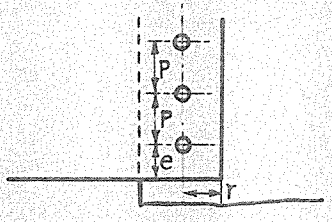
DIAMETER m.m.		1·5	2·0	2·5	3·0	3·5	4·0	5·0	
SHEAR STRENGTH Kg	ƒ 181	40	62	106	140	192	250	390	
BEARING LOAD Kg. / THICKNESS OF SHEET m.m	0·4	24	29	33	41	45	49	54	SHEET FAILS IN BEARING
	0·5	35	42	50	61	67	74	80	
	0·6	47	56	66	78	87	96	107	
	0·7	61	71	88	97	109	122	137	
	0·8	67	82	101	118	130	144	160	
	1·0	95	111	134	152	171	190	213	
	1·2	116	137	167	189	212	235	265	
	1·4	138	163	197	222	250	279	316	
	1·6	166	194	226	260	292	326	375	
	1·8	190	220	261	296	332	368	425	
	2·0	215	248	294	332	372	413	484	
	2·3	252	290	340	384	430	480	563	
	2·6	291	333	388	436	488	543	643	
	2·9	330	375	433	487	548	610	730	
	3·2	366	415	480	536	606	672	810	
	3·5	410	463	526	596	672	746	880	
	4·0	480	545	598	693	748	815	1020	
		RIVET FAILS							

NOTE :- 1. TO BE USED WHEN RIVETING ƒ 221, ƒ 222, □ 002 WITH ƒ 181

2. DATA BASED ON MECHANICAL TESTS (REFER COMPANY RESEARCH REPORTS VOL 2 Nº 3)

DATE OF DECISION	STRENGTH (ƒ 181)	
16·7·40		TS 1000

DIAMETER mm.		1·6	2·0	2·6	3·0	3·5	4·0	5·0	
SHEAR STRENGTH kg.	ƒ 281	50	78	135	175	240	375	500	
	STEEL RIVET	66	104	175	233	317	414	647	
BEARING LOAD — THICKNESS OF SHEET m.m.	0·4	30	36	42	51	56	61	68	SHEET FAILS IN BEARING
	0·5	44	53	63	76	84	92	101	
	0·6	59	70	83	98	109	120	134	
	0·7	76	89	110	121	136	152	171	
	0·8	84	102	126	147	163	180	200	
	1·0	119	139	168	190	214	238	267	
	1·2	145	171	208	236	265	294	331	
	1·4	173	203	246	278	313	349	396	
	1·6	207	241	283	325	366	407	468	
	1·8	237	275	326	370	415	460	532	
	2·0	269	310	368	414	465	517	604	
	2·3	315	362	425	480	537	598	704	
	2·6	364	416	485	545	610	678	804	
	2·9	412	468	541	609	685	761	913	
	3·2	457	518	600	670	757	840	1010	
	3·5	511	578	657	746	839	932	1100	
	4·0	600	680	748	867	935	1002	1281	
		RIVET FAILS							
MINIMUM DIMENSIONS	r	6	6	6	7	8	9	12	
	e	5	5	5	5	6	7	9	
	p	8	8	8	9	10	12	16	



$r \geq 2d$
$e \geq 1{\cdot}7d$
$p \geq 3d$
$d \geq 3t$

NOTE :- 1. TO BE USED WHEN RIVETING ƒ 221 , ƒ 222.
▽ 002 WITH ƒ 281

2. DATA BASED ON MECHANICAL TESTS
(REFER COMPANY RESEARCH REPORTS VOL. 2 Nº 5 Nº 10

DATE OF DECISION	SURFACE PRESSURE (ƒ 221 Nº 1)	TS 1002
16-7-40		

DIAMETER mm.			4	5	6	7	8	10	12
A mm²			12·57	19·63	28·27	38·48	50·27	78·54	113·1
A' mm²	EFFECTIVE AREA		6·9	11·0	16·7	24·7	30·8	53·6	77·2
T kg EFFECTIVE AREA	ʃ 004		480	770	1,170	1,730	2,160	3,760	5,400
	ʃ 201 (101 Kg)		760	1,210	1,840	2,720	3,390	5,900	8,500
SHEAR STRENGTH kg	ʃ 004	S.Sh.	528	825	1,190	1,610	2,110	3,300	4,750
		D.Sh.	462	722	1,040	1,410	1,850	2,900	4,150
	ʃ 201	S.Sh.	830	1,295	1,870	2,540	3,320	5,180	7,470
		D.Sh.	725	1,130	1,630	2,220	2,900	4,530	6,530

BEARING LOAD	THICKNESS OF SHEET mm.							
0·8	180	200						
1·0	238	267						
1·2	294	331						
1·4	349	396						
1·6	407	468						
1·8	450	532						
2·0	517	604						
2·3	598	704						
2·6	678	804						
2·9	761	913						
3·2	840	1,010						
3·5	932	1,100						
4·0	1,002	1,281						
4·5								
5·0								
5·5								
6·0								
7·0								
8·0								
10·0								

NOTE:- TO BE USED WHEN CONNECTING ʃ 221 SHEETS WITH ʃ 004 OR ʃ 201

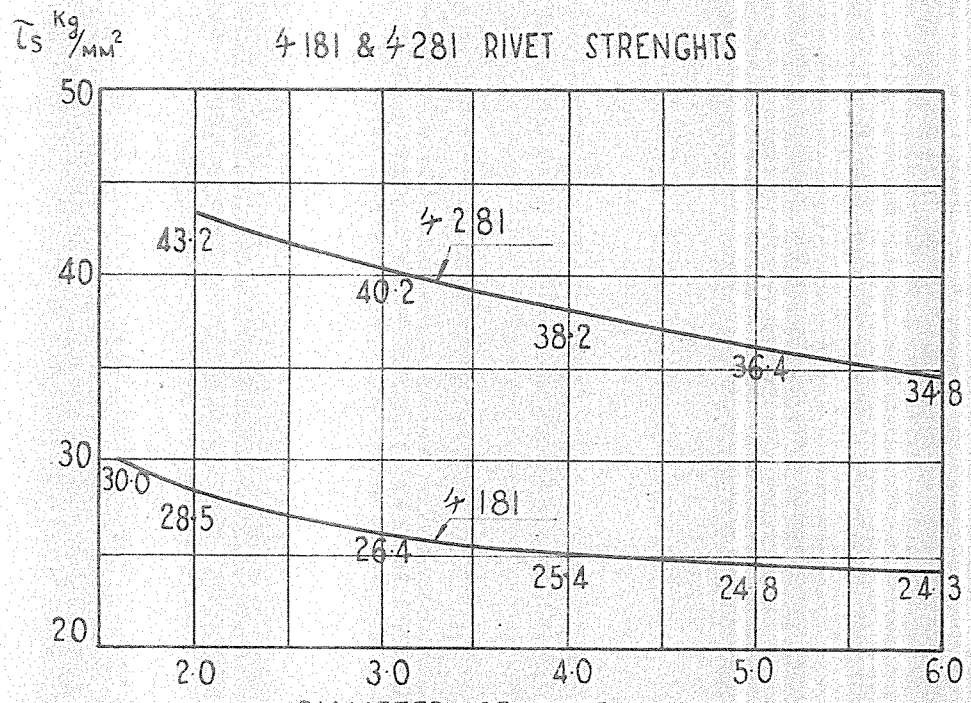
DATE OF DECISION	SHEAR & TENSILE STRENGTH OF ʃ 004 (45 TON) & ʃ 201 (65 TON) BOLTS IN ʃ 221 ALUMINIUM ALLOY SHEETS	
17-7-40		TS 1003

DIAMETER mm		1·6	2·0	2·6	3·0	3·5	4·0	5·0	
SHEAR STRENGTH Kg	STEEL RIVET	66	104	175	233	317	414	647	
BEARING LOAD / THICKNESS OF SHEET	0·4	39	44	52	57	62	66	72	
	0·5	59	67	79	86	94	104	115	
	0·6	77	88	106	112	127	139	158	
	0·7	97	111	133	142	160	176	198	
	0·8	115	130	157	170	189	208	241	
	1·0	149	170	203	223	250	277	319	
	1·2	182	209	249	277	309	343	400	
	1·4	211	243	289	324	362	402	468	
	1·6	240	280	332	375	420	467	546	
	1·8	270	322	379	426	478	531	625	
	2·0	300	359	420	473	532	593	698	
	2·3								
	2·6								
	2·9								
	3·2								
	3·5								
	4·0								
	RIVET FAILS.								

TO BE USED WHEN RIVETTING ∓ 222 WITH STEEL RIVETS

DATA BASED ON MECHANICAL TESTS (REFER COMPANY RESEACH REPORT VOL. 2 Nº 3).

DATE OF APPROVAL		
16-8-40	SURFACE PRESSURE (∓222)	T.S.1004



DIA. OF RIVET d MM		1·6	2·0	2·5	2·6	3·0	3·5	4·0	5·0	6·0
4281	τs Kg/mm²	34·1	43·2	41·5	41·2	40·2	39·2	38·2	36·4	34·8
	SHEAR STRENGTH Kg	73·5	136	203	219	284	377	480	715	984
4181	τs Kg/mm²	30·0	28·5	27·3	27·1	26·4	25·8	25·4	24·8	24·3
	SHEAR STRENGTH Kg	60·3	89·5	134	144	183	248	319	488	688
THICKNESS OF PLATE MM	σ_0 Kg/mm²	BEARING STRENGTH OF SHEET Kg. RIVETS 4281 & 4181								
0·3	54	26	32	41	42	49	57	65	81	97
0·4	72	46	58	72	75	86	101	117	144	173
0·5	90	72	90	111	117	135	157	180	225	270
0·6	89·5	86	108	134	140	161	188	215	268	322
0·7	89	100	112	155	162	187	218	249	312	374
0·8	88·5	113	142	177	184	213	248	283	354	424
1·0	87·5	140	175	219	228	263	306	350	438	525
1·2	86·5	167	208	260	270	312	364	415	519	623
1·4	85·5	192	240	300	312	360	419	479	599	718
1·6	84·5	217	270	338	352	406	473	541	760	811
2·0	82·5	265	330	412	428	495	578	660	825	991
2·6	79·5	332	414	515	538	666	723	826	1035	1220

NOTE 1.- THIS TABLE IS FOR SINGLE SHEAR ON A BEARING.

DATE OF APPROVAL	RELATION BETWEEN SHEAR AND BEARING STRENGTHS OF C'SK. RIVETS.	T.S.1075
5 - 12 - 43		

APPENDED TABLE Nº 1

BREAKING LOAD IN KILOGRAMS

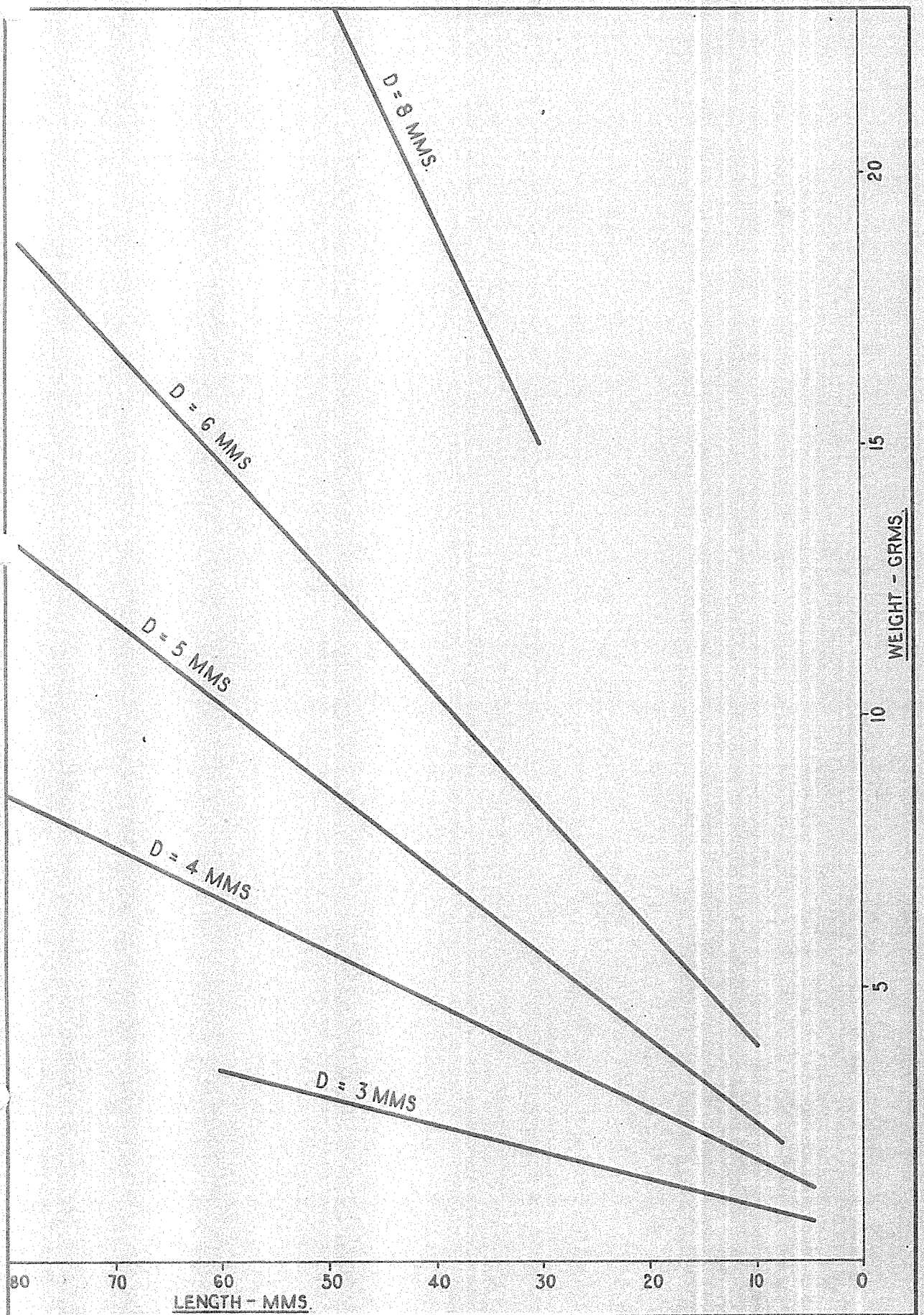
TYPE / DIAMETER (MM)	DOUBLE TWIST SPECIAL STEEL CABLE		SINGLE TWIST SPECIAL STEEL CABLE	
	Nº 1 (7 x 6)	Nº 4 (7 x 7)	Nº 1 (19 x 1)	Nº 2 (37 x 1)
1			110	
1·5	170		252	
2	300		425	
2·5	400		665	
3	550	690	960	
3·5		920	1,270	
4		1,180		1,680
4·5		1,480		2,070
5		1,800		2,560
5·5		2,160		
6		2,550		3,690
USE	FOR RUNNING RIGGING	FOR STATIONARY AND RUNNING RIGGING	FOR STATIONARY RIGGING	

APPENDED TABLE Nº 2

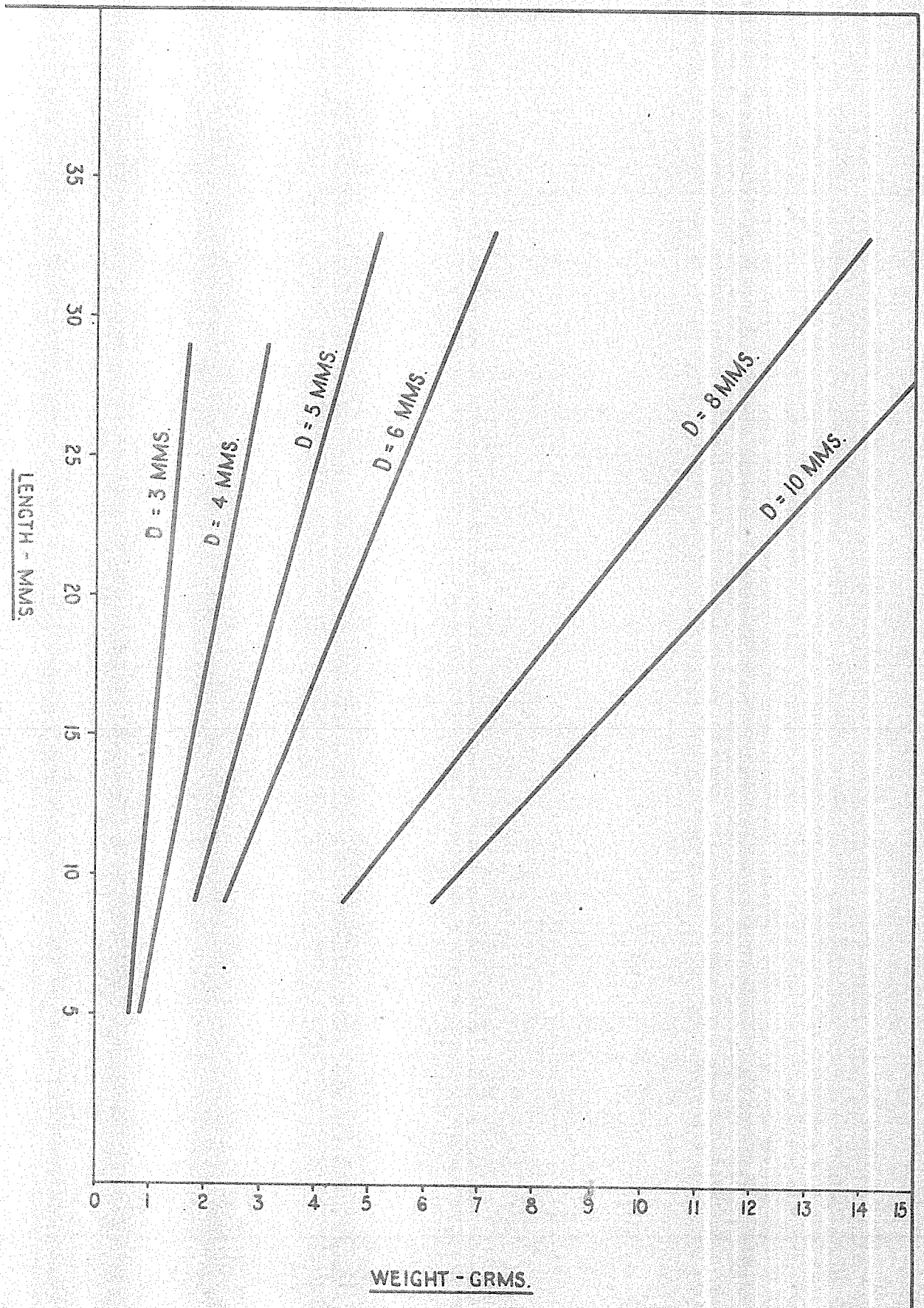
STANDARD WEIGHTS IN KG./100 M

TYPE / DIAMETER (MM)	DOUBLE TWIST SPECIAL STEEL CABLE		SINGLE TWIST SPECIAL STEEL CABLE	
	Nº 1 (7 x 6)	Nº 4 (7 x 7)	Nº 1 (19 x 1)	Nº 2 (37 x 1)
1			0·50	
1·5	0·805		1·09	
2	1·43		1·93	
2·5	2·23		3·02	
3	3·30	3·60	4·35	
3·5		4·90	5·92	
4		6·40		7·63
4·5		8·10		9·66
5		10·00		11·90
5·5		12·20		
6		14·50		17·20

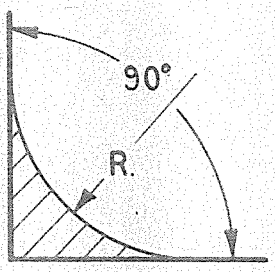
DATE OF APPROVAL	SPECIAL STEEL CABLE.	T.S.1418
10-7-46		



DATE OF APPROVAL	WEIGHTS OF Nº 3 BOLT	
1 - 11 - 43	MATERIAL T 003	T.S. 1501



DATE OF APPROVAL	WEIGHTS OF TAPER PINS.	T.S. 1503
1 - 11 - 43		

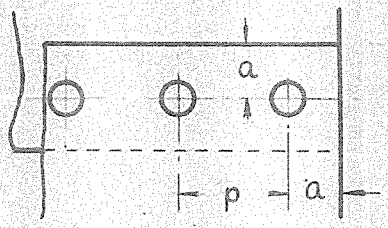


VALID ONLY FOR AN INCLUDED ANGLE OF 90°

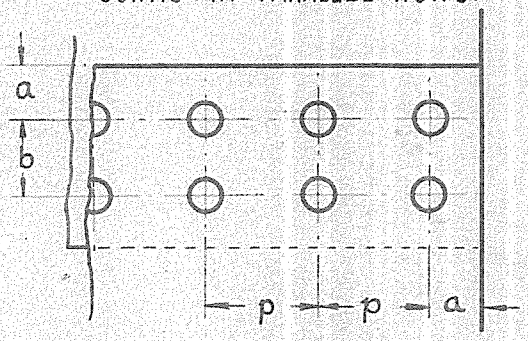
R (mm)	VOLUME CM^3	WEIGHT IN GRAMS	
		DURAL	STEEL
1	0·215	0·61	1·68
1·5	0·5	1·42	3·92
2	0·875	2·48	6·86
2·5	1·35	3·83	10·60
3	1·92	5·42	15·10
4	3·45	9·78	27·0
5	5·38	15·3	42·2
6	7·75	22·0	60·8
7	10·05	28·5	78·5
8	13·7	38·8	107·5
9	17·4	49·4	136·5
10	21·4	61·0	168·0
12	30·8	87·7	242·0
14	42·0	119·0	330·0
15	48·3	137·0	379·0
16	55·0	156·0	432·0
18	68·0	193·0	534·0
20	85·8	244·0	674·0

DATE OF APPROVAL	VOLUME AND WEIGHT OF WELD FILLETS	T.S.1525
1-11-43		

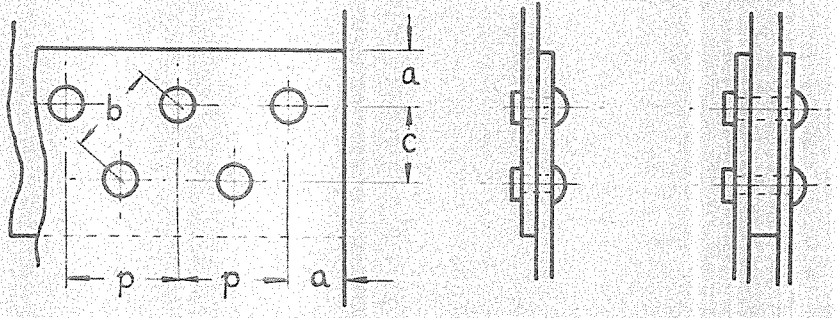
JOINTS IN SINGLE ROW



JOINTS IN PARALLEL ROWS.



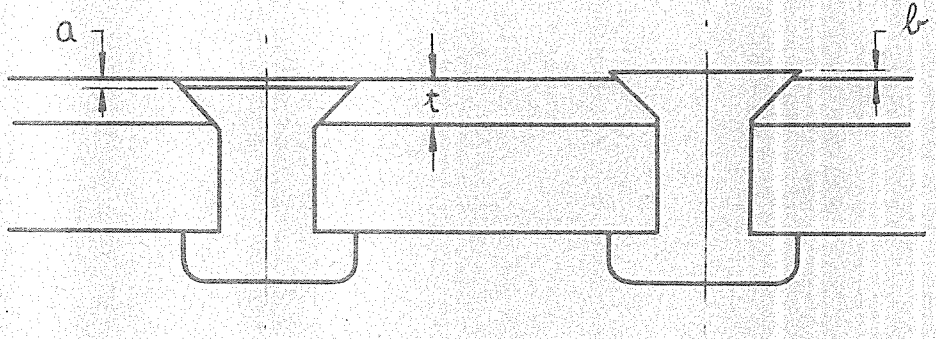
STAGGERED JOINTS.



STANDARD PITCH P	125	15	20	25	30	40	50	60	80	100
RIVET DIA. ø	1·6		2·0		2·6	3·0		3·5	4·0	5·0
MINIMUM PITCH	5		6		8	10		11	12	15
a	5		5		6	7		7	8	10

1. RIVET PITCH (P) WILL BE IN ACCORDANCE WITH THE ABOVE STANDARDS AND SHALL NOT BE VARIED.
2. IN THE CASE OF JOINTS IN PARALLEL ROWS AND STAGGERED JOINTS, "b" IS TO BE GREATER THAN THE MINIMUM PITCH.
3. IN THE CASE OF STAGGERED JOINTS, "C" TO BE 5MM. MINIMUM.
4. WHEN THE DISTANCE BETWEEN THE EXTREME RIVETS IN A ROW IS NOT A MULTIPLE OF THE STANDARD PITCH, VARIATION IN PITCH AT THE ENDS MAY BE MADE.
5. WHEN COUNTERSUNK RIVETS ARE USED WITH PLATES OF THICKNESS LESS THAN 1·0 M.M. THE ABOVE VALUES OF "a" ARE TO BE INCREASED BY 1 MM.
6. RIVET CODE NAMES AND JOINT DESIGNATORS WILL BE IN ACCORDANCE WITH T.S. 2004.

DATE OF APPROVAL	RIVET JOINT STANDARDS	T.S.1610
8 - 9 - 43		



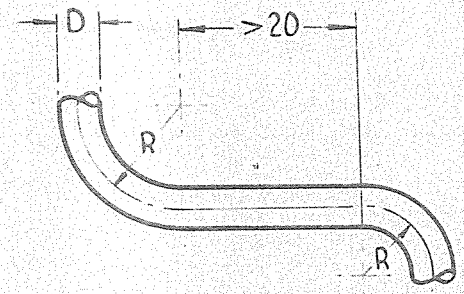
COUNTERSUNK TOO DEEP INSUFFICIENT COUNTERSINKING.

FOR SHEET THICKNESS t > 1·2 MMS.

$a \leq$ 0·15 MM. (·007")

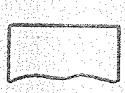
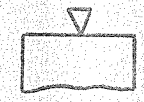
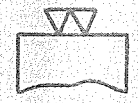
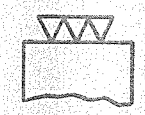
$b \leq$ 0·10 MM (·004")

DATE OF APPROVAL		
8-9-43	STANDARDS FOR COUNTERSUNK HEAD RIVETS	T.S.1617



DIAMETER D	MINIMUM BEND RADIUS
3	10
4	10
6	15
8	15
10	20
12	25
14	30
16	30
18	40
20	40
22	40
25	50
28	60
30	60
32	60
35	70
38	80
40	80
42	80
45	90
48	100
50	100
55	110
60	120

DATE OF APPROVAL	MINIMUM BEND RADII FOR PIPES	T.S.1680

SYMBOL	FINISH	METHOD OF WORKING	EXAMPLES
	NIL	LEFT AS FORGED ROLLED CAST ETC.	APPLICATIONS WHERE SURFACE IS NOT A CONTACT SURFACE.
	ROUGH	WHEN AS FORGED OR CAST FINISH IS SMOOTH, NO FURTHER TREATMENT REQUIRED. IF NOT SMOOTH SIMPLE FINISH TREATMENT SUCH AS FILING OR SAND BLASTING IS REQD.	NON-CONTACT SURFACES WHERE IT IS CONSIDERED A SLIGHTLY BETTER FINISH IS REQUIRED.
	MEDIUM	AS MACHINED FINISH (TURNED, MILLED ETC)	CONTACT SURFACES NON WORKING
	COOD	GROUND	CLOSE TOLERANCE FITS
	HIGH GRADE	GROUND AND POLISHED	WORKING SURFACES

DATE OF DECISION	SYMBOLS INDICATING SURFACE FINISH	
2-8-39		TS 1701

1. THE WEIGHTS OF COMPONENT PARTS ARE CALCULATED FROM THE FOLLOWING

WEIGHT = K × SPECIFIC GRAVITY × DENSITY OF WATER × VOLUME

WHERE K = CO.EFF OF SURFACE IRREGULARITY

V = VOLUME OF PART CALCULATED FROM DRAWING.

2. SPECIFIC GRAVITIES - METALS

MATERIALS	SPECIFIC GRAVITY.
ALUMINIUM	2·7
ALUMINIUM ALLOY	2·84
MAGNESIUM	1·74
MAGNESIUM ALLOY	1·8
COPPER	8·9
BRASS & BRONZE	8·6
STEEL	7·85
CAST IRON	7·3
LEAD	11·34

DATE OF DECISION	CALCULATION OF THE WEIGHT OF PARTS	TACHIKAWA AIRCRAFT COY.
1-12-43.		T. S. 1530-1

NON METALLIC MATERIALS.

	MATERIAL		SPECIFIC GRAVITY
WOOD	WOOD	WOOD A JAPANESE CYPRESS SILVER PINE	0.45
		WOOD B BIRCH BEECH. MIZUME *	0.6
		WOOD C. SHIOJI * YACHIOAMA. *	0.65
		WOOD D. YAMANARASHI * DONOKI *	0.5
	DENSIFIED WOOD	IMPROVED WOOD. No 1. TYPE A BIRCH BEECH	1.5
		LAMINATED WOOD. No 1. JAPANESE CYPRESS. SILVER PINE	0.5
		LAMINATED WOOD. No 2 TYPE A BIRCH	0.8
		LAMINATED WOOD. No 2. TYPE B BEECH	0.7
	PLYWOOD	BIRCH	0.68
		BEECH	0.63
		SHINA. *	0.51
		JAPANESE CYPRESS	0.45
GLASS ETC.		ORDINARY GLASS	2.5
		PLY GLASS	2.5
		PLEXIGLASS	1.2
		CELLULOID	1.35
RUBBER		ORDINARY RUBBER	1.0
		SPONGE RUBBER	0.23
		EBONITE	1.3
		FIBRE	1.5
			1.4
LEATHER	COW HIDE		0.95
	SYNTHETIC HIDE LEATHER		530 gr/m²
AEROPLANE FABRIC	FLAX AEROPLANE FABRIC		140 gr/m²
	HIGH CLASS FLAX CLASS 1		890 gr/m²
	ORDINARY FLAX		690 gr/m²
PAINT	AEROPLANE FABRIC PAINTS TOP & BOTTOM COAT		1300 gr/m²
	METALLIC PAINTS TOP & BOTTOM COAT		35 gr/m²
OTHERS.	ASBESTOS		1.2
	CORK		0.24
	MICA		3.0
	CERAMICS		2.4
	FELT		0.25
*	TIMBERS MARKED THUS HAVE NO KNOWN EUROPEAN EQUIVALENTS		

DATE OF DECISION 1-12-43	WEIGHT CALCULATIONS	TACHIKAWA AIRCRAFT Co TS 1530 2

VALUE OF "K"

THICKNESS OF PLATE (TUBE)		VALUES OF "K"
PLATES	LESS THAN 10 m m	1·06
	LESS THAN 2.0 m m	1·04
	LESS THAN 4·0 m m	1·03
	MORE THAN 4·0 m m	1·02
TUBES	LESS THAN 0·8 m m	1·09
	LESS THAN 1·4 m m	1·06
	MORE THAN 1·4 m m	1·05
MACHINED PARTS		1·0
CAST AND FORGED PARTS		1·1

FOR WELDED PARTS THE FOLLOWING INCREASES IN WEIGHT DUE TO BRAZING WILL BE INCLUDED FOR 1/cm OF WELDING

WELDED PARTS.	2. m m	0·3 gr
	3 m m	0·4
	4 m m	0·5
	5 m m	0·6
	6 m m	0·7 gr

THE INCREASE OF WEIGHTS DUE TO RIVETTING & PAINTING WILL NOT BE INCLUDED IN THE WEIGHTS OF PARTS

RECORDS

CALCULATION OF THE WEIGHTS OF PARTS AS A GENERAL RULE WILL BE ENTERED IN THE WEIGHTS COLUMN ON THE DRAWING

THE "WEIGHTS OF THE PARTS" ENTERED MUST SHOW THE WEIGHT OF THE NUMBER OF ARTICLES SHOWN ON THE TABLE OF MATERIALS

"WEIGHTS OF PARTS" ENTRIES ARE TO BE MADE IN GRAMMES WORKING TO THE NEAREST WHOLE NUMBER

DATE OF DECISION	CALCULATED WEIGHTS OF PARTS	TACHIKAWA AIRCRAFT COY
1 12. 43		T.S. 1530-3

Nº 7

COMPARISON WITH VARIOUS FIGHTERS

7·1 MEASUREMENTS

	3 WING SPAN METRES	4 MAX LENGTH METRES	5 MAX HEIGHT METRES	6 WHEEL BASE METRES	7 SPAN TAIL UNIT METRES	8 MAX LENGTH WING SPAN	9 WHEEL BASE WING SPAN	10 SPAN TAIL UNIT WING SPAN
F 27	11·310	7·520	3·000	3·000	4·000	0·665	0·265	0·354
F 43 II	11·437	8·832	3·090	3·400	4·300	0·772	0·297	0·376
F 44 II	9·500	8·850	3·115	3·000	3·500	0·932	0·316	0·369
F 45 II	15·070	10·600	3·700		5·200	0·703		0·345
F 61	12·000	8·750	3·700	4·050	3·800	0·729	0·337	0·317
F 83	15·000	12·500	3·775		5·500	0·807		0·355
F 84 I	11·234	9·740	3·415	3·450	4·500	0·867	0·307	0·400
F 87	13·500	11·560	4·370	3·760	4·910	0·855	0·278	0·364
F 94	14·000	12·000	4·620	4·230	5·000	0·857	0·302	0·357
ZERO	12·000				4·700			0·391
Me 109 E	9·800	8·700	3·450	2·000	3·000	0·895	0·204	0·300
He 112 U	9·100	9·000	3·700	2·550		0·989	0·280	
FW 190 A-5	10·506	9·100	3·755	3·500		0·862	0·332	
HAWKER HURRICANE	12·192	9·575	4·038	2·387		0·785	0·196	
SPITFIRE	11·226	9·118	3·479	1·730		0·811	0·154	
LIGHTNING	15·850	11·532	3·000	5·030	6·630	0·728	0·318	0·418
KITTY HAWK.	11·364	9·663	3·250			0·851		
THUNDERBOLT	12·430	10·620	4·180	4·725	4·880	0·853	0·380	0·392
MUSTANG	11·280	9·830	2·640	3·580	4·010	0·872	0·318	0·356
F4 F-3	11·580	8·740	2·810			0·759		
F6 F								

7·2 SURFACE AREAS

	2 MAIN PLANE AREA SQUARE METRES	3 TAIL PLANE AREA SQUARE METRES	4 ELEVATOR AREA SQUARE METRES	5 FIN AREA SQUARE METRES	6 RUDDER AREA SQUARE METRES	7 AILERON AREA SQUARE METRES	8 FLAP AREA SQUARE METRES	9 TAIL PLANE AREA MAIN PLANE AREA	10 ELEVATOR AREA TAIL PLANE AREA	11 AILERON AREA MAIN PLANE AREA	12 FLAP AREA MAIN PLANE AREA.
f 27	18·56	2·99	0·93	1·475	0·555	1·005×2	0·584×2	0·161	0·310	0·108	0·063
f 43II	22·00	4·08	1·25	1·45	0·788	0·891×2	0·582×2	0·1855	0·306	0·081	0·053
f 44II	15·00	2·69	0·684	1·41	0·651	0·815×2	0·709×2	0·179	0·254	0·109	0·0945
f 45II	32·20	5·09	1·708	2·225	1·188	1·513×2	1·329×2	0·158	0·335	0·094	0·0825
f 61	20·00	2·99	1·056	1·763	0·877	0·879×2	1·15×2	0·1495	0·353	0·088	0·115
f 83	33·70	5·70						0·169	0·250		
f 841	21·00	4·254	1·174	1·587	0·824	0·688×2	1·218×2	0·2025	0·276	0·0655	0·116
f 87	26·00	5·00	1·38	2·366	1·186	0·91×2	1·583×2	0·192	0·276	0·070	0·122
f 94	28·00	5·15	1·67	2·70	1·45	1·14×2	1·70×2	0·184	0·324	0·081	0·1215
ZERO	22·44	3·92	1·08	1·66	0·723	1·182×2	0·75×2	0·1745	0·275	0·105	0·067
Me 109 E	16·20					0·529×2	1·365×2			0·065	0·1085
He 112 U	17·00										
FW 190A-5	18·50	2·89		1·44				0·156			
HAWKER HURRICANE	23·92	3·08	1·25	1·91	1·10	0·91×2	1·11×2	0·129	0·406	0·076	0·093
SPITFIRE	22·48										
LIGHTNING	30·40	7·30	2·28	2·265×2	0·99×2	1·136×2		0·240	0·312	0·075	
KITTY KAWK	21·93										
THUNDERBOLT	27·87	3·911	0·845	2·191	0·929	0·893×2	1·84×2	0·140	0·216	0·064	0·132
MUSTANG	21·92	4·13	1·53	1·93	1·00	0·77×2		0·1885	0·370	0·070	

7·3 WEIGHTS

	WEIGHT Kg											
	WEIGHT FULLY LOADED	TARE WEIGHT	TARE WEIGHT OF ITEMS		DISPOSABLE LOAD	DISPOSABLE LOAD OF ITEMS		B/A	B_1/A	C/A	$\frac{B_2+C_2}{A}$	C_1/A
			AIRFRAME	ENGINE		ARMAMENT	FUEL					
	A	B	B_1	B_2	C	C_1	C_2					
F 27	1,510	1,110	620	490	400	194	206	73·8	41·1	26·5	46·1	12·8
F 432	2,590	1,910	1,135	775	680	280	400	73·7	43·8	26·3	45·3	10·9
F 442	2,765	2,095	1,245	850	670	315	355	75·8	45·0	24·2	43·6	11·4
F 61	3,180	2.380	1465	915	800	400	400	74·8	46·1	25·2	41·3	12·6
F 83	8.980	5.830						65·0				
F 841	3,570	2,625	1,595	1 030	945	455	490	73·5	44·7	26·5	42·6	12·7
F 87	6,160	4,387	2.847	1.540	1,773	638	1,135	71·2	46·3	28·8	43·5	10·4
F 94	6,400	4,600	2,900	1.700	1,800	640	1.160	71·9	45·3	28·1	44·7	10·0
Me 109 E	2,540	2,010	1100	910	530	235	295	79·1	43·3	20·9	47·5	9·2
KITTYHAWK	3,640	2,680			960	630	330	73·6		26·4		17·3
THUNDERBOLT	5,628	4.301			1,327	690	637	76·5		23·5		12·25
LIGHTNING	6,120	5,310			810			86·7		13·3		

7·4 COMPARISONS

	2 WING LOADING G/S	3 ENGINE H.P N	4 RELITIVE DENSITY AT ENGINE RATED ALT C/P_0	5 POWER LOADING N/S	6 POWER LOADING $N/P/P_0$	7 POWER WEIGHT RATIO G/N	8 POWER WEIGHT RATIO $\frac{G}{N}/P/P_0$	9 $\frac{G}{N}\sqrt{\frac{G}{3}}$	10 $2/C_X$
F 27	81·4	800	0·7047	49·1	61·1	1·875	1·32	16·94	
F 432	117·7	950	0·5629	43·1	76·5	2·73	1·54	29·65	
F 442	184·5	1,320	0·5849	88·0	150·5	2·095	1·225	28·50	
F 45II	160·0								
F 61	159·0	1,100	0·6547	55·0	84·0	2·89	1·89	36·5	
F 83	266·5								
F 841	170·0	1,440	0·5567	68·5	123·0	2·48	1·38	32·4	
F 87	237·0	2,250	0·3994	86·5	216·5	2·74	1·095	42·2	
F 94	228·5	2,100	0·2971	75·0	252·5	3·045	0·905	46·1	
ZERO	105·0								
Me 109 E	156·7	1,050	0·6617	64·8	97·9	2·42	1·60	30·35	
He 112 U									
FW 190 A-5	221·0	1,320	0·5817	71·3	122·6	3·10	1·805	46·2	
HAWKER HURRICANE		1,180	0·5691						
SPITFIRE									
LIGHTNING	201·0								
KITTYHAWK	166·0	1,150	0·6341	52·5	82·8	3·16	2·005	40·75	
THUNDERBOLT	201·9	1,625	0·4492	58·3	130·0	3·465	1·56	49·3	
MUSTANG									
F. 4F-3									
F. 6F.									

7·5 PERFORMANCE.

	2 MAX LEVEL SPEED ALTITUDE Km/hr m	3 CLIMBING RATE OF CLIMB TIME MINS M/SEC 4 ALTITUDE m 5,000	8,000	10,000	12,000	5 SERVICE CEILING m	6 RANGE K. m	7 TAKE OFF TAXI DIST TAXI TIME m/sec	8 LANDING TAXI DIST TAXI TIME m/sec.
F 27									
F 432	515/6000	5'49"/11.79	11'9"/7·80	17'29"/3·49		11,215	1,610	172/	461/
F 442	605/5200	4'21"/1520	9'19"/6·8	16'38"/2·7		11,200	1,170	224/	605/
F 45 II									
F 61	591/6000	5'30"/	10'50"/	17'10/					
F 83									
F 841	624/6100								
F 87	738/11,000		10'46"/1042	14·12/8·86		12,855	1300+30 COMBAT	556/	244/
F 94	720/12000						1200+30 COMBAT	400/16	410/
ZERO									
Me 109 E	570/5000	4'54/				11.000	730	240	300
He 112 U									
FW 90A-5	645/5700		12'42"/			10.500	590	300	
HAWKER HURRICANE									
SPITFIRE									
LIGHTNING	595/2620								
KITTYHAWK	561/4520	8'49"/6·8	23'22"/1.6			8830		343/	262/
THUNDERBOLT	644/9140								
MUSTANG									
F 4F-3									
F 6F									