

0CD10-M37503EN

PREFACE

1. This Parts Catalog is the 4th edition of 4TNA78TL-RFA Diesel Engine for FURUKAWA KIKAI.

Pub. No. : 000Y00D3753

Published : January, 1992

2. Model name

Engine model	Vehicle		Vehicle made by
	Products	Model name	
4TNA78TL-RFA	WHEEL LOADER	—	FURUKAWA KIKAI

Directions for the Parts Catalog.

1. The parts stipulated in this Parts Catalog are not necessarily standard equipped parts.
2. Parts may change without prior notice.
3. The following is an example of the Parts Catalog format.

OCF10-G21601 29. FUEL INJECTION PUMP(W/BOOST)

REF.	LEV.	PARTS NO.	DESCRIPTION	Q'TY						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729595-51390	FUEL INJECTION PUMP	1	1	1	1	1			1
1-1	1	729595-51391	FUEL INJECTION PUMP	1	1	1	1	1		N	1
		(A=E00185) (B=E00200)									
3	2	26022-060162	SCREW M 6X 16	9	9	9	9	9			
3-1	2	26022-060162	SCREW M 6X 16	4	4	4	4	4		K	
		(A=E00156) (B=E00156) (C=E00156) (D=E00156) (E=E00156)									
4	2	129470-51040	CAMSHAFT	1	1	1	1	1			
5	2	122710-51050	BEARING, ROLLER	2	2	2	2	2			
6	2	129470-51060	RETAINER	1	1	1	1	1			

Remarks

(1) BOOST COMPEMSATOR TYPE. OPTIONAL PART, TO E00155,(4JH-DT, 4JH-DTZ

① Ref. No.

The Ref. No. listed may not be in accordance with the illustration Ref. No.

(Ex.) Illustration No.

List Ref No.

1

1

(Before change) → 1-1 (After change)

For interchangeable symbols N, R and K, illustrations for new parts may be abbreviated.

② Lev. (Level)

Level indication

The numbers below indicate the level of relativity towards the main part.

1 ----- Main parts (Assembly parts)

2 ----- Sub component included in " 1 ".

3 ----- Sub component included in " 2 ".

Note) Parts that are not for sale are partially illustrated but not listed.

③ Interchangeability Mark

When a part change takes place, one of the following interchangeability symbols is indicated beside the part.

Symbol	Interchangeability	Contents note
N	Old $\begin{matrix} \leftarrow \text{Yes} \\ \text{No} \rightarrow \end{matrix}$ New	New Part is interchangeable for Old Part but Old Part is not interchangeable for New Part.
Q	Old $\begin{matrix} \leftarrow \text{No} \\ \text{Yes} \rightarrow \end{matrix}$ New	New Part is not interchangeable for Old Part but Old Part is interchangeable for New Part.
R	Old $\begin{matrix} \leftarrow \text{Yes} \\ \text{Yes} \rightarrow \end{matrix}$ New	New/ Old Parts are both interchangeable.
S	Old $\begin{matrix} \leftarrow \text{No} \\ \text{No} \rightarrow \end{matrix}$ New	New/ Old Parts are both not interchangeable.
W		Part newly added.
Z		Part discontinued.
F		Not interchangeable by a single part but interchangeable together with related parts.
K		Changes only for used parts quantities.

④ Effective Machine No.

When a part changes, the effective Machine No. will be indicated in the (A)-(F) column.

Product Symbol	Product No.	Product Symbol	Product No.
C	Clutch No. Compressor No.	F	Machine No. (Agricultural Equip.)
D	Drive No.	M	Machine No.
E	Engine No.		

Note 1) A date may follow the symbol. (Ex.) 1996.01

Note 2) "XXXXX" and "ZZZZZ" are for parts that could not be predicted or for engine models that could not be identified.

Note 3) (A=E00185) is the E (Engine Serial Number) for the column (A) model (in this case 4JH-DT) after the parts design change.

⑤ Remarks Mark

Figures or alphabets (symbols) are entered in the remarks column.

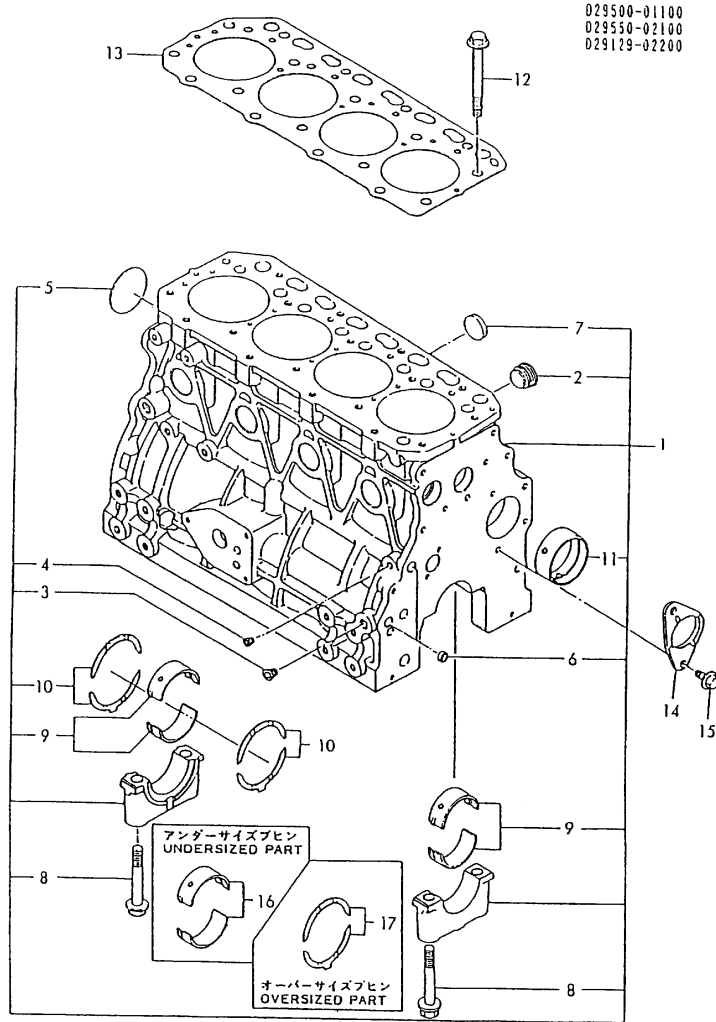
The comments (remarks) on parts that are indicated at the bottom of the illustration are the same symbols as those stated above.

Contents

Fig. No.	Fig. Name
ENGINE 4TNA78TL-RFA	
1.	CYLINDER BLOCK
2.	GEAR HOUSING
3.	FLYWHEEL HOUSING
4.	LUB. OIL SUMP
5.	BONNET
6.	CYLINDER HEAD
7.	AIR CLEANER & SILENCER
8.	SUCTION & EXHAUST MANIFOLD
9.	CAMSHAFT & IDLE GEAR
10.	TURBO-CHARGER(COMPONENT PARTS)
11.	CRANKSHAFT & FLYWHEEL
12.	PISTON & CONNECTING ROD
13.	LUB. OIL SYSTEM
14.	LUB. OIL PIPES
15.	COOLING WATER SYSTEM
16.	THERMOSTAT
17.	COOLING WATER PIPES
18.	FUEL INJECTION PUMP
19.	FUEL INJECTION DEVICE
20.	FUEL OIL SYSTEM
21.	FUEL OIL RETURN PIPES
22.	GOVERNOR
23.	ENGINE STOP
24.	STARTING MOTOR(COMPONENT PARTS)

Fig. No.	Fig. Name
25.	GENERATOR(COMPONENT PARTS)
26.	GASKET SET(OPTIONAL)
27.	SPECIAL TOOL(OPTIONAL)

Fig.1. CYLINDER BLOCK

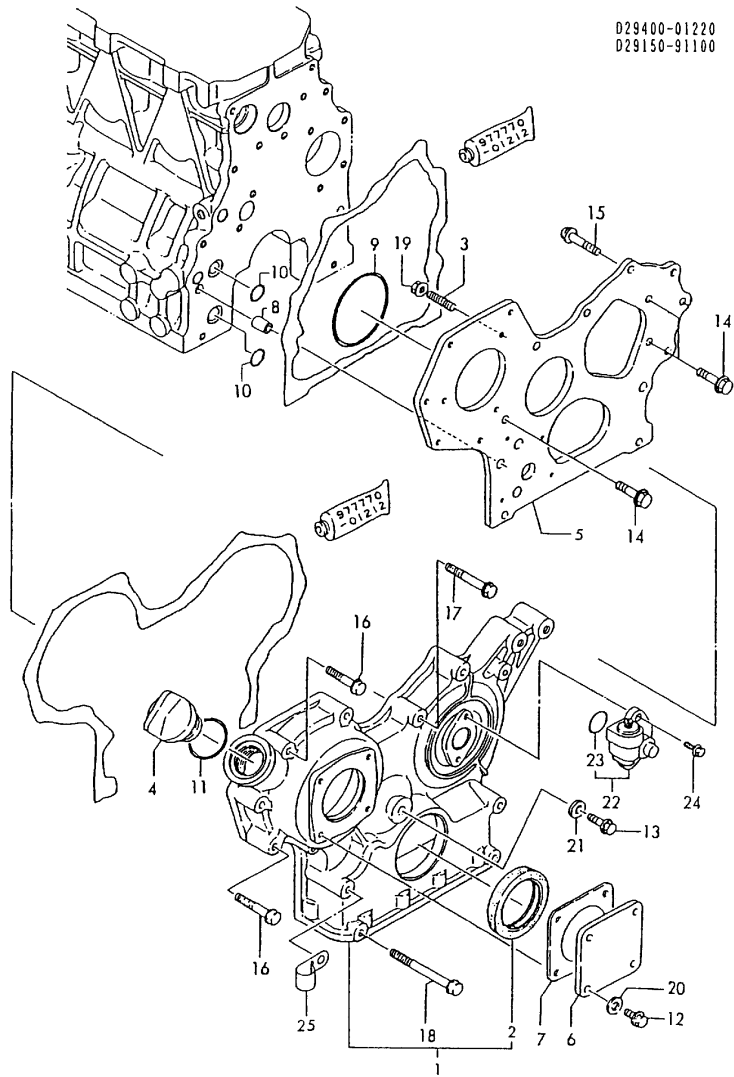


No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729500-01560	BLOCK ASSY, CYLINDER	1							
2	2	171051-01921	PLUG, NPTF1	1							
3	2	124160-01910	PLUG, PT1/4	2							
4	2	23871-010000	PLUG, R01	1							
5	2	27231-500000	PLUG 50	1							
6	2	27241-120000	PLUG, 12	2							
7	2	27241-300000	PLUG 30	8							
8	2	129150-02020	BOLT, METAL CAP	10							
9	2	129150-02800	BEARING, MAIN	5							
10	2	129150-02930	BEARING, THRUST	2							
11	2	129795-02411	BUSH, CAMSHAFT	1							
12	1	129150-01200	BOLT, HEAD	18							
13	1	129555-01332	GASKET, HEAD	1							\$
14	1	129150-02450	BEARING, THRUST	1							Z
(A=EXXX)											
15	1	26106-080162	BOLT, M8X 16 PLATED	2							
16	1	129150-02870	BEARING, 0.25 US	5							1
17	1	129150-02940	BEARING, THRUST 0.25	1							2

Remarks

- (1) UNDER-SIZE(U.S=0.25)PART.
- (2) OVER-SIZE(O.S=0.25)PART.
- (§) THESE PARTS ARE SOLD BY FIG.26,REF NO.1-2.

Fig.2. GEAR HOUSING



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

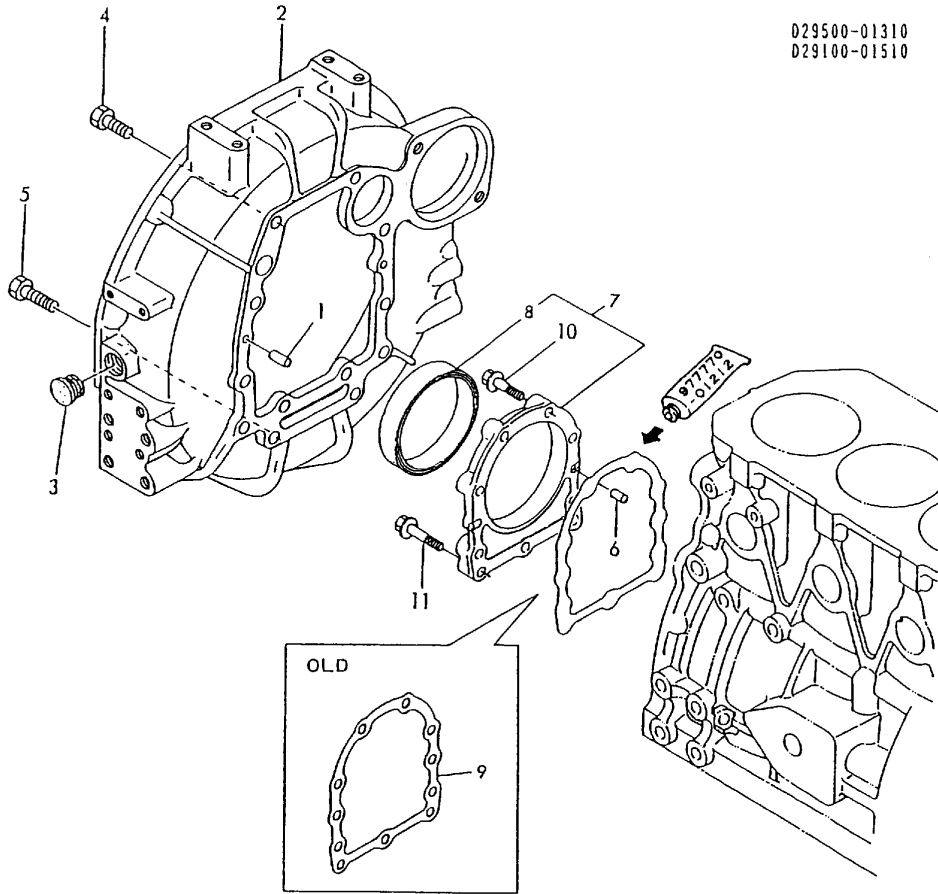
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	719810-01500 (A=*1991.10)	CASE ASSY, GEAR	1							W
2	2	129795-01800	SEAL, OIL		1						
3	1	121450-01560	STUD, M8X22		3						
4	1	124160-01751	COVER, FILLER		1						
5	1	129400-01520	FLANGE, GEAR CASE		1						
6	1	124240-01871	COVER		1						
7	1	124240-01882	GASKET		1						\$
7-1	1	124240-01883	GASKET		1						N \$
(A=E05034)											
8	1	129795-01950	PIPE, KNOCK L=18		2						
9	1	121850-51960	O-RING		1						\$
10	1	24311-000160	O-RING, 1AP16.0		2						
11	1	24311-000320	O-RING, 1AP32.0		1						\$
12	1	26106-080122	BOLT, M8X 12 PLATED		4						
13	1	26106-080162	BOLT, M8X 16 PLATED		1						
14	1	26106-080162	BOLT, M8X 16 PLATED		3						
15	1	26106-080202	BOLT, M8X 20 PLATED		2						
16	1	26106-080452	BOLT, M8X 45 PLATED		6						
17	1	26106-080552	BOLT, M8X 55 PLATED		3						
18	1	26106-080852	BOLT, M8X 85 PLATED		4						
19	1	26366-080002	NUT, M8		3						
20	1	43400-500410	SEAL WASHER 8		4						
21	1	43400-500410	SEAL WASHER 8		1						
22	1	129150-91400	GEAR		1						
23	2	24341-000240	O-RING, 1AS24.0		1						
24	1	26106-060162	BOLT, M6X 16 PLATED		2						
25	1	129150-03100 (A=E05034)	RETAINER, PIPE		1						W

Remarks

(\$)THESE PARTS ARE SOLD BY
FIG.26,REF NO.1-2.

Fig.3. FLYWHEEL HOUSING



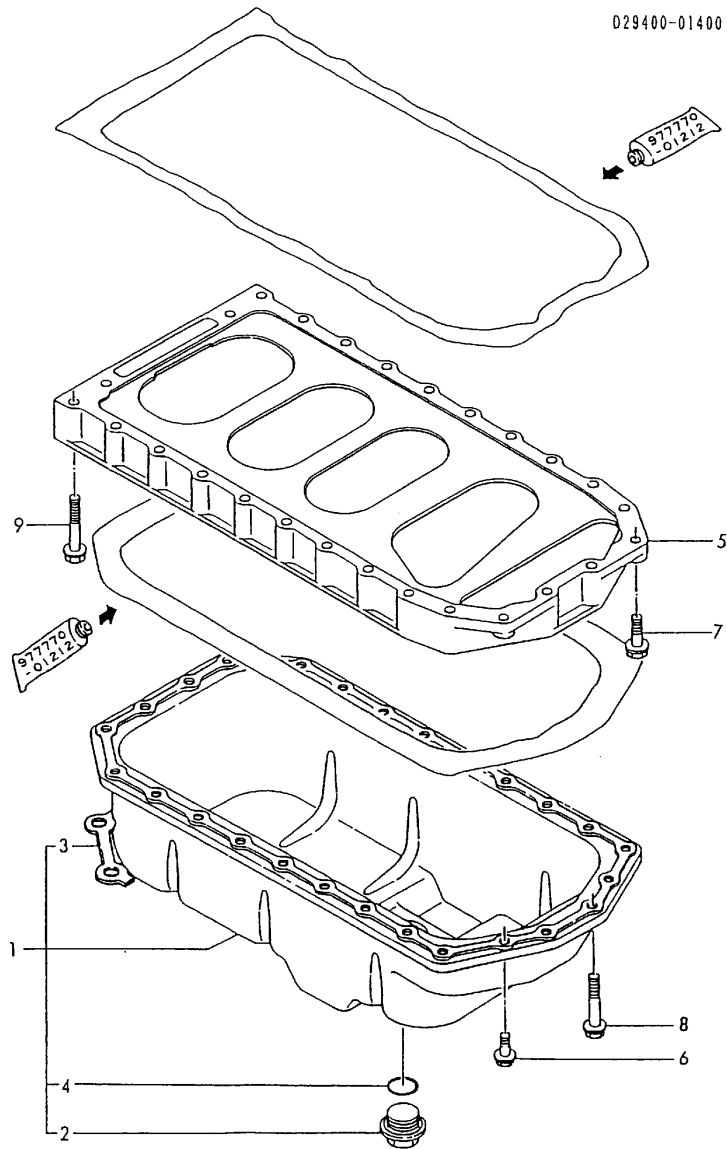
(A)=4TNA78TL-RFA
(B)=
(C)=

(D)=
(E)=
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129100-01580	PIN, M8X16	2							
2	1	171440-01600	HOUSING, FLYWHEEL	1							
3	1	119620-01750	CAP	1							
4	1	26206-100252	BOLT, M10X 25 PLATED	6							
5	1	26206-100302	BOLT, M10X 30 PLATED	4							
6	1	129100-01580	PIN, M8X16	2							
7	1	129100-01640	CASE ASSY, OIL SEAL	1							W
		(A=E05357)									
8	2	129795-01780	SEAL, OIL	1							
9	1	129150-01660	GASKET	1							Z \$
		(A=*1988.)									
10	1	26106-080302	BOLT, M8X 30 PLATED	6							
11	1	26106-080352	BOLT, M8X 35 PLATED	3							

Remarks
(\$) THESE PARTS ARE SOLD BY
FIG.26, REF NO.1-2.

Fig.4. LUB. OIL SUMP



(A)=4TNA78TL-RFA

(B)=

(C)=

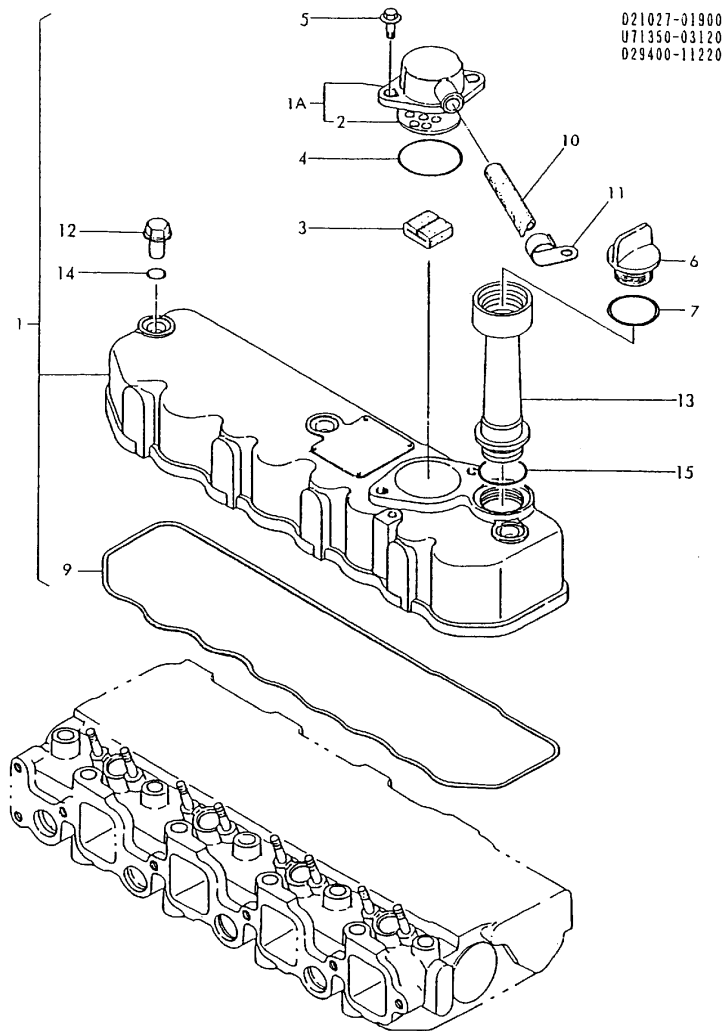
(D)=

(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729488-01540	SUMP ASSY, OIL	1							
1-1	1	729402-01540	SUMP ASSY, OIL	1							N
(A=E05357)											
1-2	1	729577-01720	SUMP ASSY, OIL	1							R
(A=*1991.)											
1-3	1	729402-01540	SUMP ASSY, OIL	1							R
(A=*1991.)											
2	2	171301-01640	PLUG, 22	1							
3	2	129100-01790	RETAINER	2							
4	2	24341-000240	O-RING, 1AS24.0	1							
5	1	129400-01730	SPACER, OIL SUMP	1							
6	1	26106-080162	BOLT, M8X 16 PLATED	4							
7	1	26106-080252	BOLT, M8X 25 PLATED	2							
8	1	26106-080452	BOLT, M8X 45 PLATED	20							
9	1	26106-080502	BOLT, M8X 50 PLATED	4							

Fig.5. BONNET



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

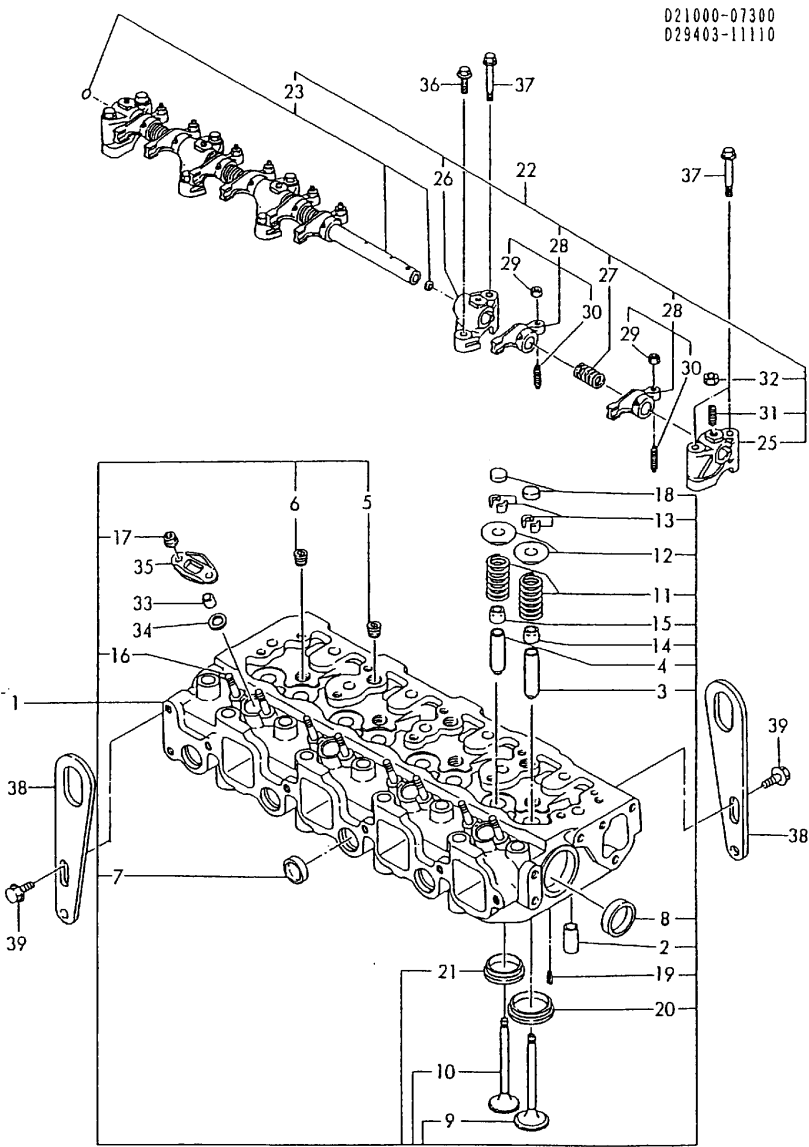
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129400-11350	BONNET ASSY, HEAD	1							W
		(A=EXXX)									
1A	2	129150-03010	COVER ASSY	1							
2	3	129150-03080	PLATE, BAFFLE	1							
3	2	129150-03070	BAFFLE, BREATHER	1							
4	2	24341-000500	O-RING, 1AS50.0	1							\$
5	2	26106-080162	BOLT, M8X 16 PLATED	2							
6	2	124160-01751	COVER, FILLER	1							
7	2	121420-01760	O-RING	1							
7-1	2	24311-000320	O-RING, 1AP32.0	1							N \$
		(A=E03379)									
9	2	129550-11310	GASKET, BONNET	1							\$
10	1	171350-03090	PIPE , BREATHER 900	1							
11	1	129150-03100	RETAINER, PIPE	1							Z
		(A=EXXX)									
12	1	124160-11360	KNOB	3							
13	1	121027-11742	PIPE	1							
14	1	24311-000120	O-RING, 1AP12.0	3							
15	1	24321-000350	O-RING, 1AG35.0	1							

Remarks

(S) THESE PARTS ARE SOLD BY FIG.26,REF NO.1-2.

Fig.6. CYLINDER HEAD



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729403-11700	HEAD ASSY, CYLINDER	1							
2	2	129150-11050	PIECE	4							
3	2	120130-11860	GUIDE, VALVE	4							1
4	2	129150-11810	GUIDE, VALVE	4							1
5	2	121850-11860	PLUG, PT1/4	3							
6	2	23871-030000	PLUG, R03	4							
7	2	27241-220000	PLUG, 22	4							
8	2	27241-400000	PLUG, 40	2							
9	2	129100-11100	VALVE, INTAKE	4							
10	2	129100-11130	VALVE, EXHAUST	4							
11	2	129795-11120	SPRING, VALVE	8							
12	2	129795-11180	RETAINER, SPRING	8							
13	2	103338-11190	COTTER	8							
13-1	2	27310-080001	COTTER, 8	8							R
(A=EXXXXX)											
14	2	124460-11340	SEAL, VALVE STEM	4							
15	2	121400-11340	SEAL, VALVE STEM	4							
16	2	26216-060202	STUD, M6X 20	8							
17	2	26366-060002	NUT, M6	8							
18	2	129150-11370	CAP, VALVE	8							
19	2	22351-060012	PIN, SPRING 6.0X12	2							
20	2	129470-11080	SEAT, INTAKE VALVE	4							
21	2	129470-11090	SEAT, EXHAUST VALVE	4							
22	1	129555-11241	SHAFT ASSY, ROCKER	1							
23	2	129550-11290	SHAFT, ROCKER ARM	1							
25	2	129155-11260	SUPPORT, ROCKER ARM	2							
26	2	129155-11270	SUPPORT, ROCKER ARM	3							
27	2	129150-11280	SPRING	4							
28	2	729150-11650	ARM ASSY, ROCKER	8							
28-1	2	729402-11650	ARM ASSY, ROCKER	8							N
(A=E05357)											
29	3	129150-11750	NUT, M8	8							
30	3	129150-11230	SCREW, VALVE ADJUST	8							
31	2	26226-080182	STUD, M8X 18	3							
32	2	26756-080002	NUT, LOCK M8	3							
33	1	119625-11870	PROTECTOR, NOZZLE	4							
34	1	119625-11880	SEAT, NOZZLE	4							
35	1	119625-11900	RETAINER, NOZZLE	4							
36	1	26106-080252	BOLT, M8X 25 PLATED	3							
37	1	26106-080502	BOLT, M8X 50 PLATED	7							
38	1	124736-07900	LIFTER	2							
39	1	26106-080142	BOLT, M8X 14 PLATED	4							

Remarks

(1) REPAIR PART.

N:Old $\xrightarrow{\text{Yes}}$ New, Q:Old $\xrightarrow{\text{No}}$ New, R:Old $\xrightarrow{\text{Yes}}$ New, S:Old $\xrightarrow{\text{No}}$ New, W:Add, Z:Discontinued, F:Interchangeable by set, K:Q'ty Change

Fig.7. AIR CLEANER & SILENCER

(A)=4TNA78TL-RFA

(B)=

(C)=

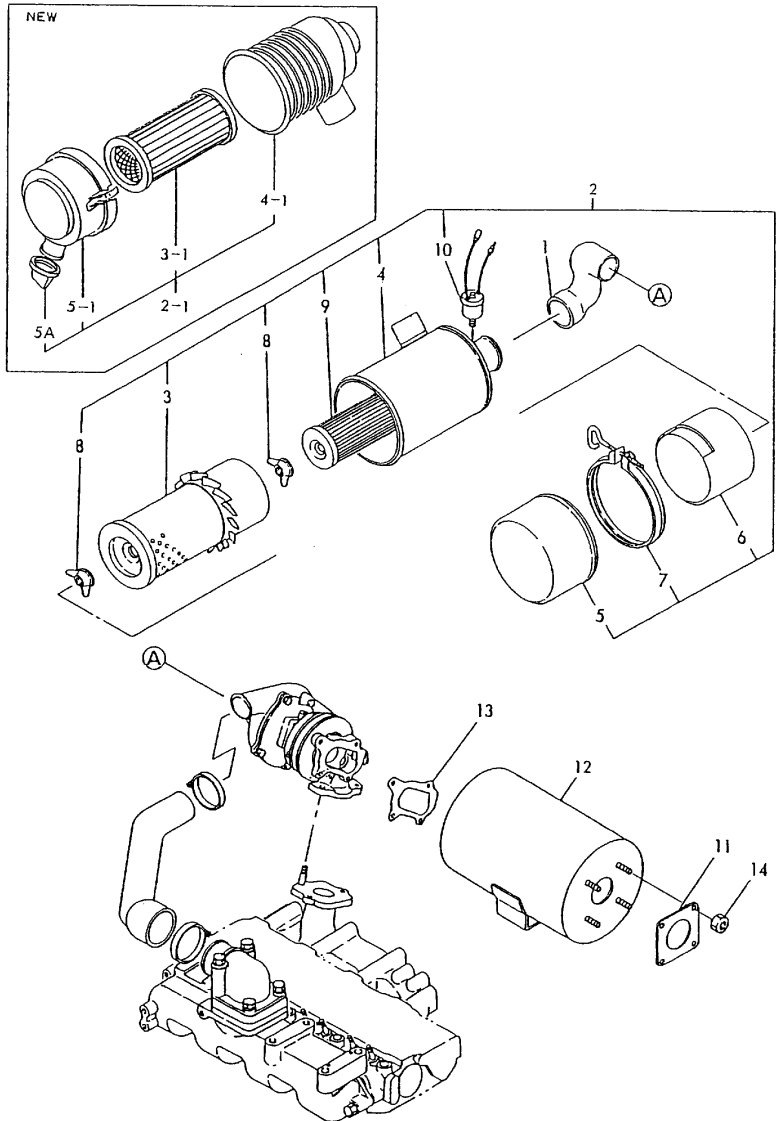
(D)=

(E)=

(F)=

Qty

No.	Lev.	Parts No.	Description	Qty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	121505-12210	HOSE, AIR CLEANER	1							
2	1	129535-12500	CLEANER ASSY, AIR	1							
2-1	1	129135-12501	CLEANER ASSY, AIR	1							N
(A=*1991.09)											
3	2	121420-12511	ELEMENT	1							
3-1	2	119808-12520	ELEMENT	1							S
(A=*1991.09)											
4	2	171061-12520	BODY, CLEANER	1							
4-1	2	119808-12510	BODY, AIR CLEANER	1							S
(A=*1991.09)											
5	2	121420-12530	CAP, AIR CLEANER	1							
5-1	2	119808-12530	COVER	1							S
(A=*1991.09)											
5A	2	119808-12540	VALVE, UNLOADER	1							W
(A=*1991.09)											
6	2	121420-12540	SCARF, BAFFLE	1							Z
(A=*1991.09)											
7	2	121420-12550	CLAMP ASSY	1							Z
(A=*1991.09)											
8	2	121420-12561	NUT, WING	2							Z
(A=*1991.09)											
9	2	121422-12570	ELEMENT	1							Z
(A=*1991.09)											
10	2	129535-12800	INDICATOR	1							Z
(A=*1991.09)											
11	1	129400-13200	GASKET, SILENCER	1							\$
11-1	1	129400-13201	GASKET, SILENCER	1							N \$
(A=E05400)											
12	1	129535-13500	SILENCER	1							
13	1	129403-18090	GASKET	1							\$
14	1	194990-22050	NUT, M8	4							

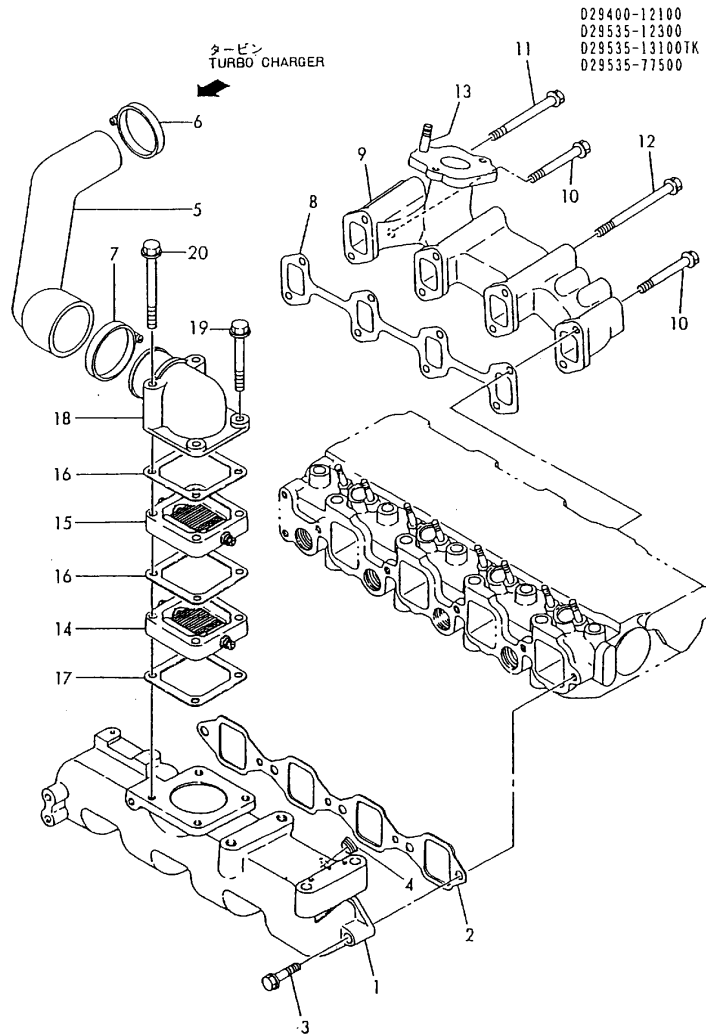


Remarks

(\$) THESE PARTS ARE SOLD BY FIG.26, REF.NO.1-2.

N:Old $\xrightarrow{\text{Yes}}$ New, Q:Old $\xrightarrow{\text{No}}$ New, R:Old $\xrightarrow{\text{Yes}}$ New, S:Old $\xrightarrow{\text{No}}$ New, W:Add, Z:Discontinued, F:Interchangeable by set, K:Qty Change

Fig.8. SUCTION & EXHAUST MANIFOLD



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

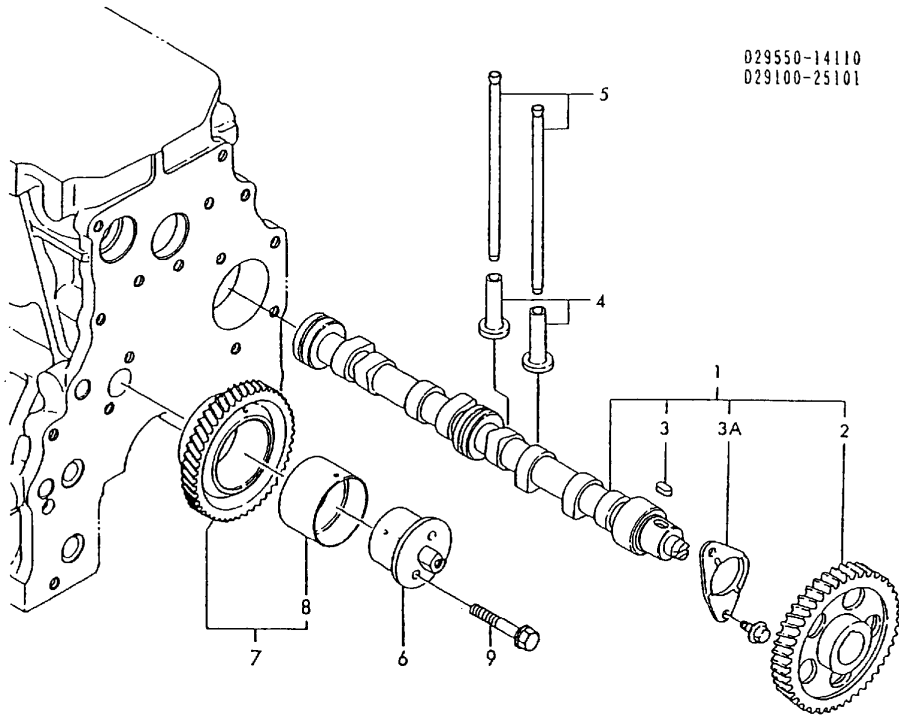
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129400-12100	MANIFOLD, AIR INTAKE	1							
2	1	129550-12110	GASKET, MANIFOLD	1							\$
2-1	1	129550-12111	GASKET, MANIFOLD	1						N	\$
(A=E05400)											
3	1	26106-080352	BOLT, M8X 35 PLATED	5							
4	1	23871-030000	PLUG, R03	1							
5	1	129535-12080	PIPE, AIR INTAKE	1							
6	1	23000-054000	CLAMP, 54	1							
7	1	23000-060000	CLAMP, 60	1							
8	1	129550-13110	GASKET	1							\$
9	1	129403-13130	MANIFOLD, EXHAUST	1							
10	1	26106-080652	BOLT, M8X 65 PLATED	3							
11	1	26106-080852	BOLT, M8X 85 PLATED	1							
12	1	26106-081002	BOLT, M8X100 PLATED	4							
13	1	26216-080222	STUD, M8X 22	3							
13-1	1	123678-18320	STUD	3						N	
(A=E06177)											
14	1	129100-77500	HEATER, AIR 12V	1							
15	1	129400-77500	HEATER	1							
15-1	1	129400-77501	HEATER	1						N	
(A=E02919)											
16	1	129100-77510	GASKET, AIR HEATER	2							\$
17	1	129150-77510	GASKET	1							\$
17-1	1	129150-77511	GASKET	1						N	\$
(A=E05400)											
18	1	171340-77520	BEND	1							
19	1	26106-080552	BOLT, M8X 55 PLATED	2							
20	1	26106-080952	BOLT, M8X 95 PLATED	2							

Remarks

(S) THESE PARTS ARE SOLD BY FIG.26,REF.NO.1-2.

Fig.9. CAMSHAFT & IDLE GEAR



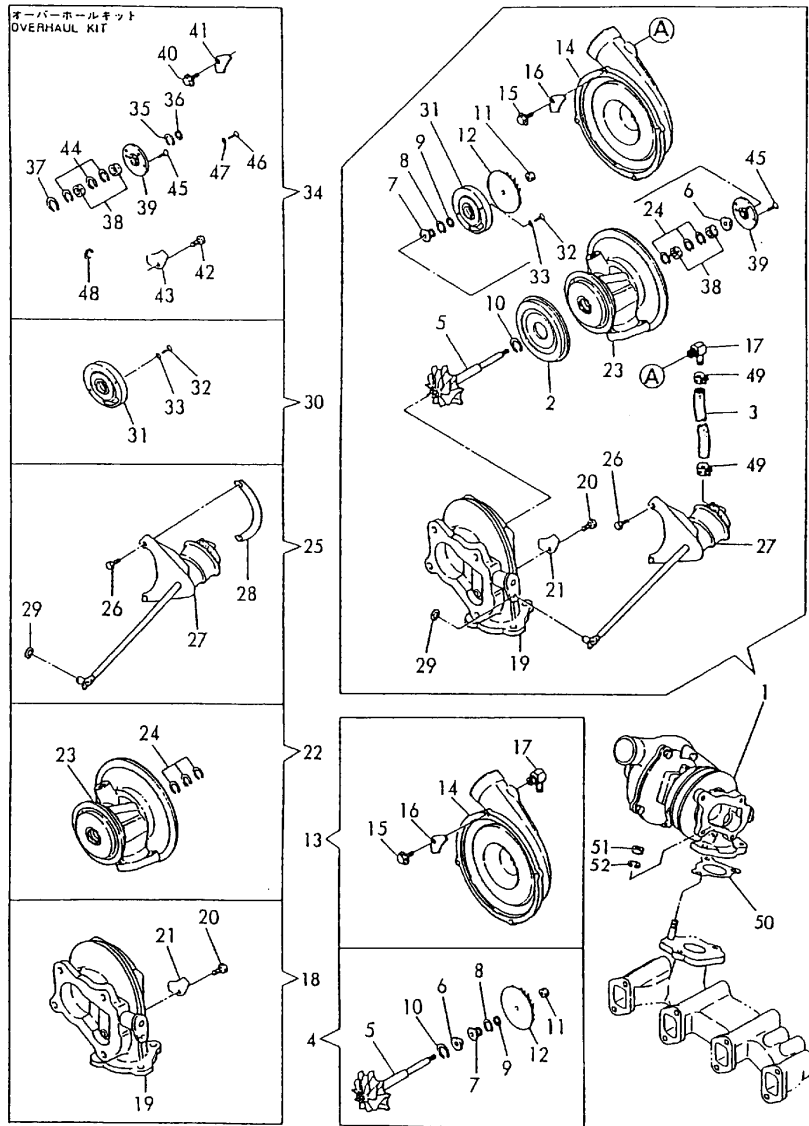
(A)=4TNA78TL-RFA
(B)=
(C)=

(D)=
(E)=
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729402-14580 (A=EXXX)	CAMSHAFT ASSY	1							W
2	2	129150-14101	GEAR, CAMSHAFT	1							
3	2	22512-070140	KEY, 7X 14	1							
3A	2	129150-02450 (A=EXXX)	BEARING, THRUST	1							W
4	1	129150-14200	TAPPET	8							
5	1	129550-14400	ROD, PUSH	8							
6	1	129100-25061	SHAFT, IDLE	1							
7	1	129150-25101	GEAR ASSY, IDLE	1							
9	1	26106-080452	BOLT, M8X 45 PLATED	2							

Fig.10. TURBO-CHARGER(COMPONENT PARTS)

029535-18100

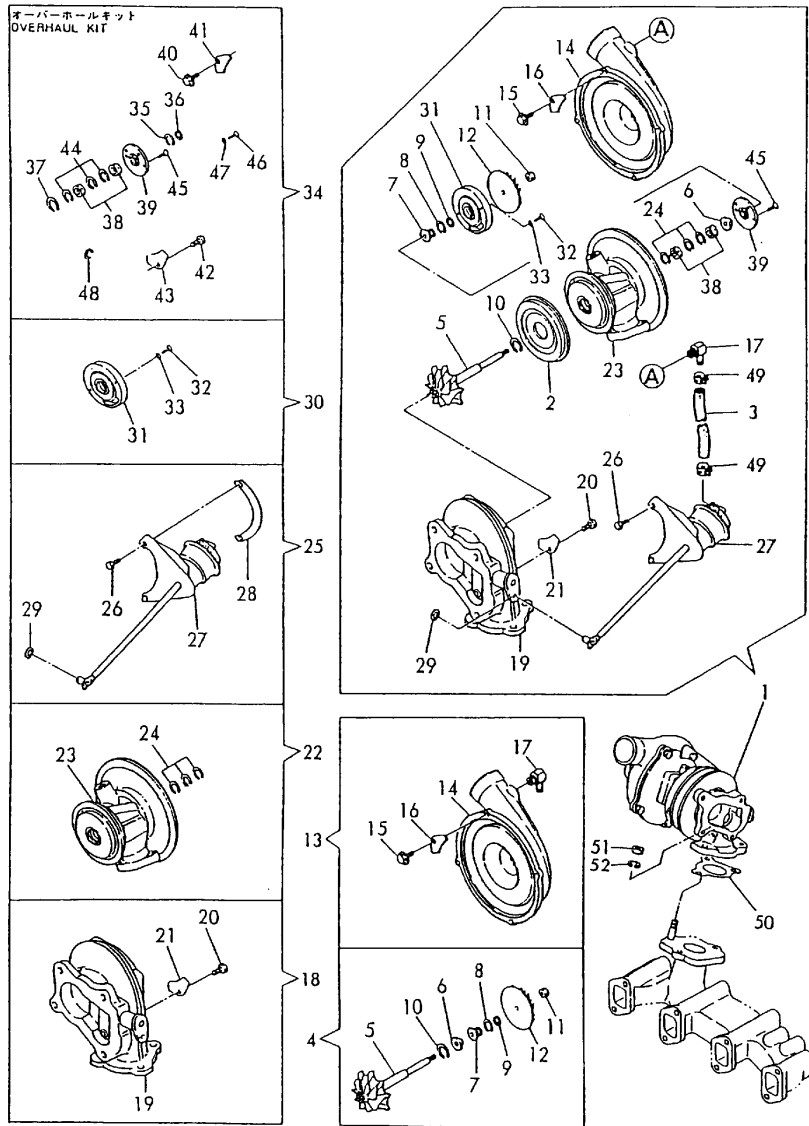


No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129403-18050	TURBINE, RHB31	1							
2	2	129403-18720	PROTECTOR, HEAT	1							
3	2	129403-18750	HOSE	1							
4	2	129403-18770	ROTOR ASSY, TURBO	1							
5	3	129403-18500	SHAFT	1							
6	3	129403-18510	THRUST BUSH	1							
7	3	129403-18520	OIL DRIP	1							
8	3	129403-18530	SEAL RING,BLOW SIDE	1							
9	3	129403-18540	SEAL RING,BLOW SIDE	1							
10	3	129403-18550	SEAL RING,	1							
11	3	129403-18560	NUT	1							
12	3	129403-18570	WHEEL	1							
13	2	129403-18780	HOUSING ASSY, BLOWER	1							
14	3	129403-18610	HOUSING,BLOWER	1							
15	3	129403-18620	BOLT M 5X 10.5	4							
16	3	129403-18630	SEAL RING,BLOW.SIDE	2							
17	3	129403-18730	NUT	1							
18	2	129403-18790	HOUSING ASSY, TURBO	1							
19	3	129403-18640	TURBINE HOUSING	1							
20	3	129403-18650	BOLT M 6X11	4							
21	3	129403-18660	RETAINER	4							
22	2	129403-18800	HOUSING ASSY,BEARING	1							
23	3	129403-18670	HOUSING,BEARING	1							
24	3	129403-18680	CIRCLIP	3							
25	2	129403-18810	CONTROL ASSY	1							
26	3	129403-18620	BOLT M 5X 10.5	4							
27	3	129403-18740	ACTUATOR	1							
28	3	129403-18760	SPACER	3							
29	3	22273-000040	RING, E- 4	1							
30	2	129403-18820	SEAL PLATE ASSY	1							
31	3	129403-18580	SEAL PLATE	1							
32	3	129403-18700	SCREW M 3X12.5	2							
33	3	129403-18710	LOCK WASHER 3	2							
34	2	129403-18830	OVERHAUL KIT	1							
35	3	129403-18530	SEAL RING,BLOW SIDE	1							
36	3	129403-18540	SEAL RING,BLOW SIDE	1							
37	3	129403-18550	SEAL RING,	1							
38	3	129403-18590	FLOATING BEARING	2							
39	3	129403-18600	THRUST METAL	1							
40	3	129403-18620	BOLT M 5X 10.5	4							
41	3	129403-18630	SEAL RING,BLOW.SIDE	2							
42	3	129403-18650	BOLT M 6X11	4							
43	3	129403-18660	RETAINER	4							
44	3	129403-18680	CIRCLIP	3							
45	3	129403-18690	SCREW M 3X6.8	2							
46	3	129403-18700	SCREW M 3X12.5	2							
47	3	129403-18710	LOCK WASHER 3	2							
48	3	22273-000040	RING, E- 4	1							
49	2	23080-012000	CLAMP, 12	2							
50	1	129477-18100	GASKET	1							\$
50-1	1	129535-18100	GASKET	1							N \$

Remarks
 (\$) THESE PARTS ARE SOLD BY
 FIG.26,REF.NO.1-2.

Fig.10. TURBO-CHARGER(COMPONENT PARTS)

029535-18100



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

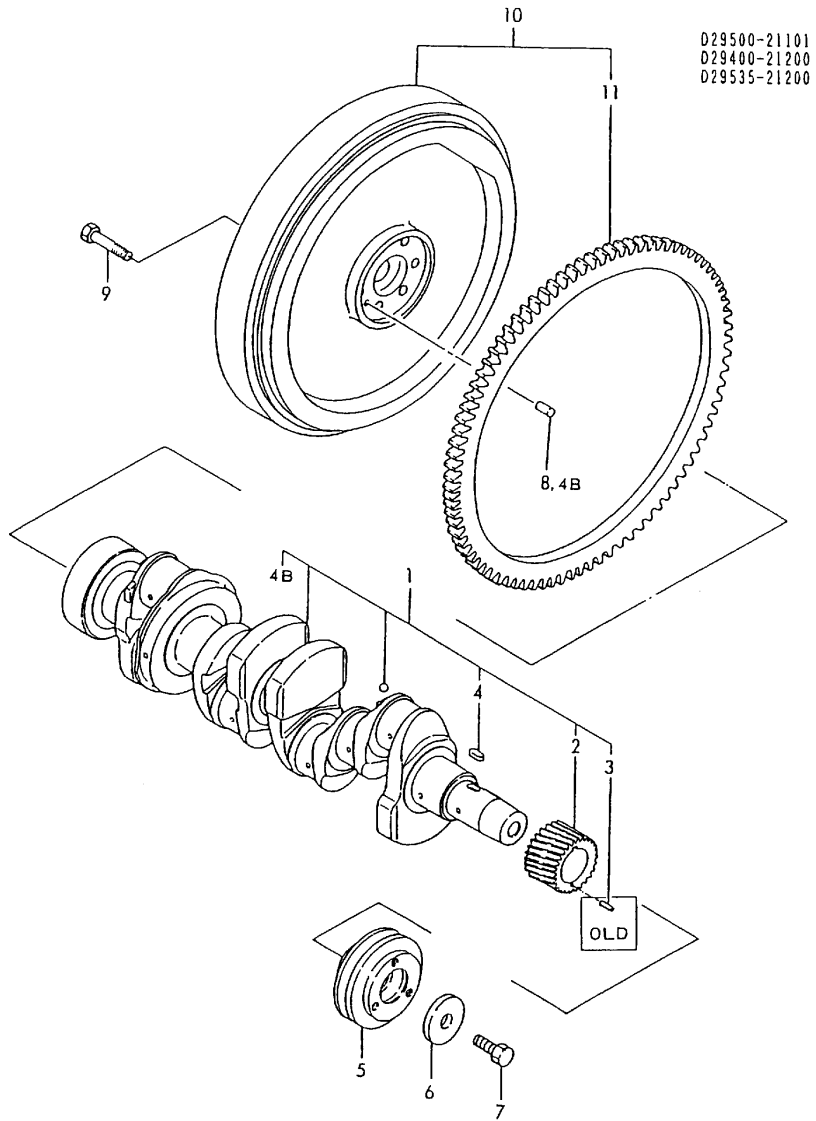
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
		(A=E06177)									
51	1	26366-080002	NUT, M8	3							
51-1	1	194990-22050	NUT, M8	3							N
		(A=E05034)									
51-2	1	26713-080002	NUT, M8	3							N
		(A=E06177)									
52	1	22213-080000	WASHER, SPRING 8	3							W
		(A=E06177)									

Remarks

(S) THESE PARTS ARE SOLD BY FIG.26,REF.NO.1-2.

Fig.11. CRANKSHAFT & FLYWHEEL



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R	
				(A)	(B)	(C)	(D)	(E)	(F)			
1-2	1	729500-21700 (A=1ST)	CRANKSHAFT ASSY	1							S	
2	2	129150-21200	GEAR, CRANKSHAFT	1								
3	2	22351-040010 (A=E03043)	PIN, SPRING 4.0X10	1								Z
4	2	22512-070140	KEY, 7X 14	1								
4B	2	129100-01580 (A=E05400)	PIN, M8X16	1								W
5	1	171301-21650	V-PULLEY	1								
6	1	129795-21661	WASHER	1								
7	1	121850-21680	BOLT	1								
8	1	129100-01580 (A=E05400)	PIN, M8X16	1								Z
9	1	121111-21501	BOLT, FLYWHEEL	6								
10	1	129535-21590	FLYWHEEL ASSY	1								
11	2	124550-21600	GEAR, RING	1								

Fig.12. PISTON & CONNECTING ROD

(A)=4TNA78TL-RFA

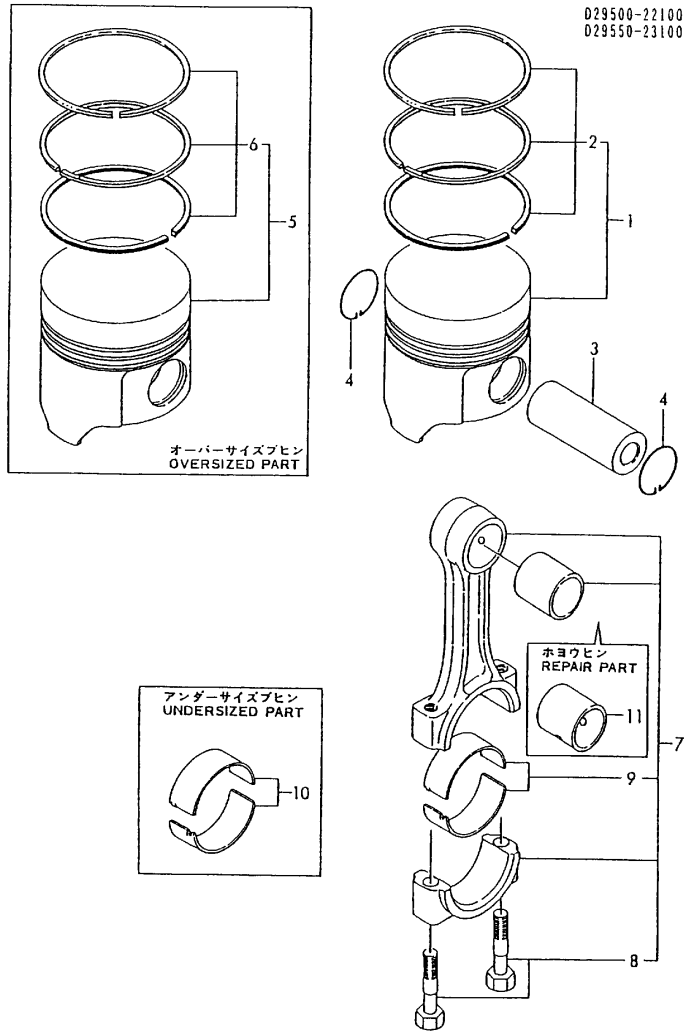
(B)=

(C)=

(D)=

(E)=

(F)=

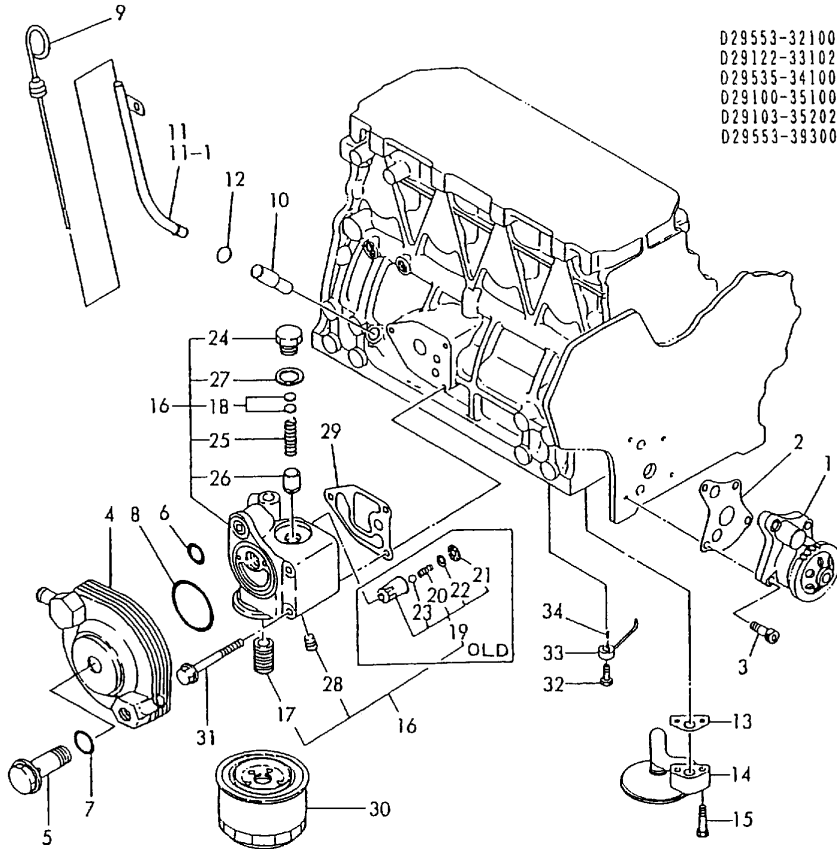


No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129500-22090	PISTON ASSY	4							
2	2	729550-22500	RING SET, PISTON	4							
3	1	129150-22300	PIN, PISTON D26 L66	4							
4	1	121100-22400	CIRCLIP	8							
5	1	729500-22910	PISTON ASSY, 0.25 OS	4							1
6	2	729550-22950	RING SET, 0.25 OS	4							1
7	1	729550-23700	ROD ASSY, CONNECTING	4							
8	2	121550-23200	BOLT, CONNECTING ROD	8							
9	2	729150-23600	BEARING, CRANK PIN	4							
9-1	2	129150-23600	BEARING, CRANK PIN	4							N
		(A=E05357)									
10	1	129150-23610	BEARING, 0.25 US	4							2
11	1	129100-23910	BEARING, PISTON PIN	4							3

Remarks

- (1) OVER-SIZE(O.S=0.25)PART.
- (2) UNDER-SIZE(U.S=0.25)PART.
- (3) REPAIR PART.

Fig.13. LUB. OIL SYSTEM



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

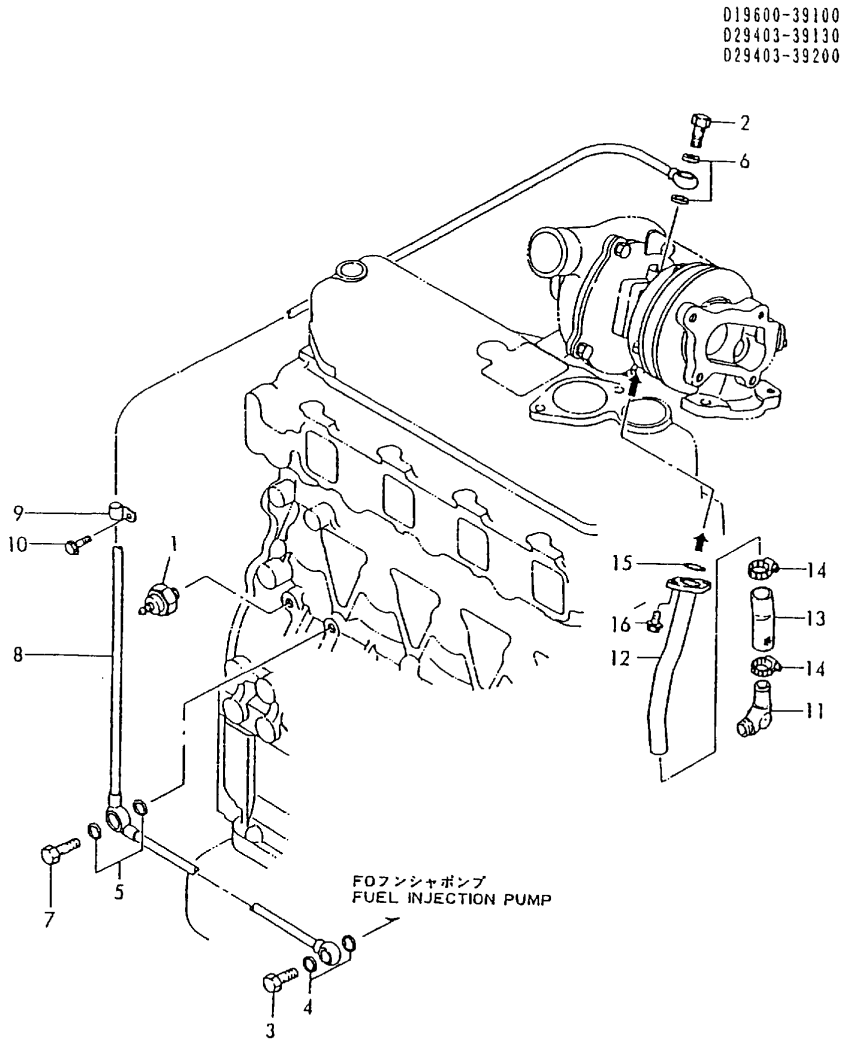
No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129553-32000	PUMP ASSY, OIL	1							
2	1	129150-32020	GASKET, PUMP	1							
3	1	26450-060252	BOLT, M6X 25	4							
4	1	129103-33031	COOLER, OIL	1							
5	1	129103-33132	BOLT	1							
6	1	24311-000200	O-RING, 1AP20.0	1							\$
7	1	24311-000210	O-RING, 1AP21.0	1							\$
8	1	24321-000550	O-RING, 1AG55.0	1							\$
9	1	129535-34800	DIPSTICK, OIL	1							
10	1	119260-34810	GUIDE, DIPSTICK	1							
11	1	129535-34810	GUIDE, DIPSTICK A	1							
11-1	1	129535-34811	GUIDE, DIPSTICK A	1							S
(A=E03043)											
12	1	24311-240100	O-RING, 1AP10A	1							
13	1	129150-35040	GASKET	1							
13-1	1	129150-35041	GASKET	1							N
(A=E05400)											
14	1	129150-35091	PIPE ASSY, OIL INLET	1							
15	1	26106-080352	BOLT, M8X 35 PLATED	2							
16	1	129103-35101	BRACKET ASSY, FILTER	1							
17	2	129100-35140	STUD	1							
18	2	121850-35200	SHIM SET	1							
19	2	129553-35500	VALVE ASSY, BYPASS	1							Z
(A=E04228)											
20	3	129553-35520	SPRING	1							Z
(A=E04228)											
21	3	129553-35530	RETAINER, SPRING	1							Z
(A=E04228)											
22	3	129553-35540	SHIM	1							Z
(A=E04228)											
23	3	24190-130001	BALL, STEEL 13/32	1							Z
(A=E04228)											
24	2	124223-35510	RETAINER, SPRING	1							
25	2	121850-35520	SPRING	1							
26	2	121850-35531	VALVE, CONTROL	1							
27	2	23414-180000	GASKET, 18X1.0	1							
28	2	23871-020000	PLUG, R02	1							
29	1	129103-35121	GASKET	1							\$
29-1	1	129103-35122	GASKET	1							N \$
(A=E05400)											
30	1	129150-35150	FILTER 90X80L	1							
31	1	26106-080752	BOLT, M8X 75 PLATED	3							
32	1	129792-39410	VALVE ASSY, CHECK	4							
33	1	129553-39650	NOZZLE	4							
34	1	22351-030010	PIN, SPRING 3.0X10	4							

Remarks

(S) THESE PARTS ARE SOLD BY FIG.26, REF.NO.1-2.

N:Old $\begin{matrix} \leftarrow \text{Yes} \\ \text{No} \end{matrix}$ New, Q:Old $\begin{matrix} \leftarrow \text{No} \\ \text{Yes} \end{matrix}$ New, R:Old $\begin{matrix} \leftarrow \text{Yes} \\ \text{Yes} \end{matrix}$ New, S:Old $\begin{matrix} \leftarrow \text{No} \\ \text{No} \end{matrix}$ New, W:Add, Z:Discontinued, F:Interchangeable by set, K:Q'ty Change

Fig.14. LUB. OIL PIPES



(A)=4TNA78TL-RFA

(B)=

(C)=

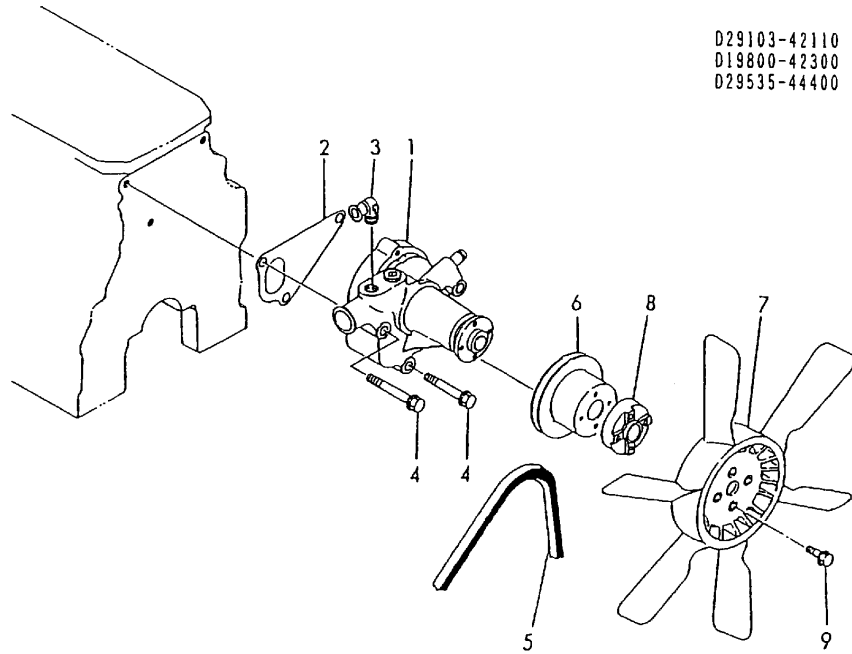
(D)=

(E)=

(F)=

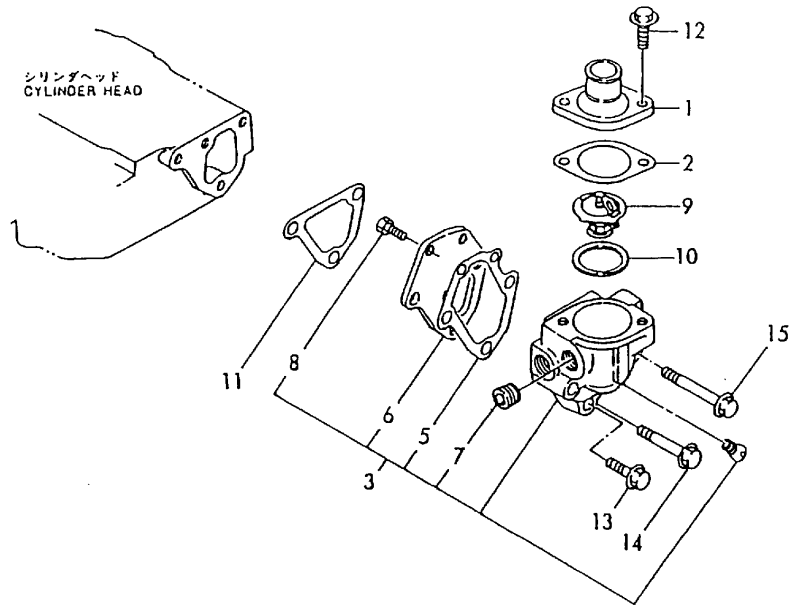
No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	124160-39450	SWITCH, 0.5KG	1							
2	1	105010-39140	BOLT, PIPE JOINT	1							
3	1	124550-59820	BOLT, PIPE JOINT M8	1							
4	1	43400-500410	SEAL WASHER 8	2							
5	1	23414-100000	GASKET, 10X1.0	2							
6	1	23414-080000	GASKET, 8X1.0	2							
7	1	124160-39140	BOLT, PIPE JOINT M10	1							
8	1	129403-39450	PIPE ASSY, OIL	1							
9	1	23297-080081	CLAMP, A8X 8	1							
9-1	1	124223-39900	RETAINER	1							N
		(A=E04979)									
10	1	26106-080102	BOLT, M8X 10 PLATED	1							
11	1	128270-13620	JOINT, PIPE PT3/8	1							
12	1	129403-39600	PIPE, OIL	1							
13	1	129403-39610	JOINT, RUBBER	1							
14	1	23000-022000	CLAMP, 22	2							
15	1	24314-000160	O-RING, 4CP16.0	1							
16	1	26106-060162	BOLT, M6X 16 PLATED	2							

Fig.15. COOLING WATER SYSTEM



No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129100-42001	PUMP ASSY, WATER	1							
1-1	1	129100-42002	PUMP ASSY, WATER	1							N
(A=E05400)											
2	1	129100-42020	GASKET, WATER PUMP	1							\$
3	1	129103-49301	ELBOW, PT1/4	1							
4	1	26106-080602	BOLT, M8X 60 PLATED	3							
5	1	121236-42290	V-BELT, A39	1							
6	1	129403-42380	V-PULLEY, D=110	1							
7	1	129110-44740	FAN, COOLING D390	1							
8	1	171353-44760	SPACER, FAN	1							
9	1	26106-060352	BOLT, M6X 35 PLATED	4							

Fig.16. THERMOSTAT



029100-49210

(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

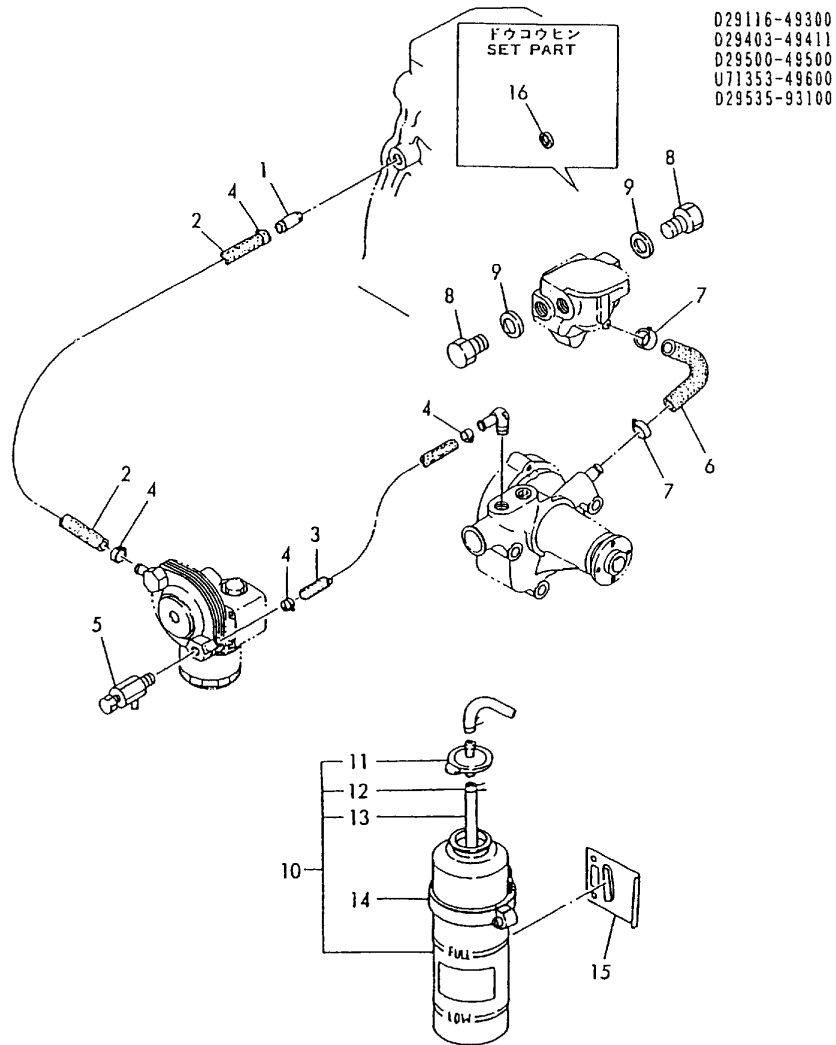
No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129350-49530	COVER, THERMOSTAT	1							
2	1	129795-49550	GASKET	1							\$
2-1	1	129795-49551	GASKET	1							N \$
(A=E05400)											
3	1	129100-49800	CASE ASSY,THERMOSTAT	1							
5	2	129100-49820	GASKET	1							
6	2	129100-49830	COVER, THERMOSTAT	1							
7	2	23871-030000	PLUG, R03	1							
8	2	26116-060162	BOLT, M6X 16 PLATED	2							
9	1	129155-49800	THERMOSTAT, 71	1							
10	1	129150-49810	GASKET, THERMOSTAT	1							\$
10-1	1	129150-49811	GASKET, THERMOSTAT	1							N \$
(A=E05400)											
11	1	129100-49840	GASKET	1							\$
12	1	26106-080202	BOLT, M8X 20 PLATED	2							
13	1	26106-080252	BOLT, M8X 25 PLATED	1							
14	1	26106-080502	BOLT, M8X 50 PLATED	1							
15	1	26106-080602	BOLT, M8X 60 PLATED	1							

Remarks

(\$) THESE PARTS ARE SOLD BY FIG.26,REF.NO.1-2.

N:Old $\xrightarrow{\text{Yes}}$ New, Q:Old $\xrightarrow{\text{No}}$ New, R:Old $\xrightarrow{\text{Yes}}$ New, S:Old $\xrightarrow{\text{No}}$ New, W:Add, Z:Discontinued, F:Interchangeable by set, K:Q'ty Change

Fig.17. COOLING WATER PIPES



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129122-44480	JOINT	1							
2	1	129403-49031	PIPE, WATER	1							
3	1	129403-49050	PIPE, WATER	1							
4	1	23000-022000	CLAMP, 22	4							
5	1	119620-49290	COCK ASSY, 1/4	1							
5-1	1	129116-49290	COCK ASSY, 1/4	1							N
(A=E03602)											
6	1	129100-49050	PIPE, WATER	1							
7	1	23000-016000	CLAMP, 16	2							
8	1	121450-42450	PLUG, M16	2							
9	1	124465-44950	GASKET, 16	2							
10	1	124450-44510	TANK ASSY, SUB	1							
11	2	124450-44530	CAP	1							
12	2	124450-44560	RETAINER	1							
13	2	23061-070230	PIPE, 7X 230	1							
14	1	124450-44550	BAND	1							
15	1	121256-44600	BRACKET, SUB TANK	1							
16	1	129150-49360	GASKET	1							

Fig.18. FUEL INJECTION PUMP

029150-25200
729535-51360

(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

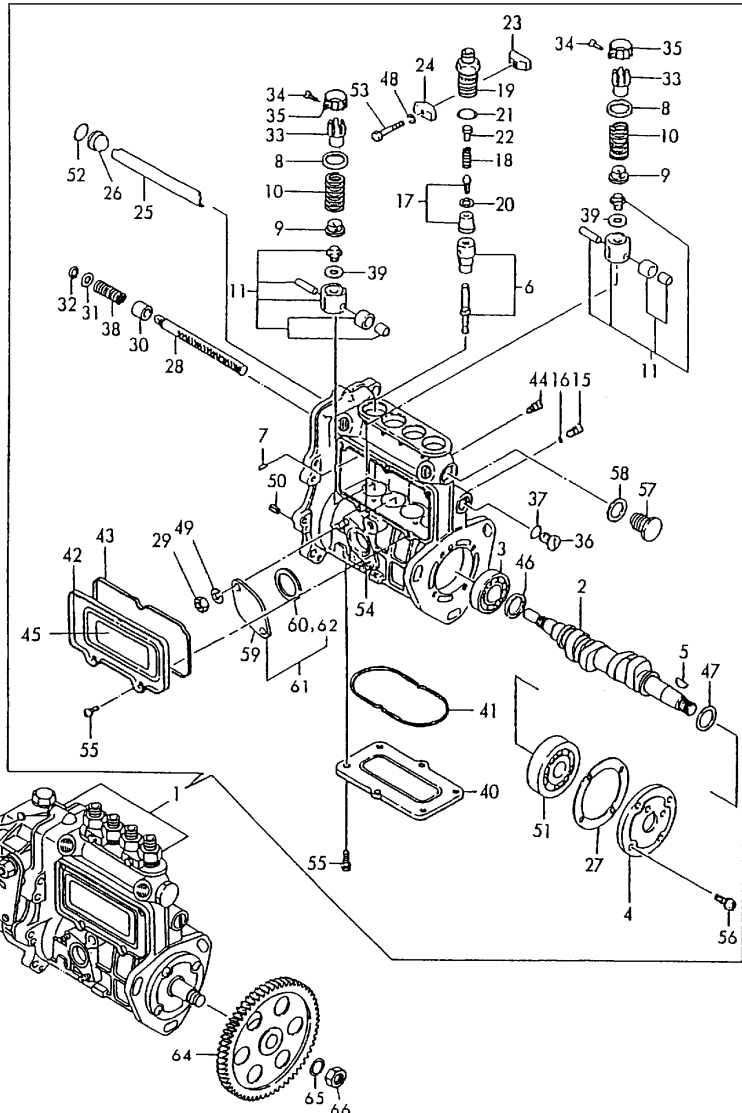
(E)=

(F)=

Q'ty I R

(A) (B) (C) (D) (E) (F)

No.	Lev.	Parts No.	Description	(A)	(B)	(C)	(D)	(E)	(F)	I	R
1	1	729535-51360	PUMP ASSY, INJECTION	1							1
2	2	129470-51040	CAMSHAFT	1							
3	2	129155-51050	BEARING, 17BM001D	1							
4	2	129155-51060	SUPPORT, CAMSHAFT	1							
5	2	122710-51090	KEY	1							
6	2	129470-51101	PLUNGER ASSY	4							
7	2	129155-51140	PIN	4							
8	2	174307-51170	RETAINER, SPRING A	4							
9	2	129155-51180	RETAINER, SPRING	4							
10	2	124950-51190	SPRING, PLUNGER	4							
11	2	129155-51200	TAPPET ASSY	4							
15	2	129155-51270	STOPPER, TAPPET	4							
16	2	129155-51280	O-RING, S6	4							
17	2	129100-51300	VALVE ASSY, DELIVERY	4							
18	2	129155-51320	SPRING, DELIVERY	4							
19	2	129155-51340	RETAINER	4							
20	2	124550-51350	GASKET, DELIVERY	4							
21	2	124550-51370	O-RING	4							
22	2	129155-51370	STOPPER, VALVE	4							
23	2	129155-51380	STOPPER	2							
24	2	129155-51390	STOPPER	2							
25	2	129555-51400	DEFLECTOR	1							
26	2	129155-51410	BOLT	1							
27	2	129155-51450	SHIM SET, ADJUSTING	1							
28	2	129555-51500	RACK, CONTROL	1							
29	2	26716-060002	NUT, M6	2							
30	2	129155-51521	BUSH, RACK	1							
31	2	129155-51530	SPACER	1							
32	2	129155-51540	CIRCLIP	1							
33	2	129155-51550	PINION, CONTROL	4							
34	2	122117-51560	SCREW	4							
35	2	174307-51560	PINION	4							
36	2	129155-51570	PLUG, M12	1							
37	2	129155-51580	O-RING	1							
38	2	129155-51591	SPRING, RACK	1							
39	2	129155-51600	SHIM SET, ADJUSTING	4							
40	2	129555-51700	COVER	1							
41	2	129555-51710	GASKET	1							
42	2	129555-51750	COVER	1							
43	2	129555-51760	GASKET	1							
44	2	129155-51790	STOOPER, RACK	1							
45	2	129156-51910	LABEL, CAUTION	1							
46	2	129155-51930	SPACER, T=3.25	1							
47	2	129155-51940	SPACER, T=1.5	1							
48	2	22217-050000	WASHER, SPRING 5	2							Z
(A=EXXX)											
49	2	22217-060000	WASHER, SPRING 6	2							
50	2	22351-050010	PIN, SPRING 5.0X10	2							
51	2	24101-063033	BEARING, BALL 6303P6	1							
51-1	2	24101-063034	BEARING, BALL 6303	1							N
(A=EXXX)											



Remarks
(1) GOVERNOR ASSY(FIG.22) IS INCORPORATED IN THIS FUEL INJECTION PUMP ASSY.(REF.NO.1)

Fig.18. FUEL INJECTION PUMP

029150-25200
729535-51360

(A)=4TNA78TL-RFA

(B)=

(C)=

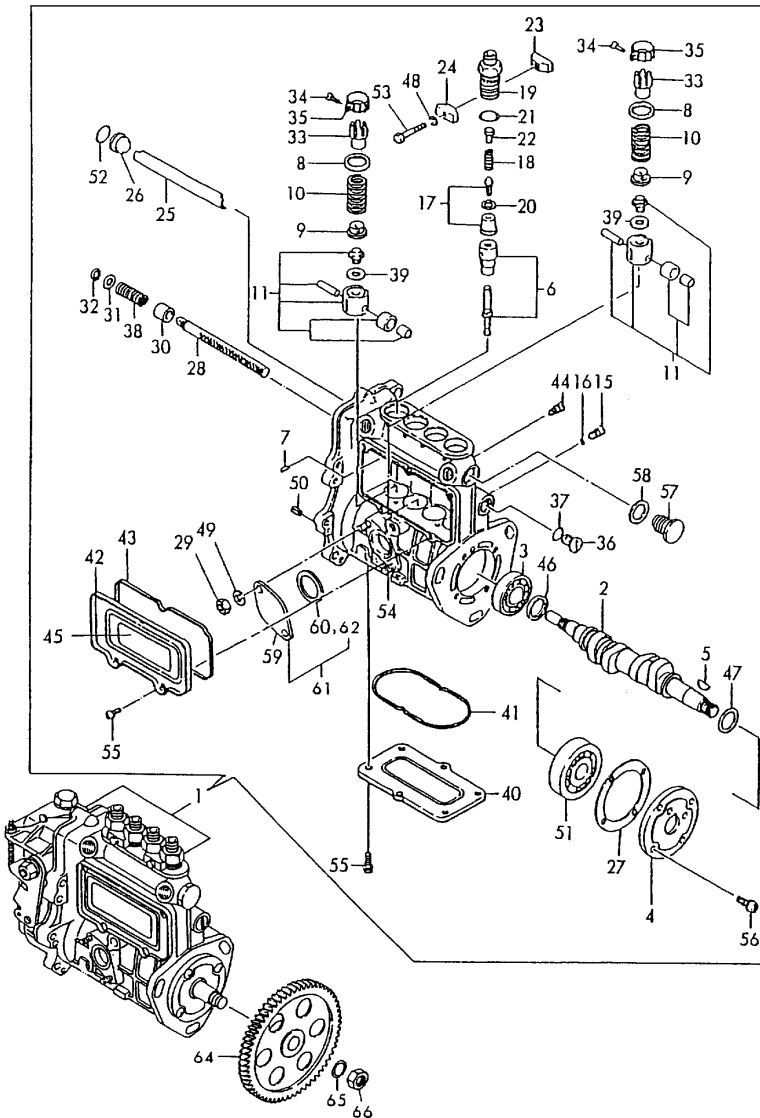
(D)=

(E)=

(F)=

Q'ty

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
52	2	24341-000160	O-RING, 1AS16.0	1							
53	2	26116-050302	BOLT, M5X 30 PLATED	2							
54	2	129155-51020	STUD	2							
55	2	26022-050102	SCREW, M5X10	11							
56	2	26022-060162	SCREW, M6X16	4							
57	2	129155-51420	PLUG, M16	1							
58	2	43400-500490	SEAL WASHER 16	1							
59	2	129100-52200	COVER	1							Z
		(A=EXXX)									
60	2	129155-52020	GASKET	1							Z
		(A=EXXX)									
61	2	129255-52000	COVER ASSY	1							W
		(A=EXXX)									
62	3	129155-52050	GASKET	1							W
		(A=EXXX)									
64	1	129150-25900	GEAR, PUMP	1							
65	1	22217-120000	WASHER, SPRING 12	1							
66	1	26716-120002	NUT, M12	1							

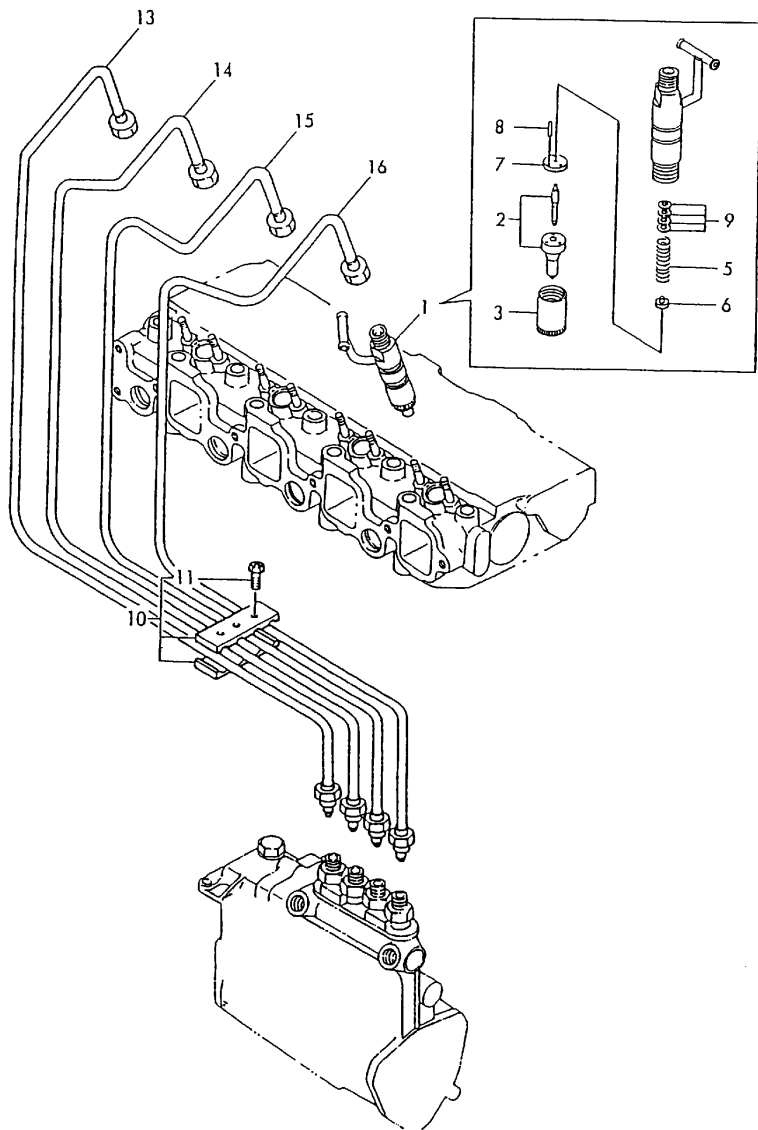


Remarks

(1) GOVERNOR ASSY(FIG.22) IS
INCORPORATED IN THIS FUEL
INJECTION PUMP ASSY.(REF.NO.1)

Fig.19. FUEL INJECTION DEVICE

029503-53100
029500-59110



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

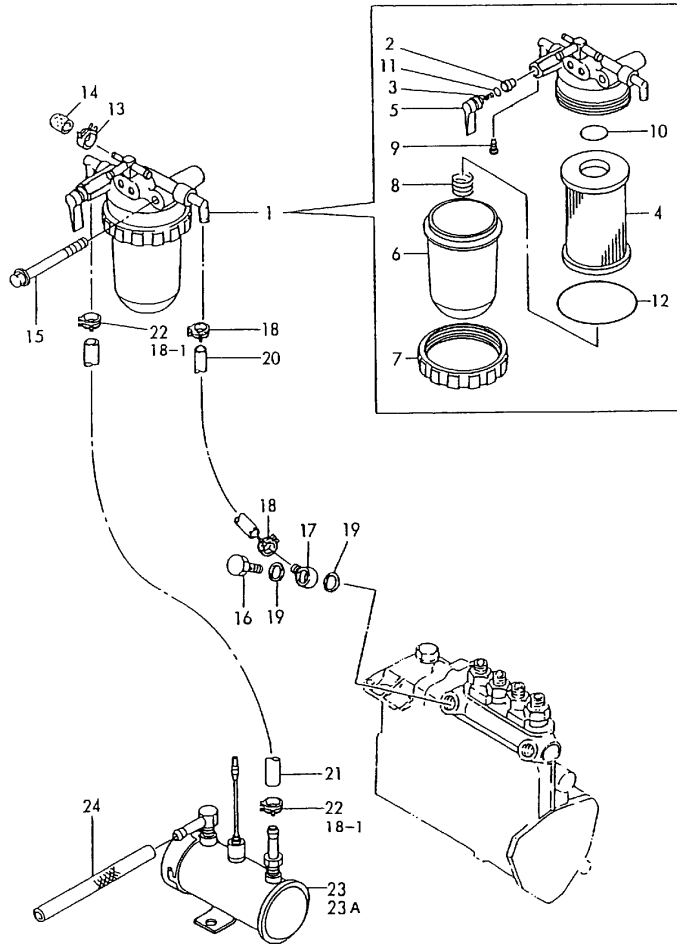
(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729503-53100	VALVE ASSY,INJECTION	4							
2	2	129503-53000	VALVE ASSY,INJECTION	4							
3	2	114250-53080	NUT, NOZZLE D16.95	4							
5	2	114250-53120	SPRING, NOZZLE	4							
6	2	114250-53130	SEAT, SPRING	4							
7	2	114250-53140	PLATE	4							
8	2	114250-53210	PIN	8							
9	2	114250-53400	SHIM SET	4							
10	1	129550-59120	RETAINER, PIPE	1							
11	2	129150-59130	BOLT, M4X12	2							
13	1	129500-59910	PIPE ASSY, INJECTION	1							
14	1	129500-59920	PIPE ASSY, INJECTION	1							
15	1	129500-59930	PIPE ASSY, INJECTION	1							
16	1	129500-59940	PIPE ASSY, INJECTION	1							

Fig.20. FUEL OIL SYSTEM

D29535-55100
 D29400-59211
 D29535-93100



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

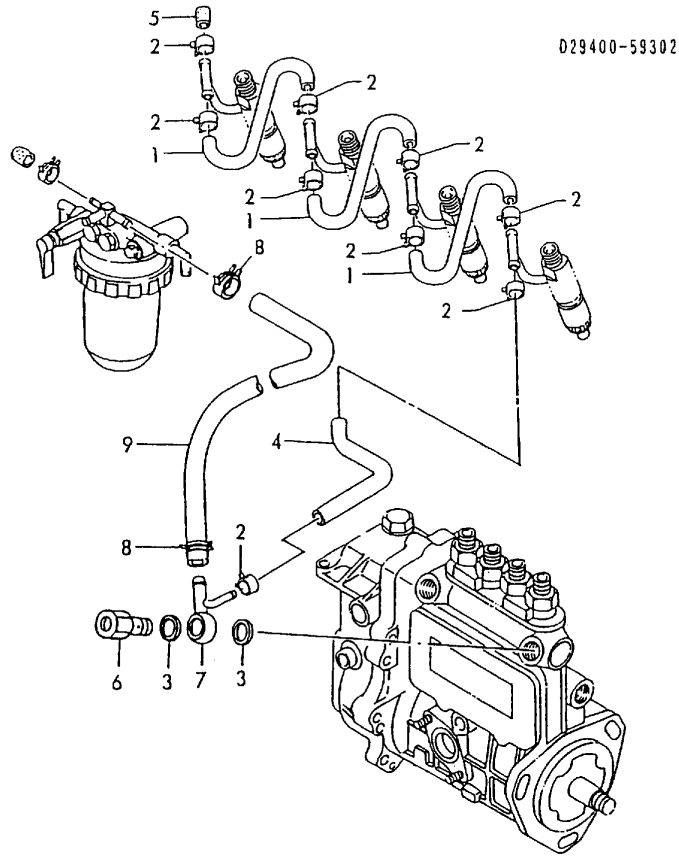
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129100-55621	FILTER ASSY, FUEL	1							
2	2	104200-55321	VALVE, TAPER	1							
3	2	104200-55330	SPRING, VALVE	1							
4	2	129100-55650	ELEMENT	1							
5	2	129100-55670	LEVER	1							
6	2	129100-55680	CUP, STRAINER	1							
7	2	129100-55690	RING, RETAINING	1							
8	2	129100-55700	SPRING	1							
9	2	104200-55750	SCREW, M4	1							
10	2	24311-000160	O-RING, 1AP16.0	1							
11	2	24311-240100	O-RING, 1AP10A	1							
12	2	24321-000650	O-RING, 1AG65.0	1							\$
13	1	124066-59100	CLIP, HOSE 8	1							
14	1	129150-59580	CAP	1							
15	1	26106-080802	BOLT, M8X 80 PLATED	1							
16	1	103854-39140	BOLT, PIPE JOINT	1							
17	1	101304-59020	JOINT, PIPE 12	1							
18	1	124766-59050	CLIP, HOSE 12	2							
18-1	1	124766-59050	CLIP, HOSE 12	4							K
(A=E06423)											
19	1	104200-59170	GASKET, 12	2							
20	1	129555-59510	PIPE, D13/7.5X180	1							
21	1	105025-59530	PIPE, FUEL D13X400	1							
22	1	23000-013000	CLAMP, 13	2							Z
(A=E06423)											
23	1	129535-52100	PUMP ASSY, FUEL FEED	1							
23A	2	129535-52150	FILTER ASSY	1							W
(A=E03379)											
24	1	129535-59510	PIPE, FUEL L=2300	1							

Remarks

(\$) THESE PARTS ARE SOLD BY
 FIG.26, REF.NO.1-2.

Fig.21. FUEL OIL RETURN PIPES



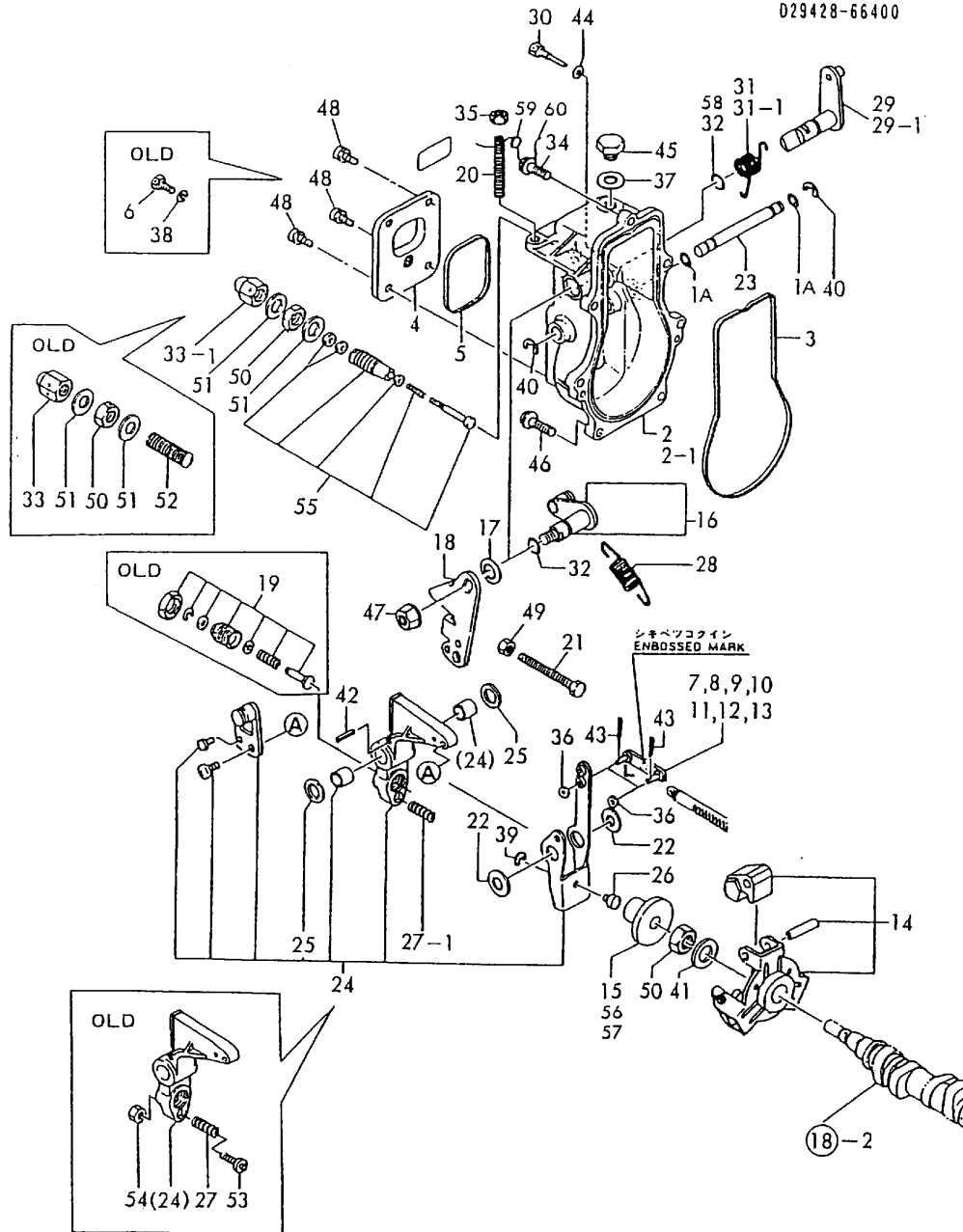
(A)=4TNA78TL-RFA
(B)=
(C)=

(D)=
(E)=
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	121250-59550	PIPE, FUEL D8X120	3							
2	1	124066-59100	CLIP, HOSE 8	9							
3	1	23414-120000	GASKET, 12X1.0	2							
4	1	119840-59560	PIPE, FUEL RETURN	1							
5	1	129150-59580	CAP	1							
6	1	129100-59951	VALVE ASSY, CHECK	1							
7	1	119840-59570	JOINT	1							
8	1	124766-59050	CLIP, HOSE 12	2							
9	1	105025-59530	PIPE, FUEL D13X400	1							

Fig.22. GOVERNOR

729535-51360
029428-66400



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

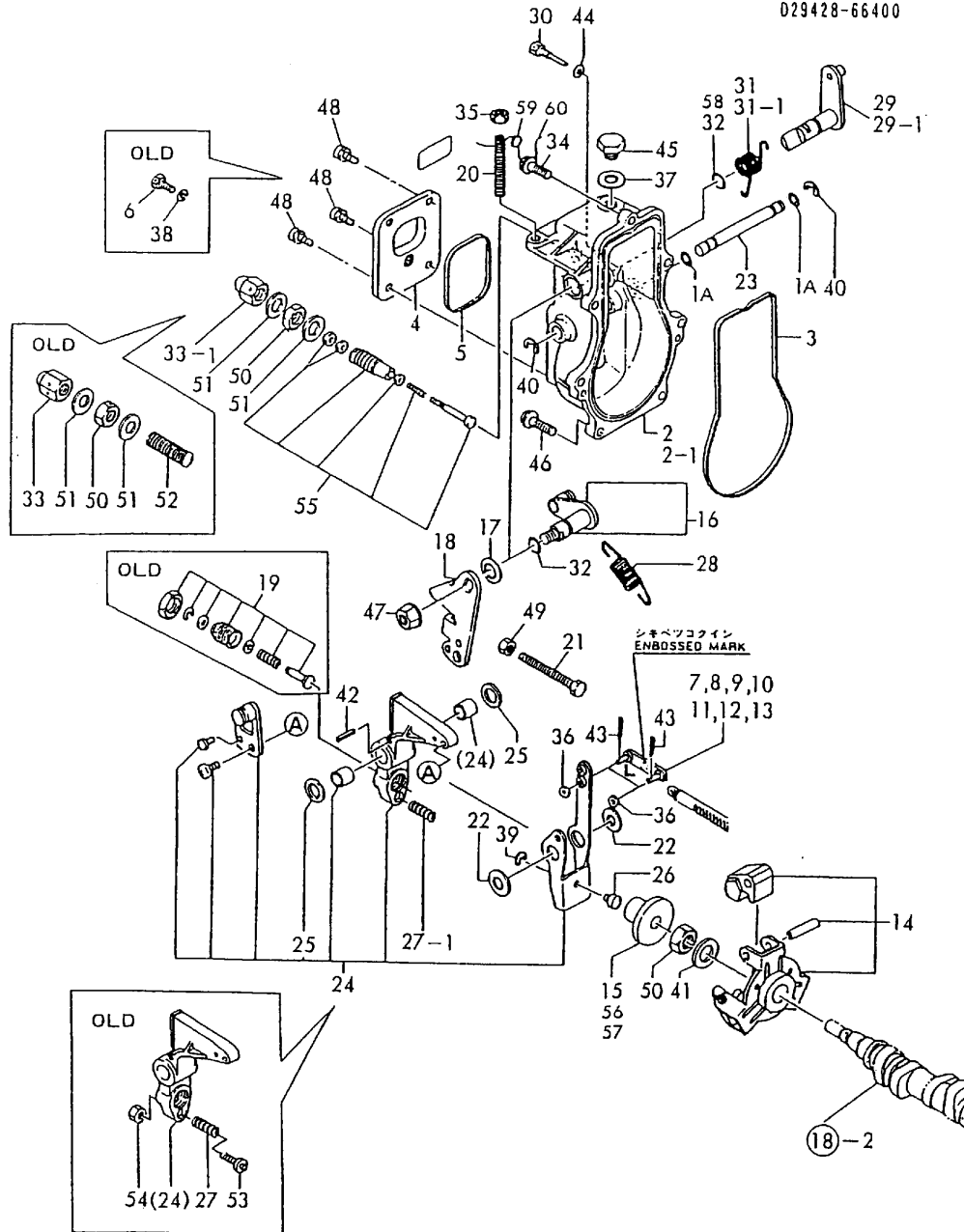
(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1A	2	129155-51280	O-RING, S6	2							
2	2	129155-61010	CASE, GOVERNOR	1							
2-1	2	129155-61011	CASE, GOVERNOR	1							S
(A=E03878)											
3	2	129155-61050	GASKET	1							
4	2	129155-61060	COVER, GOVERNOR CASE	1							
5	2	129155-61070	GASKET	1							
6	2	129155-61090	BOLT	1							Z
(A=E03878)											
7	2	129155-61120	LINK, L=30 MARK 0	1							
8	2	129155-61130	LINK, L=31 MARK 1	1							
9	2	129155-61140	LINK, L=30.5 MARK 05	1							
10	2	129155-61150	LINK, L=33	1							Z
(A=E03878)											
11	2	129155-61160	LINK, L=34 MARK 4	1							Z
(A=E03878)											
12	2	129155-61170	LINK, L=28 MARK 8	1							Z
(A=E03878)											
13	2	129155-61180	LINK, L=29 MARK 9	1							Z
(A=E03878)											
14	2	129155-61201	WEIGHT ASSY, GOVERNOR	1							
15	2	129155-61341	SLEEVE	1							
16	2	129100-61400	SHAFT ASSY	1							
17	2	129155-61430	SPACER	1							
18	2	129100-61440	LEVER, CONTROL	1							
19	2	171353-61550	ANGLEICH ASSY	1							Z
(A=E03043)											
20	2	129155-61450	BOLT, LIMITER	1							
21	2	129155-61460	BOLT, IDLE	1							
22	2	129155-61480	SPACER ASSY	2							
23	2	129155-61490	SHAFT	1							
24	2	171353-61051	LEVER ASSY, GOVERNOR	1							
24-1	2	129500-61500	LEVER ASSY, GOVERNOR	1							N
(A=E03043)											
25	3	174307-51700	SHIM SET	2							
26	2	129155-61540	SHIFTER	1							
27	2	171353-61652	SPRING	1							
27-1	2	129100-61650	SPRING, CONTROLLER	1							S
(A=E03043)											
28	2	171353-61710	SPRING, GOVERNOR	1							
29	2	129255-61801	LEVER, STOP	1							
29-1	2	129255-61802	LEVER, STOP	1							S
(A=E03713)											
30	2	129155-61810	PIN	1							
31	2	129100-61820	SPRING, RETURN	1							
31-1	2	129100-61821	SPRING, RETURN	1							S
(A=E03878)											
32	2	129155-61830	O-RING, S10	3							
32-1	2	129155-61830	O-RING, S10	2							K
(A=E03878)											
32-2	2	129155-61830	O-RING, S10	1							K

Fig.22. GOVERNOR

729535-51360
029428-66400



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

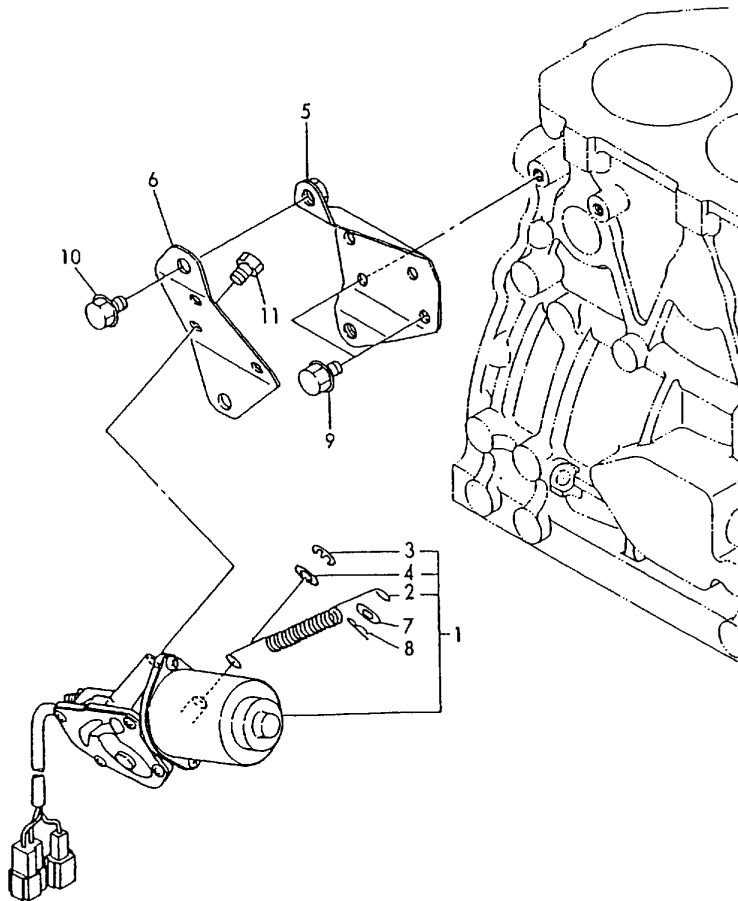
(E)=

(F)=

No.	Lev.	Parts No.	Description	Qty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
		(A=EXXX)									
33	2	129100-61930	NUT, CAP	1							
33-1	2	26687-120002	NUT, CAP M12	1							N
		(A=E03878)									
34	2	129155-61950	BOLT	1							
35	2	124550-66370	NUT, M6	1							
36	2	22117-040000	WASHER, 4	2							
36-1	2	22117-040000	WASHER, 4	1							K
		(A=EXXX)									
37	2	22190-100000	WASHER, SEAL 10	1							
37-1	2	43400-500430	SEAL WASHER 10	1							N
		(A=EXXX)									
38	2	22217-050000	WASHER, SPRING 5	4							Z
		(A=E03878)									
39	2	22272-000040	RING, E- 4	1							
40	2	22272-000060	RING, E- 6	2							
41	2	22287-120000	WASHER, 12	1							
42	2	22351-030016	PIN, SPRING 3.0X16	1							
43	2	22360-040000	PIN, SNAP 4	2							
43-1	2	22372-040000	PIN, SNAP 4	2							R
		(A=E06103)									
44	2	23414-050000	GASKET, 5X1.0	1							
44-1	2	43400-500390	SEAL WASHER 6	1							N
		(A=*1989.)									
45	2	23887-100002	PLUG, 10	1							
46	2	26106-060202	BOLT, M6X 20 PLATED	6							
47	2	26366-080002	NUT, M8	1							
48	2	26022-050102	SCREW, M5X10	3							
48-1	2	26022-050102	SCREW, M5X10	4							K
		(A=E03878)									
49	2	26756-060002	NUT, LOCK M6	1							
50	2	26776-120002	NUT, LOCK M12	2							
51	2	43400-500450	SEAL WASHER 12	2							
52	2	129155-61470	BOLT, CONTROL	1							Z
		(A=E03043)									
53	2	171353-61670	BOLT, ADJUSTING	1							Z
		(A=E03043)									
54	2	171353-61680	NUT, LOCK	1							Z
		(A=E03043)									
55	2	129100-61450	LIMITER ASSY, FUEL	1							W
		(A=EXXX)									
56	2	129155-61350	SLEEVE, L=24.9	1							W
		(A=EXXX)									
57	2	129155-61360	SLEEVE, L=25.2	1							W
		(A=EXXX)									
58	2	24311-240100	O-RING, 1AP10A	1							W
		(A=EXXX)									
59	1	135210-61090	LEAD	1							
60	1	22451-060000	WIRE, 0.6	1							

Fig.23. ENGINE STOP

D29535-66500



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129535-66790	MOTOR ASSY, STOP	1							
2	2	129505-66830	SPRING, STOP MOTOR	1							
3	2	129566-66880	RING, SNAP	1							
4	2	129566-66890	WASHER	1							
5	1	129107-66810	BRACKET, STOP MOTOR	1							
6	1	129107-66820	BRACKET, STOP MOTOR	1							
7	1	22117-080000	WASHER, 8	1							
8	1	22360-080000	SNAP PIN 8	1							
9	1	26106-080122	BOLT, M8X 12 PLATED	2							
10	1	26106-080122	BOLT, M8X 12 PLATED	2							
11	1	26116-050102	BOLT, M5X 10 PLATED	3							

Fig.24. STARTING MOTOR(COMPONENT PARTS)

(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

Q'ty

I R

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	26116-120252	BOLT, M12X 25 PLATED	2							
2	1	46120-500821	STARTER, DC24S25-154	1							
3	2	X225031001	ARMATURE ASSY	1							
4	2	X21201115	WASHER SET, THRUST	1							
5	2	X22506105	STOPPER SET, PINION	1							
6	2	X225052001	COIL ASSY, FIELD	1							
7	3	X22504322	BRASH	2							
8	2	X22504305	HOLDER ASSY, BRUSH	1							
9	3	X22502323	BRASH	2							
10	3	X21304313	SPRING, BRUSH	4							
11	2	X22501324	BRUSH	1							
12	2	X225073012	COVER ASSY, REAR	1							
13	3	X21301310	METAL, COVER BEARING	1							
14	2	X21303400	BEARING ASSY	1							
15	3	X21204401	METAL, CENTER BERG.	1							
16	2	X225075004	PINION ASSY	1							
17	2	X225086005	CASE ASSY, GEAR	1							
18	3	X21301310	METAL, COVER BEARING	1							
19	2	X21302605	LEVER SET	1							
20	2	X21302610	COVER SET, DUST	1							
21	2	X225047002	SWITCH ASSY, MAGNET.	1							
22	2	X22503820	BOLT, THROUGH	2							
23	2	X21301827	WASHER	2							
24	1	119643-66900	DIODE	1							
25	1	160970-77350	RECTIFIER, ZR2117	1							
26	1	119129-77910	RELAY, MAGNETIC	1							
27	1	119129-77920	TIMER	1							

029535-77100
029535-93100

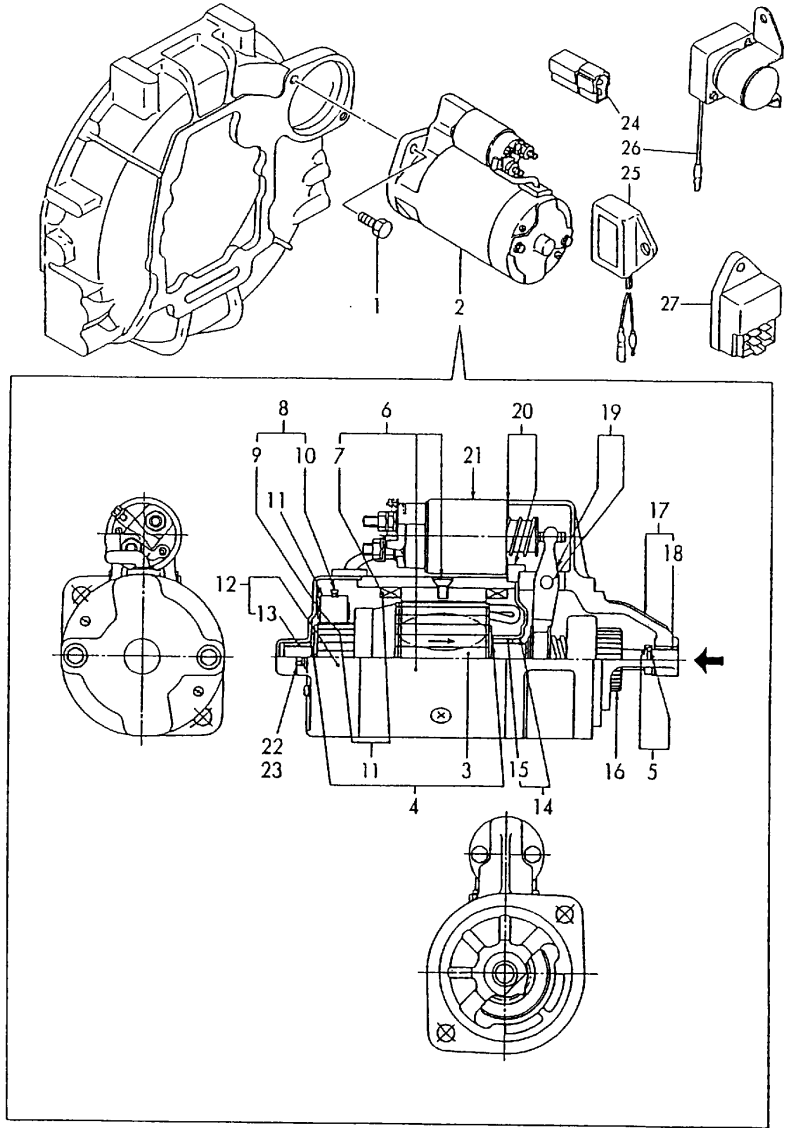
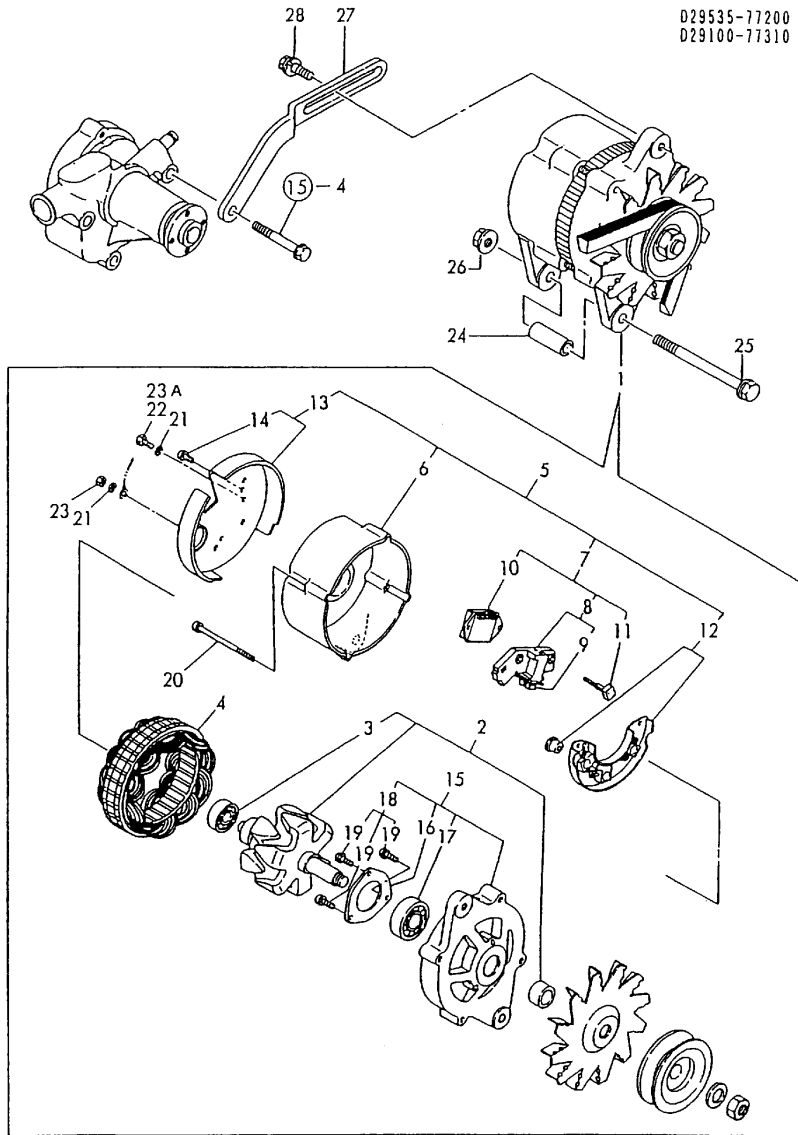


Fig.25. GENERATOR(COMPONENT PARTS)



(A)=4TNA78TL-RFA

(B)=

(C)=

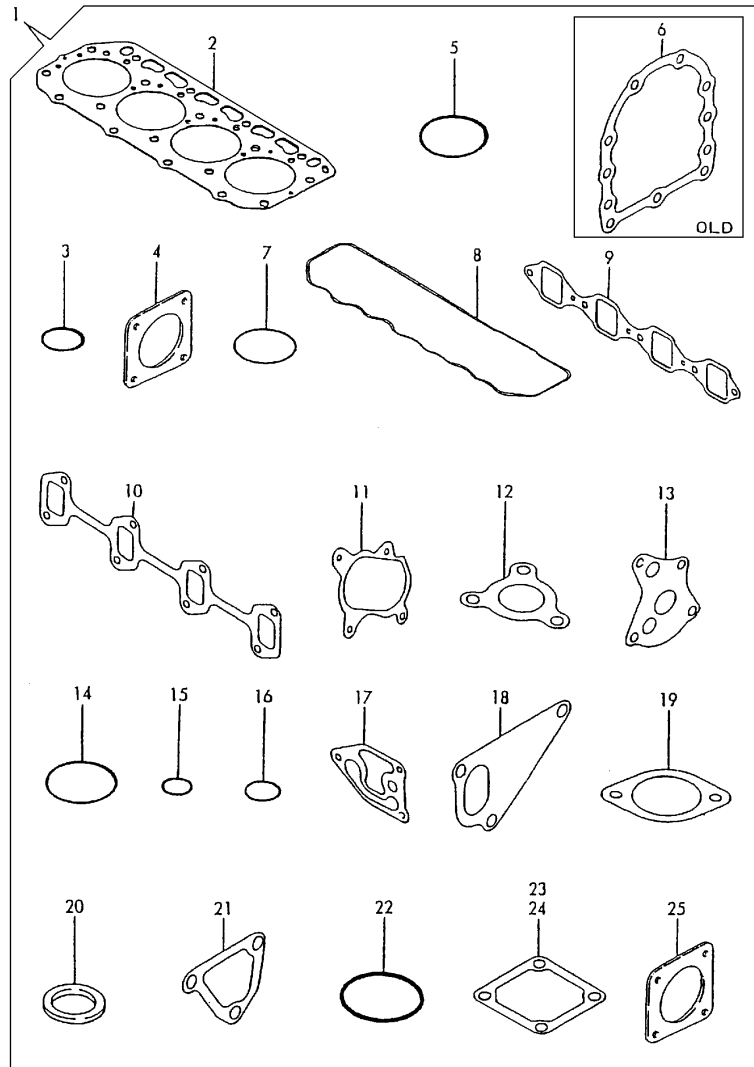
(D)=

(E)=

(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129535-77200	GENERATOR, LR225-90	1							
2	2	119129-77300	ROTOR ASSY	1							
3	3	119129-77320	BALL BEARING	1							
4	2	119129-77960	STATOR ASSY	1							
5	2	119129-77330	REAR COVER ASSY	1							
6	3	119129-77340	REAR COVER	1							
7	3	119129-77350	BRUSH ASSY,REGULATOR	1							
8	4	119129-77380	BUSH ASSY	1							
9	4	119129-77810	BUSH SET	2							
10	4	119129-77820	REGULATOR ASSY, I.C.	1							
11	4	119129-77940	BOLT(M5	2							
12	3	119129-77360	DIODE ASSY	1							
13	3	119129-77370	COVER	1							
14	4	26116-050122	BOLT, M5X 12 PLATED	3							
15	2	119129-77840	COVER ASSY, FRONT	1							
16	3	119129-77870	RETAINER, BEARING	1							
17	3	119129-77850	BALL BEARING	1							
18	2	119129-77930	SCREW KIT	1							
19	3	26116-050122	BOLT, M5X 12 PLATED	3							
20	2	119129-77890	BOLT, THROUGH	4							
21	2	22217-050000	WASHER, SPRING 5	2							
22	2	26116-050122	BOLT, M5X 12 PLATED	1							
23	2	26756-050002	NUT, LOCK M5	1							
23A	2	124080-77520	BOLT M5	2							W
(A=E03782)											
24	1	129150-77340	SPACER	1							
25	1	26106-081202	BOLT, M8X120 PLATED	1							
26	1	26366-080002	NUT, M8	1							
27	1	129100-77330	ADJUSTER	1							
28	1	26014-080252	BOLT, M8X 25	1							

Fig.26. GASKET SET(OPTIONAL)



(A)=4TNA78TL-RFA

(B)=

(C)=

(D)=

(E)=

(F)=

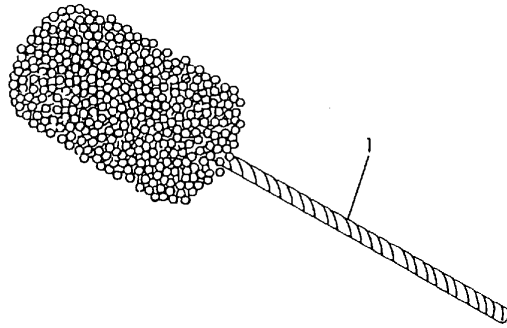
No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	729535-92600	GASKET SET	1							1
1-1	1	729535-92601	GASKET SET	1							N 1
(A=E05400)											
1-2	1	729535-92602	GASKET SET	1							N 1
(A=E06177)											
2	2	129555-01332	GASKET, HEAD	1							
3	2	24311-000320	O-RING, 1AP32.0	2							
4	2	124240-01882	GASKET	1							
4-1	2	124240-01883	GASKET	1							N
(A=E05034)											
5	2	121850-51960	O-RING	1							
6	2	129150-01660	GASKET	1							Z
(A=*1988.)											
7	2	24341-000500	O-RING, 1AS50.0	1							
8	2	129550-11310	GASKET, BONNET	1							
9	2	129550-12110	GASKET, MANIFOLD	1							
9-1	2	129550-12111	GASKET, MANIFOLD	1							N
(A=E05400)											
10	2	129550-13110	GASKET	1							
11	2	129403-18090	GASKET	1							
12	2	129477-18100	GASKET	1							
12-1	2	129535-18100	GASKET	1							N
(A=E06177)											
13	2	129150-32020	GASKET, PUMP	1							
14	2	24321-000550	O-RING, 1AG55.0	1							
15	2	24311-000200	O-RING, 1AP20.0	1							
16	2	24311-000210	O-RING, 1AP21.0	1							
17	2	129103-35121	GASKET	1							
17-1	2	129103-35122	GASKET	1							N
(A=E05400)											
18	2	129100-42020	GASKET, WATER PUMP	1							
19	2	129795-49550	GASKET	1							
19-1	2	129795-49551	GASKET	1							N
(A=E05400)											
20	2	129150-49810	GASKET, THERMOSTAT	1							
20-1	2	129150-49811	GASKET, THERMOSTAT	1							N
(A=E05400)											
21	2	129100-49840	GASKET	1							
22	2	24321-000650	O-RING, 1AG65.0	1							
23	2	129150-77510	GASKET	1							
23-1	2	129150-77511	GASKET	1							N
(A=E05400)											
24	2	129100-77510	GASKET, AIR HEATER	2							
25	2	129400-13200	GASKET, SILENCER	1							
25-1	2	129400-13201	GASKET, SILENCER	1							N
(A=E05400)											

Remarks

(1) OPTIONAL PART.

N:Old $\xrightarrow{\text{Yes}}$ New, Q:Old $\xrightarrow{\text{No}}$ New, R:Old $\xrightarrow{\text{Yes}}$ New, S:Old $\xrightarrow{\text{No}}$ New, W:Add, Z:Discontinued, F:Interchangeable by set, K:Q'ty Change

Fig.27. SPECIAL TOOL(OPTIONAL)



(A)=4TNA78TL-RFA
(B)=
(C)=

(D)=
(E)=
(F)=

No.	Lev.	Parts No.	Description	Q'ty						I	R
				(A)	(B)	(C)	(D)	(E)	(F)		
1	1	129400-92420	FLEX HORN	1							1

Remarks
(1) OPTIONAL PART.

Parts No. Index

Parts No.	Fig. No.	Ref. No.
101304-59020	20	17
103338-11190	6	13
103854-39140	20	16
104200-55321	20	2
104200-55330	20	3
104200-55750	20	9
104200-59170	20	19
105010-39140	14	2
105025-59530	20	21
	21	9
114250-53080	19	3
114250-53120	19	5
114250-53130	19	6
114250-53140	19	7
114250-53210	19	8
114250-53400	19	9
119129-77300	25	2
119129-77320	25	3
119129-77330	25	5
119129-77340	25	6
119129-77350	25	7
119129-77360	25	12
119129-77370	25	13
119129-77380	25	8
119129-77810	25	9
119129-77820	25	10
119129-77840	25	15
119129-77850	25	17
119129-77870	25	16
119129-77890	25	20
119129-77910	24	26
119129-77920	24	27
119129-77930	25	18
119129-77940	25	11
119129-77960	25	4
119260-34810	13	10
119620-01750	3	3
119620-49290	17	5
119625-11870	6	33
119625-11880	6	34
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119808-12520	7	3 -1
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121420-01760	5	7
121420-12511	7	3
121420-12530	7	5
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121420-12561	7	8
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124160-11360	5	12
124160-39140	14	7
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124223-35510	13	24
124223-39900	14	9 -1
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124240-01882	2	7
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129100-35140	13	17
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129100-49830	16	6
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129100-51300	18	17
129100-52200	18	59
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129122-44480	17	1
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129150-03100	2	25
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129150-11050	6	2
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129150-11280	6	27
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129150-11750	6	29
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129150-14101	9	2
129150-14200	9	4
129150-21200	11	2
129150-22300	12	3
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129535-77200	25	1
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129550-59120	19	10
129553-32000	13	1
129553-35500	13	19
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129555-01332	1	13
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129795-11180	6	12
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26206-100252	3	4
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27241-120000	1	6
27241-220000	6	7
27241-300000	1	7
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729500-01560	1	1
729500-21700	11	1 -2
729500-22910	12	5
729503-53100	19	1
729535-51360	18	1
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729535-92602	26	1 -2
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