円錐コ軸受	BEARING, TAPER ROLLER	4	
023	*	針状コ軸受	BEARING, NEEDLE ROLLER	4	
	*	スパーギヤキット	SPUR GEAR KIT	1	
007	*	スパーギヤ	GEAR, SPUR	2	
001	*	ハブ	HUB	1	
006	*	インプットギヤ	GEAR, INPUT	1	
013	*	デイスツンスピース	PIECE, DISTANCE	1	
017	*	ピン	PIN	28	
021	*	玉軸受	BEARING, BALL	1	
026	*	プレート	PLATE	1	
027	*	廻り止メ金具	LOCK PLATE	1	
032	*	円錐コ軸受	BEARING, TAPER ROLLER	1	
033	264010-00022	軸用C形止メ輪	RING, SNAP	4	
034	*	穴用C形止メ輪	RING, STOP	2	
036	264010-00015	軸用C形止メ輪	RING, SNAP	1	
037	089800-00037	オーリング	O-RING	1	
038	*	オイルシール	SEAL, OIL	1	
039	101032-12025	六角ボルト	BOLT	2	
040	*	プラグ	PLUG	1	
041	161011-00011	オーリング	O-RING	1	
043	*	リング	RING	1	
	*	油圧モータ	MOTOR, HYDRAULIC	1	
	*	ピストン組立品	PISTON KIT	9	
105	*	ピストン	PISTON	1	
106	*	シュー	SHOE	1	
102	*	ケース	CASE	1	
103	*	スウォッシュプレート	PLATE, SWASH	1	
104	*	シリンダブロック	BLOCK, CYLINDER	1	
107	*	リテーナプレート	PLATE, RETAINER	1	
108	*	スラストボール	BALL, THRUST	1	
109	*	タイミングプレート	PLATE, TIMING	1	

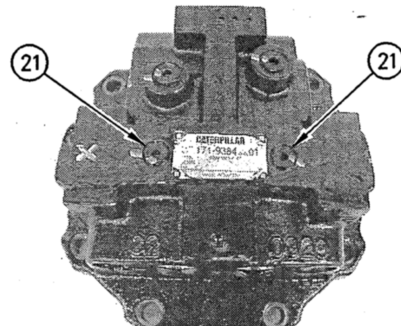
- 5 Install the plugs (24) in the travel brake valve and tighten those with the torque of $69\pm 5\text{N}\cdot\text{m}$ ($7.0\pm 0.5\text{kgf}\cdot\text{m}$).



- 6 Fit the O-rings (22) to their plugs (21).

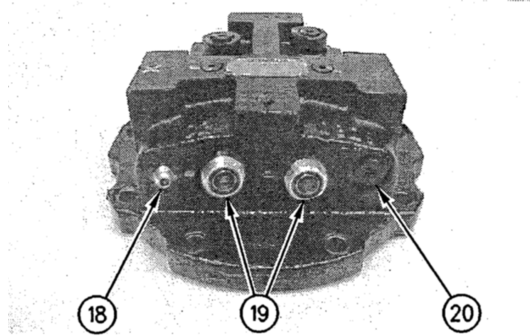


- 7 Install the two balls (23) in the travel brake valve.



- 8 Install the plugs (21) in the travel brake valve and tighten those with the torque of $29\pm 2\text{N}\cdot\text{m}$ ($2.0\pm 0.2\text{kgf}\cdot\text{m}$).

- 9 Install the new plug (20).



- 10 Tighten the plug (20) with the torque of $69\pm 5\text{N}\cdot\text{m}$ ($7.0\pm 0.5\text{kgf}\cdot\text{m}$).

- 11 Install the new O-rings to the hydraulic fittings (19) and install the hydraulic fittings (19).

- 12 Install the new O-ring to the hydraulic fitting (18) and install the hydraulic fitting (18).

New Generation Crawler Drill Flow Chart

HCR 900 Series
HCR 1200 Series
HCR 1500 Series

Model 2001 Rod Changer
(Corresponds to Rotator Equipped Type)

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