

EN



**OPERATING MANUAL
& SPARE PARTS LIST**

Cargotec Korea Ltd

EN



OPERATING MANUAL

Cargotec Korea Ltd

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1. Foreword

This operator's manual for Hiab190T-6 teaches you the right way to operate and maintain your crane.

Therefore it is very important that you read this operator's manual before you start using the crane.

The manual gives you a short description of the crane as well as some instructions and maintenance advices. To give the crane a long life you should always follow this instructions.

For maintenance, in excess of greasing and simpler repairs which you easily can do by yourself, you should consult your Hiab dealer or service center which has trained personnel.

We reserve the right that without advance notice change data and equipment as well as maintenance procedures.

2. Safety instruction

- Before operating the crane, a basic knowledge of the operation and safety measures of the crane must be acquired.
- Before operating the crane, the outrigger (stabilizer) beam should be extended and the outrigger shoe (stabilizer foot plate) should be firmly settled on the ground.
- During operation, unauthorized person should keep out of the working area of the crane.
- The operation below or in the vicinity of any kind of electric cables or wires is highly dangerous and must never be permitted. Please refer to local regulations for minimum working distances between the crane and overhead power lines.
- Never use the crane in a high wind or storm.
When mean wind speed exceeds 13.3m/sec, the crane will behave unpredictably.

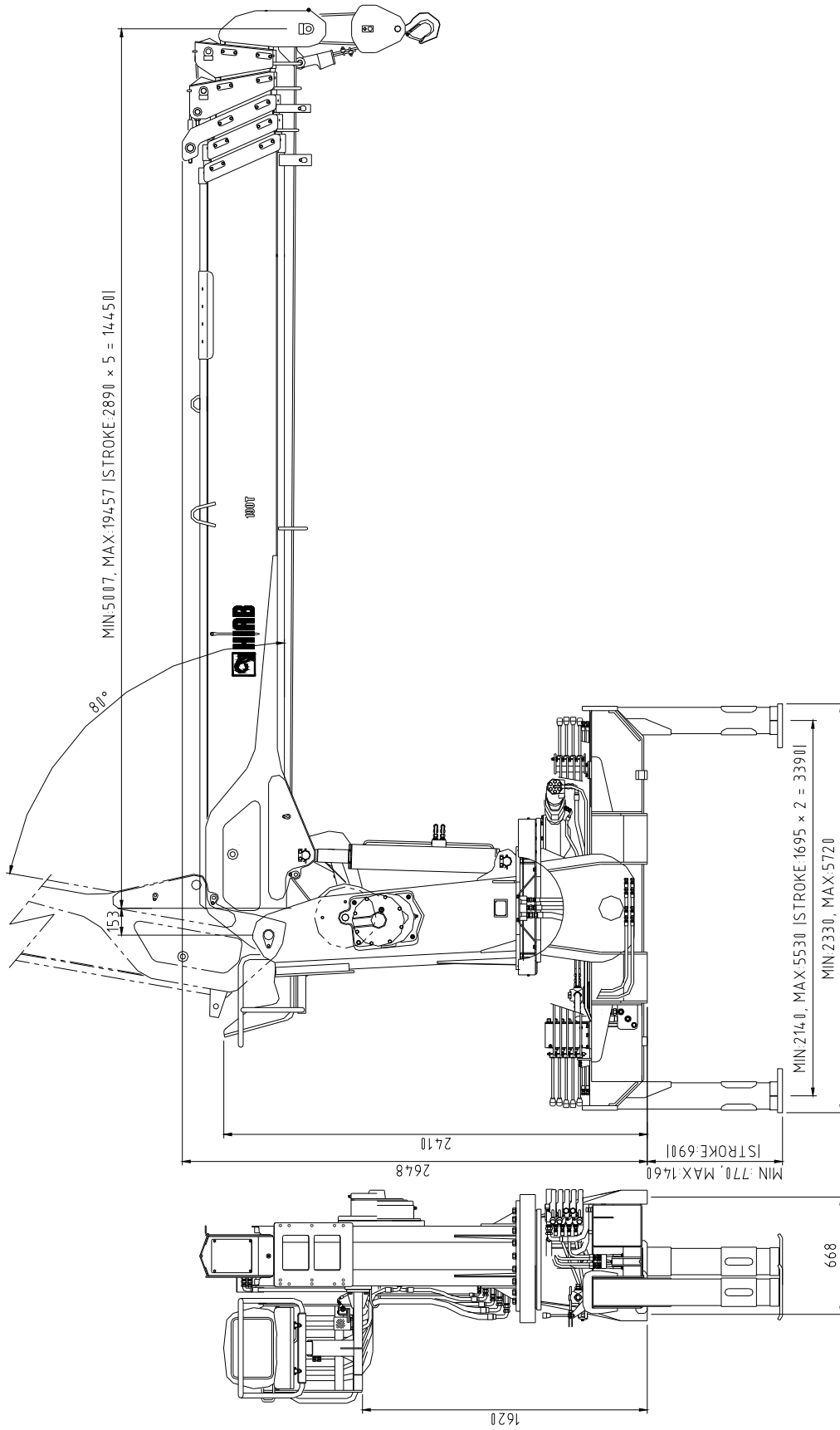
- Never exceed the maximum capacity given on the crane capacity plate.
Load capacity indicated on the crane capacity plate is the total weight including the hook weight.
- Never slew until the load is clear of the ground.
- Never walk or stand below a suspended load.
- Before operating the crane, never forget to check the condition of the wires.
- Be careful when using acceleration in suspended load.
- After operation, hook is to be secured for driving.
- Precautions shall be taken when disconnecting hydraulic tubing and hoses to ensure that no hydraulic pressure is retained in the line when the power supply to the system is switched off.

3. Technical description

3 - 1 Specification

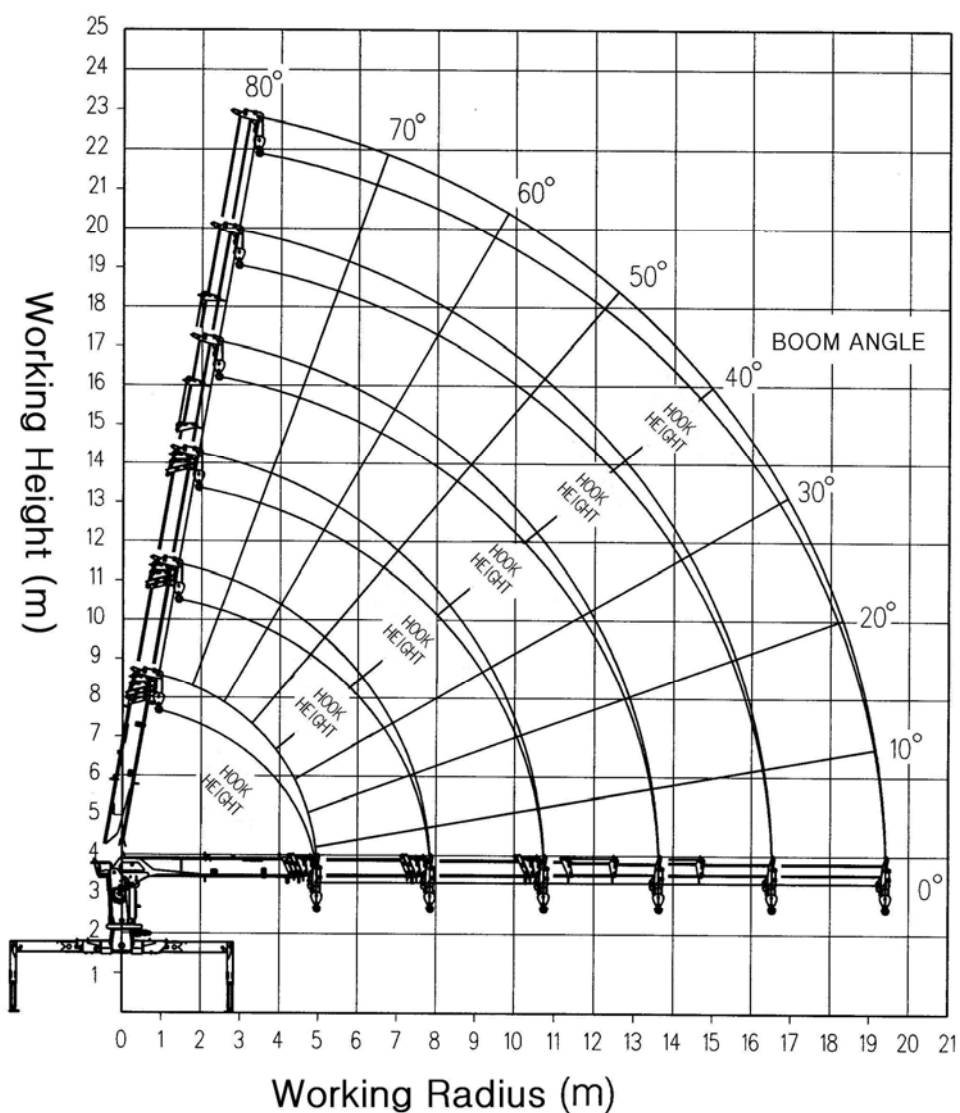
Description		Specification	Remarks
Lifting Capacity		18.1 ton-m	
Working Radius		19.5 m	
Outreach - Lifting Capacity		1.62 m - 8,000 kg 3.88 m - 3,630 kg 6.89 m - 2,050 kg 10.45 m - 1,300 kg 15.57 m - 770 kg 19.47 m - 440 kg	
Working Height above ground level		20.6 m	
Recommended oil Flow		63 ℓ / min	
Working pressure		210 bar	
Boom	Type	Hexagonal, 6 sections	
	Lifting angle/speed	0 ~ 80 deg / 15 sec	
	Extension speed	14.45m / 33 sec	
Winch	Type	Spur gear reduction type with mech. brake	
	Lifting capacity	8,000 kg (4 falls)	
	Speed	min. 8 m/min ~ max. 11m/min (4 falls)	
Slewing	Type	Worm gear reduction	
	Angle	360 deg Continuous	
	Speed	1.8 rpm	
Outrigger Span		5.7 m	
Safety function		Counter balance valve Hyd. Swing brake Pilot check valve Hook latch Pressure relief valve Auto Winch brake	
Weight with outrigger		3,250 kg (about)	

3 - 2 Outline view

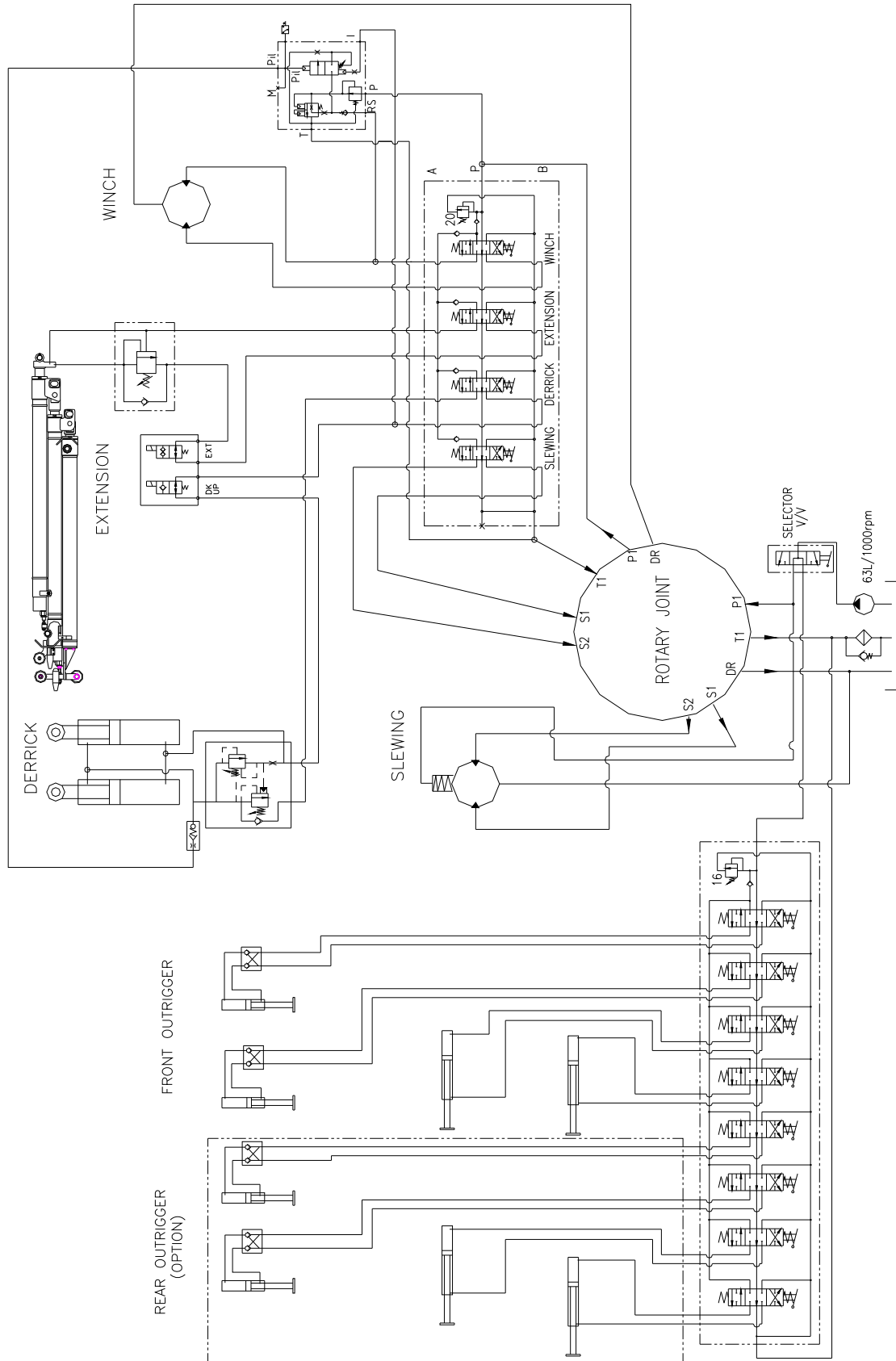


3 - 3 Lifting capacity table & working radius

boom angle	1 st boom		2 nd boom		3 rd boom		4 th boom		5 th boom		6 th boom	
	R(m)	Q(kg)	R(m)	Q(kg)	R(m)	Q(kg)	R(m)	Q(kg)	R(m)	Q(kg)	R(m)	Q(kg)
80 deg	0.75	8,000	1.25	6,800	1.75	4,500	2.25	2,400	2.76	1,800	3.26	920
70 deg	1.62	8,000	2.61	5,000	3.60	3,560	4.58	2,400	5.57	1,800	6.56	920
60 deg	2.44	6,320	3.88	3,630	5.33	2,550	6.77	1,940	8.22	1,540	9.66	920
50 deg	3.17	5,250	5.03	2,950	6.89	2,050	8.75	1,540	10.60	1,210	12.46	920
40 deg	3.81	4,610	6.02	2,540	8.24	1,750	10.45	1,300	12.67	1,010	14.88	810
30 deg	4.33	4,170	6.83	2,260	9.33	1,540	11.84	1,140	14.34	880	16.84	700
20 deg	4.71	3,840	7.42	2,050	10.14	1,390	12.86	1,010	15.57	770	18.28	610
10 deg	4.94	3,500	7.79	1,850	10.63	1,240	13.48	900	16.33	680	19.17	520
0 deg	5.02	3,170	7.91	1,650	10.80	1,100	13.69	780	16.58	580	19.47	440



3 - 4 Hydraulic diagram

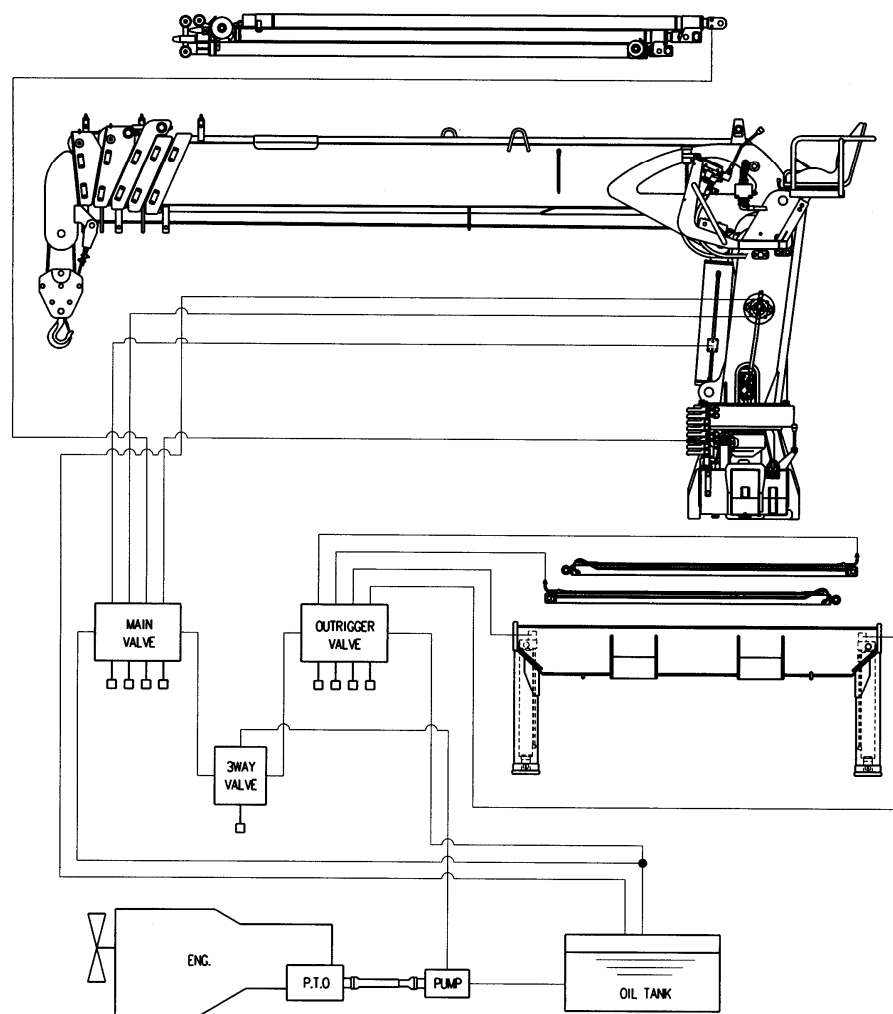


4. General Description

4 - 1 Basic operation principle

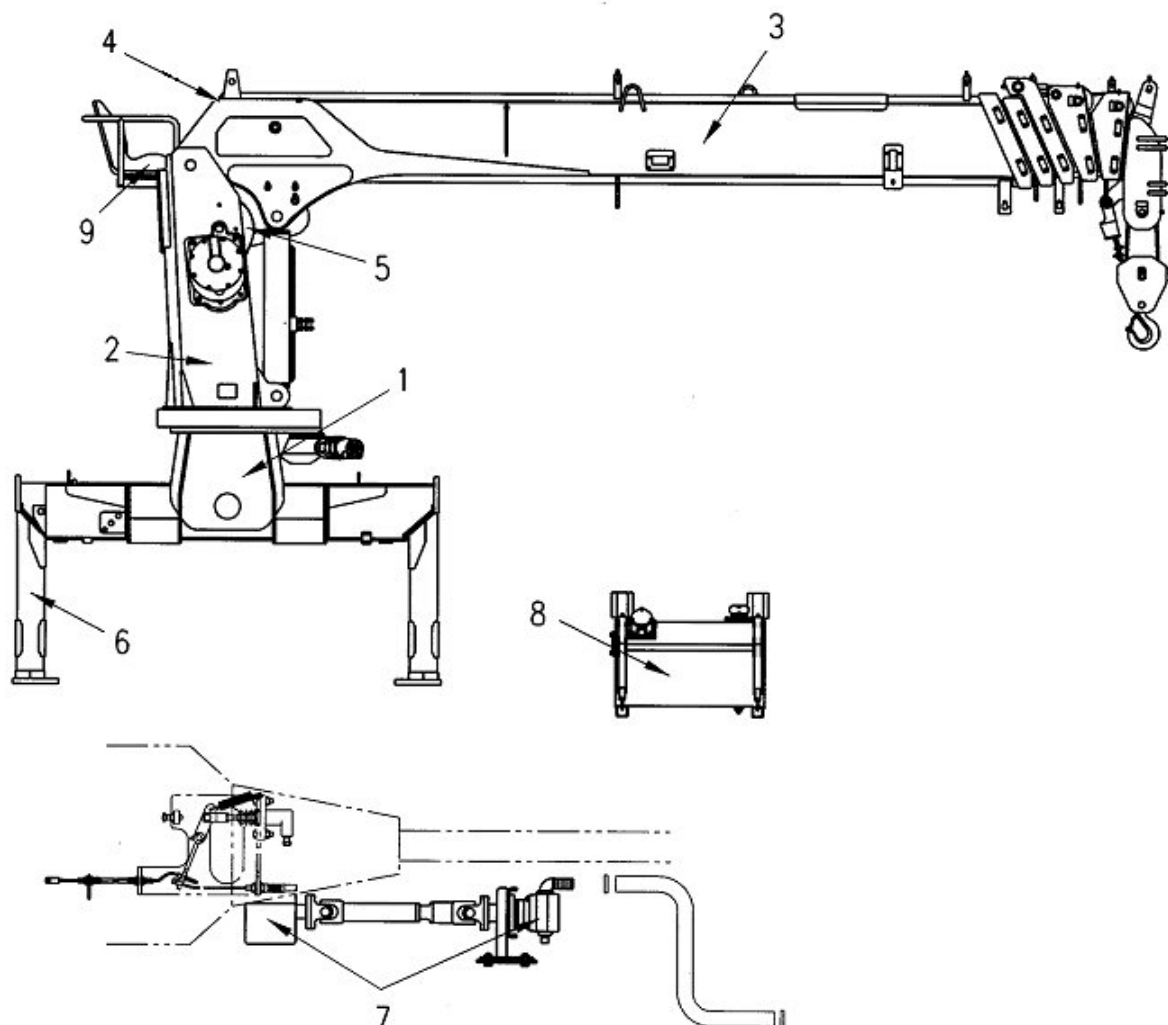
Hiab 190T crane consists of mainly steel structures and hydraulic components.

The required power source for crane operation comes, via the chassis' power take off (PTO), from the hydraulic pump giving high pressure hydraulic oil. This high pressure oil operates the cylinders and motors through the control valve and returns to the oil tank.



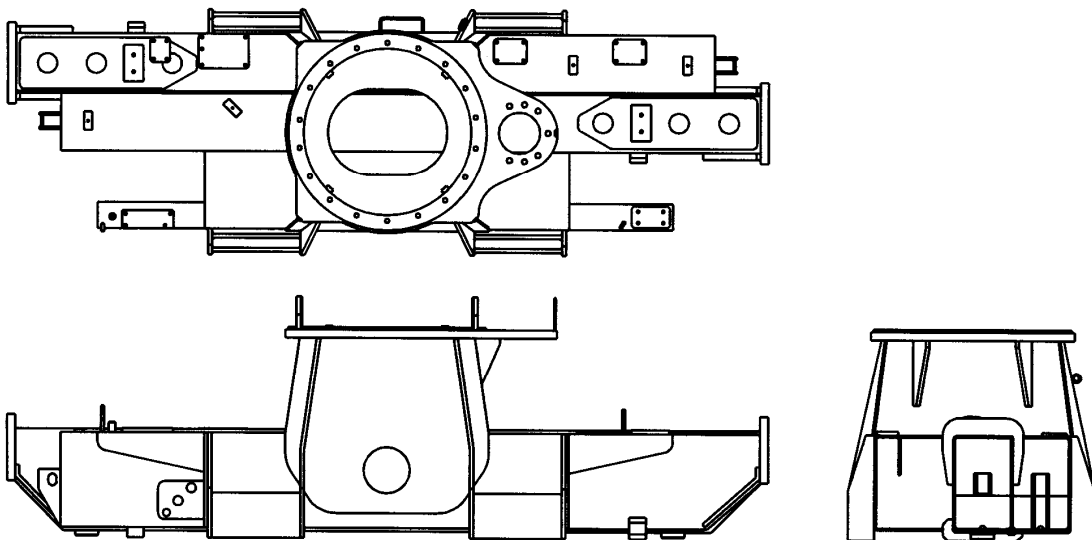
4 - 2 Main components

- 1) Base
- 2) Column
- 3) Boom system
- 4) Control valve
- 5) Winch
- 6) Outrigger system
- 7) PTO & Pump
- 8) OIL TANK
- 9) TOP SEAT

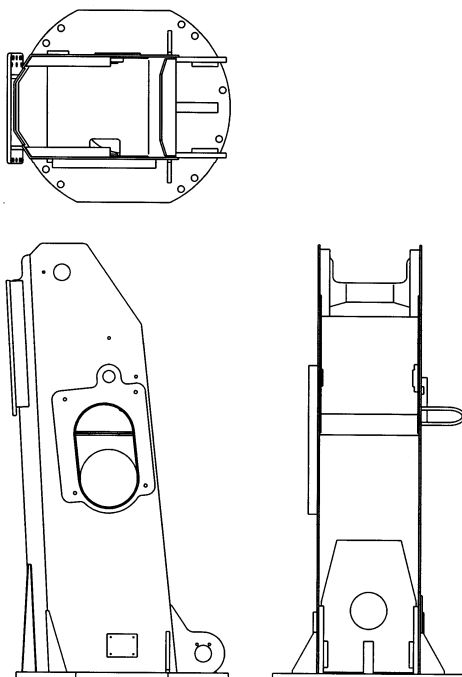


4 - 3 Base

The base is connected with the column structure by slewing bearing, which makes the crane rotate, and is mounted on the chassis frame with strong anchor bolts.



4 - 4 Column



The column is of a closed welded box design and connected with the base.

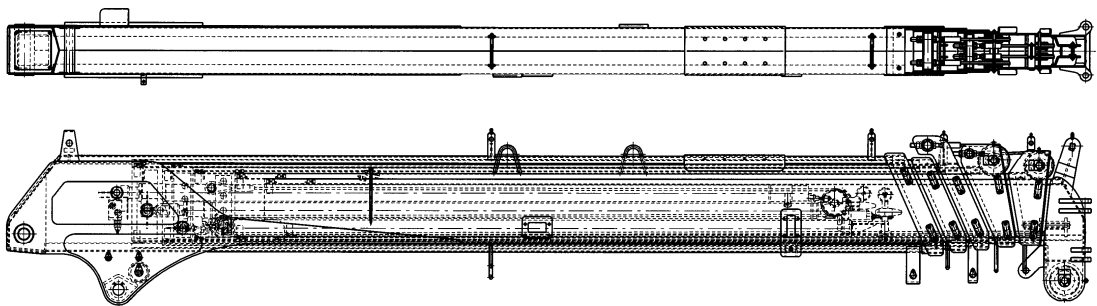
The column supports the boom system via derrick cylinder.

The winch system is mounted in the column structure.

4 - 5 Boom system

The boom system consists of main boom, six extension booms and extension cylinders moving each boom.

The three cylinders are of a double acting type. The counter balance valve of each cylinder makes the cylinders operate at constant speed regardless of the suspended load.

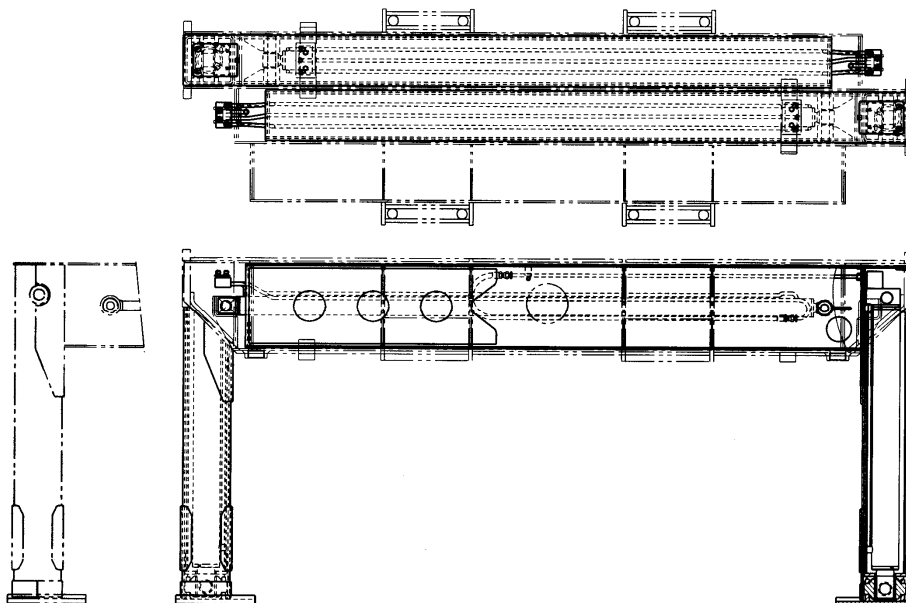


4 - 6 Control Valve

The Hiab 190T stiff boom crane is equipped with two(2) 4-function control valves connected serially. One is for main controls of the crane (slewing, boom lifting, extension, winch), and the other is for the outrigger control (outrigger beam extending, outrigger jack cylinder). Both valves are equipped with built-in main relief and port relief valves shown in the hydraulic diagram. The relief valves makes that the crane can not lift in excess of the designed load chart.

4 - 7 Outrigger system

The outrigger system consists of outrigger beam and legs which make the chassis stable when the crane is operating. The pilot check valves are installed on leg cylinders to prevent the leg cylinders to go down when driving and from hose failure when operating the crane. Before operating the crane, spread the outrigger and settle the outrigger firmly on the ground to prevent tilting or too much stress on tires and frame of the chassis.



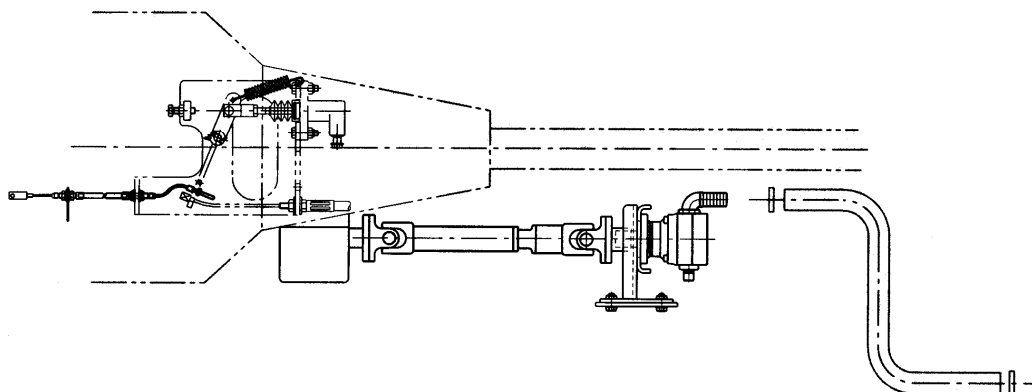
4 - 8 Winch

The winch consists of hydraulic motor, gearbox and winch drum. The winch is installed inside of the column structure. The mechanical brake is included in winch gearbox.

4 - 9 PTO & pump [Option]

The PTO is mounted the gearbox of the chassis. This rotating power rotates the pump creating high hydraulic oil pressure. The cylinders and motors are activated by this high pressure oil.

The PTO is designed according to the chassis, so you must consult the chassis manufacturer when you select the PTO.



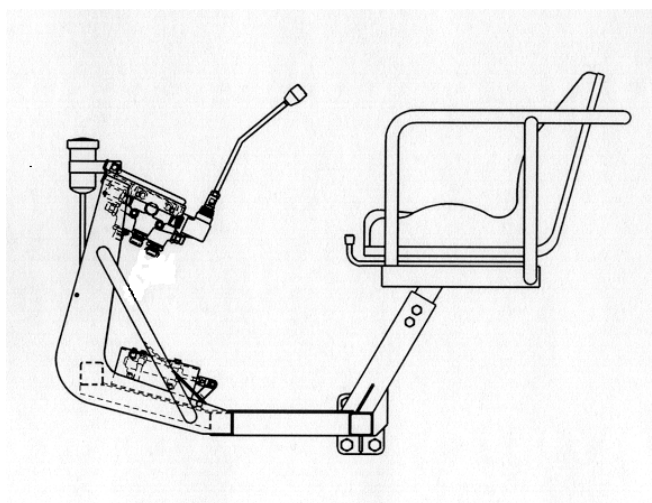
4 - 10 Oil Tank [Option]

The Hiab 190T crane is equipped with an oil tank for separate mounting.

The oil tank consists of tank body itself, return filter, suction strainer, air breather, oil level gauge and drain plug which can be used for drainage of the water or some dirt accumulated in the tank bottom.

4 - 11 Top seat [Option]

4-function main control valve which controls slewing, boom lifting, extension, winch is mounted on the top seat with manual acceleration pedal to control chassis' rpm. Also the top seat can be adjusted to fit operator's body.



4 - 12 OLP (over load protection) system [option]

The OLP system is a fully hydraulic concept that stops the main hydraulic flow when the pressure in the derrick cylinder has reached the maximum allowable level, preventing aggravating movements.

The safety system resets automatically after a pressure decreasing movement.

Although the safety system is triggered by the pressure of the derrick cylinder only, it prevents all aggravating movement. Only the extension can be moved inwards as an exception, to solve the overload situation. The crane and vehicle have a guaranteed stability.

4 - 13 Anti two block system [Option]

When hook hit the limit switch, send signal to solenoid.

The wire rope up and extending boom were stopped in order to prevent over-winding.

5. Operation

5 - 1 Before operating the crane

- Secure the hand brake of the chassis
- Check the oil level in the hydraulic oil tank
- Engage the PTO
- Extend the outrigger beam and down the outrigger legs firmly on the ground

5 - 2 Warming up when cold weather

In cold weather, the viscosity of the operating oil could be very high. It can make some damages to the hydraulic components. Please warm up as follows.

- Engage the PTO and run the hydraulic oil pump at low RPM.
- After 10-15 minutes without movement of the control valve, operate the crane slowly.

5 - 3 Operating the outrigger

The outrigger control valve levers are vertically installed on both sides of the crane.

The first lever : left side shift cylinder

The second lever : right side shift cylinder

The third lever : left jack cylinder

The fourth lever : right jack cylinder

(All directions here specified when you are looking from rear towards the truck cab)

- Extend the outrigger beam
- Down the outrigger legs firmly on the ground

The stability is up to the length of outrigger extension.

Be careful not to lift up the chassis ' tires.

Please avoid sloped grounds.

the load is clear of the ground.

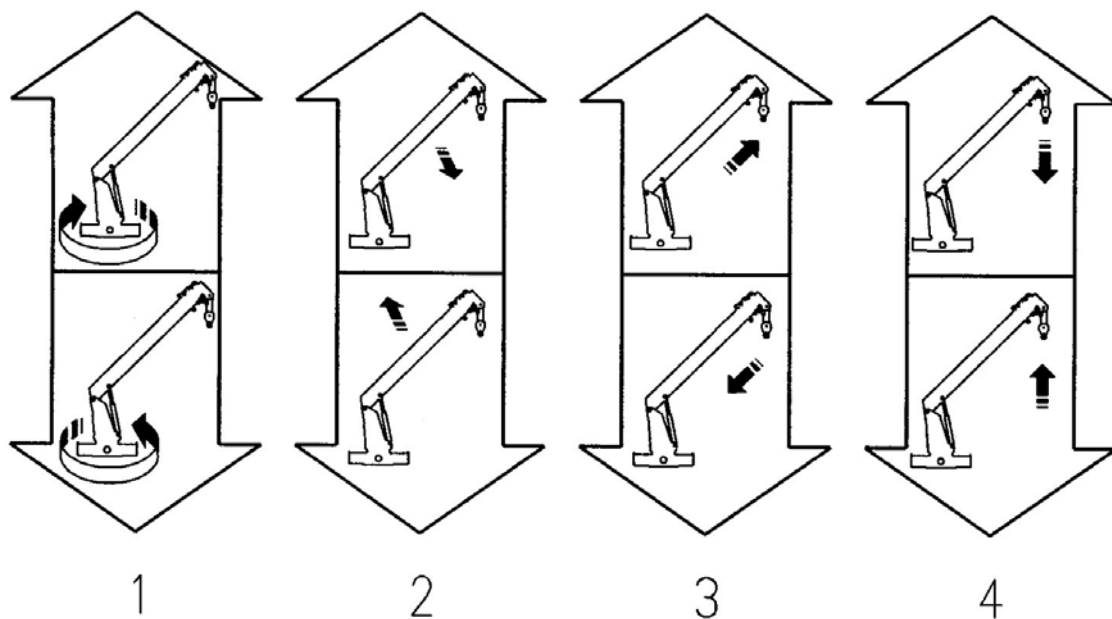
5 - 4 Operation of crane

Standard control valve 4 levers for operating crane.

Before operating the crane, adjust the three(3) way valve lever to main control valve side.

Please refer to below chart explaining the function of each lever.

NO.	Operated components	Pull	Push
1	Slewing	Left	Right
2	Derrick	Up	Down
3	Extension	Retracting	Extending
4	Winch	Up	Down



(note)

1) When boom raising / lowering,

Move the lever slowly when loaded.

Fast movement could cause tilting of the chassis or damages to the crane due to dynamic forces.

2) When hook raising / lowering,

Do not lower more when load touches the ground.

If you do so, the wire can get tangled.

When load is lowered, minimum 3 turns of wire should remain on the drum

To keep good laying of the wire, wind slowly.

3) When extending,

Thanks to selector valve, boom extends from 1ST to the last sequent.

When retracting, conversely.

Be carefully aware of the hook movement.

When extending, hook is up and when retracting, hook is down.

4) When slewing, slew as slow as possible

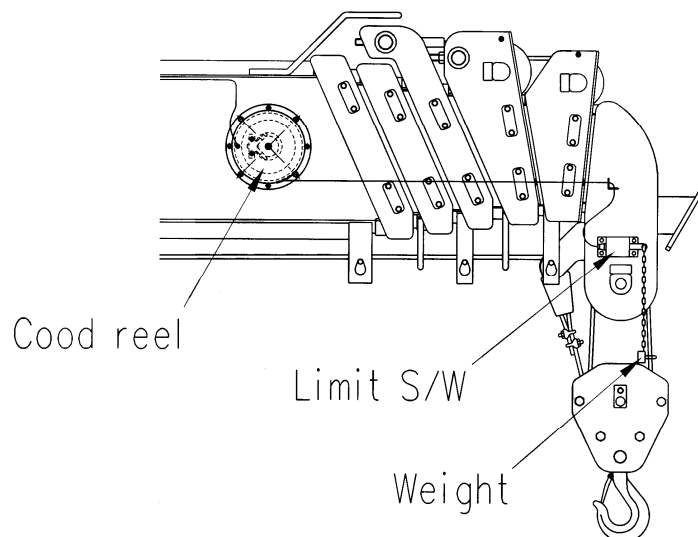
When you rotate the crane to the truck cab position, be careful about the stability.

Never slew until the load is clear of the ground.

5 - 5 Over winding alarm [option]

Hiab 190T is equipped with an over winding alarm system. If the hook block is too near the boom tip, the alarm system will be activated.

- Before operating the crane, turn on the over winding alarm switch.
- If the alarm is activated, retract the boom or lower the hook.
- After operating the crane, turn off the over winding alarm switch.

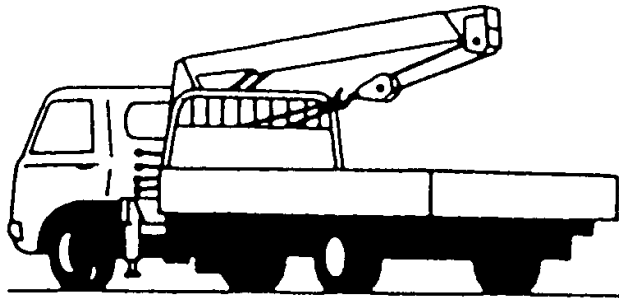


(note) Do not shorten the wire length.

Please be careful when the extending boom or the raising hook, because the alarm system can not be activated when of the electric wire is damaged etc.

5 - 6 After operation the crane (for driving)

- Retract the booms fully
- Rotate the boom at the driving position
(front or rear side. Refer the sticker on slewing cover and column base plate)
- Retract the outrigger legs fully
- Retract the outrigger beam fully
- Lower the boom at lowest position
- Settle the hook with the safety rope on the chassis
- Operate (wind) the winch until the safe rope is tensioned
- Put manual accel lever put at neutral position
- Disengage the PTO, then the pump stop to run



(note) Driving with the pump running may cause PTO and pump damages.
It's very dangerous to drive without the hook in a fixed position
Check again that the outrigger system is fully retracted and locked.

6. Safety instruction when operating

- Press the clutch pedal fully and then engage or disengage the PTO
- When cold weather, please warm up the operating oil for 10 - 15 minutes
- Operate the crane on even ground condition
- Before operating the hook, turn on the overwinding alarm switch
- Be careful not to touch the hook block on the ground, which could cause the wire to get tangled
- Do not drag the load using the crane which may cause damage to the crane
- Do not exceed the lifting capacity shown in the load table
- Slew as slow as possible
- When load and unload in underground, check the remaining wire length on the winch drum. Minimum 3 turns.
- Do not leave from the operating position when load is suspended
- Do not be allowed that unauthorized persons is in the working area
- Make sure that the hook is firmly fixed and the PTO disconnected before driving

- You should consult your dealer and/or trained person if you find some problems
- Operate the crane smoothly

If operated fast, the life cycle of the crane can be reduced and/or there can be some component troubles.

At starting/finishing point, the movement should be reduced.

- Before operating the crane, make sure the outrigger system is extended and firmly settled on the ground. If the ground is not rigid, use auxiliary support plate under the support leg plate.

(note) In case low rpm of the engine, boom can tremble and/or do not move. In this case a little increase of the engine rpm can make it possible.

The oil temperature should be kept below 80° C. High oil temperature can cause damages to the hydraulic components.

From 45°C to 55°C is the best operating temperature for the crane.

7. Preventive Service & Maintenance

7 - 1 Daily Inspection

Where?	What?
Power take off	<ul style="list-style-type: none"> ● Abnormal noise and/or heat? ● Engaging movement is smooth or not?
Drive shaft	Loosened or not?
Oil tank	<ul style="list-style-type: none"> ● Oil level? ● Leakage?
Slewing system	<ul style="list-style-type: none"> ● Leakage? ● Greasing condition? ● No loosened bolts? ● Abnormal noise?
Derrick cylinder	<ul style="list-style-type: none"> ● Shaft condition? ● No loosened bolt? ● Leakage? ● No movement when stopped?
Boom system	<ul style="list-style-type: none"> ● No loosened bolt? ● Any crack? ● Smooth extending/retracting?
Winch gear box	<ul style="list-style-type: none"> ● Oil leakage? ● Abnormal noise?
Pump	<ul style="list-style-type: none"> ● Mounting condition? ● Leakage? ● Abnormal noise?
Hook	<ul style="list-style-type: none"> ● Rotate when loaded? ● Any damages?
Wire rope	Any damage?
Control lever	<ul style="list-style-type: none"> ● Smooth movement? ● Return neutral position well when release the lever?
Outrigger system	<ul style="list-style-type: none"> ● Any crack? ● Leakage of the cylinder? ● Any internal leakage?
Control valve	<ul style="list-style-type: none"> ● Any leakage? ● Smooth movement?
Overwinding alarm	Alarm when activated?
Hook latch	Enough spring tension?
Pipes & hoses	Any leakage?
Base	Mounting bolt condition?

7 - 2 Slewing bearing & mounting bolts

If there is some abnormal noise from the slewing system and/or the mounting parts when operating the crane or driving, please consult your Hiab dealer or service center. That kind of noise could come from loosened condition of the mounting bolts. At least, mounting bolts of slewing bearing located inside of the column should be checked every 2 years.

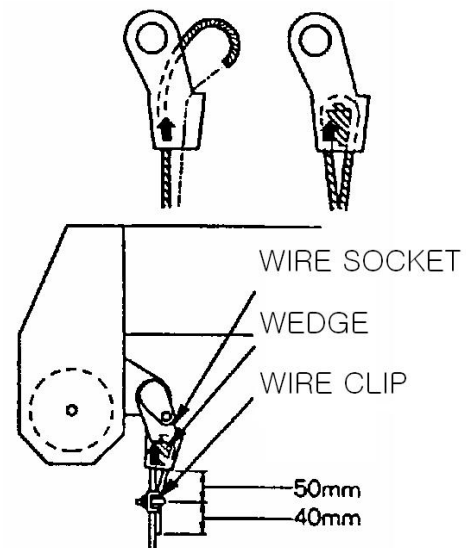
7 - 3 Wire rope

1) How to fit the wire rope

Pass the end of a wire rope into the wire socket along the arrow mark on the socket.

Do not forget to attach the wedge and wire clip.

When attaching the wire socket to the boom, make sure that the arrow mark on the face of the wire socket faces outwards as shown in the drawing.



2) Adjusting twisted wire rope

Wire rope tends to turn in the untwisting direction under tension. When the hook carries two or more wire rope slings, they can easily turn, especially when they are still new. Wire rope becomes steady with use.

The wire rope adjustment procedure is:

- Extend the boom fully

- Set the boom to an angle of about 65 deg

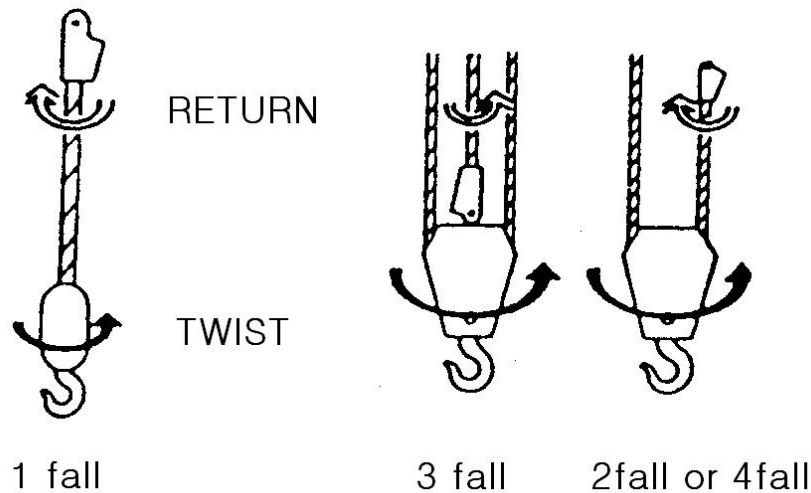
- Hoist a load so that the wire ropes will be tense

- Check the wire ropes for the number of turns

- Remove the wire socket, and turn it in the wire rope untwisting direction by the number of wire rope turns multiplied by the number of wire rope slings.

- After attaching the wire rope socket back in position, wind up and down the wire ropes all the way and repeat it a few times to check that they are back to normal. If there is still a twist remaining, repeat the above process.

- Turn the wire socket opposite to the wire rope twisting direction, except in the case of 3-rope sling in which case the wire socket should be turned in the same direction.



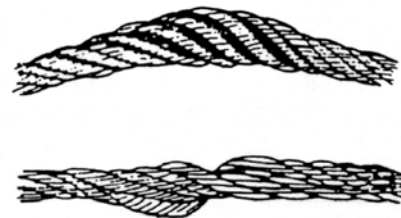
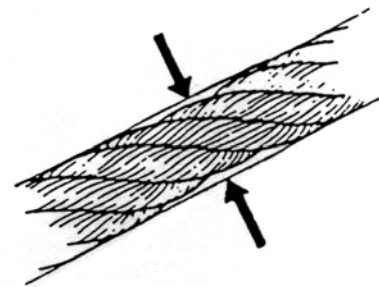
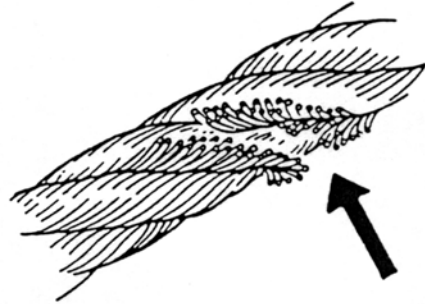
3) How to look after the winch rope

The winch rope must be regularly cleaned and greased for maximum life, bearing in mind that the rope is subject to wear and to heavy stresses which set a limit of it's service life. It is good practice to replace the rope at regular intervals by a new one. The gradual wear and unravelling of the rope is difficult to detect and to gauge.

However, the following safety rules applying to winch ropes can be followed.

The winch rope must be changed as soon as any of the following occur;

- When 5 % of wires in any length of ten rope diameters are broken, worn or corroded
- When visible changes occur in the diameter (more than 7 %) of the winch in comparison with the normal stretching and diameter reduction of a newly fitted rope
- The rope develops kinks or a heavy spiral twist



4) Lubricating a winch wire

when the rope is used for a long period it becomes dry, which gives rise to rapid wear and to rust attacks. Accordingly, it is necessary to lubricate or grease the rope at regular intervals.

Lubrication must be carried out as follows:

- Clean dust and dirt off the rope and wipe it dry
- Apply an appropriate amount of a recommended lubricant with a brush, rag or similar implement. Be sure that only a rope lubricant is used.

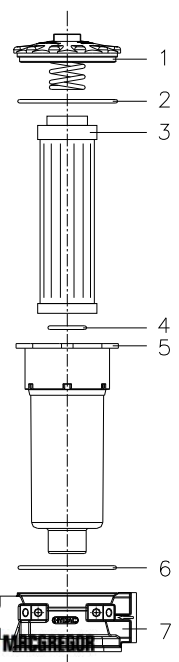
7 - 4 Changing a filter insert

A clean hydraulic system gives better operating economy. The oil filter insert should therefore be changed for the first time after 50 running hours and from then on every 500 running hours, subject to a minimum of at least two changes a year.

For best results, always fit a genuine HIAB insert.

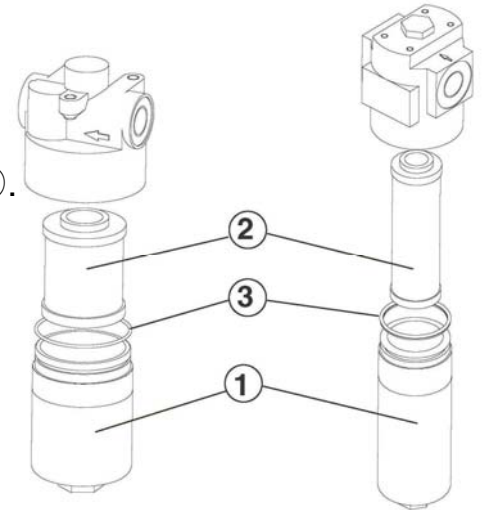
Replacing the return oil filter insert

- Clean the immediate surroundings of the return filter.
- Turn the cover ① to free it while pressing on it
- Pull the return filter out of the oil tank
- Remove the filter insert ③
- Insert a new filter insert
- Fit new sealing rings ②,④
- Replace the return filter in the tank
- Attach the cover on the return filter



Replacing the filter insert in the pilot filter and in the high pressure filter

- Clean the immediate surroundings of the pressure filter.
- Dismantle the filter housing ①.
- Remove the filter insert ②.
- Clean the filter housing.
- Fit a new filter insert. Also fit new sealings ③.
- Reassemble the filter housing.



▲ WARNING

Dirt will damage the hydraulic system

7 - 5 Inspection points when operating

- Is there any leakage?
- Does the crane operate smoothly?
- Is there any abnormal noise?
- How about the oil temperature?

If the oil temperature is higher than 75 deg C, then stop the crane operation

7 - 6 Inspection after operation

- Clean & smooth for next use?
- Any crack & abnormal noise?
- Any leakage in connections?

7 - 7 Inspection & maintenance after one month in operation

- Check the pressure settings and lead seals
- Check for oil leakage
- Check and advance screwed connections
- Check and advance hose and pipe couplings
- Check catches and other locking devices

- Check the functions and levers of the control valve
- Check hook, ropes and any other lifting gear that is used
- Check that all the prescribed notices are in place
- Carry out a visual inspection of structural parts to detect deformation and cracks etc.
- Cleaning, replacement of filters
- Check oil levels and lubrication in accordance with the lubrication chart in the manual
- Put the crane through test-running and test-loading, and listen for any suspicious noises

7 - 8 Inspection & maintenance after 6 months in operation

- Clean the crane
- Check pressure settings and lead seals
- Check for oil leakage
- Check and advance screwed connections
- Check and advance hose and pipe couplings
- Check catches and other locking devices
- Check the functions and levers of control valve
- Check hook, ropes and any other lifting gear that is used

- Check that all the prescribed notices are in place
- Carry out a visual inspection of structural parts to detect deformation and cracks etc.
- Clean or replace the filters
- Check oil levels and lubrication in accordance with the lubrication chart in the manual
- Put the crane through test-running and test-loading, and listen for any suspicious noises
- Do a security check on the mountings of the pump and anchor bolts
- Clean or change the hydraulic oil

8. Lubrication

8 - 1 Hydraulic oil changing

Check the level in the tank every day. The oil level must be visible in the sight glass. At this check, the crane must be in parked position. Top up with hydraulic oil if necessary.

Hydraulic oil becomes contaminated in time, and malfunctions may begin to appear in the hydraulic system. You should therefore change the hydraulic oil at least once a year.

After changing the oil, you must operate all the hydraulic functions of the crane through their full range. The reason for this is to expel any air that is present, which would otherwise destroy the seals in the hydraulic system.

Always bear in mind that trouble can be minimized by having a clean hydraulic system. For this reason, keep the surroundings clean whenever you have to work inside the hydraulic system.

When changing the oil, change the filters at the same

time.

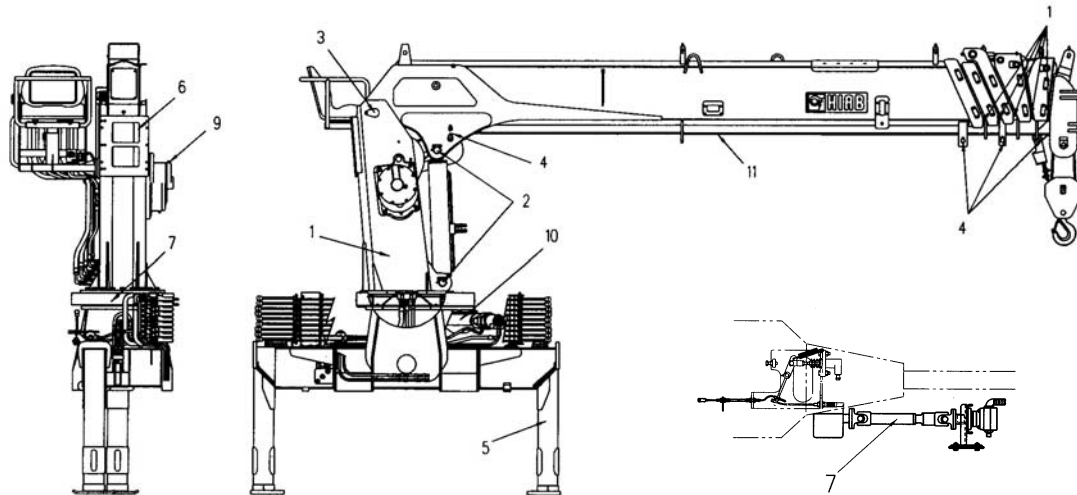
The hydraulic system and the hydraulic fluid are matched in respect of lubricating performance, effect on the seals and other materials, and non-inflammability. For this reason, do not mix different types of hydraulic fluid, such as mineral oils, synthetic fluids and water-based fluids, and never adulterate your hydraulic fluid with diesel oil or alcohol-based products.

Recommendable oil(or equivalents)

- Shell Tellus oil T 46
- Mobil DTE 15M
- Esso Univis N 46
- Castrol Hyspin AWH-M 46
- Total Equivis ZS 46

8 - 2 Lubrication chart

Good performance and trouble-free operation of the crane depends a great deal on service. For this reason, always follow the recommendation on the lubrication chart.



Pos	Interval	Point	Rec. Lubricant	Q'ty
1	Every day	Boom pads	Shell Alvania EP grease 2 (or equivalents)	20
2		Derrick cylinder shaft		2
3		Boom + Column shaft		1
4		Wire rope roller		2
5		Outrigger cylinder shaft		2
6	Every week	Winch drum gear	Shell Alvania EP grease 2 (or equivalents)	1
7		Slewing bearing		2
8		Drive shaft		1
9	Every month	Winch gearbox	Shell Spirax HD Gear oil	1
10		Slewing gearbox	Shell Spirax HD Gear oil	1
11		Wire rope	Shell Alvania EP grease 2 (or equivalents)	1

9. Fault Tracing

Fault tracing is mainly based on organized routine for finding a certain functional disorder, its reason and how to correct it. The following charts contain some faults which may arise during operation, how they appear and which steps to be taken.

Most important, however, is that the crane is checked and necessary adjustments made before the crane is taken into operation.

Some common damages and disturbances:

- The crane is incorrectly used in a way for which it is not designed
- The crane and/or its accessories have not been properly maintained
- The crane is operated against obstacles

Fault	Possible reason	Measure
Overwinding alarm system will not be activated	<ul style="list-style-type: none"> ● Low battery voltage ● Fault in buzzer ● wire disconnect 	<ul style="list-style-type: none"> ● Change the battery ● Change the buzzer ● Connect
Still running the engine, but the crane will not operate	<ul style="list-style-type: none"> ● PTO disconnected ● Lack of operating oil ● Low setting of the relief valve ● Damage in pump 	<ul style="list-style-type: none"> ● Check the PTO ● Top up the oil ● Check the relief valve setting pressure ● Repair or change pump
Noise in power take off	<ul style="list-style-type: none"> ● Damages in bearing and/or gear ● Damage in drive shaft 	<ul style="list-style-type: none"> ● Repair or change <p>Change the drive shaft</p>

Noise in pump	<ul style="list-style-type: none"> ● Lack of oil ● Air leaking in suction pipe ● Loosening of mounting bolt of the pump ● Dirt in strainer ● Drive shaft alignment is not good ● Worn out universal joint ● Damage in pump casing 	<ul style="list-style-type: none"> ● Top up the oil ● Tightening ● Tightening ● Clean the strainer ● Realign ● Change ● Change
Boom do not extend	<ul style="list-style-type: none"> ● Dirt in counter balance valve or damage in seal ● Internal leakage in cylinder ● Sequence valve fault ● Lack of oil 	<ul style="list-style-type: none"> ● Clean and/or change ● Repair ● Clean/repair ● Top up the oil
Boom do not retract	Dirties in counter balance valve or damage in seal	Clean and/or change
Boom automatically retract when loaded	<ul style="list-style-type: none"> ● Internal leakage in cylinder ● Some leakage at connection parts ● Damage in check valve 	<ul style="list-style-type: none"> ● Repair ● Repair ● Clean and change the seal
Some noise in slewing system and/or insufficient torque	<ul style="list-style-type: none"> ● Damage of slewing gear ● Damage of the bearing in the gearbox ● Pump faulty ● Insufficient oil in the gearbox ● Motor faulty 	<ul style="list-style-type: none"> ● Change ● Change the bearing ● Repair/change pump ● Top up the gear oil ● Change motor
Jerky when slewing	<ul style="list-style-type: none"> ● Too much clearance in slewing gear and pinion ● Worn out of the wormwheel in gearbox ● Loosening of the gearbox mounting bolts 	<ul style="list-style-type: none"> ● Adjust the pinion gear ● Change the gearbox ● Tighten the bolts
Stabilizer cylinder do not extend	<ul style="list-style-type: none"> ● Lack of oil ● Dirties in relief valve 	<ul style="list-style-type: none"> ● Top up the oil ● Clean and/or repair
Stabilizer cylinder retract when loaded	<ul style="list-style-type: none"> ● Damage in pilot check valve ● Internal leakage in cylinder 	<ul style="list-style-type: none"> ● Repair/change ● Repair
Stabilizer cylinder down when driving	<ul style="list-style-type: none"> ● Damage in pilot check valve ● Internal leakage in cylinder ● Leakage from the cylinder 	<ul style="list-style-type: none"> ● Repair/change ● Repair ● Repair
Leakage in winch motor	<ul style="list-style-type: none"> ● Drain line is clogged ● Damage of the packing 	<ul style="list-style-type: none"> ● Repair ● Repair
2 nd boom will not retract	Sequence valve faulty	Repair
3 rd boom will not extend	Sequence valve faulty	Repair

Appendix 1 : Wind speeds

Wind force	Wind speed averaged over 10 min. at a height of 10 m		characteristics
	Above flat ground		
	m/s	Wind type	
0	0.0 ~ 0.2	Calm	Calm, smoke rises vertically or nearly vertically
1	0.3 ~ 1.5	Slight breeze	Wind direction recognizable from smoke plumes, wind begins to be noticeable on the face; leaves begin to rustle and weather vanes can start to move
2	1.6 ~ 3.3		
3	3.4 ~ 5.4	Moderate wind	Leaves and twigs in continuous movement, small branches begin to move. Dust and paper begin to move over the ground
4	5.5 ~ 7.9		
5	8.0 ~ 10.7	Fairly strong wind	Small leaved branches make swaying movements : crested waves from on lakes and canals.
6	10.8 ~ 13.8	Strong wind	Large branches moving; you hear the wind whistling In the telephone wires : umbrellas can only be held With difficulty.
7	13.9 ~ 17.1	Severe wind	Entire trees moving; the wind causes difficulty when you walk into it.
8	17.2 ~ 20.7	Stormy wind	Twigs break off, walking is difficult.
9	20.8 ~ 24.4	Storm	Causes superficial damage to buildings(chimney pots, roof-tiles, and TV antennae are blown off).
10	24.5 ~ 28.4	Severe storm	Uprooted trees : considerable damage to buildings etc. (occurs infrequently on land).
11	28.5 ~32.6	Very severe storm	Causes extensive damage (occurs very infrequently on land).
12	>32.6	Hurricane	

EN



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Cargotec Korea Ltd



주요 부분 지시도
MAIN SUBDIVISIONS

HIAB190T-6 0 : 1
2013. 09.

-	주요 부품 지시도 MAIN SUBDIVISIONS	HIAB190T-6 - 0 : 1	11	아웃트리거 제어 장치 OUTRIGGER CONTROL SYSTEM	HIAB190T-6 - 11 : 1
1	크레인 총 결합도 HIAB190T-6 TOTAL ASS'Y	HIAB190T-6 - 1 : 1	12	아웃트리거 제어 밸브 OUTRIGGER CONTROL VALVE	HIAB190T-6 - 12 : 1
2	붐 장치 BOOM SYSTEM	HIAB190T-6 - 2 : 1	13	윈치 장치 WINCH SYSTM	HIAB190T-6 - 13 : 1
3	신축 붐 실린더 EXTENSION BOOM CYLINDER	HIAB190T-6 - 3 : 0	14	선회 감속기 SLEWING REDUCER	HIAB190T-6 - 14 : 0
4	1단 신축 실린더 1st EXTENSION CYLINDER	HIAB190T-6 - 4 : 0	15	선회 모터 SLEWING MOTOR	HIAB190T-6 - 15 : 0
5	2단 신축 실린더 2nd EXRENSION CYLINDER	HIAB190T-6 - 5 : 0	16	카운터 발란스 밸브 COUNTER BALANCE VALVE (D)	HIAB190T-6 - 16 : 1
6	3단 신축 실린더 3rd EXRENSION CYLINDER	HIAB190T-6 - 6 : 0	17	데릭 실린더 DERRICK CYLINDER	HIAB190T-6 - 17 : 0
7	카운터 발란스 밸브 VALVE, COUNTER BALANCE (S)	HIAB190T-6 - 7 : 1	18	로타리 조인트 결합체 ROTARY JOINT ASS'Y	HIAB190T-6 - 18 : 0
8	쉬브 결합체 SHEAVE ASS'Y	HIAB190T-6 - 8 : 1	19	운전석 결합체 TOP SEAT ASS'Y	HIAB190T-6 - 19 : 1
9	베이스 및 컬럼 결합체 BASE & COLUMN ASS'Y	HIAB190T-6 - 9 : 1	20	운전석 배관도 TOP SEAT HOSES	HIAB190T-6 - 20 : 1
10	베이스 배관도 BASE HOSE & PIPING	HIAB190T-6 - 10 : 1	21	주 제어 밸브 MAIN CONTROL VALVE	HIAB190T-6 - 21 : 0

SPARE PARTS LIST



주요 부분 지시도
MAIN SUBDIVISIONS

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2013. 09.

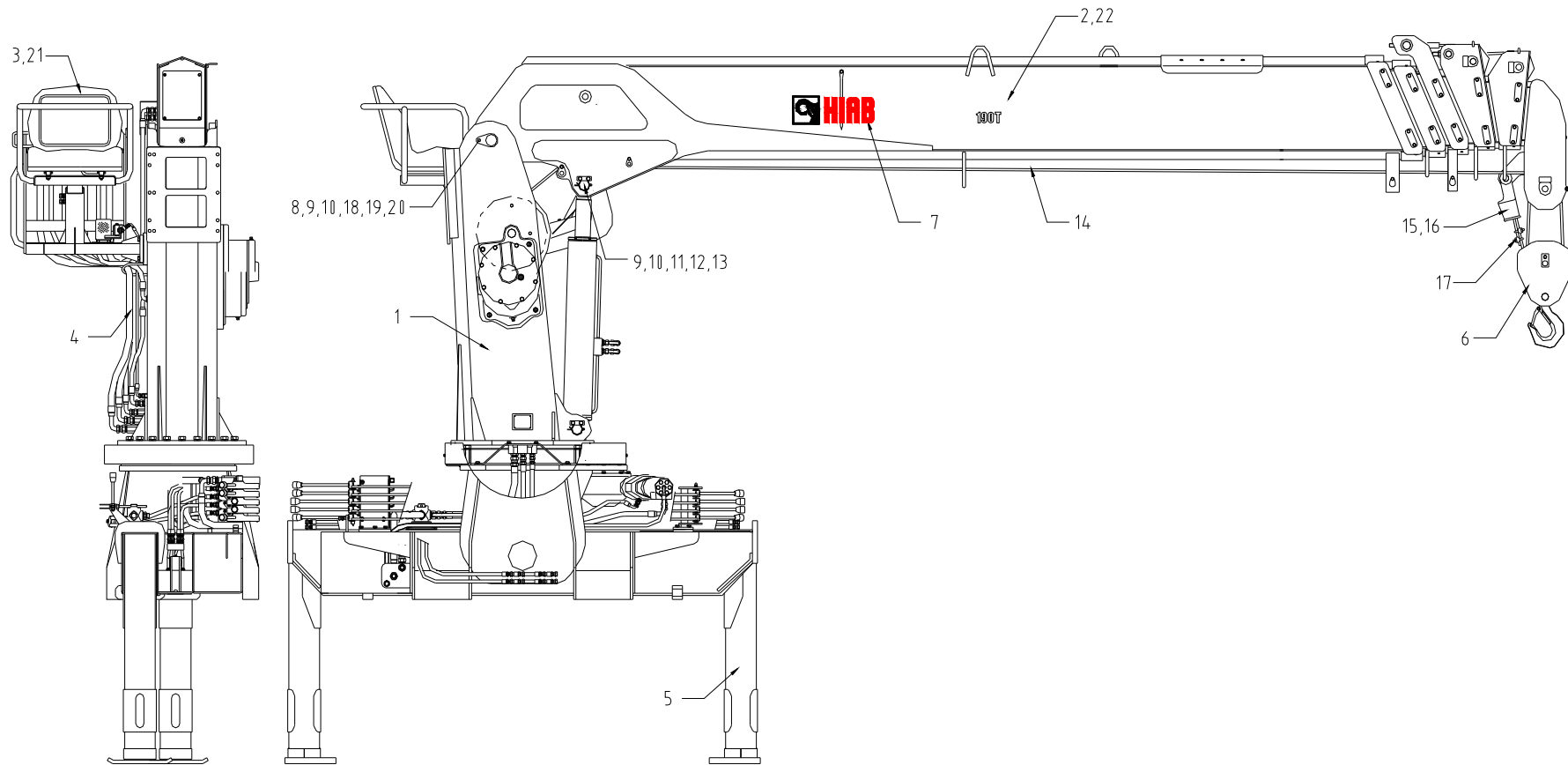
22	전방 아웃트리거 결합체 FRONT OUTRIGGER ASS'Y	HIAB190T-6 - 22 : 1
23	전방 아웃트리거 실린더 FRONT OUTRIGGER CYLINDER	HIAB190T-6 - 23 : 1
24	전방 사이드 쉬프트 실린더 FRONT SIDE SHIFT CYLINDER	HIAB190T-6 - 24 : 1
25	파일로트 체크 밸브 VALVE, PILOT CHECK (D)	HIAB190T-6 - 25 : 1
26	스티커 배열 STICKER ARRANGENT	HIAB190T-6 - 26 : 1
27	전기 배선도 ELECTRIC WIRING DIAGRAM	HIAB190T-6 - 27 : 1
28	펌프 PUMP	HIAB190T-6 - 28 : 0
29	오일 탱크 결합체 OIL TANK ASS'Y	HIAB190T-6 - 29 : 0

SPARE PARTS LIST



크레인 총 결합도
HIAB190T-6 TOTAL ASS'Y

HIAB190T-6 1 : 1
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SPARE PARTS LIST



크레인 총 결합도
HIAB190T-6 TOTAL ASS'Y

HIAB190T-6 1 : 1
2013. 09.

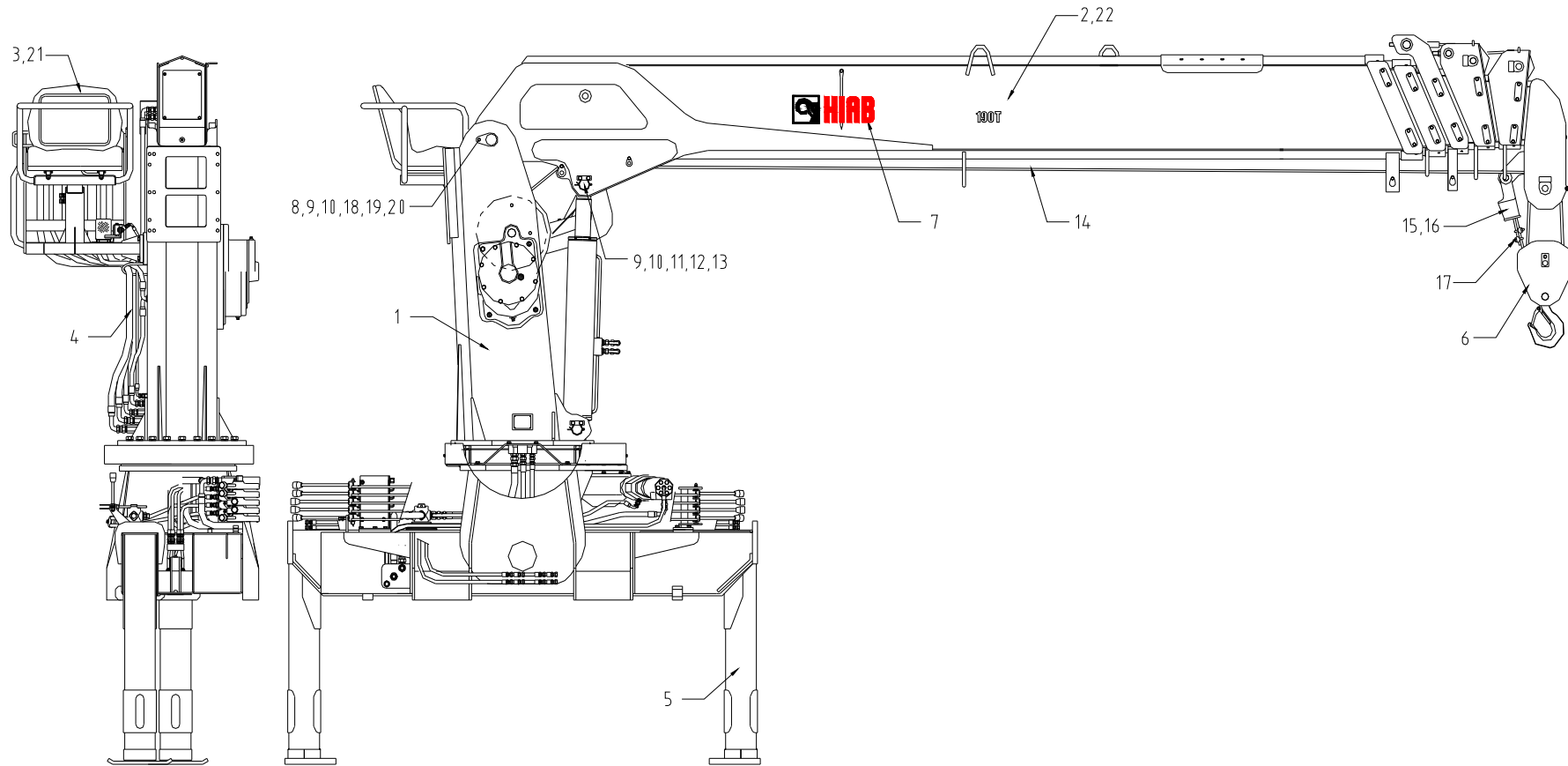
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-	A00-0377	크레인 총 결합도 HIAB 190T-6 TOTAL ASSY	1		10	3613101	스프링 와셔 WASHER, SPRING	3	WS10
1	A01-2889	베이스 및 칼럼 결합체 BASE & COLUMN ASSY	1		11	TA1-0002	축 SHAFT	1	
2	A01-3540	붐 장치 BOOM SYSTEM	1		12	1311941	분할 핀 PIN, SPLIT	1	PW10×100
3	A01-0539	운전석 결합체 TOP SEAT ASSY	1		13	BC2-0005	플레이트 PLATE	1	
4	A01-2339	운전석 배관도 TOP SEAT HOSES	1		14	S01-5169	와이어 로프 ROPE, WIRE	1	Φ11.2×110m
5	OR1-4001	아웃트리거 장치 OUTRIGGER SYSTEM	1		15	A02-1264	소켓 결합체 SOCKET ASSY	1	
6	A02-2565	쉬브 결합체 SHEAVE ASSY	1		16	S01-0002	로크 핀 PIN, LOCK	1	
7	A01-2898	스티커 배열 STICKER, ARRANGEMENT	1		17	N01-1722	와이어 클립 CLIP, WIRE	4	
8	TA1-0003	축 SHAFT	1		18	TA-6002	플레이트 PLATE	1	
9	2111226	육각 볼트 BOLT, HEX. HEAD	3	BA10×30	19	2111537	육각 볼트 BOLT, HEX. HEAD	1	BA12×35

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크레인 총 결합도
HIAB190T-6 TOTAL ASS'Y

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SPARE PARTS LIST



크레인 총 결합도
HIAB190T-6 TOTAL ASS'Y

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2013. 09.

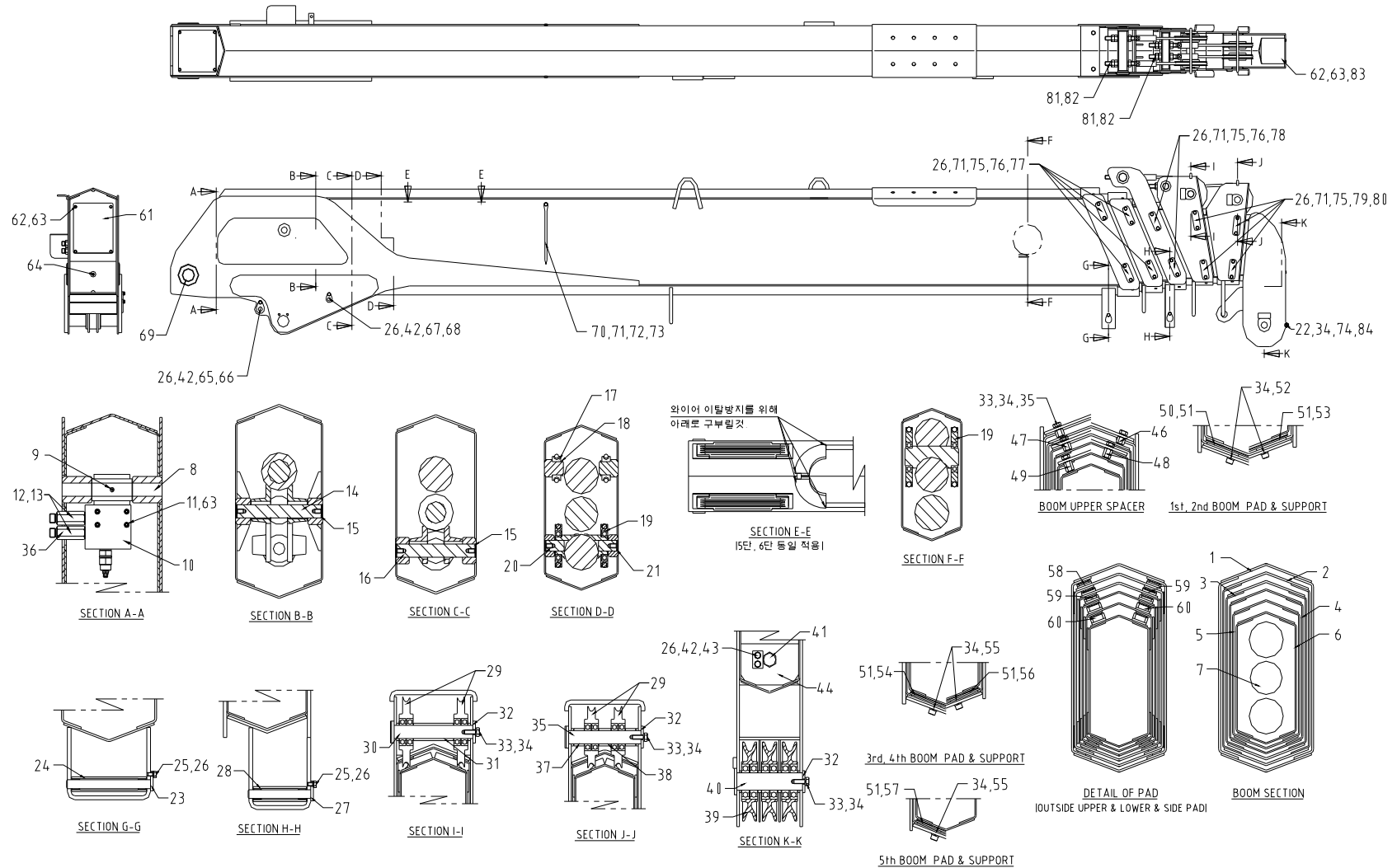
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20	3612121	스프링 와셔 WASHER, SPRING	1	WS12					
21	E00-0107	전기 배선 ELECTRIC WIRE DIAGRAM	1						
22	A02-3481	브라켓 마운팅 BRACKET MTG.	1						

SPARE PARTS LIST



붐 시스템 BOOM SYSTEM

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붐 시스템
BOOM SYSTEM

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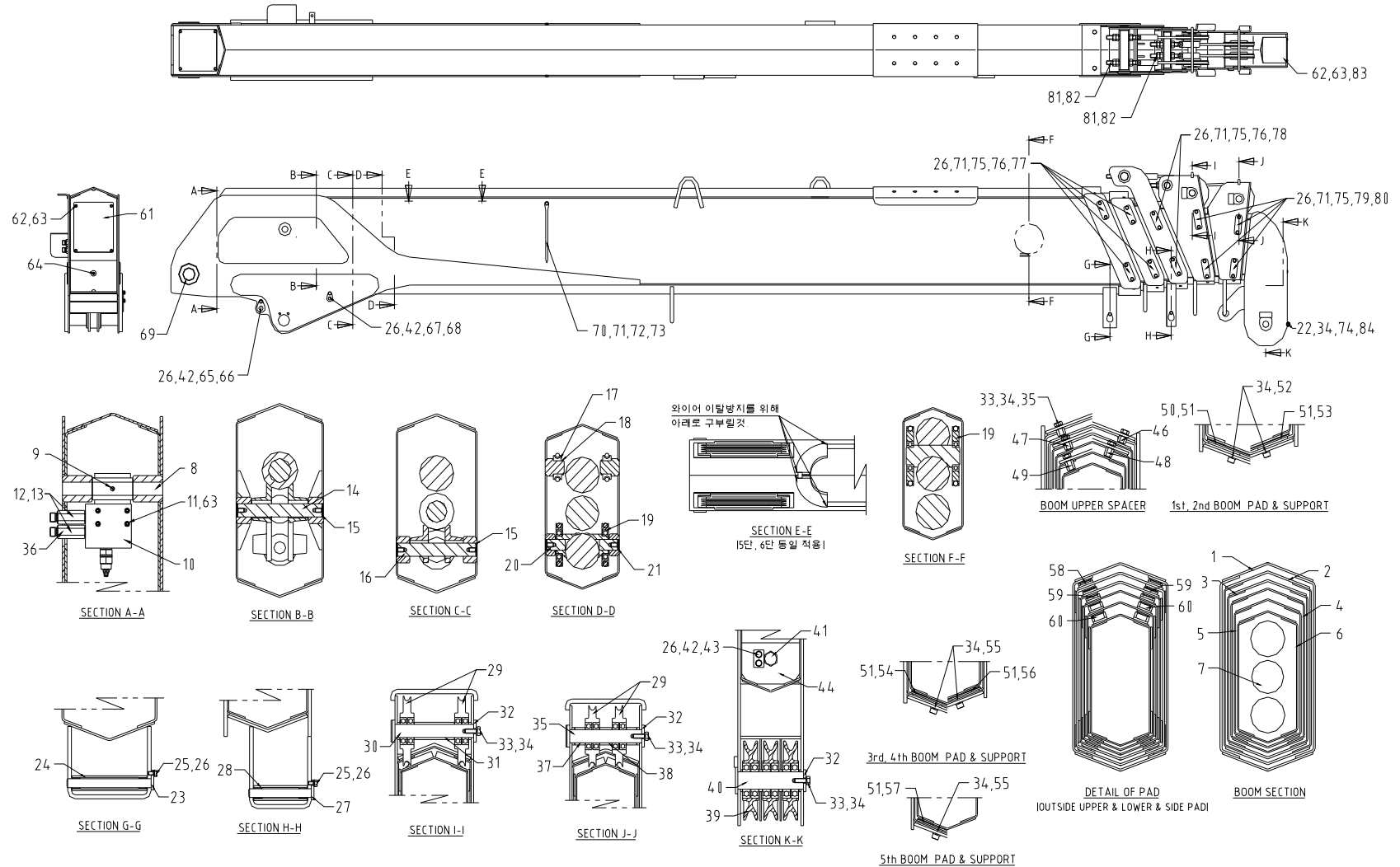
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-	A01-3540	붐 시스템 BOOM SYSTEM	1		10	H02-0201	카운터 발런스 밸브 (싱글) VALVE, COUNTER BALANCE (SINGLE)	1	
1	A02-3618	1단 붐 결합체 1st BOOM ASS'Y	1		11	2615617	육각 구멍볼이 볼트 BOLT, HEX. SOCKET HEAD	4	BB6×75
2	A02-3622	2단 붐 결합체 2nd BOOM ASS'Y	1		12	BOO-5051	롱 니플 NIPPLE, LONG	2	PF1/2(O)×PF1/2(C)
3	A02-3623	3단 붐 결합체 3rd BOOM ASS'Y	1		13	6010212	오 링 O-RING	2	1B P18
4	A02-3625	4단 붐 결합체 4th BOOM ASS'Y	1		14	BOO-0005	축 SHAFT	1	Φ30×205L
5	A02-3626	5단 붐 결합체 5th BOOM ASS'Y	1		15	4525281	멈춤 링 RING, RETAINING	4	RB30
6	A02-3629	6단 붐 결합체 6th BOOM ASS'Y	1		16	BOO-0006	축 SHAFT	1	Φ30×186L
7	H01-5866	신축 실린더 결합체 EXTENSION CYLINDER ASS'Y	1		17	S01-4537	와이어 로프 ROPE, WIRE	1	Φ10×21210L
8	BOO-6002	축 SHAFT	1	Φ30×230L	18	4510291	멈춤 링 RING, RETAINING	2	RC30
9	2340796	멈춤 나사 SCREW, SET (STICK END)	1	BM10×16	19	A05-3625	쉬브 결합체 SHEAVE ASS'Y	4	

SPARE PARTS LIST



붐 시스템 BOOM SYSTEM

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SPARE PARTS LIST



붐 시스템
BOOM SYSTEM

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2013. 09.

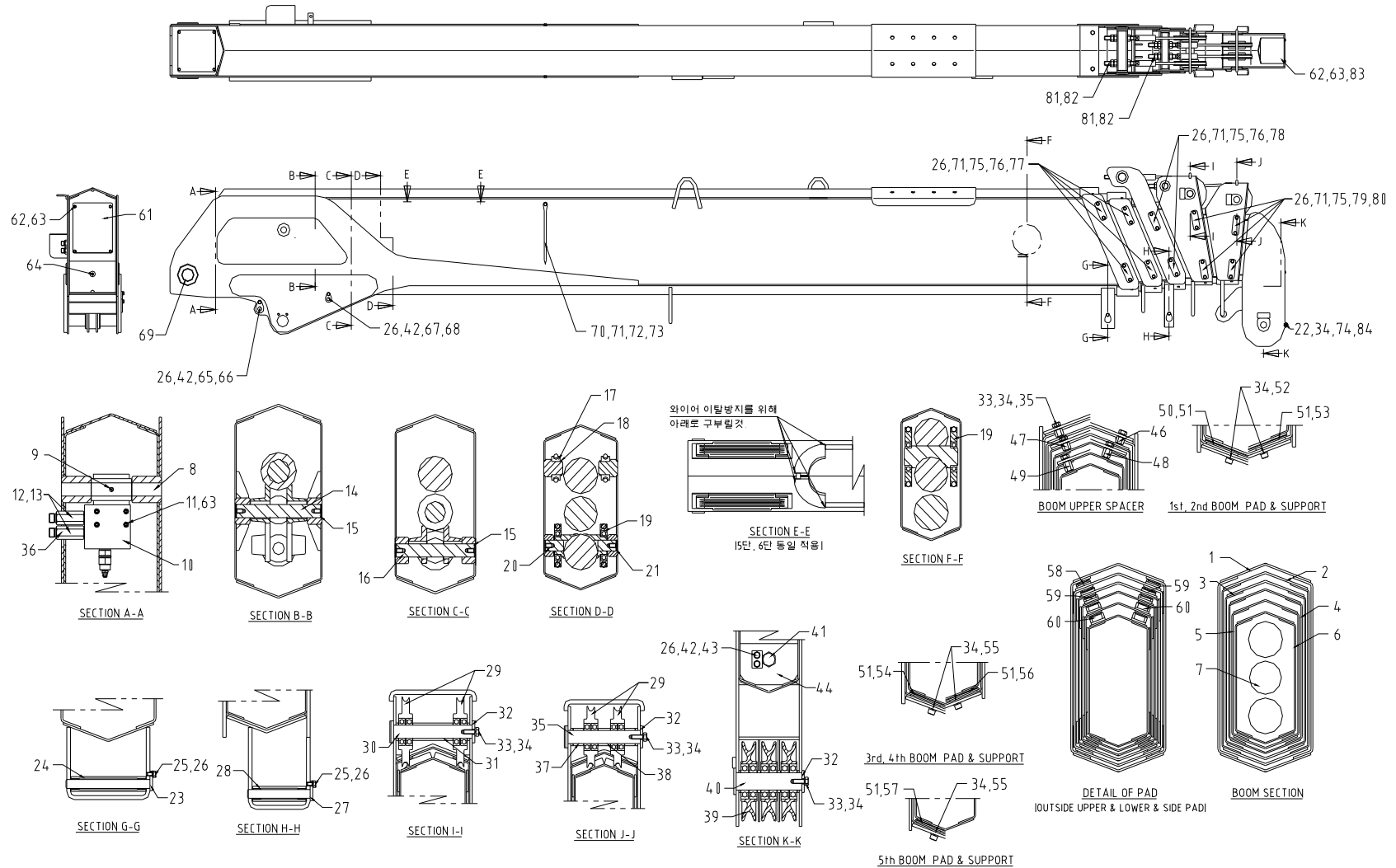
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20	BOO-0007	핀 PIN	2	Φ25×42L	30	BOO-0023	축 SHAFT	1	Φ30×189L
21	4525251	멈춤 링 RING, RETAINING	2	RB25	31	BOO-0026	스페이서 SPACER	1	Φ40×92L
22	3112106	육각 너트 NUT, HEX.	2	NA10	32	N01-0543	플레이트 PLATE	3	t=6
23	BOO-0014	축 SHAFT	1	Φ20×202L	33	2111187	육각 볼트 BOLT, HEX. HEAD	13	BA10×20
24	BOO-0016	롤러 결합체 ROLLER ASS'Y	1	Φ34×180L	34	3612101	스프링 와셔 WASHER, SPRING	25	WS10
25	2110866	육각 볼트 BOLT, HEX. HEAD	19	BA8×16	35	BOO-0027	축 SHAFT	1	Φ30×173L
26	3612081	스프링 와셔 WASHER, SPRING	47	WS8	36	S01-1579	스위블 엘보 ELBOW, SWIVEL	1	2-PF1/2
27	BOO-0018	축 SHAFT	1	Φ20×165L	37	BOO-0030	스페이서 SPACER	2	Φ40×29L
28	BOO-0019	롤러 결합체 ROLLER ASS'Y	1	Φ34×142L	38	BOO-0031	스페이서 SPACER	1	Φ40×22L
29	A05-2553	쉬브 결합체 SHEAVE ASS'Y	4		39	A05-2548	쉬브 결합체 SHEAVE ASS'Y	3	

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붐 시스템 BOOM SYSTEM

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붐 시스템
BOOM SYSTEM

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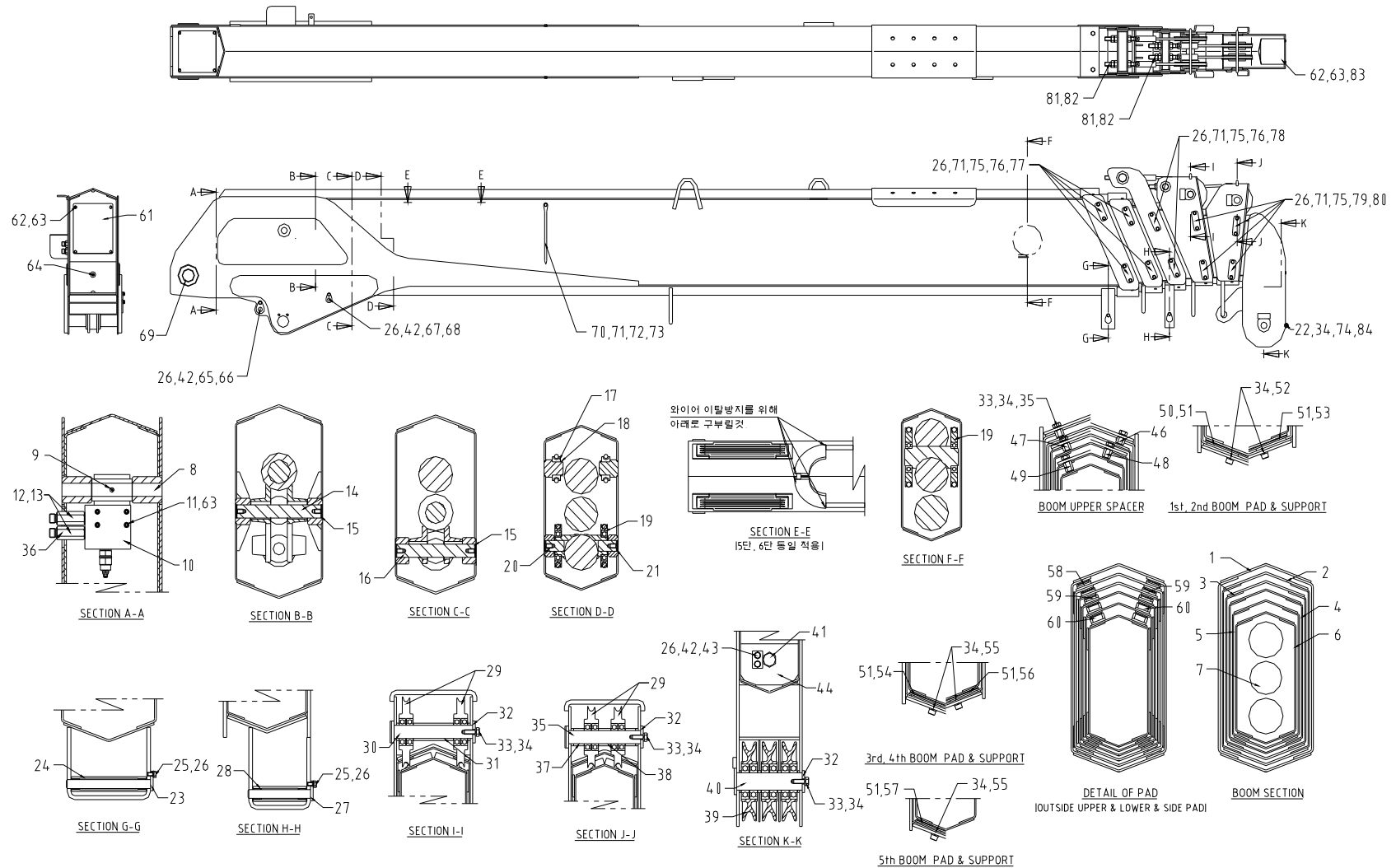
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40	BOO-0035	축 SHAFT	1	Φ40×157L	50	BOO-5052	패드 가이드 GUIDE, PAD	1	
41	BOO-0073	육각 볼트 BOLT, HEX. HEAD	1	M20×220	51	BOO-5055	슬라이드 패드 PAD, SLIDE	10	40×210×6t
42	2110886	육각 볼트 BOLT, HEX. HEAD	28	BA8×20	52	2611186	육각 구멍볼이 볼트 BOLT, HEX. SOCKET HEAD	4	BB10×20
43	N01-0535	플레이트 PLATE	1	25×40×6t	53	BOO-5056	패드 가이드 GUIDE, PAD	1	
44	BOO-0032	와이어 가이드 GUIDE, WIRE	1		54	BOO-5059	패드 가이드 GUIDE, PAD	1	
45	B00-0042	육각 너트 NUT, HEX.	2	t=19.5	55	2611176	육각 구멍볼이 볼트 BOLT, HEX. SOCKET HEAD	6	BB10×18
46	BOO-0043	육각 너트 NUT, HEX.	2	t=17.5	56	BOO-5062	패드 가이드 GUIDE, PAD	1	
47	BOO-0044	육각 너트 NUT, HEX.	2	t=15.5	57	BOO-5065	패드 가이드 GUIDE, PAD	1	
48	BOO-0045	육각 너트 NUT, HEX.	2	t=24	58	BOO-8002	슬라이드 패드 PAD, SLIDE	2	35×220×10t
49	BOO-0046	육각 너트 NUT, HEX.	2	t=23	59	BOO-5037	슬라이드 패드 PAD, SLIDE	4	35×220×9t

SPARE PARTS LIST



붐 시스템 BOOM SYSTEM

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SPARE PARTS LIST



붐 시스템
BOOM SYSTEM

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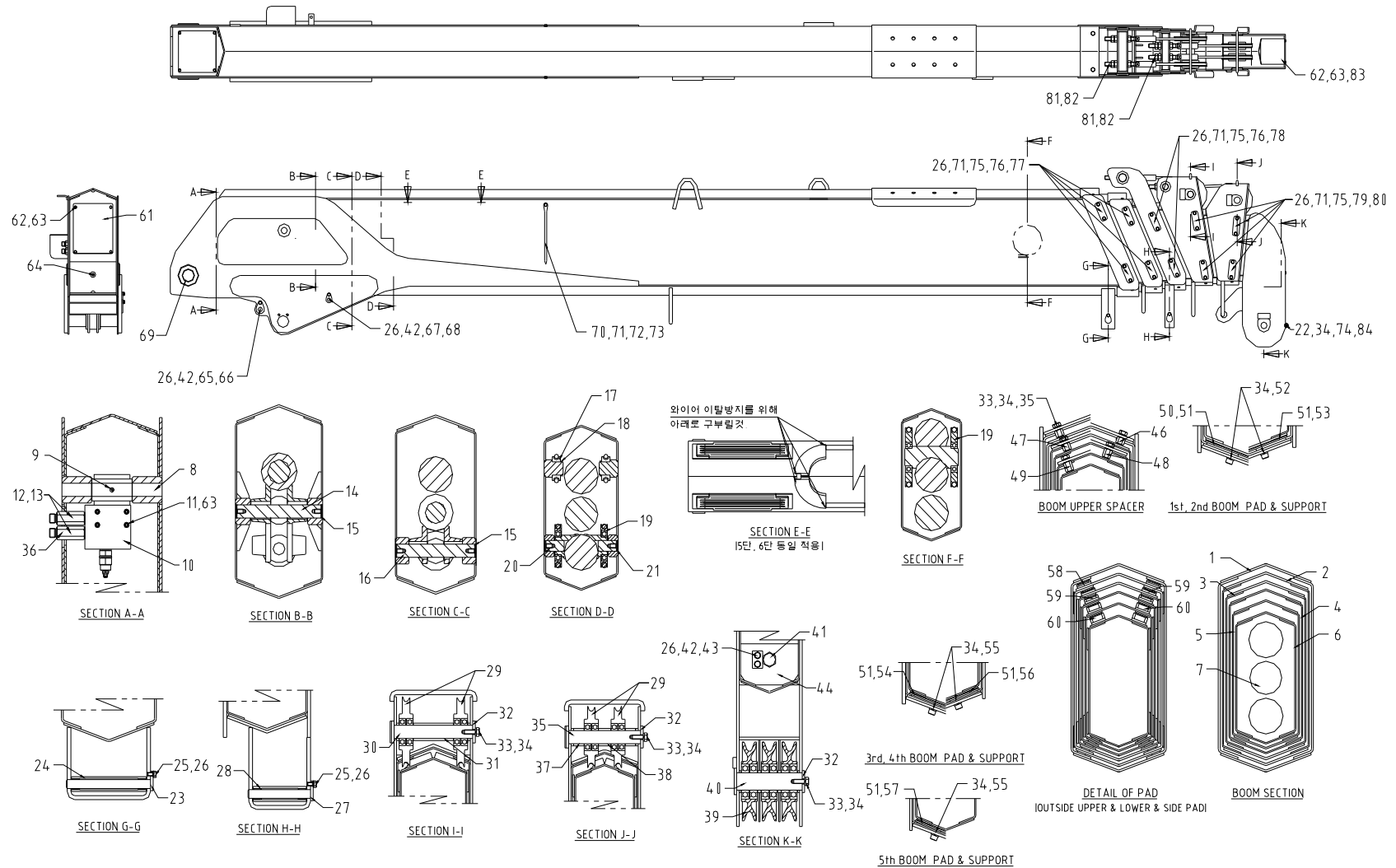
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60	BOO-5041	슬라이드 패드 PAD, SLIDE	4	35×220×18t	70	N01-0590	각도 지시계 INDICATOR, ROD	2	t=4.5
61	BOO-0062	플레이트 PLATE	1	t=2.3	71	2110906	육각 볼트 BOLT, HEX. HEAD	26	BA8×25
62	2110446	육각 볼트 BOLT, HEX. HEAD	8	BA6×16	72	3112086	육각 너트 NUT, HEX.	2	NA8
63	3612061	스프링 와셔 WASHER, SPRING	12	WS6	73	3511081	평 와셔 WASHER, PLAIN	4	WP8
64	4610702	그리스 니플 NIPPLE, GREASE	1	A-PT1/8	74	BOO-5049	파이프 PIPE	1	t=2.3
65	S01-2246	축 SHAFT	1	Φ30×245L	75	N01-3491	플레이트 PLATE	20	32×90×12t
66	A05-1796	롤러 결합체 ROLLER ASS'Y	1	Φ48.6×228L	76	S01-3515	슬라이드 패드 PAD, SIDE	12	19×49×17t
67	BOO-8004	축 SHAFT	1	Φ20×275L	77	BOO-2053	심 SHIM	8	t=1.0
68	BOO-8005	롤러 결합체 ROLLER ASS'Y	1	Φ34×228L	78	BOO-0058	심 SHIM	4	t=2.5
69	4321291	DU 부싱 BUSHING, DU	2	MB6060DU	79	S01-3121	사이드 패드 PAD, SIDE	8	19×49×14t

SPARE PARTS LIST



붐 시스템 BOOM SYSTEM

HIAB190T-6 2 : 1
2013. 09.



SPARE PARTS LIST



붐 시스템
BOOM SYSTEM

HIAB190T-6 2 : 1
2013. 09.

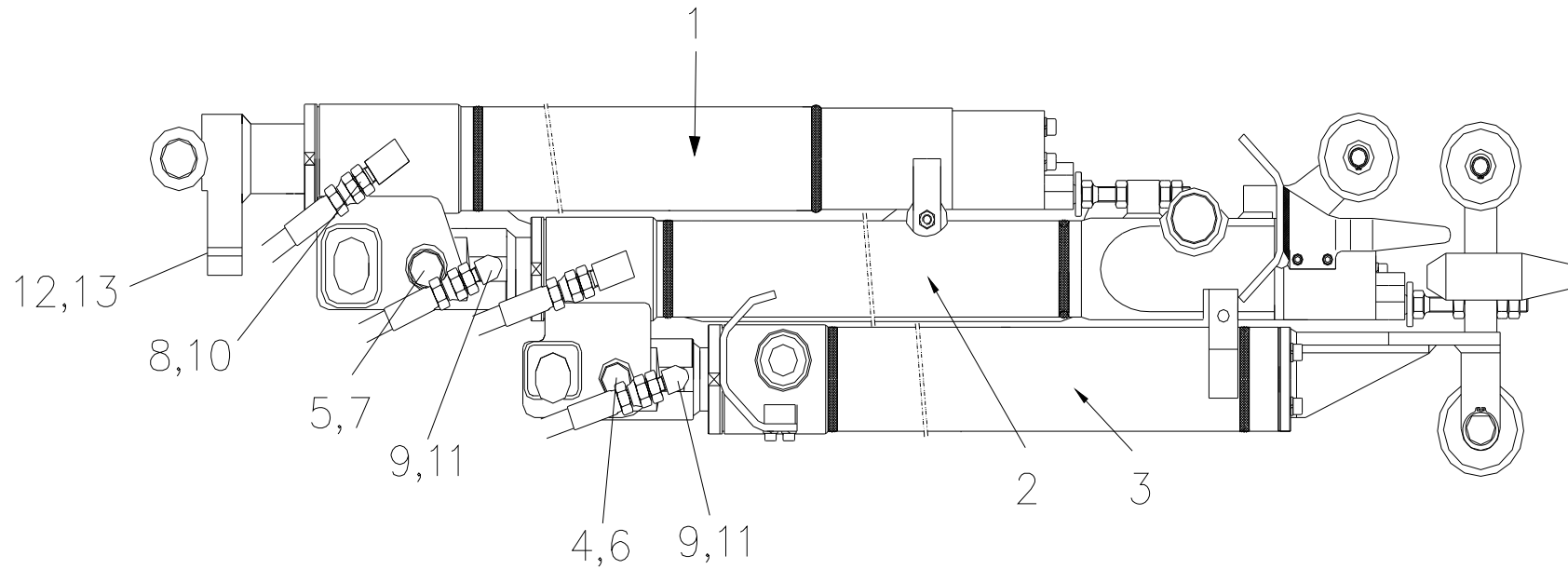
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80	BOO-0059	삼 SHIM	8	t=2.0					
81	3112181	육각 너트 NUT, HEX.	12	NA18					
82	S01-2993	와이어 로프 ROPE, WIRE	2	Φ10×7600L					
83	BOO-2039	커버 COVER	1	t=2.3					
84	BOO-5048	볼트 BOLT	1	M10					

SPARE PARTS LIST



신축 실린더 결합체
EXTENSION CYLINDER ASS'Y

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2011.03.



SPARE PARTS LIST



신축 실린더 결합체
EXTENSION CYLINDER ASS'Y

HIAB190T-6 3:0
2011. 03.

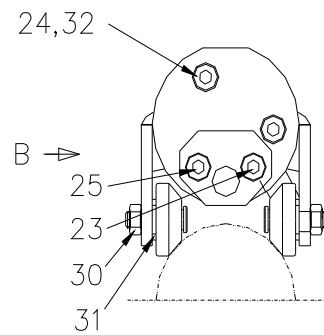
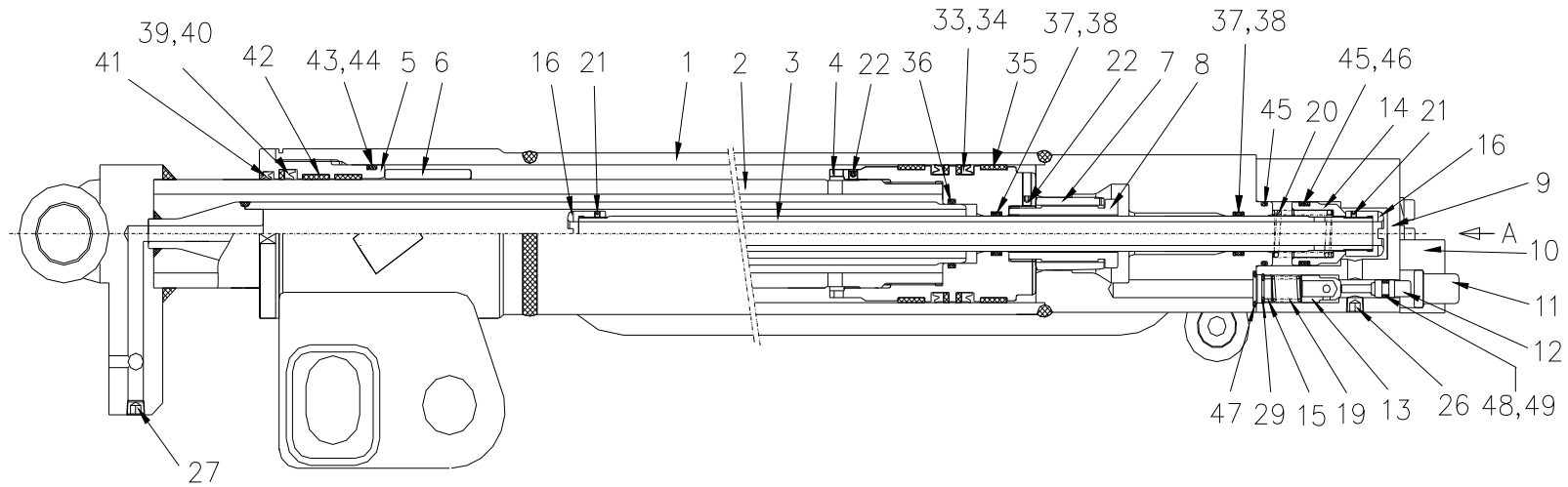
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-	H01-5866	신축 실린더 EXTENSION CYLINDER	1	HN98T0000	10	9211092	아답터 ADAPTER-A	4	ZPC3010-6-6
1	HN03T1A00-02	1단 신축 실린더 1st EXTENSION CYLINDER	1		11		아답터 ADAPTER-B	4	ZPC3020-6-6
2	HN98T2000	2단 신축 실린더 2nd EXTENSION CYLINDER	1		12		더스트 커버 DUST COVER	1	67×85×3T
3	HN98T3000	3단 신축 실린더 3rd EXTENSION CYLINDER	1		13		소켓 볼트 SOCKET BOLT	2	M6×P1.0×10L
4	SS25T0010	핀 PIN-A	1	Φ25×73L	14		케이블 TI CABLE	2	
5	SS33T0010	핀 PIN-B	1	Φ30×73L					
6	4510251	스냅링 SNAP RING	2	R25					
7	4510291	스냅링 SNAP RING	2	R30					
8	7116563	유압 호스 HOSE, HYDRAULIC	2	PF3/8×PF3/8-390L					
9	7116573	유압 호스 HOSE, HYDRAULIC	2	PF3/8×PF38-420L					

SPARE PARTS LIST

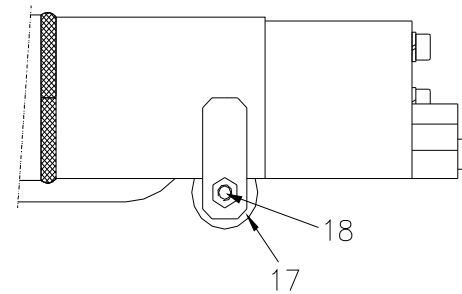


1단 신축 실린더 결합체
1st EXTENSION CYLINDER ASS'Y

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2011. 03.



VIEW A



VIEW B

SPARE PARTS LIST



1단 신축 실린더 결합체
1st EXTENSION CYLINDER ASS'Y

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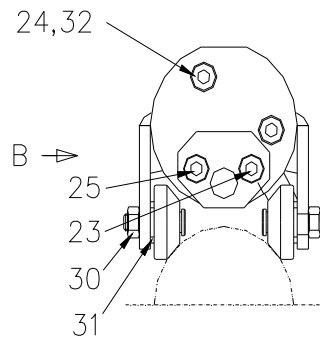
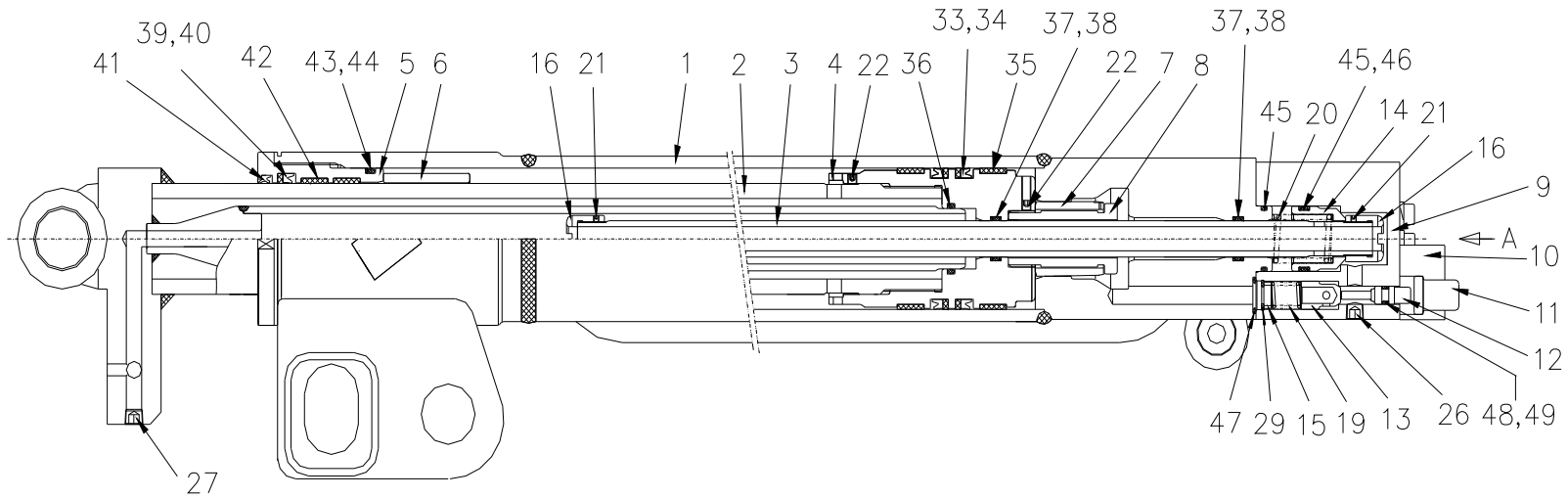
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-	H01-1429-1	1단 신축 실린더 결합체 1st EXTENSION CYLINDER ASS'Y	1		10	SS33T10A1	브라켓-A BRACKET-A	1	
1	HN03T1010	튜브 결합체 TUBE ASS'Y	1		11	SS33T10A2	스풀 가이드 SPOOL GUIDE	1	
2	HN03T1020	로드 결합체 ROD ASS'Y	1		12	SS33T10A3	스풀 SPOOL	1	
3	HN03T1030	리트랙터 RETRACTOR	1		13	SS33T10A4	밸브-A VALVE-A	1	
4	SH15T1040	피스톤 PISTON	1		14	SS33T10A5	밸브-B VALVE-B	1	
5	SS33T1050	로드 커버 ROD COVER	1		15	SS33T10A6	와셔-A WASHER-A	1	
6	KL08T1040	스페이서 SPACER	1		16	HN01T1060	멈춤 너트 STOP NUT	2	
7	SS33T1070	쿠션 링 CUSHION RING	1		17	KL08T10P1	롤러 패드 ROLLER PAD	2	Φ36×14W
8	SS33T1080	쿠션 가이드 CUSHION GUIDE	1		18	KL08T1070	롤러 축 ROLLER SHAFT	2	Φ13×33.5L
9	SH16T1090	밸브 바디 VALVE BODY	1		19	SS33T10S1	스프링-A SPRING-A	1	

SPARE PARTS LIST

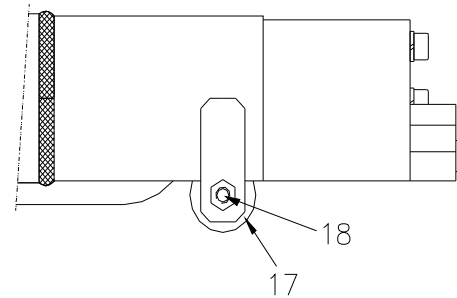


1단 신축 실린더 결합체
1st EXTENSION CYLINDER ASS'Y

HIAB190T-6 4:0
2011. 03.



VIEW A



VIEW B

SPARE PARTS LIST



1단 신축 실린더 결합체
1st EXTENSION CYLINDER ASS'Y

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2011. 03.

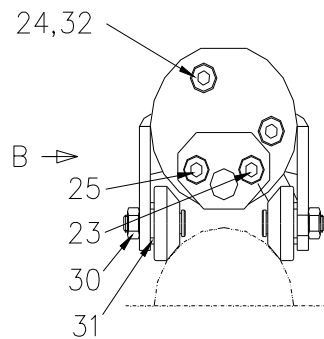
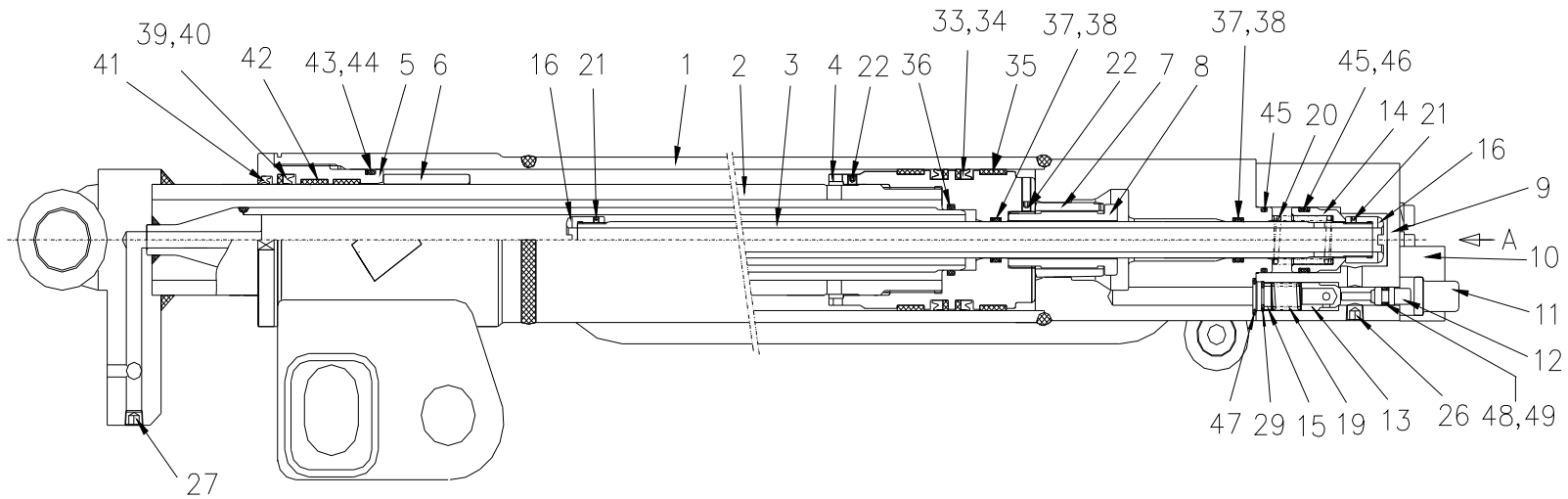
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20	SS33T10S2	스프링-B SPRING-B	1		30	3112086	육각 너트 NUT, HEX.	2	NA8
21	2350336	멈춤 나사 SCREW, SET	2	BV5×5	31	3511101	평 와셔 WASHER, PLAIN	2	WP10
22	2350446	멈춤 나사 SCREW, SET	2	BV6×6	32	3612081	스프링 와셔 WASHER, SPRING	2	WS8
23	2610937	육각 구멍볼이 볼트 BOLT, HEX. SOCKET HEAD	1	BB8×35	33	6510161	피스톤 패킹 PACKING, PISTON	2	OSI 70×60×6
24	2611067	육각 구멍볼이 볼트 BOLT, HEX. SOCKET HEAD	2	BB8×100	34	6037141	백업 링 RING, BACK UP	2	60×70×3
25	2611087	육각 구멍볼이 볼트 BOLT, HEX. SOCKET HEAD	1	BB8×110	35	S01-0641	웨어 링 RING, WEAR	2	65×70×15
26	S01-0493	플러그 PLUG	2	PT1/8×7L	36	6012262	오 링 O-RING	1	1B G30
27	S01-0398	플러그 PLUG	3	PT1/4×9L	37	6010212	오 링 O-RING	2	1B P18
28	BOO-0002-1-23	베어링 BEARING	2	#6900ZZ	38	6034191	백업 링 RING, BACK UP	4	18×22×1.25
29	4525151	멈춤 나사 SCREW, SET	1	RB14	39	6513691	로드 패킹 PACKING, ROD	1	ISI 55×65×6

SPARE PARTS LIST

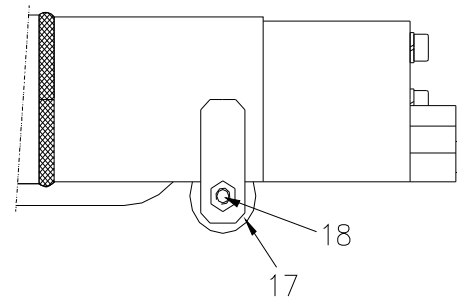


1단 신축 실린더 결합체
1st EXTENSION CYLINDER ASS'Y

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VIEW A



VIEW B

SPARE PARTS LIST



1단 신축 실린더 결합체
1st EXTENSION CYLINDER ASS'Y

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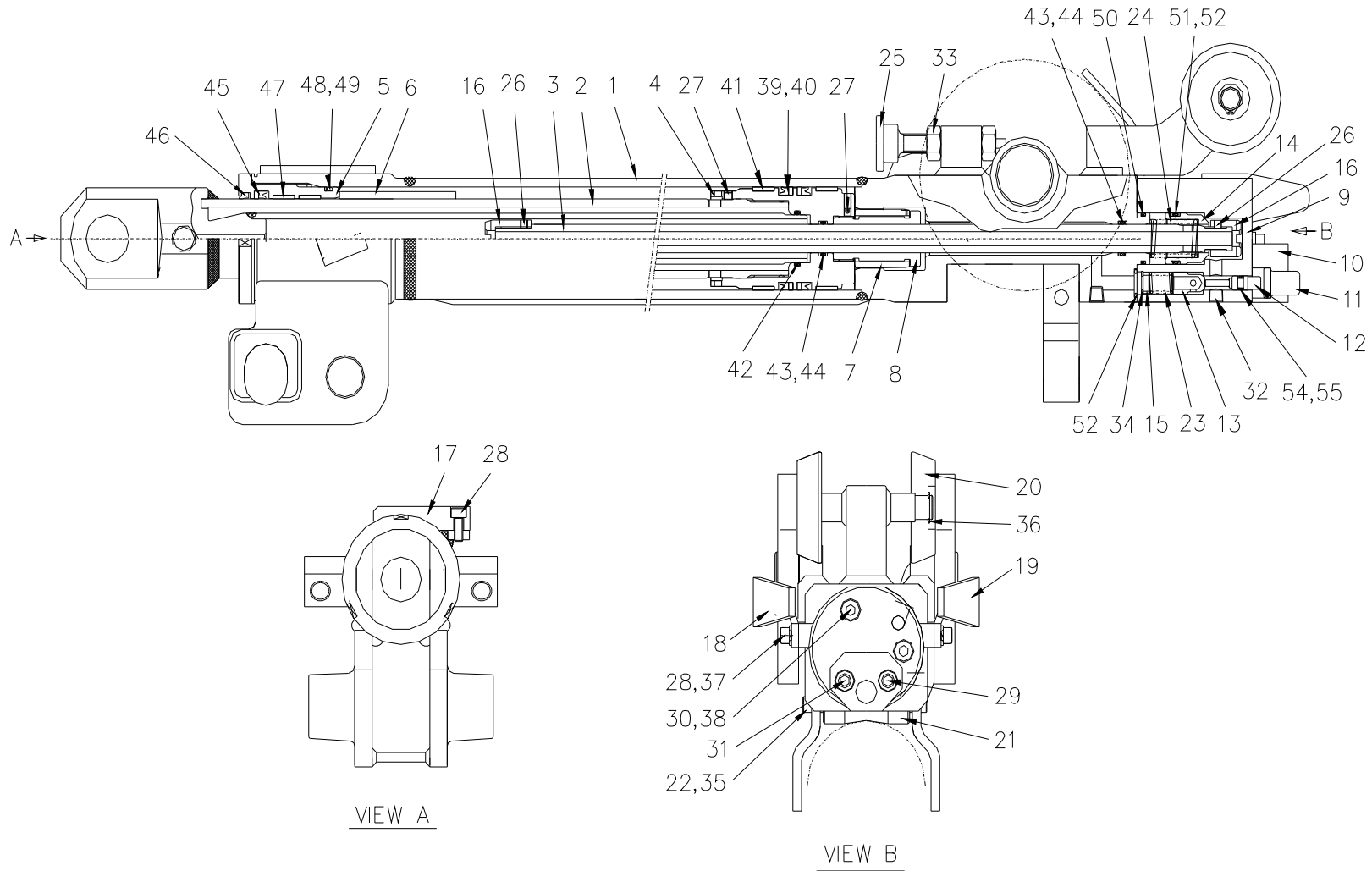
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40	6037071	백업 링 RING, BACK UP	1	55×65×3					
41	6115651	더스트 시일 SEAL, DUST	1	KDD 55×63×5×6.5	-	S01-0917	시일 세트 SEAL SET	1	
42	S01-0872	웨어 링 RING, WEAR	2	55×60×3					
43	6012332	오 링 O-RING	1	1B G65					
44	6035281	백업 링 RING, BACK UP	1	65×7×1.25					
45	S01-0907	오 링 O-RING	2	JASO#2028					
46	S01-0908	백업 링 RING, BACK UP	2	28×33×1.25					
47	6010172	오 링 O-RING	2	1B P14					
48	S01-0906	오 링 O-RING	1	4D P6					
49	6032061	백업 링 RING, BACK UP	1	6×9×1.25					

SPARE PARTS LIST



2단 신축 실린더
2nd EXTENSION CYLINDER

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SPARE PARTS LIST



2단 신축 실린더
2nd EXTENSION CYLINDER

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2011. 03.

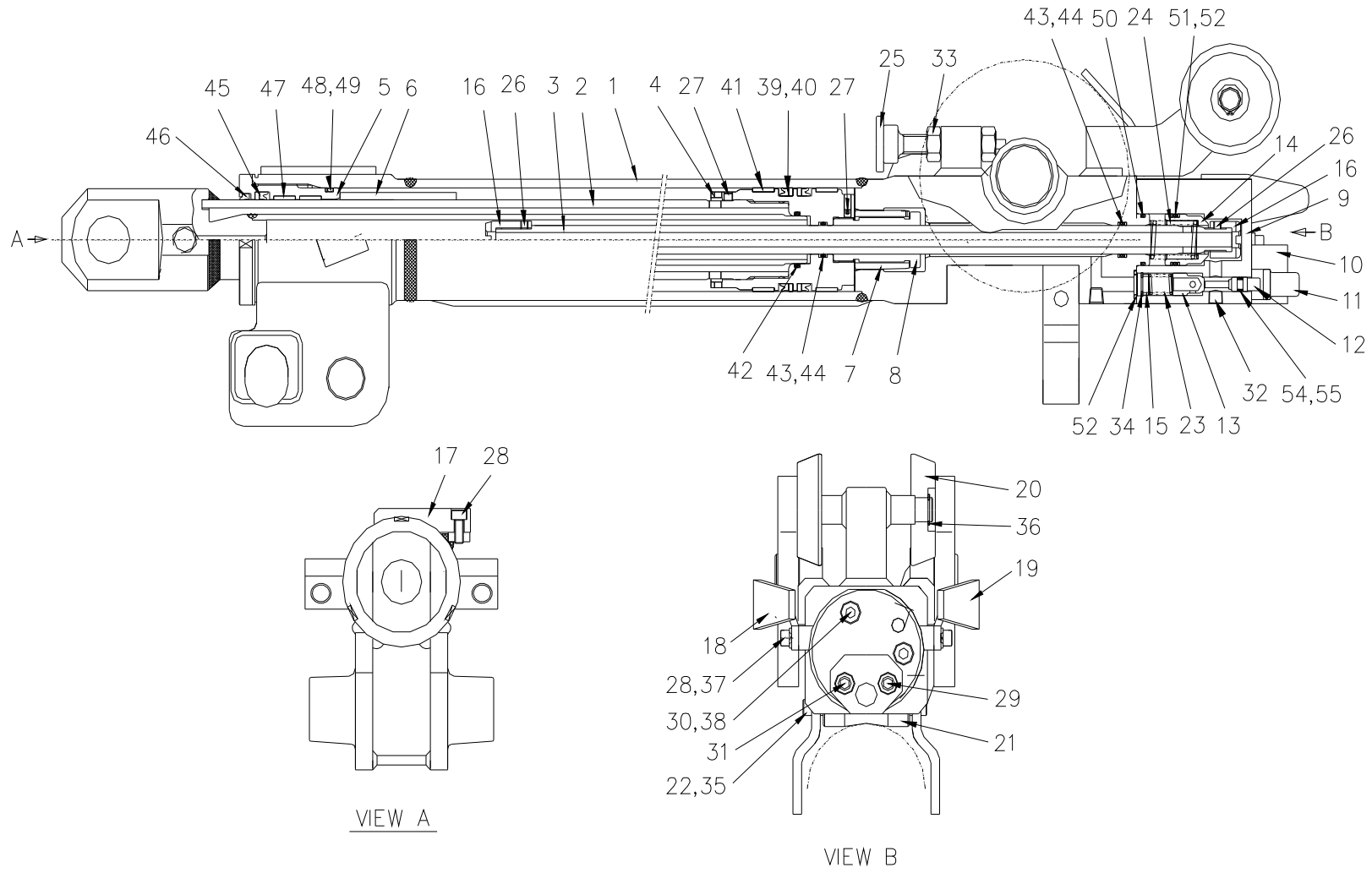
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-	H01-5867	2단 신축 실린더 2nd EXTENSION CYLINDER	1	HN98T2000	10	SS33T10A1	브라켓 BRACKET - A	1	
1	HN98T2010	튜브 결합체 TUBE ASSY	1		11	SS33T10A2	스풀 가이드 SPOOL GUIDE	1	
2	HN03T2020	로드 결합체 ROD ASSY	1		12	SS33T10A3	스풀 SPOOL	1	
3	HN03T2A30	리트랙터 RETRACTOR	1		13	SS33T10A4	밸브 VALVE - A	1	
4	SH18T1040	피스톤 PISTON	1		14	SS33T10A5	밸브 VALVE - B	1	
5	SH46T2040	로드 커버 ROD COVER	1		15	SS33T10A6	와셔 WASHER - A	1	
6	KL08T2040	스페이서 SPACER	1		16	HN01T1060	멈춤 너트 STOP NUT	2	
7	SS33T2070	쿠션 링 CUSHION RING	1		17	KL08T2070	패드 PAD	1	
8	SS33T1080	쿠션 가이드 CUSHION GUIDE	1		18	HN98T2060	브라켓 결합체 - R BRACKET ASS'Y - R	1	
9	SS33T1090	밸브 바디 VALVE BODY	1		19	HN98T2060	브라켓 결합체 - L BRACKET ASS'Y - L	1	

SPARE PARTS LIST



2단 신축 실린더
2nd EXTENSION CYLINDER

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SPARE PARTS LIST



2단 신축 실린더
2nd EXTENSION CYLINDER

HIAB190T-6 5 : 0
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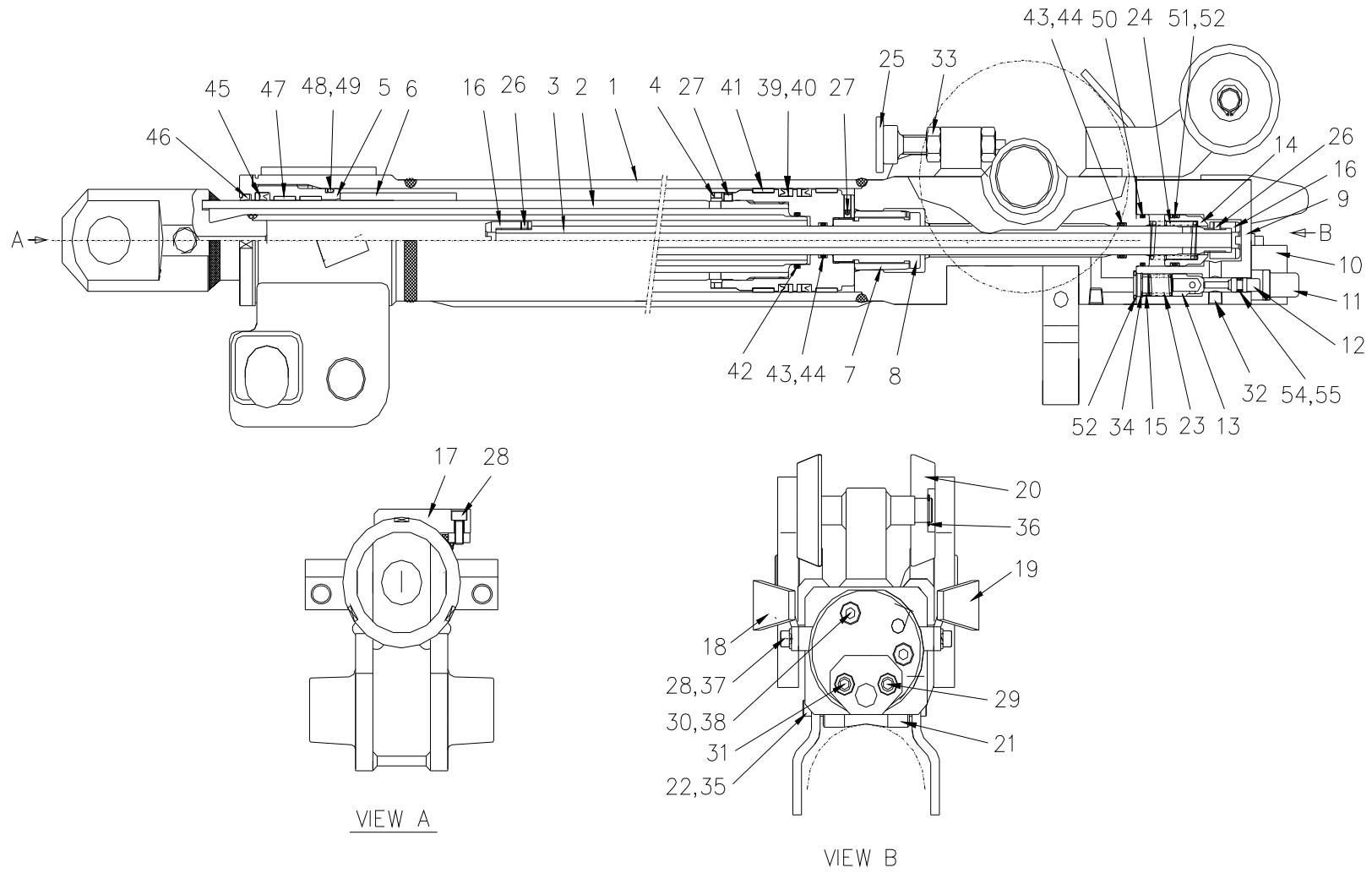
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20	HN21T2A60	가이드 롤러 GUIDE ROLLER	2		30		소켓 볼트 SOCKET BOLT	2	M8×P1.25×100L *
21	KL08T20P2	롤러 패드 ROLLER PAD	1		31		소켓 볼트 SOCKET BOLT	1	M8×P1.25×110L *
22	KL05ET190	롤러 샤프트 ROLLER SHAFT	1		32		플러그 PLUG	2	PT1/8×7L *
23	SS33T10S1	스프링 SPRING - A	1		33		너트 NUT	3	M12×P1.75×10H *
24	SS33T10S2	스프링 SPRING - B	1		34		스냅 링 SNAP RING	1	Φ14 *
25	SS33T20B1-01	체크 볼트 CHECK BOLT	1	M12×P1.75×85 *	35		분할 핀 PIN, SPLIT	1	Φ3.2×25L *
26		멈춤 나사 SCREW, SET	2	M3×P0.5×3L *	36		스냅 링 SNAP RING	2	Φ15 *
27		멈춤 나사 SCREW, SET	2	M6×P1.0×6L *	37		스프링 와셔 WASHER, SPRING	4	M5 *
28		소켓 볼트 SOCKET BOLT	6	M6×P1.0×15L *	38		스프링 와셔 WASHER, SPRING	2	M8 *
29		소켓 볼트 SOCKET BOLT	1	M8×P1.25×35L *	39		피스톤 패킹 PACKING, PISTON	2	OSI 65 *

SPARE PARTS LIST



2단 신축 실린더
2nd EXTENSION CYLINDER

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2011.03.



SPARE PARTS LIST



2단 신축 실린더
2nd EXTENSION CYLINDER

HIAB190T-6 5 : 0
2011. 03.

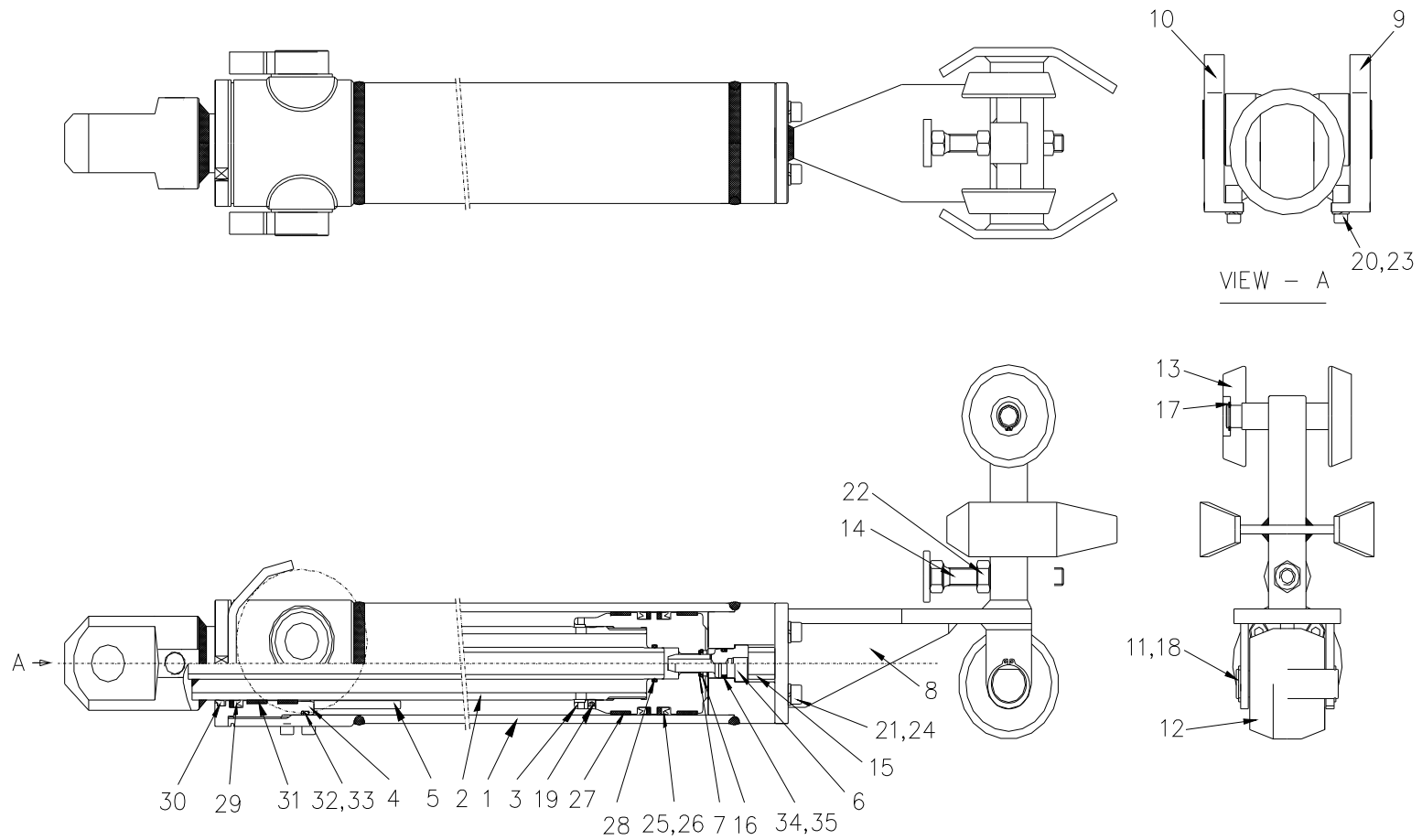
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40		백업 링 RING, BACK-UP	2	Φ65×Φ55×t3.0 *	50		O-링 O-RING	2	Φ28×Φ33 *
41		웨어 링 RING, WEAR	2	Φ65×Φ60×15w *	51		백업 링 RING, BACK-UP	2	Φ28×Φ33 *
42		O-링 O-RING	1	1B G30 *	52		O-링 O-RING	2	1B P14 *
43		O-링 O-RING	2	1B P18 *	53		O-링 O-RING	1	1AP 6 *
44		백업 링 RING, BACK-UP	4	(T-3) P12 *	54		백업 링 RING, BACK-UP	1	(T-3) P6 *
45		로드 패킹 PACKING, ROD	1	NI-300 Φ50× Φ60×10W *					
46		더스트 시일 SEAL, DUST	1	KDD 50 *					
47		웨어 링 RING, WEAR	2	Φ50×Φ55×15w *	-	S01-4999	시일 세트 SEAL SET	1	
48		O-링 O-RING	1	1BG 60 *					
49		백업 링 RING, BACK-UP	1	(T-3) G60 *					

SPARE PARTS LIST



3단 신축 실린더
3rd EXTENSION CYLINDER

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SPARE PARTS LIST



3단 신축 실린더
3rd EXTENSION CYLINDER

HIAB190T-6 6 : 0
2011. 03.

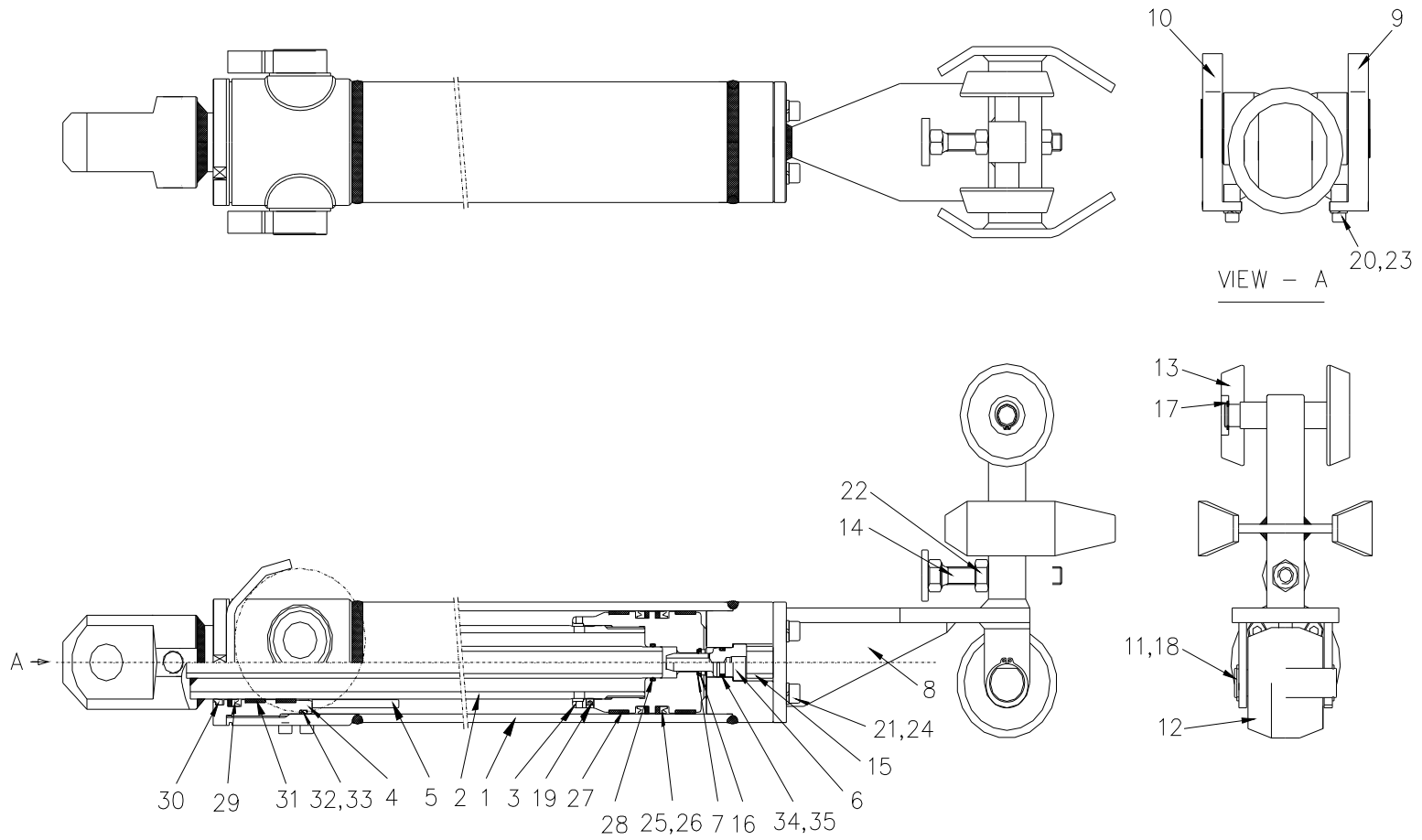
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-	H01-5868	3단 신축 실린더 3rd EXTENSION CYLINDER	1	HN98T3000	10	HN98T3080	브라켓 - L BRACKET - L	1	
1	HN98T3010	튜브 결합체 TUBE ASSY	1		11	SH39T2060	롤러 샤프트 SHAFT, ROLLER	1	Φ20×79L
2	HN03T3020	로드 결합체 ROD ASSY	1		12	SH09T2040	가이드 롤러 ROLLER, GUIDE	1	Φ75×56L
3	KL07T3030-10	피스톤 PISTON	1		13	SH17T2040	가이드 롤러 ROLLER, GUIDE	2	Φ70×17L
4	SH46T3040	로드 커버 ROD COVER	1		14	SS33T20B1-01	체크 볼트 BOLT, CHECK	1	
5	SH15T3050	스페이서 SPACER	1		15	SH16T3070	스페이서 - B SPACER - B	1	Φ15.3×Φ21.7×20
6	SS25T2050	쿠션 CUSHION	1		16		멈춤 링 STOP RING	1	AR18 *
7	SS25T2060	쿠션 링 CUSHION RING	1		17		스냅 링 SNAP RING	2	Φ15 *
8	HN03T3A10	브라켓 BRACKET ASS'Y	1		18		스냅 링 SNAP RING	2	Φ20 *
9	HN98T3070	브라켓 -R BRACKET - R	1		19		멈춤 나사 SCREW, SET	1	M5×P1.0×6L *

SPARE PARTS LIST



3단 신축 실린더
3rd EXTENSION CYLINDER

HIAB190T-6 6:0
2011. 03.



SPARE PARTS LIST



3단 신축 실린더
3rd EXTENSION CYLINDER

HIAB190T-6 6 : 0
2011. 03.

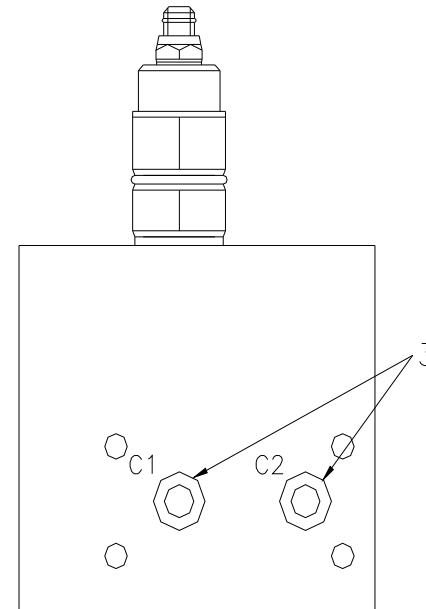
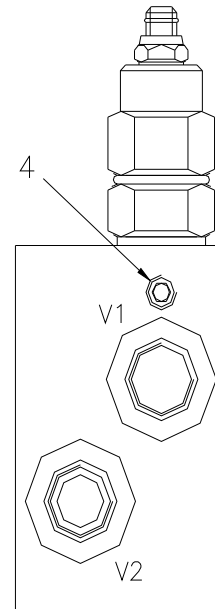
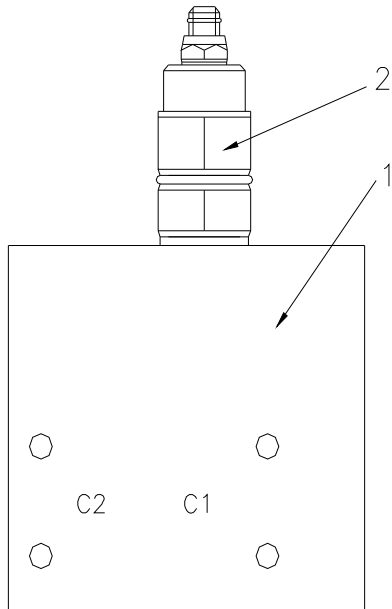
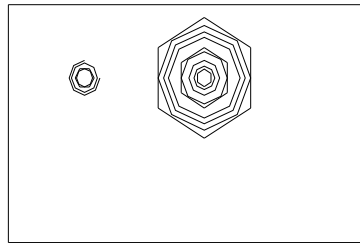
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20		소켓 볼트 SOCKET BOLT	4	M6×P1.0×15L *	30		더스트 시일 SEAL, DUST	1	KDD 50 *
21		소켓 볼트 SOCKET BOLT	4	M8×P1.25×30L *	31		웨어 링 RING, WEAR	2	Φ50×Φ55×15w *
22		너트 NUT	3	M12×P1.75×10H *	32		오 링 O-RING	1	1B G65 *
23		스프링 와셔 WASHER, SPRING	4	M6 *	33		백업 링 RING, BACK-UP	1	(T-3) G65 *
24		스프링 와셔 WASHER, SPRING	4	M8 *	34		오 링 O-RING	1	1B P16 *
25		피스톤 패킹 PACKING, PISTON	2	OSI 70 *	35		백업 링 RING, BACK-UP	1	(T-2) P16 *
26		백업 링 RING, BACK-UP	2	Φ60×Φ70×t3.0 *					
27		웨어 링 RING, WEAR	2	Φ70×Φ65×15w *					
28		오 링 O-RING	2	1B P20 *	-	S01-2129	시일 세트 SEAL SET	1	
29		로드 패킹 PACKING, ROD	1	NI-300 50×60×10W *					

SPARE PARTS LIST



카운터 밸런스 밸브
VALVE, COUNTER BALANCE (S)

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카운터 밸런스 밸브
VALVE, COUNTER BALANCE (S)

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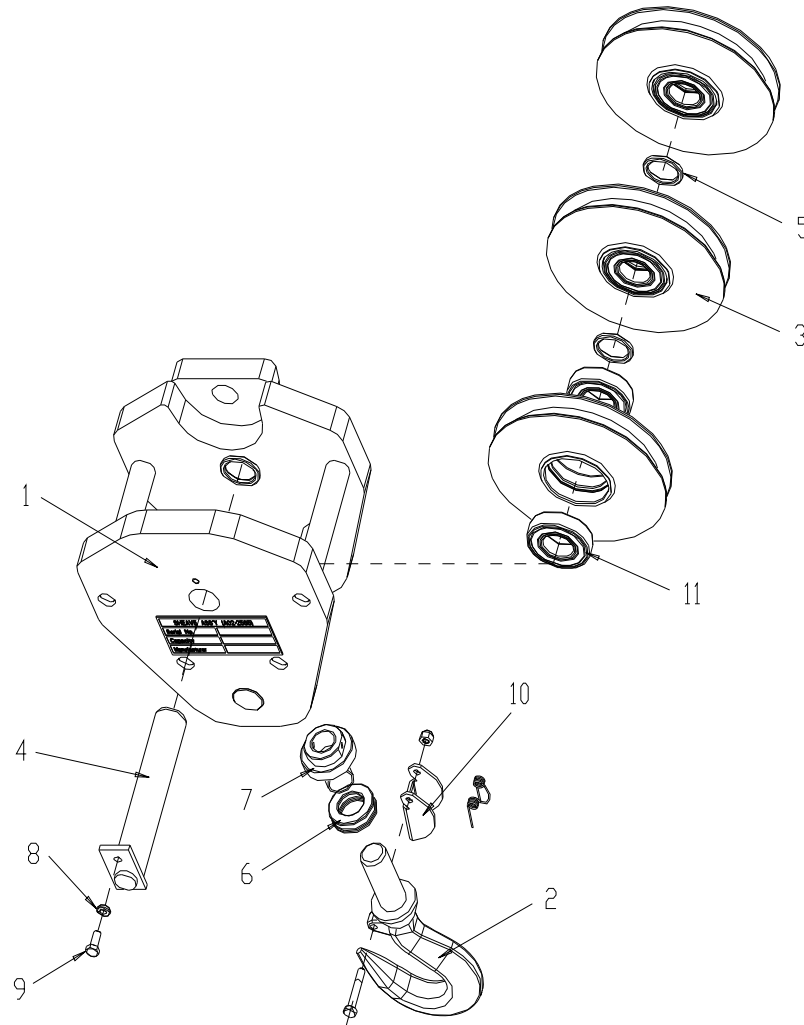
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-	H02-0201	카운터 밸런스 밸브 VALVE, COUNTER BALANCE	1	9706-04D-P09					
1	2-A2141-01-0	바디 BODY	1						
2	H02-0198	카운터 밸런스 밸브 COUNTER, BALANCE VALVE	1	9706-04D-P09					
3	6010142	오링 O-RING	2	1B P12					
4	S01-0493	렌치 플러그 PLUG, WRENCH	2	PT1/8					

SPARE PARTS LIST



쉬브 결합체
SHEAVE ASS'Y

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쉬브 결합체
SHEAVE ASS'Y

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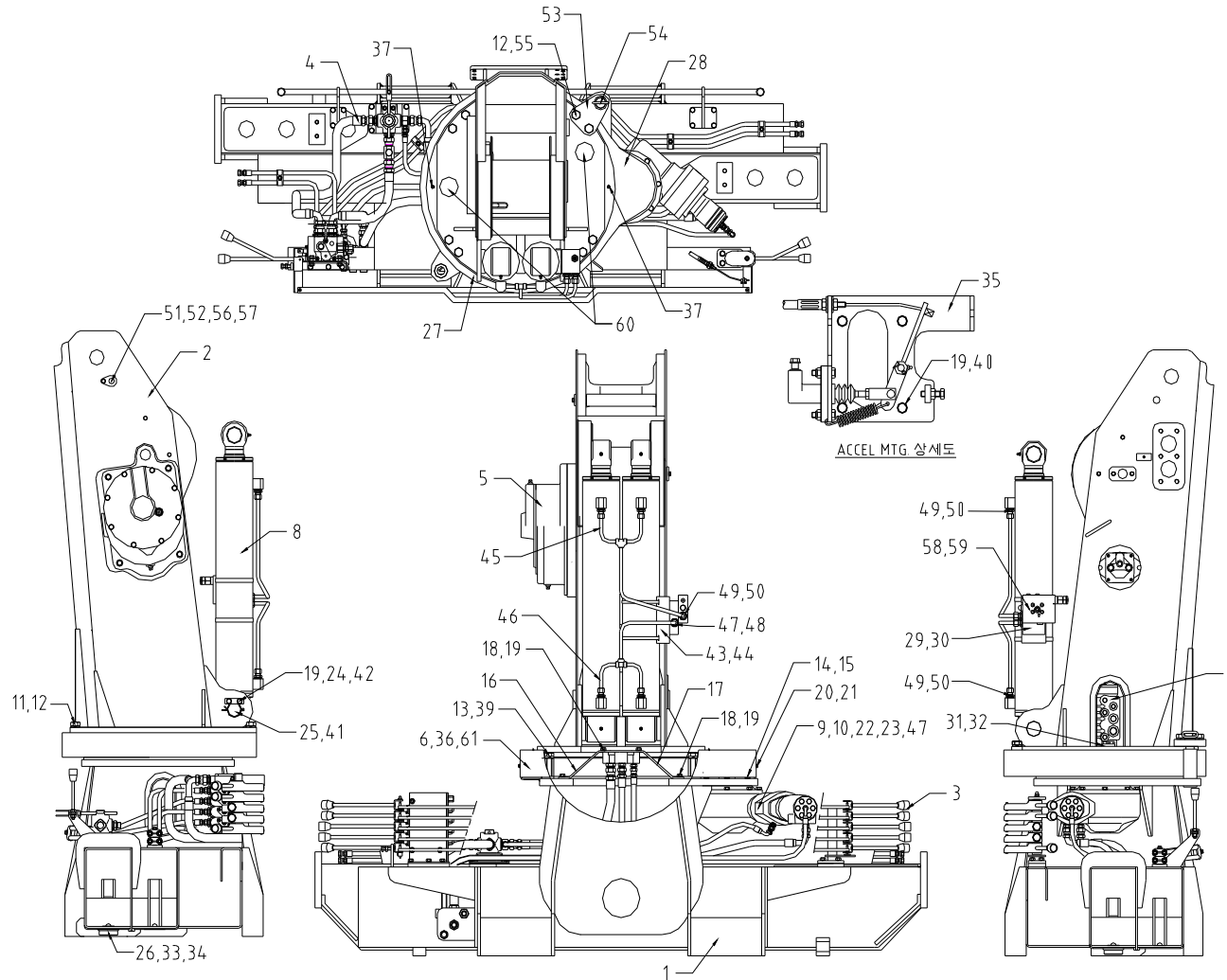
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-	A02-2565	쉬브 결합체 SHEAVE ASS'Y	1		10	S01-1596	아전 클립 결합체 CLIP ASS'Y, SAFETY	1	
1	HK-1002	바디 BODY	1		11	4112074	베어링 RADIAL BALL BEARING	2	B 6207ZZ
2	M01-1780	후크 HOOK	1						
3	HK-0006	쉬브 SHEAVE	3						
4	HK-0008	축 SHAFT	1						
5	HK-0010	스페이서 SPACER	4						
6	4211060	스러스트 볼 베어링 BEARING, THRUST BALL	1	#51206					
7	HK-0015	록 너트 NUT, LOCK	1	M30×P3.0					
8	3612081	스프링 와셔 WASHER, SPRING	1	WS8					
9	2110887	육각 볼트 BOLT, HEX. HEAD	1	BA8×20					

SPARE PARTS LIST



베이스 및 칼럼 결합체
BASE & COLUMN ASS'Y

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베이스 및 칼럼 결합체
BASE & COLUMN ASS'Y

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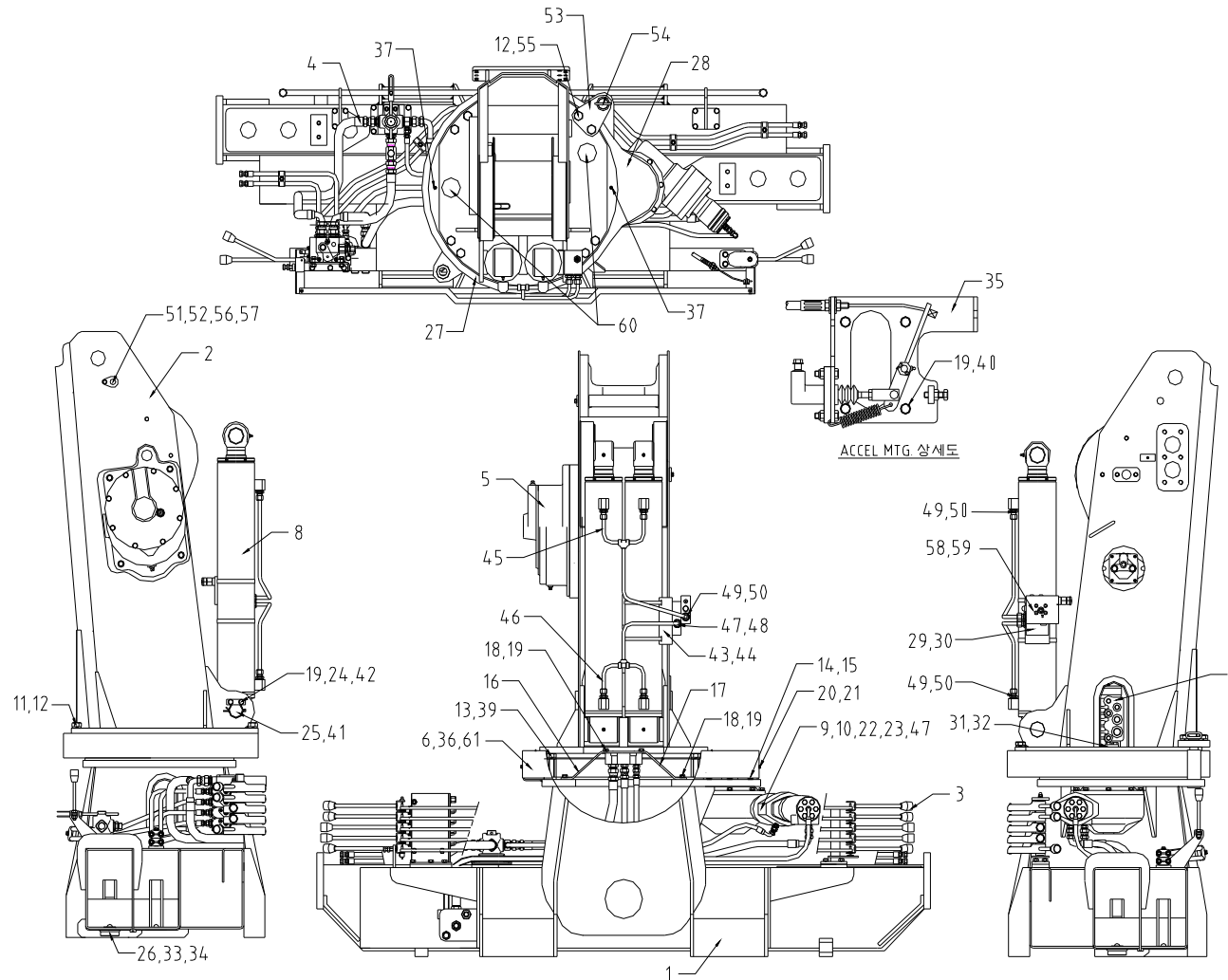
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-	A01-2889	베이스 및 칼럼 결합체 BASE & COLUMN ASSY	1		10	H02-0200	선회 모터 MOTOR, SLEWING	1	OMP100 C
1	A02-3315	베이스 결합체 BASE ASSY	1		11	S01-1306	육각 볼트 BOLT, HEX. HEAD	13	BA20×60
2	A02-3480	칼럼 결합체 COLUMN ASSY	1		12	3612201	스프링 와셔 WASHER, SPRING	30	WS20
3	A02-3400	제어 장치 CONTROL SYSTEM	1		13	S01-1287	육각 볼트 BOLT, HEX. HEAD	8	BA20×110
4	A02-3401	베이스 배관도 BASE HOSE ASSY	1		14	2112157	육각 볼트 BOLT, HEX. HEAD	7	BA16×45
5	WC-4001	원치 장치 WINCH SYSTEM	1		15	3612161	스프링 와셔 WASHER, SPRING	7	WS16
6	BC2-0002	선회 베어링 BEARING, SLEWING	1		16	W01-3737	브라켓 BRACKER	1	t6
7	A02-1740	로타리 조인트 결합체 ROTARY JOINT ASSY	1		17	W01-3738	브라켓 BRACKER	1	t6
8	H01-5001	데릭 실린더 DERRICK CYLINDER	2		18	2111226	육각 볼트 BOLT, HEX. HEAD	8	BA10×30
9	BC1-0003	선회 감속기 REDUCER, SLEWING	1		19	3612101	스프링 와셔 WASHER, SPRING	14	WS10

SPARE PARTS LIST



베이스 및 칼럼 결합체
BASE & COLUMN ASS'Y

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베이스 및 칼럼 결합체
BASE & COLUMN ASS'Y

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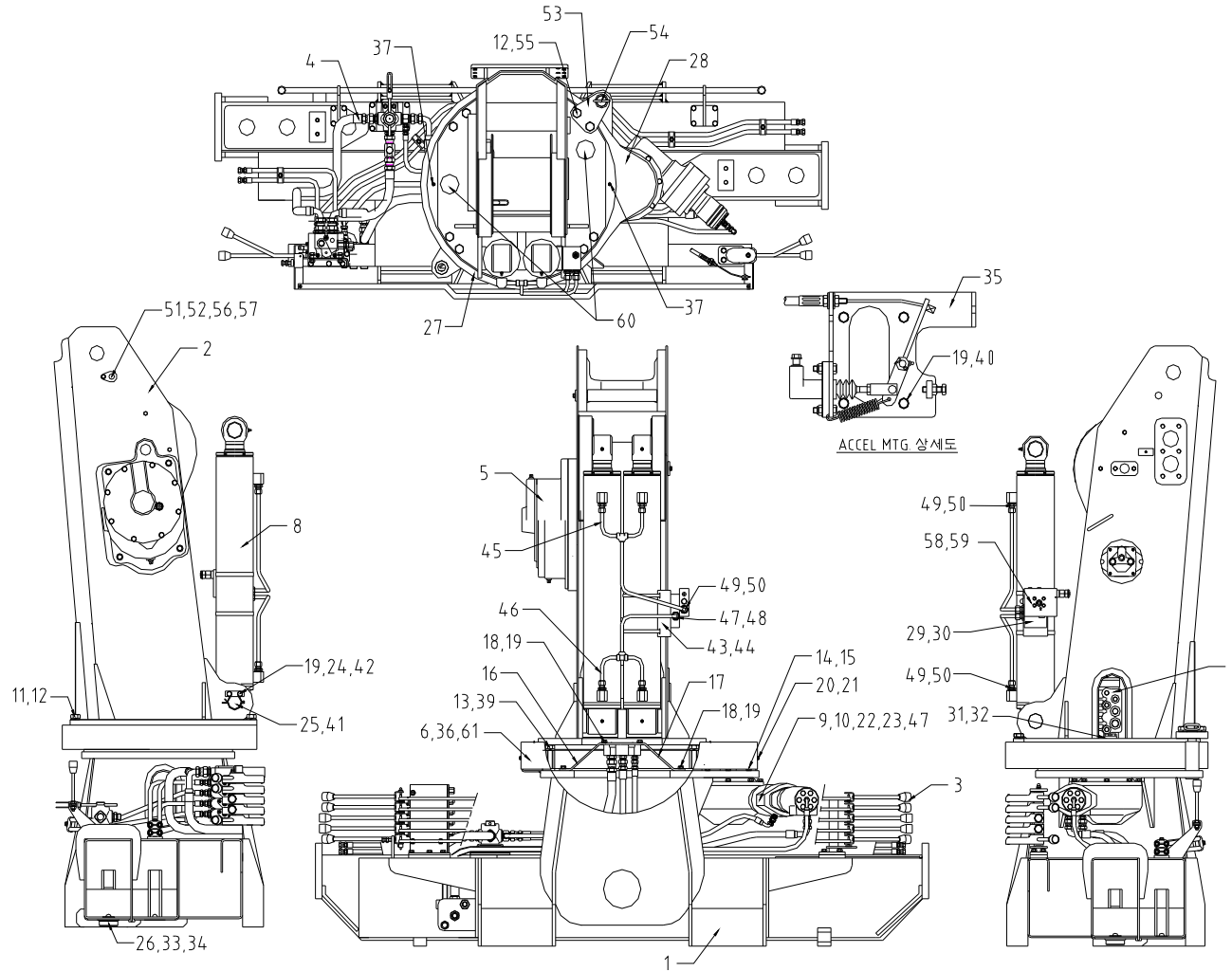
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20	2110447	육각 볼트 BOLT, HEX. HEAD	6	BA6×12	30	2610926	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	2	BB8×30
21	3612061	스프링 와셔 WASHER, SPRING	6	WS6	31	M05-2435	브라켓 BRACKET	1	t=12
22	2111537	육각 볼트 BOLT, HEX. HEAD	2	BA12×35	32	BO-0005	접시 머리 볼트 BOLT, FLAT HEAD	3	M10×35
23	3612121	스프링 와셔 WASHER, SPRING	2	WS12	33	OR-0062	조절 볼트 BOLT, ADJUST	2	M52×P3.0
24	2111196	육각 볼트 BOLT, HEX. HEAD	2	BA10×22	34	OR-0063	조절 패드 PAD, ADJUST	2	
25	BC2-0004	축 SHAFT	1	Φ55×348	35	BC1-8002	악셀 마운팅 ACCEL MTG. ASSY	1	
26	2340576	스크루 세트 SCREW SET (STICK END)	2	BM8×12	36	3113206	육각 너트 NUT, HEX.	2	NA20
27	A05-1825	커버 COVER (L.H)	1		37	4620702	그리스 니플 NIPPLE, GREASE	2	B-PT1/8
28	A05-1827	커버 COVER (R.H)	1		38	S01-0469	가스켓 GASKET	1	t=3.2
29	M01-1482	블록 BLOCK	1	CAEG-LJN	39	S01-1286	육각 볼트 BOLT, HEX. HEAD	10	BA20×100

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베이스 및 칼럼 결합체
BASE & COLUMN ASS'Y

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베이스 및 칼럼 결합체
BASE & COLUMN ASS'Y

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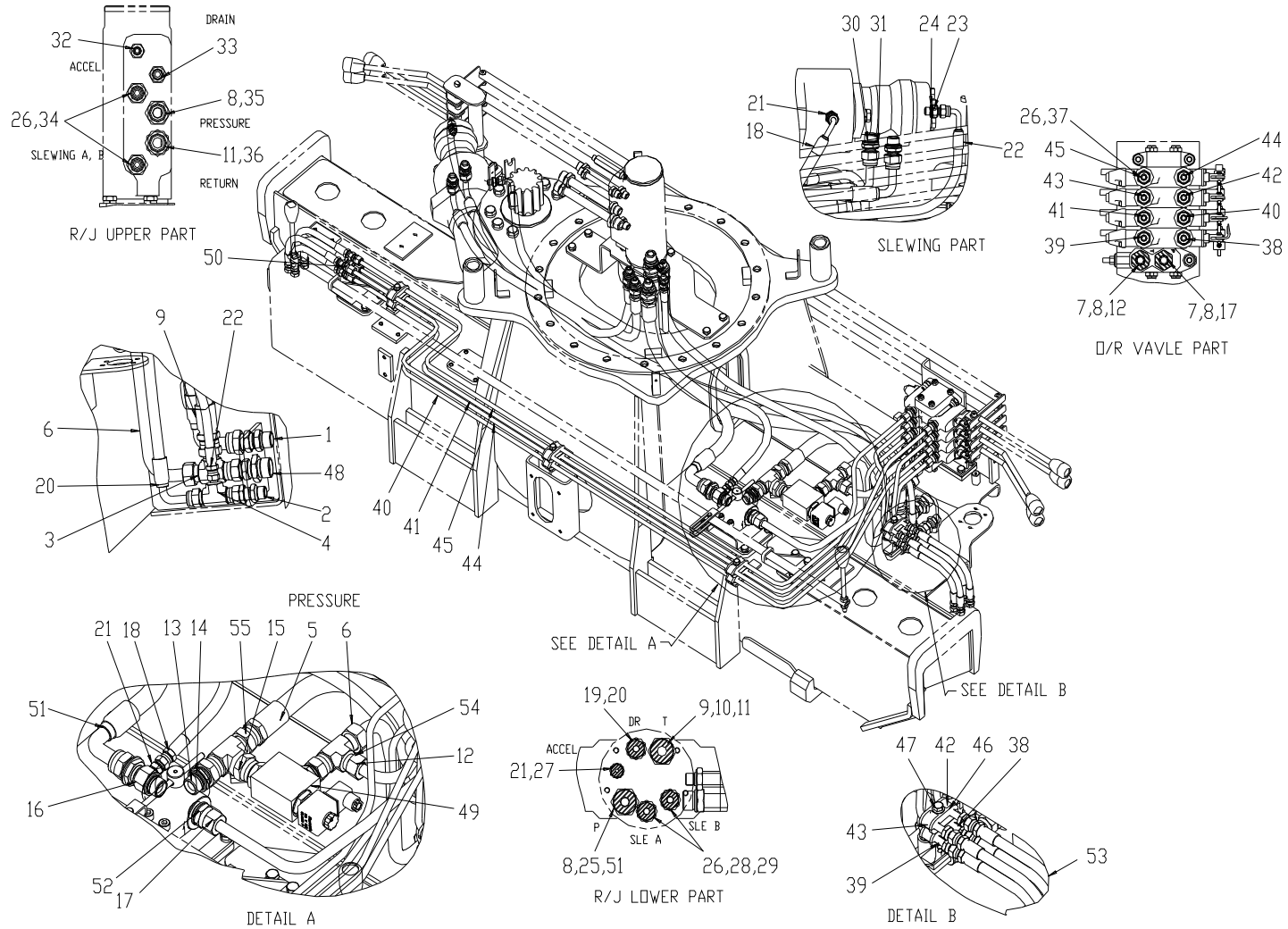
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40	2111166	육각 볼트 BOLT, HEX. HEAD	4	BA10×16	51	2110886	육각 볼트 BOLT, HEX. HEAD	1	BA8×20
41	1311941	분할 핀 PIN, SPLIT	1	PW10×100	52	3612081	스프링와셔 WASHER, SPRING	1	WS8
42	BC2-0005	플레이트 PLATE	1	t=9	53	W01-0856	플레이트 PLATE	1	t=25
43	BC2-0006	찬널 CHANNEL	1	t=3.2	54	S01-2283	핀 PIN	1	
44	7811121	호스 클램프 CLAMP, HOSE	2	CH127	55	S01-1899	육각 볼트 BOLT, HEX. HEAD	2	BA20×80
45	H01-2325	유압 파이프 PIPE, HYDRAULIC	1	Φ12×t2.0	56	S01-2584	축 SHAFT	1	Φ25×340L
46	H01-2326	유압 파이프 PIPE, HYDRAULIC	1	Φ12×t2.0	57	A05-2307	롤러 결합체 ROLLER ASS'Y	1	
47	9003351	파이프 니플 NIPPLE, PF PIPE	1	NFO12-PF3/8	58	985 2352	로드 홀딩 밸브 VALVE, LOAD HOLDING	1	
48	6010172	오링 O-RING	1	1B P14	59	2615957	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	4	BB8×45
49	9001361	파이프 니플 NIPPLE, PF PIPE	5	NFP12×PF1/2	60	S01-3371	커버 COVER, MC	2	Φ70×20L
50	6800081	실링 와셔 WASHER, SEALING	5	NF216-8	61	2112805	육각 볼트 BOLT, HEX. HEAD	2	BA20×70

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베이스 배관도 BASE HOSE & PIPING

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베이스 배관도
BASE HOSE & PIPING

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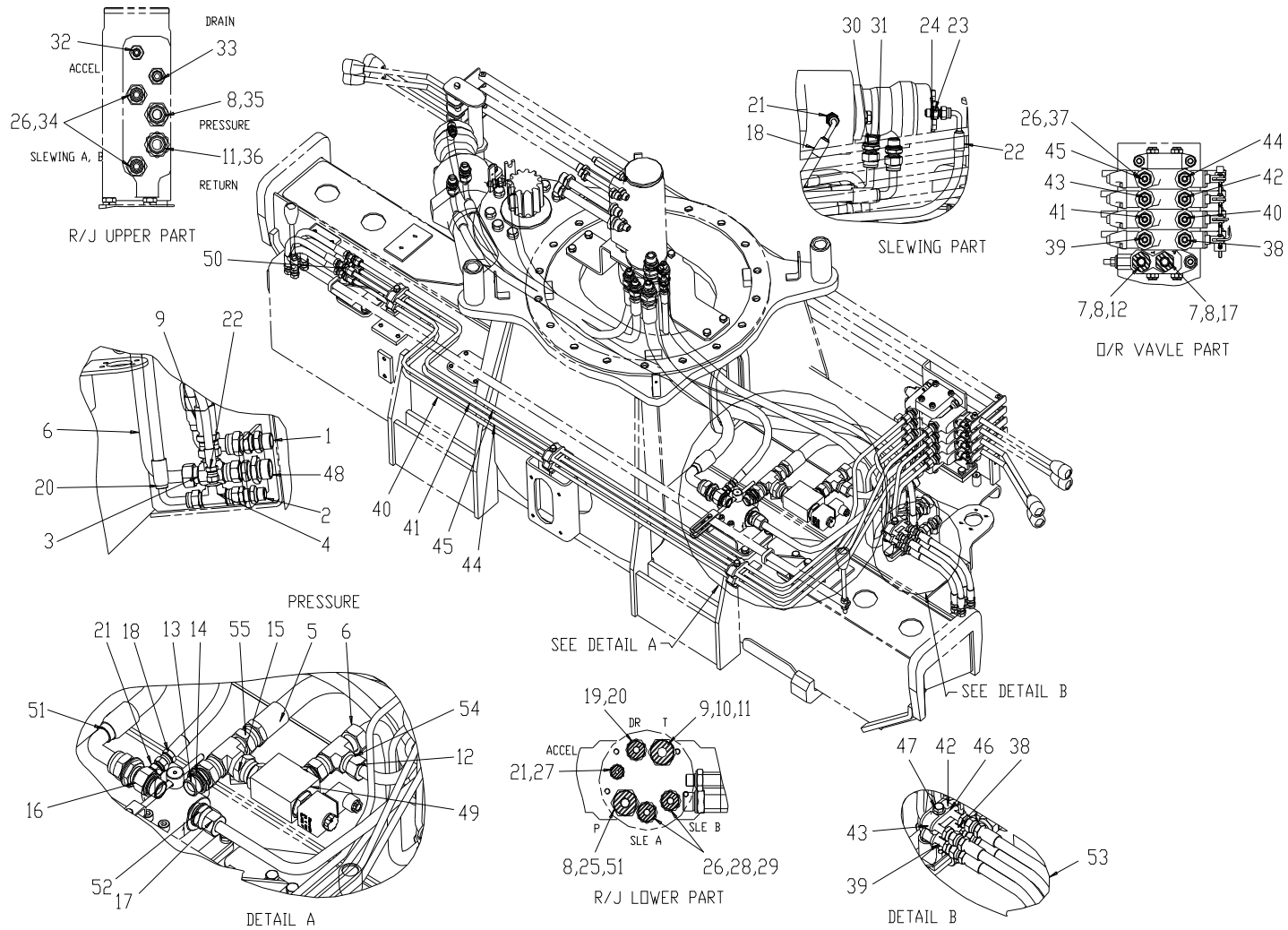
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-	A02-3401	베이스 배관도 BASE HOSE & PIPING	1		10	9381092	호스 니플 NIPPLE, PF HOSE	1	NFCO3/4×3/4
1	BP-0035	벌크 헤드 호스 유니언 UNION, HOSE B/H	1	PF3/4	11	6010282	O-링 O-RING	2	P24
2	BP-4003	벌크 헤드 호스 유니언 UNION, HOSE B/H	1	2-PF1/2	12	H01-6590	유압 파이프 PIPE, HYDRAULIC	1	
3	S01-5039	스위블 티 TEE, SWIVEL	1	PF3/4×Φ20×PF3/4	13	9270092	호스 유니언 UNION, CONICAL	2	3/4×3/4
4	S01-1608	호스 스위블 티 TEE, HOSE SWIVEL	1	2-PF1/2×PF1/4	14	6800121	실링 와셔 WASHER, SEALING	5	NF3/4
5	7176603	고압 호스 HOSE, H.P (HECF)	1	5/8×500-PF3/4	15	S01-3020	스위블 SWIVEL, STRAIGHT	1	PF3/4×PF3/4
6	H01-6630	유압 파이프 PIPE, HYDRAULIC	1	Φ20×t2.0	16	S01-4674	니플 NIPPLE	1	PF3/4×PF3/4
7	9003401	파이프 니플 NIPPLE, PF PIPE	2	NTPO16-PF1/2	17	H01-6631	유압 파이프 PIPE, HYDRAULIC	1	Φ16×t2.0
8	6010212	O-링 O-RING	4	P18	18	7167902	고압 호스 HOSE, H.P (HECF)	1	1/4×1250-PF1/4
9	7122863	고압 호스 HOSE, H.P (HUCF)	1	5/8×1150-PF3/4	19	TS-0439	호스 니플 NIPPLE, PT HOSE	1	PT3/8×PF1/2

SPARE PARTS LIST



베이스 배관도 BASE HOSE & PIPING

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베이스 배관도
BASE HOSE & PIPING

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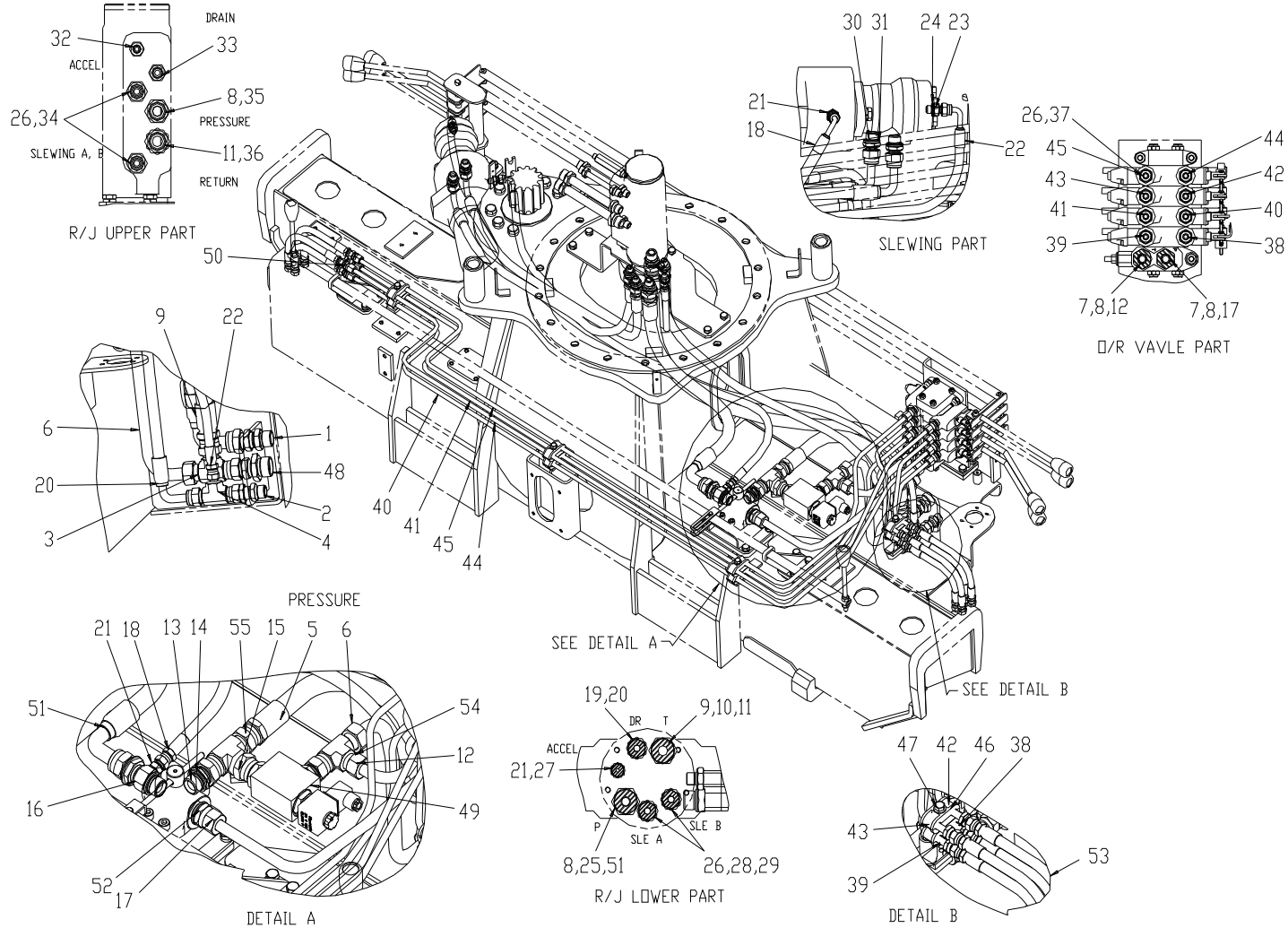
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20	7173843	고압 호스 HOSE, H.P (HECF)	1	1/2×1100-PF1/2	30	9270072	호스 유니언 UNION, CONICAL	2	1/2×1/2
21	9211062	호스 니플 NIPPLE, PT HOSE	3	PF1/4×PT1/4	31	6800081	실링 와셔 WASHER, SEALING	2	NF1/2
22	7168182	고압 호스 HOSE, H.P (HECF)	1	1/4×1950-PF1/4	32	BSP-0051	호스 니플 NIPPLE, PT HOSE	1	PT1/4×PF3/8
23	9270052	호스 유니언 UNION, CONICAL	1	1/4×1/4	33	BSP-0032	롱 니플 NIPPLE, LONG	1	PF3/8×PT3/8
24	6800041	실링 와셔 WASHER, SEALING	1	NF1/4	34	BSP-0033	롱 니플 NIPPLE, LONG	2	PF3/8×PF1/2
25	9381082	호스 니플 NIPPLE, PF HOSE	1	NFCO3/4×1/2	35	BSP-0034	롱 니플 NIPPLE, LONG	1	PF1/2×PF3/4
26	6010172	O-링 O-RING	12	P14	36	BSP-0035	롱 니플 NIPPLE, LONG	1	PF3/4×PF3/4
27	H01-1685	고압 호스 HOSE, H.P	1	1/4×1250-PF1/4	37	9003321	파이프 니플 NIPPLE, PF PIPE	4	NTPO10-PF3/8
28	9381052	호스 니플 NIPPLE, PF HOSE	2	NFCO1/2×3/8	38	H01-7830	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5
29	7172313	고압 호스 HOSE, H.P (HECF)	2	3/8×1020-PF1/2	39	H01-7831	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5

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베이스 배관도 BASE HOSE & PIPING

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베이스 배관도
BASE HOSE & PIPING

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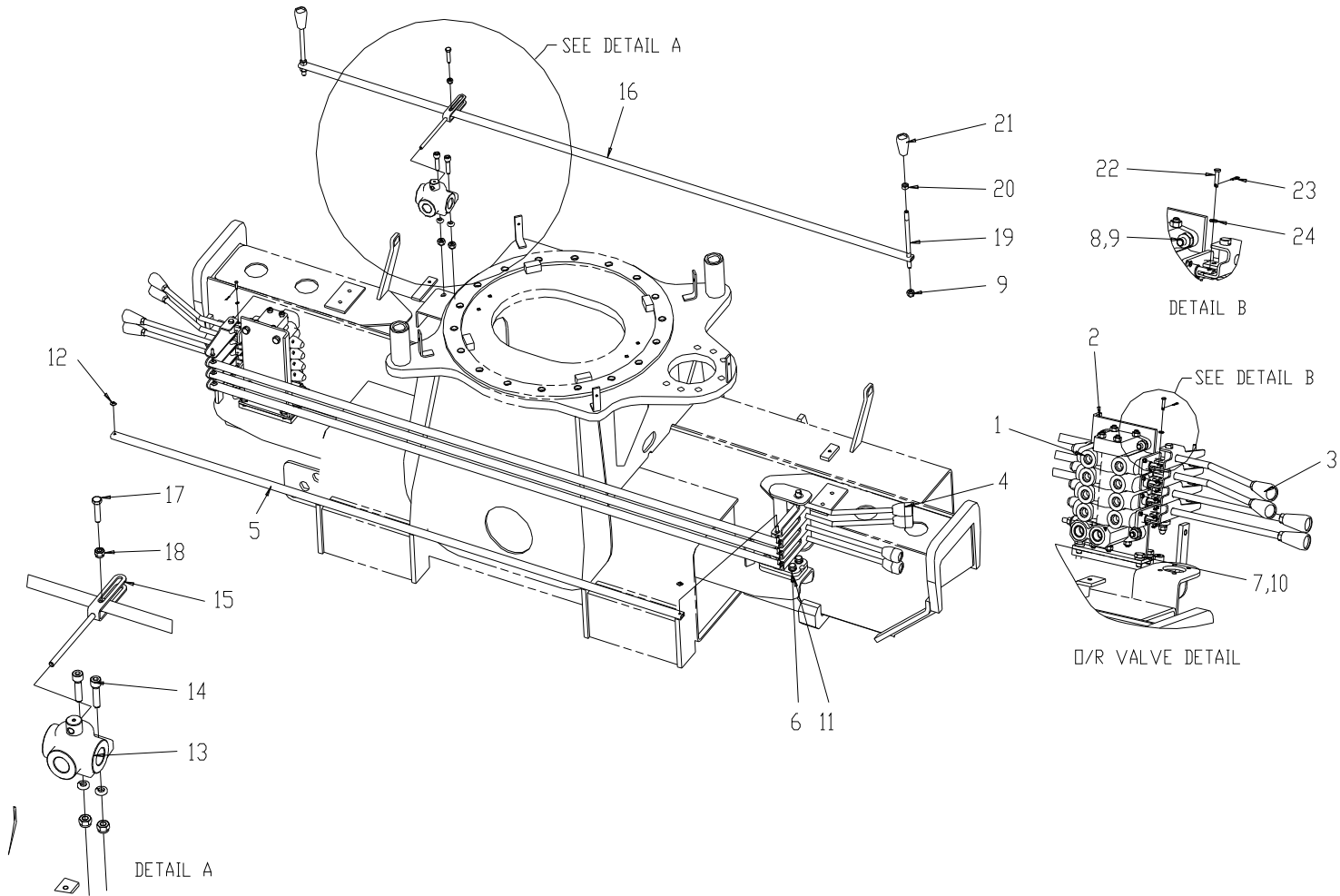
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40	H01-6634	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5	50	9062032	호스 파이프 니플 NIPPLE, HOSE PIPE	4	10-PF1/4
41	H01-6635	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5	51	7176683	고압 호스 HOSE, H.P (HECF)	1	5/8×650-PF3/4
42	H01-7832	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5	52	9001411	파이프 니플 NIPPLE, PF PIPE	1	NFP16-PF3/4
43	H01-7833	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5	53	7113513	고압 호스 HOSE, H.P (HUCF)	8	1/4×300-PF1/4
44	H01-6638	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5	54	S01-3340	파이프 스위블 티 TEE, PIPE SWIVEL	1	Φ16×Φ20×PF3/4
45	H01-6639	유압 파이프 PIPE, HYDRAULIC	1	Φ10×t1.5	55	S01-1609	스위블 티 TEE, SWIVEL	1	PF3/4
46	S01-4269	클램프 CLAMP	16						
47	2185976	플렌지 볼이 육각 볼트 BOLT, HEX. HEAD W/F	4	BWF8×55					
48	S01-1755	벌크 헤드 호스 유니언 UNION, HOSE B/H	1	PF1×PF3/4					
49	H02-1090	덤프 밸브 VALVE, DUMP	1						

SPARE PARTS LIST



아우트리거 제어 장치
OUTRIGGER CONTROL SYSTEM

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아우트리거 제어 장치
OUTRIGGER CONTROL SYSTEM

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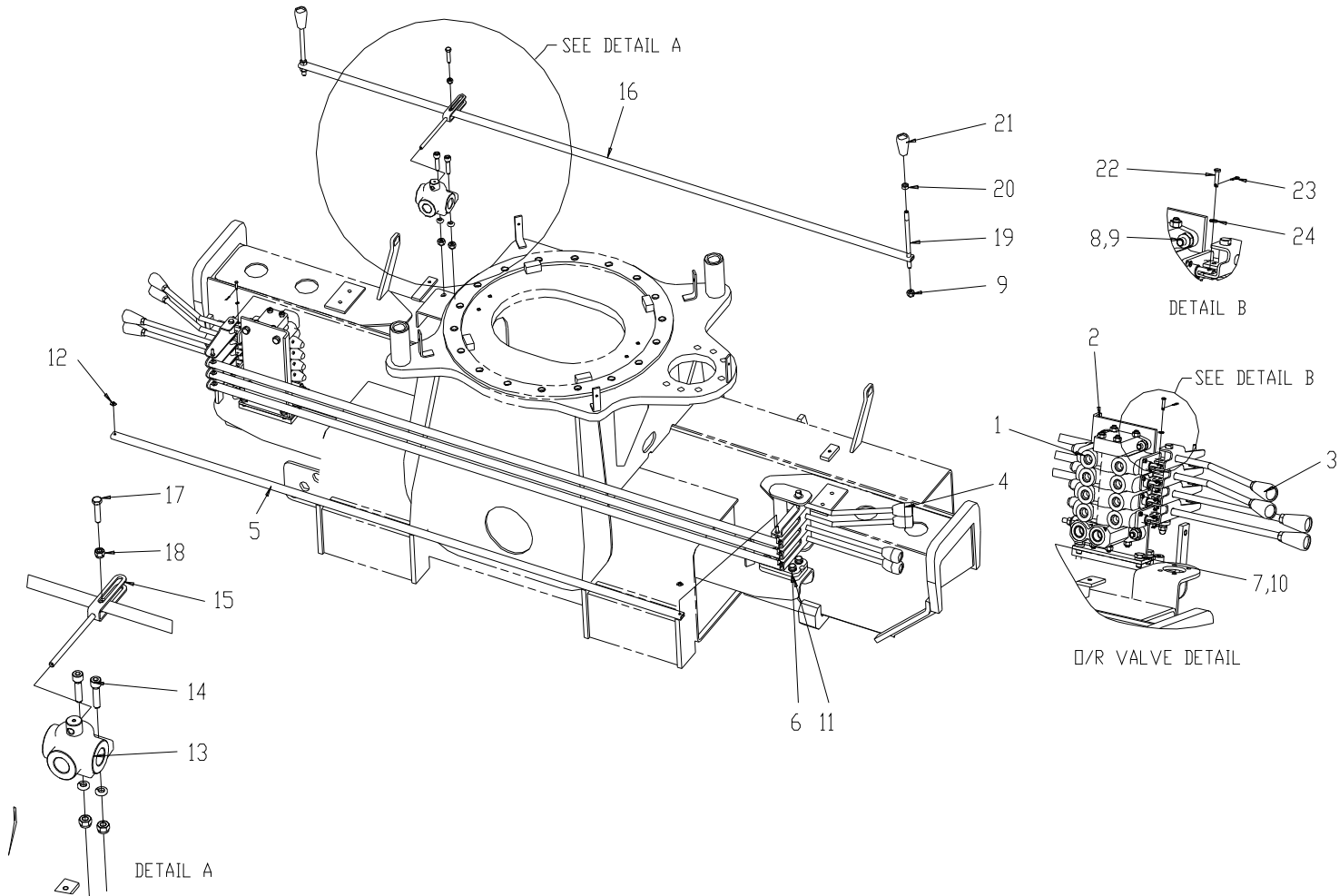
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-	A02-3400	아우트리거 제어 장치 OUTRIGGER CONTROL SYSTEM	1		10	2111177	육각머리 볼트 BOLT, HEX. HEAD	4	BA10×18
1	H02-1210	아우트리거 제어 밸브 VALVE, CONTROL	1	TX50/4S	11	2111206	육각머리 볼트 BOLT, HEX. HEAD	4	BA10×25
2	A05-4013	브라켓트 결합체 BRACKET ASS'Y	1		12	S01-0854	백 와셔 WASHER, BACK	8	SPN06
3	A05-4404	아우트리거 레버 결합체 OUTRIGGER LEVER ASS'Y	1		13	N01-2464	방향 전환 밸브 VALVE, DIVERTER	1	3WAY
4	A05-4017	레버 LEVER ASSY, O/R (2)	1		14	2611247	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	2	BB10×40
5	M05-0967	레버 로드 ROD, LEVER	4	t2.5×20×10	15	CT-3009	링크 LINK	1	
6	3511101	평 와셔 WASHER, PLAIN	4	WP10	16	CT-3012	레버 로드 ROD, LEVER	1	t2.5×10×20
7	3612101	스프링 와셔 WASHER, SPRING	13	WS10	17	2110937	육각머리 볼트 BOLT, HEX. HEAD	1	BA8×35
8	2111246	육각 볼트 BOLT, HEX. HEAD	3	BA10×40	18	S01-0005	셀프 로킹 너트 NUT, SELF LOCKING	1	M8
9	S01-0006	셀프 로킹 너트 NUT, SELF LOCKING	7	M10	19	M01-0444	레버 LEVER	2	Φ10×173L

SPARE PARTS LIST



아우트리거 제어 장치
OUTRIGGER CONTROL SYSTEM

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SPARE PARTS LIST



아우트리거 제어 장치
OUTRIGGER CONTROL SYSTEM

HIAB190T-6 11:1
2013. 09.

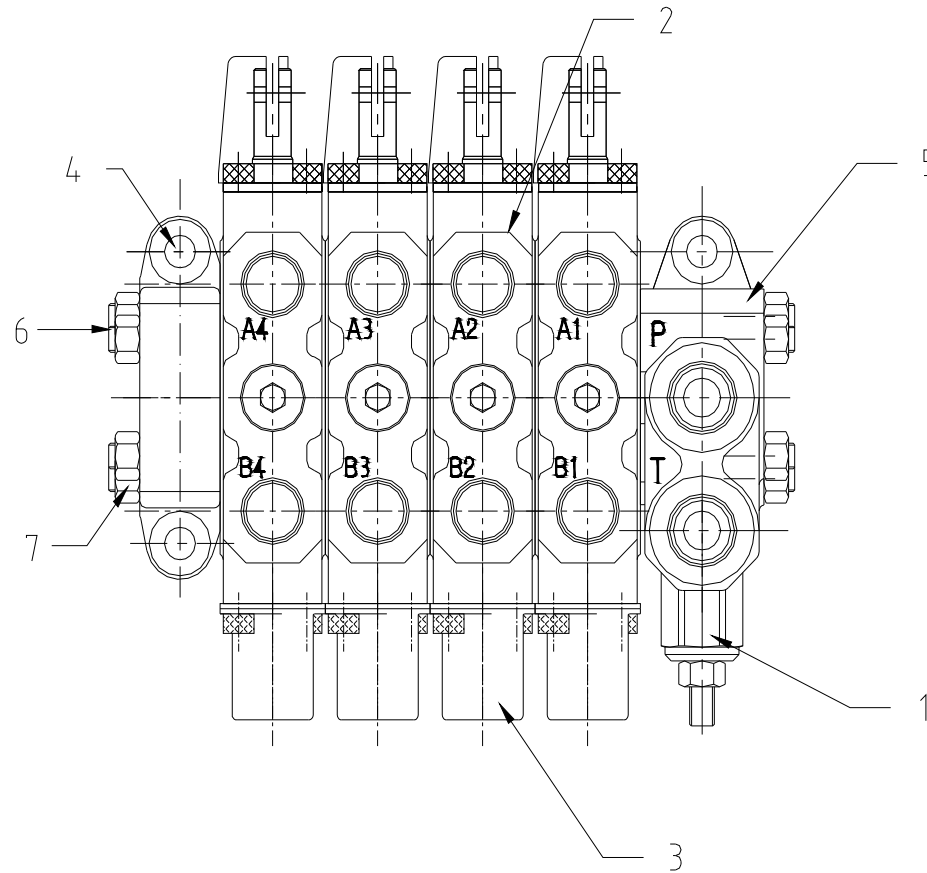
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20	3112106	육각 너트 NUT, HEX.	2	NA10					
21	S01-0048	손잡이 KNOB (RED)	2						
22	CS-0008	핀 PIN	4	Φ4.5×20					
23	CS-0009	싱글 스프링 핀 SPRING PIN, SINGLE	4	Φ1×15					
24	3511051	평 와셔 WASHER, PLAIN	4	WP5					

SPARE PARTS LIST



아우트리거 제어 밸브
OUTRIGGER CONTROL VALVE

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SPARE PARTS LIST



아우트리거 제어 밸브
OUTRIGGER CONTROL VALVE

HIAB190T-6 12:1
2013. 09.

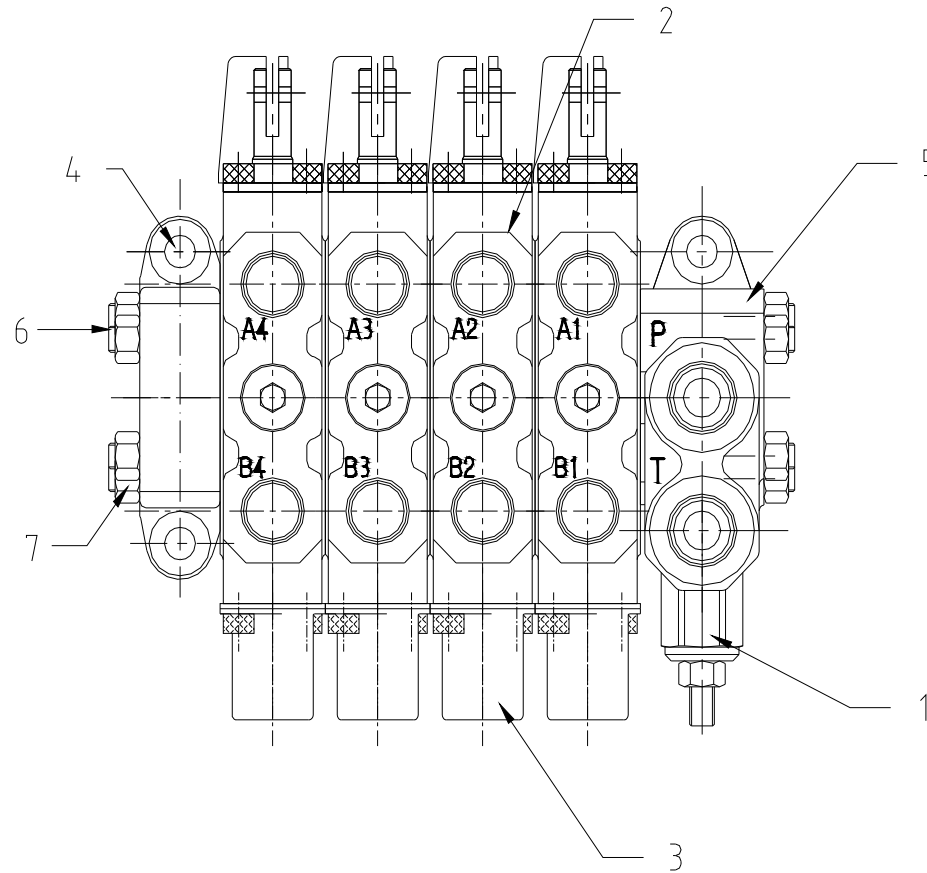
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-	H02-1210	스태빌라이저 조종 밸브 STABILIZER CONTROL VALVE	1	TX50/4S	-	1021025060	로드 체크 팝펫 POPPET LOAD CHECK	4	
1	H02-1146	블록 결합체 인넷 BLOCK ASS'Y INLET	1		-	2011011012	로드 체크 스프링 SPRING LOAD CHECK	4	
-	1024005010	블록 인넷 BLOCK INLET	1		-	1021028010	로드 체크 플러그 PLUG LOAD CHECK	4	
-	2001420055	오 링 O-RING	1		-	2001020014	오 링 O-RING	4	
-	1000028020	플러그 포트 PLUG PORT	1		-	1024010020	캡 리턴 CAP RETURN	4	
-	2001020011	오 링 O-RING	1		-	2001010013	오 링 O-RING	4	
2	3019500030	메인 릴리프 밸브 VALVE, MAIN RELIEF	1		-	2015340010	더스트 시일 SEAL DUST	4	
3	H02-1147	블록 결합체 BLOCK ASS'Y WORK	4		-	1024009020	브라켓 플레이트 레버 BRACKET PLATE LEVER	4	
-	1024005020	블록 워크 BLOCK WORK	4		-	2003212024	볼트 BOLT	8	
-	2001420055	오 링 O-RING	4		-	2003212025	볼트 BOLT	8	

SPARE PARTS LIST



아우트리거 제어 밸브
OUTRIGGER CONTROL VALVE

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SPARE PARTS LIST



아우트리거 제어 밸브
OUTRIGGER CONTROL VALVE

HIAB190T-6 12:1
2013. 09.

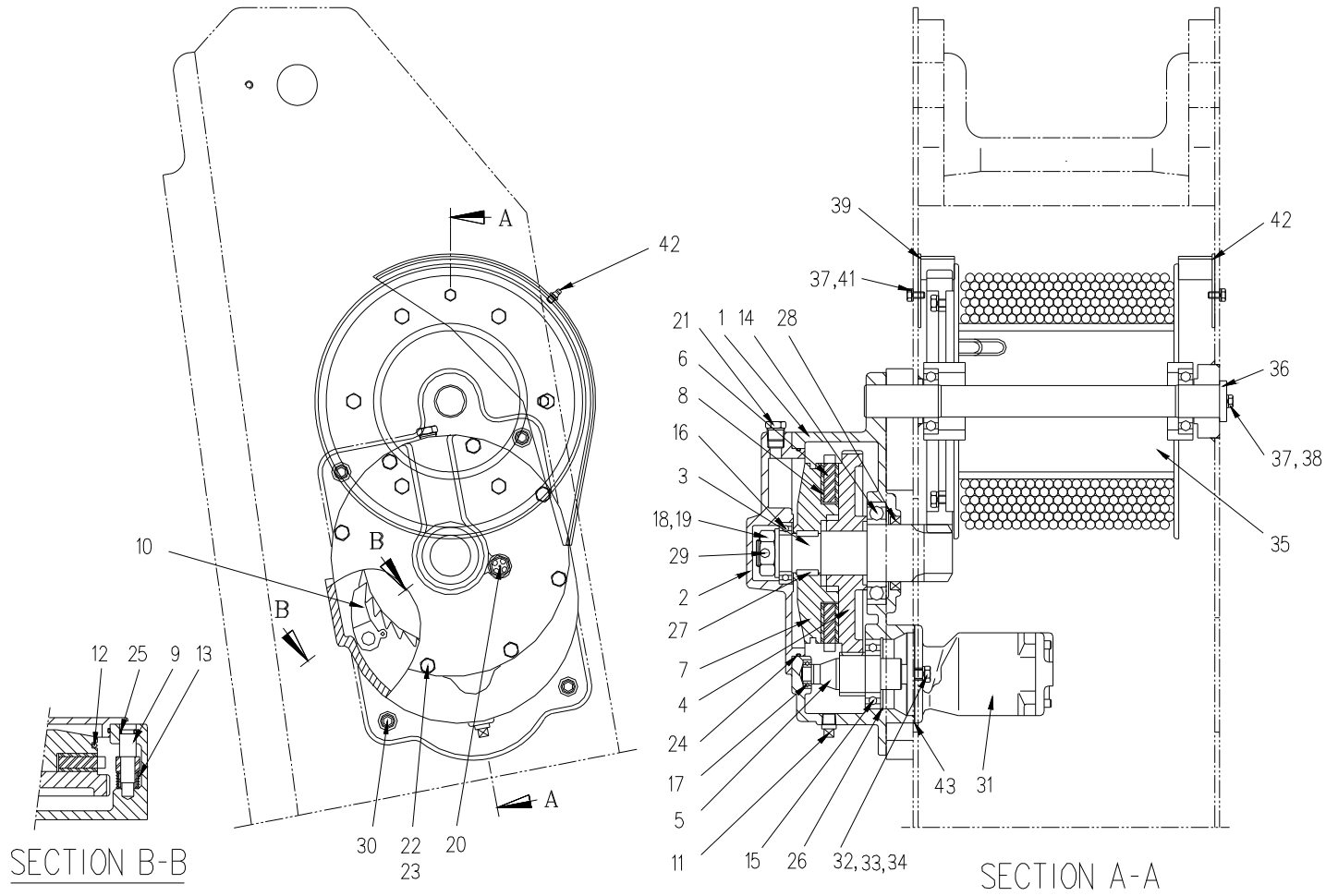
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4	H02-1148	스풀 결합체 SPOOL ASS'Y WORK	4		7	2008021008	너트 NUT	4	
-	1024036011	스풀 스타드 SPOOL STD	4						
-	2001010013	오 링 O-RING	4						
-	2015340010	더스트 시일 SEAL DUST	4						
-	1024023010	플레이트 시일 PLATE SEAL	4						
-	1024031010	스프링 세트 SEAT SPRING	8						
-	2011011023	스프링 리턴 SPRING RETURN	4						
-	1024004010	볼트 스페이서 BOLT SPACER	4						
5	1024005030	블록 커버 앤드 BLOCK COVER END	1						
6	1000088390	타이 볼트 BOLT TIE	4						

SPARE PARTS LIST



원치 장치
WINCH SYSTEM

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SPARE PARTS LIST



원치 장치
WINCH SYSTEM

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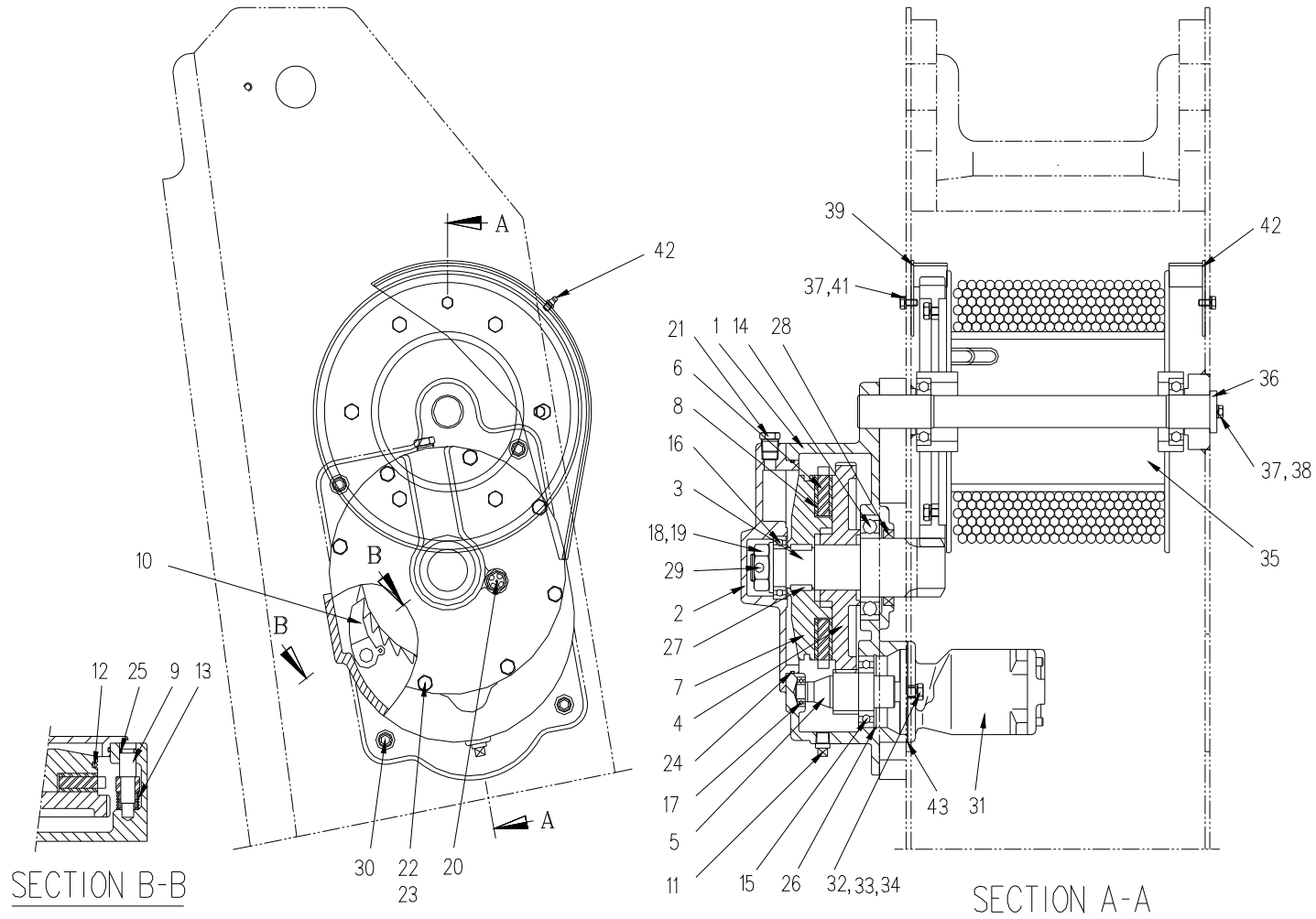
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-	WC-4001	원치 장치 WINCH SYSTEM	1		10	DM-06-11-1010	후크 HOOK	1	
1	DM-06-11-1001	케이스 CASE	1		11	DM-06-11-1011	캡 CAP	1	PT3/8
2	DM-06-11-1002	케이스 커버 COVER, CASE	1		12	DM-06-11-1012	스프링 SPRING	1	
3	DM-06-11-1003	출력 기어 GEAR, OUTPUT	1		13	DM-06-11-1013	스프링 SPRING	1	
4	DM-06-11-1004	스퍼 기어 GEAR, SPUR	1		14	4112144	깊은 홈 볼 베어링 BEARING, RADIAL BALL	1	6214ZZ
5	DM-06-11-1005	입력 기어 GEAR, INPUT	1		15	4112094	깊은 홈 볼 베어링 BEARING, RADIAL BALL	1	6209ZZ
6	DM-06-11-1006	라쳇 RATCHET	1		16	4110094	깊은 홈 볼 베어링 BEARING, RADIAL BALL	1	6009ZZ
7	DM-06-11-1007	디스크 플레이트 PLATE, DISK	1		17	4110034	깊은 홈 볼 베어링 BEARING, RADIAL BALL	1	6003ZZ
8	DM-06-11-1008	디스크 DISK	2		18	DM-06-11-1014	홈 볼이 육각 너트 NUT, SLOT HEX.	1	M33
9	DM-06-11-1009	후크 샤프트 SHAFT, HOOK	1		19	DM-06-11-1015	평 와셔 WASHER, PLAIN	1	M33

SPARE PARTS LIST



원치 장치
WINCH SYSTEM

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SPARE PARTS LIST



원치 장치
WINCH SYSTEM

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2013. 09.

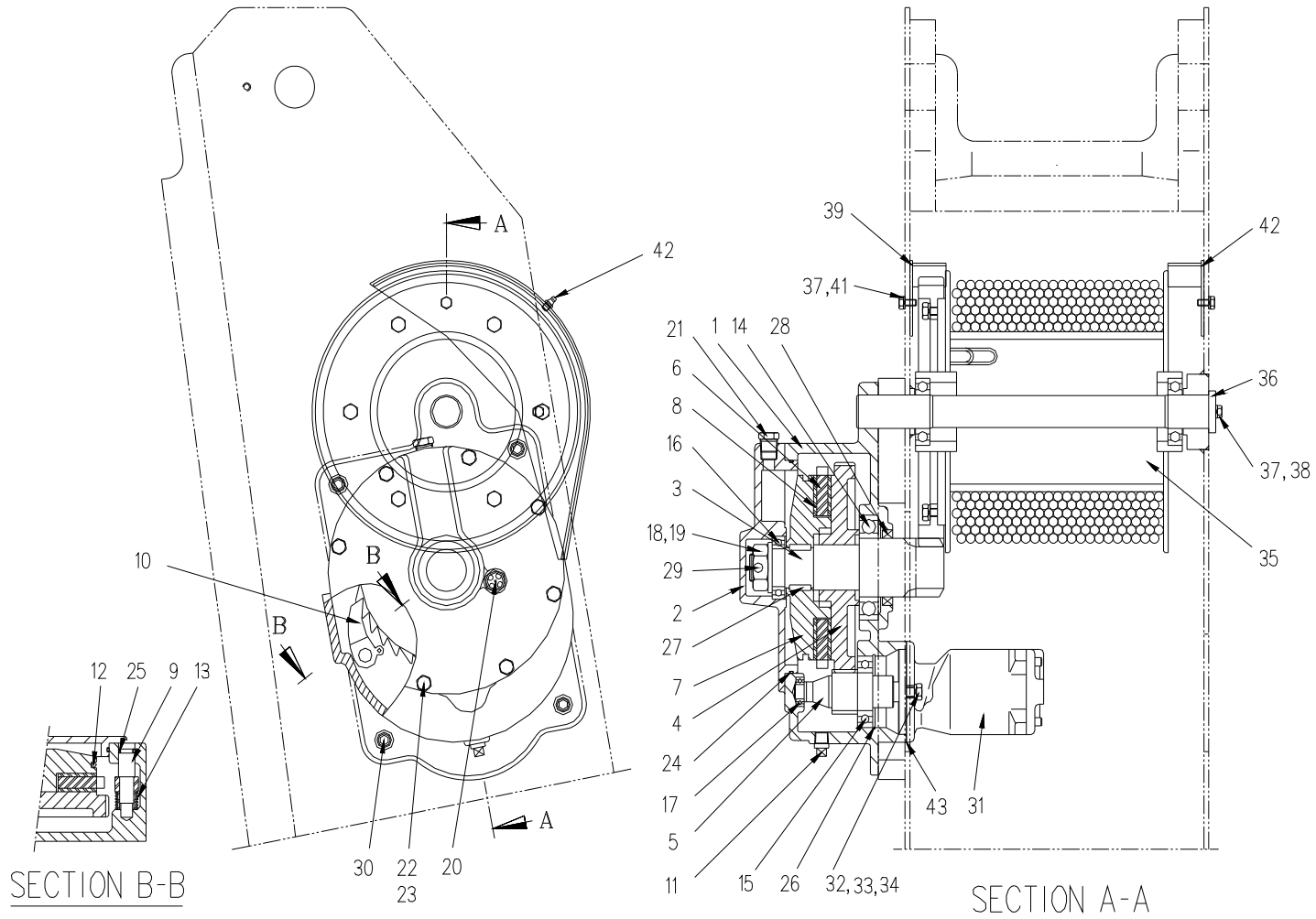
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20	DM-06-11-1016	오일 게이지 GAUGE, OIL	1	PF1/2	30	2611547	구멍 볼이 육각 볼트 BOLT, HEX. SOCKET HEAD	4	BB12×40
21	DM-06-11-1017	에어 브리더 BRETHER, AIR	1		31	H02-0104	원치 모터 MOTOR, WINCH	1	JMF-47-01
22	2111206	육각 볼트 BOLT, HEX. HEAD	8	BA10×25	32	2111567	육각 볼트 BOLT, HEX. HEAD	2	BA14×50
23	3612101	스프링 와셔 WASHER, SPRING	8	WS10	33	3511141	평 와셔 WASHER, PLAIN	2	WP14
24	DM-06-11-1018	O-링 O-RING	1	273	34	3612141	스프링 와셔 WASHER, SPRING	2	WS14
25	6010192	O-링 O-RING	1	1B P16	35	WC-4007	드럼 DRUM ASSY	1	
26	4525561	멈춤 링 RING, RETAINING	1	RB85	36	WC-0014	축 SHAFT	1	6208ZZ
27	DM-06-11-1019	평행 키 KEY, PLAIN	2		37	2110926	육각 볼트 BOLT, HEX. HEAD	2	BA8×30
28	DM-06-11-1020	오일 시일 SEAL, OIL	1		38	3612081	스프링 와셔 WASHER, SPRING	6	WS8
29	1311141	분할 핀 PIN, SPLIT	1	PW5×50	39	WC-4013	커버 COVER, LH	1	

SPARE PARTS LIST



원치 장치
WINCH SYSTEM

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SPARE PARTS LIST



원치 장치
WINCH SYSTEM

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2013. 09.

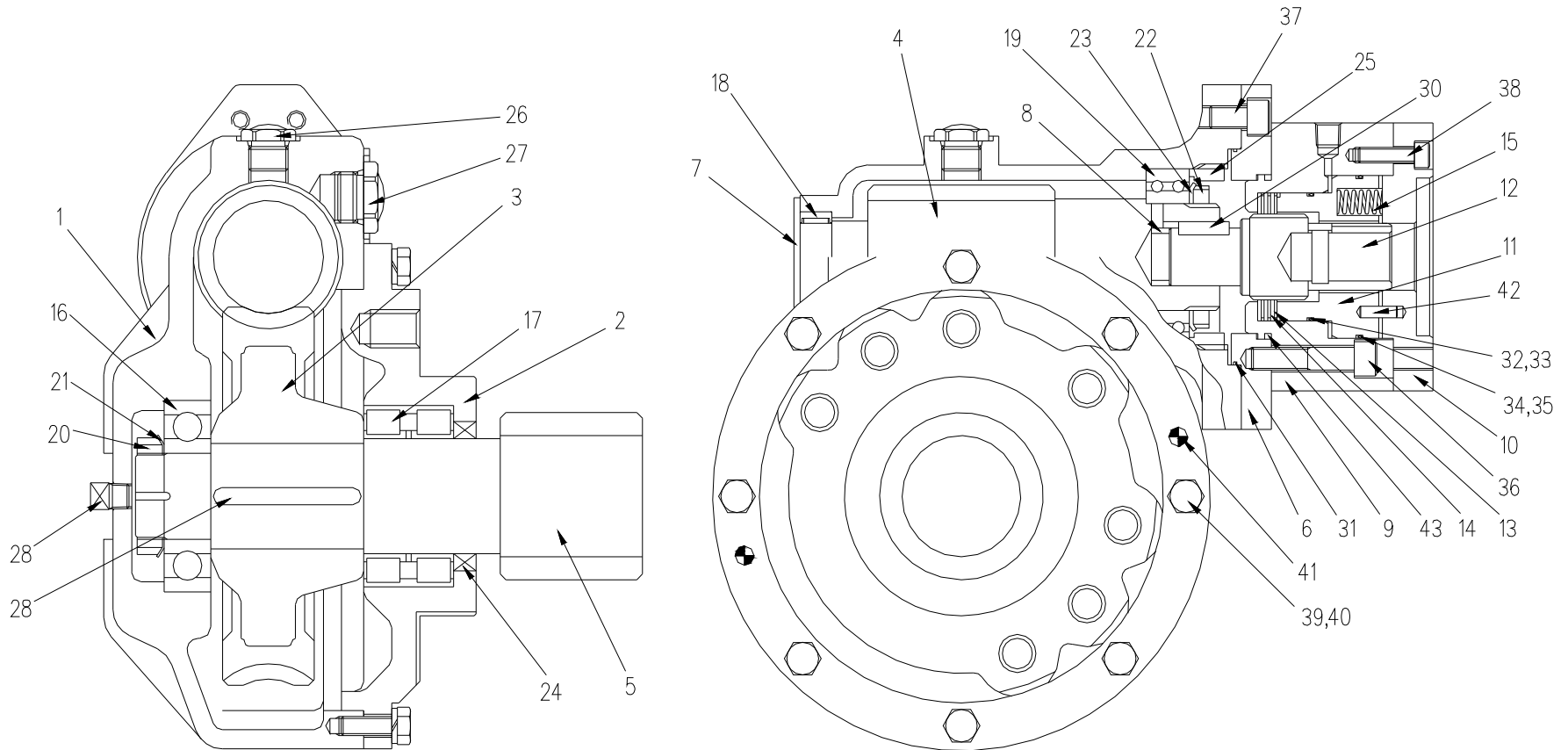
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40	WC-4016	커버 COVER, RH	1						
41	2110866	육각 볼트 BOLT, HEX. HEAD	4	BA8×16					
42	4610212	그리스 니플 NIPPLE, GREASE	1	A-M6×1					
43	N01-3202	가스켓 GASKET	1						

SPARE PARTS LIST



선회 감속기
SLEWING REDUCER

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2011. 03.



SPARE PARTS LIST



선회 감속기
SLEWING REDUCER

HIAB190T-6 14:0
2011. 03.

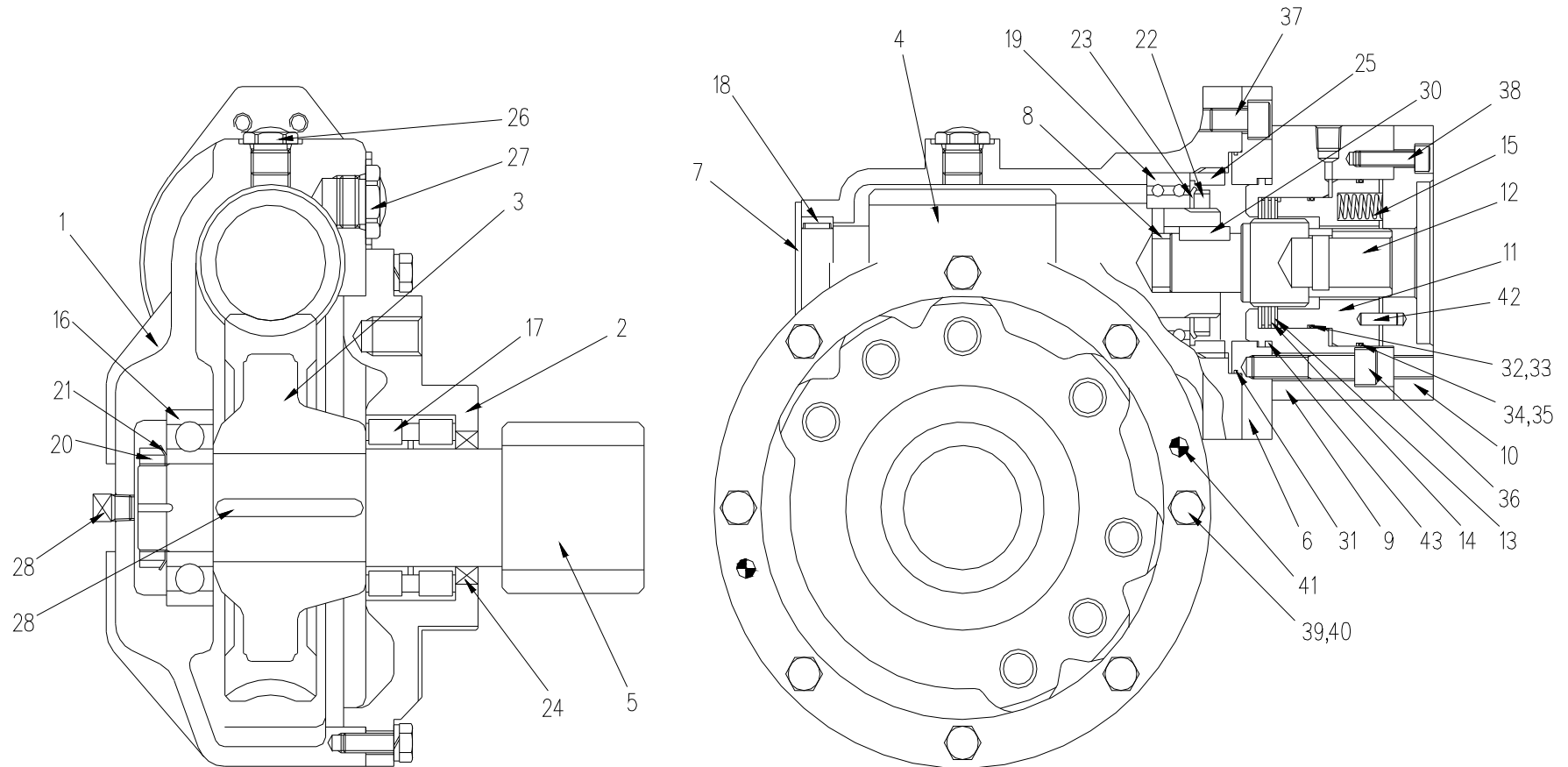
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-	BC1-0003	선회 감속기 SLEWING REDUCER	1		10	07-04-2007	모터 아답터 ADAPTOR, MOTOR	1	
1	07-07-1001	케이스 CASE	1		11	07-04-2037	브레이크 피스톤 PISTON, BRAKE	1	
2	07-07-1002	커버 COVER	1		12	07-04-2909	브레이크 축 SHAFT, BRAKE	1	
3	07-07-1003	웜 기어 GEAR, WORM	1		13	07-04-2033	디스크 DISK	3	
4	07-07-1004	웜 축 SHAFT, WORM	1		14	07-04-2034	플레이트 PLATE	3	
5	07-07-HA05	피니언 축 SHAFT, PINION	1		15	07-04-2018	스프링 SPRING	8	
6	07-07-HA06	아답터 ADAPTOR	1		16	4113092	깊은 홈 볼 베어링 BEARING, RADIAL BALL	1	6309ZZ
7	07-07-1007	플레이트 커버 COVER, PLATE	1		17	BC1-0003-1	롤러 베어링 BEARING, ROLLER	1	SL04-5012
8	07-07-HA08	스페이서 SPACER	1		18	BC1-0003-2	니들 베어링 BEARING, NEEDLE	1	RNA4906
9	07-04-2006	브레이크 하우스 HOUSING, BRAKE	1		19	BC1-0003-3	볼 베어링 BEARING, BALL	1	5210

SPARE PARTS LIST



선회 감속기
SLEWING REDUCER

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2011. 03.



SPARE PARTS LIST



선회 감속기
SLEWING REDUCER

HIAB190T-6 14:0
2011. 03.

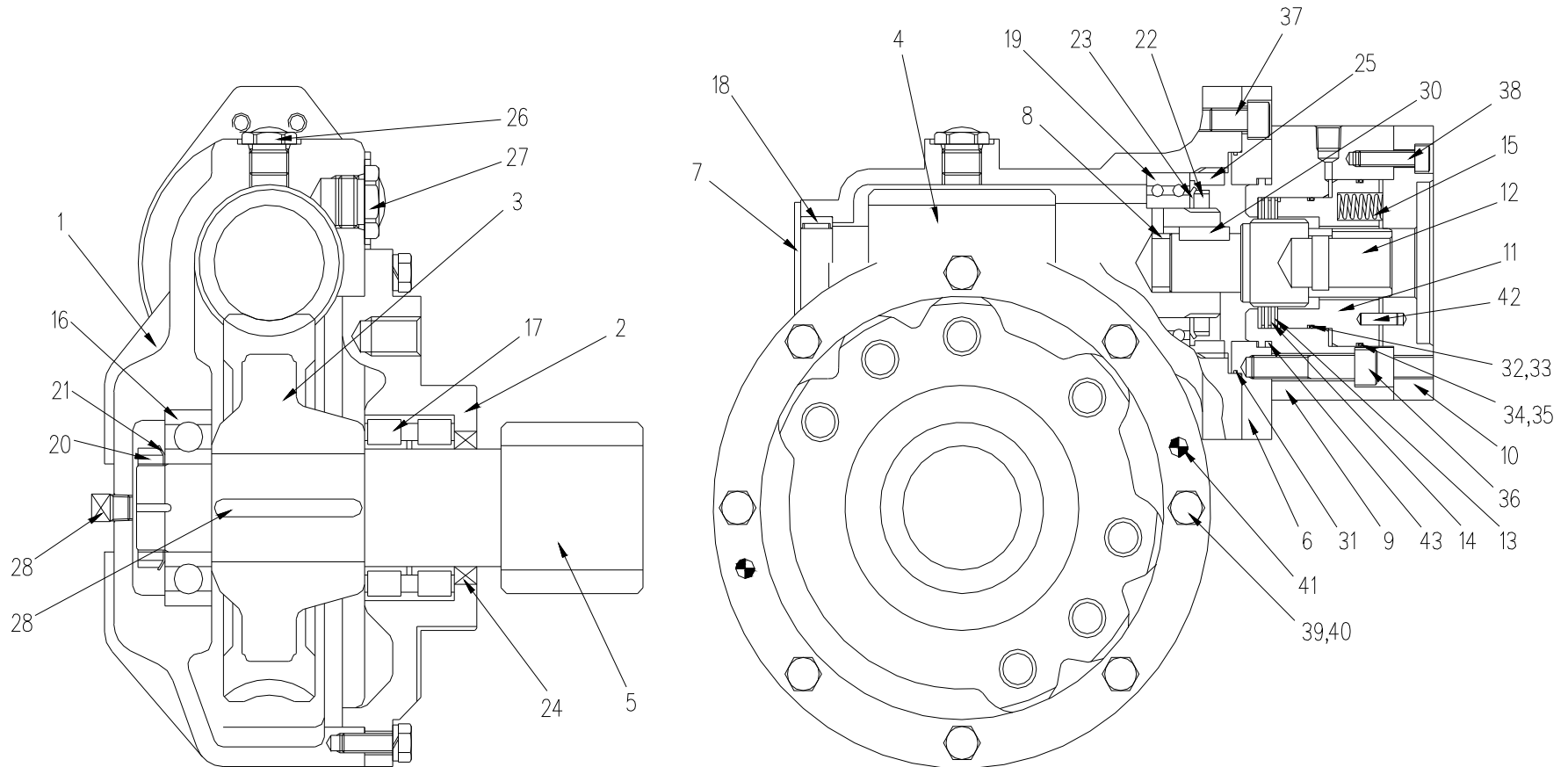
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20	BC1-0003-4	베어링 너트 NUT, BEARING	1	AN09	30	BC1-0003-13	키 KEY	1	
21	BC1-0003-5	베어링 와셔 WASHER, BEARING	1	AW09	31	6012392	O-링 O-RING	1	1B G95
22	BC1-0003-6	베어링 너트 NUT, BEARING	1	AN10	32	6012332	O-링 O-RING	1	1B G65
23	BC1-0003-7	베어링 와셔 WASHER, BEARING	1	AW10	33	6035281	백업 링 RING, BACK-UP	1	T2 G65
24	BC1-0003-8	오일 시일 OIL SEAL	1	607812	34	6012352	O-링 O-RING	1	1B G75
25	07-07-1009	고정 시일 LOCK THREAD	1		35	6035301	백업 링 RING, BACK-UP	1	T2 G75
26	BC1-0003-9	오일 게이지 GAUGE, OIL	1	PF1/2	36	2616576	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	6	BB12×55
27	BC1-0003-10	캡 CAP	1	PF3/4	37	2611486	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	4	BB12×20
28	BC1-0003-11	플러그 PLUG	1	PT1/2	38	2610926	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	6	BB8×30
29	BC1-0003-12	키 KEY	2		39	2111226	육각 볼트 BOLT, HEX. HEAD	8	BA10×30

SPARE PARTS LIST



선회 감속기
SLEWING REDUCER

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2011. 03.



SPARE PARTS LIST



선회 감속기
SLEWING REDUCER

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2011. 03.

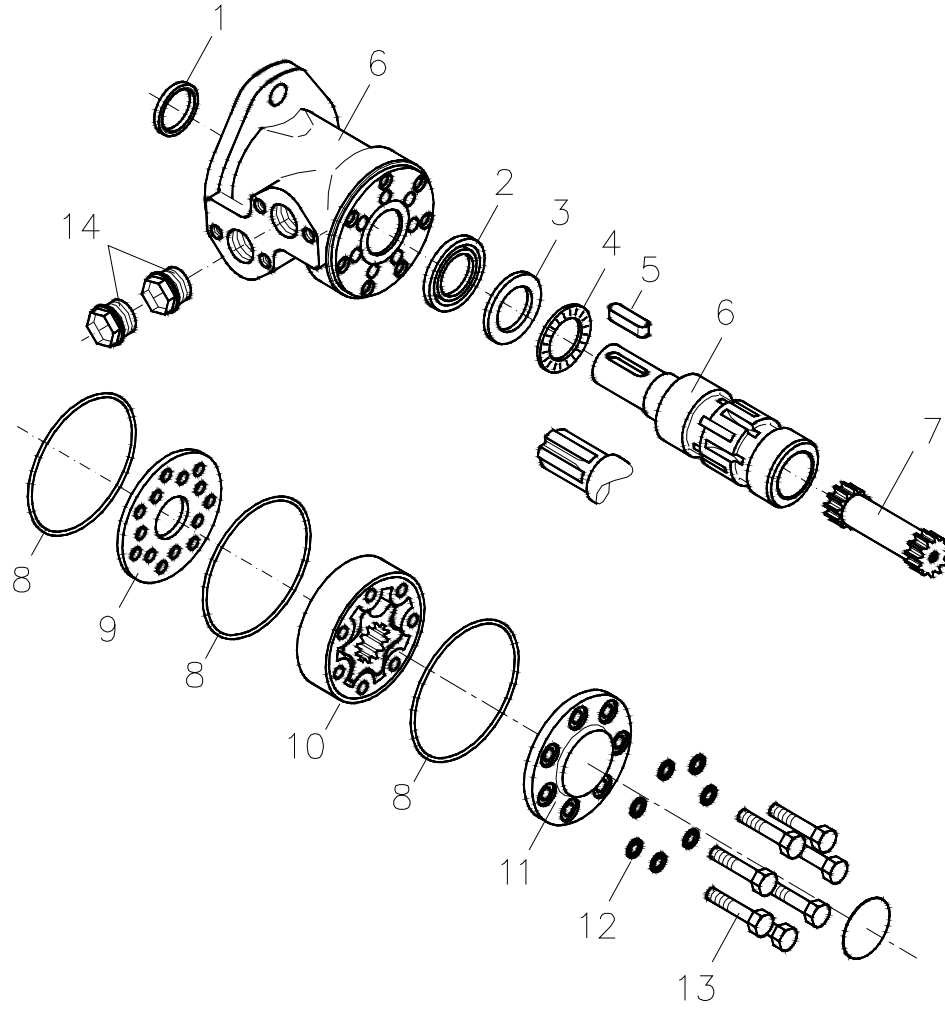
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40	3612101	스프링 와셔 WASHER, SPRING	1	WS10					
41	BC1-0003-14	핀 PIN	1						
42	BC1-0003-15	핀 PIN	1						
43	6012362	O-링 O-RING	1	1B G80					

SPARE PARTS LIST



선회 모터
SLEWING MOTOR

HIAB190T-6 15:0
2011. 03.



SPARE PARTS LIST



선회 모터
SLEWING MOTOR

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2011. 03.

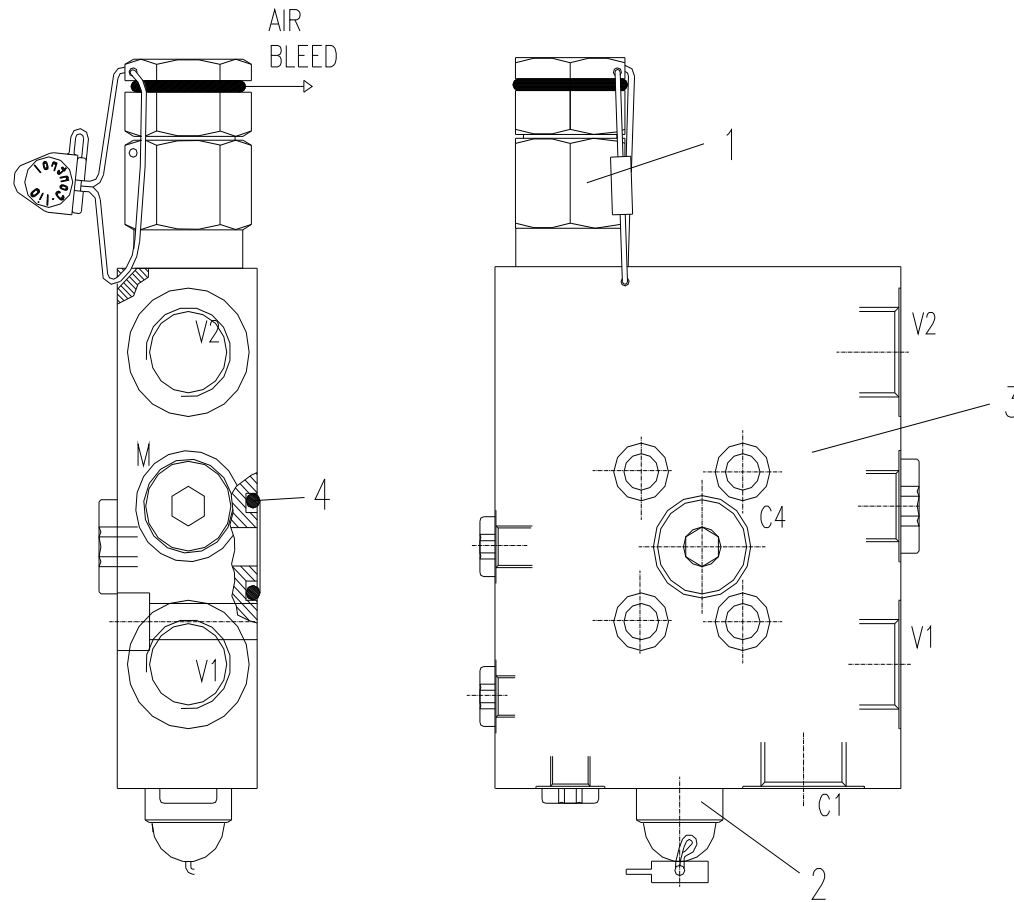
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-	H02-0200	선회 모터 SLEWING MOTOR	1	OMP100C	10	151-1128	기어 휠일 세트 GEAR WHEEL SET	1	W=13.0mm
1	633B0010	더스트 시일 링 DUST SEAL RING	1	35.0×28.5×4.0mm	11	151-1459	커버 END COVER	1	
2	633B0361	축 시일 SHAFT SEAL	1	39.0×28.6×4.9mm, HSN	12	684X0115	와셔 WASHER	7	15.2×8.2×1.0mm
3	151-1608	베어링 레이스 BEARING RACE	1	47.5×29.5×3.0mm	13	681X0180	스크루 SCREW	7	l=40mm
4	151-1458	축 니들 베어링 AXIAL NEEDLE BEARING	1	42.0×28.7×4.5mm	14	633X0074	플러그 PLUG	2	
5	682L9007	평행 키 PARALLEL KEY	1	A8×7×31mm					
6	-	하우징 + 아웃풋 축 HOUSING + OUTPUT SHAFT	1						
7	151-2645	카아단 축 CARDAN SHAFT	1	L=83.3mm					
8	633B1173	오링 O-RING	3	75.9×1.8mm, NBR	-	151-1286	시일 키트 KIT, SEAL	1	
9	151-1713	분배 플레이트 DISTRIBUTOR PLATE	1						

SPARE PARTS LIST



카운터 발란스 밸브
COUNTER BALANCE VALVE (D)

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SPARE PARTS LIST



카운터 밸런스 밸브
COUNTER BALANCE VALVE (D)

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2013. 09.

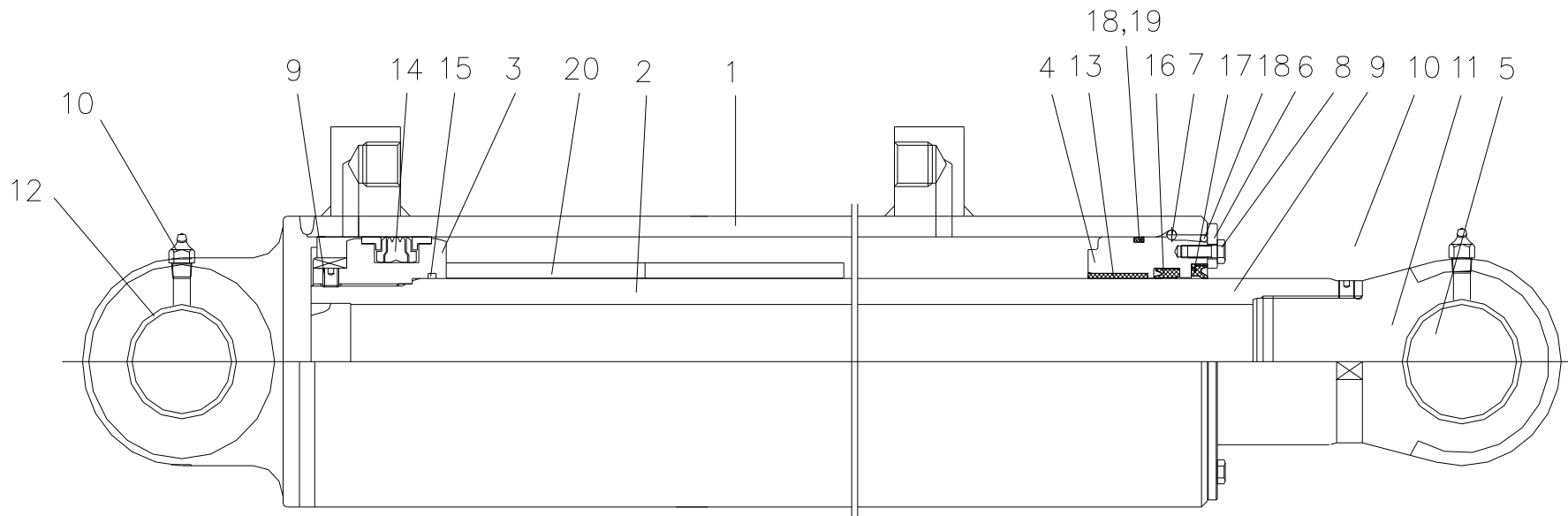
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-	985 2352	카운터 밸런스 밸브 COUNTER BALANCE VALVE (E)	1						
1	()	밸브 VALVE	1	VBSO-SE90 390BAR					
2	()	밸브 VALVE	1	VS5 310 BAR					
3	()	바디 BODY	1						
4	984 4899	오 링 O-RING	1						

SPARE PARTS LIST



데릭 실린더
DERRICK CYLINDER

HIAB190T-6 17:0
2011. 03.



SPARE PARTS LIST



데릭 실린더
DERRICK CYLINDER

HIAB190T-6 17:0
2011. 03.

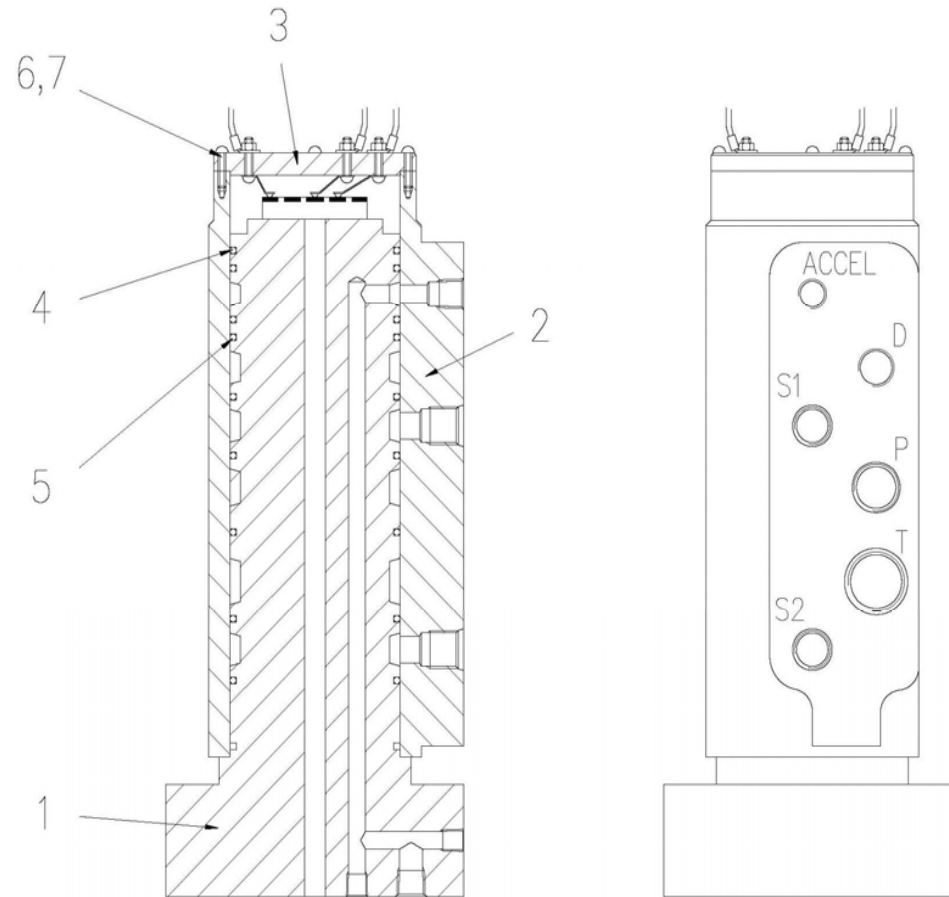
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-	H01-5001	데릭 실린더 DERRICK CYLINDER	2	HN88D0000	11	S01-1889	DX 부싱 BUSHING, DX	2	PM 5530 DX
1	HN88D0010	튜브 결합체 TUBE ASS'Y	1		12	4325441	DX 부싱 BUSHING, DX	2	PM 5540 DX
2	HN88D0020	로드 결합체 ROD ASS'Y	1		13	S01-4642	DU 부싱 BUSHING, DU	1	MB 8030 DU
3	HN20IB040	피스톤 PISTON	1		14	S01-1890	피스톤 패킹 PISTON PACKING	1	PCB 0A1200-NCRO *
4	HN51D0040	로드 커버 ROD COVER	1		15	6012362	오링 O - RING	1	1B G80 *
5	HN43D0030	로드 헤드 ROD HEAD	1		16	S01-2735	로드 패킹 ROD PACKING	1	NI-300 *
6	HN51D0050	커버 COVER	1	Φ128×Φ90×5T	17	6112091	더스트 와이퍼 DUST WIPER	1	KWU 80 *
7	HN51D0060	멈춤 링 RETAINING RING	1	Φ110×5T	18	6012432	오링 O - RING	2	1B G115 *
8	H01-2674	육각 볼트 HEX. BOLT	4	M6×P1.0×15L	19	6035841	백업 링 RING, BACK-UP	1	T3 G115 *
9	2350556	멈춤 나사 SCREW, SET	1	M8×P1.25×8L	20	SSA8E0050	스페이서 SPACER	2	Φ80.5×Φ95×100L
10	4610702	그리스 니플 NIPPLE, GREASE	2	PT 1/8-A	-	S01-1892	시일 키트 KIT, SEAL	1	PARTS MARKED *

SPARE PARTS LIST



로타리 조인트 결합체
ROTARY JOINT ASS'Y

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로타리 조인트 결합체
ROTARY JOINT ASS'Y

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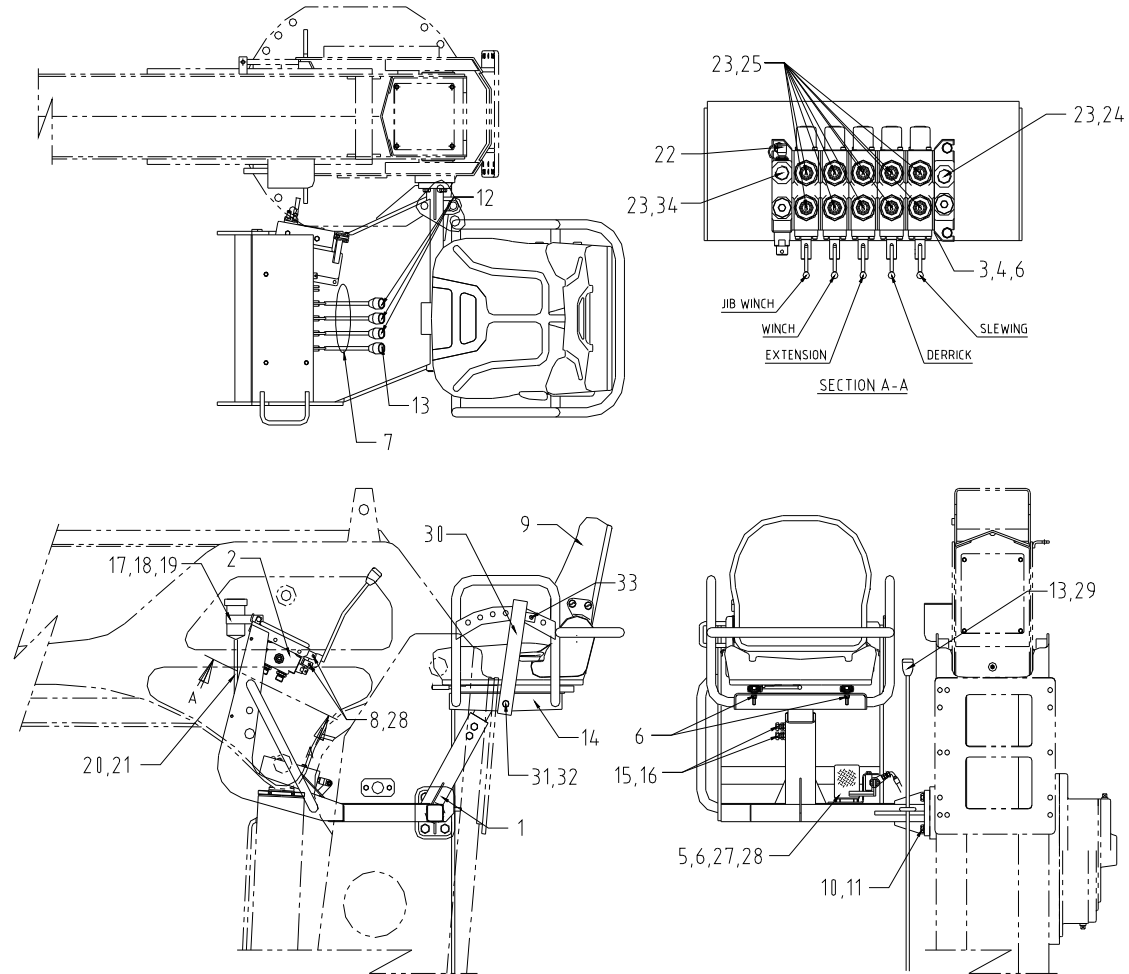
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-	A02-1740	로타리 조인트 결합체 ROTART JOINT ASS'Y	1						
1	M01-1242	축 바디 링 SHAFT BODY RING	1						
2	N01-3297	실린더 CYLINDER	1						
3	N01-3224	슬립 링 결합체 SLIP RING ASSY	1						
4	N01-3225	로토그리드 링 ROTOGLYD RING	8	STR80					
5	N01-3226	쿼드 링 QUAD RING	2	Φ70					
6	N01-3227	작은 나사 SCREW, MACHINE	4	M4×20					
7	3612041	스프링 와셔 WASHER, SPRING	4	WS4					

SPARE PARTS LIST



운전석 결합체
TOP SEAT ASS'Y

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SPARE PARTS LIST



운전석 결합체
TOP SEAT ASS'Y

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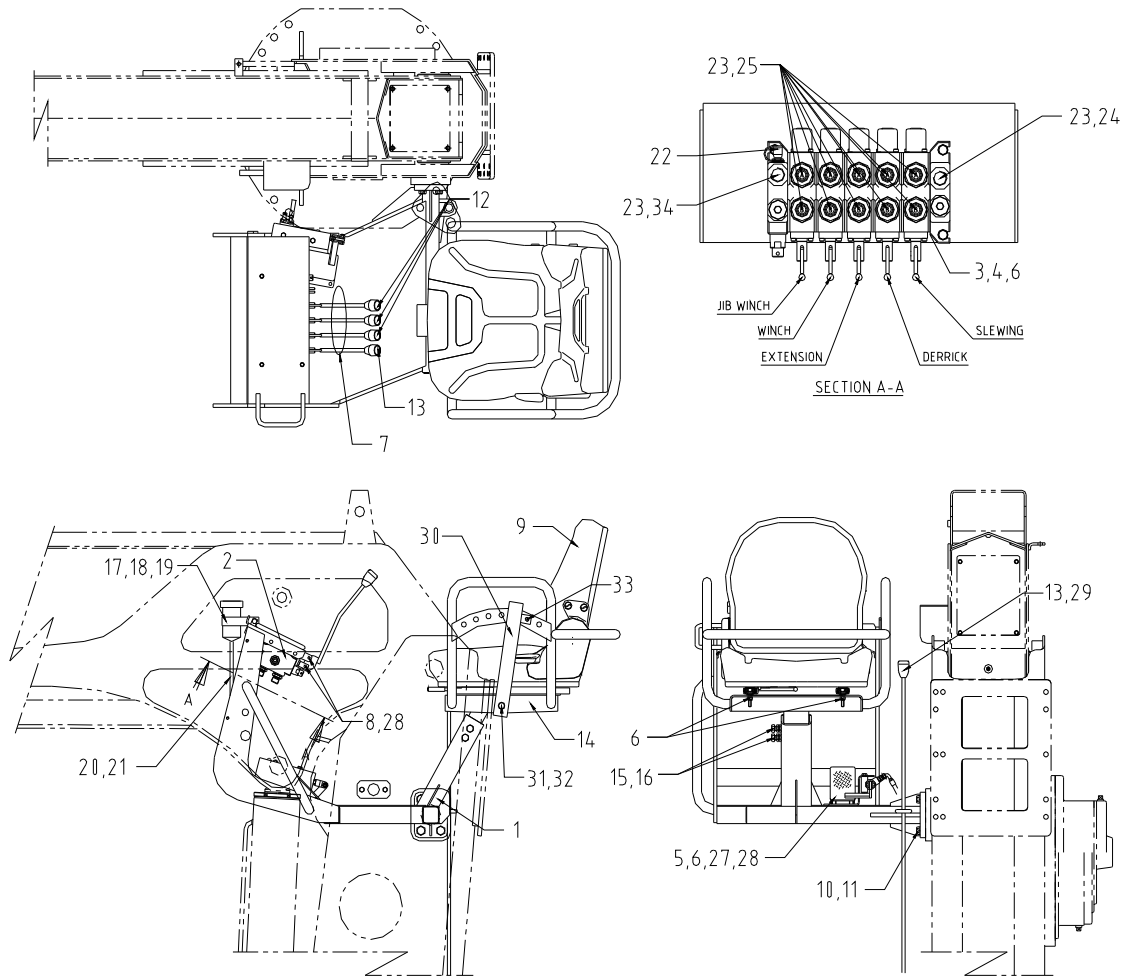
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-	A01-0539	운전석 결합체 TOP SEAT ASSY	1		10	2112137	육각 볼트 BOLT, HEX. HEAD	4	BA16×35
1	A02-2523	운전석 구조물 STRU., TOP SEAT	1		11	3612161	스프링 와셔 WASHER, SPRING	4	WS16
2	H02-0290	주 제어 밸브 VALVE, MAIN CONTROL	1	RS215	12	S01-0047	손잡이 KNOB	3	BLACK
3	2115997	육각 볼트 BOLT, HEX. HEAD	4	BA8×65	13	S01-0048	손잡이 KNOB	1	RED
4	3511081	평 와셔 WASHER, PLAIN	4	WP8	14	A02-2398	의자 브라켓 BRACKET, SEAT	1	
5	A02-1778	악셀 페달 마운팅 ACCEL PEDAL MTG.	1		15	2111546	육각 볼트 BOLT, HEX. HEAD	2	BA12×40
6	S01-0005	셀프 로킹 너트 NUT, SELF LOCKING	7	M8	16	3111126	육각 너트 NUT, HEX.	2	NA12
7	TS-0043	레버 LEVER	4		17	TS-0029	오일 탱크 TANK, OIL	1	
8	S01-0049	핀 PIN	8		18	TS-0030	오일 탱크 밴드 BAND, OIL TANK	1	
9	S01-2216	의자 SEAT	1		19	2110926	육각 볼트 BOLT, HEX. HEAD	1	BA8×30

SPARE PARTS LIST



운전석 결합체
TOP SEAT ASS'Y

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운전석 결합체
TOP SEAT ASS'Y

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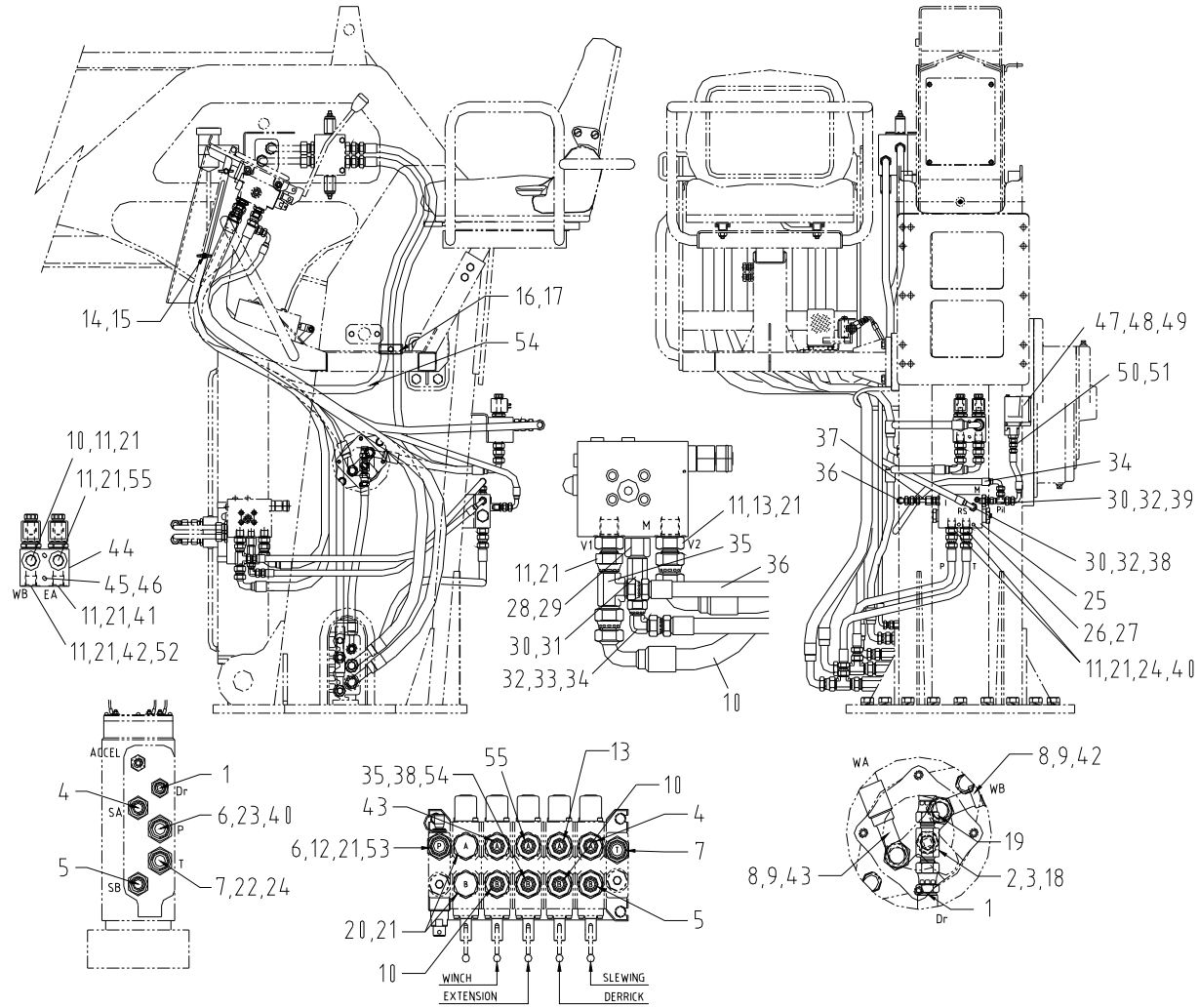
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20	TS-0031	비닐 튜브 TUBE, VINYL	1		30	A05-2500	파이프 PIPE, UMBRELLA	1	
21	7111011	호스 클램프 CLAMP, HOSE	2	CH6	31	3511201	평 와셔 WASHER, PLAIN	1	WP20
22	998 9676	게이지 니플 NIPPLE, GAUGE	1	PF1/4	32	4510211	멈춤 링 RING, RETAINING	1	RS20
23	6800081	실링 와셔 WASHER, SEALING	12	PF1/2	33	S01-2891	손잡이 KNOB	1	M12×50
24	9270432	호스 유니언 UNION, CONICAL	1	PF3/4×PF1/2	34	S01-2923	호스 니플 NIPPLE, PT HOSE	1	PT1/2×PF1/2
25	9270072	호스 유니언 UNION, CONICAL	10	UC1/2×1/2					
26	2110886	육각 볼트 BOLT, HEX. HEAD	3	BA8×20					
27	3612081	스프링 와셔 WASHER, SPRING	3	WS8					
28	4551091	멈춤 링 RING, RETAINING	8	RE6					
29	M01-1060	레버 LEVER	1						

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운전석 배관도
TOP SEAT HOSES

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운전석 배관도
TOP SEAT HOSES

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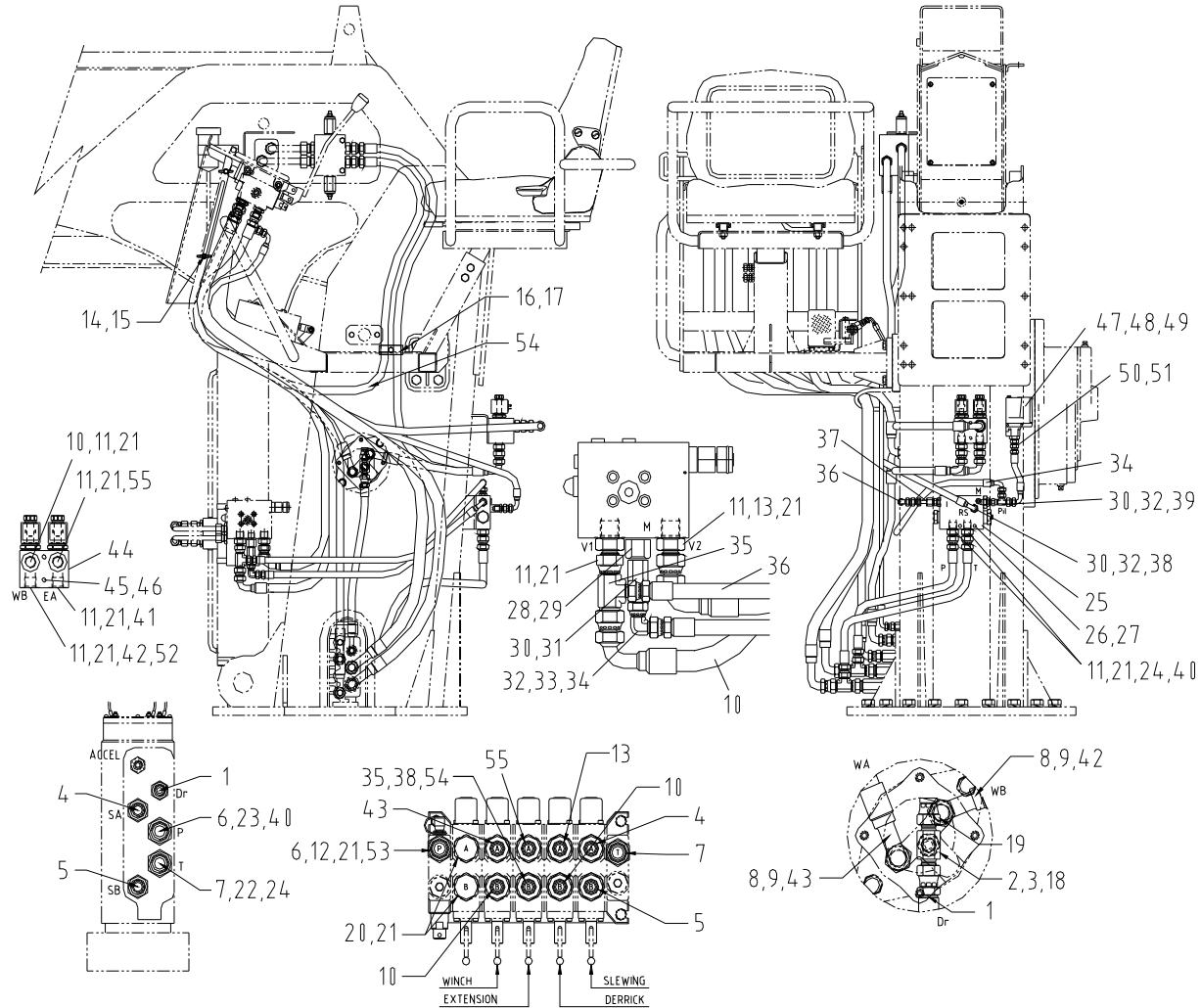
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-	A01-2339	운전석 배관도 TOP SEAT HOSES	1		10	7172623	고압 호스 HOSE, H.P (HECF)	2	3/8×1800-PF1/2
1	7170592	고압 호스 HOSE, H.P (HECF)	1	3/8×480-PF3/8	11	9270072	호스 유니언 UNION, CONICAL	8	UC1/2×1/2
2	N01-3217	롱 니플 NIPPLE, LONG	1	PF3/8×PF3/8-210	12	9211122	호스 니플 NIPPLE, PT HOSE	1	NTC12
3	6010172	O-RING O-RING	1	1B P14	13	7172583	고압 호스 HOSE, H.P (HECF)	1	3/8×1700-PF1/2
4	7172633	고압 호스 HOSE, H.P (HECF)	1	3/8×1820-PF1/2	14	W01-4128	커버 COVER	1	t=1.6
5	7172663	고압 호스 HOSE, H.P (HECF)	1	3/8×1900-PF1/2	15	S01-2575	윙 볼트 BOLT, WING	4	M8×P1.25
6	7174063	고압 호스 HOSE, H.P (HECF)	1	1/2×1650-PF1/2	16	TS-0038	호스 클램프 CLAMP, HOSE	2	
7	7178673	고압 호스 HOSE, H.P (HECF)	1	3/4×1920-PF3/4	17	2180936	플렌지 붙이 육각 볼트 BOLT, HEX. HEAD W/F	1	BWF8×35
8	N01-3218	롱 니플 NIPPLE, LONG	2	PF1/2×PF1/2-175	18	H01-0901	호스 스위블 티 TEE, HOSE SWIVEL	1	3-PF3/8
9	6010212	O-링 O-RING	2	1B P18	19	S01-1853	캡 CAP, PF	1	PF3/8

SPARE PARTS LIST



운전석 배관도 TOP SEAT HOSES

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운전석 배관도
TOP SEAT HOSES

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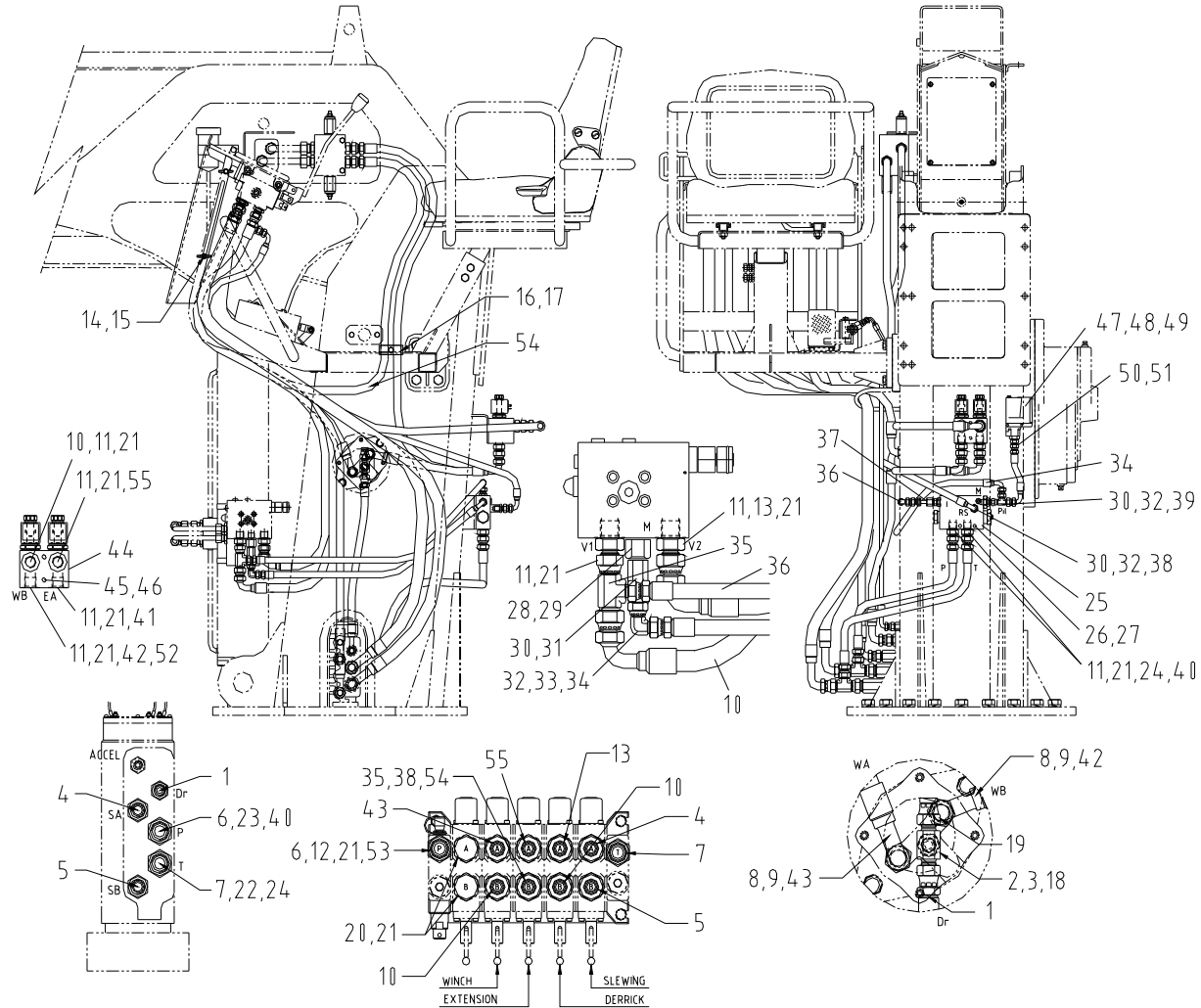
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20	S01-1854	캡 CAP, PF	2	PF1/2	30	6800041	실링 와셔 WASHER, SEALING	3	NF1/4
21	6800081	실링 와셔 WASHER, SEALING	12	NF1/2	31	H02-0313	밸브 VALVE, PARACHUTE	1	
22	S01-2590	호스 스위블 티 TEE, HOSE SWIVEL	1	2-PF3/4×PF1/2	32	9270052	호스 유니언 UNION, CONICAL	3	UC1/4×1/4
23	S01-4569	호스 스위블 티 TEE, HOSE SWIVEL	1	PF3/4×2-PF1/2	33	S01-2291	스위블 엘보 ELBOW, SWIVEL	1	2-PF1/4
24	7118203	고압 호스 HOSE, H.P (HUCF)	1	3/8×750-PF1/2	34	7167843	고압 호스 HOSE, H.P (HECF)	1	1/4×1100-PF1/4
25	H02-0234	OLP 밸브 VALVE, OLP	1		35	S01-1608	호스 스위블 티 TEE, HOSE SWIVEL	2	2-PF1/2×PF1/4
26	2115986	육각머리 볼트 BOLT, HEX. HEAD	2	BA8×60	36	7167823	고압 호스 HOSE, H.P (HECF)	1	1/4×1050-PF1/4
27	S01-0005	셀프 로킹 너트 NUT, SELF LOCKING	2	M8	37	S01-2262	호스 파이프 니플 NIPPLE, HOSE PIPE	1	Φ8×PF1/4
28	6800061	실링 와셔 WASHER, SEALING	1	NF3/8	38	7168053	고압 호스 HOSE, H.P (HECF)	1	1/4×1620-PF1/4
29	9270772	호스 니플 NIPPLE, PF HOSE FEMAIL	1	NFCF3/8×1/4	39	S01-1594	호스 스위블 티 TEE, HOSE SWIVEL	1	3-PF1/4

SPARE PARTS LIST



운전석 배관도 TOP SEAT HOSES

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운전석 배관도
TOP SEAT HOSES

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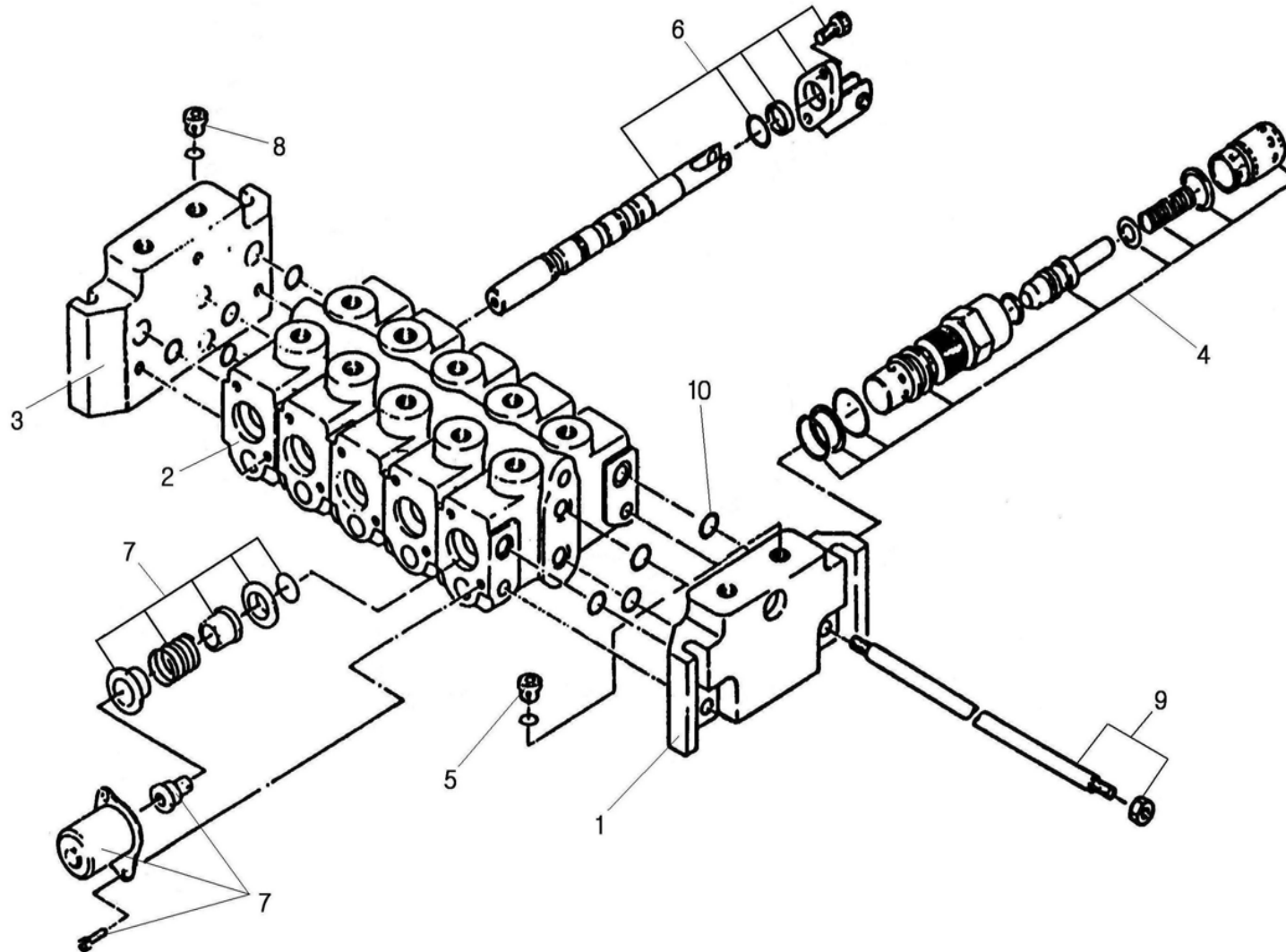
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40	7118163	고압 호스 HOSE, H.P (HUCF)	1	3/8×650-PF1/2	50	9211062	호스 니플 NIPPLE, PT HOSE	1	PT1/4×PF1/4
41	7172543	고압 호스 HOSE, H.P (HECF)	1	3/8×1600-PF1/2	51	7167513	고압 호스 HOSE, H.P (HECF)	1	1/4×300-PF1/4
42	7172073	고압 호스 HOSE, H.P (HECF)	1	3/8×420-PF1/2	52	S01-1579	스위블 엘보 ELBOW, SWIVEL	1	PF1/2
43	7172402	고압 호스 HOSE, H.P (HECF)	1	3/8×1250-PF1/2	53	H02-0236	체크 밸브 VALVE, CHECK	1	PT1/2
44	H02-0576	솔레노이드 밸브 VALVE, SOLENOID	1	OD.15.06.17.1A.SO+S8	54	7118723	고압 호스 HOSE, H.P (HUCF)	1	3/8×2100-PF1/2
45	2110886	육각머리 볼트 BOLT, HEX. HEAD	2	BA8×20	55	7172683	고압 호스 HOSE, H.P (HECF)	1	3/8×1950-PF1/2
46	3612081	스프링 와셔 WASHER, SPRING	2	WS8					
47	H01-0769	압력 스위치 SWITCH, PRESSURE	1	XML-A300D2S14					
48	2615406	구멍볼이 육각 볼트 BOLT, HEX. SOCKET HEAD	2	BB5×45					
49	3612051	스프링 와셔 WASHER, SPRING	2	WS5					

SPARE PARTS LIST



주 제어 밸브
MAIN CONTROL VALVE

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주 제어 밸브
MAIN CONTROL VALVE

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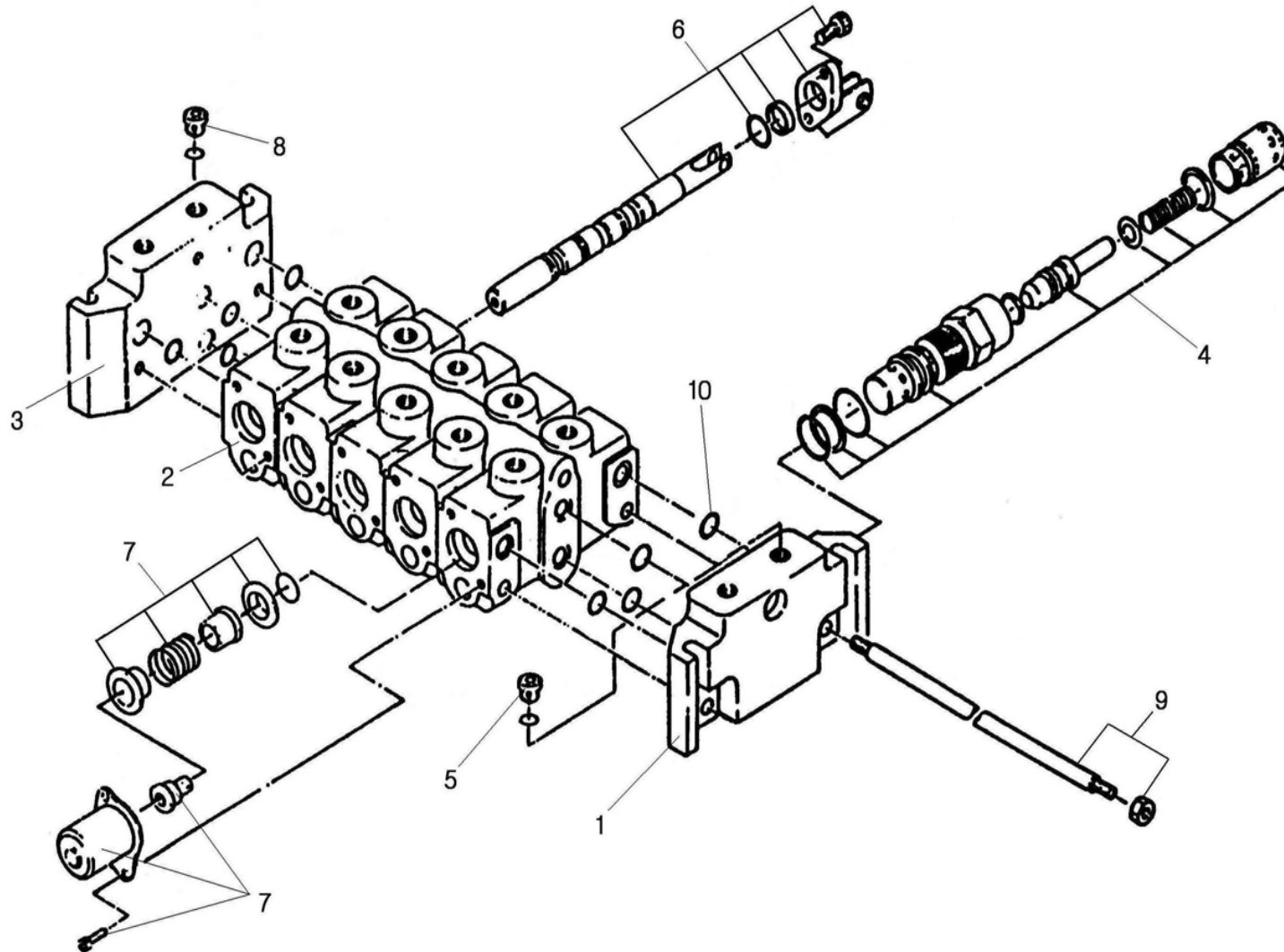
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-	H02-0290	주 제어 밸브 MAIN CONTROL VALVE			-		스페이서 SPACER	1	
1	2330-26982	PT 블록 PT BLOCK	1		-		포핏 POPPET	1	
2	2330-263162	워크 블록 WORK BLOCK	5	RS210	-		백업 링 RING, BACK-UP	1	※
3	2330-260984	엔드 블록 END BLOCK	1		-		O-링 O-RING	1	12.3×2.4 ※
4	2330-210203	메인 릴리프 밸브 VALVE, MAIN RELIEF	1		5	2330-450059	포트 플러그 결합체 PORT PLUG ASS'Y	1	1/2" BSP
-		조절 스크류 SCREW, ADJUSTING	1		-		포트 플러그 PORT PLUG	1	
-		O-링 O-RING	1	13.3×2.4	-		O-링 O-RING	1	17.3×2.4
-		부싱 BUSHING	1		6	2330-266992	브라켓 BRACKET 3-POSITIONS ASSY	5	9:1
-		O-링 O-RING	1	17.3×2.4 ※	-		브라켓 BRACKET	1	
-		스프링 SPRING	1		-		스크레이퍼 링 SCRAPER RING	1	★

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주 제어 밸브
MAIN CONTROL VALVE

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주 제어 밸브
MAIN CONTROL VALVE

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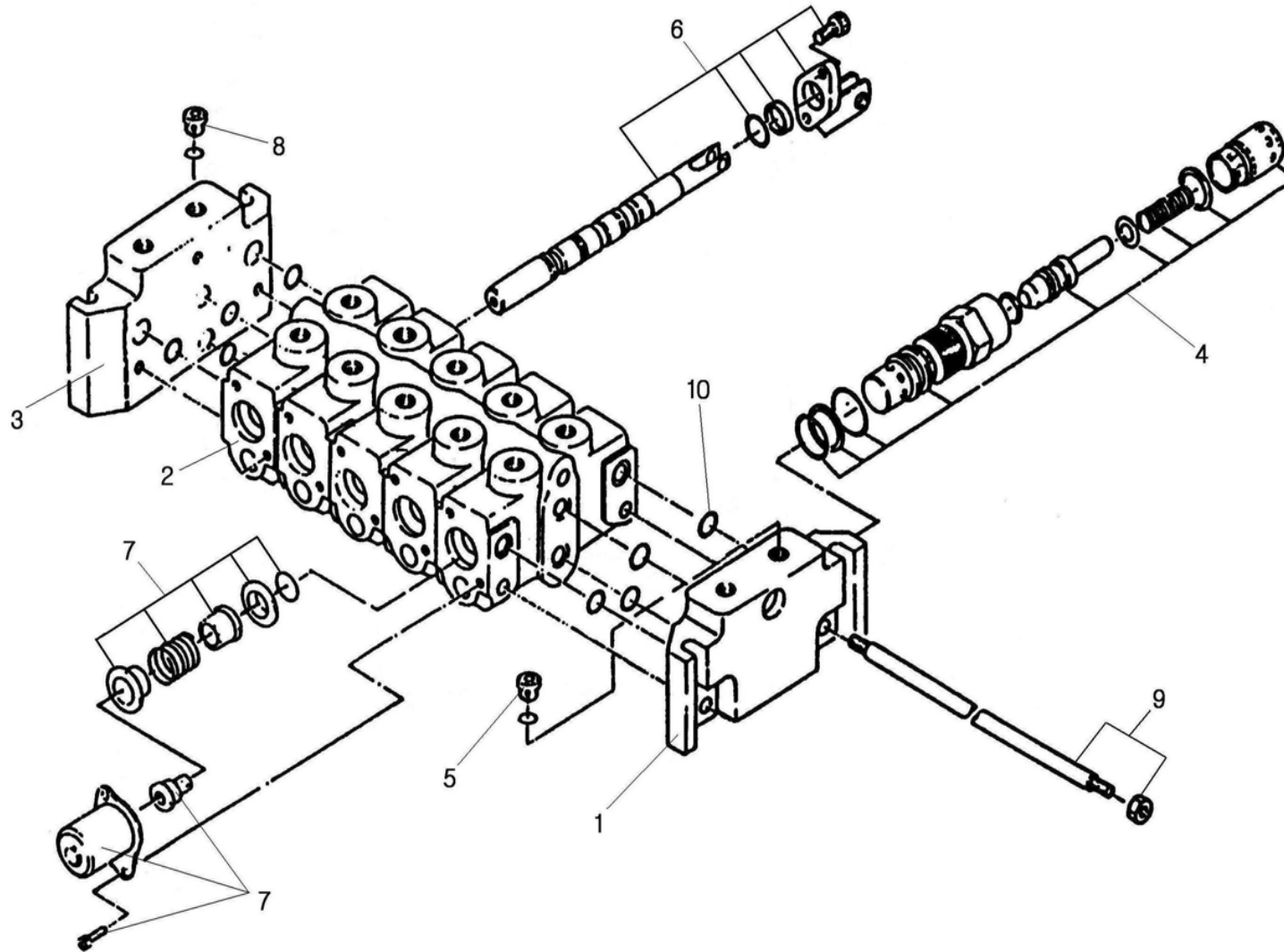
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-	2330-260944	스풀 시일 결합체 SPOOL SEAL ASS'Y	1	★	-		스프링 SPRING	1	
-		스크류 SCREW	2		8	2330-450073	캐리 오버 플러그 결합체 CARRY OVER PLUG ASS'Y	1	
7		스풀 컨트롤 결합체 SPOOL CONTROL ASS'Y	5		-		플러그 PLUG	1	
-		스풀 시일 SEAL, SPOOL	1	★	-		O-링 O-RING	1	13.1×2.62
-		와셔 WASHER	1		9	2330-263395	타이 로드 키트 TIE ROD KIT	1	5 SECTION
-		스크류 SCREW	2		-		타이 로드 TIE ROD	3	
-		캡 CAP	1		-		너트 NUT	3	
-		스프링 가이드 GUIDE, SPRING	1		10	2330-260584	내부 섹션 시일 키트 INTER SECTION SEAL KIT	6	
-		스펙싱 스크류 SCREW, SPACING	1		-		O-링 O-RING	3	15.3×2.4
-		스프링 가이드 GUIDE, SPRING	1		-		O-링 O-RING	1	12.3×2.4

SPARE PARTS LIST



주 제어 밸브
MAIN CONTROL VALVE

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SPARE PARTS LIST



주 제어 밸브
MAIN CONTROL VALVE

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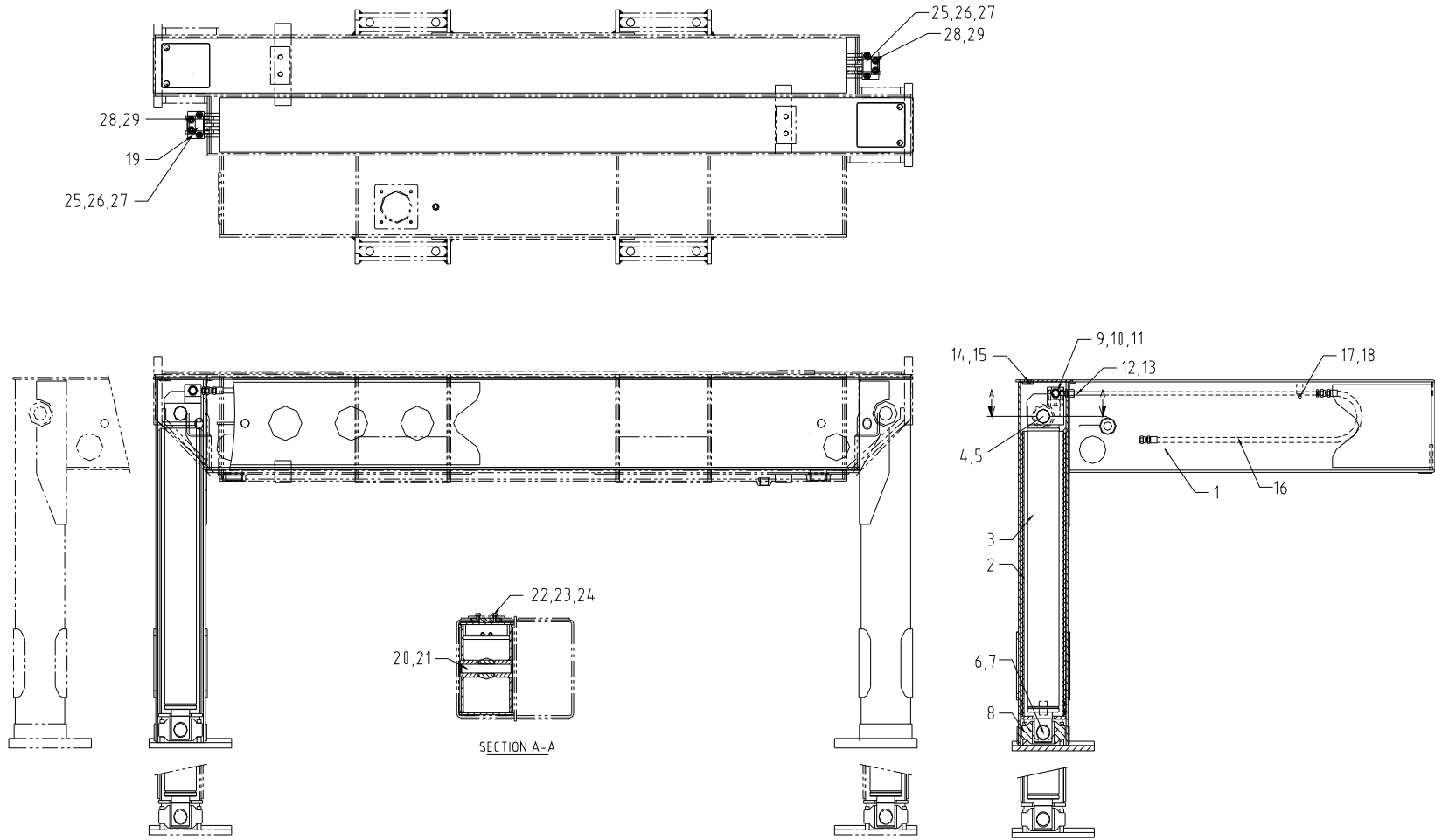
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-	2330-260588	메인 시일 키트 MAIN SEAL KIT		PART MARKED ※					
-	2330-260552	스풀 시일 키트 SPOOL SEAL KIT		PART MARKED ★					

SPARE PARTS LIST



아우트리거 결합체
OUTRIGGER ASS'Y

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아우트리거 결합체
OUTRIGGER ASS'Y

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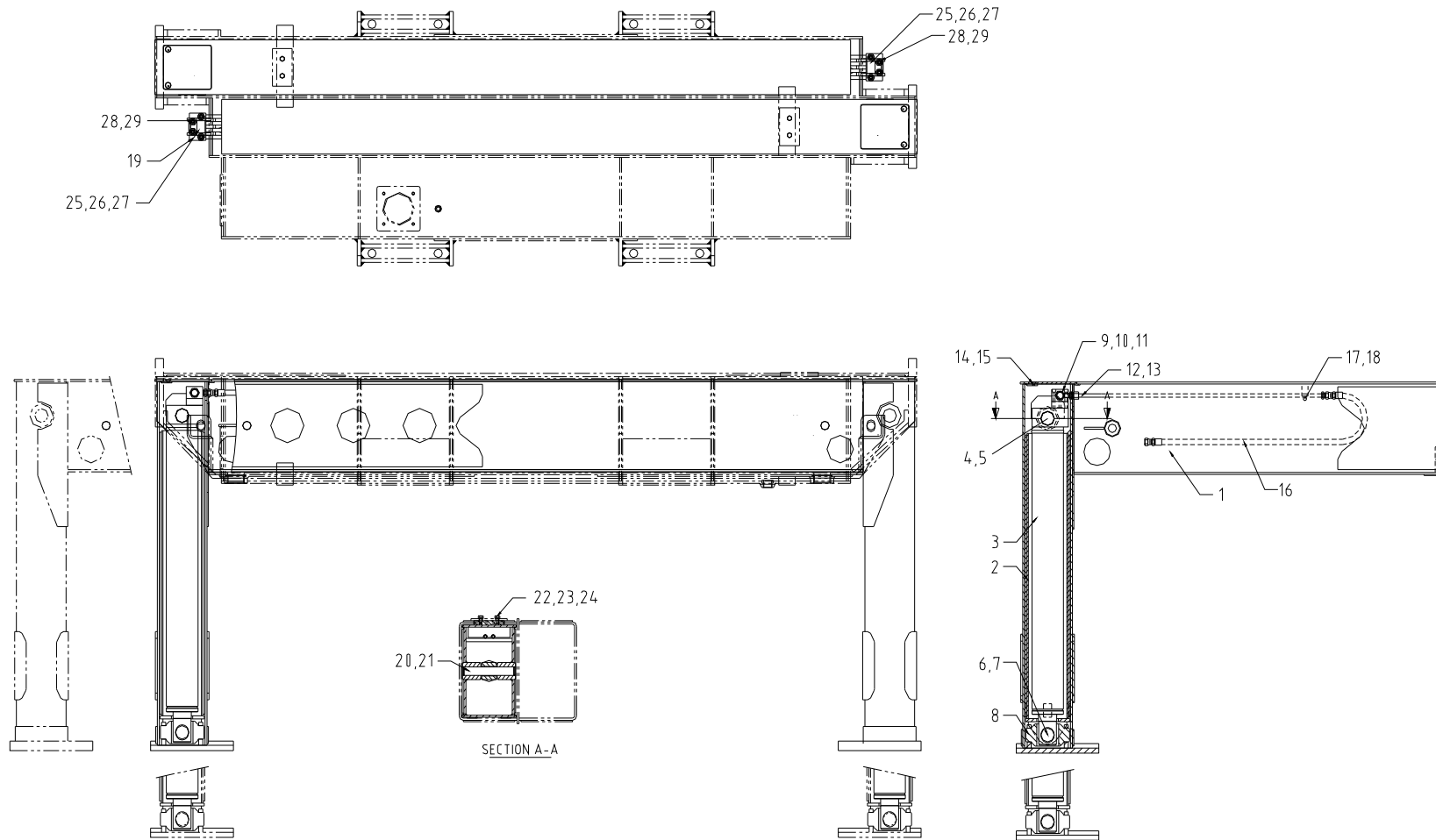
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-	OR1-4001	아우트리거 장치 OUTRIGGER SYSTEM	1		10	6010142	O-링 O-RING	4	1B P12
1	OR1-4003	아우트리거 빔 BEAM, OUTRIGGER	2		11	2615586	구멍 붙이 육각 볼트 BOLT, HEX. SOCKET HEAD	8	BB6×60
2	A05-0970	내부 튜브 TUBE, INNER	2		12	9002512	파이프 니플 NIPPLE, PF PIPE	4	NTP10-PT1/4
3	H01-2066	아우트리거 실린더 OUTRIGGER CYLINDER	2		13	H01-1355	유압 파이프 PIPE, HYDRAULIC	4	Φ10×t1.5
4	OR1-4010	핀 PIN	2		14	A05-0755	커버 COVER	2	
5	4525351	멈춤 링 RING, RETAINING	4	RB40	15	2241606	작은 나사 SCREW, MACHINE	4	BC6×8
6	S01-0754	축 SHAFT	2		16	7113892	고압 호스 HOSE, H.P (HUCF)	4	1/4×1220-PF1/4
7	4510351	멈춤 링 RING, RETAINING	2	RS40	17	M01-0745	핀 PIN	2	
8	OR1-4011	슈 SHOE ASSY	2		18	4551121	멈춤 링 RING, RETAINING	4	RE9
9	H02-1058	파일럿 체크 밸브 VALVE, PILOT CHECK	2		19	H01-1431	사이드 쉬프트 실린더 SIDE SHIFT CYLINDER	2	

SPARE PARTS LIST



아우트리거 결합체
OUTRIGGER ASS'Y

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SPARE PARTS LIST



아우트리거 결합체
OUTRIGGER ASS'Y

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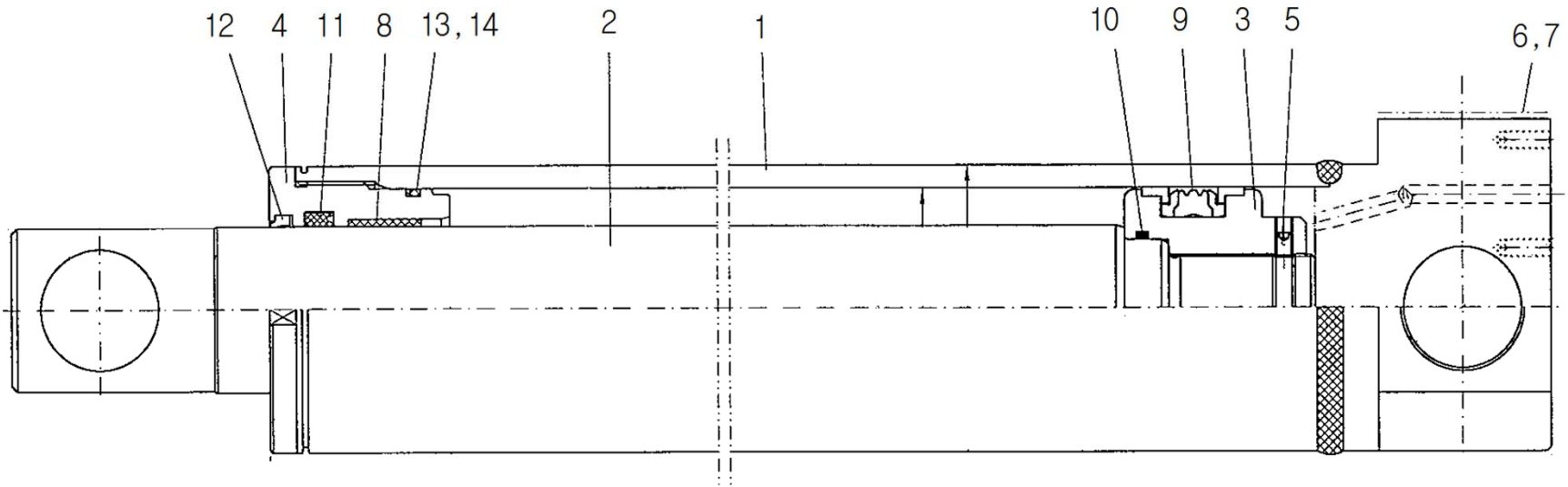
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20	N01-0932	핀 PIN	2						
21	4525251	멈춤 링 RING, RETAINING	4	RB25					
22	OR1-0009	슬라이드 패드 PAD, SLIDE	2						
23	3612081	스프링 와셔 WASHER, SPRING	4	WS8					
24	2110866	육각 볼트 BOLT, HEX. HEAD	4	BA8×16					
25	OR1-3004	축 SHAFT	2						
26	3511241	평 와셔 WASHER, SEALING	2	WP24					
27	1311321	분할 핀 PIN, SPLIT	2	PW6.3×40					
28	9211062	호스 니플 NIPPLE, PT HOSE	8	NTC6					
29	S01-2291	엘보 스위블 SWIVEL, ELBOW	8	PF1/4					

SPARE PARTS LIST



아우트리거 실린더
OUTRIGGER CYLINDER

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SPARE PARTS LIST



아우트리거 실린더
OUTRIGGER CYLINDER

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2013. 09.

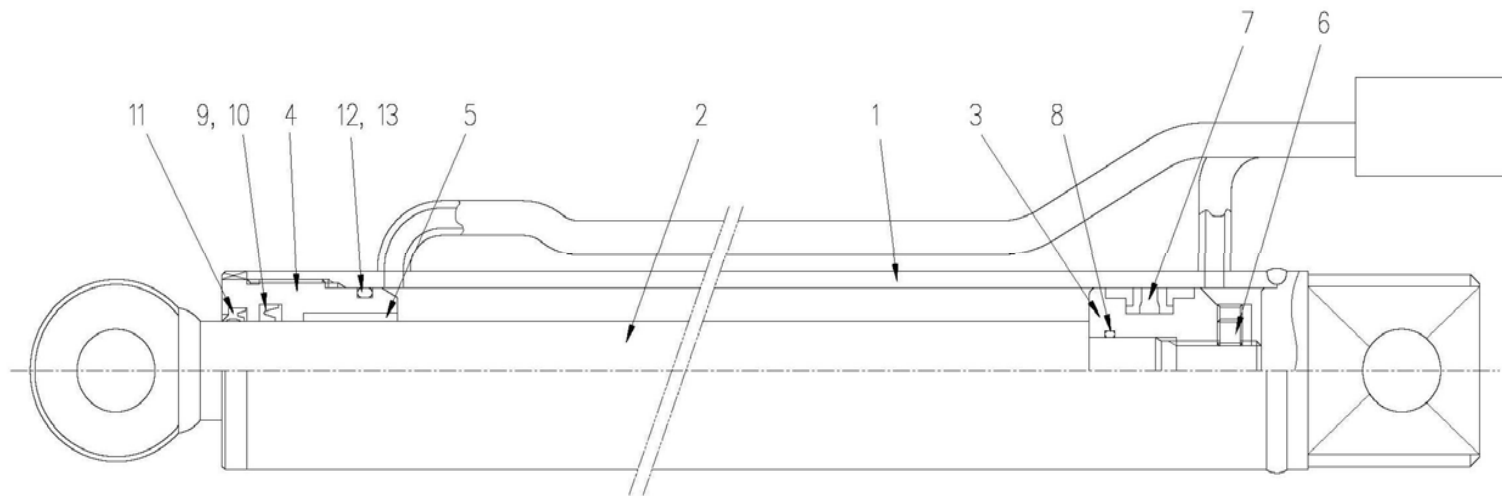
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-	H01-2066 HN25J0A00	아우트리거 실린더 OUTRIGGER CYLINDER	1		10		O-링 O-RING	1	1B G45
1	HN25J0010	튜브 결합체 TUBE ASS'Y	1		11		U-패킹 U-PACKING	1	NI-300 (Φ55×Φ65×10W)
2	HN24J0A10	로드 ROD	1		12		더슬 와이퍼 DUST WIPER	1	KDD 55
3	SH10J8030	피스톤 PISTON	1		13		O-링 O-RING	1	1B G75
4	HN04J0030	로드 커버 COVER, ROD	1		14		백업 링 RING, BACK-UP	1	(T-3) G75
5		멈춤 나사 SCREW, SET	1	M8×P1.25×6L					
6		더스트 커버 DUST COVER	1	50×70×3.2t					
7		육각 볼트 HEX. BOLT	2	M6×P1.0×10L	-	S01-2125	시일 키트 KIT, SEAL	1	
8		부쉬 DU BUSH	1	MB 5525 DU					
9		컴팩트 시일 SEAL, COMPACT	1	PCB 0A0800-NCRO					

SPARE PARTS LIST



사이드 쉬프트 실린더
SIDE SHIFT CYLINDER

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SPARE PARTS LIST



사이드 쉬프트 실린더
SIDE SHIFT CYLINDER

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2013. 09.

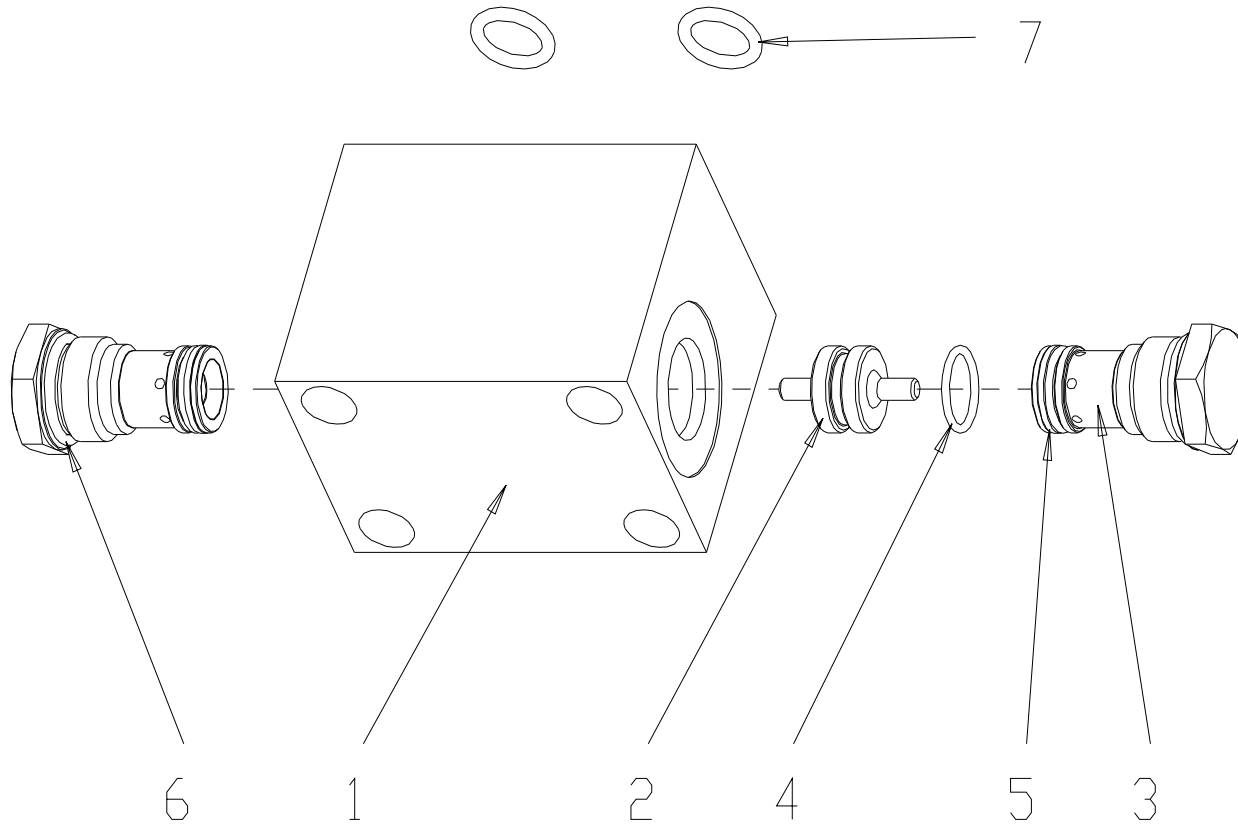
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-	H01-1431	사이드 쉬프트 실린더 SIDE SHIFT CYLINDER	1		10	6036751	백업 링 RING, BACK-UP	1	BRT2 30
1	HN21SS010-01	튜브 결합체 TUBE ASS'Y	1		11	6115571	더스트 시일 SEAL, DUST	1	DSI 30
2	HN03SS020	로드 결합체 ROD ASS'Y	1		12	6012292	O-링 O-RING	1	1B G45
3	SS56C0030	피스톤 PISTON	1		13	6035701	백업 링 RING, BACK-UP	1	T3 G45
4	SH17FE040	로드 커버 COVER, ROD	1						
5	4320921	DU 부싱 BUSHING, DU	1	MB3025DU					
6	2350446	멈춤 나사 SCREW, SET	1	BV6×6					
7	6211211	컴팩트 시일 SEAL, COMPACT	1	DAS 50	-	S01-0921	시일 키트 KIT, SEAL	1	
8	6010212	O-링 O-RING	1	1B P18					
9	6513591	U-패킹 U-PACKING	1	ISI 30					

SPARE PARTS LIST



파일로트 체크 밸브 (D)
PILOT CHECK VALVE (D)

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SPARE PARTS LIST



파일로트 체크 밸브 (D)
PILOT CHECK VALVE (D)

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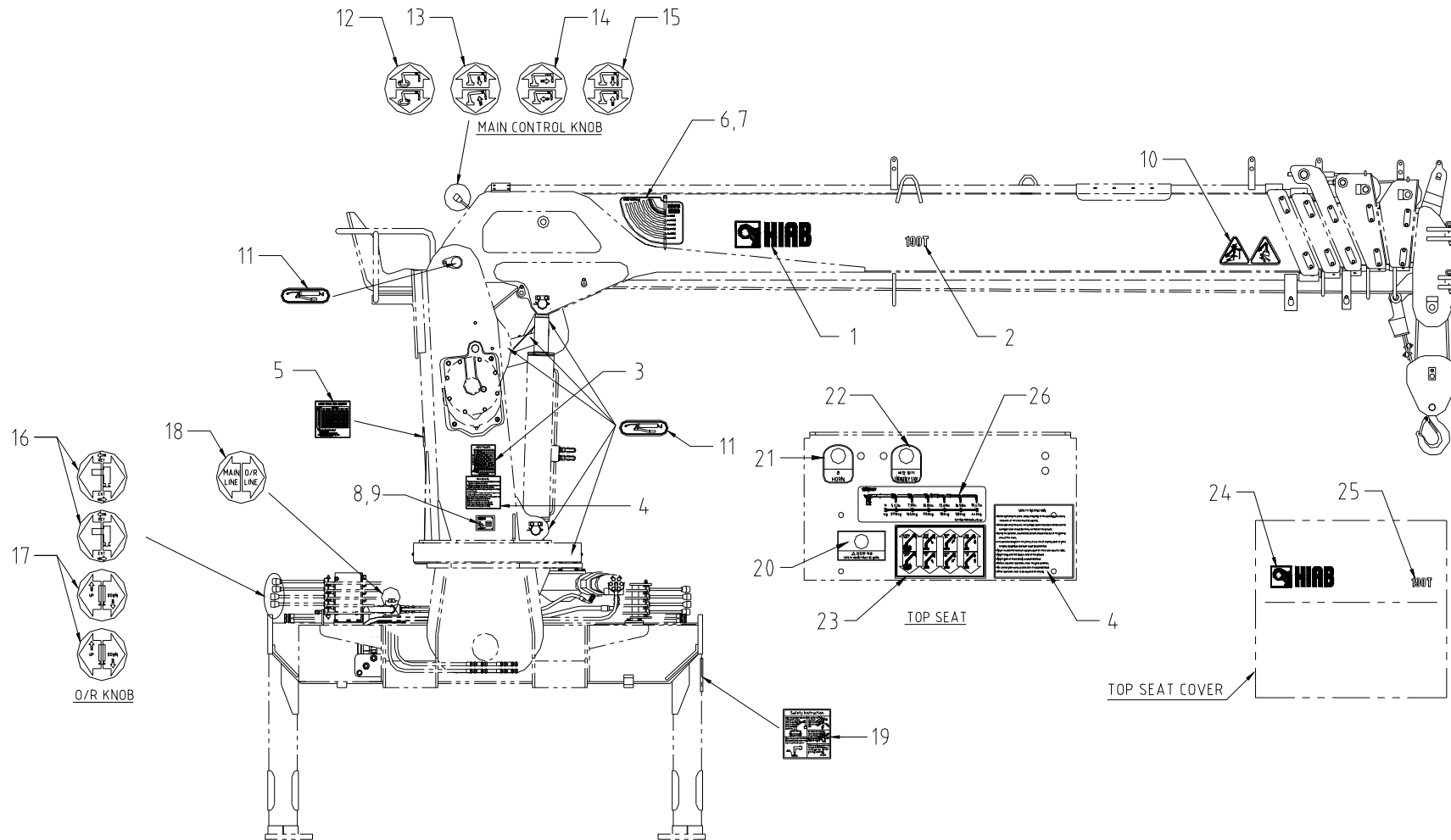
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-	H02-1058	파일로트 체크 밸브 VALVE, PILOT CHECK (D)	1						
1	D25-0005-1	블록 BODY, VALVE	1	50×55×73					
2	D25-0005-2	스풀 SPOOL	1						
3	D25-0005-3	체크 밸브 VALVE, CHECK	2						
4	D25-0005-4	오 링 O-RING	3	Φ13×t1.5					
5	D25-0005-5	백업 링 RING, BACK-UP	2	Φ13×t1.2					
6	D25-0005-6	오 링 O-RING	2	Φ16.5×t2.0					
7	6010142	오 링 O-RING	2	P12					

SPARE PARTS LIST



스티커 배열
STICKER ARRANGEMENT

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SPARE PARTS LIST



스티커 배열
STICKER ARRANGEMENT

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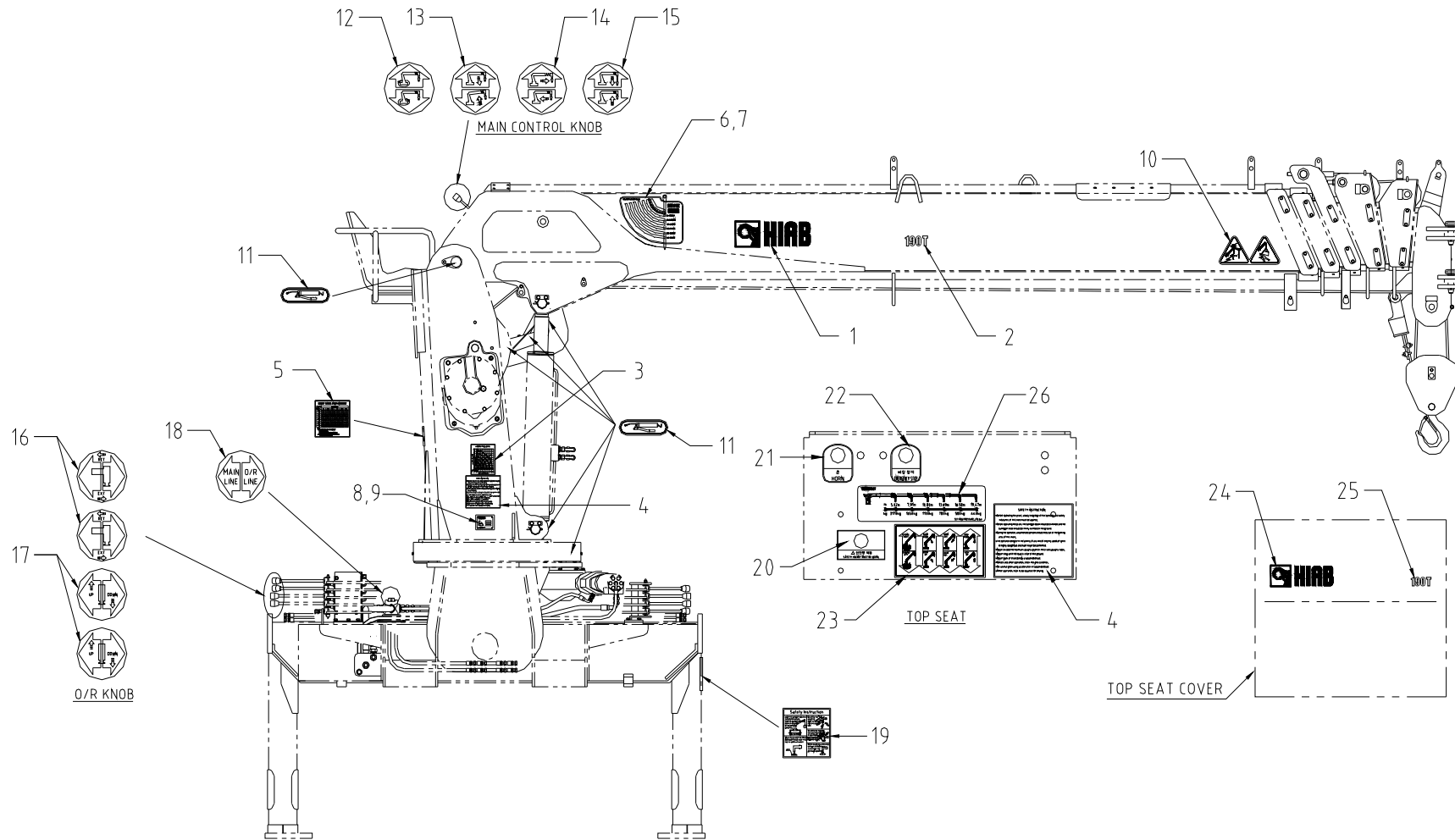
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-	A01-2898	스티커 배열 ARRANGENT, STICKER	1		10	P01-0124	위험 플레이트 PLATE, WARNING	1	
1	387 0370	명칭 플레이트(HIAB) PLATE, NAME(HIAB)	2		11	P01-0159	그리스 스티커 STICKER, GREASE	7	
2	161 8342	190T 플레이트 PLATE, 190T	2		12	P01-0258	선회 스티커 STICKER, SLEWING	1	
3	P01-0373	작업 반경도 WORKING RADIUS	1		13	P01-0259	기복 스티커 STICKER, DERRICK	1	
4	P01-0142	주의사항 라벨 LABEL, WARNING	2		14	P01-0260	신축 스티커 STICKER, EXTENSION	1	
5	P01-2217	적재 능력 LOAD CHART	1		15	P01-0261	윈치 스티커 STICKER, WINCH	1	
6	P01-2030	붐 각도 스티커(오른쪽) STICKER, BOOM ANGLE(RIGHT)	1		16	P01-0264	사이드 쉬프트 스티커 STICKET, SIDE SHIFT	4	
7	P01-2031	붐 각도 스티커(왼쪽) STICKER, BOOM ANGLE(LEFT)	1		17	P01-0265	아웃트리거 스티커 STICKER, JACK	4	
8	P01-0630	명칭 플레이트 PLATE, NAME	1		18	P01-0266	라인 컨트롤 스티커 STICKER, LINE CONTROL	2	
9	S01-0182	블라이드 리벳 RIVET, BLIND	4		19	P01-0358	아웃트리거 위험 플레이트 PLATE, O/R WARINING	2	

SPARE PARTS LIST



스티커 배열 STICKER ARRANGEMENT

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스티커 배열
STICKER ARRANGEMENT

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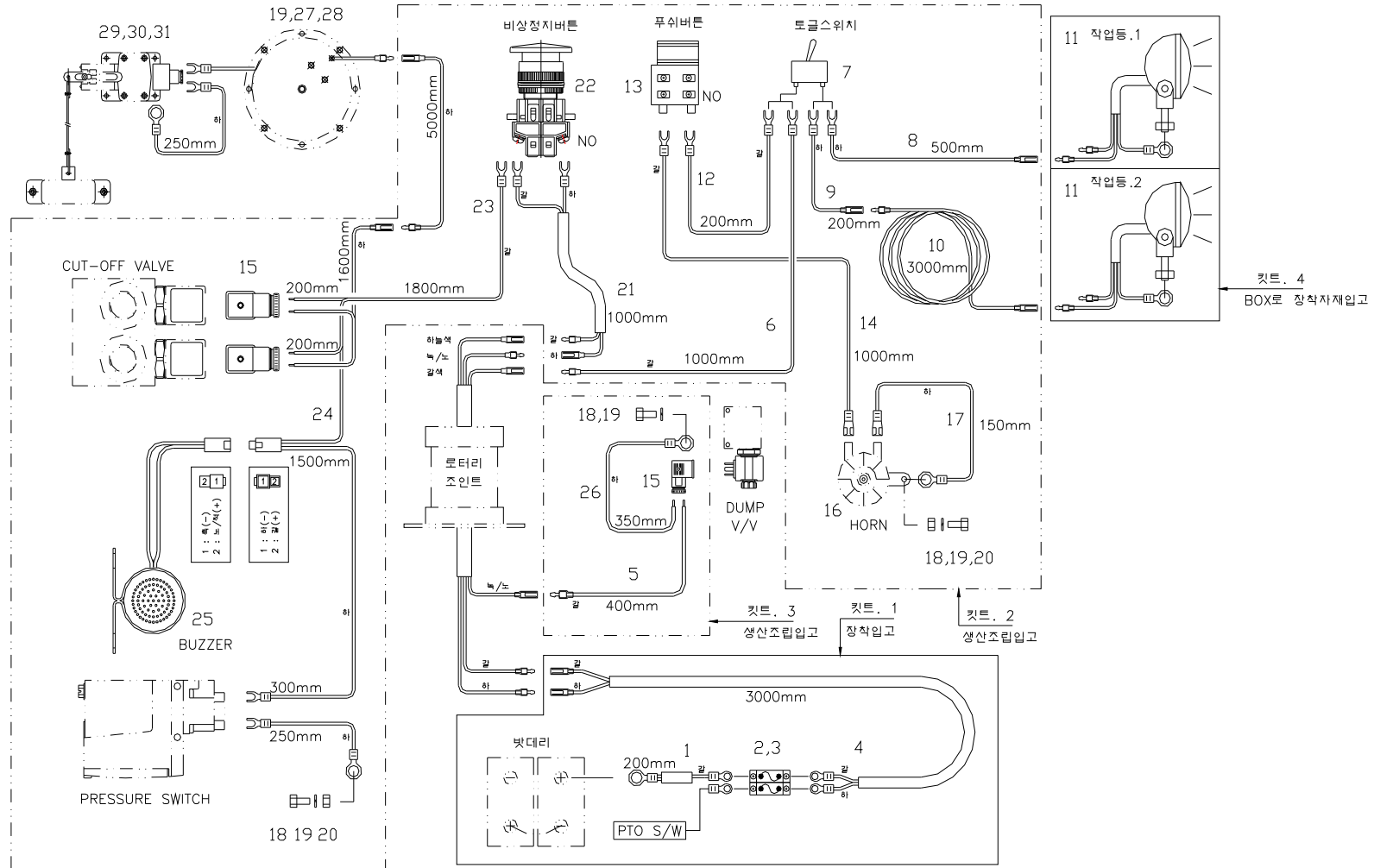
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20	P01-2044	안전모 스티커 STICKER, SAFETY HELMET	1						
21	P01-2132	경적 스티커 STICKER, HORN	1						
22	P01-2133	비상정지 스티커 STICKER, EMERGENCY STOP	1						
23	P01-0273	컨트롤 플레이트 PLATE, CONTROL	1						
24	112768401	로그 라벨 LABEL, LOGO	1						
25	161 8849	모델명 라벨 LABEL, MODEL NAME	1						
26	P01-2512	하중능력 스티커 STICKER, CAPACITY	1						

SPARE PARTS LIST



전기 배선도 ELECTRIC WIRING DIAGRAM

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2013. 09.



SPARE PARTS LIST



전기 배선도
ELECTRIC WIRING DIAGRAM

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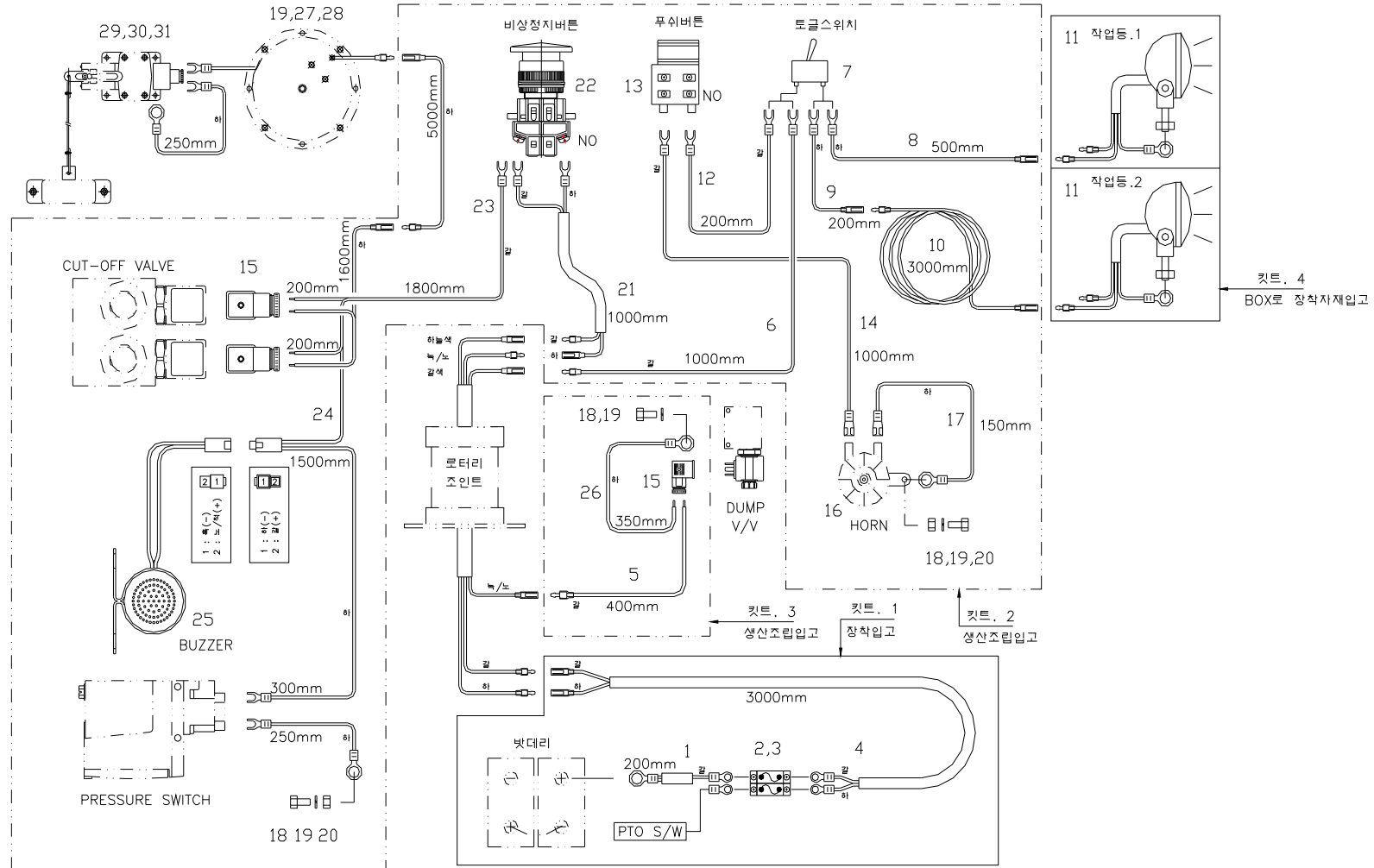
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-	E00-0107	전기 배선도 ELECTRIC WIRING DIAGRAM	1		10	E01-0915	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ
1	E01-0909	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	11	E01-0048	작업 램프 LAMP, WORKING	2	DC24
2	E01-0908	휴즈 홀더 HOLDER, FUSE	1	Φ6, 2P	12	E01-0916	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ
3	E01-0010	휴즈 FUSE	2	Φ6, 15A	13	E01-0095	누른단추 스위치 SWITCH, PUSH BUTTON	1	
4	E01-0910	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	14	E01-0917	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ
5	E01-0911	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	15	E01-0923	컨넥터 CONNECTOR, DIN	3	DIN 3P
6	E01-0912	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	16	E01-0082	경적 HORN	1	
7	E01-0053	토글 스위치 SWITCH, TOGGLE	1		17	E01-0918	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ
8	E01-0913	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	18	2115906	육각머리 볼트 BOLT, HEX. HEAD	3	BA8×25
9	E01-0914	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	19	3612081	스프링 와셔 WASHER, SPRING	7	WS8

SPARE PARTS LIST



전기 배선도 ELECTRIC WIRING DIAGRAM

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SPARE PARTS LIST



전기 배선도
ELECTRIC WIRING DIAGRAM

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번호 No.	부품 번호 Part No.	품명 Description	수량 Q'ty	비고 Remarks	번호 No.	부품 번호 Part No.	품명 Description	수량 Q'ty	비고 Remarks
20	3111086	육각 너트 NUT, HEX.	2	NA8	30	3612051	스프링 와셔 WASHER, SPRING	4	WS5
21	E01-0919	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ	31	2615407	구멍불이 육각 볼트 BOLT, HEX. SOCKET HEAD	4	BB5×45
22	E01-0944	비상정지 스위치 SWITCH, EMERG. STOP	1	LIGHT TYPE					
23	E01-0920	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ					
24	E01-0921	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ					
25	E01-0251	버저 BUZZER	1	D/87628					
26	E01-0922	전기 와이어 결합체 ELECTRIC WIRE ASS'Y	1	1.5SQ					
27	E01-0089	코드 릴 REEL, COAD	1						
28	2110866	육각머리 볼트 BOLT, HEX. HEAD	4	BA8×16					
29	E01-1117	리밋 스위치 SWITCH, LIMIT	1	WLS4041W					

SPARE PARTS LIST



펌프
PUMP

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SPARE PARTS LIST

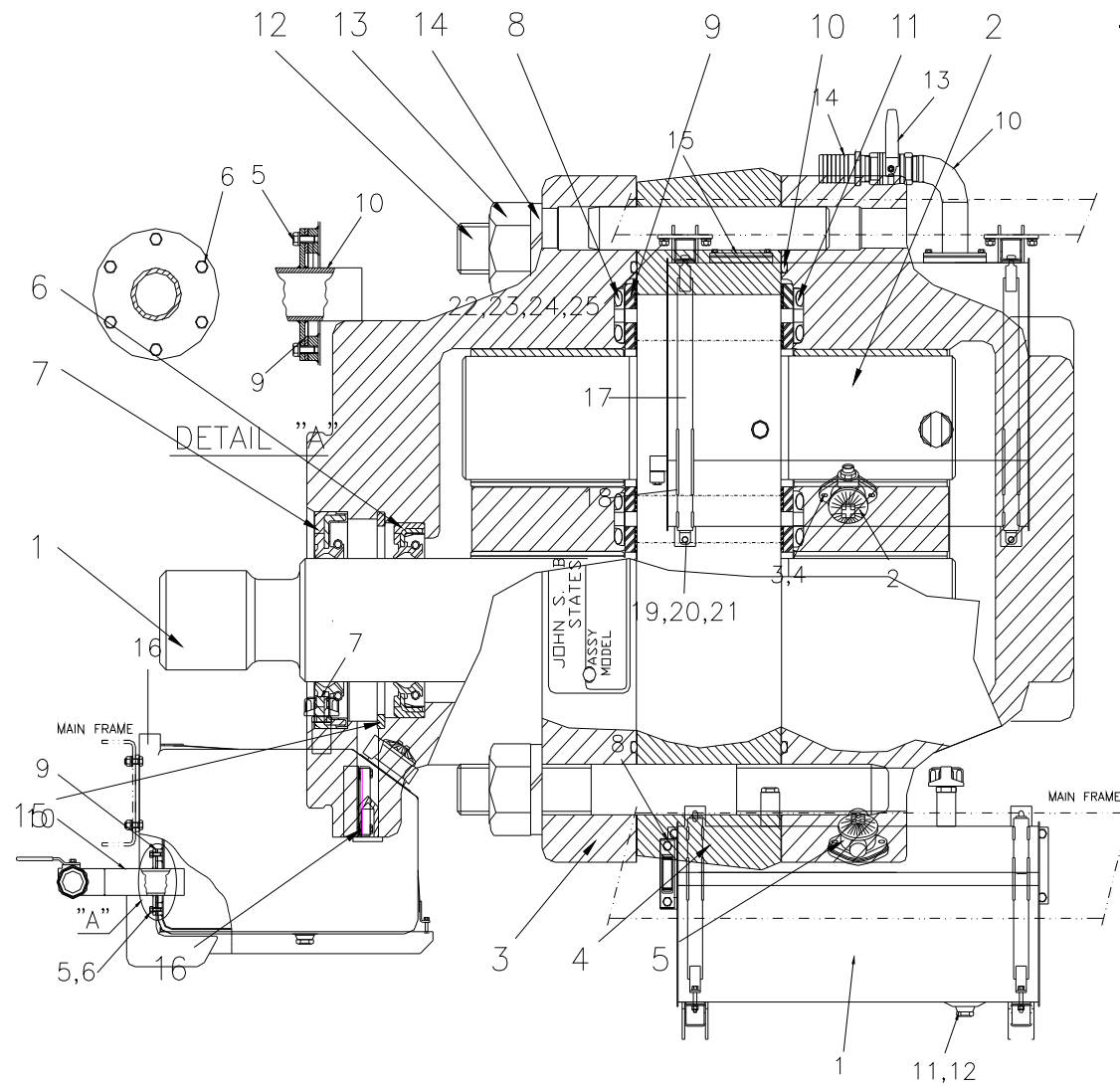


펌프
PUMP

HIAB190T-6 28:0
2011. 03.

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-	H01-0142	펌프 PUMP, HYDRAULIC	1	G20 (HALDEX)	10	853207	O-링 O-RING	2	
1	409781	드라이브 기어 DRIVE GEAR	1		11	413398	시일 리트레이닝 SEAL RETAINING	2	
2	418126	드라이브 기어 DRIVEN GEAR	1		12	417854	스터드 볼트 STUD BOLT	8	
3	514080	프런트 커버 키트 KIT, FRONT COVER	1		13	407921	육각 너트 NUT, HEX.	8	
4	573534	센터 섹션 CENTER SECTION	1		14	99785	로크 와셔 LOCK WASHER	8	
5	2100935	리어 커버 키트 KIT, REAR COVER	1		15	85560	멈춤 링 RING, RETAINING	1	
6	192303	이너 샤프트 시일 SEAL, INNER SHAFT	1		16	576482	플러그 PLUG, DRIN.	1	
7	408996	아웃터 샤프트 시일 SEAL, OUTER SHAFT	1						
8	413397	시일 글랜드 SEAL GLAND	2		-	866855	시일 키트 SEAL KIT	1	
9	818348	웨어 플레이트 PLATE, WEAR	2						

SPARE PARTS LIST



SPARE PARTS LIST



오일 탱크
OIL TANK

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2011.03.

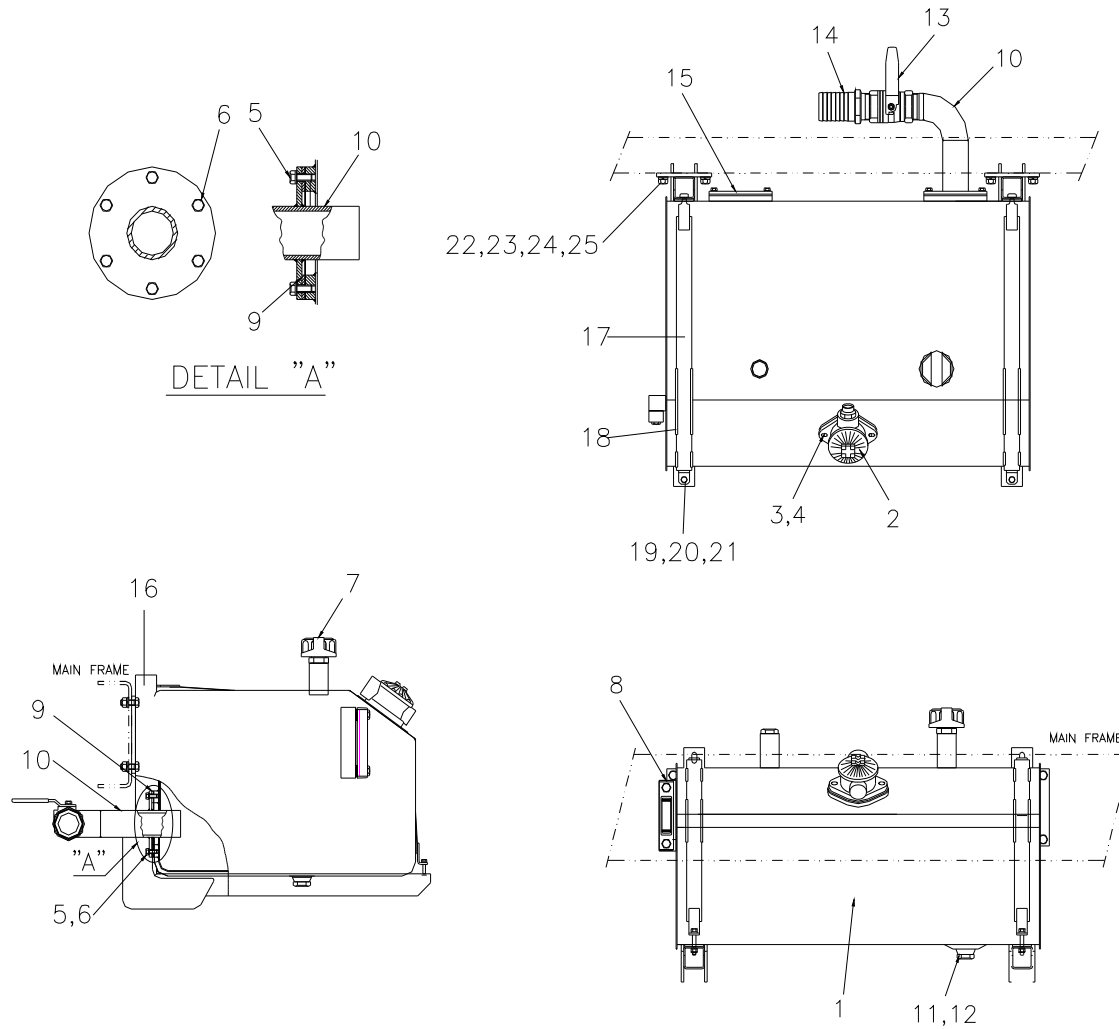
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-	A02-2592	오일 탱크 조립체 OIL TANK ASS'Y	1	200 ℓ	10	A05-1570	흡입 플랜지 FLANGE, SUCTION	1	2"
1	A05-2037	오일 탱크 바디 BODY, OIL TANK	1	t2.3	11	6010282	O-링 O-RING	2	P24
2	H01-1287	리턴 필터 FILTER, RETURN	1	RFM165	12	S01-0076	플러그 PLUG	2	PF3/4
3	3612101	스프링 와셔 WASHER, SPRING	2	WS10	13	S01-0740	핸드 스톱 밸브 VALVE, HAND STOP	1	50A (2")
4	2111206	육각 볼트 BOLT, HEX. HEAD	2	BA10×25	14	N01-2302	석션 니플 NIPPLE, SUCTION	1	PT2"×Φ65
5	2110886	육각 볼트 BOLT, HEX. HEAD	12	BA8×20	15	W01-6101	커버 COVER	1	t4.5
6	3612081	스프링 와셔 WASHER, SPRING	12	WS8	16	A05-1147	마운팅 브라켓 BRACKET, MOUNTING	2	
7	S01-2475	에어 브리더 BREATHER, AIR	1		17	N01-2306	오일 탱크 밴드 OIL TANK BAND	2	
8	S01-2474	오일 레벨 게이지 GUAGE, OIL LEVEL	1	13×20×130	18	S01-0046	밴드 BAND	4	
9	OT-0013	가스켓 GASKET	2	t4×150	19	2115976	육각 볼트 BOLT, HEX. HEAD	2	BA8×55

SPARE PARTS LIST



오일 탱크
OIL TANK

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오일 탱크
OIL TANK

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2011.03.

번호 No.	부품 번호 Part No.	품 명 Description	수량 Q'ty	비 고 Remarks	번호 No.	부품 번호 Part No.	품 명 Description	수량 Q'ty	비 고 Remarks
20	3111081	육각 너트 NUT, HEX.	2	NA8					
21	3511081	평 와셔 WASHER, PLAIN	4	WP8					
22	3612121	스프링 와셔 WASHER, SPRING	12	WS12					
23	2111546	육각 볼트 BOLT, HEX. HEAD	12	BA12×40					
24	3111121	육각 너트 NUT, HEX.	12	NA12					
25	W01-1440	플레이트 PLATE	2						

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