

PENNSYLVANIA RAILROAD

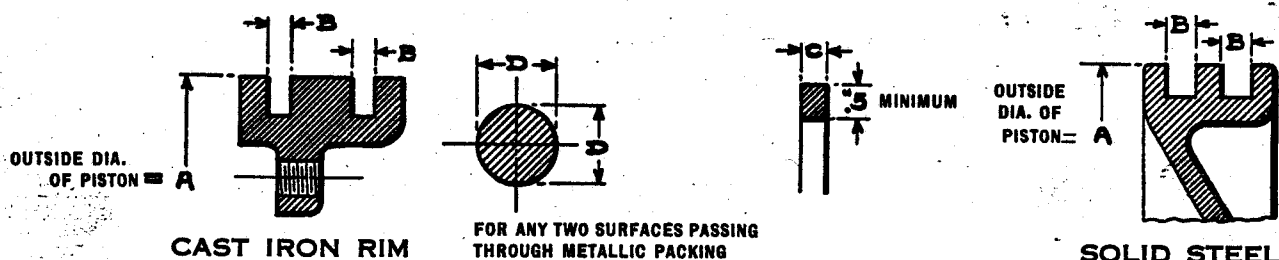
LINES EAST OF PITTSBURGH

Locomotive Maintenance Instructions No. L-6-B

(SUPERSEDING LOCOMOTIVE MAINTENANCE INSTRUCTIONS NO. L-6-A, DATED SEPT. 25, 1913)

ISSUED ALTOONA, PA.
JUNE 23, 1915.

PISTON ROD AND RING LIMITS



SUBJECT.			New Locomotives and New Parts for Repaired Locomotives. Limits.	Repaired Parts. Limits.	Renewals or Repairs Must be Made When Parts are Worn to the Following Limits:		
					When Piston is Removed from Locomotive.	When Locomotive is in Shop for Classified Repairs.	Under Running Repairs.
PISTON HEAD.	Rim, Cast Iron, Diameter. For Pistons Without Tail Rods.	A	Tracing Size or Cylinder Bore Minus .030". Limits, Plus or Minus .005". See Note 1	Cylinder Bore Minus .030". Limits, Plus or Minus .005". See Note 1	If Diameter is Less Than Cylinder Bore by .250".	If Diameter is Less Than Cylinder Bore by .187".	If Diameter is Less Than Cylinder Bore by .320".
	Solid Steel, Diameter. For Pistons With Tail Rods.	A	Tracing Size. Limits, Plus or Minus .005". See Note 1	Tracing Size. Limits, Plus or Minus .005". See Note 1			
	Grooves for Packing Rings. Width.	B	Tracing Size. Limit, Plus .004".	Sides Parallel Within .003". See Note 2.	When Ring is Renewed, Groove is to be Faced. If Out of Parallel More Than .030". See Note 2.	When Out of Parallel More Than .015". See Note 2.	
PISTON PACKING RINGS.	Width.	C	Tracing Size Minus .002" to Minus .004".	Groove Width Minus .002" to Minus .005".			
	Side Play in Groove.		Maximum .008". Minimum .002".		Renew Rings When Exceeding .030".	Renew Rings When Exceeding .015".	
PISTON ROD.	Diameter of Part Passing Through Packing.	D	Tracing Size Limit, Minus .004".	Variation in any Two Diameters not to Exceed .004". See Note 3.	If Variation in any Two Diameters Exceeds .015". See Note 3.	If Variation in any Two Diameters Exceeds .008". See Note 3.	If Variation in any Two Diameters Exceeds .030". See Note 3.

NOTE 1—TRACING SIZE AND CYLINDER BORE—Cast iron rims for pistons without tail rods should be turned to tracing size for new cylinders and should be governed by the cylinder bore in old cylinders. Piston heads for pistons with tail rods should be turned to tracing size for both new and old cylinders. In the case of old cylinders the increased diameter is taken care of by using rings of greater depth.

NOTE 2—CONDEMNING LIMIT OF PISTON HEAD—Scrap cast iron piston rim or solid steel head when the grooves are worn .310" larger than tracing size.

NOTE 3—CONDEMNING LIMIT OF PISTON ROD—Scrap piston rod when worn .250" less in diameter than tracing size.

NORMS—GENERAL.—PISTON PACKING RINGS—These should be machined $\frac{1}{4}$ " larger than cylinder bore and cut to fit cylinder. The space between ends of ring or ends of ring and segment should be between .005" and .015".

FIT OF PISTON PACKING RINGS IN CYLINDER—The rings should fit the cylinder neatly all the way around. If away from the cylinder at any point more than .010" the ring should be renewed.

PISTON ROD AND HEAD, ASSEMBLED, CLASS REPAIRS—Should be tried for straightness by revolving on centers. If not straight, the rod should be trued up.

TAPERS ON PISTON RODS—Master gauges are kept at Juniata. All other gauges must be in accordance therewith, as shown on standard tracings.

J. T. WALLIS,

Gen'l Supt Motive Power,

Penna. Railroad Lines East of Pittsburgh.

1911-1912	1912-1913	1913-1914	1914-1915	1915-1916	1916-1917	1917-1918	1918-1919	1919-1920	1920-1921	1921-1922	1922-1923	1923-1924	1924-1925	1925-1926	1926-1927	1927-1928	1928-1929	1929-1930	1930-1931	1931-1932	1932-1933	1933-1934	1934-1935	1935-1936	1936-1937	1937-1938	1938-1939	1939-1940	1940-1941	1941-1942	1942-1943	1943-1944	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951	1951-1952	1952-1953	1953-1954	1954-1955	1955-1956	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	1961-1962	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969	1969-1970	1970-1971	1971-1972	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979	1979-1980	1980-1981	1981-1982	1982-1983	1983-1984	1984-1985	1985-1986	1986-1987	1987-1988	1988-1989	1989-1990	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038	2038-2039	2039-2040	2040-2041	2041-2042	2042-2043	2043-2044	2044-2045	2045-2046	2046-2047	2047-2048	2048-2049	2049-2050	2050-2051	2051-2052	2052-2053	2053-2054	2054-2055	2055-2056	2056-2057	2057-2058	2058-2059	2059-2060	2060-2061	2061-2062	2062-2063	2063-2064	2064-2065	2065-2066	2066-2067	2067-2068	2068-2069	2069-2070	2070-2071	2071-2072	2072-2073	2073-2074	2074-2075	2075-2076	2076-2077	2077-2078	2078-2079	2079-2080	2080-2081	2081-2082	2082-2083	2083-2084	2084-2085	2085-2086	2086-2087	2087-2088	2088-2089	2089-2090	2090-2091	2091-2092	2092-2093	2093-2094	2094-2095	2095-2096	2096-2097	2097-2098	2098-2099	2099-2100	2100-2101	2101-2102	2102-2103	2103-2104	2104-2105	2105-2106	2106-2107	2107-2108	2108-2109	2109-2110	2110-2111	2111-2112	2112-2113	2113-2114	2114-2115	2115-2116	2116-2117	2117-2118	2118-2119	2119-2120	2120-2121	2121-2122	2122-2123	2123-2124	2124-2125	2125-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-2133	2133-2134	2134-2135	2135-2136	2136-2137	2137-2138	2138-2139	2139-2140	2140-2141	2141-2142	2142-2143	2143-2144	2144-2145	2145-2146	2146-2147	2147-2148	2148-2149	2149-2150	2150-2151	2151-2152	2152-2153	2153-2154	2154-2155	2155-2156	2156-2157	2157-2158	2158-2159	2159-2160	2160-2161	2161-2162	2162-2163	2163-2164	2164-2165	2165-2166	2166-2167	2167-2168	2168-2169	2169-2170	2170-2171	2171-2172	2172-2173	2173-2174	2174-2175	2175-2176	2176-2177	2177-2178	2178-2179	2179-2180	2180-2181	2181-2182	2182-2183	2183-2184	2184-2185	2185-2186	2186-2187	2187-2188	2188-2189	2189-2190	2190-2191	2191-2192	2192-2193	2193-2194	2194-2195	2195-2196	2196-2197	2197-2198	2198-2199	2199-2200	2200-2201	2201-2202	2202-2203	2203-2204	2204-2205	2205-2206	2206-2207	2207-2208	2208-2209	2209-2210	2210-2211	2211-2212	2212-2213	2213-2214	2214-2215	2215-2216	2216-2217	2217-2218	2218-2219	2219-2220	2220-2221	2221-2222	2222-2223	2223-2224	2224-2225	2225-2226	2226-2227	2227-2228	2228-2229	2229-2230	2230-2231	2231-2232	2232-2233	2233-2234	2234-2235	2235-2236	2236-2237	2237-2238	2238-2239	2239-2240	2240-2241	2241-2242	2242-2243	2243-2244	2244-2245	2245-2246	2246-2247	2247-2248	2248-2249	2249-2250	2250-2251	2251-2252	2252-2253	2253-2254	2254-2255	2255-2256	2256-2257	2257-2258	2258-2259	2259-2260	2260-2261	2261-2262	2262-2263	2263-2264	2264-2265	2265-2266	2266-2267	2267-2268	2268-2269	2269-2270	2270-2271	2271-2272	2272-2273	2273-2274	2274-2275	2275-2276	2276-2277	2277-2278	2278-2279	2279-2280	2280-2281	2281-2282	2282-2283	2283-2284	2284-2285	2285-2286	2286-2287	2287-2288	2288-2289	2289-2290	2290-2291	2291-2292	2292-2293	2293-2294	2294-2295	2295-2296	2296-2297	2297-2298	2298-2299	2299-2300	2300-2301	2301-2302	2302-2303	2303-2304	2304-2305	2305-2306	2306-2307	2307-2308	2308-2309	2309-2310	2310-2311	2311-2312	2312-2313	2313-2314	2314-2315	2315-2316	2316-2317	2317-2318	2318-2319	2319-2320	2320-2321	2321-2322	2322-2323	2323-2324	2324-2325	2325-2326	2326-2327	2327-2328	2328-2329	2329-2330	2330-2331	2331-2332	2332-2333	2333-2334	2334-2335	2335-2336	2336-2337	2337-2338	2338-2339	2339-2340	2340-2341	2341-2342	2342-2343	2343-2344	2344-2345	2345-2346	2346-2347	2347-2348	2348-2349	2349-2350	2350-2351	2351-2352	2352-2353	2353-2354	2354-2355	2355-2356	2356-2357	2357-2358	2358-2359	2359-2360	2360-2361	2361-2362	2362-2363	2363-2364	2364-2365	2365-2366	2366-2367	2367-2368	2368-2369	2369-2370	2370-2371	2371-2372	2372-2373	2373-2374	2374-2375	2375-2376	2376-2377	2377-2378	2378-2379	2379-2380	2380-2381	2381-2382	2382-2383	2383-2384	2384-2385	2385-2386	2386-2387	2387-2388	2388-2389	2389-2390	2390-2391	2391-2392	2392-2393	2393-2394	2394-2395	2395-2396	2396-2397	2397-2398	2398-2399	2399-2400	2400-2401	2401-2402	2402-2403	2403-2404	2404-2405	2405-2406	2406-2407	2407-2408	2408-2409	2409-2410	2410-2411	2411-2412	2412-2413	2413-2414	2414-2415	2415-2416	2416-2417	2417-2418	2418-2419	2419-2420	2420-2421	2421-2422	2422-2423	2423-2424	2424-2425	2425-2426	2426-2427	2427-2428	2428-2429	2429-2430	2430-2431	2431-2432	2432-2433	2433-2434	2434-2435	2435-2436	2436-2437	2437-2438	2438-2439	2439-2440	2440-2441	2441-2442	2442-2443	2443-2444	2444-2445	2445-2446	2446-2447	2447-2448	2448-2449	2449-2450	2450-2451	2451-2452	2452-2453	2453-2454	2454-2455	2455-2456	2456-2457	2457-2458	2458-2459	2459-2460	2460-2461	2461-2462	2462-2463	2463-2464	2464-2465	2465-2466	2466-2467	2467-2468	2468-2469	2469-2470	2470-2471	2471-2472	2472-2473	2473-2474	2474-2475	2475-2476	2476-2477	2477-2478	2478-2479	2479-2480	2480-2481	2481-2482	2482-2483	2483-2484	2484-2485	2485-2486	2486-2487	2487-2488	2488-2489	2489-2490	2490-2491	2491-2492	2492-2493	2493-2494	2494-2495	2495-2496	2496-2497	2497-2498	2498-2499	2499-2500	2500-2501	2501-2502	2502-2503	2503-2504	2504-2505	2505-2506	2506-2507	2507-2508	2508-2509	2509-2510	2510-2511	2511-2512	2512-2513	2513-2514	2514-2515	2515-2516	2516-2517	2517-2518	2518-2519	2519-2520	2520-2521	2521-2522	2522-2523	2523-2524	2524-2525	2525-2526	2526-2527	2527-2528	2528-2529	2529-2530	2530-2531	2531-2532	2532-2533	2533-2534	2534-2535	2535-2536	2536-2537	2537-2538	2538-2539	2539-2540	2540-2541	2541-2542	2542-2543	2543-2544	2544-2545	2545-2546	2546-2547	2547-2548	2548-2549	2549-2550	2550-2551	2551-2552	2552-2553	2553-2554	2554-2555	2555-2556	2556-2557	2557-2558	2558-2559	2559-2560	2560-2561	2561-2562	2562-2563	2563-2564	2564-2565	2565-2566	2566-2567	2567-2568	2568-2569	2569-2570	2570-2571	2571-2572	2572-2573	2573-2574	2574-2575	2575-2576	2576-2577	2577-2578	2578-2579	2579-2580	2580-2581	2581-2582	2582-2583	2583-2584	2584-2585	2585-2586	2586-2587	2587-2588	2588-2589	2589-2590	2590-2591	2591-2592	2592-2593	2593-2594	2594-2595	2595-2596	2596-2597	2597-2598	2598-2599	2599-2600	2600-2601	2601-2602	2602-2603	2603-2604	2604-2605	2605-2606	2606-2607	2607-2608	2608-2609	2609-2610	2610-2611	2611-2612	2612-2613	2613-2614	2614-2615	2615-2616	2616-2617	2617-2618	2618-2619	2619-2620	2620-2621	2621-2622	2622-2623	2623-2624	2624-2625	2625-2626	2626-2627	2627-2628	2628-2629	2629-2630	2630-2631	2631-2632	2632-2633	2633-2634	2634-2635	2635-2636	2636-2637	2637-2638	2638-2639	2639-2640	2640-2641	2641-2642	2642-2643	2643-2644	2644-2645	2645-2646	2646-2647	2647-2648	2648-2649	2649-2650	2650-2651	2651-2652	2652-2653	2653-2654	2654-2655	2655-2656	2656-2657	2657-2658	2658-2659	2659-2660	2660-2661	2661-2662	2662-2663	2663-2664	2664-2665	2665-2666	2666-2667	2667-2668	2668-2669	2669-2670	2670-2671	2671-2672	2672-2673	2673-2674	2674-2675	2675-2676	2676-2677	2677-2678	2678-2679	2679-2680	2680-2681	2681-2682	2682-2683	2683-2684	2684-2685	2685-2686	2686-2687	2687-2688	2688-2689	2689-2690	2690-2691	2691-2692	2692-2693	2693-2694	2694-2695	2695-2696	2696-2697	2697-2698	2698-2699	2699-2700	2700-2701	2701-2702	2702-2703	2703-2704	2704-2705	2705-2706	2706-2707	2707-2708	2708-2709	2709-2710	2710-2711	2711-2712	2712-2713	2713-2714	2714-2715	2715-2716	2716-2717	2717-2718	2718-2719	2719-2720	2720-2721	2721-2722	2722-2723	2723-2724	2724-2725	2725-2726	2726-2727	2727-2728	2728-2729	2729-2730	2730-2731	2731-2732	2732-2733	2733-2734	2734-2735	2735-2736	2736-2737	2737-2738	2738-2739	2739-2740	2740-2741	2741-2742	2742-2743	2743-2744	2744-2745	2745-2746	2746-2747	2747-2748	2748-2749	2749-2750
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------