

SHOP

MANUAL

KOMATSU

LW250-5

MACHINE MODEL

SERIAL NUMBER

LW250-5

X-shaped outrigger specification 50001 and up

H-shaped outrigger specification 53001 and up

- This shop manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require.
Materials and specifications are subject to change without notice.
- LW250-5 mounts the S6D125-2 engine.
For details of the engine, see the 6D125-2 Series Engine Shop Manual.

CONTENTS

	No. of page
01 GENERAL	01-1
10 STRUCTURE AND FUNCTION	10-1
20 TESTING AND ADJUSTING	20-1
30 DISASSEMBLY AND ASSEMBLY	30-1
40 MAINTENANCE STANDARD	40-1
90 OTHERS	90-1

023S05

The affected pages are indicated by the use of the following marks. It is requested that necessary actions be taken to these pages according to the table below.

Mark	Indication	Action required
○	Page to be newly added	Add
●	Page to be replaced	Replace
()	Page to be deleted	Discard

Pages having no marks are those previously revised or made additions.

LIST OF REVISED PAGES

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
●	00-1	⑤		01-11	④		10-23			10-69			10-109	
	00-2	③		01-12			10-24			10-70			10-110	
●	00-2-1	⑤		01-13			10-26			10-71			10-111	
●	00-2-2	⑤		01-14			10-27			10-72			10-112	
●	00-2-3	⑤		01-15			10-28			10-73			10-113	
●	00-2-4	⑤		01-16	④		10-29			10-74			10-114	
●	00-2-5	⑤		01-17	④		10-30			10-75			10-115	
●	00-2-6	⑤		01-17-1	④		10-31			10-76			10-116	
●	00-2-7	⑤		01-17-2	④		10-32			10-77			10-117	
●	00-2-8	⑤		01-18	④		10-33			10-78			10-118	
	00-3			01-19	④		10-34			10-79			10-119	
	00-4			01-19-1	④		10-36			10-80			10-120	
	00-5			01-19-2	④		10-37			10-81			10-121	
	00-6			01-20			10-38			10-82			10-122	
	00-7			01-21			10-39			10-83			10-123	
	00-8			01-22			10-40			10-84			10-124	
	00-9			01-23			10-42			10-85			10-125	
	00-10			01-24			10-43			10-86			10-126	
	00-11			01-25	④		10-44			10-87			10-127	
	00-12			01-26	④		10-45			10-88			10-128	
	00-13						10-46			10-89			10-129	
	00-14			10-1			10-48			10-90			10-130	
	00-15			10-2	④		10-49			10-91	④		10-131	
	00-16			10-4			10-50			10-92			10-132	
	00-17			10-5			10-52			10-93			10-133	
	00-18			10-6			10-53			10-93-1	④		10-134	
	00-19			10-7			10-54			10-93-2	④		10-135	
				10-8			10-55			10-93-3	④		10-136	
	01-1			10-9			10-56			10-94			10-137	
	01-2	④		10-10			10-57			10-95			10-138	
	01-3	④		10-12			10-58			10-96	④		10-139	
	01-3-1	④		10-13			10-59			10-97	④		10-140	
	01-3-2	④		10-14			10-60			10-98			10-141	
	01-4	④		10-15			10-61			10-99			10-142	
	01-5			10-16			10-62			10-100	④		10-143	
	01-6			10-17			10-63			10-101			10-144	
	01-7			10-18			10-64			10-102			10-145	
	01-8			10-19			10-65			10-104	④		10-146	
	01-9			10-20			10-66			10-105			10-147	
	01-10	④		10-21			10-67			10-106			10-148	
	01-10-1	④		10-22			10-68			10-108			10-149	

023S05

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
	10-150			10-207			10-256			10-266			10-321	
	10-152			10-208			10-257			10-267			10-322	
	10-153			10-209			10-258	④		10-268			10-323	
	10-154			10-210			10-258-1	④		10-269			10-324	
	10-155			10-211			10-258-2	④		10-270			10-325	
	10-156			10-212			10-258-3	④		10-271			10-326	
	10-157			10-213			10-258-4	④		10-272			10-327	
	10-158			10-214			10-258-5	④		10-273	④		10-328	
	10-159			10-215			10-258-6	④		10-274			10-330	
	10-160			10-216			10-258-7	④		10-275			10-331	
	10-161			10-217			10-258-8	④		10-276			10-332	
	10-162			10-218			10-258-9	④		10-277			10-333	
	10-164			10-219			10-258-10	④		10-278			10-334	④
	10-165			10-220			10-258-11	④		10-279			10-335	
	10-166			10-222			10-258-12	④		10-280			10-336	
	10-167			10-223			10-258-13	④		10-281			10-337	
	10-168			10-224			10-258-14	④		10-282			10-338	
	10-169			10-225			10-258-15	④		10-283			10-339	
	10-170			10-226			10-258-16	④		10-284			10-340	
	10-171			10-228			10-258-17	④		10-285			10-341	
	10-172			10-229			10-258-18	④		10-286			10-342	
	10-173			10-230			10-258-19	④		10-288			10-343	
	10-174			10-231			10-258-20	④		10-289			10-344	
	10-175			10-232			10-258-21	④		10-290			10-345	
	10-176			10-234			10-258-22	④		10-292			10-346	
	10-177			10-235			10-258-23	④		10-293			10-347	
	10-178	④		10-235-1	④		10-258-24	④		10-294			10-348	
	10-179			10-235-2	④		10-258-25	④		10-295			10-349	
	10-180			10-236			10-258-26	④		10-296				
	10-182			10-237			10-258-27	④		10-297			20-1	①
	10-183			10-238			10-258-28	④		10-298			20-2	①
	10-184			10-239			10-258-29	④		10-300			20-3	①
	10-185			10-240			10-258-30	④		10-301			20-4	①
	10-186			10-241			10-258-31	④		10-302			20-5	①
	10-187			10-242			10-258-32	④		10-303			20-6	①
	10-188			10-243			10-258-34	④		10-304			20-7	①
	10-189			10-244			10-258-35	④		10-305			20-8	①
	10-190			10-245			10-258-36	④		10-306			20-9	①
	10-191			10-246			10-258-37	④		10-307			20-10	①
	10-192			10-247	④		10-258-38	④		10-308			20-11	①
	10-193			10-248			10-258-39	④		10-309	④		20-12	①
	10-194			10-249			10-258-40	④		10-309-1	④		20-13	①
	10-195			10-250			10-258-41	④		10-310			20-14	①
	10-196			10-251			10-258-42	④		10-311			20-15	①
	10-197			10-252			10-258-43	④		10-312			20-16	①
	10-198			10-253			10-258-44	④		10-313			20-17	①
	10-199			10-253-1	④		10-259			10-314			20-18	①
	10-200			10-253-2	④		10-260			10-315			20-19	①
	10-202			10-253-3	④		10-261			10-316			20-20	①
	10-203			10-253-4	④		10-262			10-317			20-21	①
	10-204			10-253-5	④		10-263			10-318			20-22	①
	10-205			10-254			10-264			10-319			20-23	①
	10-206			10-255			10-265			10-320			20-24	①

023S05

023S05

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
	20-25	①		20-78	①		20-131	①		20-253	②		20-376	②
	20-26	①		20-79	①		20-201	②		20-254	②		20-377	②
	20-27	①		20-80	①		20-202	②		20-255	②		20-378	②
	20-28	①		20-81	①		20-203	②		20-256	②		20-379	②
	20-29	①		20-82	①		20-204	②		20-301	②		20-380	②
	20-30	①		20-83	①		20-205	②		20-302	②		20-381	②
	20-31	①		20-84	①		20-206	②		20-303	②		20-382	②
	20-32	④		20-85	①		20-207	②		20-304	②		20-383	②
	20-33	①		20-86	①		20-208	②		20-305	②		20-384	②
	20-34	①		20-87	①		20-209	②		20-306	②		20-385	②
	20-35	①		20-88	①		20-210	②		20-307	②		20-386	②
	20-36	①		20-89	①		20-211	②		20-308	②		20-387	②
	20-37	①		20-90	①		20-212	②		20-309	②		20-388	②
	20-38	①		20-91	①		20-213	②		20-310	②		20-389	②
	20-39	①		20-92	①		20-214	②		20-311	②		20-390	②
	20-40	①		20-93	①		20-215	②		20-312	②		20-392	②
	20-41	①		20-94	①		20-216	②		20-313	②		20-393	②
	20-42	①		20-95	①		20-217	②		20-314	②		20-394	②
	20-43	①		20-96	①		20-218	②		20-315	②		20-395	②
	20-44	①		20-97	①		20-219	②		20-316	②		20-396	②
	20-45	①		20-98	①		20-220	②		20-317	②		20-397	②
	20-46	①		20-99	①		20-221	②		20-318	②		20-398	②
	20-47	①		20-100	①		20-222	②		20-319	②		20-399	②
	20-48	①		20-101	①		20-223	②		20-320	②		20-400	②
	20-49	①		20-102	①		20-224	②		20-321	②		20-401	②
	20-50	①		20-103	①		20-225	②		20-322	②		20-402	②
	20-51	①		20-104	①		20-226	②		20-323	②		20-403	②
	20-52	①		20-105	①		20-227	④		20-324	②		20-404	②
	20-53	①		20-106	①		20-228	②		20-351	②		20-405	②
	20-54	①		20-107	①		20-229	②	●	20-352	⑤		20-406	②
●	20-55	①		20-108	①		20-230	②		20-353	②		20-407	②
	20-56	⑤		20-109	①		20-231	②		20-354	②		20-408	②
	20-57	①		20-110	①		20-232	②		20-355	②		20-409	②
	20-58	①		20-111	①		20-233	④		20-356	②		20-410	②
	20-59	①		20-112	①		20-234	②		20-357	②		20-411	②
	20-60	①		20-113	①		20-235	②		20-358	②		20-412	②
	20-61	①		20-114	①		20-236	②		20-359	②		20-413	②
	20-62	①		20-115	①		20-237	②		20-360	②		20-414	②
	20-63	①		20-116	①		20-238	②		20-361	②		20-415	②
	20-64	①		20-117	①		20-239	②		20-362	②		20-416	②
	20-65	①		20-118	①		20-240	②		20-363	②		20-417	②
	20-66	①		20-119	①		20-241	②		20-364	②		20-418	②
	20-67	①		20-120	①		20-242	②		20-365	②		20-419	②
	20-68	①		20-121	①		20-243	②		20-366	②		20-420	②
	20-69	①		20-122	①		20-244	②		20-367	②		20-421	②
	20-70	①		20-123	①		20-245	②		20-368	②		20-422	②
	20-71	①		20-124	①		20-246	②		20-369	②		20-423	②
	20-72	①		20-125	①		20-247	②		20-370	②		20-424	②
	20-73	①		20-126	①		20-248	②		20-371	②		20-425	②
	20-74	①		20-127	④		20-249	②		20-372	②		20-426	②
	20-75	①		20-128	④		20-250	②		20-373	②		20-427	②
	20-76	①		20-129	①		20-251	②	●	20-374	⑤		20-428	②
	20-77	①		20-130	①		20-252	②		20-375	②		20-429	②

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
	20-430	②		20-532	②		20-586	②		20-637	②		20-707	②
	20-431	②		20-533	②		20-587	②		20-638	②		20-708	②
	20-432	②		20-534	②		20-588	②		20-639	②		20-709	②
●	20-433	⑤		20-535	②		20-589	②		20-640	②		20-710	②
●	20-434	⑤		20-536	②		20-590	②		20-641	②		20-711	②
	20-435	②		20-537	②		20-591	②		20-642	②		20-712	②
	20-436	②		20-538	②		20-592	②		20-643	②		20-713	②
	20-437	②		20-539	②		20-593	②		20-644	②		20-714	④
	20-438	②		20-540	②		20-594	②		20-645	②		20-715	②
	20-439	②		20-541	②		20-595	②		20-646	②		20-716	②
	20-440	②		20-542	②		20-596	②		20-647	②		20-717	②
	20-441	②		20-543	②	○	20-596-1	⑤		20-648	②		20-718	②
	20-442	②		20-544	②	○	20-596-2	⑤		20-649	②		20-719	②
	20-444	②		20-545	②		20-597	②		20-650	②		20-720	②
	20-445	②		20-546	②		20-598	②		20-651	②		20-721	②
	20-446	②		20-547	②		20-599	②		20-652	②		20-722	②
	20-447	②		20-548	②		20-600	④		20-653	②		20-723	②
	20-448	②	●	20-549	⑤		20-601	④		20-654	②		20-724	②
	20-449	②		20-550	②		20-602	②		20-655	②		20-725	②
	20-450	②		20-551	②		20-603	②		20-656	②		20-726	②
	20-451	②		20-552	②		20-604	②		20-657	②		20-727	②
	20-452	②		20-553	②		20-605	②		20-658	②		20-728	②
●	20-501	⑤		20-554	②		20-606	②		20-659	②		20-729	②
●	20-502	⑤		20-555	②		20-607	②		20-660	②		20-730	②
	20-503	②		20-556	②		20-608	②		20-661	②		20-731	②
	20-504	②		20-557	②		20-609	②		20-662	②		20-732	②
●	20-505	⑤		20-558	②		20-610	②		20-663	②		20-733	②
●	20-506	⑤		20-559	②		20-611	②		20-664	②		20-734	②
●	20-507	⑤		20-560	②		20-612	②		20-665	②		20-735	②
●	20-508	⑤		20-562	②		20-613	②		20-666	②		20-736	②
●	20-509	⑤		20-563	②		20-614	②		20-667	②		20-737	②
●	20-510	⑤		20-564	②		20-615	②		20-668	②		20-738	②
●	20-511	⑤		20-565	②		20-616	②		20-669	②		20-739	②
	20-512	②		20-566	②		20-617	②		20-670	②		20-740	②
	20-513	②		20-567	②		20-618	②		20-671	②		20-741	④
	20-514	②		20-568	②		20-619	②		20-672	②		20-742	②
	20-515	②		20-569	②		20-620	②		20-673	②		20-743	②
	20-516	②		20-570	②		20-621	②		20-674	②		20-744	②
	20-517	②		20-571	②		20-622	②		20-675	②		20-745	②
	20-518	②		20-572	②		20-623	②		20-676	②		20-746	②
	20-519	②		20-573	②		20-624	②		20-677	②		20-747	②
●	20-520	⑤		20-574	②		20-625	②		20-678	②		20-748	②
●	20-521	⑤		20-575	②		20-626	②		20-680	②		20-749	②
	20-522	②		20-576	②		20-627	②		20-681	②		20-750	②
	20-523	②		20-577	②		20-628	②		20-682	②		20-751	②
	20-524	②		20-578	②		20-629	②		20-683	②		20-752	②
	20-525	②		20-579	②		20-630	②		20-684	②		20-753	②
	20-526	②		20-580	②		20-631	②		20-701	②		20-754	②
	20-527	②		20-581	②		20-632	②		20-702	②		20-755	②
	20-528	②		20-582	②		20-633	②		20-703	②		20-756	②
	20-529	②		20-583	②		20-634	②		20-704	②		20-757	②
	20-530	②		20-584	②		20-635	②		20-705	②		20-758	②
	20-531	②		20-585	②		20-636	②		20-706	②		20-759	②

023S05

023S05

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
	20-760	②		20-813	②		20-867	②		20-924	②		20-977	②
	20-761	②		20-814	②		20-868	②		20-925	②		20-978	②
	20-762	②		20-815	②		20-869	②		20-926	②		20-979	②
	20-763	②		20-816	②		20-870	②		20-927	②		20-1001	②
	20-764	④		20-817	②		20-872	②		20-928	②		20-1002	②
	20-765	②		20-818	②		20-873	②		20-929	②		20-1003	②
	20-766	②		20-819	②		20-874	②		20-930	②		20-1004	②
	20-767	②		20-820	②		20-875	②		20-931	②		20-1005	②
	20-768	②		20-821	②		20-876	②		20-932	②		20-1006	②
	20-769	②		20-822	②		20-877	②		20-933	②		20-1007	②
	20-770	②		20-823	②		20-878	②		20-934	②		20-1008	②
	20-771	②		20-824	②		20-879	②		20-935	②		20-1009	②
	20-772	②		20-825	②		20-880	②		20-936	②		20-1010	②
	20-773	②		20-826	②		20-882	②		20-937	②		20-1011	②
	20-774	②		20-827	②		20-883	②		20-938	②		20-1012	②
	20-775	②		20-828	②		20-884	②		20-939	②		20-1013	②
	20-776	②		20-829	②		20-885	②		20-940	②		20-1014	②
	20-777	②		20-830	②		20-886	②		20-941	②		20-1015	②
	20-778	②		20-831	②		20-887	②		20-942	②		20-1016	②
	20-779	②		20-832	②		20-888	②		20-943	②		20-1017	②
	20-780	②		20-833	②		20-889	②		20-944	②		20-1018	②
	20-781	②		20-834	②		20-890	②		20-945	②		20-1019	②
	20-782	②		20-835	②		20-891	②		20-946	②		20-1020	②
	20-783	②		20-836	②		20-892	②		20-947	②		20-1021	②
	20-784	②		20-837	②		20-893	②		20-948	②		20-1022	②
	20-785	②		20-838	②		20-894	②		20-949	②		20-1023	②
	20-786	②		20-839	②		20-895	②		20-950	②		20-1024	②
	20-787	②		20-840	②		20-896	②		20-951	②		20-1025	②
	20-788	②		20-841	②		20-898	②		20-952	②		20-1026	②
	20-789	②		20-842	②		20-899	②		20-953	②		20-1027	②
	20-790	②		20-843	②		20-900	②		20-954	②		20-1028	②
	20-791	②		20-844	②		20-901	②		20-955	②		20-1029	②
	20-792	②		20-845	②		20-902	②		20-956	②		20-1030	②
	20-793	②		20-846	②		20-903	②		20-957	②		20-1031	②
	20-794	②		20-847	②		20-904	②		20-958	②		20-1033	②
	20-795	②		20-848	②		20-905	②		20-959	②		20-1034	②
	20-796	②		20-849	②		20-906	②		20-960	②		20-1035	④
	20-797	②		20-850	②		20-907	②		20-961	②		20-1036	②
	20-798	②		20-851	②		20-908	②		20-962	②		20-1037	②
	20-799	②		20-852	②		20-909	②		20-963	②		20-1038	②
	20-800	②		20-853	②		20-910	②		20-964	②		20-1039	④
	20-801	②		20-854	②		20-911	②		20-965	②		20-1040	②
	20-802	②		20-855	②		20-912	②		20-966	②		20-1041	②
	20-803	②		20-856	②		20-913	②		20-967	②		20-1042	②
	20-804	②		20-857	②		20-914	②		20-968	②		20-1043	⑤
	20-805	②		20-858	②		20-915	②		20-969	②		20-1044	②
	20-806	②		20-860	②		20-916	②		20-970	②		20-1045	②
	20-807	②		20-861	②		20-917	②		20-971	②		20-1046	④
	20-808	②		20-862	②		20-918	②		20-972	②		20-1047	②
	20-809	②		20-863	②		20-919	②		20-973	②		20-1048	②
	20-810	②		20-864	②		20-920	②		20-974	②		20-1049	②
	20-811	②		20-865	②		20-922	②		20-975	②		20-1050	②
	20-812	②		20-866	②		20-923	②		20-976	②		20-1051	②

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
20-1052		②	20-1123		②	20-1312		②	20-1369		②	30-37		③
20-1053		②	20-1124		②	20-1313		②	20-1370		②	30-38		③
20-1054		②	20-1125		②	20-1314		②	20-1371		②	30-39		③
20-1055		②	20-1126		②	20-1315		②	20-1372		②	30-40		③
20-1056		②	20-1127		②	20-1316		②	20-1373		②	30-41		③
20-1057		②	20-1128		②	20-1317		②	20-1374		②	30-42		③
20-1058		②	20-1129		②	20-1319		②	20-1376		②	30-43		③
20-1059		②	20-1130		②	20-1320		②	20-1377		②	30-44		③
20-1060		②	20-1131		②	20-1321		②	20-1378		②	30-45		③
20-1061		②	20-1132		②	20-1322		②	20-1379		②	30-46		③
20-1062		②	20-1133		②	20-1324		②	20-1380		②	30-47		③
20-1063		②	20-1134		②	20-1325		②	20-1381		②	30-48		③
20-1064		②	20-1135		②	20-1326		②	20-1382		②	30-49		③
20-1065		②	20-1136		②	20-1328		②	20-1383		②	30-50		③
20-1066		②	20-1137		②	20-1329		②	20-1384		②	30-51		③
20-1067		②	20-1138		②	20-1330		②	20-1385		②	30-52		③
20-1068		②	20-1139		②	20-1331		②				30-53		③
20-1069		②	20-1140		②	20-1332		②	30-1		③	30-54		③
20-1070		②	20-1201		②	20-1333		②	30-2		③	30-55		③
20-1071		②	20-1202		②	20-1334		②	● 30-3		⑤	30-56		③
20-1072		②	20-1203		②	20-1335		②	● 30-4		⑤	30-57		③
20-1073		②	20-1204		②	20-1336		②	30-5		③	30-58		③
20-1074		②	20-1205		②	20-1337		②	30-6		③	30-59		③
20-1075		②	20-1206		②	20-1338		②	30-7		③	30-60		③
20-1076		②	20-1207		②	20-1339		②	30-8		③	30-61		③
20-1077		②	20-1208		②	20-1340		②	30-9		③	30-62		③
20-1078		②	20-1209		②	20-1341		②	30-10		③	30-63		③
20-1079		②	20-1210		④	20-1342		②	30-11		③	30-64		③
20-1080		②	20-1211		②	20-1343		②	30-12		③	30-65		③
20-1081		②	20-1212		②	20-1344		②	30-13		③	30-66		③
20-1082		②	20-1214		②	20-1345		②	30-14		③	30-67		③
20-1083		②	20-1215		②	20-1346		②	30-15		③	30-68		③
20-1101		②	20-1216		②	20-1347		②	30-16		③	30-69		③
20-1102		②	20-1217		②	20-1348		②	30-17		③	30-70		③
20-1103		②	20-1218		②	20-1349		②	30-18		③	30-71		③
20-1105		②	20-1219		②	20-1350		②	30-19		③	30-72		③
20-1106		②	20-1220		②	20-1351		②	30-20		③	30-73		③
20-1107		②	20-1221		②	20-1352		②	30-21		③	30-74		③
20-1108		②	20-1222		②	20-1353		②	30-22		③	30-75		③
20-1109		②	20-1223		②	20-1354		②	30-23		③	30-76		③
20-1110		②	20-1224		②	20-1355		②	30-24		③	30-77		③
20-1111		②	20-1225		②	20-1356		②	30-25		③	30-78		③
20-1112		②	20-1226		②	20-1357		②	30-26		③	30-79		③
20-1113		②	20-1301		②	20-1358		②	30-27		③	30-80		③
20-1114		②	20-1302		②	20-1359		②	30-28		③	30-81		③
20-1115		②	20-1303		②	20-1360		②	30-29		③	30-82		③
20-1116		②	20-1304		②	20-1361		②	30-30		③	30-83		③
20-1117		②	20-1305		②	20-1362		②	30-31		③	30-84		③
20-1118		②	20-1306		②	20-1363		②	30-32		③	30-85		③
20-1119		②	20-1307		②	20-1364		②	30-33		③	30-86		③
20-1120		②	20-1308		②	20-1365		②	30-34		③	30-87		③
20-1121		②	20-1309		②	20-1367		②	30-35		③	30-88		③
20-1122		②	20-1310		②	20-1368		②	30-36		③	30-89		③

023S05

023S05

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
	30-90	③		30-144	③		30-198	③		30-251	③		30-306	③
	30-91	③		30-145	③		30-199	③		30-252	③		30-307	③
	30-92	③		30-146	③		30-200	③		30-253	③		30-308	③
	30-93	③		30-147	③		30-201	③		30-254	③	●	30-309	⑤
	30-94	③		30-148	③		30-202	③		30-255	③		30-310	③
	30-95	③		30-149	③		30-203	③		30-256	③		30-311	③
	30-96	③		30-150	③		30-204	③		30-257	③		30-312	③
	30-97	③		30-151	③		30-205	③		30-258	③		30-313	③
	30-98	③		30-152	③		30-206	③		30-259	③		30-314	③
	30-99	③		30-153	③		30-207	③		30-260	③		30-315	③
	30-100	③		30-154	③		30-208	③		30-261	③		30-316	③
	30-101	③		30-155	③		30-209	③		30-262	③		30-317	③
	30-102	③		30-156	③		30-210	③		30-263	③		30-318	③
	30-103	③		30-157	③		30-211	③		30-264	③		30-319	③
	30-104	③		30-158	③		30-212	③		30-265	③		30-320	③
	30-105	③		30-159	③		30-213	③		30-266	③		30-321	③
	30-106	③		30-160	③		30-214	③		30-267	③		30-322	③
	30-107	③		30-161	③		30-215	③		30-268	③		30-323	③
	30-108	③		30-162	③		30-216	③		30-269	③		30-324	③
	30-109	③		30-163	③		30-217	③		30-270	③		30-325	③
	30-110	③		30-164	③		30-218	③		30-271	③		30-326	③
	30-111	③		30-165	③	●	30-219	⑤		30-272	③		30-327	③
	30-112	③		30-166	③		30-220	③		30-273	③		30-328	③
	30-113	③		30-167	③		30-221	③		30-275	③		30-329	③
	30-114	③		30-168	③		30-222	③		30-276	③		30-330	③
	30-115	③		30-169	③		30-223	③		30-277	③		30-331	③
	30-116	③		30-170	③		30-224	③		30-278	③		30-332	③
	30-117	③		30-171	③		30-225	③		30-280	③	○	20-332-1	⑤
	30-118	③	●	30-172	⑤		30-226	③		30-281	③	○	20-332-2	⑤
	30-119	③		30-173	③		30-227	③		30-282	③	○	20-332-3	⑤
	30-120	③		30-174	③		30-228	③		30-283	③	○	20-332-4	⑤
	30-122	③		30-175	③		30-229	③		30-284	③	○	20-332-5	⑤
	30-123	③		30-176	③		30-230	③		30-285	③	○	20-332-6	⑤
	30-124	③		30-177	③		30-231	③		30-286	③	○	20-332-7	⑤
	30-125	③		30-178	③		30-232	③		30-287	③	○	20-332-8	⑤
	30-126	③		30-179	③		30-233	③		30-288	③	○	20-332-9	⑤
	30-127	③		30-180	③		30-234	③		30-289	③	○	20-332-10	⑤
	30-128	③		30-181	③		30-235	③		30-290	③	○	20-332-11	⑤
	30-129	③		30-182	③		30-236	③	●	30-291	⑤	○	20-332-12	⑤
	30-130	③		30-183	③		30-237	③		30-292	③	○	20-332-13	⑤
	30-131	③		30-184	③		30-238	③		30-293	③	○	20-332-14	⑤
	30-132	③		30-185	③		30-239	③		30-294	③	○	20-332-15	⑤
	30-133	③		30-186	③		30-240	③		30-295	③	○	20-332-16	⑤
	30-134	③		30-187	③		30-241	③	●	30-296	⑤	○	20-332-17	⑤
	30-135	③		30-188	③		30-242	③		30-297	③	○	20-332-18	⑤
	30-136	③		30-189	③		30-243	③		30-298	③	○	20-332-19	⑤
	30-137	③		30-190	③		30-244	③		30-299	③	○	20-332-20	⑤
	30-138	③		30-191	③		30-245	③		30-300	③	○	20-332-21	⑤
	30-139	③		30-192	③		30-246	③		30-301	③	○	20-332-22	⑤
	30-140	③		30-193	③		30-247	③		30-302	③	○	20-332-23	⑤
	30-141	③		30-194	③		30-248	③		30-303	③	○	20-332-24	⑤
	30-142	③		30-195	③		30-249	③		30-304	③	○	20-332-25	⑤
	30-143	③		30-196	③		30-250	③		30-305	③	○	20-332-26	⑤

Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number	Mark	Page	Revision number
	30-333	③		40-4			90-73							
	30-334	③		40-5			90-75	④						
	30-335	③		40-6			90-77							
	30-336	③		40-7			90-79							
	30-337	③		40-8			90-81							
	30-338	③		40-9			90-83							
	30-339	③		40-10			90-85	④						
	30-340	③		40-11			90-201	②						
	30-341	③		40-12			90-203	②						
	30-342	③		40-13			90-205	②						
	30-343	③		40-14			90-207	②						
	30-344	③		40-15			90-401	②						
	30-345	③		40-16			90-403	②						
	30-346	③		40-17			90-405	②						
	30-347	③		40-18			90-407	②						
	30-348	③		40-19			90-409	②						
	30-349	③		40-20										
	30-350	③		40-21										
	30-351	③		40-22										
	30-352	③		40-23										
	30-353	③		40-24										
	30-354	③		40-25										
	30-355	③		40-26										
	30-356	③		40-27										
	30-357	③		40-28										
	30-358	③		40-29										
	30-359	③		40-30										
	30-360	③		40-31										
	30-361	③		40-32										
	30-362	③		40-33										
	30-363	③												
	30-364	③		90-1	④									
	30-365	③		90-3										
	30-366	③		90-5										
	30-367	③		90-11	④									
				90-13										
	40-1	④		90-15	④									
	40-1-1	④		90-17										
	40-1-2	④		90-19										
	40-1-3	④		90-21										
	40-1-4	④		90-23										
	40-1-5	④		90-25	④									
	40-1-6	④		90-51										
	40-1-7	④		90-53										
	40-1-8	④		90-55										
	40-1-9	④		90-57										
	40-1-10	④		90-59										
	40-1-11	④		90-61	④									
	40-1-13	④		90-63										
	40-1-14	④		90-65										
	40-1-15	④		90-67										
	40-2			90-69										
	40-3			90-71										


023S05

SAFETY

SAFETY NOTICE

IMPORTANT SAFETY NOTICE

Proper service and repair is extremely important for safe machine operation. The service and repair techniques recommended by Komatsu and described in this manual are both effective and safe. Some of these techniques require the use of tools specially designed by Komatsu for the specific purpose.

To prevent injury to workers, the symbol  is used to mark safety precautions in this manual. The cautions accompanying these symbols should always be followed carefully. If any dangerous situation arises or may possibly arise, first consider safety, and take the necessary actions to deal with the situation.

GENERAL PRECAUTIONS

Mistakes in operation are extremely dangerous. Read the Operation and Maintenance Manual carefully BEFORE operating the machine.

1. Before carrying out any greasing or repairs, read all the precautions given on the decals which are fixed to the machine.
2. When carrying out any operation, always wear safety shoes and helmet. Do not wear loose work clothes, or clothes with buttons missing.
 - Always wear safety glasses when hitting parts with a hammer.
 - Always wear safety glasses when grinding parts with a grinder, etc.
3. If welding repairs are needed, always have a trained, experienced welder carry out the work. When carrying out welding work, always wear welding gloves, apron, hand shield, cap and other clothes suited for welding work.
4. When carrying out any operation with two or more workers, always agree on the operating procedure before starting. Always inform your fellow workers before starting any step of the operation. Before starting work, hang UNDER REPAIR signs on the controls in the operator's compartment.
5. Keep all tools in good condition and learn the correct way to use them.

6. Decide a place in the repair workshop to keep tools and removed parts. Always keep the tools and parts in their correct places. Always keep the work area clean and make sure that there is no dirt or oil on the floor. Smoke only in the areas provided for smoking. Never smoke while working.

PREPARATIONS FOR WORK

7. Before adding oil or making any repairs, park the machine on hard, level ground, and block the wheels or tracks to prevent the machine from moving.
8. Before starting work, lower blade, ripper, bucket or any other work equipment to the ground. If this is not possible, insert the safety pin or use blocks to prevent the work equipment from falling. In addition, be sure to lock all the control levers and hang warning signs on them.
9. When disassembling or assembling, support the machine with blocks, jacks or stands before starting work.
10. Remove all mud and oil from the steps or other places used to get on and off the machine. Always use the handrails, ladders or steps when getting on or off the machine. Never jump on or off the machine. If it is impossible to use the handrails, ladders or steps, use a stand to provide safe footing.

PRECAUTIONS DURING WORK

11. When removing the oil filler cap, drain plug or hydraulic pressure measuring plugs, loosen them slowly to prevent the oil from spurting out.
Before disconnecting or removing components of the oil, water or air circuits, first remove the pressure completely from the circuit.
12. The water and oil in the circuits are hot when the engine is stopped, so be careful not to get burned.
Wait for the oil and water to cool before carrying out any work on the oil or water circuits.
13. Before starting work, remove the leads from the battery. Always remove the lead from the negative (-) terminal first.
14. When raising heavy components, use a hoist or crane.
Check that the wire rope, chains and hooks are free from damage.
Always use lifting equipment which has ample capacity.
Install the lifting equipment at the correct places. Use a hoist or crane and operate slowly to prevent the component from hitting any other part. Do not work with any part still raised by the hoist or crane.
15. When removing covers which are under internal pressure or under pressure from a spring, always leave two bolts in position on opposite sides. Slowly release the pressure, then slowly loosen the bolts to remove.
16. When removing components, be careful not to break or damage the wiring. Damaged wiring may cause electrical fires.
17. When removing piping, stop the fuel or oil from spilling out. If any fuel or oil drips onto the floor, wipe it up immediately. Fuel or oil on the floor can cause you to slip, or can even start fires.
18. As a general rule, do not use gasoline to wash parts. In particular, use only the minimum of gasoline when washing electrical parts.
19. Be sure to assemble all parts again in their original places.
Replace any damaged parts with new parts.
 - When installing hoses and wires, be sure that they will not be damaged by contact with other parts when the machine is being operated.
20. When installing high pressure hoses, make sure that they are not twisted. Damaged tubes are dangerous, so be extremely careful when installing tubes for high pressure circuits. Also, check that connecting parts are correctly installed.
21. When assembling or installing parts, always use the specified tightening torques. When installing protective parts such as guards, or parts which vibrate violently or rotate at high speed, be particularly careful to check that they are installed correctly.
22. When aligning two holes, never insert your fingers or hand. Be careful not to get your fingers caught in a hole.
23. When measuring hydraulic pressure, check that the measuring tool is correctly assembled before taking any measurements.
24. Take care when removing or installing the tracks of track-type machines.
When removing the track, the track separates suddenly, so never let anyone stand at either end of the track.

FOREWORD

GENERAL

This shop manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.

This shop manual mainly contains the necessary technical information for operations performed in a service workshop. For ease of understanding, the manual is divided into the following chapters; these chapters are further divided into the each main group of components.

STRUCTURE AND FUNCTION

This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

TESTING AND ADJUSTING

This section explains checks to be made before and after performing repairs, as well as adjustments to be made at completion of the checks and repairs.

Troubleshooting charts correlating "Problems" to "Causes" are also included in this section.

DISASSEMBLY AND ASSEMBLY

This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

MAINTENANCE STANDARD

This section gives the judgement standards when inspecting disassembled parts.

NOTICE

The specifications contained in this shop manual are subject to change at any time and without any advance notice. Use the specifications given in the book with the latest date.

HOW TO READ THE SHOP MANUAL

VOLUMES

Shop manuals are issued as a guide to carrying out repairs. They are divided as follows:

- Chassis volume:** Issued for every machine model
- Engine volume:** Issued for each engine series
- Electrical volume:** Each issued as one volume to cover all models
- Attachments volume:** Each issued as one volume to cover all models

These various volumes are designed to avoid duplicating the same information. Therefore, to deal with all repairs for any model, it is necessary that chassis, engine, electrical and attachment volumes be available.

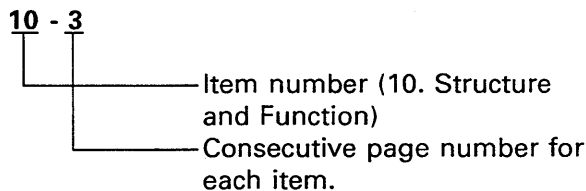
DISTRIBUTION AND UPDATING

Any additions, amendments or other changes will be sent to KOMATSU distributors. Get the most up-to-date information before you start any work.

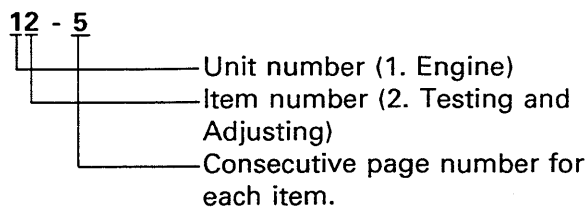
FILING METHOD

1. See the page number on the bottom of the page. File the pages in correct order.
2. Following examples show how to read the page number.

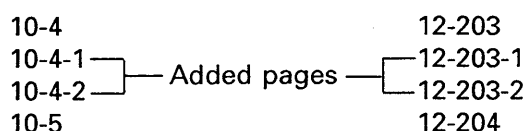
Example 1 (Chassis volume):



Example 2 (Engine volume):



3. Additional pages: Additional pages are indicated by a hyphen (-) and number after the page number. File as in the example.
- Example:



REVISED EDITION MARK

When a manual is revised, an edition mark (①②③....) is recorded on the bottom of the pages.

REVISIONS

Revised pages are shown in the LIST OF REVISED PAGES next to the CONTENTS page.


SYMBOLS

So that the shop manual can be of ample practical use, important safety and quality portions are marked with the following symbols.

Symbol	Item	Remarks
	Safety	Special safety precautions are necessary when performing the work.
	Caution	Special technical precautions or other precautions for preserving standards are necessary when performing the work.
	Weight	Weight of parts of systems. Caution necessary when selecting hoisting wire, or when working posture is important, etc.
	Tightening torque	Places that require special attention for the tightening torque during assembly.
	Coat	Places to be coated with adhesives and lubricants, etc.
	Oil, water	Places where oil, water or fuel must be added, and the capacity.
	Drain	Places where oil or water must be drained, and quantity to be drained.

HOISTING INSTRUCTIONS

HOISTING

Heavy parts (25 kg or more) must be lifted with a hoist, etc. In the **DISASSEMBLY AND ASSEMBLY** section, every part weighing 25 kg or more is indicated clearly with the symbol 

- If a part cannot be smoothly removed from the machine by hoisting, the following checks should be made:
 - 1) Check for removal of all bolts fastening the part to the relative parts.
 - 2) Check for existence of another part causing interference with the part to be removed.

WIRE ROPES

- 1) Use adequate ropes depending on the weight of parts to be hoisted, referring to the table below:

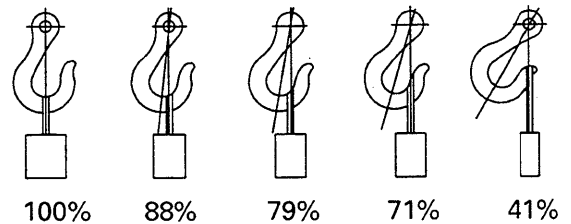
Wire ropes
(Standard "Z" or "S" twist ropes
without galvanizing)

Rope diameter mm	Allowable load	
	kN	tons
10	9.8	1.0
11.2	13.7	1.4
12.5	15.7	1.6
14	21.6	2.2
16	27.5	2.8
18	35.3	3.6
20	43.1	4.4
22.4	54.9	5.6
30	98.1	10.0
40	176.5	18.0
50	274.6	28.0
60	392.2	40.0

★ The allowable load value is estimated to be one-sixth or one-seventh of the breaking strength of the rope used.

- 2) Sling wire ropes from the middle portion of the hook.

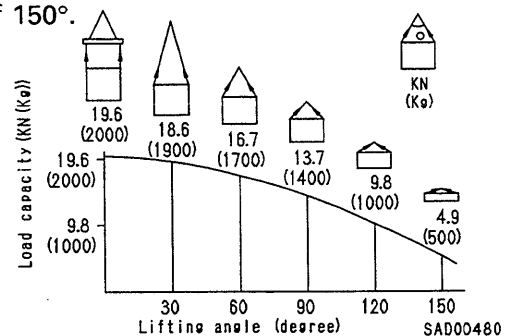
Slinging near the edge of the hook may cause the rope to slip off the hook during hoisting, and a serious accident can result. Hooks have maximum strength at the middle portion.



SAD00479

- 3) Do not sling a heavy load with one rope alone, but sling with two or more ropes symmetrically wound onto the load.
 - ⚠ Slinging with one rope may cause turning of the load during hoisting, untwisting of the rope, or slipping of the rope from its original winding position on the load, which can result in a dangerous accident.

- 4) Do not sling a heavy load with ropes forming a wide hanging angle from the hook. When hoisting a load with two or more ropes, the force subjected to each rope will increase with the hanging angles. The table below shows the variation of allowable load kN {kg} when hoisting is made with two ropes, each of which is allowed to sling up to 9.8 kN {1000 kg} vertically, at various hanging angles. When two ropes sling a load vertically, up to 19.6 kN {2000 kg} of total weight can be suspended. This weight becomes 9.8 kN {1000 kg} when two ropes make a 120° hanging angle. On the other hand, two ropes are subjected to an excessive force as large as 39.2 kN {4000 kg} if they sling a 19.6 kN {2000 kg} load at a lifting angle of 150°.



COATING MATERIALS

★ The recommended coating materials such as adhesives, gasket sealants and greases used for disassembly and assembly are listed below.

★ For coating materials not listed below, use the equivalent of products shown in this list.


Category	Komatsu code	Part No.	Q'ty	Container	Main applications, features
Adhesives	LT-1A	790-129-9030	150 g	Tube	<ul style="list-style-type: none"> Used to prevent rubber gaskets, rubber cushions, and cock plug from coming out.
	LT-1B	790-129-9050	20 g (2 pes.)	Polyethylene container	<ul style="list-style-type: none"> Used in places requiring an immediately effective, strong adhesive. Used for plastics (except polyethylene, polypropylene, tetrafluoroethylene and vinyl chloride), rubber, metal and non-metal.
	LT-2	09940-00030	50 g	Polyethylene container	<ul style="list-style-type: none"> Features: Resistance to heat and chemicals Used for anti-loosening and sealant purpose for bolts and plugs.
	LT-3	790-129-9060 (Set of adhesive and hardening agent)	Adhesive: 1 kg Hardening agent: 500 g	Can	<ul style="list-style-type: none"> Used as adhesive or sealant for metal, glass and plastic.
	LT-4	790-129-9040	250 g	Polyethylene container	<ul style="list-style-type: none"> Used as sealant for machined holes.
	Holtz MH 705	790-126-9120	75 g	Tube	<ul style="list-style-type: none"> Used as heat-resisting sealant for repairing engine.
	Three bond 1735	790-129-9140	50 g	Polyethylene container	<ul style="list-style-type: none"> Quick hardening type adhesive Cure time: within 5 sec. to 3 min. Used mainly for adhesion of metals, rubbers, plastics and woods.
	Aron-alpha 201	790-129-9130	2 g	Polyethylene container	<ul style="list-style-type: none"> Quick hardening type adhesive Quick cure type (max. strength after 30 minutes) Used mainly for adhesion of rubbers, plastics and metals.
	Loctite 648-50	79A-129-9110	50 cc	Polyethylene container	<ul style="list-style-type: none"> Features: Resistance to heat, chemicals Used at joint portions subject to high temperatures.
Gasket sealant	LG-1	790-129-9010	200 g	Tube	<ul style="list-style-type: none"> Used as adhesive or sealant for gaskets and packing of power train case, etc.
	LG-3	790-129-9070	1 kg	Can	<ul style="list-style-type: none"> Features: Resistance to heat Used as sealant for flange surfaces and bolts at high temperature locations, used to prevent seizure. Used as sealant for heat resistance gasket for high temperature locations such as engine precombustion chamber, exhaust pipe, etc.

Category	Komatsu code	Part No.	Q'ty	Container	Main applications, features
Gasket sealant	LG-4	790-129-9020	200 g	Tube	<ul style="list-style-type: none"> • Features: Resistance to water, oil • Used as sealant for flange surface, thread. • Also possible to use as sealant for flanges with large clearance. • Used as sealant for mating surfaces of final drive case, transmission case.
	LG-5	790-129-9080	1 kg	Polyethylene container	<ul style="list-style-type: none"> • Used as sealant for various threads, pipe joints, flanges. • Used as sealant for tapered plugs, elbows, nipples of hydraulic piping.
	LG-6	09940-00011	250 g	Tube	<ul style="list-style-type: none"> • Features: Silicon based, resistance to heat, cold • Used as sealant for flange surface, tread. • Used as sealant for oil pan, final drive case, etc.
	LG-7	09920-00150	150 g	Tube	<ul style="list-style-type: none"> • Features: Silicon based, quick hardening type • Used as sealant for flywheel housing, intake manifold, oil an, thermostat housing, etc.
	Three bond 1211	790-129-9090	100 g	Tube	<ul style="list-style-type: none"> • Used as heat-resisting sealant for repairing engine.
Molybdenum disulphide lubricant	LM-G	09940-00051	60 g	Can	<ul style="list-style-type: none"> • Used as lubricant for sliding portion (to prevent from squeaking).
	LM-P	09940-00040	200 g	Tube	<ul style="list-style-type: none"> • Used to prevent seizure or scuffing of the thread when press fitting or shrink fitting. • Used as lubricant for linkage, bearings, etc.
Grease	G2-LI	SYG2-400LI SYG2-350LI SYG2-400LI-A SYG2-160LI SYGA-160CNLI	Various	Various	<ul style="list-style-type: none"> • General purpose type
	G2-CA	SYG2-400CA SYG2-350CA SYG2-400CA-A SYG2-160CA SYGA-160CNCA	Various	Various	<ul style="list-style-type: none"> • Used for normal temperature, light load bearing at places in contact with water or steam.
	Molybdenum disulphide lubricant	SYG2-400M	400 g (10 per case)	Belows type	<ul style="list-style-type: none"> • Used for places with heavy load


STANDARD TIGHTENING TORQUE

STANDARD TIGHTENING TORQUES OF BOLTS AND NUTS

Use these torques for metric bolts and nuts. (Always use torque wrench).

Thread diameter of bolt	Width across flats				
		Nm		kgm	
mm	mm				
6	10	13.2 ± 1.4		1.35 ± 0.15	
8	13	31 ± 3		3.2 ± 0.3	
10	17	66 ± 7		6.7 ± 0.7	
12	19	113 ± 10		11.5 ± 1	
14	22	177 ± 19		18 ± 2	
16	24	279 ± 30		28.5 ± 3	
18	27	382 ± 39		39 ± 4	
20	30	549 ± 59		56 ± 6	
22	32	745 ± 83		76 ± 8.5	
24	36	927 ± 103		94.5 ± 10.5	
27	41	1320 ± 140		135 ± 15	
30	46	1720 ± 190		175 ± 20	
33	50	2210 ± 240		225 ± 25	
36	55	2750 ± 290		280 ± 30	
39	60	3290 ± 340		335 ± 35	

CDL00372

Thread diameter of bolt	Width across flats		
		Nm	
mm	mm		
6	10	7.85 ± 1.95	
8	13	18.6 ± 4.9	
10	14	40.2 ± 5.9	
12	27	82.35 ± 7.85	

CDL00373

TIGHTENING TORQUE OF HOSE NUTS

Use these torques for hose nuts.

Nominal No.	Thread diameter	Width across flat	Tightening torque	
			Nm	kgm
02	14	19	24.5 ± 4.9	2.5 ± 0.5
03	18	24	49 ± 19.6	5 ± 2
04	22	27	78.5 ± 19.6	8 ± 2
05	24	32	137.3 ± 29.4	14 ± 3
06	30	36	176.5 ± 29.4	18 ± 3
10	33	41	196.1 ± 49	20 ± 5
12	36	46	245.2 ± 49	25 ± 5
14	42	55	294.2 ± 49	30 ± 5

TIGHTENING TORQUE OF SPLIT FLANGE BOLTS

Use these torques for split flange bolts.

Thread diameter	Width across flat	Tightening torque	
		Nm	kgm
mm	mm		
10	14	65.7 ± 6.8	6.7 ± 0.7
12	17	112 ± 9.8	11.5 ± 1
16	22	279 ± 29	28.5 ± 3

TIGHTENING TORQUE OF O-RING BOSS CONNECTOR

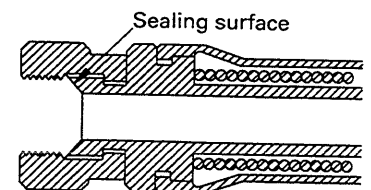
Use these torques for O-ring boss connector

Nominal No.	Thread diameter	Width across flat	Tightening torque	
	mm	mm	Nm	kgm
02	14	Varies depending on type of connector.	34.3±4.9	3.5±0.5
03, 04	20		93.1±9.8	9.5±1
05, 06	24		142.1±19.6	14.5±2
10, 12	33		421.4±58.8	43±6
14	42		877.1±132.3	89.5±13.5

TIGHTENING TORQUE OF O-RING BOSS CONNECTOR

Use these torques for O-ring boss connector

Nominal No.	Thread diameter	Width across flat	Tightening torque	
	mm	mm	Nm	kgm
08	8	14	7.35±1.47	0.75±0.15
10	10	17	11.27±1.47	1.15±0.15
12	12	19	17.64±1.96	1.8±0.2
14	14	22	22.54±1.96	2.3±0.2
16	16	24	29.4±4.9	3±0.5
18	18	27	39.2±4.9	4±0.5
20	20	30	49±4.9	5±0.5
24	24	32	68.6±9.8	7±1
30	30	32	107.8±14.7	11±1.5
33	33	—	127.4±19.6	13±2
36	36	36	151.9±24.5	15.5±2.5
42	42	—	210.7±29.4	21.5±3
52	52	—	323.4±44.1	33±4.5



TIGHTENING TORQUES OF FLARE NUT

Use these torques for O-ring boss connector

SAD00483

Thread diameter	Width across flat	Tightening torque	
		Nm	kgm
14	19	24.5±4.9	2.5±0.5
18	24	49±19.6	5±2
22	27	78.5±19.6	8±2
24	32	137.3±29.4	14±3
30	36	176.5±29.4	18±3
33	41	196.1±49	20±5
36	46	245.2±49	25±5
42	55	294.2±49	30±5

TIGHTENING TORQUE FOR 102 ENGINE SERIES (BOLT AND NUTS)

Use these torques for bolts and nuts (unit: mm) of Cummins Engine.

Thread diameter	Tightening torque	
	Nm	kgm
mm		
6	10 ± 2	1.02 ± 0.20
8	24 ± 4	2.45 ± 0.41
10	43 ± 6	4.38 ± 0.61
12	77 ± 12	7.85 ± 1.22

TIGHTENING TORQUE FOR 102 ENGINE SERIES (EYE JOINTS)

Use these torques for eye joints (unit: mm) of Cummins Engine.

Thread diameter	Tightening torque	
	Nm	kgm
mm		
6	8 ± 2	0.81 ± 0.20
8	10 ± 2	1.02 ± 0.20
10	12 ± 2	1.22 ± 0.20
12	24 ± 4	2.45 ± 0.41
14	36 ± 5	3.67 ± 0.51

TIGHTENING TORQUE FOR 102 ENGINE SERIES (TAPERED SCREWS)

Use these torques for tapered screws (unit: inch) of Cummins Engine.

Thread diameter	Tightening torque	
	Nm	kgm
inch		
1 / 16	3 ± 1	0.31 ± 0.10
1 / 8	8 ± 2	0.81 ± 0.20
1 / 4	12 ± 2	1.22 ± 0.20
3 / 8	15 ± 2	1.53 ± 0.41
1 / 2	24 ± 4	2.45 ± 0.41
3 / 4	36 ± 5	3.67 ± 0.51
1	60 ± 9	6.12 ± 0.92