

CUSTOMER	
SHIP NO.	
BUILDER	

Engine type	Turbocharger type	Tier3	Hydraulic supply oil
			Common system
6UEC50LSH-Eco-C3-EGR	MET53MB/-EGB×1	x	x
	MET48MB/-EGB×1	x	x
	MET42MB/-EGB×1	x	x

DESTINATION		SERIAL NO.	MODEL 6UEC50LSH-Eco-C3-EGR		
		ORDER NO.	諸管線図集 PIPING DIAGRAM		
		ENGINEERING DEPARTMENT			
	APPROVED	江戸			
	CHECKED	木下 吉川			
	DRAWN	甘利			
		DATE	Nov.6, 2018	DRAWING NO.	REV.
	SHEETS	32 (with cover)	SHEETS	U7-0K093	E
Total					

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FIRE PROTECTIONS FOR FUEL OIL, LUBRICATING OIL AND OTHER FLAMMABLE OILS.

Protection for flammable oil spreading.

Pipe joints of flammable oil lines are covered with FN tape or aluminum cloth to comply with CLASSIFICATION SOCIETY RULES.

1. Pipe joints for fuel oil supply pipe
2. Pipe joints for fuel oil high pressure pipe
3. Pipe joints for fuel oil pressure gauge pipe
4. Pipe joints for piston cooling oil pipe
5. Pipe joints for turbocharger lubricating oil pipe
6. Pipe joints for lubricating oil pressure gauge pipe

可燃性油飛散防止対策について

以下の可燃性油管フランジ及び特殊継手部には、船級ルールに基づきFNテープまたは、アルミクロスにより飛散防止の措置を講じる。

1. 燃料油管継手
2. 燃料高圧管継手部
3. 燃料圧力計配管継手部
4. ピストン冷却油管継手部
5. 過給機潤滑油入口管継手部
6. 潤滑油圧力計配管継手部

※ Flat type sight glasses fitted in the lubricating oil and other flammable oil pipe lines are complied with JIS F7234 or equivalent.

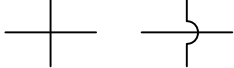
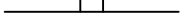
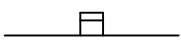
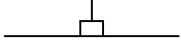
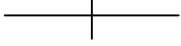
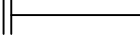
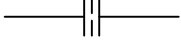
※ 潤滑油、その他可燃性油管に装備する平形サイトグラスは JIS F7234規格品若しくはそれ相当品を使用しております。

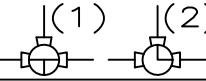
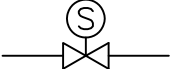
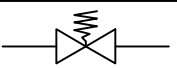
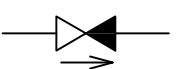
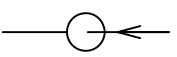
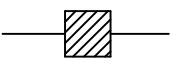
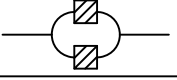
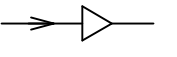
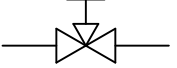
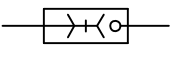
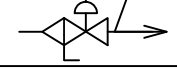
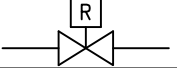
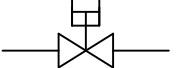
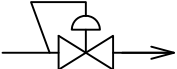
SYMBOLS FOR MAIN ENGINE PIPING DIAGRAM

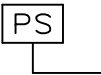
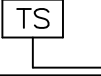
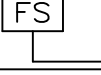
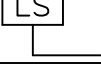
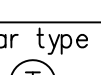
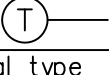
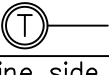
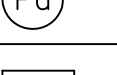
- Remarks
- 1 The pipe size in this document is subject to JIS(Japanese Industrial Standard) G3452 and G3454 "Nominal diameter"
 - 2 Scope of piping work is specified as follows;
—— Solid line: Engine Builder
----- Dotted line: Shipyard
 - 3 The content of symbol in piping diagram is described in the table.
(Page5~Page9)

SYMBOLS FOR MAIN ENGINE PIPING DIAGRAM

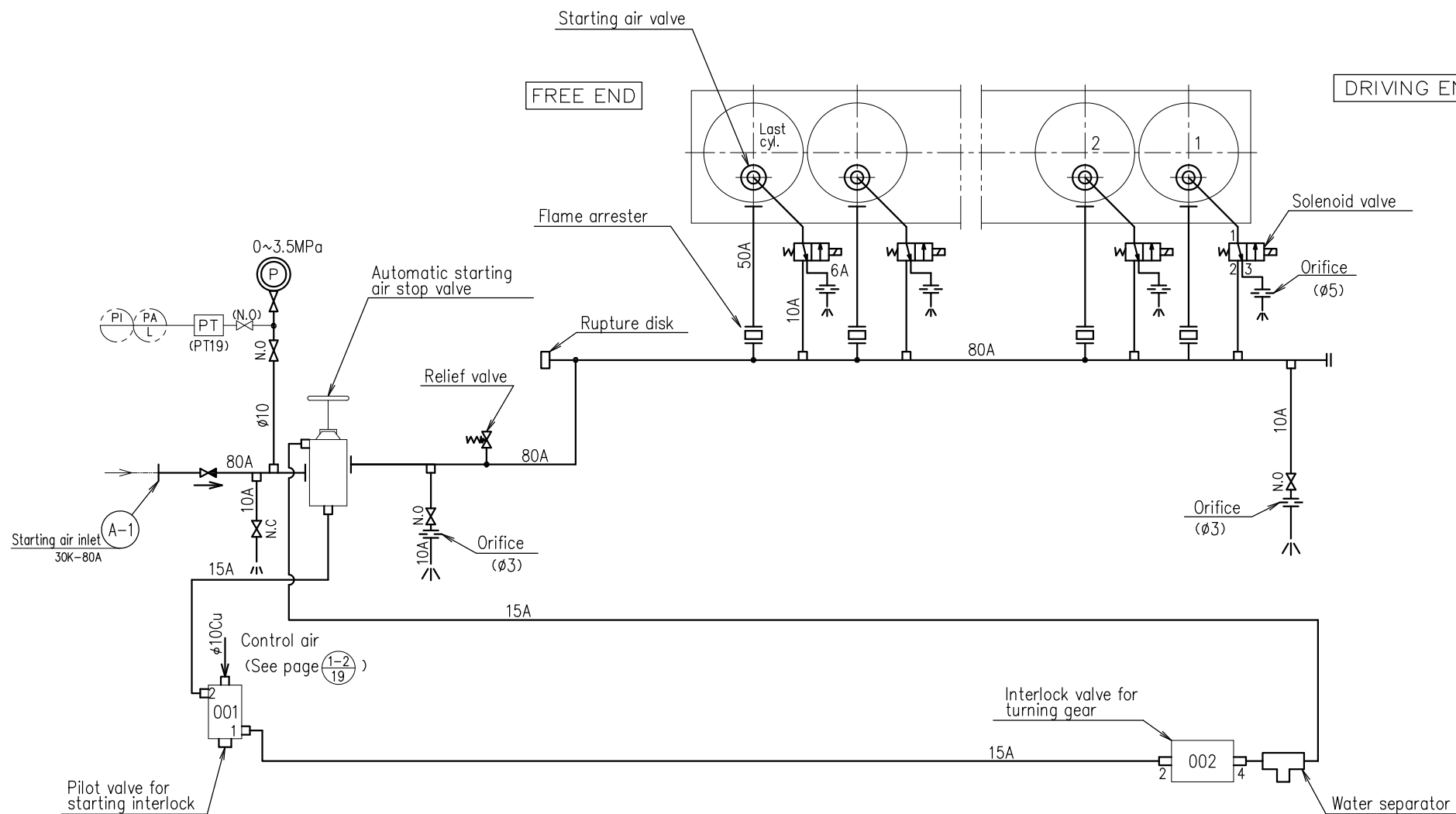
主 機 関 諸 管 線 図 記 号

SYMBOLS 記 号	NAME	名 称	REMARKS 備 考
	<u>Nominal inner diameter</u>	<u>称 呼 口 径</u>	
	Crossing pipes, connected	連 結 管	
	Crossing pipes, not connected	不 連 結 管	
	To bilge	ビ ル ジ ヘ	
	Boss	ボ ス	
	Boss with plug	プ ラ グ 付 ボ ス	
	Joint, bossed	ボ ス 継 手	
	Joint, flanged	フ ラ ン ジ 継 手	
	Blind flange	閉 止 フ ラ ン ジ	
	Orifice	オ リ フ ィ ス	
	Flexible pipe	フ レ キ シ ブ ル パ イ プ	
	Hopper	ホ ッ パ ー	
	Hopper with cover	ふ た 付 ホ ッ パ ー	
	Air vent pipe	空 気 抜 管	
	Siphon	サ イ フ ォ ン	
	Air chamber	エ ア チ ャ ン バ ー	

SYMBOLS 記 号	NAME	名 称	REMARKS 備 考
	Stop valve	止め弁	
	Three-way cock	三方コック	(1) T形 (T-PORT) (2) L形 (L-PORT)
	Butterfly valve	バタフライ弁	
	Solenoid operated valve	電磁弁	
	Gate valve	仕切弁	
	Safety valve	安全弁	
	Check valve	逆止弁	
	Sight glass	サイトグラス	
	Simplex strainer	単式コシ	
	Duplex strainer	複式コシ	
	Y type strainer	Y形ストレーナ	
	Reducer	レジュース	
	Hose coupling	ホース継手	
	Regulating valve	自動調整弁	
	Self-seal joint	セルフシール継手	
	Filter and regulator	フィルタ及び調圧弁	
	Remote control valve	遠隔制御弁	
	Control valve	制御弁	
	Back pressure valve	背圧弁	
	Regulator	レギュレータ	
	Electric driven pump	電動ポンプ	
	Air driven pump	エア駆動ポンプ	
	Drain separator (with auto drain)	ドレンセパレータ (オートドレン付き)	

SYMBOLS 記 号	NAME	名 称	REMARKS 備 考
	Pressure switch	圧力スイッチ	
	Temperature switch	温度スイッチ	
	Float switch	フロートスイッチ	
	Limit switch	リミットスイッチ	
	Pressure transmitter	圧力トランスミッター	
	Temperature sensor	温度センサ	
	O ₂ concentration sensor	O ₂ 濃度センサ	
	Mist sensor	ミストセンサ	
	Smoke sensor	スモークセンサ	
	Oil or water level sensor	液面レベルセンサ	
	Differential pressure switch	差圧スイッチ	
Bar type 	Thermometer	温度計	
Dial type 			
Engine side 	Pressure gauge	圧力計	
on Gauge board 			
	U Tube manometer	U字管式圧力計	
	Differential pressure gauge	差圧計	
	Oil mist detector	オイルミスト警報装置	

SYMBOLS 記 号	NAME	名 称	REMARKS 備 考
	Remotely indicated	遠隔指示計	
PI	Pressure indication	圧力指示	
PA	Pressure alarm	圧力警報	
DPA	Differential pressure alarm	差圧警報	
PSD	Pressure slow down	圧力減速	
PE	Pressure emergency stop	圧力危急停止	
TI	Temperature indication	温度指示	
TA	Temperature alarm	温度警報	
TSD	Temperature slow down	温度減速	
TE	Temperature emergency stop	温度危急停止	
LI	Level indication	液面指示	
LA	Oil or water level alarm	液面指示	
FI	Flow indication	流れ指示	
FA	Flow alarm	流れ警報	
FIA	Flow, indication, alarm	流れ指示、警報	
FSD	Flow slow down	流れ減速	
OI	O ₂ concentration indication	O ₂ 濃度指示	
OA	O ₂ concentration alarm	O ₂ 濃度警報	
MSA	Mist alarm	ミスト警報	
ASD	Auto slow down	自動減速	



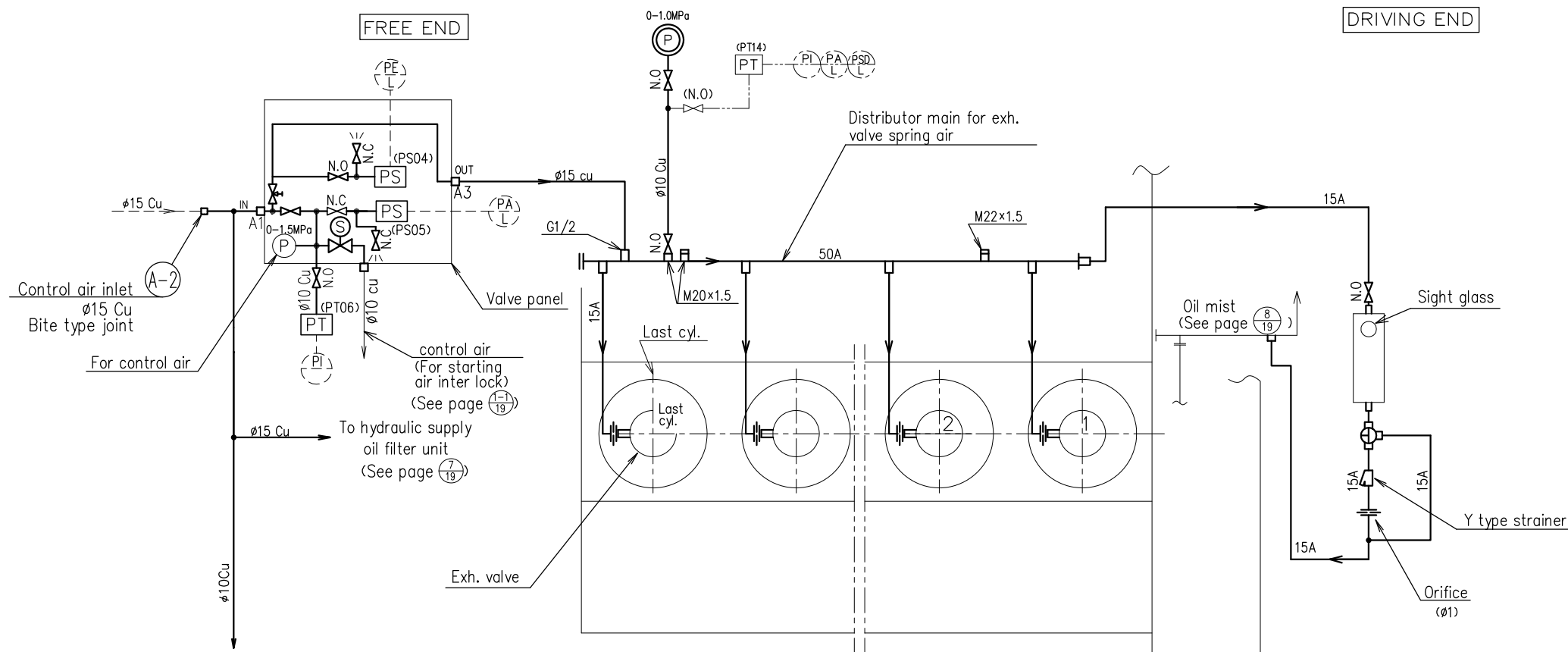
A-1: Starting air inlet

PT19: (Pressure transmitter for starting air
Pressure indication for starting air
Pressure alarm for starting air Low pressure)

6UEC50LSH-Eco-C3-EGR

Piping diagram of
starting air

始動空气管線図



A-2 : Control air inlet

PS04 : (Pressure switch for exhaust valve spring air
(Pressure emergency stop for exhaust valve spring air Low pressure

PS05 : (Pressure switch for control air
(Pressure alarm for control air Low pressure

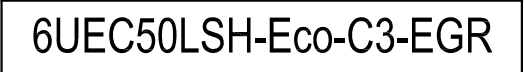
PT06 : (Pressure transmitter for control air
(Pressure indication for control air

PT14 : (Pressure transmitter for exhaust valve spring air
(Pressure indication for exhaust valve spring air
(Pressure alarm for exhaust valve spring air Low pressure
(Pressure slow down for exhaust valve spring air Low pressure

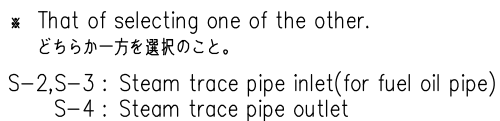
6UEC50LSH-Eco-C3-EGR

Piping diagram of
exh. valve spring air

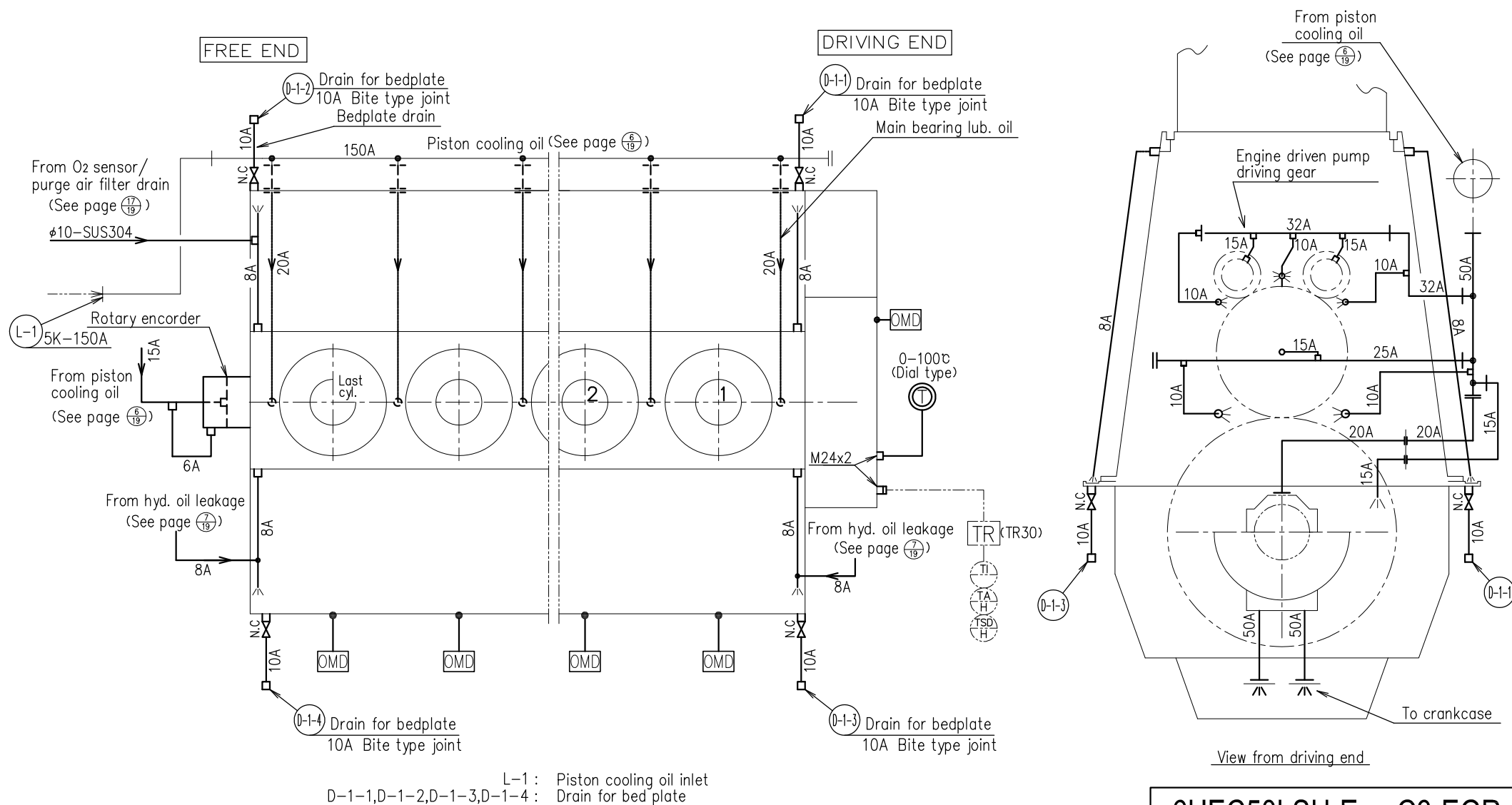
排気弁エアースプリング管線図 (1-2/19)



燃料油管線 ㊦



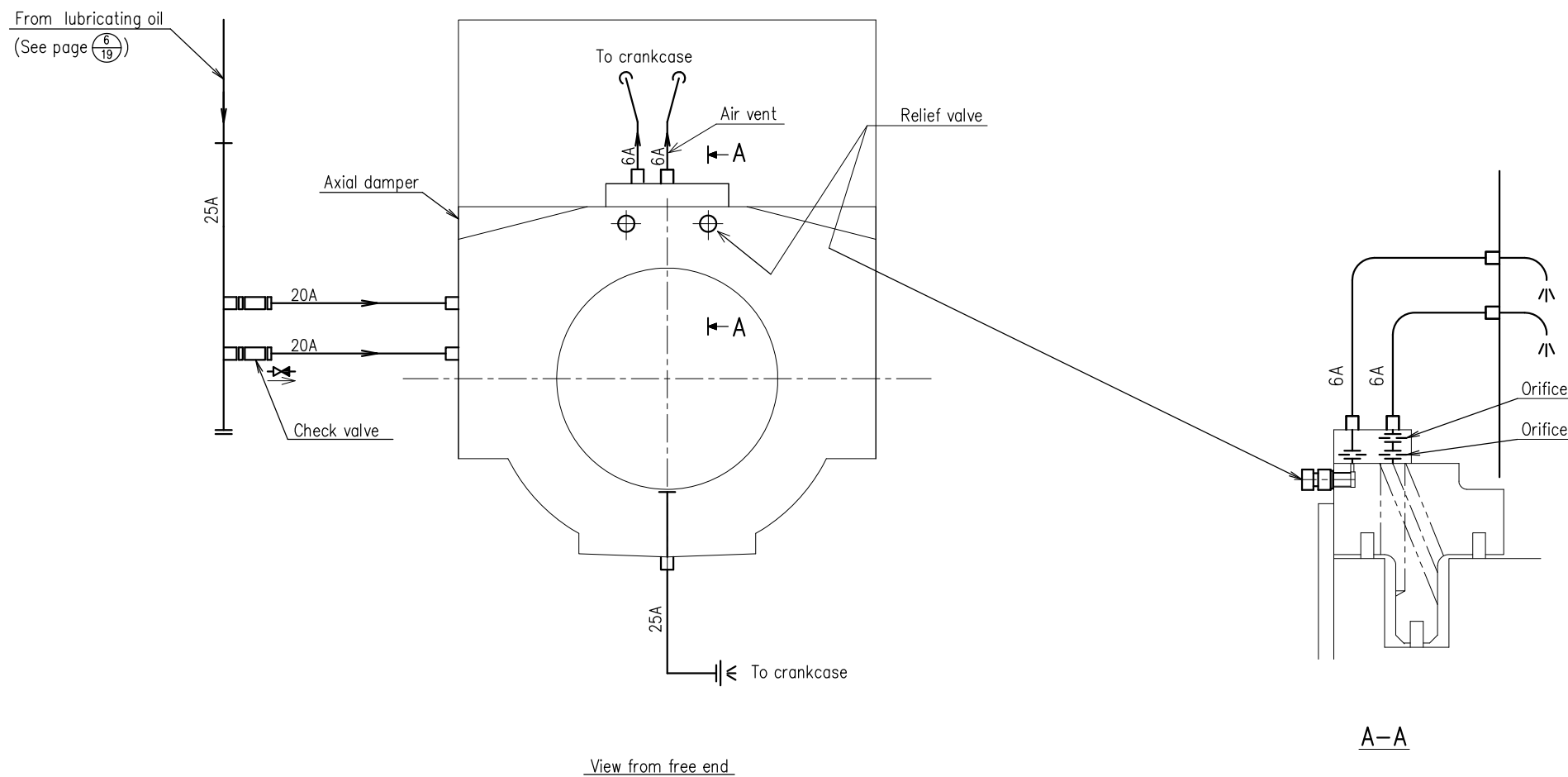
燃料油加熱蒸氣管線図



TR30: (Temperature resistor for thrust bearing lubricating oil
Temperature indication for thrust bearing lubricating oil
Temperature alarm for thrust bearing lubricating oil High temperature
Temperature slow down for thrust bearing lubricating oil High temperature
OMD: Oil mist detector for crank case oil mist

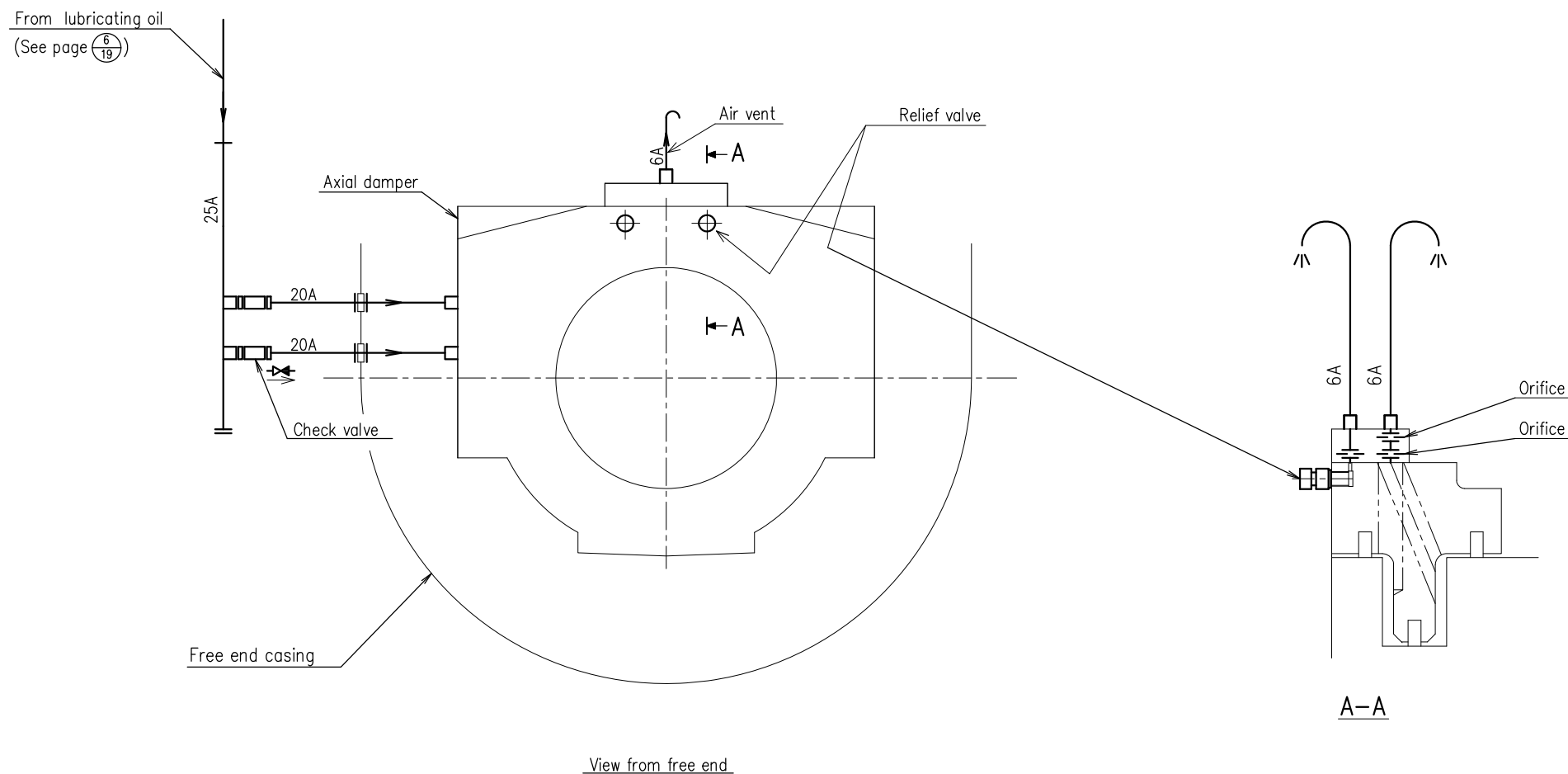
6UEC50LSH-Eco-C3-EGR

Piping diagram of
lubricating oil
潤滑油管線図



6UEC50LSH-Eco-C3-EGR

Piping diagram of
axial damper oil
縦振動ダンパー油管線図

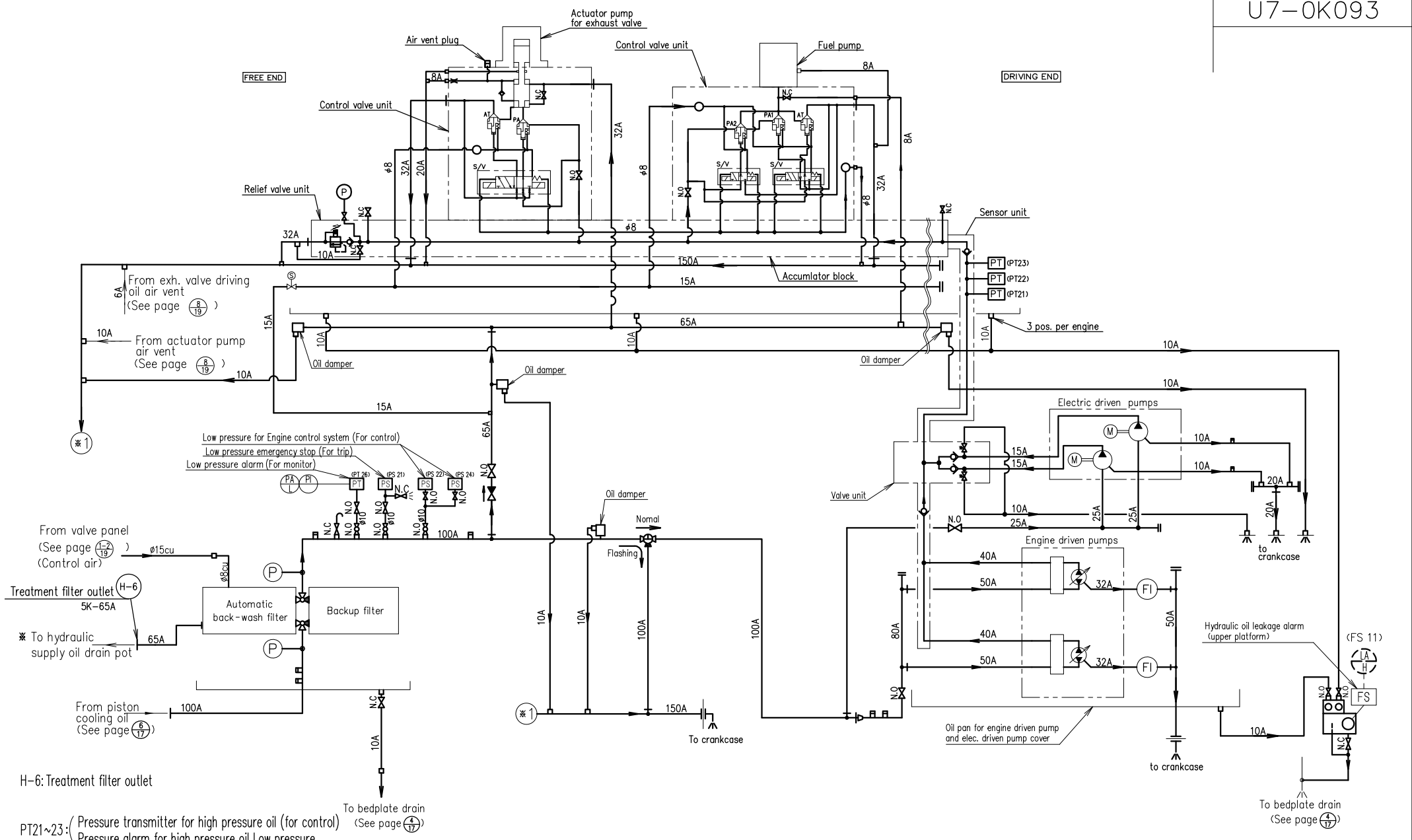


6UEC50LSH-Eco-C3-EGR

Piping diagram of
axial damper oil (with free end cover)

縦振動ダンパー油管線図





H-6: Treatment filter outlet

PT21~23: (Pressure transmitter for high pressure oil (for control) (See page 4/17)
(Pressure alarm for high pressure oil Low pressure

PT26 : (Pressure transmitter for low pressure oil (for monitor)
(Pressure alarm for low pressure oil Low pressure

PS21 : (Pressure switch for low pressure oil
Pressure emergency stop for low pressure oil Low pressure

PS22,24: Pressure switch for low pressure oil (for control)

FS11,12 : (Float switch for hydraulic oil leakage
Leakage level alarm for hydraulic oil High level

※ May not stand up the pipe to prevent build up oil until the drain tank.
And shall be contact the engine manufacturer if there is a need to stand up the pipe.
ドレンタンクまで油溜まりができないように管に立ち上げ部を作らないこと。
配管を立ち上げる必要のある場合はエンジンメーカーに問い合わせること。

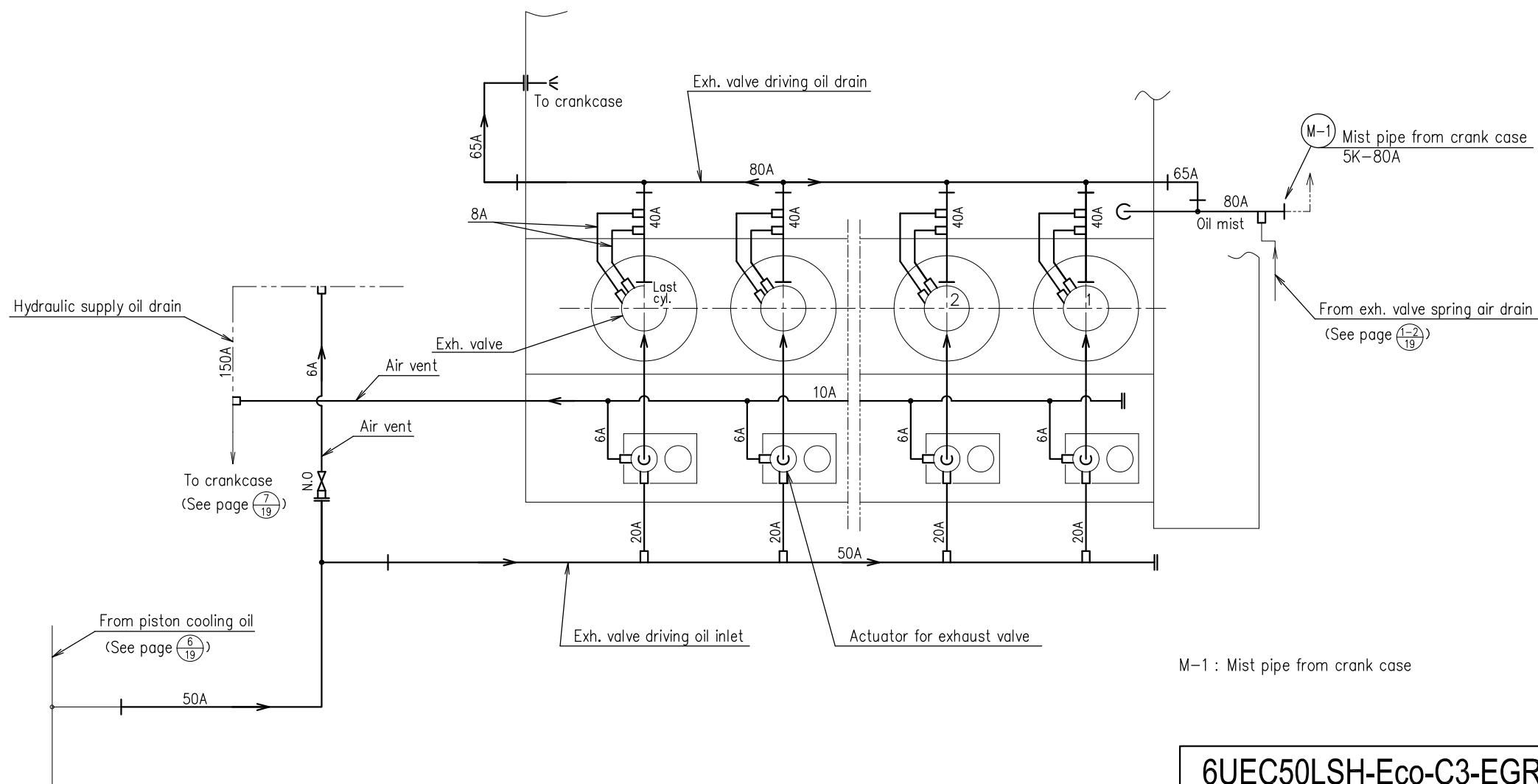
6UEC50LSH-Eco-C3-EGR

Piping diagram of
hydraulic supply oil
(Common system)

油圧作動油管線図（共油系統）

FREE END

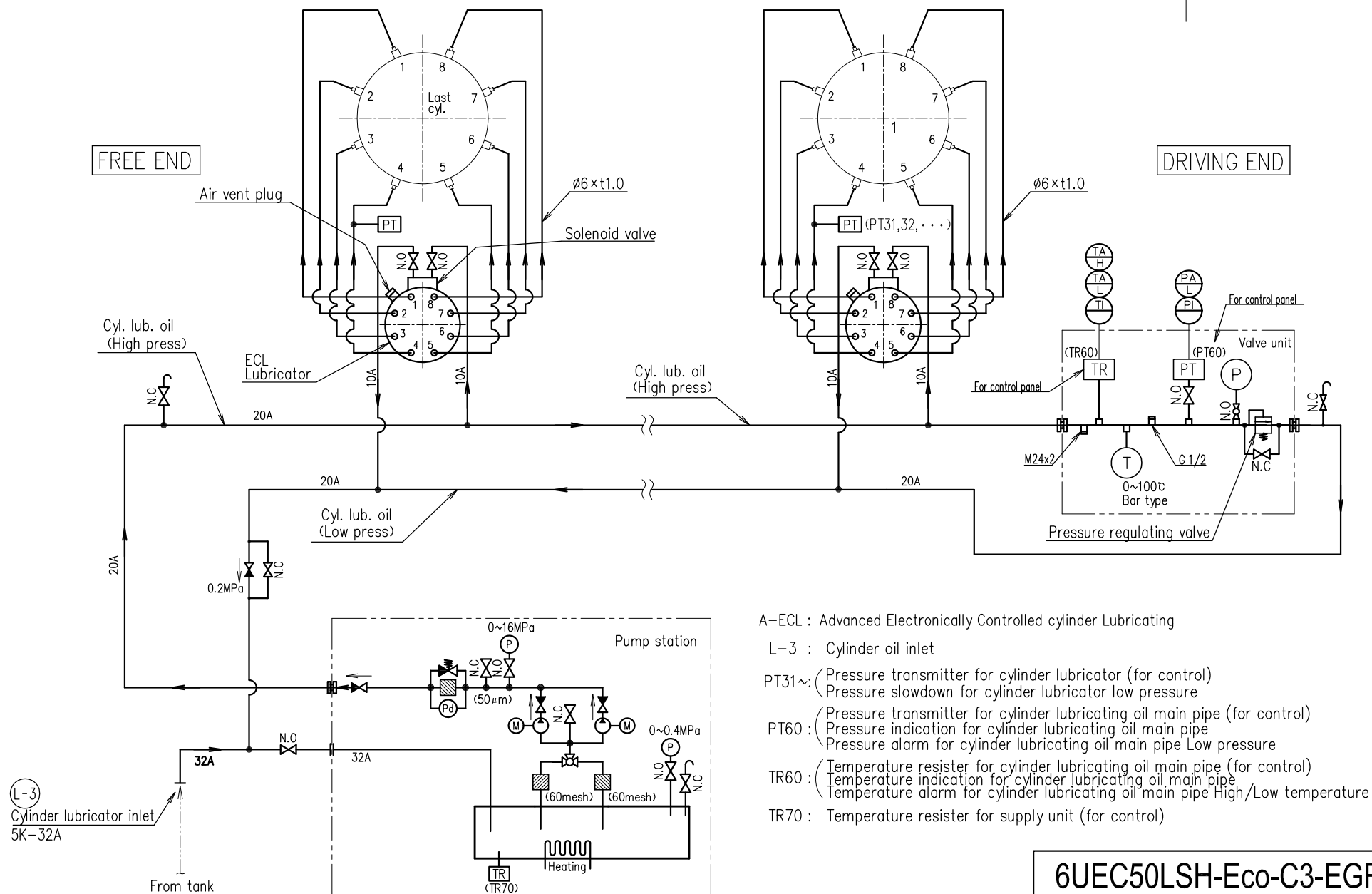
DRIVING END



6UEC50LSH-Eco-C3-EGR

Piping diagram of
actuator oil for exhaust valve

排気弁駆動油管線図



A-ECL : Advanced Electronically Controlled cylinder Lubricating

L-3 : Cylinder oil inlet

PT31~ : (Pressure transmitter for cylinder lubricator (for control)
Pressure slowdown for cylinder lubricator low pressure)

PT60 : (Pressure transmitter for cylinder lubricating oil main pipe (for control)
Pressure indication for cylinder lubricating oil main pipe
Pressure alarm for cylinder lubricating oil main pipe Low pressure)

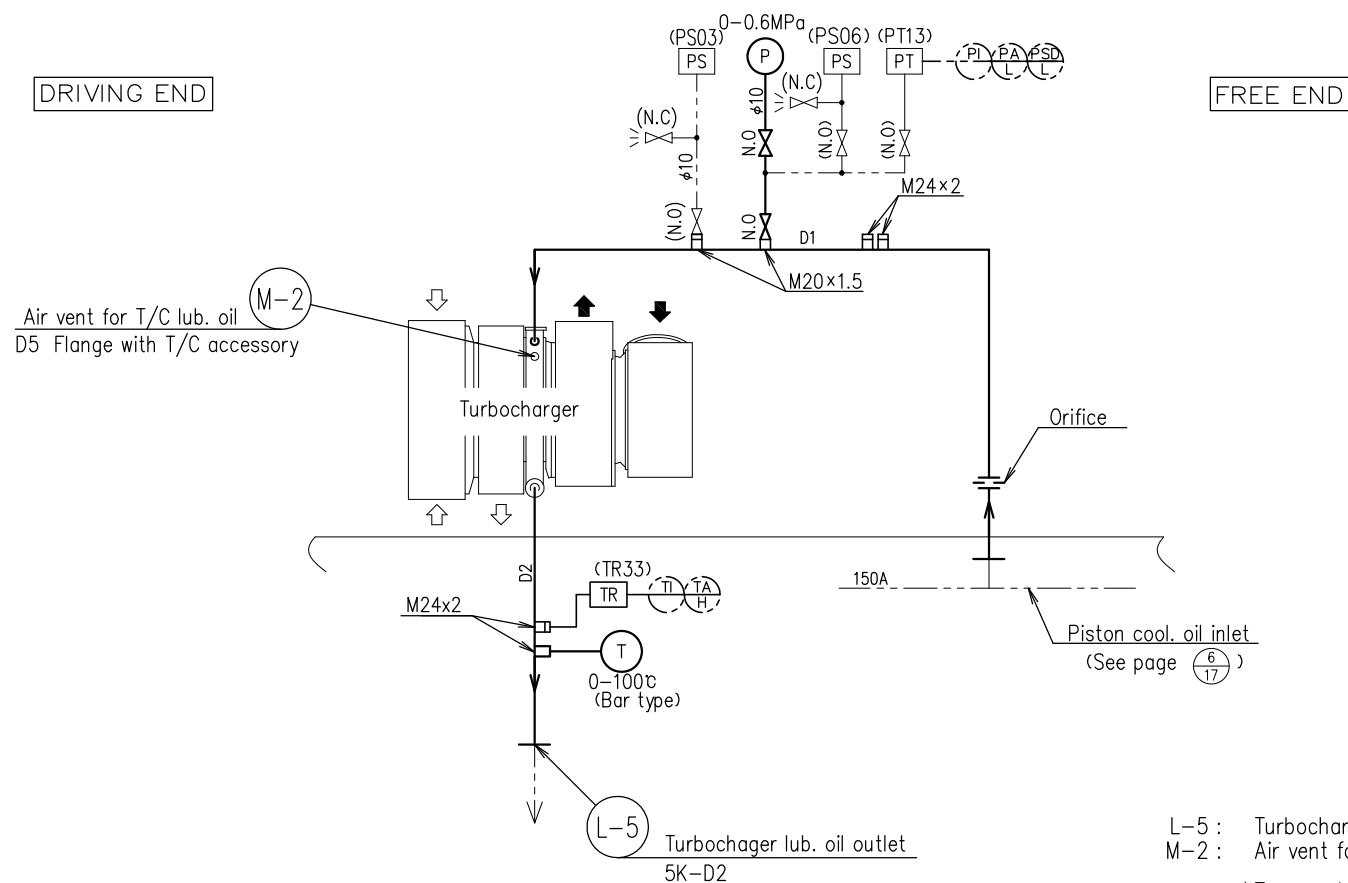
TR60 : (Temperature resistor for cylinder lubricating oil main pipe (for control)
Temperature indication for cylinder lubricating oil main pipe
Temperature alarm for cylinder lubricating oil main pipe High/Low temperature)

TR70 : Temperature resistor for supply unit (for control)

6UEC50LSH-Eco-C3-EGR

Piping diagram of
cylinder lubricating oil for A-ECL system

シリンダ注油管線図 (A-ECL用)



Turbocharger type	Pipe sizes		
	D1	D2	D5
MET53MB/-EGB×1	32A	65A	65A
MET48MB/-EGB×1	32A	65A	65A
MET42MB/-EGB×1	25A	50A	50A

L-5 : Turbocharger lubricating oil outlet
M-2 : Air vent for T/C lub. oil

TR33 : (Temperature resistor for turbocharger lubricating oil outlet
Temperature indication for turbocharger lubricating oil outlet
Temperature alarm for turbocharger lubricating oil outlet High temperature

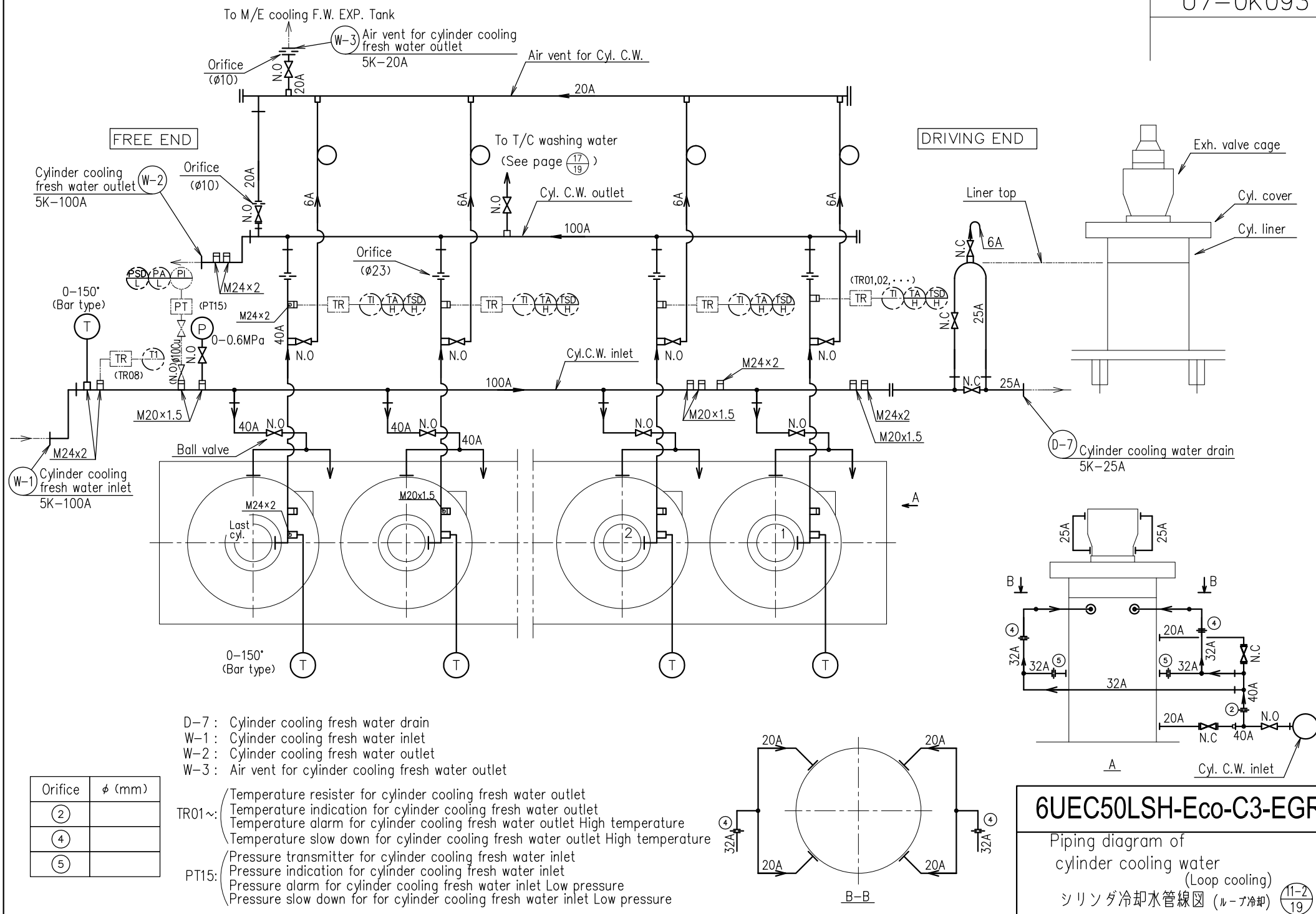
PT13 : (Pressure transmitter for turbocharger lubricating oil inlet
Pressure indication for turbocharger lubricating oil inlet
Pressure alarm for turbocharger lubricating oil inlet Low pressure
Pressure slow down for turbocharger lubricating oil inlet Low pressure

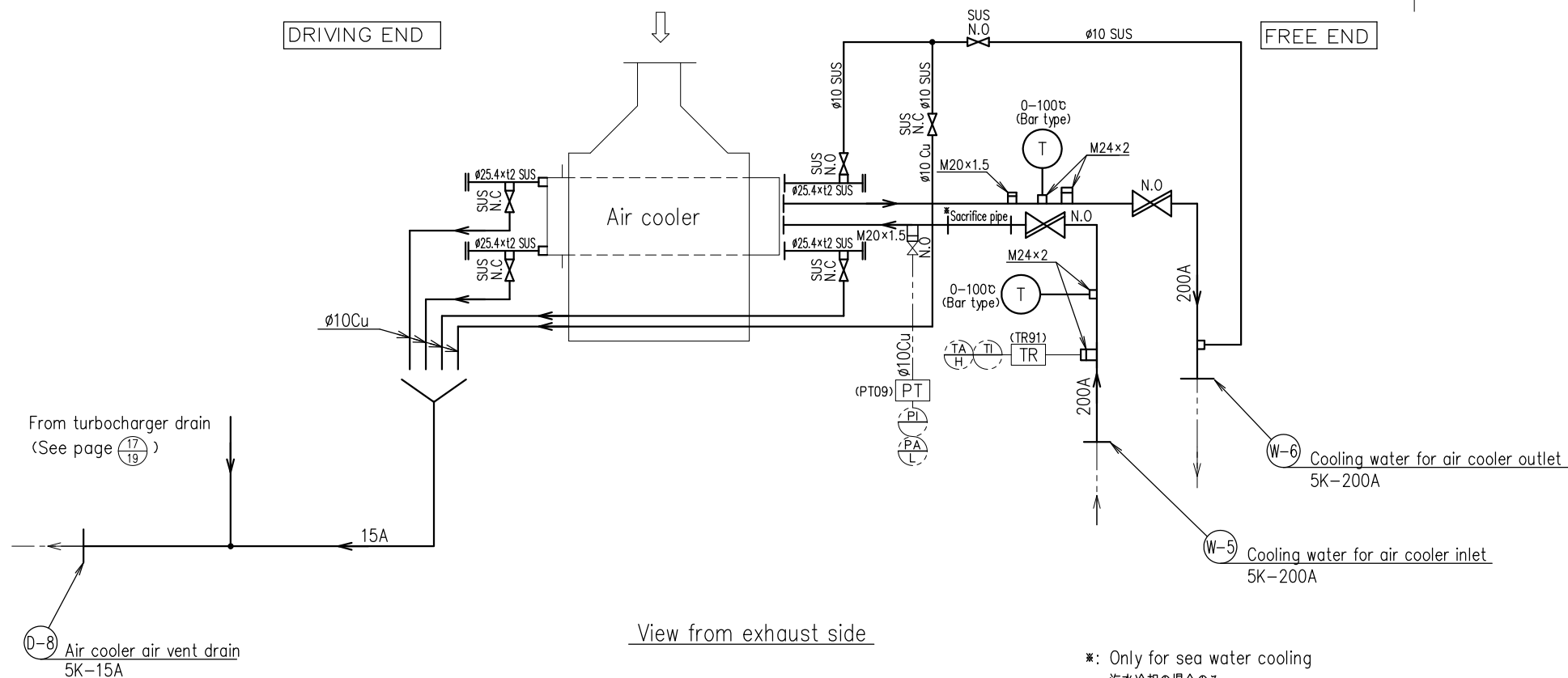
PS03 : (Pressure switch for turbocharger lubricating oil inlet
Pressure emergency stop for turbocharger lubricating oil inlet Low pressure
PS06 : Pressure switch for aux. blower start interlock

6UEC50LSH-Eco-C3-EGR

Piping diagram of
Turbocharger lubricating oil

過給機潤滑油管線図





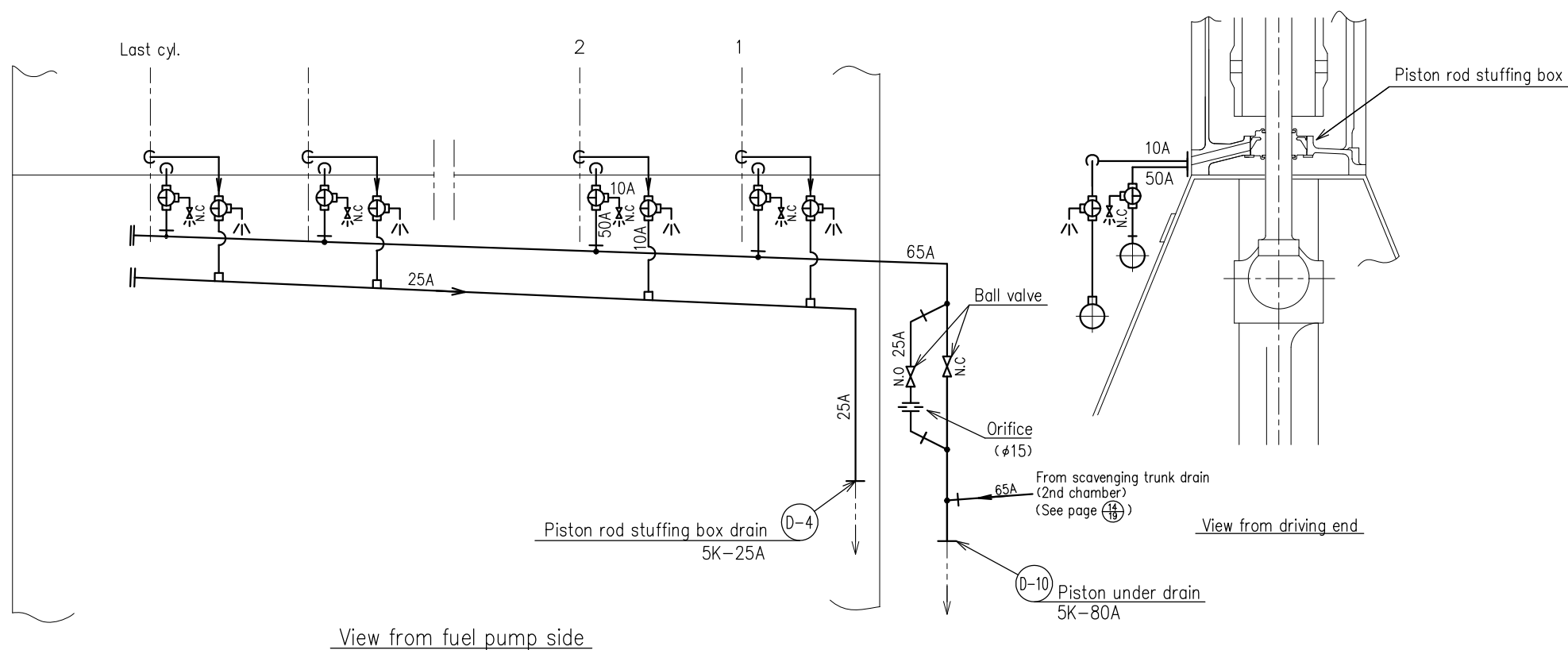
6UEC50LSH-Eco-C3-EGR

Piping diagram of
air cooler cooling water

空気冷却器冷却水管線図

FREE END

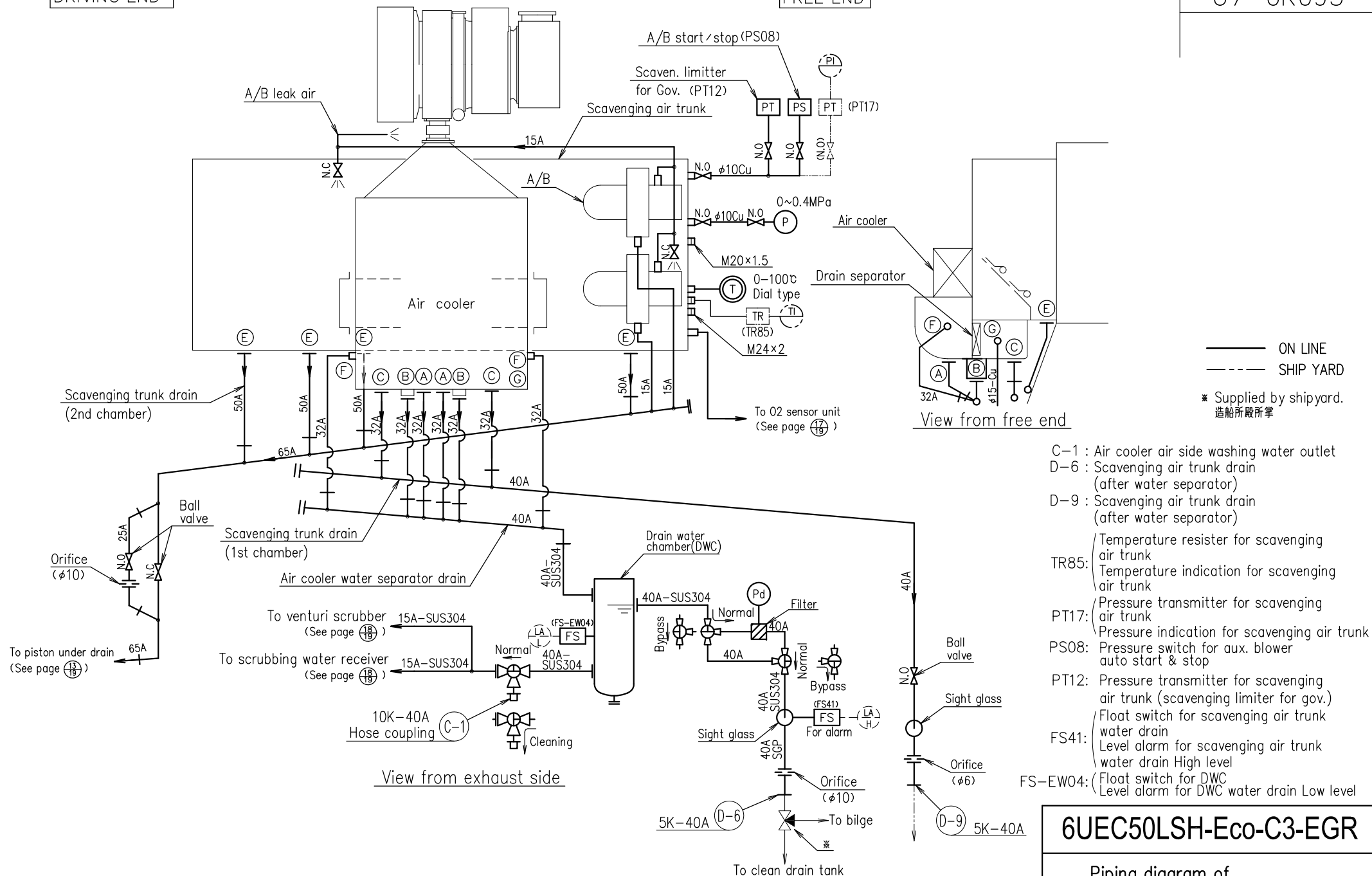
DRIVING END



6UEC50LSH-Eco-C3-EGR

Piping diagram of
piston rod stuffing box drain

ピストン棒パッキン箱ドレン管線図

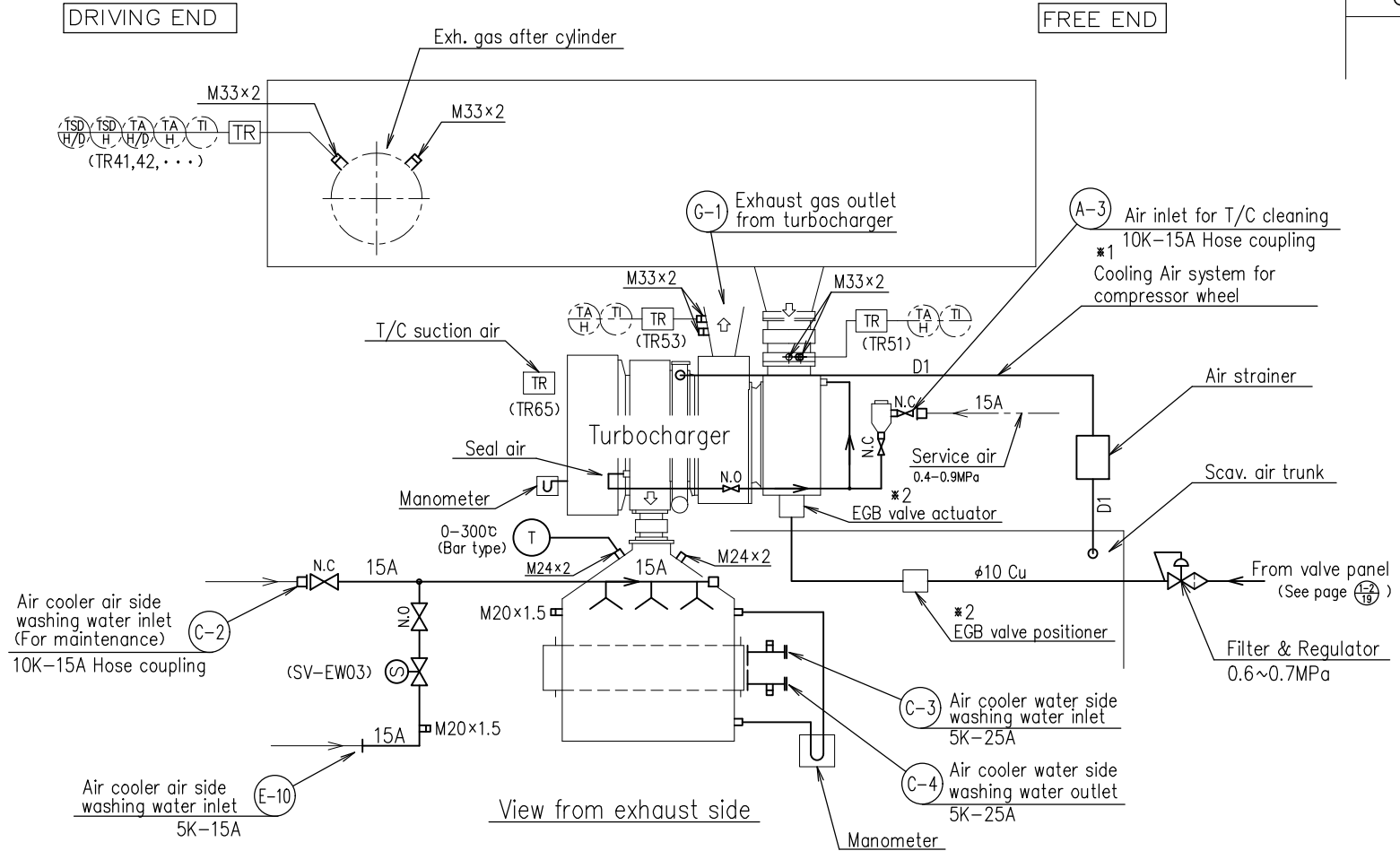


6UEC50LSH-Eco-C3-EGR

Piping diagram of
scavenging air trunk drain for EGR

掃気トランクドレン管線図

14
19



- G-1: Exhaust gas outlet from turbocharger
A-3: Air inlet for turbocharger cleaning
C-2: Air cooler air side washing water inlet
C-3: Air cooler water side washing water inlet
C-4: Air cooler water side washing water outlet
E-10: Air cooler air side washing water inlet

- TR41~: Temperature resistor for exhaust gas cylinder outlet
Temperature indication for exhaust gas cylinder outlet
Temperature alarm for exhaust gas cylinder outlet High temperature
Temperature alarm for exhaust gas cylinder outlet High deviation
Temperature slow down for exhaust gas cylinder outlet High temperature
Temperature slow down for exhaust gas cylinder outlet High deviation
- TR51: Temperature resistor for exhaust gas turbocharger inlet
Temperature indication for exhaust gas turbocharger inlet
Temperature alarm for exhaust gas turbocharger inlet High temperature
- TR53: Temperature resistor for exhaust gas turbocharger outlet
Temperature indication for exhaust gas turbocharger outlet
Temperature alarm for exhaust gas turbocharger outlet High temperature
- TR65: Temperature resistor for turbocharger suction air temperature(for control)

*1. クーリングエアシステムは、機関の仕様により必要となる場合があります。
お問い合わせください。

Depending on the engine specification, cooling air system may be required.

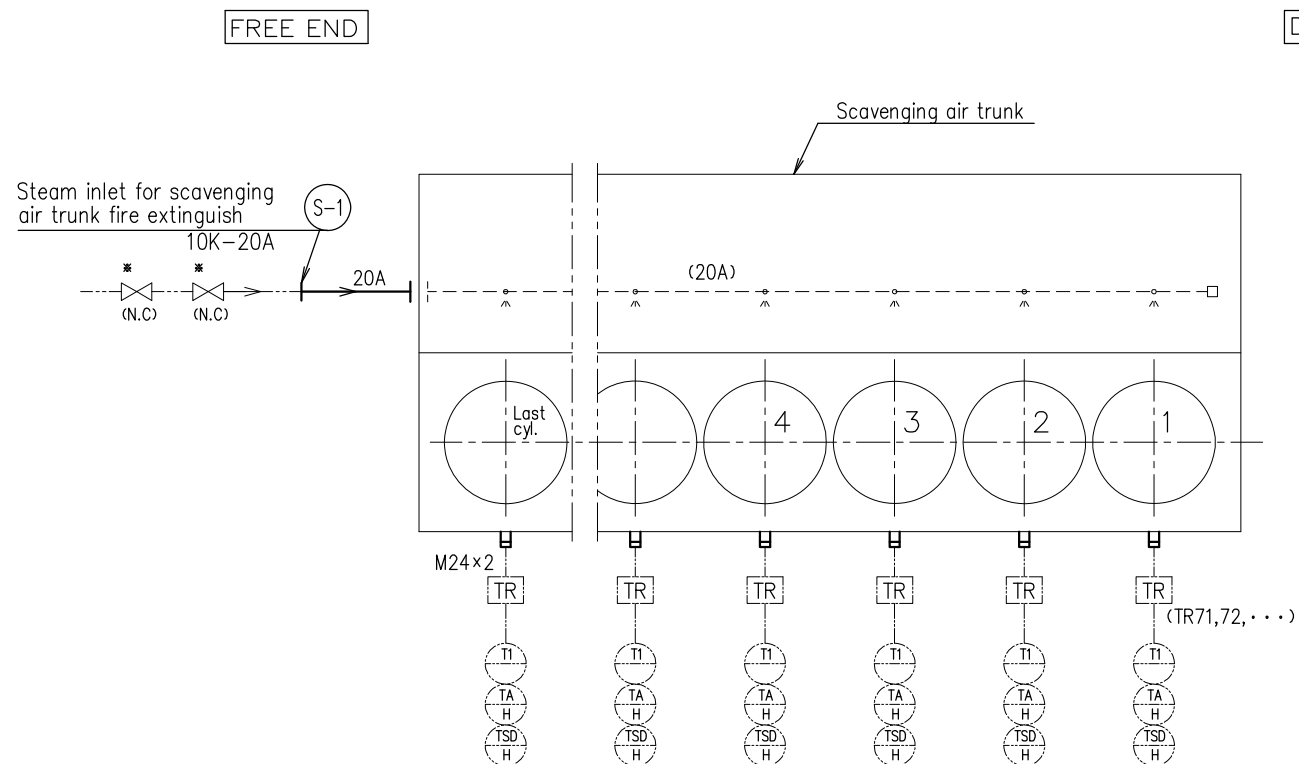
*2. MET-EGB 過給機のみ。
Only for MET-EGB type turbocharger.

Turbocharger type	Pipe size
	D1
MET53MB/-EGB	40A
MET48MB/-EGB	40A
MET42MB/-EGB	32A

6UEC50LSH-Eco-C3-EGR

Piping diagram of
turbocharger and air cooler
washing water and exhaust gas system

過給機空気冷却器洗浄水管及び排気ガス線図



※ Supplied by shipyard.
造船所殿所掌

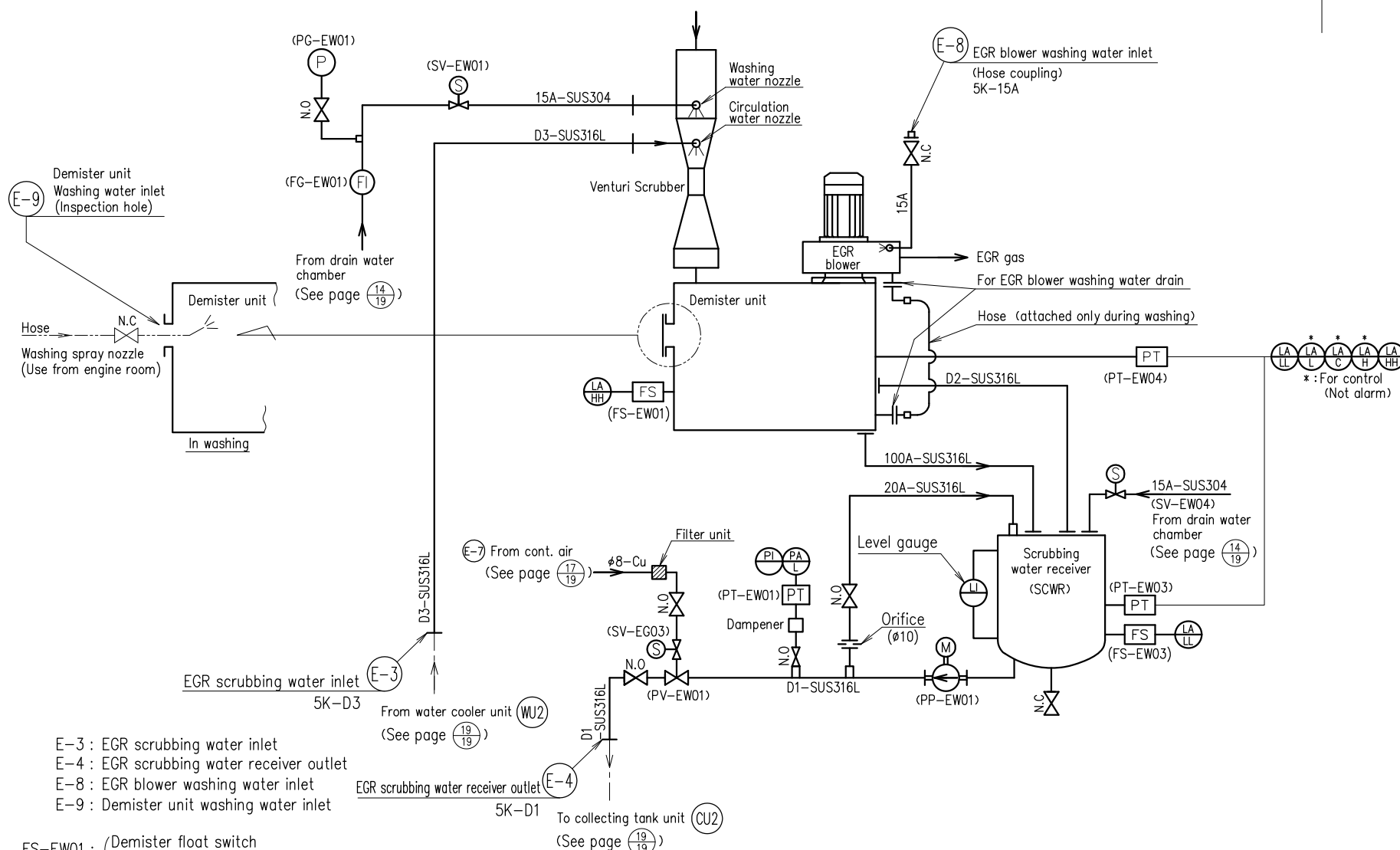
S-1 : Steam inlet for scavenging air trunk fire extinguish
 (Temperature resistor for scavenging air under cylinder liner
 TR71~: Temperature indicator for scavenging air under cylinder liner
 (Temperature alarm for scavenging air under cylinder liner High temperature
 (Temperature slow down for scavenging air under cylinder liner High temperature

6UEC50LSH-Eco-C3-EGR

Piping diagram of
fire extinguishing

掃気室火災消火装置管線図





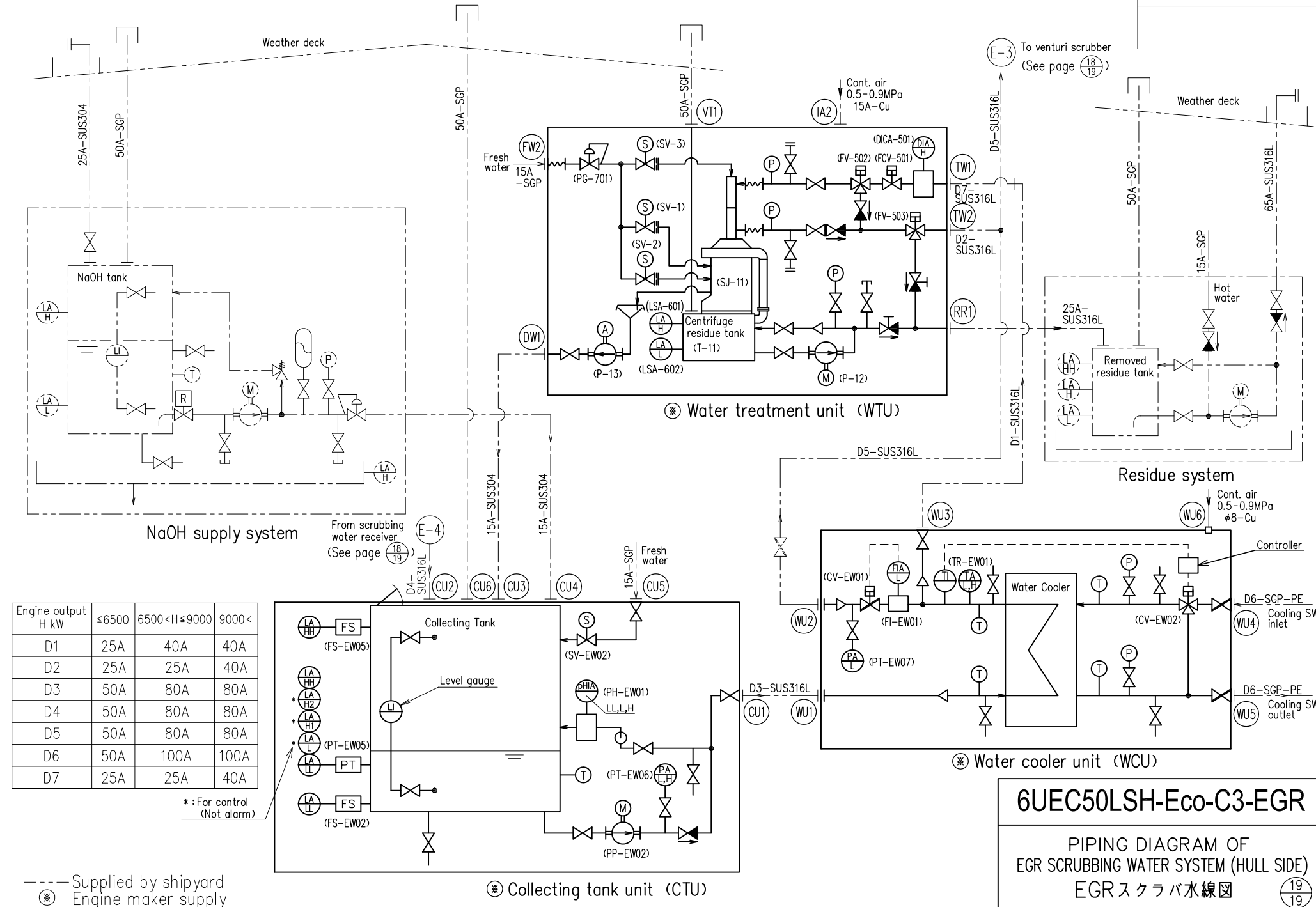
- E-3 : EGR scrubbing water inlet
 E-4 : EGR scrubbing water receiver outlet
 E-8 : EGR blower washing water inlet
 E-9 : Demister unit washing water inlet
- FS-EW01 : (Demister float switch)
 Water level alarm for demister High level
- FS-EW03 : (Scrubbing water receiver float switch)
 Water level alarm for SCWR Low level
- PT-EW01 : (Scrubbing water transfer pump outlet pressure sensor)
 Pressure indication for transfer pump outlet
 Pressure alarm for transfer pump outlet Low pressure
- PT-EW03/PT-EW04 : (Scrubbing water receiver/demister pressure sensor)
 Water level alarm for SCWR Low/High level
- FG-EW01 : (Scrubber wash water flow sensor)
 Flow indication for scrubber wash water

Engine output kW	≤6500	6500<H≤9000	9000<
D1	50A	80A	80A
D2	25A	40A	40A
D3	50A	80A	80A

6UEC50LSH-Eco-C3-EGR

PIPING DIAGRAM OF
EGR SCRUBBING WATER SYSTEM (ON ENGINE)

EGR スクラバ水線図



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