Anhang / Index

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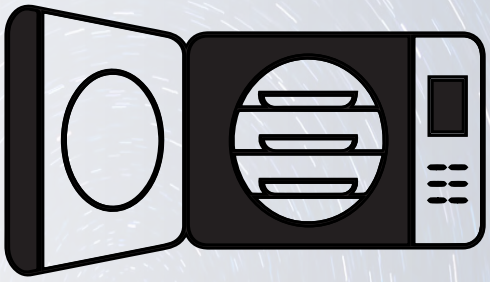


DREHZAHLEMPFEHLUNG
RECOMMENDED SPEED

DE	Hierbei handelt es sich um generelle Richtdrehzahlen, spezifisch empfohlene Drehzahlen befinden sich bei den produktbezogenen Informationen. Die Überschreitung der aufgeführten Drehzahlen kann zu einer Beeinträchtigung der Leistungsfähigkeit der Produkte und/oder zu einer Gefährdung des Patienten bzw. Anwenders führen. Die Auswahl der Arbeitsdrehzahl für einen konkreten Anwendungsfall richtet sich insbesondere auch nach dem jeweils zu bearbeitenden Material, dem verwendeten Instrumentenantrieb sowie den maximalen Anpresskräften und liegt im Ermessen des Anwenders.
EN	The recommended speed are a indicative value, you can find the specific recommended speed in the productrelated information. To over exceed the given rotation speed can lead to impairment of the efficiency of the products and/or be of danger for the patient as well as the user. The choice of the working speed for a specific application case is determined by the material subsequently to be used, the instrument power, and the maximal down force pressure ultimately decided upon by the user.
FR	Il s'agit ici de vitesses de rotation indicatives générales, vous trouverez les vitesses de rotation recommandées spécifiques dans les informations relatives au produit. Le dépassement des vitesses de rotation indiquées peut nuire aux performances des produits et/ou mettre en danger le patient ainsi que l'utilisateur. Le choix de la vitesse de rotation de travail pour un cas concret dépend également du matériau à travailler, du dispositif d'entraînement de l'instrument utilisé ainsi que des forces de pression maximales et relève de l'appréciation de l'utilisateur.
ES	Las revoluciones recomendadas orientativa en cada caso es un valor teórico, las velocidades orientativas recomendadas se encuentran en los folletos informativos de los productos. Revoluciones superiores a los limites recomendados pueden perjudicar la eficaz de los instrumentos y/o llevar a daños al paciente respectivamente al usuario. La velocidad de trabajo para una aplicación concreta depende también del material que se elabora, de la pieza de mano que se usa así como de la máxima presión de trabajo y del critério del profesional.

	Mund-, Kiefer & Gesichtschirurgie		
	Handstück HP	**Winkelstück RA**	**Turbine FG**
DE	› empfohlen 6'000 - 10'000 min^{-1} › maximal 40'000 - 50'000 min^{-1}	› empfohlen 6'000 - 10'000 min^{-1} › maximal 40'000 - 50'000 min^{-1}	› empfohlen 80'000 min^{-1} › maximal 100'000 - 120'000 min^{-1}

	Oral & Maxillofacial Surgery		
	Handpiece HP	**Right Angle RA**	**Friction Grip FG**
EN	› recom. 6'000 - 10'000 min^{-1} › max. 40'000 - 50'000 min^{-1}	› recom. 6'000 - 10'000 min^{-1} › max. 40'000 - 50'000 min^{-1}	› recom. 80'000 min^{-1} › max. 100'000 - 120'000 min^{-1}

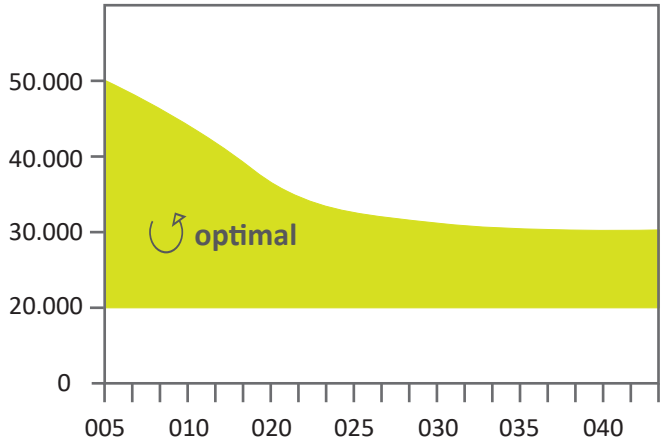
	Chirurgie maxillofaciale		
	Pièce a main HP	**Contre-Angles RA**	**Turbine FG**
FR	› recom. 6'000 - 10'000 min^{-1} › max. 40'000 - 50'000 min^{-1}	› recom. 6'000 - 10'000 min^{-1} › max. 40'000 - 50'000 min^{-1}	› recom. 80'000 min^{-1} › max. 100'000 - 120'000 min^{-1}

	Cirugia buco-maxilo-facial		
	Pieza de mano HP	**Contraángulo RA**	**Turbina FG**
ES	› recom. 6'000 - 10'000 min^{-1} › máximo 40'000 - 50'000 min^{-1}	› recom. 6'000 - 10'000 min^{-1} › máximo 40'000 - 50'000 min^{-1}	› recom. 80'000 min^{-1} › máximo 100'000 - 120'000 min^{-1}

Drehzahl für Diamantinstrumente mit FG-Schaft
Rotating speed for diamond instruments with FG-Shank
Vitesse de rotation pour les instruments diamantés avec tige FG
Velocidades de giro para Instrumentos de Diamante con mandril FG

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
005 - 014	300.000	450.000
015 - 016	280.000	450.000
017 - 018	250.000	450.000
020 - 021	210.000	400.000
022 - 023	190.000	400.000
024 - 025	180.000	350.000
026 - 027	160.000	350.000
028 - 029	150.000	350.000
030 - 031	150.000	300.000
032 - 033	120.000	300.000
034 - 035	120.000	250.000
036 - 040	100.000	250.000
041 - 050	80.000	150.000
051 - 080	60.000	150.000

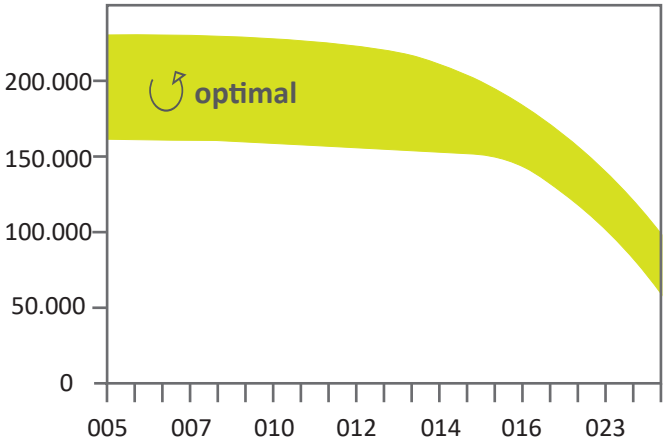
Finieren (Hartmetall- & Diamantinstrumente)
Finishing (Tungsten carbide & Diamond instruments)
Finir (instruments en carbure de tungstène et diamant)
Acabado (instrumentos de carburo de tungsteno y diamante)



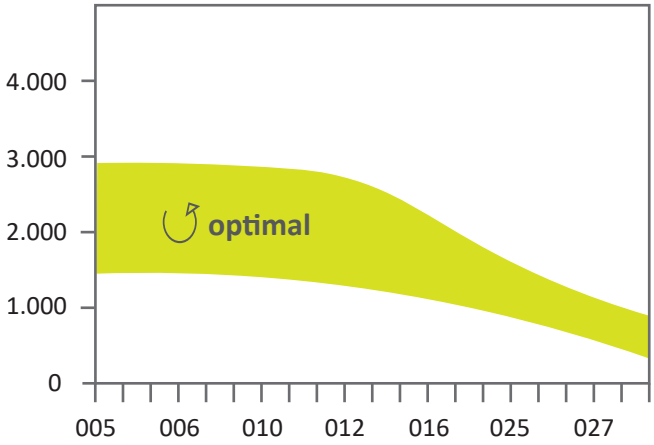
Drehzahl für Hartmetallinstrumente mit FG-Schaft
Rotating speed for tungsten carbide instruments with FG-Shank
Vitesse de rotation pour les instruments en carbure de tungstène avec tige FG
Velocidades de giro para Instrumentos de carburo tungsteno con mandril FG

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
005 - 012	45.000	300.000
013 - 014	20.000	300.000
015 - 016	20.000	280.000
017 - 018	20.000	250.000
020 - 021	20.000	210.000
022 - 023	20.000	190.000
024 - 025	20.000	180.000
026 - 027	15.000	160.000
028 - 031	15.000	150.000
032 - 037	15.000	120.000
039 - 042	15.000	100.000
043 - 055	10.000	80.000
056 - 070	7.000	60.000
071 - 080	5.000	50.000
081 - 095	5.000	45.000

Kronentrennen und Präparieren (Hartmetallinstrumente)
Crown cutting and preparation (carbide instruments)
Coupe et préparation des couronnes (instruments en carbure)
Corte y preparación de coronas (instrumentos de carburo)



Exkavieren (Hartmetall- & Stahlinstrumente)
Excavating (Tungsten carbide & Steel instruments)
Excavation (carbure de tungstène et instruments en acier)
Excavación (instrumentos de carburo de tungsteno y acero)



Drehzahl für Diamant/ Hartmetallinstrumente mit RA und HP-Schaft
Rotating speed for diamond/ carbide Instruments with RA and HP-Shank
Vitesse de rotation pour les Instruments diamantés/en carbure avec tige RA et HP
Velocidades de giro para Instrumentos de diamante/carburo con mandril RA y HP

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
005 - 012	45.000	50.000
013 - 025	20.000	50.000
026 - 045	15.000	50.000
046 - 047	10.000	45.000
048 - 050	10.000	40.000
051 - 060	10.000	35.000
061 - 070	7.000	30.000
071 - 090	5.000	25.000
091 - 110	4.000	20.000
111 - 120	3.000	18.000
121 - 140	3.000	16.000
141 - 160	2.000	14.000
161 - 190	2.000	12.000
191 - 220	1.800	10.000
221 - 300	1.800	10.000

Drehzahl für Stahlinstrumente mit FG-Schaft
Rotating speed for steel instruments with FG-Shank
Vitesse de rotation pour les instruments en acier avec tige FG
Velocidades de giro para Instrumentos instrumentos de acero con mandril FG

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
005 - 008	50.000 - 80.000	200.000
009 - 012	30.000 - 50.000	200.000
014 - 018	15.000 - 25.000	200.000
019 - 027	12.000 - 22.000	200.000
028 - 031	10.000 - 15.000	200.000
032 - 039	5.000 - 8.000	200.000
040 - 060	1.000 - 5.000	200.000

Drehzahl für Stahlinstrumente mit RA und HP-Schaft
Rotating speed for steel instruments with RA and HP-Shank
Vitesse de rotation pour les instruments en acier avec tige RA et HP
Velocidades de giro para Instrumentos instrumentos de acero con mandril RA y HP

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
005 - 014	30.000 - 40.000	50.000
015 - 016	20.000 - 35.000	50.000
017 - 018	20.000 - 35.000	45.000
019 - 020	20.000 - 35.000	45.000
021	12.000 - 20.000	40.000
022 - 023	12.000 - 20.000	35.000
024 - 027	12.000 - 20.000	30.000
028 - 033	12.000 - 20.000	25.000
034 - 042	12.000 - 20.000	20.000
043 - 047	8.000 - 11.000	18.000
048 - 055	8.000 - 11.000	15.000
056 - 065	8.000 - 11.000	12.000
066 - 085	8.000	10.000
086 - 100	5.000 - 6.500	8.000
101 - 120	5.000	7.000
121 - 140	4.000	6.000
141 - 160	3.000	5.000
161 - 200	3.000	4.000
201 - 220	2.000	3.500

Drehzahl für Schleifkörper mit HP-Schaft
Rotating speed for abrasives with HP-Shank
Vitesse de rotation pour les abrasifs avec tige HP
Velocidad de rotación de los abrasivos con mandril HP

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
020 - 085	15.000 - 20.000	30.000
086 - 120	12.000 - 15.000	20.000
121 - 170	8.000 - 10.000	12.000
171 - 220	5.000 - 6.000	8.000

Drehzahl für Schleifkörper mit RA-Schaft
Rotating speed for abrasives with RA-Shank
Vitesse de rotation pour les abrasifs avec tige RA
Velocidad de rotación de los abrasivos con mandril RA

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
025 - 065	15.000 - 25.000	30.000

Drehzahl für Schleifkörper mit FG-Schaft
Rotating speed for abrasives with FG-Shank
Vitesse de rotation pour les abrasifs avec tige FG
Velocidad de rotación de los abrasivos con mandril FG

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
025 - 030	80.000 - 100.000	120.000

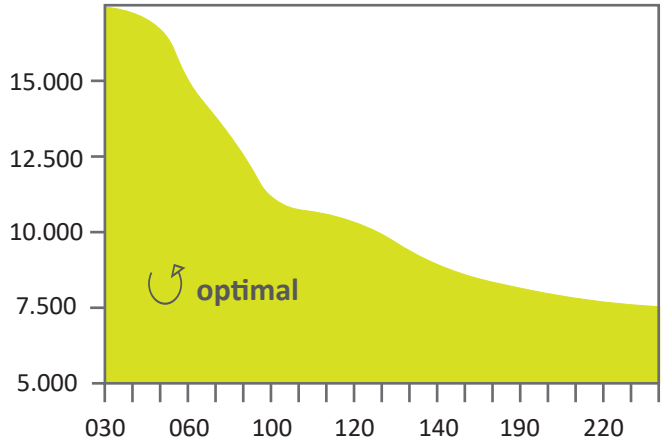
Drehzahlen für Diamantscheiben mit HP-Schaft
Rotating speed for diamond discs with HP-Shank
Vitesse de rotation des disques diamantés avec tige HP
Velocidad de rotación de los discos de diamante con mandril HP

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
050 - 080	30.000	40.000
081 - 170	25.000	30.000
171 - 210	20.000	25.000
211 - 290	15.000	20.000
291 - 390	10.000	15.000
391 - 480	7.000	15.000

Drehzahlen für Trennscheiben mit HP-Schaft
Rotating speed for cut-off wheels with HP-Shank
Vitesse de rotation des disques à couper avec tige HP
Velocidad de rotación de los discos de corte con mandril HP

Arbeitsteildurchmesser Working part diameter Diamètre de la partie travaillante Diámetro del extremo activo	Empfohlene Drehzahl in min^{-1} Recommended speed in rpm Vitesse de rotation recommandée en min^{-1} Velocidad recomendada en rpm	Maximale Drehzahl in min^{-1} Maximum speed in rpm Vitesse maximale en min^{-1} Velocidad máxima en rpm
100 - 400	15.000 - 20.000	20.000

Polierer (RA & HP Schaft)
Polishers (RA & HP Shank)
Polissoirs (tige RA et HP)
Pulidoras (RA y HP Shank)



HINWEISE ZUR WIEDERAUFBEREITUNG & ALLGEMEINE ANWENDUNGS- UND SICHERHEITSHINWEISE

INSTRUCTIONS FOR PROCESING & GENERAL APPLICATION AND SAFETY INSTRUCTIONS

Instructions for the processing
(Cleaning, disinfection, and sterilization)
of instruments from Jota AG
Issued: January 2022

The medical devices produced and sold by Jota AG are re-usable unless their label contains explicit information to the contrary. However, as a rule, it is the sole responsibility of the doctor/expert using the devices to decide whether, depending on the respective case and the potential wear and tear of the products, he can re-use the products and how frequently he uses them. In case of doubt, it is always advisable to discard the products early and to replace them. The manufacturer Jota AG cannot guarantee the faultless function and performance of the products combined with a maximum degree of safety if the products are overused. These reprocessing instructions apply in principle to all medical devices making up the product range supplied by Jota AG. Any particular features and/or exclusions that only concern individual items or groups of items are referred to separately.

Fundamental points

All instruments are classified as semi-critical instruments and are to be cleaned, disinfected, and sterilized prior to each application; this is required as well for the first use after delivery of the unsterile instruments (cleaning and disinfection after removal of the protective packaging, sterilization after packaging). An effective cleaning and disinfection are indispensable requirements for an effective sterilization of the instruments.

You are responsible for the sterility of the instruments. Therefore, please ensure that only sufficiently device and product specifically validated procedures will be used for cleaning, disinfection, and sterilization, that the used devices (WD, sterilizer) will be maintained and checked regularly, as well as that the validated parameters will be applied for each cycle.

Please pay attention to avoid a higher contamination of the complete bur block during application; otherwise, it is necessary to clean and disinfect the bur block as well as all instruments inside (after removal).

Additionally, please pay attention to the legal provisions valid for your country as well as to the hygienic instructions of the doctor´s practice or of the hospital. This applies particularly to the different guidelines regarding the inactivation of prions (not relevant for USA). It also refers to country specific specification of workplaces for cleaning and disinfection.

Some instruments require additional aspects. For this, pay attention-on to chapter "Specific aspects".

Cleaning and disinfecting

Basic:
If possible, an automated procedure (WD (Washer-Disinfector)) should be used for cleaning and disinfection of the instruments. A manual procedure – even in case of application of an ultrasonic bath – should only be used if an automated procedure is not available; in this case, the significantly lower efficiency and reproducibility of a manual procedure has to be considered. The pre-treatment step is to be performed in both cases.

Pre-treatment:
Please remove coarse impurities of the instruments directly after application (within a maximum of 1 h).

Procedure:

1. Rinse the instruments at least 1 min under running water (temperature < 35 °C/95 °F).
2. Soak the instruments at least for the given soaking time in the pre-cleaning solution (e.g. ID 212 forte, 2% for 5 Minutes; by the use of an ultrasonic bath) so that the instruments are sufficiently covered. Pay attention that there is no contact between the instruments. Assist cleaning by careful brushing with a soft brush (at least three times after beginning of soaking, aids see chapter "Specific aspects").
3. Then activate ultrasonic treatment for an additional soaking time (but not less than 5 min).
4. Then, remove the instruments of the pre-cleaning solution and post-rinse them at least three times intensively (at least 1 min) with cold tap water.
5. In case of still visible contamination repeat steps 2, 3, and 4, otherwise discard the instrument. This is especially relevant for diamond instruments.

Pay attention to following points during selection of cleaning detergent 1):

› fundamental suitability for the cleaning of instruments made of metallic or plastic material
› suitability of the cleaning detergent for ultrasonic cleaning (no foam development)
› compatibility of the cleaning detergent with the instruments (see chapter „material resistance„)

Pay attention to the instructions of the detergent manufacturer regarding concentration, temperature and soaking time as well as post-rinsing. Please use only freshly prepared solutions as well as only demineralized sterile or low contaminated water (max. 10 germs/ml) as well as low endotoxin contaminated water (max. 0.25 endotoxin units/ml), for example purified/highly purified water, and a soft, clean, and lint-free cloth and/or filtered air for drying, respectively.

1) In case of application of a cleaning and disinfection detergent for this (e.g. in consequence of personnel´s safety) please consider, that this should be aldehyde-free (otherwise fixation of blood impurities), possess a fundamentally approved efficiency (for example VAH/DGHM or FDA/EPA approval/clearance/ registration or CE marking), be suitable for the disinfection of instruments made of metallic or plastic material, and be compatible with the instruments (see chapter „material resistance„). Please consider, that a disinfectant used in the pre-treatment step serves only the personnel`s safety, but cannot replace the disinfection step later to be performed after cleaning.

Automated cleaning/disinfection (recommended; WD (Washer-Disinfector)):

Pay attention to following points during selection of the WD:

› fundamentally approved efficiency of the WD (for example CE marking according to EN ISO 15883 or DGHM or FDA approval/clearance/ registration)
› possibility for an approved program for thermal disinfection (A0 value > 3000 or – in case of older devices - at least 5 min at 90°C/194 °F; in case of chemical disinfection danger of remnants of the disinfectant on the instruments)
› fundamental suitability of the program for instruments as well as sufficient rinsing steps in the program
› post-rinsing only with demineralized sterile or low contaminated water (max. 10 germs/ml, max. 0.25 endotoxin units/ml), for example purified/highly purified water
› only use of filtered air (oil-free, low contamination with microorganisms and particles) for drying
› regularly maintenance and check/calibration of the WD

Pay attention to following points during selection of the cleaning deter-gent:

› fundamental suitability for the cleaning of instruments made of metallic or plastic material
› additional application – in case of non-application of a thermal dis-infection – of a suitable disinfectant with approved efficiency (for example VAH/DGHM or FDA/EPA approval clearance/registration or CE marking) compatible to the used cleaning detergent
› compatibility of the used detergents with the instruments (see chapter „material resistance„)

Pay attention to the instructions of the detergent manufacturers regarding concentration, temperature and soaking time as well as post-rinsing.

Procedure:

1. Transfer the pre-cleaned instruments in the WD by the use of a small piece's basket or tray.
2. Start the program:
   3 min pre-rinsing with cold tap water (<30°C)
   drain
   10 min cleaning at 50 - 60°C with 0.2-1% Neodisher® Mediclean Dental
   drain
   1 min rinsing with demin. water (40-45°C)
   drain
   1 min rinsing with cold demin. water (<30°C)
   drain
   5 min thermal disinfection for 5 min at 90-92°C with demin. water
   drain
   30 min automatic drying at 100°C
   (wd program)
3. Remove the instruments of the WD after end of the program.
4. Check and pack the instruments immediately after the removal (see chapters „check„, „maintenance„, and "packaging„ if necessary, after additional post-drying at a clean place).

The fundamental suitability of the instruments for an effective automated cleaning and disinfection was demonstrated by an independent, governmentally accredited and recognized (§ 15 (5) MPG) test laboratory by application of the WD G 7835 CD, Miele & Cie. GmbH & Co., Gütersloh, (thermal disinfection) and the pre-cleaning and cleaning detergent neodisher® Mediclean Dental (Dr. Weigert GmbH & Co. KG, Hamburg) con-sidering to the specified procedure.

Manual cleaning and disinfection (not recommended):

Pay attention to following points during selection of the cleaning and disinfection detergents:

› fundamental suitability for the cleaning and disinfection of instruments made of metallic or plastic material
› in case of application of an ultrasonic bath: suitability of the cleaning detergent for ultrasonic cleaning (no foam development)
› application of a disinfectant with approved efficiency (for example VAH/DGHM or FDA/EPA approval/clearance/registration or CE marking) compatible with the used cleaning detergent
› compatibility of the used detergents with the instruments (see chapter „material resistance„)

Combined cleaning/disinfection detergents should not be used.

Only in case of extremely low contamination (no visible impurities) combined cleaning/disinfection could be used.

Pay attention to the instructions of the detergent manufacturers regarding concentration, temperature and soaking time as well as post-rinsing. Please use only freshly prepared solutions as well as only demineralized sterile or low contaminated water (max. 10 germs/ml) as well as low endotoxin contaminated water (max. 0.25 endotoxin units/ml), for example purified/highly purified water, and a soft, clean, and lint-free cloth and/or filtered air for drying, respectively.

Manual Procedure after Pre-treatment:

Manual Cleaning

1. Soak the instruments for the given soaking time in the cleaning solution (e.g. ID 212 forte, 2% for 5 Minutes; by the use of a ultrasonic bath) so that the instruments are sufficiently covered. Pay attention that there is no contact between the instruments. Assist cleaning by careful brushing with a soft brush (at least three times after at beginning of soaking, aids see chapter "Specific aspects").
2. Then activate ultrasonic treatment for an additional soaking time (but not less than 15 min).
3. Then, remove the instruments of the cleaning solution and post-rinse them at least three times intensively (at least 1 min) with water.
4. Check the instruments (see chapters „check„ and „maintenance„).

Manual Disinfection

5. Soak the instruments for the given soaking time in the disinfectant solution (e.g. ID 212 forte, 2% for 1 Minutes; by the use of a ultrasonic bath) so that the instruments are sufficiently covered. Pay attention that there is no contact between the instruments.
6. Then, remove the instruments of the disinfectant solution and post-rinse them at least five times intensively (at least 1 min) with water.
7. Dry and pack the instruments immediately after the removal (see chapter „packaging„, if necessary, after additional post-drying at a clean place).

The fundamental suitability of the instruments for an effective cleaning and disinfection was demonstrated by an independent, governmentally accredited and recognized (§ 15 (5) MPG) test laboratory by application of the pre- cleaning and cleaning detergent and the disinfectant ID 212 forte (Dürr Dental SE, Bietigheim-Bissingen) considering the specified procedure.

Check
Check all instruments after cleaning or cleaning/disinfection, respectively, on corrosion, damaged surfaces, and impurities. Do not further use damaged instruments (for limitation of the numbers of re-use cycles see chapter „reusability„). Still dirty instruments or instruments with visible residuals (under regular light conditions) are to be cleaned and disinfected again.

Maintenance
Instrument oils or grease must not be use except for steel instruments. In that case use only instrument oils (white oil) admitted to steam sterilization considering the maximum possible sterilization temperature, with approved biocompatibility and without mono-, di, or triethanolamine as corrosion inhibitor.

Packaging
Please insert the cleaned and disinfected instruments in the corresponding bur blocks (if required) and pack them in single-use sterilization packaging (single or double packaging), which fulfill the following requirements (material/process):

› EN ISO/ANSI AAMI ISO 11607 (for USA: FDA clearance)
› suitable for steam sterilization (temperature resistance up to at least 142 °C (288 °F), sufficient steam permeability)
› sufficient protection of the instruments as well as of the sterilization packaging to mechanical damage

Sterilization
Please use for sterilization only the listed sterilization procedures; other sterilization procedures must not be applied.

Steam sterilization

› fractionated vacuum/dynamic air removal procedure[2, 3] (with sufficient product drying5)
› steam sterilizer according to EN 13060/EN 285 or ANSI AAMI ST79 (for USA: FDA clearance)
› validated according to EN ISO 17665 (valid IQ/OQ (commissioning) and product specific perfo mance qualification (PQ))
› maximum sterilization temperature 138 °C (280 °F; plus tolerance according to EN ISO 17665)
› sterilization time (exposure time at the sterilization temperature):

Area	fractionated vacuum/dynamic air removal	gravity displacement
USA	at least 4 min at 132 °C (270 °F), drying time at least 20 min[4]	not recommended
other countries	at least 3 min[5] at 132 °C (270 °F) / 134 °C (273 °F), drying time at least 20 min[4]	not recommended

[2] at least three vacuum steps
[3] The less effective gravity displacement procedure must not be used in case of availability of the fractionated vacuum procedure, will require significantly longer sterilization times and is to be validated dependent on product, packaging, sterilizer, program, and parameters under sole responsibility of the user.
[4] The effectively required drying time depends directly on parameters in sole responsibility of the user (load configuration and density, sterilizer conditions, ...) and by this is to be determined by the user. Nevertheless, drying times less than 20 min must not be applied.
[5] respectively 18 min (inactivation of prions, not relevant for USA)

The fundamental suitability of the instruments for an effective steam sterilization was demonstrated by an independent, governmentally accredited and recognized (§ 15 (5) MPG) test laboratory by application of the steam sterilizer EHS 3870 (Tuttnauer, Breda Netherlands) and the fractionated vacuum/dynamic air removal procedure. For this, typical conditions in clinic and doctor´s practice as well as the specified procedure were considered.

The flash/immediate use sterilization procedure must not be used. Do not use dry heat sterilization, radiation sterilization, formaldehyde, and ethylene oxide sterilization, as well as plasma sterilization.

Storage
Please store the instruments after sterilization in the sterilization packaging's at a dry and dust-free place.

Material resistance
Please take care that the listed substances are not ingredients of the cleaning or disinfection detergent:
› organic, mineral, and oxidizing acids (minimum admitted pH-value 5.5)
› strong lyes (maximum admitted pH-value 11, neutral/enzymatic or alkaline cleaner recommended)[6]
› organic solvents (for example: acetone, ether, alcohol, benzine)
› oxidizing agents (for example: hydrogen peroxide)
› halogens (chlorine, iodine, bromine)
› aromatic, halogenated hydrocarbons

[6] For the bur blocks alkaline cleaners mast not applied (maximum admitted pH-value 9).

Please do not clean any instruments and bur blocks by use of metal brushes or steel wool.

Please do not expose any instruments and bur blocks to temperatures higher than 142 °C (288 °F)!
Please do not apply acidic neutralizing agents or cleaning aids.

Reusability
The instruments can be reused – in case of adequate care and if they are undamaged and clean as indicated in chapter "Specific aspects". The user is responsible for each further use as well as for the use of damaged and dirty instruments (no liability in case of disregard).

Attachment A: Specific aspects

Diamond products and ceramic grinding tools:

› Use particular care during the cleaning of the grinding surfaces and ensure that all residues are removed. Repeat procedure, if visible residuals are given

Bur blocks/instrument trays:

› Cleaning and disinfecting only without products being loaded (products must not be cleaned and disinfected whilst they are in the bur block/ instrument tray)

DE	Das Dokument in der jeweils aktuellsten und gültigen Version sowie in anderen Sprachen finden Sie auf unserer Webseite **www.jota.ch**.
EN	The document in other languages as well as the latest and applicable version you find on the website **www.jota.ch**.
FR	Vous trouverez les documents dans d'autres langues ainsi que la dernière version sur notre site **www.jota.ch**.
ES	Documentos en otras idiomas, así como también la versión más reciente encontrase en nuestra página web **www.jota.ch**.

Instrument group	brush	specific/additional procedure in case of						maximum admitted cycle number (confirmed by validation, but dependent on specific application)	recommended classification according to KRINKO/RKI/BfArM guidance (only German, with respect to intended use)
		pretreatment	manual cleaning/ disinfection	automated cleaning/ disinfection	maintenance	packing	sterilization		
stainless steel instruments	standard	standard	standard	standard	lubrication not admitted	standard	standard	10	critical B
regular steel instruments	standard	standard	standard	standard	lubrication recommended	standard	standard	10	critical B
silicone polisher	standard	standard	standard	standard	lubrication not admitted	standard	standard	5	critical B
endodontic instruments without stopper	endodontic brush	standard	standard	standard	lubrication not admitted	use of bur blocks not admitted	use of bur blocks not admitted	10	critical B
endodontic instruments with stopper	endodontic brush	mounted	mounted move the stopper at least three times during disinfection	mounted	lubrication not admitted	use of bur blocks not admitted	use of bur blocks not admitted	10	critical B
all other instruments	standard	standard	standard	standard	lubrication not admitted	standard	standard	10	critical B

General application and safety instructions
for the medical device from Jota AG
Issued: January 2017

› Jota AG products (dental, maxillary surgery, general surgery,) must only be used by dentists, doctors and/or the respective experts who, due to their training and experience, are intensely familiar with the use of these products and who have the corresponding expertise in the respective specialist fields. The use of surgical products requires relevant expertise and experience in dental implantology, maxillary surgery and/or other surgical fields including diagnosis, preoperative planning and surgical techniques.
› It is the sole responsibility of the doctor in charge who, depending on the respective situation (indication), decides on the actual use of the Jota AG products for each individual case
› All JOTA AG products have been developed for specific applications. Therefore, inappropriate use can result in the premature wear and tear of the products and put patients and users at risk.

Application
› In order to avoid damaging the instruments, they must be removed from the blister pack by pulling off the back-sheet.
› It is essential to only use turbines as well as hand and angle pieces that are technicaly and hygienically faultless, maintained and cleaned.
› The instruments must be rotating when applied on material. They should not be placed on material and then brought to rotation.
› Rotating instruments need to be clamped as far down as possible with their speed set before applying them on the object. are used with the rotary instruments.
› Using the instruments for canting or leveraging should be avoided as it increases the risk of breakage.
› Depending on the application, it is recommended to use protective goggles while using the instruments. Users of diamond disks should use a disk protection device.
› Inappropriate use of the products leads to badly executed work and increased risk.
› When working with dry materials, it is recommended to use a suction cleaning device.
› In particular,users of hand tools should take care to use them gently and with consideration.
› The user must at all times avoid touching the instruments and parts without protection (protective gloves should be worn).
› Thermal bone damage caused by rotating and oscillating tools (e.g. pilot burr, conical burr, expansion burr) must at all times be avoided (user training, working at low speed and with sufficient cooling).
› During intraoral application attention has to be made to the fact that the products are protected against aspiration or falling on the floor.

Use of pressure
› Users of the instruments should at all times avoid applying excessive pressure. This can damage the working part of the instruments and cause the cutting edges to break off. At the same time,it generates excessive heat.
› The use of excessive pressure when using grinding tools can cause the abrasive particles to break off or the instrument to become clogged and lead to heat generation.
› During polishing, excess pressure can lead to heat generation.
› Due to overheating, excess pressure can damage the dental pulp or, due to broken off cutting edges, it can result in undesired rough surfaces. In such cases, even instrument breakage cannot be excluded.

Cooling
› In order to avoid excessive heat generation during preparation, a sterilewater/sodium chloride solution supplied via a permanent external feeding device should be used to ensure sufficient cooling during use of the instruments.
› When using FG instruments that are more than 22 mm long or whose head diameter exceeds 2 mm, additional external cooling is required.
› Insufficient cooling will lead to irreversible damage to the bone and/or the adjacent tissue.

Storage, disinfection, cleaning and sterilization
› Unless there is explicit information to the contrary, all Jota AG products are supplied in non-sterile packaging and, depending on the application, they need to be sterilised prior to use. Prior to their first use on the patient and immediately after each use, all products need to be disinfected and sterilised. Inappropriate cleaning and sterilising of the instruments can result in the patient being infected with harmful bacteria.
› You will find detailed instructions for the disinfecting, cleaning and sterilising of products in the Instructions for the processing of instruments produced by Jota AG on the previous page. We would also be happy to provide you with these instructions at your request. They are also available on the internet at www.jota.ch.
› The products should be stored in appropriate, hygienically maintained containers. The same applies to sterilised instruments. The stored products must be protected from dust, humidity and recontamination. Instructions as to maximum storage duration must be adhered to.

Speed recommendations for rotary instruments
› Following the instrument-specific speed recommendations produces the best results.
› Exceeding the maximum admissible speed (rpm) when using long and pointed instruments tends to produce vibrations that can lead to the destruction of the instrument.
› When using working parts with diameters exceeding the thickness of the shaft, excessive speed can release great centrifugal forces that may cause the shaft to bend and/or the instrument to break. Therefore, the maximum admissible rpm must never be exceeded.
› Please consult the manufacturer's information (see catalogue or www.jota.ch) for the recommended and the maximum admissible speed ranges. Non-compliance with the maximum admissible speed puts safety at risk.
› Generally, the following rules apply:
– The larger the working part of an instrument the lower the speed
– Surgical instruments: suitable for geared down micro-motor hand and angle pieces 10:1 with stable ball bearings. Speed 600 to 800 rpm with physical and, possibly, sterile external cooling or internal cooling when using the respective hand piece.

Discarding worn instruments and parts
› Jota AG products can principally be reused several times – unless specifically indicated and labelled otherwise. Rotating instruments are subject to wear. The option of and accountability for multiple use of a product and the frequency of application is solely the decision and own responsibility of the treating clinician based on the application in each case and the possible wear of the products. If in doubt, the products should always be sorted out early and replaced.
› Broken off cutting edges of instruments cause vibrations and great forces of pressure, which, in turn, leads to broken preparation corners and rough surfaces.
› Bare patches on diamond instruments indicate a lack of abrasive particles and can be a sign of blunt instruments. This leads to excessive temperatures during instrument use.
› Instruments that are bent and/or do not run true should be discarded forthwith.
› With the reuse of disposable products the risk of infection cannot be excluded and a risk-free functional safety cannot be guaranteed.

Additional instructions regarding the use of trepans
› When using trepans, you have to proceed with particular care. For example, it is advisable not to exceed the recommended rpm speed ranges.
› In order to prepare for the actual use of a trepan, it should be set to produce counter-clockwise rotations creating a groove in the bone. Afterwards the trepan can be inserted into this groove and, using clockwise rotations, it can be moved further down.
› Carrying out a prior X-Ray is essential to establish the maximum possible drilling depth and to maintain the necessary distance, for example, to the mandibular nerve. As an additional safety measure to spare the nerve, the axial direction of the trepan countersink attachment, based on the sagittal level of the ascending branch, must be milled laterally at an angle of approx. 15-20°.

Ø < 045 <4000 min⁻¹ Ø ≥ 045 <2000 min⁻¹

Further comments:
› Due to statutory regulations, returned goods can, on principle, only be accepted if the complete batch number is provided. This number can be found on the product packaging.

REF	Fig.				
000502		9765	F	91	
000525		9765	M	91	
001001		1		66	220
001001		1	RF	117	
001001	C	1		52 / 134	198
001002	CQ	1		52 / 134	
001002		11			220
001003	C	1	S	52 / 134	
001071		41		66	
001132		91	RF		224
001171		71			222
001175	C	71			198 / 201
001190	CX	71			147 / 207
001251	C	141	F	111	
001291		141	RF	112	
001291	C	141		111	
001291		4301		124	
001291		4501		125	
001298	C	141	A	112	
001324	Z	801		41 / 137	183
001504		801	EF	17 / 117	178
001513		601	F GRN	77	
001514	SD	602	F		234
001514		801	F	17 / 117	178/178
001523		601	PNK	78	242
001523		601	GRN	74	238
001523	K+M	601	BLU		255
001523		602	PNK		242
001523		602	GRN	74	238
001523		603	PNK		243
001523		603	GRN	74	238
001524		801		17 / 117	178
001524	M	801			184
001524		4801		125	
001524		602	KIW		236
001526	SZ	601			232
001526	SZ	602			232
001534		801	G	17 / 117	178
001544		801	SG	17 / 117	178
002524		802		17	
002534		802	G	17	
010001	C	2		53	198
010001		1102	F	107	
010504		1110		104	
010504		1111		104	
012514	SD	735	SF		135
012514		805	F	18	
012523		735	S PNK		245
012523		736	PNK		245
012524		805		18	178
012524		735	S WHI		251
012526	SZ	736			233
012534		805	G	18	
012544		805	SG	18	
014523		613	GRN		238
014524	M	813			185
019524		806		18	
019534		806	G	18	
023512	K+M	728	GRN		255
023523		728	GRN		241
024512	K+M	727	GRN		254
027512	K+M	735	GRN		254
027523		735	PNK		245
030502		9143	EF	93	
030502		9832		88 / 145	
030503		9504	F	103	
030504		9134	F	98	
030511	ZIR	9862	F	101	
030512		9123	F	92	
030512		9144	F	103	
030512	LS	9872	F	99	
030513		9504	M	103	
030514		9134	M	97	
030514		9813	F	96	
030521	ZIR	9862	M	100	
030522		9123	M	92	
030522	LS	9872	M	99	
030523		9114	M	94	
030523		9115	M	94	
030524	M	807			184
030524		9134	G	97	
030524		9813	M	96	
030525		9826		89	
030533		9109	M	94	
030533		9504	G	102	
030534		9813	G	95	
030544		9360		144	
032524		870		31	

REF	Fig.				
032534		870	G	31	
033524		899		35	
033534		899	G	35	
034511		9581		106	
034512		9580		106	
038514		811	F	19	
038524		811		19	
038534		811	G	19	
038544		811	SG	19	
039524		811	L	20	
039534		811	LG	20	
039544		811	LSG	20	
041324	Z	818		41	183
041334	Z	818	G	41	183
041523		702	GRN		240
041523		703	GRN		241
041524		818		20	178
042514	SD	716	F		235
042523		622	GRN	74	238
042523		712	GRN		241
042524		815		20	
042524		822		20	
043524		453	WHI		251
043526	SZ	623			232
045000		1163			292
045171		231			147 / 222
064504		231	DEF	124	
067534		907	G	36	
068514		909	F	36	
068524		909		36	181
068534		909	G	36	
068544		909	SG	36	
072524		908		36	
103172		84	RF		223
107002		36		66	221
107006		21			198 / 220
107006	C	21		53	147
107007	C	31		54	199
107019	CX	21		56	
107512	K+M	731	GRN		254
107512	K+M	731	DBR		257
107514	SD	732	F		235
107520	K+M	732	ORA		252
107523		642	GRN		239
107523		731	PNK		245
107523		731	GRN		241
107523	K+M	731	BLU		256
107523		732	PNK		245
107523	K+M	732	BLU		256
107526	SZ	732			233
107533		642	G GRN		241
107534	SD	732	G		235
108514		835	F	23	
108524		835		23	178
108534		835	G	23	
108544		835	SG	23	
109007	RRC	31		58	
109523		624	PNK		243
109523		624	GRN		238
109524		836		23	
109534		836	G	23	
110006	C	21	L	53	
110513		638	F GRN	77	
110514	SD	638	F	72	234
110514		837	F	23	179
110523		638	PNK		243
110523		638	GRN	74	239
110523		639	PNK		243
110523		639	GRN	75	
110523		640	PNK		243
110524		837		23	179
110526	SZ	638			232
110534		837	G	23	
110544		837	SG	23	179
110554		837	MG		179
111514		837	LF	24	
111524		837	L	24	179
111534		837	LG	24	179
111544		837	LSG	24	
112524		837	XL	24	179
112534		837	XLG	24	
113513		9313	F		284
113513		9314	F		284
113534	M	837	G		185
114494		9332	UF		289
114503		9332	EF		288
114504		9306	EF		285
114513		9306	F		283

REF	Fig.				
114513		9332	F		288
114515		9669	F		286
114523		9332	M		288
114524		9306	M		283
114525		9669	M		286
114534		9332	G		288
114534		9623	G		287
115524		837	D	45	
115524		837	LD	45	
116190	CX	460			209
129514		884	F	33	
129524		884		33	
129534		884	G	33	
130514		885	F	33	
130524		885		33	
130534		885	G	33	
130544		885	SG	33	
131504		1112		104	
131514		886	F	33	
131524		886		33	
131534		886	G	33	
131544		886	SG	33	
133533		9108	G		281
137006	C	21	R	54 / 141	
137006	C	33	L	55	
137007	C	31	R	54	
137019	CX	21	GR	57	
137019	CX	21	R	56	
137019	TCX	21	R	56	
137140	CX	72	F		205
137140	CX	486	F		206
137142	C	486	FT		216
137190	CX	72			207
137190	CX	486			209
137524		137		38	
138007	RRC	245		58	
138514		838	F	24	
138524		138		38	
138524		838		24	
138534		838	G	24	
139006	CG	35	RS	59	
139008	C	31	A	55	
139008	C	36	R	55	135
139015	C	31	EF	57	
139524		880		32	
139534		880	G	32	
140514		838	LF	24	
140524		838	L	24	179
140526	Z	838	L	40	182
140534		838	LG	24	
141504		881	EF	33	
141514		881	F	33	
141524		881		33	
141534		881	G	33	
141544		881	SG	33	
142514		882	F	33	181
142524		882		33	181
143007	C	31	RL		199
146544		883	SG	33	
150524		839		24	
155132		92	RF		224
155171		72			222
155172		82	RF		223
156007	RRC	7		58	
156007	RRC	31	R	58	
156524		840		25	
156534		840	G	25	
156544		840	SG	25	
157504		841	EF	25	
157514		841	F	25	
157524		841		25	
157534		841	G	25	
157544		841	SG	25	
158514		842	F	25	
158524		842		25	
158534		842	G	25	
158544		842	SG	25	
159032	CD	133	U	63	
159041	C	133	F	60	
159042	CD	133	F	63	
159071	C	133		60	
159072	CD	133		63	
160494		890	UF	34	
160504		890	EF	34	
160514		890	F	34	
161484	GT	135		121	
161505		645	ARK	79	250
161513		645	F GRN	77	

REF	Fig.				
161524		898		35	
161524		645	KIW		237
164031	C	134	U	60	
164032	CD	134	U	63 / 142	
164041	C	134	F	60	
164042	CD	134	F	63 / 142	
164071	C	134		60	
164072	CD	134		63 / 142	
164494		898	UF	35	
164504		898	EF	35	
164514		898	F	35	
164534		898	G	35	
165494		858	UF	29	
165504		858	EF	29	
165514		858	F	29	
165524		858		29	180
165534		858	G	29	181
165544		858	SG	29	
166031	C	135	U	60	
166032	CD	135	U	63	
166041	C	135	F	60	
166042	CD	135	F	63	
166071	C	135		60	
166072	CD	135		63	
166494		859	UF	29/117	
166504		859	EF	29/118	180
166514		859	F	29/118	180
166524		859		29/118	180
166534		859	G	29/118	
166544		859	SG	29/118	
167504		859	LEF	29/118	
167514		859	LF	29/118	180
167524	M	852			185
167524		859	L	29/118	180
167534		859	LG		180
168002		38			221
168006	C	23		54	199
168007	C	33		55	200
168524		845		25	
168534		845	G	25	
170377	C	290		146	200
171006	C	23	L	54	
171007	C	33	L	55	199
171513		649	F GRN	77	
171514	SD	650	F	72	
171514		846	F	25	
171523		649	GRN	75	239
171523		650	GRN	75	
171523		648	PNK		243
171523		649	PNK	78	243
171523		650	PNK		243
171523		651	GRN	75	
171524		649	KIW		237
171524		846		25	
171534		846	G	25	
171544		846	SG	25	
172007	CBP	847		59	217
172505		6172	ARK	81/143	
172514		847	F	26	
172524		847		26	179
172534		847	G	26	
172544		847	SG	26	
173504		848	EF	26	
173512	K+M	652	GRN		253
173512	K+M	733	DBR		257
173514		848	F	26	
173520	K+M	652	ORA		252
173523		652	GRN	75	
173523		733	PNK		245
173523	K+M	652	BLU		256
173524		733	WHI		251
173524		652	KIW		237
173524		848		26	179
173524	M	854			185
173534		848	G	26	
173544		848	SG	26	
174514	SD	653	F		234
174523		653	GRN		239
177524		847	D	45	
178524		848	D	45	
179524		839	R	24	
183524		854		28	
184072	C	212	L	61	
184140	CX	488	F		206
184524		854	L		180
187140	CX	489	F		205
194006	C	23	R	54/141	
194019	CX	23	R	57	

REF	Fig.				
194019	TCX	23	R	57	
194134	CQ	79	F	147	212
194140	CX	79	F		205
194141	CX	79	SF		204
194142	C	79	FT		216
194175	C	79			202
194176	CQ	79		147	213
194181	C	79	FF		214
194190	CX	79			208
194194	C	79	T		216
194215	C	79	G		203
194220	CX	79	G	146	210
194221	CX	79	GT		216
194224	CX	79	SG		211
194226	C	79	SGT		216
194524		194		38	
195514		855	LF	28	
196002		38	R	66/133	
196006	C	23	SR		199
196008	C	18	R	56/135	
196019	CX	23	SR		199
196140	CX	23	MF		206
196524		855		28	
197514		849	F	27	
197523	K+M	649	R BLU		255
197524		849		27	179
197534		849	G	27	
197544		849	SG	27	
198072	C	375	R	62/142	
198140	CX	138	F		205
198190	CX	138			208
198314	Z	850	F	40	182
198324	Z	850		40	182
198504		850	EF	27	
198505		6198	ARK	81/144	
198514		850	F	27	
198524		850		27	179
198534		850	G	27	179
198544		850	SG	27	
199140	CX	23	F		205
199190	CX	23		147	207
199295	C	151		112/135	
199504		852	EF	28	
199512	K+M	652	R GRN		253
199512	K+M	652	R DBR		257
199514	SD	652	RF		234
199514		852	F	28	180
199523		652	R BLU		256
199523		652	R GRN		239
199523		652	R PNK		244
199524		652	R KIW		237
199524		852		28	180
199526	SZ	652	R		232
199534	SD	652	RG		234
199534		852	G	28	
199534		852	GF	37	
199544		852	SG	28	
200524		852	L	28	
200534		852	LG	28	
201175	C	416			202
201190	CX	416			208
201513		9573	F		269
201523		9573	M		269
201533		9573	G		269
203514	WD	203	F	37	
203524	WD	203		37	
203544	WD	203	SG	37	
204514	WD	204	F	38	
204524	WD	204		38	
204544	WD	204	SG	38	
210295	C	152		61/112	
211215		514			221
213524		873		32	
218524		851		27/136	
219524		851	L	27/136	
220514		857	F	28/136	
220524		857		28/136	
220534		857	G	28/136	
223524		872		32	
225140	CX	30	MF		206
225220	CX	30	M		209
225524		807		18	
225534		807	G	18	
232524		809		19	
232524		809	A	19	
233006	UNC	245		55	
233524		808		18	
233534		808	G	18	

REF	Fig.				
233544		808	SG	18	
234514		808	LF	18	
234524		808	L	18	
234534		808	LG	18	
234544		808	LSG	18	
237001	C	7		53	
237008	C	17		56	
237140	CX	77	F		205
237140	CX	77	MF		206
237171		77			223
237175	C	77			201
237190	CX	77			208
237220	CX	77	M		209
237514		809	RF	19	
237523	B	9912			248
237524		808	R	19	
237524		809	R	19	
237534		809	RG	19	
237544		809	RSG	19	
238006	C	7	L	53/141	
238514		808	RLF	19	
238524		808	RL	19	
238534		808	RLG	19	
238544		808	RLSG	19	
240524		808	D	44	
241524		808	LD	44	
243071		48		67	
243501		9991	EF	105	
243502		9831		88/145	
243502		9834		88/145	
243503		9501	F	103	
243504		9133	F	98	
243511	ZIR	9861	F	100	
243511	ZIR	9866	F		276
243511		9991	F	105	
243512		9121	F	92	
243512		9122	F	92	
243512	LS	9871	F	99	
243512	LS	9876	F		279
243513		9501	M	102	
243513		9503	M	103	
243513		9574	F		269
243514		9133	M	97	
243514		9803	F		273
243514		9812	F	96	
243521	ZIR	9861	M	100	
243521	ZIR	9866	M		275
243522		9121	M	91	
243522		9122	M	91	
243522	LS	9871	M	99	
243522	LS	9876	M		279
243523		663	GRN		240
243523		663	PNK		244
243523		9111	M	94	
243523		9112	M	94	
243523		9113	M	94	
243523		9119	M	94	
243523		9574	M		269
243524		9133	G	97	
243524		9803	M		272
243524		9812	M	95	
243525		9825		89	
243525		9828		89	
243533		9501	G	102	
243533		9502	G	102	
243533		9574	G		268
243534		9803	G		272
243534		9812	G	95	
243544		9361		144	
244504		9315	EF		285
244513		9315	F		284
244524		9315	M		283
244534		9315	G		282
246504		860	EF	29	
246524		860		29	
246534		860	G	29	
247504		861	EF	30	
247514		861	F	30	
247524		861		30	
247534		861	G	30	
249032	C	48	LU	60/141	
249042	C	48	LF	60/141	
249072	C	48	L	60/141	
249494		862	UF	30	
249504		862	EF	30	
249514		862	F	30	
249524		862		30	180
249534		862	G	30	

REF	Fig.				
249544		862	SG	30	
250314	Z	863	F	40	182
250324	Z	863		40	182
250504		863	EF	30	
250514		863	F	30	
250524	M	862			185
250524		863		30	180
250524	M	863			185
250534		863	G	30	
250544		863	SG	30	
251514		863	LF	30	
251524		863	L	30	
254504		831	EF	22	
254514		831	F	22	
254524		831		22	
254534		831	G	22	
254544		831	SG	22	
256514		863	KF	30/137	
256534		863	KG	30/137	
257140	CX	78	MF		206
257171		78			223
257175	C	78			202
257190	CX	78			208
257494		830	UF	22	
257502		9140	EF	93	
257504		830	EF	22	
257512	K+M	666	GRN		254
257514	SD	667	F		235
257514		830	F	22	178
257523		666	GRN	76	240
257523		666	PNK	78	244
257523		667	KIW		237
257523		667	PNK		244
257524		830		22	178
257524		878			181
257526	SZ	667			233
257534		830	G	22	178
257544		830	SG	22	
258494		830	LUF	22	
258504		830	LEF	22	
258514		830	LF	22	
260132		95	RF		224
260140	CX	75	F		205
260171		75			222
260172		85	RF		224
260175	C	75			201
260176	CQ	75		146	213
260190	CX	75			208
260215	C	75	G		203
260220	CX	75	G		210
260224	CX	75	SG		211
260524		875			181
260534		875	G		181
260554		875	MG		181
263524		894		35	
266171		79			223
266172		89			223
266512	K+M	671	GRN		254
266523	K+M	671	BLU		256
266523		671	GRN	76	240
266523		671	PNK		244
266524		671	KIW		237
266524		879			181
266544		879	SG		181
266554		879	MG		181
271524		271		38	
272544		833	KSG	22	
273522		751	DBR		247
273523		665	GRN		240
273523		665	PNK		244
273523		744	GRN		241
273533		744	G GRN		241
273534	B	744	S		248
274032	C	274	U	62/142	
274072	C	274		62/142	
274134	CQ	251	F	147	212
274140	CX	251	F		205
274160	C	251	QX	146	215
274175	C	251			202
274176	CQ	251		147	213
274181	C	251	FF		214
274190	CX	251			208
274215	C	251	G		203
274220	CX	251	G	146	210
274224	CX	251	SG		211
274227	C	251	SGT		216
274504		895	EF	35	
274514	SD	660	F		

REF	Fig.				
274514		895	F	35	
274521		743	S LBR		249
274522		743	S DBR		247
274522	H	7	DBR		247
274523	C	251	CC		215
274524	M	856			185
274524		660	KIW		237
274524		895		35	
274526	SZ	660			232
274534	SD	660	G		235
274534	M	856	G		185
274544		895	SG	35	
275413	ZIR	9972	F		278
275413	ZIR	9974	F		278
275423	ZIR	9972	M		277
275423	ZIR	9974	M		277
275513		9572	F		269
275523		9572	M		269
275533		9572	G		269
277007	CBP	379		59	217
277032	C	379	U	62/142	
277042	C	379	F	62/142	
277072	C	379		62/142	
277190	CX	73			207
277314	Z	833	F	40	182
277324	Z	833		40	182
277494		833	UF	22	
277504		833	EF	22	
277514		833	F	22	
277524		277		39	
277524		833		22	
277534		833	G	22	
277544		833	SG	22	
277932	CD	379	U	63/142	
277942	CD	379	F	63/142	
277972	CD	379		63/142	
278524		833	L	23	
287484	GT	48	L	121	
287524		866		31	
288512	K+M	662	GRN		254
288513		661	F GRN	77	
288514	SD	661	F	72	
288514		867	F	31	
288523		662	GRN	76	240
288523		661	GRN	76	239
288523		661	PNK	78	244
288523		662	PNK		244
288524		661	KIW		237
288524		867		31	
288526	GP	662		73	
288534		867	G	31	
289190	CX	139			208
289504		868	EF	31	
289514		868	F	31	
289524		868		31	180
289534		868	G	31	
289544		868	SG	31	
290072	C	245		61	
290504		869	EF	31	
290514		869	F	31	
290524		869		31	181
290534		869	G	31	
290544		869	SG	31	
291514		869	LF	31	
291524		869	L	31	
292140	CX	487	F		206
292190	CX	487			209
292502		9835		148	270
292504		9310	EF		285
292513		9310	F		284
292523		690	GRN		240
292523		9105	M		281
292524		9310	M		283
292533	B	493	BLU		248
292534		892	G		181
292534		9310	G		282
295524		295		39	
296031	C	246	U	61	
297502		9142	EF	93	
297505		660	ARK	80/143	
297505		662	ARK	80/143	
297514	SD	660	F	72	
297514	SD	662	F	73	
297524		877		32	
297534		877	G	32	
297544		877	SG	32	
297544		9363		144	
298072	C	244	K	61/142	

REF	Fig.				
298505		6298	ARK	81/144	
298514		878	F	32	
298524		878		32	
298534		878	G	32	
298544		878	SG	32	
299072	C	245	K	61	
299502		9141	EF	93	
299504		879	EF	32	
299514		879	F	32	
299524		879		32	
299534		879	G	32	
300513		9571	F		269
300523		9571	M		269
300533		9571	G		269
303504		9132	F		275
303511	ZIR	9865	F		276
303512	LS	9875	F		279
303513		9304	F		283
303514		9132	M		274
303514		9801	F		272
303521	ZIR	9865	M		275
303522	LS	9875	M		279
303524		9132	G		274
303524		9801	M		272
303533		9107	G		280
303534		9801	G		271
304502		9833		88/145	
304512	K+M	722	GRN		254
304512		9124	F	92	
304513		9507	M	103	
304514	SD	722	F		235
304514		9814	F	96	
304522		9124	M	92	
304524		825		20	178
304524		9814	M	96	
304525		9827		89	
304526	SZ	722			233
304534		9814	G	95	
307544		9362		144	
310502		9145	EF	93	
316523		633	GRN		239
316523		734	PNK		245
320101		232	RF	124	
320524		506			258
321524		910	D		188
327524		505			258
327524		916	D		188
332514		911	DF		188
332524		911	D		188
333514		365	D		191
335524		918	D		188
340514		935	DF		189
340524		935	D		189
345524		930	D		189
345524	M	941			185
350524		932	D		189
355514		915	DF		190
355524		915	D		190
356514		914	F		191
358504		921	DEF		190
358514		581	S		259
358514		921	DF		190
358524		581			259
371504		9302	EF		285
371513		9302	F		283
371524		582			259
371524		583			259
371524		584			259
371524		587			259
371524		9302	M		283
371526	SZ	715			233
372434		372	RF	67	225
372504		9131	F		275
372504		9301	EF		285
372511	ZIR	9867	F		276
372512	K+M	716	GRN		254
372512	LS	9877	F		280
372513		9301	F		283
372514		9131	M		274
372514		9802	F		273
372514		9804	F		273
372515		9668	F		286
372521	ZIR	9867	M		276
372522		9131	S		281
372522	LS	9877	M		279
372523		716	GRN		241
372524		9131	G		274
372524		9301	M		282

REF	Fig.				
372524		9802	M		272
372524		9804	M		272
372525		9603	M		281
372525		9604	M		281
372525		9668	M		286
372533		9103	G		280
372534		9301	G		282
372534		9621	G		287
372534		9802	G		271
373514	SD	773	F		235
373523		772	SB GRN		258/289
375523		798	GRN		242
375523		798	PNK		242
377514		940	DF		190
389504		947	DEF		191
389514		947	DF		191
400514		401	DF		190
406297		163	RF	114	
407297		164	RF	114	
407297	C	164		113	
408295	C	161		113	
408297		162		114	
408297		162	RF	114	
408297	C	162		113	
408297		165	RF	114	
408298	CX	161	R	113	
409019	CX	162	A	113	
409297		166		115	
409297		166	RF	114	
409297	C	166		113	
410297		167	RF	115	
411297		168		115	
411297		168	RF	115	
411534	D	8411	G	116	
412297		169	RF	115	
415007	C	33	IL	116	
415007	C	34	IL	116	
415296	C	33	T	116	
415296	C	254		115	
417364		203			221
463514		829	F	21	
463524		829		21	
464504		827	EF	21	
465504		820	EF	20	
465514		820	F	20	
465524		820		20	
467211		515			221
467211		515	L		222
467211	C	515		146	200
470381		9119		67	
485001		224	RF	122	
485373		225	RF	120	
486001		229	RF	123	
494020		389		18/136	
494534		802	LG	17	
496071	C	246		61	
496524		888		34	
499072	C	44	E	60/141	
500524		828	B	21	
500524		828	G	21	
500524		828	O	21	
500524		828	R	21	
500524		828	W	21	
500524		828	Y	21	
501524		828	TB	21	
501524		828	TG	21	
501524		828	TO	21	
501524		828	TW	21	
501524		828	TY	21	
507514		893	F	34	
507524		893		34	
508514		508	F	36	
508534		508	G	36	
525504		525	EF	36	
525514		525	F	36	
525524		525		36	
526504		526	EF	36	
526514		526	F	36	
526524		526		36	
535524		865	L	30/137	
539534		888	LG	34	
540504		889	LEF	34	
540514		889	LF	34	
540524		540		39	
540524		889	L	34	
540534		889	LG	34	
543503		9837		90/91/145	
543503		9840		149	270

REF	Fig.				
543511	ZIR	9863	F	101	
543511	ZIR	9868	F		276
543512	LS	9873	F	99	
543512	LS	9878	F		280
543514		9805	F		273
543521	ZIR	9863	M	100	
543521	ZIR	9868	M		276
543522	LS	9873	M	99	
543522	LS	9878	M		279
543524		9805	M		272
543533		1170			293
544514		845	RF	25	
544524		845	R	25	
544544		845	RSG	25	
545514		846	RF	26	
545524		846	R	26	
545534		846	RG	26	
545544		846	RSG	26	
546007	CBP	856		59	217
546503		9150		90/103	
546503		9160		148	284
546504		847	REF	26	
546514		847	RF	26	
546524		847	R	26	
546534		847	RG	26	
546544		847	RSG	26	
549000		1166			293
551534		802	KG	17/136	
552524		834		23	
553524		848	R	27	
556001		229	XLRF	123	
558514		558	F	37	
558524		558		37	
560524	WD	560		38	
561544		830	P	42	
562514		846	KRF	26	
562524		846	KR	26	
562544		837	P	42	
564544		837	RP	42	
565544		847	P	42	
567544		850	P	42	
568544		852	P	42	
569544		855	P	43	
570544		862	P	43	
571544		863	P	43	
572544		868	P	43	
573544		869	P	43	
574544		878	P	43	
575544		879	P	44	
576544		880	P	44	
584524		897	R	35	
585524		847	KR	26	
600523		529			258
600524		529	D		184
600544	AD	120			258
603391		303		67/105	289/224
603391		303	RF		224
604391		305			224
610415		301	L		224/289
612431		327	RF		225/289
612434		320	A		225
622444		314			225
623443		318			225
623444		315			225
632467	SPREADER			133	
640451		171	P	131	
640451		171	PS1	131	
646452		173	P	131	
646452		173	PF	132	
646452		173	PFS1	132	
646452		173	PS1	131	
651453		174	P	131	
651453		174	PF	132	
651453		174	PFS	132	
651453		174	PS1	131	
657455		9107	P	132	
657455		9107	PS	132	
672458		178	S	132	
672458		178	SS	132	
675458		178	L	132	
675458		178	LS	132	
679336		180	GRF	133	
679336		180	GRFS	133	
682336		183	RF	133	
682336		183	RFS	133	
684377		186	RF	117	
693494		849	LUF	27	
693504		849	LEF	27	

REF	Fig.				
693514		849	LF	27	
697003	CQ	1	L	53	
697291	C	1	T	116	
697324	Z	801	L	40/137	182
697514		697	F	39	
697524		697		39	
697524		801	L	17/136	
697534		801	LD	37/119	
697534		801	LG	17/136	
698001		191	RF	133	
698001		191	RFS	133	
698524		698		39	
698524		4802		125	
699031	C	132	U	60	
699032	CD	132	U	63	
699041	C	132	F	60	
699042	CD	132	F	63	
699071	C	132		60	
699072	CD	132		63	
699504		890	LEF	34	
699514		890	LF	34	
707504		893	HEF	35	
	BS	15	FG	173	
	BS	15	MIX	173	
	BS	23	HP		308
	BS	24	FG-RA	173	
	PS	36	FG	173	
	PS	36	HP	173	308
	BS	48	FG-RA	173	
	BS	58	LAB		308
	A	1001		119	
	B	1001		119	
	C	1001		119	
	D	1001		119	
	E	1001		119	
	F	1001		119	
	A	2001		120	
	B	2001		120	
	G	2001		120	
		1320			297
		1322			298
		1325		155	
		1326		159	
		1327		159	
		1330		169	
		1331		168	
		1358			298
		1367		168	
		1372		154	
		1377			297
		1389		167	
		1390		167	
		1391		154	
		1393		161	
		1394		161	
		1395		163	
		1396		160	
		1399		163	
		1401			304
		1411		155	
		1413			302
		1418		156	
		1424		156	
		1427			304
		1431		157	
		1432		153	
		1433			301
		1434			300
		1435		164	
		1436		165	
		1439		162	
		1440		164	
		1441		166	
		1443		158	
		1445			306
		1446			300
		1449		158	
		1451			303
		1452			301
		1453		166	
		1454		171	
		1460		165	299
		1550			293
		1724		157	
		1771		170	
		1832		172	305
		1840		172	306
		1877			305

REF	Fig.				
		1888			303
		1899		162	
		1912		170	
		1916			307
		1920			307
		1921		160	
		1936			299
		1999		169	

Fig.			REF		
A	1001			119	
A	2001			120	
AD	120		600544		258
B	9912		237523		248
B	744	S	273534		248
B	493	BLU	292533		248
B	1001			119	
B	2001			120	
BS	15	FG		173	
BS	15	MIX		173	
BS	23	HP			308
BS	24	FG-RA		173	
BS	48	FG-RA		173	
BS	58	LAB			308
C	1		001001	52 / 134	198
C	1	S	001003	52 / 134	
C	71		001175		198 / 201
C	141	F	001251	111	
C	141		001291	111	
C	141	A	001298	112	
C	2		010001	53	198
C	21		107006	53	147
C	31		107007	54	199
C	21	L	110006	53	
C	21	R	137006	54 / 141	
C	33	L	137006	55	
C	31	R	137007	54	
C	486	FT	137142		216
C	31	A	139008	55	
C	36	R	139008	55	135
C	31	EF	139015	57	
C	31	RL	143007		199
C	133	F	159041	60	
C	133		159071	60	
C	134	U	164031	60	
C	134	F	164041	60	
C	134		164071	60	
C	135	U	166031	60	
C	135	F	166041	60	
C	135		166071	60	
C	23		168006	54	199
C	33		168007	55	200
C	290		170377	146	200
C	23	L	171006	54	
C	33	L	171007	55	199
C	212	L	184072	61	
C	23	R	194006	54/141	
C	79	FT	194142		216
C	79		194175		202
C	79	FF	194181		214
C	79	T	194194		216
C	79	G	194215		203
C	79	SGT	194226		216
C	23	SR	196006		199
C	18	R	196008	56/135	
C	375	R	198072	62/142	
C	151		199295	112/135	
C	416		201175		202
C	152		210295	61/112/135/141	
C	7		237001	53	
C	17		237008	56	
C	77		237175		201
C	7	L	238006	53/141	
C	48	LU	249032	60/141	
C	48	LF	249042	60/141	

Fig.			REF		
C	48	L	249072	60/141	
C	78		257175		202
C	75		260175		201
C	75	G	260215		203
C	274	U	274032	62/142	
C	274		274072	62/142	
C	251	QX	274160	146	215
C	251		274175		202
C	251	FF	274181		214
C	251	G	274215		203
C	251	SGT	274227		216
C	251	CC	274523		215
C	379	U	277032	62/142	
C	379	F	277042	62/142	
C	379		277072	62/142	
C	245		290072	61	
C	246	U	296031	61	
C	244	K	298072	61/142	
C	245	K	299072	61	
C	164		407297	113	
C	161		408295	113	
C	162		408297	113	
C	166		409297	113	
C	33	IL	415007	116	
C	34	IL	415007	116	
C	33	T	415296	116	
C	254		415296	115	
C	515		467211	146	200
C	246		496071	61	
C	44	E	499072	60/141	
C	1	T	697291	116	
C	132	U	699031	60	
C	132	F	699041	60	
C	132		699071	60	
C	1001			119	
CBP	847		172007	59	217
CBP	379		277007	59	217
CBP	856		546007	59	217
CD	133	U	159032	63	
CD	133	F	159042	63	
CD	133		159072	63	
CD	134	U	164032	63 / 142	
CD	134	F	164042	63 / 142	
CD	134		164072	63 / 142	
CD	135	U	166032	63	
CD	135	F	166042	63	
CD	135		166072	63	
CD	379	U	277932	63/142	
CD	379	F	277942	63/142	
CD	379		277972	63/142	
CD	132	U	699032	63	
CD	132	F	699042	63	
CD	132		699072	63	
CG	35	RS	139006	59	
CQ	1		001002	52 / 134	
CQ	79	F	194134	147	212
CQ	79		194176	147	213
CQ	75		260176	146	213
CQ	251	F	274134	147	212
CQ	251		274176	147	213
CQ	1	L	697003	53	
CX	71		001190		147 / 207
CX	21		107019	56	
CX	460		116190		209
CX	21	GR	137019	57	
CX	21	R	137019	56	
CX	72	F	137140		205
CX	486	F	137140		206
CX	72		137190		207
CX	486		137190		209
CX	488	F	184140		206
CX	489	F	187140		205
CX	23	R	194019	57	
CX	79	F	194140		205
CX	79	SF	194141		204
CX	79		194190		208
CX	79	G	194220	146	210
CX	79	GT	194221		216
CX	79	SG	194224		211
CX	23	SR	196019		199
CX	23	MF	196140		206
CX	138	F	198140		205
CX	138		198190		208
CX	23	F	199140		205
CX	23		199190	147	207
CX	416		201190		208
CX	30	MF	225140		206
CX	30	M	225220		209

Fig.			REF		
CX	77	F	237140		205
CX	77	MF	237140		206
CX	77		237190		208
CX	77	M	237220		209
CX	78	MF	257140		206
CX	78		257190		208
CX	75	F	260140		205
CX	75		260190		208
CX	75	G	260220		210
CX	75	SG	260224		211
CX	251	F	274140		205
CX	251		274190		208
CX	251	G	274220	146	210
CX	251	SG	274224		211
CX	73		277190		207
CX	139		289190		208
CX	487	F	292140		206
CX	487		292190		209
CX	161	R	408298	113	
CX	162	A	409019	113	
D	8411	G	411534	116	
D	1001			119	
E	1001			119	
F	1001			119	
G	2001			120	
GP	662		288526	73	
GT	135		161484	121	
GT	48	L	287484	121	
H	7	DBR	274522		247
K+M	601	BLU	001523		255
K+M	728	GRN	023512		255
K+M	727	GRN	024512		254
K+M	735	GRN	027512		254
K+M	731	GRN	107512		254
K+M	731	DBR	107512		257
K+M	732	ORA	107520		252
K+M	731	BLU	107523		256
K+M	732	BLU	107523		256
K+M	652	GRN	173512		253
K+M	733	DBR	173512		257
K+M	652	ORA	173520		252
K+M	652	BLU	173523		256
K+M	649	R BLU	197523		255
K+M	652	R GRN	199512		253
K+M	652	R DBR	199512		257
K+M	666	GRN	257512		254
K+M	671	GRN	266512		254
K+M	671	BLU	266523		256
K+M	662	GRN	288512		254
K+M	722	GRN	304512		254
K+M	716	GRN	372512		254
LS	9872	F	030512	99	
LS	9872	M	030522	99	
LS	9871	F	243512	99	
LS	9876	F	243512		279
LS	9871	M	243522	99	
LS	9876	M	243522		279
LS	9875	F	303512		279
LS	9875	M	303522		279
LS	9877	F	372512		280
LS	9877	M	372522		279
LS	9873	F	543512	99	
LS	9878	F	543512		280
LS	9873	M	543522	99	
LS	9878	M	543522		279
M	801		001524		184
M	813		014524		185
M	807		030524		184
M	837	G	113534		185
M	852		167524		185
M	854		173524		185
M	862		250524		185
M	863		250524		185
M	856		274524		185
M	856	G	274534		185
M	941		345524		185
PS	36	FG		173	
PS	36	HP		173	308
RRC	31		109007	58	
RRC	245		138007	58	
RRC	7		156007	58	
RRC	31	R	156007	58	
SD	602	F	001514		234
SD	735	SF	012514		135
SD	716	F	042514		235
SD	732	F	107514		235
SD	732	G	107534		235
SD	638	F	110514	72	234

Fig.			REF		
SD	650	F	171514	72	
SD	653	F	174514		234
SD	652	RF	199514		234
SD	652	RG	199534		234
SD	667	F	257514		235
SD	660	F	274514		
SD	660	G	274534		235
SD	661	F	288514	72	
SD	660	F	297514	72	
SD	662	F	297514	73	
SD	722	F	304514		235
SD	773	F	373514		235
SPREADER			632467	133	
SZ	601		001526		232
SZ	602		001526		232
SZ	736		012526		233
SZ	623		043526		232
SZ	732		107526		233
SZ	638		110526		232
SZ	652	R	199526		232
SZ	667		257526		233
SZ	660		274526		232
SZ	722		304526		233
SZ	715		371526		233
TCX	21	R	137019	56	
TCX	23	R	194019	57	
UNC	245		233006	55	
WD	203	F	203514	37	
WD	203		203524	37	
WD	203	SG	203544	37	
WD	204	F	204514	38	
WD	204		204524	38	
WD	204	SG	204544	38	
WD	560		560524	38	
Z	801		001324	41 / 137	183
Z	818		041324	41	183
Z	818	G	041334	41	183
Z	838	L	140526	40	182
Z	850	F	198314	40	182
Z	850		198324	40	182
Z	863	F	250314	40	182
Z	863		250324	40	182
Z	833	F	277314	40	182
Z	833		277324	40	182
Z	801	L	697324	40/137	182
ZIR	9862	F	030511	101	
ZIR	9862	M	030521	100	
ZIR	9861	F	243511	100	
ZIR	9866	F	243511		276
ZIR	9861	M	243521	100	
ZIR	9866	M	243521		275
ZIR	9972	F	275413		278
ZIR	9974	F	275413		278
ZIR	9972	M	275423		277
ZIR	9974	M	275423		277
ZIR	9865	F	303511		276
ZIR	9865	M	303521		275
ZIR	9867	F	372511		276
ZIR	9867	M	372521		276
ZIR	9863	F	543511	101	
ZIR	9868	F	543511		276
ZIR	9863	M	543521	100	
ZIR	9868	M	543521		276
	1		001001	66	220
	1	RF	001001	117	
	11		001002		220
	21		107006		198 / 220
	36		107002	66	221
	38		168002		221
	38	R	196002	66/133	
	41		001071	66	
	48		243071	67	
	71		001171		222
	72		155171		222
	75		260171		222
	77		237171		223
	78		257171		223
	79		266171		223
	82	RF	155172		223
	84	RF	103172		223
	85	RF	260172		224
	89		266172		223
	91	RF	001132		224
	92	RF	155132		224
	95	RF	260132		224
	137		137524	38	
	138		138524	38	
	141	RF	001291	112	

Fig.			REF		
	162		408297	114	
	162	RF	408297	114	
	163	RF	406297	114	
	164	RF	407297	114	
	165	RF	408297	114	
	166		409297	115	
	166	RF	409297	114	
	167	RF	410297	115	
	168		411297	115	
	168	RF	411297	115	
	169	RF	412297	115	
	171	P	640451	131	
	171	PS1	640451	131	
	173	P	646452	131	
	173	PF	646452	132	
	173	PFS1	646452	132	
	173	PS1	646452	131	
	174	P	651453	131	
	174	PF	651453	132	
	174	PFS	651453	132	
	174	PS1	651453	131	
	178	S	672458	132	
	178	SS	672458	132	
	178	L	675458	132	
	178	LS	675458	132	
	180	GRF	679336	133	
	180	GRFS	679336	133	
	183	RF	682336	133	
	183	RFS	682336	133	
	186	RF	684377	117	
	191	RF	698001	133	
	191	RFS	698001	133	
	194		194524	38	
	203		417364		221
	224	RF	485001	122	
	225	RF	485373	120	
	229	RF	486001	123	
	229	XLRF	556001	123	
	231		045171		147 / 222
	231	DEF	064504	124	
	232	RF	320101	124	
	271		271524	38	
	277		277524	39	
	295		295524	39	
	301	L	610415		224/289
	303		603391	67/105	289/224
	303	RF	603391		224
	305		604391		224
	314		622444		225
	315		623444		225
	318		623443		225
	320	A	612434		225
	327	RF	612431		225/289
	365	D	333514		191
	372	RF	372434	67	225
	389		494020	18/136	
	401	DF	400514		190
	453	WHI	043524		251
	505		327524		258
	506		320524		258
	508	F	508514	36	
	508	G	508534	36	
	514		211215		221
	515		467211		221
	515	L	467211		222
	525	EF	525504	36	
	525	F	525514	36	
	525		525524	36	
	526	EF	526504	36	
	526	F	526514	36	
	526		526524	36	
	529		600523		258
	529	D	600524		184
	540		540524	39	
	558	F	558514	37	
	558		558524	37	
	581	S	358514		259
	581		358524		259
	582		371524		259
	583		371524		259
	584		371524		259
	587		371524		259
	601	F GRN	001513	77	
	601	PNK	001523	78	242
	601	GRN	001523	74	238
	602	PNK	001523		242
	602	GRN	001523	74	238
	602	KIW	001524		236

Fig.			REF		
	603	PNK	001523		243
	603	GRN	001523	74	238
	613	GRN	014523		238
	622	GRN	042523	74	238
	624	PNK	109523		243
	624	GRN	109523		238
	633	GRN	316523		239
	638	F GRN	110513	77	
	638	PNK	110523		243
	638	GRN	110523	74	239
	639	PNK	110523		243
	639	GRN	110523	75	
	640	PNK	110523		243
	642	GRN	107523		239
	642	G GRN	107533		241
	645	ARK	161505	79	250
	645	F GRN	161513	77	
	645	KIW	161524		237
	648	PNK	171523		243
	649	F GRN	171513	77	
	649	GRN	171523	75	239
	649	PNK	171523	78	243
	649	KIW	171524		237
	650	GRN	171523	75	
	650	PNK	171523		243
	651	GRN	171523	75	
	652	GRN	173523	75	
	652	KIW	173524		237
	652	R BLU	199523		256
	652	R GRN	199523		239
	652	R PNK	199523		244
	652	R KIW	199524		237
	653	GRN	174523		239
	660	KIW	274524		237
	660	ARK	297505	80/143	
	661	F GRN	288513	77	
	661	GRN	288523	76	239
	661	PNK	288523	78	244
	661	KIW	288524		237
	662	GRN	288523	76	240
	662	PNK	288523		244
	662	ARK	297505	80/143	
	663	GRN	243523		240
	663	PNK	243523		244
	665	GRN	273523		240
	665	PNK	273523		244
	666	GRN	257523	76	240
	666	PNK	257523	78	244
	667	KIW	257523		237
	667	PNK	257523		244
	671	GRN	266523	76	240
	671	PNK	266523		244
	671	KIW	266524		237
	690	GRN	292523		240
	697	F	697514	39	
	697		697524	39	
	698		698524	39	
	702	GRN	041523		240
	703	GRN	041523		241
	712	GRN	042523		241
	716	GRN	372523		241
	728	GRN	023523		241
	731	PNK	107523		245
	731	GRN	107523		241
	732	PNK	107523		245
	733	PNK	173523		245
	733	WHI	173524		251
	734	PNK	316523		245
	735	S PNK	012523		245
	735	S WHI	012524		251
	735	PNK	027523		245
	736	PNK	012523		245
	743	S LBR	274521		249
	743	S DBR	274522		247
	744	GRN	273523		241
	744	G GRN	273533		241
	751	DBR	273522		247
	772	SB GRN	373523		258/289
	798	GRN	375523		242
	798	PNK	375523		242
	801	EF	001504	17 / 117	178
	801	F	001514	17 / 117	178
	801		001524	17 / 117	178
	801	G	001534	17 / 117	178
	801	SG	001544	17 / 117	178
	801	L	697524	17/136	
	801	LD	697534	37/119	
	801	LG	697534	17/136	

Fig.		REF		
802		002524	17	
802	G	002534	17	
802	LG	494534	17	
802	KG	551534	17/136	
805	F	012514	18	
805		012524	18	178
805	G	012534	18	
805	SG	012544	18	
806		019524	18	
806	G	019534	18	
807		225524	18	
807	G	225534	18	
808		233524	18	
808	G	233534	18	
808	SG	233544	18	
808	LF	234514	18	
808	L	234524	18	
808	LG	234534	18	
808	LSG	234544	18	
808	R	237524	19	
808	RLF	238514	19	
808	RL	238524	19	
808	RLG	238534	19	
808	RLSG	238544	19	
808	D	240524	44	
808	LD	241524	44	
809		232524	19	
809	A	232524	19	
809	RF	237514	19	
809	R	237524	19	
809	RG	237534	19	
809	RSG	237544	19	
811	F	038514	19	
811		038524	19	
811	G	038534	19	
811	SG	038544	19	
811	L	039524	20	
811	LG	039534	20	
811	LSG	039544	20	
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820	EF	465504	20	
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820		465524	20	
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828	R	500524	21	
828	W	500524	21	
828	Y	500524	21	
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828	TW	501524	21	
828	TY	501524	21	
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830	EF	257504	22	
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830	G	257534	22	178
830	SG	257544	22	
830	LUF	258494	22	
830	LEF	258504	22	
830	LF	258514	22	
830	P	561544	42	
831	EF	254504	22	
831	F	254514	22	
831		254524	22	
831	G	254534	22	
831	SG	254544	22	
833	KSG	272544	22	
833	UF	277494	22	
833	EF	277504	22	
833	F	277514	22	
833		277524	22	
833	G	277534	22	
833	SG	277544	22	
833	L	278524	23	
834		552524	23	
835	F	108514	23	
835		108524	23	178
835	G	108534	23	
835	SG	108544	23	

Fig.		REF		
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837	G	110534	23	
837	SG	110544	23	179
837	MG	110554		179
837	LF	111514	24	
837	L	111524	24	179
837	LG	111534	24	179
837	LSG	111544	24	
837	XL	112524	24	179
837	XLG	112534	24	
837	D	115524	45	
837	LD	115524	45	
837	P	562544	42	
837	RP	564544	42	
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838	G	138534	24	
838	LF	140514	24	
838	L	140524	24	179
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840	SG	156544	25	
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841	G	157534	25	
841	SG	157544	25	
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842		158524	25	
842	G	158534	25	
842	SG	158544	25	
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845	G	168534	25	
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845	R	544524	25	
845	RSG	544544	25	
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846	G	171534	25	
846	SG	171544	25	
846	RF	545514	26	
846	R	545524	26	
846	RG	545534	26	
846	RSG	545544	26	
846	KRF	562514	26	
846	KR	562524	26	
847	F	172514	26	
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847	G	172534	26	
847	SG	172544	26	
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847	RG	546534	26	
847	RSG	546544	26	
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849	G	197534	27	
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849	LUF	693494	27	
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850	G	198534	27	179
850	SG	198544	27	
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851	L	219524	27/136	
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852	F	199514	28	180

Fig.		REF		
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854	L	184524		180
855	LF	195514	28	
855		196524	28	
855	P	569544	43	
857	F	220514	28/136	
857		220524	28/136	
857	G	220534	28/136	
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858	EF	165504	29	
858	F	165514	29	
858		165524	29	180
858	G	165534	29	181
858	SG	165544	29	
859	UF	166494	29/117	
859	EF	166504	29/118	180
859	F	166514	29/118	180
859		166524	29/118	180
859	G	166534	29/118	
859	SG	166544	29/118	
859	LEF	167504	29/118	
859	LF	167514	29/118	180
859	L	167524	29/118	180
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860	G	246534	29	
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861		247524	30	
861	G	247534	30	
862	UF	249494	30	
862	EF	249504	30	
862	F	249514	30	
862		249524	30	180
862	G	249534	30	
862	SG	249544	30	
862	P	570544	43	
863	EF	250504	30	
863	F	250514	30	
863		250524	30	180
863	G	250534	30	
863	SG	250544	30	
863	LF	251514	30	
863	L	251524	30	
863	KF	256514	30/137	
863	KG	256534	30/137	
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867	G	288534	31	
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873		213524	32	
875		260524		181
875	G	260534		181
875	MG	260554		181
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878	G	298534	32	

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	879	MG	266554		181
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	880	G	139534	32	
	880	P	576544	44	
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	884		129524	33	
	884	G	129534	33	
	885	F	130514	33	
	885		130524	33	
	885	G	130534	33	
	885	SG	130544	33	
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	886		131524	33	
	886	G	131534	33	
	886	SG	131544	33	
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	895	SG	274544	35	
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	899	G	033534	35	
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	909	G	068534	36	
	909	SG	068544	36	
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	911	DF	332514		188
	911	D	332524		188
	914	F	356514		191
	915	DF	355514		190
	915	D	355524		190
	916	D	327524		188
	918	D	335524		188
	921	DEF	358504		190
	921	DF	358514		190
	930	D	345524		189
	932	D	350524		189
	935	DF	340514		189
	935	D	340524		189
	940	DF	377514		190
	947	DEF	389504		191
	947	DF	389514		191
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	1111		010504	104	
	1112		131504	104	
	1163		045000		292

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	1320				297
	1322				298
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	1377				297
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	1391			154	
	1393			161	
	1394			161	
	1395			163	
	1396			160	
	1399			163	
	1401				304
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	1413				302
	1418			156	
	1424			156	
	1427				304
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	1433				301
	1434				300
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	1439			162	
	1440			164	
	1441			166	
	1443			158	
	1445				306
	1446				300
	1449			158	
	1451				303
	1452				301
	1453			166	
	1454			171	
	1460			165	299
	1550				293
	1724			157	
	1771			170	
	1832			172	305
	1840			172	306
	1877				305
	1888				303
	1899			162	
	1912			170	
	1916				307
	1920				307
	1921			160	
	1936				299
	1999			169	
	4301		001291	124	
	4501		001291	125	
	4801		001524	125	
	4802		698524	125	
	6172	ARK	172505	81/143	
	6198	ARK	198505	81/144	
	6298	ARK	298505	81/144	
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	9105	M	292523		281
	9107	G	303533		280
	9107	P	657455	132	
	9107	PS	657455	132	
	9108	G	133533		281
	9109	M	030533	94	
	9111	M	243523	94	
	9112	M	243523	94	
	9113	M	243523	94	
	9114	M	030523	94	
	9115	M	030523	94	
	9119	M	243523	94	
	9119		470381	67	
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	9121	M	243522	91	
	9122	F	243512	92	
	9122	M	243522	91	
	9123	F	030512	92	
	9123	M	030522	92	
	9124	F	304512	92	
	9124	M	304522	92	

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	9131	M	372514		274
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	9131	G	372524		274
	9132	F	303504		275
	9132	M	303514		274
	9132	G	303524		274
	9133	F	243504	98	
	9133	M	243514	97	
	9133	G	243524	97	
	9134	F	030504	98	
	9134	M	030514	97	
	9134	G	030524	97	
	9140	EF	257502	93	
	9141	EF	299502	93	
	9142	EF	297502	93	
	9143	EF	030502	93	
	9144	F	030512	103	
	9145	EF	310502	93	
	9150		546503	90/103	
	9160		546503	148	284
	9301	EF	372504		285
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	9301	M	372524		282
	9301	G	372534		282
	9302	EF	371504		285
	9302	F	371513		283
	9302	M	371524		283
	9304	F	303513		283
	9306	EF	114504		285
	9306	F	114513		283
	9306	M	114524		283
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	9314	F	113513		284
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	9332	EF	114503		288
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	9504	F	030503	103	
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	9507	M	304513	103	
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	9571	G	300533		269
	9572	F	275513		269
	9572	M	275523		269
	9572	G	275533		269
	9573	F	201513		269
	9573	M	201523		269
	9573	G	201533		269
	9574	F	243513		269
	9574	M	243523		269
	9574	G	243533		268
	9580		034512	106	
	9581		034511	106	
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	9623	G	114534		287
	9668	F	372515		286
	9668	M	372525		286
	9669	F	114515		286
	9669	M	114525		286
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	9801	G	303534		271
	9802	F	372514		273

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	9804	F	372514		273
	9804	M	372524		272
	9805	F	543514		273
	9805	M	543524		272
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	9812	M	243524	95	
	9812	G	243534	95	
	9813	F	030514	96	
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	9813	G	030534	95	
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	9814	M	304524	96	
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	9825		243525	89	
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	9831		243502	88/145	
	9832		030502	88 / 145	
	9833		304502	88/145	
	9834		243502	88/145	
	9835		292502	148	270
	9837		543503	90/91/145	
	9840		543503	149	270
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	9991	F	243511	105	