

YE SERVICE NEWS

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|--------------|--|------------|--|
| Subject | Diesel Engine Modification Parts to Comply with SOx Regulation and Estimated Price | | No. : YEN-CP22930-3 Date : 2019/10/01 |
| Engine Model | All model | Use | Marine main & aux. eng. |
| | | Engine No. | — |

Further to our Service News on compliance with SOx regulation, (18-2-G-02-013-L), we, herewith, would like to advise you of the engine modification parts and the estimated prices for converting your HFO spec engine to LSMDO or LSMGO specialized engine.

If you wish to convert your engine to comply with SOx regulation, please contact us at Yanmar Engineering Co.,LTD. or Yanmar Co.,LTD Marine Products Sales and Marketing Division.

(Remarks)

- No modification is required for the engine that is already of MDO or MGO specialized specifications.
 - The estimated prices are as of July 2019 and are subject to change in future.
 - Concerning former engine models, (T260, T240, S185), no price is specified in the present list.
- When you wish modification for these models, specify the model name, engine number and your modification plan or job number for consulting us at Yanmar Engineering Co.,LTD or Yanmar Co.,LTD Marine Products Sales and Marketing Division.

(Modification Plan Example)

HFO⇒MDO from Jan. 1, 2020

MDO⇒LSHFO from Jun.1, 2020

Modification Parts List to Comply with SOx Regulation (1/8)

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|--------------|----------------------|----------------------------|----------------|-------------------|---------------------------|--------------------------|-----------------------|--------------------------------------|
| | | | Existing parts | Replacement parts | | | | |
| 6EY33LW | FO valve | Cooling pipe plug | — | 23887-120002 | 160 | 6 | ○ | Remove oil cooling pipe |
| | | Packing | — | 23414-120000 | 50 | 6 | | |
| | | Closing joint / cap nut | — | 43530-001780 | 460 | 6 | | |
| | | | — | 23821-080001 | 220 | 6 | | |
| | FO injection pump | Pinion lubrication plug | — | 23887-120002 | 160 | 6 | ○ | |
| | | | — | 23415-120000 | 50 | 6 | | |
| 8EY33LW | FO valve | T/C (A145) | — | 132674-19210 | Pending | 1 | △ | Existing part (w/coating) re-usable |
| | | Cooling pipe plug | — | 23887-120002 | 160 | 8 | ○ | Remove oil cooling pipe |
| | | Packing | — | 23414-120000 | 50 | 8 | | |
| | | Closing joint /cap nut | — | 43530-001780 | 460 | 8 | | |
| | | | — | 23821-080001 | 220 | 8 | | |
| | FO injection pump | Pinion lubrication plug | — | 23887-120002 | 160 | 8 | ○ | |
| | | | — | 23415-120000 | 50 | 8 | | |
| | T/C (ST7) | Nozzle ring (w/no coating) | — | 132874-19210 | Pending | 1 | △ | Existing part (w/coating) re-usable. |
| | | | — | | | | | |

| YANMAR ENGINEERING CO.,LTD Market Service Division | Approved | Checked | Prepared |
|---|----------------|---------------------|------------------|
| | <i>M. Tan.</i> | <i>M. Masiguchi</i> | <i>A. Hayata</i> |

Modification Parts List to Comply with SOx Regulation (2/8)

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|--------------|-----------------------------------|-------------------------|----------------|----------------------|---------------------------|--------------------------|-----------------------|--|
| | | | Existing parts | Replacement parts | | | | |
| 6EY26 | FO injection pump | FO injection pump | (751695-51208) | (751695-51108) | (371,000) | (6) | (As assembly) | |
| | | P&B assembly | 151695-51403 | 151695-51103 | 116,000 | 6 | △ | |
| | | O-ring | 153604-51401 | | 1,500 | 6 | | |
| | | | 153605-51223 | | 800 | 12 | | |
| | | | 153605-51242 | | 1,000 | 6 | | |
| | | Pinion lubrication plug | — | 26450-080122 | 50 | 6 | ○ | |
| | | | — | 23414-080012 | 50 | 6 | | |
| | Turbocharger (ST5) | Nozzle ring | — | 151696-19250 | 476,000 | 1 | △ | 1920kW |
| | | | — | 151696-19270 | 476,000 | 1 | △ | 1620kW |
| | | | — | 151696-19290 | 476,000 | 1 | △ | 1471,1330kW |
| | | Maintenance kit | — | P# being established | | 1 | △ | |
| | | Gasket | — | P# being established | | 2 | △ | |
| | T/C (HPR5000) Aux. equipment | Nozzle ring | — | 151692-18450 | 500,000 | 1 | △ | 1840kW |
| | | | — | 151692-18430 | 486,000 | 1 | △ | 1400-1730kW |
| | T/C (TPS57) Aux. equipment | Nozzle ring | — | 151692-19160 | Pending | 1 | △ | 1900kW |
| | T/C (HPR5000) main unit | Nozzle ring | — | 151694-18430 | 486,000 | 1 | △ | 1920kW |
| | | | — | 151694-18450 | 500,000 | 1 | △ | 1470kW |
| | T/C(A140) | Nozzle ring | — | 151693-19300 | Pending | 1 | △ | IMO2 aux. equipment |
| | | | — | 151696-19010 | Pending | 1 | △ | 1920kW |
| | | | — | 151696-19060 | Pending | 1 | △ | 1620kW |
| 8EY26 | FO injection pump | FO injection pump | (751695-51208) | (751695-51108) | (371,000) | (8) | (As assembly) | |
| | | P&B assembly | 151695-51403 | 151695-51103 | 116,000 | 8 | △ | |
| | | O-ring | 153604-51401 | | 1,500 | 8 | | |
| | | | 153605-51223 | | 800 | 16 | | |
| | | | 153605-51242 | | 1,000 | 8 | | |
| | | Pinion lubrication plug | — | 26450-080122 | 50 | 8 | ○ | |
| | | | — | 23414-080012 | 50 | 8 | | |
| | T/C (TPS61) | Nozzle ring | — | 151895-19260 | Pending | 1 | △ | (IMO1) aux. equipment |
| | T/C (ST6) | Nozzle ring | — | 151896-18690 | Pending | 1 | △ | 2560kW (4 sets) |
| | | | — | 151896-19380 | 784,000 | 1 | △ | 2360kW (4 sets) |
| | | | — | 151896-19400 | Pending | 1 | △ | 2360kW (2 sets) |
| | | Maintenance kit | — | P# being established | | 1 | △ | |
| | | Gasket | — | P# being established | | 2 | △ | |
| | T/C (A145) | Nozzle ring | — | 151893-19010 | Pending | 1 | △ | IMO2 aux. equipment (~2017) |
| | | | — | 151893-19110 | Pending | 1 | △ | IMO2 aux. equipment (2018~) |
| 6N330 | FO valve *Select either A or B | FO valve assembly | (732658-53200) | (732658-53100) | (161,000) | (6) | (As assembly) | ★Aux. unit (IMO non-compliant unit only) When changing FO Valve Cooling Spec. to Non-cooling Spec. |
| | | Nozzle CMP | 132658-53250 | 132658-53000 | 44,300 | 6 | ○A | |
| | | FO valve assembly | (732654-53200) | (732654-53101) | (161,000) | (6) | (As assembly) | ★Main unit (IMO non-compliant unit only) When changing FO Valve Cooling Spec. to Non-cooling Spec. |
| | | Nozzle CMP | 132654-53250 | 132654-53110 | 46,500 | 6 | ○A | |
| | | Closing joint/cap nut | — | 43530-001780 | 460 | 12 | ○B | When the use of existing FO valve cooling system (with removing cooling pipe) be continued. |
| | | | — | 23821-080001 | 220 | 12 | | |
| | | Packing | 132654-11771 | | 1,000 | 6 | ○ | |
| | | O-ring | 24326-000850 | | 470 | 6 | | |
| | | O-ring | 24316-000750 | | 990 | 6 | | |
| | FO injection pump | Pinion lubrication plug | — | 23887-120002 | 160 | 6 | ○ | |
| | | | — | 23415-120000 | 50 | 6 | | |
| | Suction valve | Suction valve (SUH) | 132654-11122 | 132654-11111 | 74,400 | 12 | △ | ※When changed from nimonic item, valve head clearance needs be changed: 0.9→0.6 |
| | | Stem seal | 132653-11580 | | 2,000 | 12 | | |

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

Modification Parts List to Comply with SOx Regulation (3/8)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|---------------|---------------------------------------|-------------------------------|----------------|-------------------|---------------------------|--------------------------|-----------------------|---|
| | | | Existing parts | Replacement parts | | | | |
| 8N330 | FO valve *Select either A or B | FO valve assembly | (732658-53200) | (732658-53100) | (161,000) | (8) | (As assembly) | ★Aux. unit (IMO non-compliant unit only) When changing FO Valve Cooling Spec. to Non-cooling Spec. |
| | | <div></div> Nozzle CMP | 132658-53250 | 132658-53000 | 44,300 | 8 | ○A | ★Main unit (IMO non-compliant unit only) When changing FO Valve Cooling Spec. to Non-cooling Spec. |
| | | FO valve assembly | (732654-53200) | (732654-53101) | (161,000) | (8) | (As assembly) | ★Main unit (IMO non-compliant unit only) When changing FO Valve Cooling Spec. to Non-cooling Spec. |
| | | <div></div> Nozzle CMP | 132654-53250 | 132654-53110 | 46,500 | 8 | ○A | ★Main unit (IMO non-compliant unit only) When changing FO Valve Cooling Spec. to Non-cooling Spec. |
| | | Closing joint/cap nut | — | 43530-001780 | 460 | 16 | ○B | When the use of existing FO valve cooling system (with removing cooling pipe) be continued. |
| | | | — | 23821-080001 | 220 | 16 | | |
| | | Packing | 132654-11771 | | 1,000 | 8 | ○ | |
| | | O-ring | 24326-000850 | | 470 | 8 | | |
| | | O-ring | 24316-000750 | | 990 | 8 | | |
| | FO injection pump | Pinion lubrication plug | — | 23887-120002 | 160 | 8 | ○ | |
| | | | — | 23415-120000 | 50 | 8 | | |
| | Suction valve | Suction valve (SUH) | 132654-11122 | 132654-11111 | 74,400 | 16 | △ | ※When changed from nimonic item, valve head clearance needs be changed: 0.9→0.6 |
| | | Stem seal | 132653-11580 | | 2,000 | 16 | | |
| | | | | | | | | |
| 6N280 | FO valve *Select either A or B | FO valve assembly | (753605-53202) | (753605-53113) | (87,300) | (6) | (As assembly) | When changing from FO valve cooling spec. to non-cooling spec. (with removing cooling spec. (with removing cooling spec. (with removing cooling pipe) |
| | | <div></div> Nozzle CMP | 153605-53250 | 153605-53060 | 30,500 | 6 | ○A | When changing from FO valve cooling spec. to non-cooling spec. (with removing cooling spec. (with removing cooling spec. (with removing cooling pipe) |
| | | Closing joint /cap nut | — | 43530-001760 | 240 | 12 | ○B | When changing from FO valve cooling spec. to non-cooling spec. (with removing cooling spec. (with removing cooling spec. (with removing cooling pipe) |
| | | | — | 23821-060001 | 170 | 12 | | When changing from FO valve cooling spec. to non-cooling spec. (with removing cooling spec. (with removing cooling spec. (with removing cooling pipe) |
| | | Packing | 151605-11790 | | 230 | 6 | ○ | |
| | | O-ring | 24326-000750 | | 410 | 6 | | |
| | | O-ring | 24316-000710 | | 910 | 6 | | |
| | Nozzle sleeve | Nozzle sleeve replacement kit | — | 753605-11490 | 34,000 | 6 | ○ | In the case of tapered nozzle spec.: (w/fire protection→w/o fire protection) |
| | | <div></div> Nozzle sleeve | 153605-11770 | 153604-11771 | 30,500 | 6 | (Rpt kit parts) | |
| | | Packing | 153605-11760 | | Pending | 6 | (Rpt kit parts) | |
| | | Packing | 151605-11790 | | 230 | 6 | (Rpt kit parts) | |
| | | O-ring | 24326-000750 | | 410 | 6 | (Rpt kit parts) | |
| | | O-ring | 24316-000710 | | 910 | 6 | (Rpt kit parts) | |
| | | O-ring | 24316-000600 | | 830 | 12 | (Rpt kit parts) | |
| | Nozzle sleeve | Nozzle sleeve replacement kit | — | 753604-11210 | 108,000 | 6 | ○ | For indirect cooling spec. |
| | | <div></div> Nozzle sleeve | 153604-11850 | 153604-11790 | Pending | 6 | (Rpt kit parts) | |
| | | Packing | 153604-11870 | | 2,500 | 6 | (Rpt kit parts) | |
| | | Packing | 151605-11790 | | 230 | 6 | (Rpt kit parts) | |
| | | O-ring | 24326-000750 | | 410 | 6 | (Rpt kit parts) | |
| | | O-ring | 24316-000710 | | 910 | 6 | (Rpt kit parts) | |
| | | O-ring | 24316-000600 | | 830 | 12 | (Rpt kit parts) | |
| | FO injection pump | FO injection pump | (753605-51304) | (753605-51108) | (395,000) | (6) | (As assembly) | N280L-N Models having "N" at the end |
| | | P&B assembly | 153605-51141 | 153605-51103 | 167,000 | 6 | △ | |
| | | | 153605-51392 | | 1,000 | 6 | | |
| | | | 153605-51223 | | 800 | 12 | | |
| | | 153605-51242 | | 1,000 | 6 | | | |
| | | FO injection pump | (753604-51104) | (753604-51204) | (395,000) | (6) | (As assembly) | N280L-V Models having "V" at the end |
| | | P&B assembly | 153604-51102 | 153604-51202 | 122,000 | 6 | △ | |
| | | | 153605-51392 | | 1,000 | 6 | | |
| | | | 153604-51401 | | 1,500 | 6 | | |
| | | | 153605-51223 | | 800 | 12 | | |
| | 153605-51242 | | 1,000 | 6 | | | | |
| | Pinion lubrication plug | — | 26450-080122 | 50 | 6 | ○ | | |
| — | | 23414-080012 | 50 | 6 | | | | |
| Suction valve | | Suction valve (SUH) | 153605-11122 | 153605-11111 | 55,800 | 12 | △ | |
| | Stem seal | 153605-11580 | | 2,200 | 12 | | | |
| | | | | | | | | |

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

Modification Parts List to Comply with SOx Regulation (4/8)

| Engine model | Parts to be Modified | Names of Parts | | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|---------------|---------------------------------------|-------------------------|---------------|----------------|-------------------|------------------------------|-----------------------------|-----------------------|--|
| | | | | Existing parts | Replacement parts | | | | |
| 8N280 | FO valve *Select either A or B | FO valve assembly | | (753605-53202) | (753605-53113) | (87,300) | (8) | (As assembly) | When changing from FO valve cooling spec. to non-cooling spec. |
| | | | Nozzle CMP | 153605-53250 | 153605-53060 | 30,500 | 8 | ○A | |
| | | Closing joint/cap nut | | — | 43530-001760 | 240 | 16 | ○B | When continuing existing FO valve cooling spec. (with removing cooling pipe) |
| | | | | — | 23821-060001 | 170 | 16 | | |
| | | Packing | | 151605-11790 | | 230 | 8 | ○ | |
| | | O-ring | | 24326-000750 | | 410 | 8 | | |
| | | O-ring | | 24316-000710 | | 910 | 8 | | |
| | Nozzle sleeve | Nozzle sleeve rpt kit | | — | 753605-11490 | 34,000 | 8 | ○ | For tapered nozzle spec.: (W/fire protection→W/O fire protection) |
| | | | Nozzle sleeve | 153605-11770 | 153604-11771 | 30,500 | 8 | (Rpt kit parts) | |
| | | | Packing | 153605-11760 | | Pending | 8 | (Rpt kit parts) | |
| | | | Packing | 151605-11790 | | 230 | 8 | (Rpt kit parts) | |
| | | | O-ring | 24326-000750 | | 410 | 8 | (Rpt kit parts) | |
| | | | O-ring | 24316-000710 | | 910 | 8 | (Rpt kit parts) | |
| | | | O-ring | 24316-000600 | | 830 | 16 | (Rpt kit parts) | |
| | Nozzle sleeve | Nozzle sleeve rpt kit | | — | 753604-11210 | 108,000 | 8 | ○ | For indirect cooling spec. |
| | | | Nozzle sleeve | 153604-11850 | 153604-11790 | Pending | 8 | (Rpt kit parts) | |
| | | | Packing | 153604-11870 | | 2,500 | 8 | (Rpt kit parts) | |
| | | | Packing | 151605-11790 | | 230 | 8 | (Rpt kit parts) | |
| | | | O-ring | 24326-000750 | | 410 | 8 | (Rpt kit parts) | |
| | | | O-ring | 24316-000710 | | 910 | 8 | (Rpt kit parts) | |
| | | | O-ring | 24316-000600 | | 830 | 16 | (Rpt kit parts) | |
| | FO injection pump | FO injection pump | | (753605-51304) | (753605-51108) | (395,000) | (8) | (As assembly) | N280L-N Engine models having "N" at the end |
| | | P&B assembly | | 153605-51141 | 153605-51103 | 167,000 | 8 | △ | |
| | | | | 153605-51392 | | 1,000 | 8 | | |
| | | | | 153605-51223 | | 800 | 16 | | |
| | | | | 153605-51242 | | 1,000 | 8 | | |
| | | FO injection pump | | (753604-51104) | (753604-51204) | (395,000) | (8) | (As assembly) | N280L-V Engine models having "V" at the end |
| | | P&B assembly | | 153604-51102 | 153604-51202 | 122,000 | 8 | △ | |
| | | | | 153605-51392 | | 1,000 | 8 | | |
| | | | | 153604-51401 | | 1,500 | 8 | | |
| | | | | 153605-51223 | | 800 | 16 | | |
| | | | | 153605-51242 | | 1,000 | 8 | | |
| | Pinion lubrication plug | | — | 26450-080122 | 50 | 8 | ○ | | |
| | | | — | 23414-080012 | 50 | 8 | | | |
| | Suction valve | Suction valve (SUH) | | 153605-11122 | 153605-11111 | 55,800 | 16 | △ | When nimonic suction valve was changed. |
| | | Stem seal | | 153605-11580 | | 2,200 | 16 | | |
| 6N260 | FO valve *Select either A or B | FO valve assembly | | (751602-53100) | (751605-53103) | (85,800) | (6) | (As assembly) | When changing from FO valve cooling spec. to non-cooling spec. |
| | | | Nozzle CMP | 151602-53000 | 151605-53080 | 23,800 | 6 | ○A | |
| | | Closing joint/cap nut | | — | 43530-001760 | 240 | 12 | ○B | When continuing existing FO valve cooling spec. (with removing cooling pipe) |
| | | | | — | 23821-060001 | 170 | 12 | | |
| | | Packing | | 151605-11790 | | 230 | 6 | ○ | |
| | | O-ring | | 24326-000750 | | 410 | 6 | | |
| | | O-ring | | 24316-000710 | | 910 | 6 | | |
| | Nozzle sleeve | Nozzle sleeve rpt kit | | — | 753605-11490 | 34,000 | 6 | ○ | For tapered nozzle spec.:Change (w/fire protection→w/o fire protection) |
| | | | Nozzle sleeve | 153605-11770 | 153604-11771 | 30,500 | 6 | (Rpt kit parts) | |
| | | | Packing | 153605-11760 | | Pending | 6 | (Rpt kit parts) | |
| | | | Packing | 151605-11790 | | 230 | 6 | (Rpt kit parts) | |
| | | | O-ring | 24326-000750 | | 410 | 6 | (Rpt kit parts) | |
| | | | O-ring | 24316-000710 | | 910 | 6 | (Rpt kit parts) | |
| | | | O-ring | 24316-000600 | | 830 | 12 | (Rpt kit parts) | |
| | FO injection pump | Nozzle sleeve rpt kit | | — | 753604-11210 | 108,000 | 6 | ○ | For indirect cooling spec. |
| | | | Nozzle sleeve | 153604-11850 | 153604-11790 | Pending | 6 | (Rpt kit parts) | |
| | | | Packing | 153604-11870 | | 2,500 | 6 | (Rpt kit parts) | |
| | | | Packing | 151605-11790 | | 230 | 6 | (Rpt kit parts) | |
| | | | O-ring | 24326-000750 | | 410 | 6 | (Rpt kit parts) | |
| | | | O-ring | 24316-000710 | | 910 | 6 | (Rpt kit parts) | |
| | | | O-ring | 24316-000600 | | 830 | 12 | (Rpt kit parts) | |
| | | FO injection pump | | (751604-51104) | (751604-51204) | Pending | (6) | (As assembly) | 6N260L-V Engine models having "V" at the end |
| | | P&B assembly | | 151604-51102 | 151604-51202 | 120,000 | 6 | △ | |
| | | | | 153604-51401 | | 1,500 | 6 | | |
| | | | | 153605-51223 | | 800 | 12 | | |
| | | | | 153605-51242 | | 1,000 | 6 | | |
| | | Pinion lubrication plug | | — | 26450-080122 | 50 | 6 | ○ | |
| | | | | — | 23414-080012 | 50 | 6 | | |
| | FO injection pump | FO injection pump | | (751605-51304) | (751605-51107) | (390,000) | (6) | (As assembly) | For 6N260L-GN only *6N260L-N, excepting for -GN model, needs no replacement, (because of common use of Bunker A/C oils) |
| | | P&B assembly | | 151605-51141 | 151605-51102 | 126,000 | 6 | △ | |
| | | | | 153605-51392 | | 1,000 | 6 | | |
| | | | | 153604-51401 | | 1,500 | 6 | | |
| | | | | 153605-51223 | | 800 | 12 | | |
| | | | | 153605-51242 | | 1,000 | 6 | | |
| | | Pinion lubrication plug | | — | 26450-080122 | 50 | 6 | ○ | |
| | | | | — | 23414-080012 | 50 | 6 | | |
| Suction valve | Suction valve (SUH) | | 151605-11121 | 151605-11111 | 52,900 | 12 | △ | | |
| | Stem seal | | — | | 151607-11580 | 1,800 | | 12 | |

Modification Parts List to Comply with SOx Regulation (5/8)

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|--|---------------------------------------|----------------------------|----------------|-------------------|------------------------------|-----------------------------|-----------------------|-------------------------------|
| | | | Existing parts | Replacement parts | | | | |
| 6EY22(A)L | Nozzle sleeve | Nozzle sleeve rpt kit | — | 750633-11450 | 41,000 | 6 | ○ | |
| | | Nozzle sleeve | 150633-11670 | 150633-11650 | 33,600 | 6 | (Rpt kit parts) | |
| | | O-ring | 24326-000400 | | 250 | 12 | (Rpt kit parts) | |
| | | Packing | 150633-11870 | | 1,420 | 6 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | |
| | FO injection pump | FO injection pump | (750633-51301) | (750633-51102) | (226,000) | (6) | (As assembly) | |
| | | P&B assembly | 150633-51600 | 150633-51101 | 95,800 | 6 | △ | |
| | | O-ring | 153604-51401 | | 1,500 | 6 | | |
| | | O-ring | 146685-51830 | | 1,200 | 12 | | |
| | | O-ring | 146685-51810 | | 1,300 | 6 | | |
| | | Pinion lubrication plug | — | 23887-120002 | 160 | 12 | ○ | |
| | | Pinion lubrication packing | — | 23415-120000 | 50 | 12 | | |
| | T/C (A135) | Nozzle ring | — | 150634-19030 | Pending | 1 | △ | ALW(1370,1300kW) |
| | T/C (TPS52) | Nozzle ring | — | 150634-19360 | Pending | 1 | △ | ALW(1180,1100kW) |
| | | | — | 150634-19320 | Pending | 1 | △ | ALW(1020-880kW) |
| | T/C (A130) | Nozzle ring | — | 150634-19070 | Pending | 1 | △ | LW(1080-880kW) |
| | T/C (TPS48) | Nozzle ring | — | 150634-19260 | Pending | 1 | △ | LW(1080-880kW) |
| | | | — | 150634-19690 | Pending | 1 | △ | ALW(1370kW)[~2019/2] |
| | | | — | 150634-19710 | Pending | 1 | △ | ALW(~1300kW)[~2019/2] |
| | | | — | 150634-19650 | Pending | 1 | △ | ALW(1100-1370kW) [2019/3~] |
| 6EY18(A)L | FO injection pump | FO injection pump | (746623-51102) | (746623-51202) | (200,000) | (6) | (As assembly) | |
| | | P&B assembly | 146623-51102 | 146623-51202 | 56,600 | 6 | △ | |
| | | O-ring | 146673-51812 | | 1,000 | 6 | | |
| | | O-ring | 146673-51821 | | 930 | 12 | | |
| | | O-ring | 146673-51831 | | 970 | 6 | | |
| | | Pinion lubrication plug | — | 23887-120002 | 160 | 12 | ○ | |
| | | Pinion lubrication packing | — | 23415-120000 | 50 | 12 | | |
| | T/C (TPS44) IMO2 : LW | Nozzle ring | — | 146621-19220 | Pending | 1 | △ | 440-500kW |
| | | | — | 146621-19230 | Pending | 1 | △ | 550-615kW |
| | T/C (MET18) IMO2 : ALW | Nozzle ring | — | 146621-19330 | 480,000 | 1 | △ | 660-800kW |
| | | | — | 146621-19340 | 480,000 | 1 | △ | 455-615kW |
| | T/C (MET18) IMO1 : 1000min-1 | Nozzle ring | — | 146623-19330 | 480,000 | 1 | △ | 680-800kW |
| | | | — | 146623-19340 | 480,000 | 1 | △ | 615-660kW |
| | | | — | 146623-19350 | Pending | 1 | △ | 455-550kW |
| | T/C (MET18) IMO1 : 900min-1 | Nozzle ring | — | 146623-19330 | 480,000 | 1 | △ | 680-800kW |
| | | | — | 146623-19340 | 480,000 | 1 | △ | 615-660kW |
| | | | — | 146623-19350 | 480,000 | 1 | △ | 455-550kW |
| | T/C (MET18) IMO1 : 720/750min-1 | Nozzle ring | — | 146625-19330 | 480,000 | 1 | △ | 615kW |
| | | | — | 146625-19340 | 480,000 | 1 | △ | 450-500kW |
| | | | — | 146625-19350 | 480,000 | 1 | △ | 400kW |
| 6EY18(A)L Low Sulfur Bunker C (3-15cSt) | FO injection pump | FO injection pump | (746623-51102) | (746623-51103) | (215,000) | (6) | (As assembly) | |
| | | P&B assembly | 146623-51102 | 146623-51103 | 54,700 | 6 | ▲ | |
| | | O-ring | 146673-51812 | | 1,000 | 6 | | |
| | | O-ring | 146673-51821 | | 930 | 12 | | |
| | | O-ring | 146673-51831 | | 970 | 6 | | |

Modification Parts List to Comply with SOx Regulation (6/8)

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|--|----------------------|----------------------------|----------------|-------------------|---------------------------|--------------------------|-----------------------|---|
| | | | Existing parts | Replacement parts | | | | |
| 6N21(A)L | FO valve | FO valve assembly | (747673-53221) | (747673-53212) | (102,000) | (6) | (As assembly) | For engine models having "V" at the end |
| | | Nozzle CMP | 147673-53700 | 147673-53580 | 11,100 | 6 | △ | |
| | | O-ring | 151673-51381 | | 1,100 | 6 | △ | |
| | | O-ring | 146673-53900 | | 630 | 6 | △ | |
| | | FO valve assembly | (747673-53131) | (747673-53411) | (102,000) | (6) | (As assembly) | |
| | | Nozzle CMP | 147673-53260 | 147673-53600 | 11,100 | 6 | △ | |
| | Nozzle sleeve | O-ring | 151673-51381 | | 1,100 | 6 | △ | For engine models having "W" at the end |
| | | O-ring | 146673-53900 | | 630 | 6 | △ | |
| | | Nozzle sleeve rpt kit | — | 747673-11450 | 69,900 | 6 | ○ | |
| | | Nozzle sleeve | 147672-11870 | 147673-11880 | Pending | 6 | (Rpt kit parts) | |
| | | O-ring | 24326-000400 | | 250 | 12 | (Rpt kit parts) | |
| | | Packing | 147643-11870 | | 680 | 6 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | For engine models having "V" and "N" at the end, (NOx Regulation compliant) |
| | | Nozzle sleeve rpt kit | — | 747673-11460 | 69,900 | 6 | ○ | |
| | | Nozzle sleeve | 147673-11870 | 147673-11890 | Pending | 6 | (Rpt kit parts) | |
| | | O-ring | 24326-000400 | | 250 | 12 | (Rpt kit parts) | |
| | | Packing | 147643-11870 | | 680 | 6 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | |
| | | Nozzle sleeve rpt kit | — | 747673-11470 | 15,200 | 6 | ○ | For engine models having "N" at the end (no NOx compliant) |
| | | Nozzle sleeve | 147673-11850 | 147673-11860 | 11,200 | 6 | (Rpt kit parts) | |
| | | O-ring | 24326-000400 | | 250 | 12 | (Rpt kit parts) | |
| | | Packing | 146673-11870 | | 470 | 6 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | |
| | FO injection pump | FO injection pump | (747673-51106) | (747673-51207) | (183,000) | (6) | (As assembly) | |
| | | P&B assembly | 147673-51102 | 147673-51202 | 62,800 | 6 | | |
| | | O-ring | 146673-51812 | | 1,000 | 6 | △ | |
| | | O-ring | 146673-51821 | | 930 | 12 | | |
| | | O-ring | 146673-51831 | | 970 | 6 | | |
| | | Pinion lubrication plug | — | 23887-120002 | 160 | 12 | ○ | |
| | Suction valve | Pinion lubrication packing | — | 23415-120000 | 50 | 12 | | For IMO2 or over 3500sec. |
| | | Suction valve | 147673-11740 | 147673-11110 | 23,800 | 12 | △ | |
| | | Stem seal | 141616-11751 | | 1,600 | 12 | △ | |
| 6N21(A)L Low Sulfur Bunker C (3-15cSt) | FO injection pump | Stem seal | 146670-11640 | | 860 | 12 | △ | IMO2 |
| | | FO injection pump | (747673-51106) | (747673-51107) | (241,000) | (6) | (As assembly) | |
| | | P&B assembly | 147673-51102 | 147673-51103 | 57,800 | 6 | | |
| | | O-ring | 146673-51812 | | 1,000 | 6 | ▲ | |
| | | O-ring | 146673-51821 | | 930 | 12 | | |
| 8N21(A)L | FO valve | O-ring | 146673-51831 | | 970 | 6 | | |
| | | FO valve assembly | (747673-53231) | (747673-53201) | (102,000) | (8) | (As assembly) | For engine models having "V" at the end |
| | | Nozzle CMP | 147673-53720 | 147673-53540 | 11,100 | 8 | △ | |
| | | O-ring | 151673-51381 | | 1,100 | 8 | | |
| | | O-ring | 146673-53900 | | 630 | 8 | | |
| | | O-ring | 146673-53900 | | 630 | 8 | | |
| | Nozzle sleeve | FO valve assembly | (747673-53131) | (747673-53411) | (102,000) | (8) | (As assembly) | For engine models having "N" at the end (NOx regulation compliant) |
| | | Nozzle CMP | 147673-53260 | 147673-53600 | 11,100 | 8 | △ | |
| | | O-ring | 151673-51381 | | 1,100 | 8 | | |
| | | O-ring | 146673-53900 | | 630 | 8 | | |
| | | Nozzle sleeve rpt kit | — | 747673-11450 | 69,900 | 8 | ○ | |
| | | Nozzle sleeve | 147672-11870 | 147673-11880 | Pending | 8 | (Rpt kit parts) | For engine models having "W" at the end |
| | | O-ring | 24326-000400 | | 250 | 16 | (Rpt kit parts) | |
| | | Packing | 147643-11870 | | 680 | 8 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 8 | (Rpt kit parts) | |
| | | Nozzle sleeve rpt kit | — | 747673-11460 | 69,900 | 8 | ○ | |
| | | Nozzle sleeve | 147673-11870 | 147673-11890 | Pending | 8 | (Rpt kit parts) | For engine models having "V" and "N" (Indirect Cooling Spec.) at the end |
| | | O-ring | 24326-000400 | | 250 | 16 | (Rpt kit parts) | |
| | | Packing | 147643-11870 | | 680 | 8 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 8 | (Rpt kit parts) | |
| | | Nozzle sleeve rpt kit | — | 747673-11470 | 15,200 | 8 | ○ | |
| | | Nozzle sleeve | 147673-11850 | 147673-11860 | 11,200 | 8 | (Rpt kit parts) | For engine models having "N" at the end, (Indirect Cooling Spec.) |
| | | O-ring | 24326-000400 | | 250 | 16 | (Rpt kit parts) | |
| | | Packing | 146673-11870 | | 470 | 8 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 8 | (Rpt kit parts) | |
| | FO injection pump | FO injection pump | (747673-51106) | (747673-51207) | (183,000) | (8) | (As assembly) | |
| | | P&B assembly | 147673-51102 | 147673-51202 | 62,800 | 8 | | |
| | | O-ring | 146673-51812 | | 1,000 | 8 | △ | |
| | | O-ring | 146673-51821 | | 930 | 16 | | |
| | | O-ring | 146673-51831 | | 970 | 8 | | |
| | | Pinion lubrication plug | — | 23887-120002 | 160 | 16 | ○ | |
| | Suction valve | Pinion lubrication packing | — | 23415-120000 | 50 | 16 | | For IMO2 or over 3500 sec. |
| | | Suction valve | 147673-11740 | 147673-11110 | 23,800 | 16 | △ | |
| | | Stem seal | 141616-11751 | | 1,600 | 16 | △ | |
| 8N21(A)L Low Sulfur Bunker C (3-15cSt) | FO injection pump | Stem seal | 146670-11640 | | 860 | 16 | △ | IMO2 |
| | | FO injection pump | (747673-51106) | (747673-51107) | (241,000) | (8) | (As assembly) | |
| | | P&B assembly | 147673-51102 | 147673-51103 | 57,800 | 8 | | |
| | | O-ring | 146673-51812 | | 1,000 | 8 | ▲ | |
| | | O-ring | 146673-51821 | | 930 | 16 | | |
| | | O-ring | 146673-51831 | | 970 | 8 | | |

Modification Parts List to Comply with SOx Regulation (7/8)

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks | |
|---|----------------------------|--------------------------|-------------------|-------------------|---------------------------|--------------------------|-----------------------|---|---|
| | | | Existing parts | Replacement parts | | | | | |
| 6N18 | FO valve | FO valve assembly | (746673-53521) | (746673-53511) | (102,000) | (6) | (As assembly) | (A)L-V | |
| | | Nozzle CMP | 146673-53540 | 146673-53520 | 11,100 | 6 | △ | | |
| | | O-ring | 151673-51381 | | 1,100 | 6 | △ | | |
| | | O-ring | 146673-53900 | | 630 | 6 | △ | | |
| | | FO valve assembly | (746673-53141) | (746673-53111) | (102,000) | (6) | (As assembly) | L-DN,UN,SN AL-HN,DN,UN | |
| | | Nozzle CMP | 146673-53300 | 146673-53040 | 9,700 | 6 | △ | | |
| | | O-ring | 151673-51381 | | 1,100 | 6 | △ | | |
| | | O-ring | 146673-53900 | | 630 | 6 | △ | | |
| | | FO valve assembly | (746673-53151) | (746673-53121) | (102,000) | (6) | (As assembly) | L-EN AL-SN,EN | |
| | | Nozzle CMP | 146673-53320 | 146673-53060 | 9,700 | 6 | △ | | |
| | O-ring | 151673-51381 | | 1,100 | 6 | △ | | | |
| | O-ring | 146673-53900 | | 630 | 6 | △ | | | |
| | Nozzle sleeve | Nozzle sleeve rpt kit | — | 746674-11480 | 69,900 | 6 | ○ | ※No modification is required for -N model, indirect cooling spec. engines | |
| | | Nozzle sleeve | 146673-11611 | 146673-11890 | Pending | 6 | (Rpt kit parts) | | |
| | | O-ring | 24326-000400 | | 250 | 12 | (Rpt kit parts) | | |
| | | Packing | 147643-11870 | | 680 | 6 | (Rpt kit parts) | | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | | |
| | | FO injection pump | FO injection pump | (746673-51107) | (746673-51206) | (183,000) | (6) | (As assembly) | |
| | P&B assembly | | 146673-51102 | 146673-51202 | 62,800 | 6 | △ | | |
| | O-ring | | 146673-51812 | | 1,000 | 6 | | | |
| | O-ring | | 146673-51821 | | 930 | 12 | | | |
| | O-ring | | 146673-51831 | | 970 | 6 | | | |
| | Pinion lubrication plug | | — | 23887-120002 | 160 | 12 | ○ | | |
| | Pinion lubrication packing | | — | 23415-120000 | 50 | 12 | | | |
| | Suction valve | | Suction valve | 146673-11120 | 146673-11110 | 22,400 | 12 | △ | Different for over 3500 sec. engines only |
| | | Stem seal | 141616-11751 | | 1,600 | 12 | △ | | |
| 6N18 Low Sulfur Bunker C (3-15cSt) | FO injection pump | FO injection pump | (746673-51107) | (746673-51108) | (242,000) | (6) | (As assembly) | | |
| | | P&B assembly | 146673-51102 | 146673-51103 | 53,100 | 6 | ▲ | | |
| | | O-ring | 146673-51812 | | 1,000 | 6 | | | |
| | | O-ring | 146673-51821 | | 930 | 12 | | | |
| | | O-ring | 146673-51831 | | 970 | 6 | | | |
| M220 | Nozzle sleeve | Nozzle sleeve rpt kit | — | 747643-11450 | 15,600 | 6 | ○ | Tapered nozzle, sleeve cooling spec. should be changed to:⇒Non-cooling sleeve spec. | |
| | | Nozzle sleeve | 147643-11851 | 147643-11820 | 14,400 | 6 | (Rpt kit parts) | | |
| | | O-ring | 152633-11750 | | 450 | 12 | (Rpt kit parts) | | |
| | | Packing | 147643-11870 | | 680 | 6 | (Rpt kit parts) | | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | | |
| | | Cooling oil bypass parts | — | 747643-59500 | 43000 | 6 | ○ | Oil cooling spec. should be changed: ⇒ Cooling oil bypass parts | |
| | | Bypass plug | — | 147643-59950 | 44500 | 6 | ○ | | |
| | | Packing | — | 23414-170000 | 50 | 6 | ○ | | |
| | Seal washer | — | 153672-59920 | 360 | 12 | ○ | | | |
| | FO injection pump | FO injection pump | (747644-51354) | (747644-51304) | (119,000) | (6) | (As assembly) | Parts different for 3500,7000 sec. engines only. | |
| | | P&B assembly | 147644-51602 | 147644-51103 | 49,900 | 6 | △ | | |
| | | O-ring | 141616-51221 | | 450 | 6 | | | |
| | | O-ring | 141616-51890 | | 440 | 6 | | | |
| | | O-ring | 134674-51381 | | 460 | 6 | | | |
| | Suction valve | Suction valve | 147644-11121 | 147644-11140 | 36,400 | 12 | △ | Nimonic for 7000 sec. spec. | |
| | | Stem seal | 147644-11581 | | 980 | 12 | △ | | |
| M220 Low Sulfur Bunker C (3-15cSt) | Injection pump | FO injection pump | (747644-51354) | (747644-51355) | Pending | (6) | (As assembly) | | |
| | | P&B assembly | 147644-51602 | 147644-51603 | Pending | 6 | ▲ | | |
| | | O-ring | 141616-51221 | | 450 | 6 | | | |
| | | O-ring | 141616-51890 | | 440 | 6 | | | |
| | | O-ring | 134674-51381 | | 460 | 6 | | | |

Modification Parts List to Comply with SOx Regulation (8/8)

○ : Needs be replaced

▲ : To be replaced upon next maintenance opportunity

△ : Re-usable (& to be replaced upon next opportunity)

| Engine model | Parts to be Modified | Names of Parts | Parts NO. | | Estimated price [JPY/pc.] | Q'ty required [pc./eng.] | To be replaced or not | Remarks |
|-------------------------------------|----------------------|----------------------------|----------------|-------------------|---------------------------|--------------------------|-----------------------|--|
| | | | Existing parts | Replacement parts | | | | |
| M200 | FO valve | FO valve assembly | (741616-53300) | (741616-53100) | (89,200) | (6) | (As assembly) | Oil cooling separate gallery. →Non-cooling |
| | | Nozzle CMP | 141616-53000 | 138658-53060 | 10,300 | 6 | △ | Oil cooling separate gallery. →Non-cooling |
| | | FO valve assembly | (741616-53210) | (741616-53110) | (81,200) | (6) | (As assembly) | |
| | | Nozzle CMP | 141616-53030 | 138658-53030 | 9,000 | 6 | △ | |
| | | FO valve assembly | (741616-53220) | (741616-53120) | (81,100) | (6) | (As assembly) | Oil cooling separate gallery. →Non-cooling |
| | | Nozzle CMP | 141616-53060 | 139684-53010 | 9,200 | 6 | △ | |
| | Nozzle sleeve | O-ring | 141616-53900 | | 430 | 6 | △ | No change for oil cooling bypass, tapered nozzle & indirect cooling spec. |
| | | Cooling oil bypass parts | — | 747643-59500 | 43,000 | 6 | ○ | Oil cooling separate gallery spec. ⇒Cooling oil bypass spec. |
| | | Bypass plug | — | 147643-59950 | 44,500 | 6 | ○ | |
| | | Packing | — | 23414-170000 | 50 | 6 | ○ | |
| | | Seal washer | — | 153672-59920 | 360 | 12 | ○ | |
| | | Nozzle sleeve rpt kit | — | 747643-11450 | 15,600 | 6 | ○ | Modification required only for tapered nozzle, sleeve cooling spec. (147643-11851) & engines with head no. 141644-11020, 147643-11851(See Parts List, E/#2101 ~2645) |
| | | Nozzle sleeve | 147643-11851 | 147643-11820 | 14,400 | 6 | (Rpt kit parts) | |
| | | Packing | 147643-11870 | | 680 | 6 | (Rpt kit parts) | |
| | | O-ring | 152633-11750 | | 450 | 12 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | |
| | | Nozzle sleeve rpt kit | — | 741644-11420 | 46000 | 6 | ○ | Indirect cooling nozzle spec., head no. 141644-11030 |
| | | Nozzle sleeve | 141644-11620 | 141644-11720 | Pending | 6 | (Rpt kit parts) | |
| | | Packing | 147643-11870 | | 680 | 6 | (Rpt kit parts) | |
| | | O-ring | 152633-11750 | | 450 | 12 | (Rpt kit parts) | |
| | Plug | Plug | — | 23887-200002 | 250 | 12 | ○ | For oil cooling separate gallery spec.; pump outlet, main pipe inlet & thermometer |
| | | Packing | — | 153672-59970 | 480 | 12 | ○ | |
| | | Plug | — | 23893-030002 | 690 | 12 | ○ | |
| | | Packing | — | 153672-59960 | 480 | 12 | ○ | |
| | FO injection pump | FO injection pump | (741646-51353) | (741646-51304) | (127,000) | (6) | (As assembly) | It is not possible to assemble MGO/MDO barrel in HFO pump unit. |
| | | P&B assembly | 141646-51601 | 141646-51104 | 49,900 | 6 | △ | |
| | | O-ring | — | 134674-51381 | 460 | 6 | | |
| | | Backup ring | — | 24372-000390 | 280 | 6 | | |
| | | Damper ring | — | 141616-51890 | 440 | 6 | | |
| | | O-ring | — | 141616-51221 | 450 | 6 | | |
| | | Pinion lubrication plug | — | 26450-060102 | 50 | 6 | △ | |
| | | Pinion lubrication packing | — | 23414-060000 | 50 | 6 | | |
| M200 Low Sulfur Bunker C (3-15cSt) | FO injection pump | FO injection pump | (741646-51353) | (741646-51354) | Pending | (6) | (As assembly) | |
| | | P&B assembly | 141646-51601 | 141646-51602 | Pending | 6 | ▲ | |
| | | O-ring | 134674-51381 | | 460 | 6 | | |
| | | Backup ring | 24372-000390 | | 280 | 6 | | |
| | | Damper ring | 141616-51890 | | 440 | 6 | | |
| | | O-ring | 141616-51221 | | 450 | 6 | | |
| 6N165L | Nozzle sleeve | Nozzle sleeve rpt kit | — | 733644-11410 | 32200 | 6 | ○ | Replacement is required only for nozzle sleeve spec.[133644-11610] (A part of IMO1 spec. and IMO2 spec.) |
| | | Nozzle sleeve | 133644-11610 | 133644-11620 | 29,100 | 6 | (Rpt kit parts) | |
| | | Packing, round | 152633-11750 | | 450 | 12 | (Rpt kit parts) | |
| | | Packing | 137600-53091 | | 360 | 6 | (Rpt kit parts) | |
| | | Packing, round | 147643-11870 | | 680 | 6 | (Rpt kit parts) | |
| | | O-ring | 24311-000400 | | 80 | 6 | (Rpt kit parts) | |
| | | O-ring | 152623-53360 | | 470 | 6 | (Rpt kit parts) | |
| | | Packing A, coupling | 152623-59421 | | 530 | 6 | (Rpt kit parts) | |
| | | Packing B, coupling | 152623-59450 | | 720 | 6 | (Rpt kit parts) | |
| | | Seal washer | 153672-59980 | | 480 | 6 | (Rpt kit parts) | |
| | | O-ring | 24316-000160 | | 230 | 6 | (Rpt kit parts) | |
| | | O-ring | 24613-000200 | | Pending | 6 | (Rpt kit parts) | |
| | FO injection pump | FO injection pump | (733644-51101) | (733670-51112) | (179,000) | (6) | (As assembly) | |
| | | Pump unit | 133644-51010 | 133670-51014 | Pending | 6 | △ | No pinion lubrication hole |
| | | P&B assembly | 133644-51100 | 133670-51301 | 25,100 | 6 | ▲ | |
| | | Tappet assembly | 133644-51200 | 133670-51202 | 19,700 | 6 | ▲ | |
| | | Pinion | 133670-51510 | | 3,700 | 6 | — | |
| | | O-ring | 137679-51892 | | 480 | 6 | — | |
| 6N165 Low Sulfur Bunker C (3-15cSt) | FO injection pump | FO injection pump | (733644-51101) | (733644-51102) | Pending | (6) | — | |
| | | P&B assembly | 133644-51100 | 133644-51101 | Pending | 6 | ▲ | |
| | | O-ring | 137679-51892 | | 480 | 6 | | |