

National Highway Traffic Safety Administration

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# Special Crash Investigations: On-Site Heavy-Truck Underride Crash Investigation; Vehicle: 2016 Freightliner Cascadia With 2017 Hyundai Translead Semi-Trailer; Location: New York; Crash Date: July 2018

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Special Crash Investigations On-Site Heavy Truck Underride Crash Investigation Case Number: CR18021 Vehicle: 2016 Freightliner Cascadia With 2017 Hyundai Translead Semi-Trailer Location: New York Crash Date: July 2018

### Background

This report documents the on-site investigation of an underride crash involving a 16 m (53 ft) long 2017 Hyundai van-bodied semi-trailer attached to a 2016 Freightliner Cascadia tractor by a 2016 Chevrolet Malibu. The Freightliner was driven by a 35-year-old belted male, who was executing a right turn off a multi-lane roadway into a vacant lot when the right plane of its Hyundai trailer was underriden by the Chevrolet (Figure 1). The Chevrolet was driven by an unbelted 64-year-old female, who exited the vehicle without assistance immediately following the crash and refused medical treatment or transport. The Chevrolet had inflatable supplemental restraints, none of which deployed in this crash.



Figure 1. View of the Chevrolet underriden beneath the semi-trailer (on-scene law enforcement image)

The crash was identified through an online news article by the Special Crash Investigations (SCI) team at Crash Research & Analysis, Inc., in July 2018. The notification was forwarded to the Crash Investigation Division of the National Highway Traffic Safety Administration on the same day and assigned for an on-site investigation. The SCI team obtained information from the investigating law enforcement agency and located the semi-trailer and the Chevrolet. Cooperation was established with the owner of the semi-trailer in July 2018, to inspect it at a regional trucking facility in another State. Cooperation was also established with the Chevrolet's insurer to inspect it at a vehicle salvage facility. The on-site portion of this investigation, which was conducted in July 2018, included inspections and documentation of both the semi-trailer and the Chevrolet, as well as the inspection of the crash site. Inspection of the semi-trailer documented the damage sustained to the frame and aerodynamic skirt, with an evaluation of its conspicuity and documentation of its overall condition. Inspection of the Chevrolet documented the exterior deformation and interior intrusion, evidence of occupant contact, and its manual and

supplemental restraint systems. Data were imaged from the Chevrolet's Event Data Recorder (EDR) using the current version of the Bosch Crash Data Retrieval tool/software. Additionally, both drivers were interviewed. The crash site was documented with digital images and a Nikon total station mapping system. A police crash report (PCR) and on-scene images were obtained from the investigating law enforcement agency.

### Summary

#### **Crash Site**

This crash occurred on a multi-lane, divided roadway on approach to a signalized, four-leg intersection in the afternoon. At the time, the National Weather Service reported conditions in the locale were a temperature of 25 °C (77 °F) with a 56-percent relative humidity, mostly cloudy skies, and a southeasterly wind of 21 km/h (13 mph). In the vicinity of the crash, the straight and level westbound portion of the roadway consisted of five travel lanes: a 3.7 m (12.1 ft) wide left-turn lane, three 3.6 m (11.8 ft) wide travel lanes, and a 3.8 m (12.5 ft) wide right-turn lane (Figure 2).



Figure 2. Southwest-facing view of the westbound lanes in the vicinity of the crash

The travel lanes were delineated by broken white lines, while the turn lanes were designated by single solid white lane lines. The right road edge was bordered by a concrete curb with driveway cutouts, while the left road edge was bordered by a single solid yellow edge line and a box beam median barrier. Road surface composition was asphalt, with the right and center through lanes consisting of a newer asphalt mix with a coarser aggregate. Speed was regulated by a posted limit of 72 km/h (45 mph). The crash occurred in the westbound lanes approximately 45 m (148 ft) east of an intersection. The intersecting north/south roadway consisted of two lanes. The intersection was controlled by a tri-color overhead signal system with a designated left-turn signal. An empty lot, located at the north quadrant of the intersection, was composed of stone, dirt, and an asphalt apron at the curb cutout.

#### Pre-Crash

The tractor/semi-trailer was engaged in a long-distance trip and had arrived in the area to deliver parts racks to an automotive manufacturing facility. According to the Freightliner's driver and its trucking company owner, the load had a weight of 10,955 kg (24,152 lb). The driver of the tractor/semi-trailer stated during the SCI interview that he was not familiar with the delivery locale. He reported that he had exited a limited-access roadway and traveled in a southerly direction before transitioning through a roundabout to proceed westbound on the multi-lane roadway. He was en route to the local factory, but he was unsure of how to enter the facility. As the Freightliner approached the intersection in the right travel lane, he slowed the vehicle in response to the steady red phase of the traffic signal and the surrounding stopped traffic ahead.

The driver stated that at that point, he had traveled almost 3 km (2 mi) since exiting the limited access roadway, and that he was actively looking around to attempt to figure out how to enter the manufacturing facility. The SCI investigator determined that according to internet mapping software, the intersection was located 3.2 km (2.1 mi) from the limited-access exit.

After realizing that his best course of action was to exit the roadway and contact the facility for directions, he identified the vacant lot at the north intersection quadrant. The Freightliner driver stated that he checked his rearview mirrors for approaching traffic and did not see any vehicles behind or to either side of his unit. While continuing westbound in the right travel lane, he engaged his right-turn signal and proceeded to steer right, directing the unit across the right-turn lane and into the curb cutout of the entrance to the open lot. The Freightliner driver reported that his speed was approximately 13 km/h (8 mph). He further stated that he observed the Chevrolet rapidly approach his location in his right mirror as the front of the Freightliner entered the lot.

The driver of the Chevrolet was returning home after shopping at local stores. She reported she had observed the tractor/semi-trailer as it exited the interstate and followed it through the roundabout, then west along the multi-lane roadway. She remained behind the unit as they approached the intersection. The Chevrolet driver's route of travel required her to turn right at the intersection. As the Freightliner slowed in front of her, the driver directed the Chevrolet to the right into the right-turn-only lane and accelerated. She did not see that the Freightliner had engaged its right-turn signal, and she began to overtake the unit on the right. The Chevrolet driver stated during the SCI interview that she thought her speed at the time was 16 to 24 km/h (10 to 15 mph). She further stated that she was wearing her seat belt. However, SCI inspection of the vehicle determined that the Chevrolet driver was unbelted at the time of the crash. As the Chevrolet swung right and began to pass the Hyundai semi-trailer, the Freightliner driver was already maneuvering the unit into the entrance of the lot. The Chevrolet driver initiated panic braking and right steering in an attempt to avoid a crash.



Figure 3. Westward view of the left-side tire marks from the Hyundai trailer

Evidence at the crash site included 1.1 m (3.6 ft) long tire marks from the four left tires of the Hyundai trailer (Figure 3; note that the long straight mark is unrelated). There also were short 0.3 m (1.0 ft) marks from the four right tires of the trailer. These marks were indicative of the leftward shift of the trailer that resulted from the force of the right-plane impact/underride by the

Chevrolet. There were no pre-crash marks from the Chevrolet; only a post-crash gouge mark from its right-front tire that evidenced its post-impact trajectory as it was dragged from the right-turn lane into the entrance of the lot.

#### Crash

The crash occurred as the front plane of the Chevrolet struck and underrode the Hyundai semitrailer. The front-plane, left aspect of the Chevrolet initially contacted the aerodynamic skirt, deflecting the skirt laterally under the semi-trailer.

The hood of the Chevrolet continued underneath the semi-trailer, and the Chevrolet's greenhouse engaged the right frame of the trailer. The left-upper pillars of the Chevrolet, as well as the windshield header and left roof-side rail, were crushed downward and laterally right by the underride. Forces of this engagement lifted the right side of the semi-trailer and shifted it left, evidenced by the tire marks.

The Freightliner driver saw the Chevrolet in his right mirror immediately prior to the crash and felt movement of the Freightliner induced by the impact/underride to the attached Hyundai semitrailer. He immediately brought the unit to a controlled stop, with the rear aspect of the trailer still in the lanes of the roadway. The Chevrolet had become wedged beneath the Hyundai semitrailer by the impact and was dragged a short 2.8 m (9.2 ft) distance westward by the forward movement of the tractor-trailer unit as it came to a controlled stop.

An on-scene law enforcement image (Figure 4) showed the rear aspect of the trailer in the roadway and the trailer tire marks visible on the roadway surface. An image provided by the Freightliner's driver depicted the Chevrolet wedged beneath the Hyundai semi-trailer at final rest (Figure 5). In these images, the tractor and the forward half of the semi-trailer were across the curb line into the vacant lot. The Chevrolet was displaced over the curb with its left-rear tire on the curb line and the other three tires beyond the curb into the vacant lot. At rest, all vehicles were facing westerly.



Figure 4. On-scene westward law enforcement image of the involved vehicles at final rest, the impact tire marks from the Hyundai semi-trailer on the roadway



Figure 5. On-scene southeast-facing image provided by the Freightliner's driver, showing the Chevrolet wedged beneath the Hyundai semi-trailer at final rest

#### Post-Crash

The Freightliner driver exited his tractor following the crash, walked around the front of the unit, and saw the Chevrolet wedged beneath the Hyundai semi-trailer. He ran back to the Chevrolet and saw the female driver exit through the right front door. Both the Freightliner driver and the Chevrolet driver denied injury at the crash scene. The Chevrolet driver was assessed by emergency response personnel, but she was not medically transported.

A local service recovered the Chevrolet from under the semi-trailer and towed it to a local yard, where it was deemed a total loss by its insurer and then transferred to the regional vehicle salvage facility where it was inspected for this investigation. Following the on-scene law enforcement investigation, the Freightliner and Hyundai semi-trailer continued to their destination. After completing delivery, they returned to the company owner's regional terminal in Kentucky. The Freightliner tractor remained in service and was dispatched on another long-distance trip prior to the SCI case assignment; it was not available for SCI inspection. At the request of SCI, the Hyundai semi-trailer was held for SCI inspection.

### 2016 Freightliner Cascadia

#### Description

The tractor involved in this crash was a 2016 Freightliner Cascadia (Figure 6), a conventional cab chassis with a 6x4 driveline configuration. The tractor was not available for SCI inspection; however, the company owner of the tractor provided images of the tractor. The Freightliner was manufactured in September 2015 and identified by the Vehicle Identification Number (VIN) 3AKJGLD58GSxxxxxx. It was powered by a 14.8-liter, inline 6-cylinder, Detroit Diesel DD15EV engine, and had a gross vehicle weight rating (GVWR) of 23,587 kg (52,000 lb). The Freightliner had an integrated sleeper berth and an aerodynamic air deflector. Additional specific equipment and its odometer reading remain unknown.



Figure 6. Right-plane view of the involved Freightliner (image provided by the trucking company)

### 2017 Hyundai Translead Semi-Trailer

#### Description

The Hyundai Translead semi-trailer (Figure 7) was identified by model number VC2530152-AJS and VIN 3H3V532C6HTxxxxx. It was manufactured in Mexico in May 2016. The Hyundai was 16.1 m (53 ft) in length, had a width of 2.6 m (8.5 ft), and was built on a ladder-type frame. It was a fully enclosed van trailer with composite body panels, galvanized steel inner and outer panels, vertically oriented hinged rear doors, and an aluminum roof. The Hyundai's GVWR was 30,844 kg (68,000 lb), with gross axle weight ratings of 9,072 kg (20,000 lb).



Figure 7. Right-front oblique view of the Hyundai Translead semi-trailer at the time of the SCI inspection

The trailer's axles were capable of being adjusted forward or rearward for loading/unloading and dependent on the load or its weight. The manufacturer's recommended tire size was 295/75R22.5 with 8.25x22.5 steel wheels, with recommended maximum cold tire pressure of 689 kPa (100 psi). At the time of the SCI inspection, all eight tires were Yokohama Super Steel RY587 tires of the recommended size. No Tire Identification Numbers (TINs) were visible. There was no crash-related damage sustained by any of the trailer's tires/wheels.

The Hyundai had aerodynamic side skirting between the landing gear and the rear axles. The aerodynamic skirting was manufactured by Ridge Corporation<sup>1</sup> and was marketed by the name Greenwing. The one-piece panels were fiberglass-reinforced composites with a reinforced hem at the bottom edge. The skirts were 6.7 m (22.0 ft) long and 83 cm (32.7 in) tall. Manufacturer-designed mounting brackets were composite materials, labeled as V-Brace 6. These brackets were designed to absorb impact by bending 180 degrees over its length. There were seven brackets bolted to the frame of the semi-trailer, with the skirt bolted to the bracket. The skirts were mounted on the Hyundai's undercarriage. Dimensionally, the skirts were positioned 5.4 m (17.6 ft) forward of the back of the trailer and extended to 12.0 m (39.6 ft) from the back plane.

<sup>&</sup>lt;sup>1</sup> Pataskala, Ohio

#### Damage

There was no damage to or involvement of the Freightliner tractor in the impact by the Chevrolet. Damage to the Hyundai semi-trailer was observed to the right plane, consisting of minor direct contact abrasions to the sidewall of the cargo body and direct contact to the aerodynamic side skirt (Figure 8). On-scene images depicted that the side skirt folded nearly completely up and under the semi-trailer as a result of the impact and engagement of the Chevrolet beneath it.



Figure 8. Right-plane view of the Hyundai trailer and the corresponding damage from the impact and underride engagement by the Chevrolet

Contact damage to the skirt consisted of paint transfers, scuff marks, and abrasions; the panel itself was not fractured. Damage to the semi-trailer began 4.7 m (15.5 ft) forward of the rear plane and extended 5.6 m (18.5 ft) forward to 10.4 m (34.0 ft) forward of the rear plane. For reference, the landing gear was centered 12.5 m (41.0 ft) forward of the rear plane, and the kingpin was located 15.2 m (49.8 ft) forward of the rear plane. Direct contact on the side of the semi-trailer extended vertically to a maximum height of 150 cm (59.1 in) above ground level. For reference, the height of the sill of the semi-trailer was 110 cm (43.3 in) above ground level. Inspection of the undercarriage revealed that there was discernable direct contact to the cross-sectional I-beams of the semi-trailer's ladder frame from 6.5 m (21.3 ft) to 9.6 m (31.4 ft) forward of the rear plane.

The I-beam located at 6.8 m (23.3 ft) forward of the rear plane was deformed slightly rearward. The truck deformation classification (TDC) assigned to the Hyundai was 05RTFWA. Figure 9 depicts the undercarriage and deformed I-beam. The SCI investigator also observed that six of the seven composite mounting brackets were fractured either at or directly below the mounting flange (Figure 10). The forward-most bracket was the only one not damaged by the crash. The observed fractures were not complete through the entire cross-section of the brackets; therefore, the skirt released back down into position after the Chevrolet was removed from beneath the trailer. It remained in place for the duration of the vehicle's return trip to the company owner's regional facility in Kentucky.



Figure 9. Forward-facing view of the Hyundai's undercarriage and the deformed I-beam (third from top)



Figure 10. View of the fractures to the two rearmost side skirt mounting brackets on the Hyundai's right side

Through the course of this investigation, it was noted that although the Hyundai's side skirting provided significant aerodynamic benefit to the truck/tractor combination unit, the skirting provided no benefit from a crash protection perspective. The side skirting was not designed or intended to provide rigid structural protection or prevent underride crash events similar to this crash under investigation.

#### **Semi-Trailer Conspicuity**

The Hyundai had a conspicuity treatment that was certified by its manufacturer to conform to Federal Motor Vehicle Safety Standard No.108. Red and white retroreflective tape was placed on the lower side surfaces of the semi-trailer at the level of the frame. The tape segments were 31 cm (12.2 in) long and consisted of equal lengths of red and white reflective material, spaced on average of 28 cm (11.0 in) apart, covering the full length of the semi-trailer. This red/white reflective tape was also positioned full-width at the bottom surface of the rear doors. Amber marker lights were located at the front and side top corners of the semi-trailer, and a single amber marker light was located on the aerodynamic skirt at the mid-point of the semi-trailer.

Red marker lights were at the aft aspect of the side surfaces, mounted on a bracket below the level of the frame. Five red marker lights were at the top aspect of the back plane: three centered and one at each corner.

The Hyundai was also equipped with a rear underride guard that measured 241 cm (94.9 in) wide and was constructed of 10x10 cm (4.0x4.0 in) box tubing. The guard was positioned 66 cm (26.0 in) below the frame of the semi-trailer, supported by two 15x46 cm (5.9x18.1 in) U-channel brackets, with two 10x4 cm (4.0x1.6 in) box tube braces positioned between the vertical supports. All components of the underride guard were bolted together.

Reflective tape of alternating red and white rectangles extended the width of the beam for conspicuity. The underride guard was not involved in this crash. There also was no prior damage to the guard.

### 2016 Freightliner Cascadia Occupant

#### **Driver Demographics**

| 35 years/male   |
|---|
| Unknown   |
| Unknown   |
| None  |
| Forward-facing suspension seat with reclining seat back |
| Unknown   |
| 3-point lap and shoulder seat belt                      |
| Driver interview  |
| None  |
| None  |
| Exited vehicle without assistance                       |
| None; drove vehicle from scene                          |
| None  |
|   |

#### **Driver Injuries**

| Injury<br>No. | Injury Description | Injury<br>Severity AIS<br>2015 | Involved<br>Physical Component<br>(IPC) | IPC<br>Confidence<br>Level |
|---------------|--------------------|--------------------------------|---|----------------------------|
| N/A           | None               | N/A                            | N/A                                     | N/A                        |

Source: driver interview.

#### **Driver Kinematics**

The 35-year-old male Freightliner driver stated during the SCI interview that he was seated upright in the high-back air suspension seat and belted by the manual seat belt system. As he initiated the right steering input to traverse the right-turn lane, he was looking at the vacant lot where he was going to stop to determine how to reach his destination. He then saw the Chevrolet approach the trailer on the right. As the Chevrolet struck and underrode the right side of the semi-trailer, corresponding engagement lifted the right side of the semi-trailer and shifted it to the left.

Although the driver sensed the induced translation of the forces, he was not displaced from his seated position. He remained in position and belted as he brought the unit to a controlled stop. The driver did not sustain injuries in the crash. He unbuckled his seat belt and exited the tractor. As he walked around the front of the power unit, he saw the Chevrolet lodged under the right side of the semi-trailer and the Chevrolet driver as she crawled out of the vehicle through the right-front door. He waited at the crash scene for emergency response personnel and cooperated with the on-scene law enforcement. Following the completion of the on-scene investigation, he drove the Freightliner and Hyundai to the local delivery location and subsequently traveled to the company owner's regional terminal in Kentucky.

### 2016 Chevrolet Malibu

#### Description

The other vehicle in this crash was a 2016 Chevrolet Malibu (Figure 11) manufactured in March 2016 and identified by the VIN 1G1ZE5ST8GFxxxxx. The Chevrolet was a 4-door sedan equipped with the LT trim level and powered by a 1.5-liter, transverse-mounted, turbocharged, gasoline engine linked to a 6-speed automatic transmission with front-wheel drive. Standard features included power steering, power-assisted 4-wheel disc brakes with ABS, traction control, electronic stability control, and a tire pressure monitoring system. The GVWR was 1,855 kg (4,090 lb), with axle ratings of 963 kg (2,123 lb) front and 892 kg (1,967 lb) rear.



Figure 11. Left-front oblique view of the Chevrolet at the time of the SCI vehicle inspection

The manufacturer's recommended tire size was P225/55R17, with recommended cold tire pressures of 230 kPa (33 PSI) for all four axle positions. At the time of the crash, the Chevrolet had Goodyear Assurance radial tires of the recommended size, mounted on OEM multi-spoke alloy wheels. The tires had matching TINs of M643 JA4R 0616. Only the right-front tire was damaged in the crash, with a 3 cm (1.2 in) hole in the outer sidewall and flat/debeaded from contact with the curb and ground. Corresponding abrasions were present on the circumference of the wheel. The left-front, left-rear, and right-rear tires were all undamaged and remained inflated.

The Chevrolet interior had seating of five occupants (2/3), with front bucket seats and a secondrow bench seat with split forward-folding seat backs. All seat surfaces were cloth. The front, and second-row left and right seats had adjustable head restraints, all in the full-down position at the time of the crash. The driver's seat was an 8-way power adjustable seat.

Manual restraint systems included 3-point lap and shoulder seat belts for all five positions, with retractor and lower anchor pretensioners available for the front-row positions. Supplemental restraint systems included driver's and passenger's frontal air bags, outboard front seat-mounted side impact air bags, and dual-sensing (side impact and rollover) roof side, rail-mounted, inflatable curtain (IC) air bags. None of the Chevrolet's supplemental restraints (pretensioners and air bags) were actuated or deployed relative to this crash.

#### **Exterior Damage**

The front-plane, left aspect of the Chevrolet initially contacted the aerodynamic side skirting of the semi-trailer, then the top surface of the hood engaged and underrode the semi-trailer. The sequence of contact resulted in severe crush and intrusion to the greenhouse/occupant compartment of the Chevrolet. Direct contact damage, such as scratches and abrasions (as well as deformation) to the Chevrolet, was all above the tires/wheels and the level of the mid-door aspect. That is, although the Chevrolet's front-left corner contacted the semi-trailer's aerodynamic side skirt, there was no discernable contact evidence on the bumper fascia or other front-plane components. There were abrasions to the top surface of the hood, and the entire hood was shifted to the right by the damage flow (Figure 12).



Figure 12. Front view of the Chevrolet's greenhouse damage from the semi-trailer underride



Figure 13. Left-plane view of the Chevrolet and the observed roof crush

The left-upper A-pillar, left-upper B-pillar, and left-upper C-pillar were all deformed approximately 80 degrees to the right and slightly rearward (Figure 13). Corresponding collapse of the roof structure was also observed extending at an angle from approximately 25 cm (9.8 in) left of the junction of the right-upper A-pillar/right roof-side rail on the windshield header to approximately 35 cm (13.8 in) right of the junction of the left C-pillar/left roof-side rail on the

backlight header. From this diagonal line to the left, the entire greenhouse structure was crushed vertically to the beltline.

Longitudinally, the direct contact began on the hood at the left-front bumper corner, located at 445 cm (175.2 in) on the baseline, and extended 407 cm (160.2 in) rearward to 38 cm (15.0 in) on the baseline. The baseline was referenced with zero located at the maximum rear overhang. The maximum vertical crush observed to the Chevrolet was 48 cm (18.9 in), observed to the roof structure at the centerline of the vehicle, aft of the windshield header. The collision deformation classification (CDC) assigned to the Chevrolet for the impact to the Hyundai trailer was 10FYHW9. No WinSMASH calculations could be computed as the struck vehicle and impact type were beyond the scope of the model.



Figure 14. Overhead view of the crush to the Chevrolet's greenhouse from the underride impact and engagement

#### **Event Data Recorder**

The 2016 Chevrolet Malibu had an air bag sensing and diagnostic control module (SDM) mounted to the center tunnel beneath the center console. The SDM monitored three-dimensional acceleration and commanded the actuation or deployment of pretensioners and inflatable supplemental restraint systems. The SDM also had EDR capabilities. During the SCI vehicle inspection, the Chevrolet's EDR data were imaged using the Bosch Crash Data Retrieval tool and software version 17.7.2, via a connection through the vehicle's diagnostic link connector and the external supplemental power applied to the vehicle's low-voltage electrical system. The data were later read using software version 21.4.1 and are included as Appendix A.

The EDR could store up to three crash event records, termed "Deployment" or "Nondeployment" event types. By definition, a deployment event was any recognized event in which the SDM commanded deployment of an air bag system. A non-deployment event did not deploy air bags, but it could include pretensioner actuation-only commanded events. Non-deployment events were subject to overwriting by subsequent events of greater severity, whereas deployment event types became locked to memory and could not be overwritten. If power supply to the SDM was lost following a crash event, all or part of the data may not have been recorded to the EDR's memory. The EDR had the capacity to record 300 milliseconds of data once the minimum threshold was achieved. For rollover events, a total of 990 milliseconds of data was recorded: 700 milliseconds leading up to deployment, and 290 milliseconds after deployment. Associated with the recording of each respective event was an asynchronous 5-second pre-crash buffer that recorded pre-crash data points in 0.5-second intervals. Data recorded could include accelerator pedal (% full), service brake (on/off) status, engine speed (rpm), engine throttle (% full), and vehicle speed (mph) data. System status data, inclusive of reported diagnostic trouble codes, seat belt usage of the front-row occupants, and vehicle ignition cycle at the time of the event, were also recorded.

The imaged data reported that no events were currently stored or ever historically recorded by the Chevrolet's SDM. There were no dynamic events, no deployment events, and no OnStar notification events recorded to memory. The data image was obtained on ignition cycle 3,770. The Chevrolet's SDM did not recognize or record a crash event relative to this crash; thus, no supplemental restraint systems (pretensioners or air bags) could be commanded to deploy.

No conclusions concerning the lack of event recognition could be made. However, it was hypothesized that the low speed of the crash and corresponding engagement resulted in a change in velocity that was experienced over an extended time frame, resulting in a low-severity delta V that was not detected.

### 2016 Chevrolet Malibu Occupant

#### **Driver Demographics**

| Age/sex:                   | 64 years/female  |
|----------------------------|--|
| Height:                    | 165 cm (65 in)   |
| Weight:                    | 68 kg (150 lb)   |
| Eyewear:                   | None   |
| Seat type:                 | Forward-facing bucket seat with reclining seat back                                  |
| Seat track position:       | Rear track, [5 cm (2 in) forward of full-rear]                                       |
| Manual restraint usage:    | None used  |
| Usage source:              | Vehicle inspection   |
| Air bags:                  | Driver's frontal, seat-mounted side impact, and IC air bags available; none deployed |
| Alcohol/drug data:         | None   |
| Egress from vehicle:       | Exited unassisted through the right-front door                                       |
| Transport from scene:      | Not medically transported  |
| Type of medical treatment: | None   |

#### **Driver Injuries**

| Injury<br>No. | Injury Description | Injury<br>Severity AIS<br>2015 | Involved<br>Physical Component<br>(IPC) | IPC<br>Confidence<br>Level |
|---------------|--------------------|--------------------------------|---|----------------------------|
| 1             | Back strain, NFS   | 410099.1                       | Torsional bending over center console   | Certain                    |

Source: driver interview.

#### **Driver Kinematics**

The 64-year-old female was seated in the driver's bucket seat of the Chevrolet, with the seat track adjusted to a rear track position, the seat back slightly reclined, and the adjustable head restraint in the full-down position. Based on the SCI vehicle inspection, which found the webbing of the driver's seat belt system retracted against the B-pillar and locked in position by the engagement of the ELR mode of the retractor, the driver was not wearing the manual seat belt system at the time of the crash.

The driver reported to the SCI investigator that she was belted at the time of the crash. She then further stated that she detected the impending impact with the semi-trailer immediately prior to the crash and "dove to the right over the center console." Although the evidence indicated that the driver was not belted at the time of the crash, her lack of injury supports her statement that she contorted her upper torso to the right prior to impact.

At impact, the unbelted driver initiated a forward trajectory. Out of position with her torso stretched right over the center console, and due to her unbelted status, the driver was subjected to unrestricted movement about the Chevrolet interior. Based on her statements and likely positioning at impact, her pelvis was subject to possible contact with the steering wheel rim/column, and her anterior was exposed to possible contact with the center stack.

As the Chevrolet's greenhouse engaged the sill and undercarriage of the semi-trailer, the driver's door, left B-pillar, and left roof-side rail intruded laterally to the right. The entire roof structure was deformed and intruded vertically downward and to the right. The Chevrolet became wedged beneath the semi-trailer and was dragged a short distance to final rest. Despite the severe intrusion of the Chevrolet's greenhouse structure, sufficient survival space remained.

Immediately following the crash, the driver crawled over the front-row right seat, opened the right-front door, and exited without assistance. She denied injury at the scene and refused medical treatment or transport. At the time of the SCI interview (12 days after the crash), the driver complained of an unspecified back strain, whole-body pain localized to the abdominal area, and anxiety. Despite these symptoms, she had not sought medical evaluation or treatment.

### **Crash Diagram**



Appendix A: Event Data Recorder Report for 2016 Chevrolet Malibu<sup>2</sup>

 $<sup>^{2}</sup>$  The EDR report contained in this technical report was imaged using the version of the Bosch CDR software current at the time of the vehicle inspection. The CDR report contained in the associated Crash Viewer application may differ relative to this report.





IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

#### **CDR File Information**

| User Entered VIN                                | 1G1ZE5ST8GF*****                 |
|---|----------------------------------|
| User  |                                  |
| Case Number                                     |                                  |
| EDR Data Imaging Date                           |                                  |
| Crash Date                                      |                                  |
| Filename  | CR18021_V2_ACM.CDRX              |
| Saved on  |                                  |
| Imaged with CDR version                         | Crash Data Retrieval Tool 17.7.2 |
| Imaged with Software Licensed to (Company Name) | NHTSA                            |
| Reported with CDR version                       | Crash Data Retrieval Tool 21.4.1 |
| Reported with Software Licensed to (Company     |                                  |
| Name)   | INTISA                           |
| EDR Device Type                                 | Airbag Control Module            |
| Event(s) recovered                              | None                             |
|   |                                  |

#### Comments

No comments entered.

#### **Data Limitations**

#### **Recorded Crash Events:**

There are two types of recorded crash events for Front, Side, and Rear (FSR) Events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH [8 km/h]. A Non-Deployment Event contains Pre-Crash and Crash data. The oldest Non-Deployment event can be overwritten by a Deployment Event, if all three records are full and the Non-Deployment Event is not locked. A Non-Deployment Event can be overwritten by a more recent Non-Deployment Event if all three records are full and the Non-Deployment is older than approximately 250 ignition cycles. Also, a Non-Deployment event can be recorded if one of the following occurs without the Deployment of any of the frontal air bags, side air bags, pretensioners, or roll bars:

-Head Rest Deployment

-Battery Cut-Off Deployment

The second type of SDM recorded crash event for FSR Events is the Deployment Event. It also may contain Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.

Rollover Events contains Pre-Crash and Crash data. Rollover event follow the same rules as FSR Deployment events. The SDM can store up to three Events.

There are two types of PedPro crash events. The first is the Non-Deployment PedPro Event. A Non-Deployment PedPro Event records data but does not deploy anything. A Non-Deployment PedPro Event may contain Pre-Crash and Crash data. The second type of PedPro recorded crash event is the Deployment PedPro Event. It also may contain Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.

The SDM can store up to two PedPro Events.

#### Data:

For FSR Events, SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event and is also not the Barrier Equivalent Velocity. For Deployment and Non-Deployment Events, the SDM will record up to 300 milliseconds of data after time zero. The SDM will also record up to 300 milliseconds of Vehicle Acceleration data after time zero.

For Rollover Events, the SDM may record Lateral Acceleration, Vertical Acceleration, and Roll Rate data, if the SDM is rollover capable. This data reflects what the sensing system experienced during the recorded portion of the event. For Rollover Deployment Events, the SDM will record up to 700 milliseconds of data before the Deployment criteria is met and 290 milliseconds after the Deployment criteria is met. For FSR and Rollover deployment events, if the Deployment Loop Time from Time Zero to Deployment Loop Command Criteria Met is "Data Invalid", the deployment of the pretensioners and airbags occurred after 253 msec.

-Time between events is recorded in 10 msec intervals and is displayed in seconds for a maximum time of 655.33 seconds. The counter measures the time from the start of one event to the start of the next event, if both events occur within the same ignition cycle. -The Maximum SDM Recorded Vehicle Velocity Change may occur between the recorded 10 millisecond sample points of the SDM Recorded Vehicle Velocity Change.

-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.

-SDM Recorded Vehicle Speed accuracy can be affected by various factors, including but not limited to the following: -Significant changes in the tire's rolling radius





-Final drive axle ratio changes

-Wheel lockup and wheel slip

-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit or the commanded state of the brake lamps. -Pre-Crash data is recorded asynchronously. The 0.5 second Pre-crash data value (most recent recorded data point) is the data point last sampled before Time Zero. That is to say, the last data point may have been captured just before Time Zero but no more than 0.5 second before Time Zero. All subsequent Pre-crash data values are referenced from this data point.

-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:

-The SDM receives a message with an "invalid" flag from the module sending the pre-crash data

-Pre-Crash Electronic Data Validity Check Status indicates "Data Not Available" if: -No data is received from the module sending the pre-crash data

-For diesel powered vehicles, the data displayed as Throttle Position (%) is actually the data for the Air Inlet Flap Position. This is not the same as the throttle position for a gasoline powered engines.

-Belt Switch Circuit Status indicates the status of the seat belt switch circuit.

-The ignition cycle counter will increment when the power mode cycles from OFF/Accessory to RUN. Applying and removing of battery power to the module will not increment the ignition cycle counter.

-Ignition Cycles Since DTCs Were Last Cleared can record a maximum value of 253 cycles and can only be reset by a scan tool.

-Dynamic Deployment Event Counters tracks the number of Deployment events that have occurred during the SDM's lifetime. -Dynamic Event Counters tracks the number of qualified events (either Deployments, Non-deploy, or Rollover events) that have occurred during the SDM's lifetime.

-For Deployment Events, DTC B0052 (Deployment commanded) shall be recorded with the remainder of the data for this event even though it occurred after Event Enable.

-Once a firing loop has been commanded to be deployed, it will not be commanded to be deployed again during the same ignition cycle. Firing loop times for subsequent deployment type events, during the same ignition cycle, will record the deployment times as N/A. -The airbag control module may continue to function after the vehicle has been turned off or to accessory, for a set period of time, this is called Prolongation. However, all other vehicle modules may have their functions shut down during Prolongation. For example, if the SIR warning lamp is commanded on by the airbag control module, during Prolongation, and is recorded in the EDR as being commanded on, the actual state of the warning lamp would be off to an observer since the vehicle display cluster would have been in the off state. Vehicle preevent and system data may be recorded in the EDR as their commanded state, default state, or data invalid state.

-A Concurrent Event is when two events are happening nearly simultaneously. The "Concurrent Event Flag Set" parameter will indicate "Yes" if one event begins, but before that event is qualified, another event begins and is qualified.

A Non-Deployment event typically becomes qualified if that event exceeds the 5 MPH (8 km/h) delta V recording threshold and the event has concluded. A deployment event (FSR or Rollover) becomes qualified when a deployment has been commanded for that event. Example of a Concurrent Event:

A Rollover event begins. Before the Rollover event is qualified, a Non-Deployment event begins and is qualified. Sometime after the Non-Deployment event is qualified, the Rollover event is qualified. The Non-Deployment event will be recorded in the first open record even though the Rollover event enabled before the Non-Deployment event. The Rollover event will be recorded in the next open record. The "Concurrent Event Flag Set" parameter will indicate "Yes" for the Rollover event. The "Time Between Events" parameter will indicate the time from the start of the Rollover event to the start of the Non-Deployment event.



| Event Recor#1                        | Event Record#2                   |
|--------------------------------------|----------------------------------|
| Event Record Type = Non – Deployment | Event Record Type = Rollover     |
| Concurrent Event Flag = No           | Concurrent Event Flag = Yes      |
| Time Between Events = NA             | Time Between Events = XX seconds |

-The GM parameter name is displayed in parentheses after the NHTSA Part 563 parameter name.

-All data should be examined in conjunction with other available physical evidence from the vehicle and scene.

#### Data Source:

All SDM recorded data is measured, calculated, and stored internally, except for the following:





-Vehicle Status Data (Pre-Crash) is transmitted by the Body Control Module, via the vehicle's communication network. -The Belt Switch Circuit is wired directly to the SDM.

#### Data Element Sign Convention:

The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. Directional references to sign notation are all from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

| Data Element Name            | Positive Sign Notation Indicates |
|------------------------------|----------------------------------|
| Longitudinal Acceleration    | Forward                          |
| Longitudinal Velocity Change | Forward                          |
| Lateral Acceleration         | Left to Right                    |
| Lateral Velocity Change      | Left to Right                    |
| Vertical Acceleration        | Downward                         |
| Roll Rate                    | Clockwise Rotation               |

#### Hexadecimal Data:

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR tool.

01058\_SDM40-conti\_r010





#### System Status at Time of Retrieval

| ESS # 1 Traceability Data, Component Identifier                          | AU                |
|--|-------------------|
| ESS # 1 Traceability Data, Part Number/Broadcast Code                    | 3355              |
| ESS # 1 Traceability Data, Supplier Code                                 | Т                 |
| ESS # 1 Traceability Data, Traceability Number                           | 0000Q1F13         |
| ESS # 1 Verification Data  | 67.567.619        |
| ESS # 2 Traceability Data Component Identifier                           | AT                |
| ESS # 2 Traceability Data, Part Number/Broadcast Code                    | 3355              |
| ESS # 2 Traceability Data, Supplier Code                                 | т                 |
| ESS # 2 Traceability Data, Coppier Odde                                  |                   |
| ESS # 2 Varification Data  | 67 567 610        |
| ESS # 2 Traccability Data Component Identifier                           | 07,507,019        |
| ESS # 3 Traceability Data, Component Identifier                          | 2676              |
| ESS # 3 Traceability Data, Fait Number/Dioducast Coule                   |                   |
| ESS # 3 Traceability Data, Supplier Code                                 | 450700400         |
| ESS# 3 Traceability Data, Traceability Number                            | 15G/RS43G         |
| ESS# 3 Verification Data   | 235,209,217       |
| ESS # 4 Traceability Data, Component Identifier                          | AJ                |
| ESS # 4 Traceability Data, Part Number/Broadcast Code                    | 3676              |
| ESS # 4 Traceability Data, Supplier Code                                 |                   |
| ESS # 4 Traceability Data, Traceability Number                           | 150EBPL2N         |
| ESS # 4 Verification Data  | 235,209,217       |
| ESS # 5 Traceability Data, Traceability Number                           | 15G7BRI0A         |
| ESS # 5 Traceability Data, Component Identifier                          | DA                |
| ESS # 5 Traceability Data, Part Number/Broadcast Code                    | 3676              |
| ESS # 5 Traceability Data, Supplier Code                                 | Т                 |
| ESS # 5 Verification Data  | 235,209,217       |
| ESS # 6 Traceability Data, Component Identifier                          | DB                |
| ESS # 6 Traceability Data, Part Number/Broadcast Code                    | 3676              |
| ESS # 6 Traceability Data, Supplier Code                                 | Т                 |
| ESS # 6 Traceability Data, Traceability Number                           | 15G73C31H         |
| ESS # 6 Verification Data  | 235,209,217       |
| ESS # 7 Traceability Data, Component Identifier                          | 00                |
| ESS # 7 Traceability Data, Part Number/Broadcast Code                    | 0000              |
| ESS # 7 Traceability Data, Supplier Code                                 | Т                 |
| ESS # 7 Traceability Data, Traceability Number                           | 00000000          |
| ESS # 7 Verification Data  | 0                 |
| ESS # 8 Traceability Data. Component Identifier                          | 00                |
| ESS # 8 Traceability Data, Part Number/Broadcast Code                    | 0000              |
| ESS # 8 Traceability Data, Supplier Code                                 | Т                 |
| ESS # 8 Traceability Data, Traceability Number                           | 00000000          |
| ESS # 8 Verification Data  | 0                 |
| AOS Data Key   | 0                 |
| SDM Primary Key Definition (Key 1-2)                                     | 82                |
| SDM Primary Key Definition (Key 3-4)                                     | 14                |
| Dynamic Deployment Event Counter   | 0                 |
| Multi-Event Number of Events (Dynamic Event Counter)                     | 0                 |
| Dynamic OnStar Notification Event Counter                                | 0                 |
| Driver Frontal Stage 2 Commanded after Event End for Event Record #1     | No                |
| Driver Frontal Stage 2 Commanded after Event End for Event Record #1     | No                |
| Pressenger Frontal Stage 2 Commanded after Event End for Event Record #2 | No                |
| Passanger Frontal Stage 2 Commanded after Event End for Event Passand #2 | INU               |
| Driver Frental Stage 2 Commanded after Event End for Event Decord #2     |                   |
| Driver Frontal Stage 2 Commanded after Event End for Event Baserd #2     | INO NI-           |
| Longitudinal Appalarameter Dange (a)                                     |                   |
| Longitudinal Accelerometer Range (g)                                     | 100               |
| Lateral Accelerometer Kange (g)  | 100               |
| Dynamic Pedero Depioy Event Counter                                      | 0                 |
| Dynamic PedPro Event Counter   | 0                 |
| Venicle identification Number (VIN)                                      | 1G12E5S18GF****** |
| System Type  | N/A               |
| gnition Cycle, Download (Ignition Cycles at Investigation)               | 3,770             |





#### **Hexadecimal Data**





0E 05 02 01 DID \$0D 30 30 30 30 30 30 54 30 30 30 30 30 30 30 30 30 30 DID \$0E 00 00 00 00 DID \$0F 30 30 30 30 30 30 54 30 30 30 30 30 30 30 30 30 30 DID \$10 00 00 00 00 DID \$11 00 00 DID \$22 82 14 DID \$30 00 00 00 00 00 64 64 00 00 00 DID \$31 0000 FF 0010 FF 0020 0030 FF 0040 ਸਸ ਸਸ FF 0050 FF FF FF FF FF FF FF FF  $\mathbf{FF}$ FF FF FF FF FF FF FF FF FF 0060 FF FF FF FF FF FF FF FF FF 0070 0080 FF FF FF FF FF FF FF FF FF 0090 FF FF FF FF FF FF FF FF FF 0100 FF 0110 FF FF FF FF FF FF FF FF 0120 FF ਜੁਸ 0130 FF 0140 ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ 0150 FF 0160 0170 FF 0180 FF 0190 FF FF FF FF FF FF FF FF 0200 FF ਸਤ 0210 FF 0220 FF 0230 0240 FF 0250 FF FF FF FF FF FF FF FF FF 0260 FF 0270 FF FF FF FF FF FF FF FF FF 0280 FF 0290 FF 0300 FF 0310 FF 0320 0330 FF 0340 FF 0350 FF 0360 0370 FF FF FF FF FF FF FF FF FF  $\mathbf{F}\mathbf{F}$ 0380 FF 0390 0400 FF 0410 0420 FF FF FF FF FF FF FF FF FF

| 1080 FF FF FF    | FΗ |
|------------------|----|
| 1090 FF FF FF    | FI |
|                  |    |
|                  |    |
|                  |    |
| 1G1ZE5ST8GF***** |    |

| 0430   |  |  |  |   |  |  |  |  |   |   |
|--|--|--|--|---|--|--|--|--|---|---|
|  | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | $\mathbf{FF}$   | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{F}\mathbf{F}$   | $\mathbf{FF}$                                 | $\mathbf{FF}$   |
| 0440   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | ਸਸ  |
| 0450   | ਸਸ   | ਸ਼ਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਸ਼  | ਸ਼ਾਸ਼  | ਸਸ   | ਸ਼ਾਸ਼  | ਸਸ   | ਸ਼ਾਸ਼   | ਸ਼ਸ਼  |
| 0150   |  |  |  |   |  | <br>1212   |  |  |   |   |
| 0460   | F F  | F F  | F F  | F F   | F F  | F F  | F F  | F F  | F F   | FF<br>——  |
| 0470   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.   | F, F,  | F.F.   | F.F.   | F.F.  | F.F.  |
| 0480   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   |
| 0490   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | $\mathbf{FF}$   | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$                                 | FF  |
| 0500   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  |
| 0510   |  |  |  |   |  |  |  |  |   | <br>  |
| 0510   | D D  | L L  | L L  | L L   | L L  | T. T.  | L L  | L L  | L L   | . r.  |
| 0520   | F F  | P P  | F F  | P P   | F F  | F F  | F F  | F F  | P P   | F F   |
| 0530   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | $\mathbf{F}\mathbf{F}$  |
| 0540   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | FF  |
| 0550   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | FF  | FF   | $\mathbf{FF}$  | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                 | FF  |
| 0560   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  |
| 0570   |  |  |  |   |  |  |  |  |   | <br>  |
| 0570   |  |  |  |   |  | <br>   |  |  |   |   |
| 0580   | F F  | F F  | F F  | F F   | F F  | F F  | F F  | F F  | F F   | FF<br>——  |
| 0590   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.   | F, F,  | F.F.   | F.F.   | F.F.  | F.F.  |
| 0600   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   |
| 0610   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | FF  | FF   | FF   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                 | $\mathbf{FF}$   |
| 0620   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | FF  | FF   | $\mathbf{FF}$  | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                 | FF  |
| 0630   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸ਼ਾਸ  | ਸ਼ਾਸ  |
| 0640   | ਜ ਜ  | <br>FF   | <br>ਸ਼ਾਸ਼ਾ   | <br>FF  | ਜ ਜ  | <br>ਸ਼ਾਸ਼  | <br>ਸ਼ਾਸ਼ਾ   | <br>   | <br>ਸ਼ਾਸ਼ਾ                                    | <br>77  |
| 0040   | T T  | DD.  | D D D  |   | D D D  |  | D D D  |  | D D D   | . r.  |
| 0650   | F F  | F F  | F F  | F F   | F F  | F F  | F F  | F F  | F F   | FF<br>TT  |
| 0660   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  |
| 0670   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | FF  |
| 0680   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | $\mathbf{FF}$   | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                 | $\mathbf{FF}$   |
| 0690   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | FF  | FF   | FF   | $\mathbf{FF}$  | FF   | FF  | FF  |
| 0700   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | FF  |
| 0710   |  |  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  |  | ਸ਼ਾਸ਼   | <br>ਸ਼ਾਸ਼   |
| 0720   |  |  | <br>   |   | <br>   |  | <br>   | <br>   |   |   |
| 0720   | P P  | <br>   | <br>   | . r. r.   | <br>   | . r. r.  | <br>   | . r. r.  | <br>  | . r. r.   |
| 0/30   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  |
| 0740   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | $\mathbf{F}\mathbf{F}$  |
| 0750   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   |
| 0760   | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$                                      | $\mathbf{FF}$   | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$                                 | $\mathbf{FF}$   |
| 0770   | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                      | FF  | FF   | $\mathbf{FF}$  | $\mathbf{FF}$  | FF   | $\mathbf{FF}$                                 | FF  |
| 0780   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  |
| 0790   | ਜ ਜ  | <br>ਸ਼ਿਸ਼  | <br>ਸ਼ਾਸ   | <br>ਸ਼ਾਸ਼   | <br>ਸ਼ਿਸ਼  | ਸੂਸ  | <br>ਸ਼ਾਸ   | <br>ਸ਼ਾਸ਼  | ਜ ਜ   |   |
| 0,00   | <br>   | <br>   | <br>-  | <br>-   |  |  | <br>-  |  |   | <br>  |
| 0800   | r r  |  | г г<br>——  |   |  | г г<br>——  | г г<br>——  | г г<br>— —   | г г<br>——                                     | гг<br>——  |
| 0810   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  |
| 0820   | FF   | FF   | FF   | FF  | FF   | FF   | FF   | FF   | FF  | FF  |
| 0830   | FF   | ~~   | ~~   | 도도  |  |  |  |  |   |   |
| 0840   |  | гг   | гг   | T. T.   | F.F.   | FF   | FF   | FF   | $\mathbf{FF}$                                 | FF  |
|  | FF   | FF   | FF   | FF  | FF<br>FF   | FF<br>FF   | FF<br>FF   | FF<br>FF   | FF<br>FF                                      | FF<br>FF  |
| 0850   | TT<br>TT   | 77<br>77<br>77   | 77<br>77<br>77                                     | TT<br>TT  | '4'1<br>'1<br>'1<br>'1<br>'1                             | 국국<br>국국<br>국국   | 국국<br>국국<br>국국   | 국국<br>국국<br>국국   | 국국<br>국국<br>국국                                | 국국<br>국국<br>구국  |
| 0850<br>0860   | FF<br>FF<br>FF   | FF<br>FF<br>FF   | FF<br>FF<br>FF                                     | FF<br>FF<br>FF  | FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF                          | FF<br>FF<br>FF<br>FF  |
| 0850<br>0860   | FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF                               | FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF                                     | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF                          | FF<br>FF<br>FF<br>FF  |
| 0850<br>0860<br>0870   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF                               | FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF                               | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                    | FF<br>FF<br>FF<br>FF<br>FF  |
| 0850<br>0860<br>0870<br>0880   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                         | FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF                         | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                    | FF<br>FF<br>FF<br>FF<br>FF  |
| 0850<br>0860<br>0870<br>0880<br>0890   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF                   | FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF              | FF<br>FF<br>FF<br>FF<br>FF<br>FF                                  |
| 0850<br>0860<br>0870<br>0880<br>0890<br>0900   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF        | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                            |
| 0850<br>0860<br>0870<br>0880<br>0890<br>0900<br>0910   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                                     | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF       | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF       | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF        | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                      |
| 0850<br>0860<br>0870<br>0880<br>0890<br>0900<br>0910<br>0920   | FF                                     | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                |
| 0850<br>0860<br>0870<br>0880<br>0890<br>0900<br>0910<br>0920<br>0930   | FF                                     |  |  |   |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | F F F F F F F F F F F F F F F F F F F         | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF          |
| 0850<br>0860<br>0870<br>0880<br>0890<br>0900<br>0910<br>0920<br>0930<br>0940   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF |  |  | FF FF FFF FFFFFFFFFFFFFFFFFFFFFFFFFFFF  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F         | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF    |
| 0850<br>0860<br>0870<br>0880<br>0890<br>0900<br>0910<br>0920<br>0920<br>0930<br>0940   |  |  |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | F F F F F F F F F F F F F F F F F F F         | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                            |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950   |  |  |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F         | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                            |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0950   | <u>-</u>   |  |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  |   | FF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0960<br>0970   |  | - F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F            | $\begin{array}{c} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F} F$ |  | F F F F F F F F F F F F F F F F F F F  | <b>5</b><br><b>7</b><br><b>7</b><br><b>7</b><br><b>7</b><br><b>7</b><br><b>7</b><br><b>7</b><br><b>7</b> | <b>F F F F F F F F F F F F F F F F F F F </b>  | <b>F F F F F F F F F F F F F F F F F F F </b> | FF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FF  |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0920<br>0940<br>0950<br>0950<br>0960<br>0970<br>0980   | 고 고 고 고 고 고 고 고 고 고 고 고 고 고 고 고 고 고 고                                      | r<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F<br>F | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF             | FF FFF FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | YFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF        | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0920<br>0940<br>0950<br>0960<br>0970<br>0980<br>0990   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                                     | L F F F F F F F F F F F F F F F F F F F  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF             | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | YFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                   | <b>F F F F F F F F F F F F F F F F F F F </b>  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | F F F F F F F F F F F F F F F F F F F         | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0950<br>0950<br>0970<br>0980<br>0990<br>1000   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                                     | - F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F            | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | ¥ F F F F F F F F F F F F F F F F F F F                  | <b>F F F F F F F F F F F F F F F F F F F </b>  | <b>F F F F F F F F F F F F F F F F F F F </b>  | F F F F F F F F F F F F F F F F F F F  | <b>F F F F F F F F F F F F F F F F F F F </b> | FF F F F F F F F F F F F F F F F F F F                            |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0950<br>0950<br>0970<br>0980<br>0990<br>1000   | <b>F F F F F F F F F F F F F F F F F F F </b>                              |  |  |   | 4 F F F F F F F F F F F F F F F F F F F                  | <b>4</b><br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>7<br>4<br>7          | <b>4</b><br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>7<br>4<br>7  | <b>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF</b>   | <b>FFFFFFFFFFFFFFFFFFFFF</b>                  | <b>타 파 파 파 파 파 파 파 파 파 파 파 파 파 파 파 파 파 파 파</b>                    |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0960<br>0970<br>0960<br>0970<br>0980<br>0990<br>1000   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                                     | - F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F            |   | 4 F F F F F F F F F F F F F F F F F F F                  | ר א די א די א די א די א די א<br>ר א די א די א די א די א די א די א די<br>ר א די א ד | <b>FFFFFFFFFFFFFFFFFFFFFFF</b>   | F F F F F F F F F F F F F F F F F F F  | <b>FFFFFFFFFFFFFFFFFFFFF</b>                  | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0920<br>0940<br>0950<br>0950<br>0960<br>0970<br>0980<br>0990<br>1000<br>1010   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                                     | - F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F            |   | + F F F F F F F F F F F F F F F F F F F                  | ר איז  | ר איז  | <b>FFFFFFFFFFFFFFFFFFFFFFF</b>   | F F F F F F F F F F F F F F F F F F F         | FF                            |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0920<br>0940<br>0950<br>0950<br>0950<br>0950<br>0960<br>0970<br>0980<br>0990<br>1000<br>1010   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                                     | 1<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4<br>4 | - F F F F F F F F F F F F F F F F F F F            |   | 14 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4                   | רק אנים אין  | רק אנים אין  | רקאינים.<br>באניים היון איניים איניים<br>באניים היון איניים אינ | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF          | 나 나 나 나 나 나 나 나 나 나 나 나 나 나 나 나 나 나 나                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0920<br>0940<br>0950<br>0960<br>0970<br>0960<br>0970<br>0980<br>0990<br>1000<br>1010<br>1020   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                                     |  |  |   |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | <b>FFFFFFFFFFFFFFFFFFFFFFF</b>                | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0950<br>0950<br>0970<br>0980<br>0990<br>1000<br>1010<br>1020<br>1030<br>1040<br>1050                         | <b>F F F F F F F F F F F F F F F F F F F </b>                              | - F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F            |   | <b>H H H H H H H H H H</b>                               | <b>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF</b>   | F F F F F F F F F F F F F F F F F F F  | <b>F F F F F F F F F F F F F F F F F F F </b>  | <b>F</b> F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0930<br>0940<br>0950<br>0950<br>0950<br>0970<br>0980<br>0990<br>1000<br>1010<br>1020<br>1030<br>1040<br>1050<br>1060                 | <b>F F F F F F F F F F F F F F F F F F F </b>                              | - F F F F F F F F F F F F F F F F F F F  |  |   | <b>HANANANANANANANANANANANANANANANANANANAN</b>           | <b>H H H H H H H H H H</b>   | <b>H H H H H H H H H H</b>   | <b>F F F F F F F F F F F F F F F F F F F </b>  | <b>F F F F F F F F F F F F F F F F F F F </b> | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0920<br>0940<br>0950<br>0960<br>0970<br>0980<br>0990<br>1000<br>1010<br>1020<br>1040<br>1050<br>1060<br>1070                         | <b>F F F F F F F F F F F F F F F F F F F </b>                              |  |  |   | 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7                  | ר אם   | ר איז  | <b>F F F F F F F F F F F F F F F F F F F </b>  | <b>H</b> H H H H H H H H H H H H H H H H H H  | F F F F F F F F F F F F F F F F F F F                             |
| 0850<br>0860<br>0870<br>0880<br>0900<br>0910<br>0920<br>0940<br>0950<br>0940<br>0950<br>0960<br>0970<br>0980<br>0990<br>1000<br>1010<br>1020<br>1030<br>1040<br>1050<br>1060<br>1070<br>1080 | <b>H H H H H H H H H H</b>   |  |  |   |  |  |  |  | <b>H</b> H H H H H H H H H H H H H H H H H H  | F 두 노 노 노 노 노 노 노 노 노 노 노 노 노 노 노 노 노 노                           |





| 1270 | FF                     | FF                     |
|------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------------|------------------------|
| 1280 | <br>ਜ ਜ       | ਜ ਜ           | <br>ਸ ਸ       |               | <br>ਸ ਸ       | <br>77        | <br>ਸ ਸ       | <br>7 7       | <br>77                 |                        |
| 1290 | ਜਸ            | ਜਸ            | ਜ਼ਾ           | ਜਸ            | <br>ਸ ਸ       |               | ਜ਼ਾ           | ਸਤ            | ਸਤ                     | ਸਤ                     |
| 1300 | <br>ਸਸ        | <br>ਸ ਸ       | <br>77        | <br>77        | <br>77        | <br>ਸਸ        | <br>77        | <br>77        | <br>77                 |                        |
| 1310 | 77            | ਸਤ            | 77            | ਸਤ            | 77            | 77            | 77            | 77            | 77                     | ਸਤ                     |
| 1320 | ਸਤ            | ਸਤ            | 77            | ਸਤ            | ਸਤ            | ਸਤ            | 77            | 77            | ਸਤ                     | ਸਸ                     |
| 1330 | 77            | ਸਤ            | 77            | ਸਤ            | 77            | 77            | 77            | 77            | 77                     | ਸਤ                     |
| 1340 | 77            | ਸਤ            | 77            | ਸਤ            | 77            | 77            | 77            | 77            | 77                     | ਸਤ                     |
| 1350 | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸ਼ਾਸ਼         | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ                    | ਸੰਸ                    |
| 1360 | ਸੂਸ                    | ਸੂਸ                    |
| 1370 | ਸਾਸ           | ਸਾਸ           | ਸ ਸ<br>ਸ਼ਾਸ਼  | T T<br>T T    | T T<br>T T    | <br>          | ਸ ਸ<br>ਸ਼ਾਸ਼  | ਸਾਸ           | <br>                   | ਸੁਸ                    |
| 1380 |               |               |               |               |               |               |               |               |                        |                        |
| 1300 |               |               |               |               | rr<br>rr      |               |               |               | rr<br>rr               |                        |
| 1400 | D. D.         | D D D         | rr<br>rr      | D D D         | rr<br>rr      | D. D.         | rr<br>rr      | rr<br>rr      | L.L.                   | L L                    |
| 1410 | rr<br>TTT     | rr<br>TTT     | rr<br>TTT     | rr<br>TTT     | rr<br>EE      | rr<br>TTT     | rr<br>TTT     | rr<br>TTT     | rr<br>EE               | F F<br>E E             |
| 1410 | F F<br>E E    | F F<br>E E    | rr<br>EE      | F F<br>EFE    | F F<br>E E    | F F<br>E E    | rr<br>EE      | rr<br>EE      | rr<br>EE               | F F                    |
| 1420 | rr<br>DD      | F F           | rr<br>DD      | F F           | rr<br>DD      | F F           | rr<br>DD      | rr<br>DD      | rr<br>DD               | F F                    |
| 1430 | FF<br>DD      | F F           | rr<br>DD      | F F           | rr<br>DD      | FF<br>DD      | rr<br>DD      | F F           | rr<br>DD               | rr<br>DD               |
| 1440 | FF<br>DD      | F F           | F F           | F F           | F F           | F F           | F F           | F F           | FF<br>DD               | F F                    |
| 1450 | F.F.                   | F.F.                   |
| 1460 | F.F.                   | F.F.                   |
| 1470 | F.F.                   | F.F.                   |
| 1480 | F.F.                   | F.F.                   |
| 1490 | F.F.          | P.F.          | F.F.          | P.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   | F.F.                   |
| 1500 | FF                     | FF                     |
| 1510 | FF                     | FF                     |
| 1520 | FF                     | FF                     |
| 1530 | FF                     | FF                     |
| 1540 | FF                     | FF                     |
| 1550 | FF                     | FF                     |
| 1560 | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF                     | FF                     |
| 1570 | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF                     | FF                     |
| 1580 | $\mathbf{FF}$          | FF                     |
| 1590 | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
| 1600 | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
| 1610 | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1620 | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1630 | $\mathbf{FF}$          | FF                     |
| 1640 | $\mathbf{FF}$          | FF                     |
| 1650 | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | FF            | $\mathbf{FF}$          | FF                     |
| 1660 | FF            | FF            | FF            | $\mathbf{FF}$ | FF            | FF            | FF            | FF            | FF                     | FF                     |
| 1670 | FF            | FF            | FF            | $\mathbf{FF}$ | FF            | FF            | FF            | FF            | FF                     | FF                     |
| 1680 | FF                     | FF                     |
| 1690 | FF                     | FF                     |
| 1700 | FF                     | FF                     |
| 1710 | ਸਸ            | ਸ਼ਾ           | ਸਤ                     | ਸਸ                     |
| 1720 | <br>77        | <br>77        | <br>77        | <br>FF        | <br>FF        | FF            | <br>77        | <br>77        | <br>77                 | FF                     |
| 1730 | <br>नन        | <br>77                 | <br>77                 |
| 1740 | <br>ਸਸ        | <br>ਸੁਸ       | <br>नन        | <br>नन        | <br>ਸਿਸ       | <br>ਸਸ        | <br>नन        | <br>नन        | ਜਿ                     | <br>नन                 |
| 1750 | ਜਿ            | ਜ਼            | ਜ਼ਾ           | ਜਿ            | <br>ਸਿਸ       | ਜ਼            | ਜ਼ਾ           | <br>नन        | ਜਿ                     | ਸਤ                     |
| 1760 | ਸੂਸ           | ਸ਼ਾਜ਼         | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸ਼ਾਜ                   | ਸੂਸ                    |
| T/00 | T. T.                  | T. T.                  |

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| 1970    | T. T.             | T. T.         | T. T.         | T. T.         | T. T.         | T. T.                  | T. T.         | T. T.         | T. T.         | T. T.       |
|---------|-------------------|---------------|---------------|---------------|---------------|------------------------|---------------|---------------|---------------|-------------|
| 1980    | FF                | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 1990    | $\mathbf{FF}$     | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
|         | _                 |               |               |               |               |                        |               |               |               |             |
| DID \$3 | 2                 |               |               |               |               |                        |               |               |               |             |
| 0000    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0010    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0020    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0030    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0040    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0050    | FF                | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF                     | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | FF          |
| 0060    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0070    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0080    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0090    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0100    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0110    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0120    | $\mathbf{FF}$     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF          |
| 0130    | FF                | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$          | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | FF          |
| 0140    | FF                | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$          | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | FF          |
| 0150    | $\mathbf{FF}$     | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0160    | $\mathbf{FF}$     | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0170    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0180    | $\mathbf{FF}$     | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0190    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0200    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0210    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0220    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0230    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0240    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0250    | FF                | FF            | FF            | FF            | FF            | FF                     | FF            | FF            | FF            | FF          |
| 0260    | <br>ਸ ਸ           | ਜਸ            | ਜਸ            | ਸਤ            | ਸਸ            | ਸਤ                     | ਜਸ            | ਸਤ            | ਸਤ            | <br>ਸ ਸ     |
| 0270    | <br>ਸ ਸ           | <br>77        | <br>77        | ਜ ਜ           | <br>77        | <br>77                 | <br>77        | <br>77        | ਜ ਜ           |             |
| 0280    | <br>ਸਸ            | <br>77        | <br>77        | <br>नन        | <br>नन        | <br>77                 | <br>77        | <br>77        | <br>नन        |             |
| 0290    | <br>ਸ ਸ           | <br>77        | <br>77        | ਜ ਜ           | <br>77        | <br>ਸੁਸ                | <br>77        | <br>77        | ਜ ਜ           |             |
| 0300    | <br>ਸਸ            | <br>77        | <br>77        | <br>नन        | <br>नन        | <br>77                 | <br>77        | <br>77        | <br>नन        |             |
| 0310    | <br>ਸਸ            | <br>77        | <br>77        | <br>नन        | <br>नन        | <br>77                 | <br>77        | <br>77        | <br>ਸਸ        |             |
| 0320    | ਸਤ                | 77            | 77            | ਸਤ            | ਸਤ            | ਸਤ                     | 77            | <br>77        | ਸਤ            | ਸੰਸ         |
| 0330    | ਸ਼ਾਸ਼             | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ                    | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ         |
| 0340    | ਸ਼ਾਸ਼             | ਸ਼ਾਸ਼         | ਸ਼ਾਸ਼         | ਸ਼ਾਸ਼         | ਸ਼ਾਸ਼         | ਸ਼ਾਸ਼                  | ਸ਼ਾਸ਼         | ਸ਼ਾਸ਼         | ਸ਼ਾਸ਼         | ਸੂਸ         |
| 0350    | ਸੂਸ               | <br>          |               | ਸ਼ਾਸ਼         | <br>          | <br>                   |               |               | ਸ਼ਾਸ਼         | <br>        |
| 0350    | ਸੂਸ               | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸੂਸ                    | ਸੂਸ           | ਸੂਸ           | ਸੂਸ           | ਸ਼ਾਸ਼       |
| 0300    |                   |               |               |               |               |                        |               |               |               |             |
| 0370    | 다 다<br>다 다        | г.<br>г.      | 다 다<br>다 다    | г.<br>г. г    | 다 다<br>다 다    | 다. 다.<br>다. 다.         | 다 다<br>다 다    | 다 다<br>다 다    | г.<br>г. г    | ייי<br>ייים |
| 0200    | т. с.<br>с. с. с. | <br>          | <br>          | <br>          | <br>          | <br>                   | <br>          | <br>          | <br>          | 고 다         |
| 0400    | rr<br>TT          | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr               | rr<br>rr      | rr<br>rr      | rr<br>rr      | ר ר<br>דידי |
| 0410    | rr<br>TT          | rr<br>EE      | r r<br>EE     | r r<br>EE     | rr<br>EE      | r r<br>E E             | r r<br>EE     | r r<br>E E    | r r<br>EE     | r r<br>Tr F |
| 0410    | Ь Ч.              | L L.          | F F           | L L           | L L.          | Γ Γ                    | F F           | F F           | L L           | L L         |

| 1780 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
|------|------------------------|---------------|---------------|---------------|---------------|------------------------|---------------|------------------------|---------------|---------------|--|
| 1790 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1800 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1810 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1820 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1830 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1840 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1850 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1860 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1870 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1880 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1890 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1900 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1910 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1920 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1930 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1940 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1950 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1960 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1970 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1980 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
| 1990 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ |  |
|      |                        |               |               |               |               |                        |               |                        |               |               |  |

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| 0870      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | FF                     |
|-----------|---------------|------------------------|---------------|---------------|---------------|---------------|---------------|------------------------|---------------|------------------------|
| 0880      | FF            | FF                     | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | FF                     | $\mathbf{FF}$ | FF                     |
| 0890      | FF            | FF                     | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | FF                     | FF            | FF                     |
| 0900      | FF            | FF                     | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | FF                     | FF            | FF                     |
| 0910      | $\mathbf{FF}$ | FF                     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF                     | $\mathbf{FF}$ | FF                     |
| 0920      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 0930      | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 0940      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0950      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0960      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0970      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     |
| 0980      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 0990      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 1000      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     |
| 1010      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     |
| 1020      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     |
| 1030      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 1040      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 1050      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 1060      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 1070      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     |
| 1080      | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     |
|           |               |                        |               |               |               |               |               |                        |               |                        |
|           |               |                        |               |               |               |               |               |                        |               |                        |
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| 1360 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
|------|------------------------|---------------|---------------|---------------|---------------|------------------------|---------------|------------------------|------------------------|
| 1370 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
| 1380 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1390 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1400 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1410 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1420 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1430 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1440 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1450 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1460 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1470 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1480 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1490 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1500 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1510 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1520 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1530 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1540 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1550 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1560 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1570 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1580 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1590 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1600 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1610 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1620 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1630 | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1640 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1650 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1660 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{F}\mathbf{F}$ |
| 1670 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1680 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1690 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1700 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1710 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$          |
| 1720 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
| 1730 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
| 1740 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | FF                     |
| 1750 | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          | $\mathbf{FF}$ | FF                     | FF                     |
|      |                        |               |               |               |               |                        |               |                        |                        |

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| 1910     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
|----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------------|
| 1920     | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 1930     | $\mathbf{FF}$          |
| 1940     | $\mathbf{FF}$          |
| 1950     | $\mathbf{FF}$          |
| 1960     | $\mathbf{FF}$          |
| 1970     | $\mathbf{FF}$          |
| 1980     | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 1990     | FF                     |
| DID \$33 | 3             |               |               |               |               |               |               |               |               |                        |
| 0000     | $\mathbf{FF}$          |
| 0010     | $\mathbf{FF}$          |
| 0020     | $\mathbf{FF}$          |
| 0030     | $\mathbf{FF}$          |
| 0040     | $\mathbf{FF}$          |
| 0050     | $\mathbf{FF}$          |
| 0060     | $\mathbf{FF}$          |
| 0070     | $\mathbf{FF}$          |
| 0080     | $\mathbf{FF}$          |
| 0090     | $\mathbf{FF}$          |
| 0100     | $\mathbf{FF}$          |
| 0110     | $\mathbf{FF}$          |
| 0120     | $\mathbf{FF}$          |
| 0130     | $\mathbf{FF}$          |
| 0140     | $\mathbf{FF}$          |
| 0150     | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0160     | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0170     | FF            | FF            | $\mathbf{FF}$ | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 0180     | FF            | FF            | $\mathbf{FF}$ | FF            | FF            | FF            | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | FF                     |
| 0190     | FF            | FF            | $\mathbf{FF}$ | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 0200     | FF            | FF            | $\mathbf{FF}$ | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 0210     | FF                     |
| 0220     | FF                     |
| 0230     | FF                     |
| 0240     | FF                     |
| 0250     | FF                     |
| 0260     | FF                     |
| 0270     | FF                     |
| 0280     | FF                     |
| 0290     | FF                     |
| 0300     | FF                     |
| 0310     | FF                     |
| 0320     | FF                     |
| 0330     | FF                     |
| 0340     | FF                     |
| 0350     | FF                     |
| 0360     | FF                     |
| 0370     | ь'F           | FF            | FF            | F.E.          | FF            | F.F.          | F.F.          | FF            | FF            | F.E.                   |
| 0380     | F.E.          | FF            | FF            | F.E.          | FF            | F.F.          | FF            | FF            | FF            | F.E.                   |
| 0390     | F.F.                   |
| 0400     | ۲'F'          | FF            | FF            | ۲'F'          | ЬĿЕ           | ĿΈ            | FF            | FF            | ЬĿЬ           | ۲'F'                   |



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|------|---------------|---------------|---------------|---------------|--------|------------------------|---------------|------------------------|---------------|----|
| 0530 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0540 | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF     | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | FF |
| 0550 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0560 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0570 | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF     | FF                     | $\mathbf{FF}$ | FF                     | $\mathbf{FF}$ | FF |
| 0580 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0590 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0600 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0610 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0620 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0630 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0640 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0650 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0660 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0670 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0680 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0690 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0700 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0710 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0720 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0730 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0740 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0750 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0760 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0770 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0780 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0790 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0800 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0810 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0820 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0830 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0840 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0850 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0860 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0870 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0880 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0890 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0900 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0910 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0920 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0930 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0940 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0950 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0960 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0970 | ਸਤ            | ਜਸ            | ਸਤ            | ਜਸ            |        | ਸਤ                     | ਸਤ            | ਸਤ                     | ਜਸ            |    |
| 0980 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 0990 | ਸਸ            | ਜਸ            | ਜ਼ਾ           | ਜਸ            |        | ਸਤ                     | ਜ਼ਾ           | ਸਤ                     | ਜਸ            |    |
| 1000 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 1010 | ਸਸ            | ਜਸ            | ਜ਼ਾ           | ਜਸ            |        | ਸਤ                     | ਸਤ            | ਸਤ                     | ਜਸ            |    |
| 1020 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
| 1030 | FF            | FF            | ਜ ਜ           | FF            | ਜ ਜ    | FF                     | ਜ ਜ           | FF                     | FF            | FF |
| 1040 | <br>FF        | <br>FF        | <br>77        | <br>FF        | <br>77 | <br>77                 | <br>77        | <br>77                 | <br>FF        | FF |
| 1050 | FF            | FF            | ਜ ਜ           | FF            | ਜ ਜ    | FF                     | ਜ ਜ           | FF                     | FF            | FF |
| 1060 | <br>FF        | <br>FF        | <br>77        | <br>FF        | <br>77 | <br>77                 | <br>77        | <br>77                 | <br>FF        | FF |
| 1070 | FF            | FF            | FF            | FF            | FF     | FF                     | FF            | FF                     | FF            | FF |
|      |               |               |               |               |        |                        |               |                        |               |    |

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|--|--|--|--|--|--|---|---|--|--|---|
|  | FF   | FF   | FF   | $\mathbf{FF}$                                | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1090   | ਸ਼ਸ਼   | ਸ਼ਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਸ਼   | ਸ਼ਸ਼   | ਸ਼ਸ਼  | ਸ਼ਾਸ਼   | ਸ਼ਸ਼   | ਸ਼ਸ਼   | ਸਸ  |
| 1100   |  |  |  |  |  |   |   |  |  |   |
| TTOO   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1110   | FF   | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1120   | rr   | $\nabla \nabla$  | $\nabla \nabla$  | $\nabla \nabla$                              | $\nabla \nabla$  | $\nabla \nabla$   | $\nabla \nabla$   | ~~   | $\nabla \nabla$                                    | $\nabla \nabla$   |
| 1120   | P P  | L. L.  | L. L.  | L. L.  | P P  | L. L.   | P P   | L. L.  | L L  | L L   |
| 1130   | FF   | FF   | FF   | FF   | FF   | FF  | FF  | FF   | FF   | FF  |
| 1140   | ਜਜ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਤ  | ਸਤ  | ਸਸ   | ਜਜ   | ਸਸ  |
| 110  |  |  |  |  |  |   |   |  |  |   |
| 1150   | P P  | РP   | P P  | P P  | P P  | P P   | РР  | РР   | P P  | P P   |
| 1160   | FF   | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1170   | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼   | ਸ਼ਾਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | 도도  |
| 1100   |  |  |  |  |  |   |   |  |  |   |
| TT80   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1190   | $\mathbf{FF}$  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1200   | ਸਸ   | ਸ਼ਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਸ਼  | ਸ਼ਾਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਸ਼   | ਸ਼ਸ਼  |
| 1010   |  |  |  |  |  |   |   |  |  | <br>  |
| IZIU   | r r  | РP   | P P  | РР   | P P  | P P   | РР  | РP   | P P  | P P   |
| 1220   | $\mathbf{FF}$  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1230   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| 1040   |  |  |  |  |  |   |   |  |  | <br>  |
| 1240   | r r  | РP   | P P  | РР   | P P  | P P   | РР  | РP   | P P  | P P   |
| 1250   | $\mathbf{FF}$  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1260   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| 1070   |  |  |  |  |  |   |   |  |  |   |
| 12/0   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1280   | $\mathbf{FF}$  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1290   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| 1200   |  |  |  |  |  |   |   |  |  |   |
| 1300   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1310   | $\mathbf{FF}$  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1320   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| 1220   |  |  |  |  |  |   |   |  |  |   |
| 1330   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1340   | FF   | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1350   | ਸਸ   | ਸ਼ਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਾਸ਼  | ਸ਼ਾਜ਼  | ਸ਼ਸ਼  | ਸ਼ਾਸ਼   | ਸ਼ਾਸ਼  | ਸ਼ਸ਼   | ਸ਼ਸ਼  |
| 1200   |  |  |  |  |  |   |   |  |  |   |
| 1360   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1370   | FF   | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1380   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| 1200   |  |  |  |  |  |   |   |  |  |   |
| 1390   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1400   | FF   | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1410   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| 1400   |  |  |  |  |  |   |   |  |  | <br>  |
| 1420   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.   | F.F.  | F.F.  | F.F.   | F.F.   | F.F.  |
| 1430   | $\mathbf{FF}$  | FF   | FF   | FF   | FF   | FF  | $\mathbf{FF}$   | FF   | FF   | FF  |
| 1440   | ਸਸ   | ਸ਼ਾਸ   | ਸਸ   | ਸਸ   | ਸਸ   | ਸਸ  | ਸਸ  | ਸਸ   | ਸ਼ਾਸ   | ਸਸ  |
| ± 1 1 0  |  |  |  |  |  |   |   |  |  |   |
| 1 4 5 0  |  |  |  | - L. L.                                      |  | H. H.   | F.F.  | F.F.   | F.F.   | F.F.  |
| 1450   | $\mathbf{FF}$  | $\mathbf{FF}$  | $\mathbf{FF}$  | гг   | P P  | T. T.   |   |  |  |   |
| 1450<br>1460   | FF<br>FF   | FF<br>FF   | FF<br>FF   | FF   | FF   | FF  | FF  | FF   | FF   | FF  |
| 1450<br>1460<br>1470   | 국국<br>국국<br>국국   | 국국<br>국국<br>국국   | 국국<br>국국<br>국국   | лл<br>FF<br>ЯЯ                               | чч<br>FF<br>FT   | TT<br>TT  | नन<br>नन  | FF<br>FF   | TT<br>TT   | न्य<br>चन्य   |
| 1450<br>1460<br>1470   | FF<br>FF<br>FF   | FF<br>FF<br>FF   | FF<br>FF<br>FF   | FF<br>FF                                     | FF<br>FF<br>FF   | FF<br>FF  | FF<br>FF  | FF<br>FF   | FF<br>FF   | FF<br>FF  |
| 1450<br>1460<br>1470<br>1480   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF                               | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF  | FF<br>FF<br>FF  | FF<br>FF<br>FF   | FF<br>FF<br>FF                                     | FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1490   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF                               | FF<br>FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                         | FF<br>FF<br>FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                   | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF                         | FF<br>FF<br>FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500<br>1510   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF                                   | FF<br>FF<br>FF<br>FF<br>FF<br>FF                   | FF<br>FF<br>FF<br>FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500<br>1510<br>1520   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF                                   | FF<br>FF<br>FF<br>FF<br>FF<br>FF                   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500<br>1510<br>1520<br>1530   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF             | 77<br>77<br>77<br>77<br>77<br>77<br>77<br>77  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500<br>1510<br>1520<br>1530   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF | FF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                                    |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500<br>1510<br>1520<br>1530<br>1540   | FF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF   | FF<br>FFF<br>FFF<br>FFF<br>FFF<br>FFF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF |  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF       | r<br>FFFFFFFFFFFF<br>FFFFFFFFFFFFFFFFFFFFFFF   | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                        | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF  | F F F F F F F F F F F F F F F F F F F                              | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                                    |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560   | F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | r<br>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF    | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | <b>F F F F F F F F F F F F F F F F F F F </b>                      | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF             | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                              |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560   | F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | r<br>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF    | r FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | F F F F F F F F F F F F F F F F F F F   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                             | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF             | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   |  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   |   | F F F F F F F F F F F F F F F F F F F   | F F F F F F F F F F F F F F F F F F F                              | FF FF FF FFF FFF FFF                               | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1550<br>1550<br>1550<br>1560<br>1570<br>1580   | <b>F F F F F F F F F F F F F F F F F F F </b>  | F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | -<br>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF    | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   |   | <b>F F F F F F F F F F F F F F F F F F F </b>   | F F F F F F F F F F F F F F F F F F F                              | F F F F F F F F F F F F F F F F F F F              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  |  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   |   |   | F F F F F F F F F F F F F F F F F F F                              | F F F F F F F F F F F F F F F F F F F              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F      |  |   |   | <b>FFFFFFFFFFFFFF</b> FFFFFFFFFFFFFFFFFFFFFF                       | F F F F F F F F F F F F F F F F F F F              | 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다 다   |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   |  | + F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                             | F F F F F F F F F F F F F F F F F F F              |   |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1550<br>1550<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF       | + F F F F F F F F F F F F F F F F F F F  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | F F F F F F F F F F F F F F F F F F F                              | F F F F F F F F F F F F F F F F F F F              | 구   |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1550<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF      | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | F F F F F F F F F F F F F F F F F F F                              | <b>F F F F F F F F F F F F F F F F F F F </b>      | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF      |  |   | <b>F F F F F F F F F F F F F F F F F F F </b>   | <b>F F F F F F F F F F F F F F F F F F F </b>                      | <b>FFFFFFFFFFFFFFFFFF</b>                          | 며 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그 그   |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  |  |  |   | ר איז   | F F F F F F F F F F F F F F F F F F F                              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF             |   |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1550<br>1550<br>1560<br>1550<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640   | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | F F F F F F F F F F F F F F F F F F F  | - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF       | 9 F F F F F F F F F F F F F F F F F F F  |   | <b>F F F F F F F F F F F F F F F F F F F </b>   | <b>F F F F F F F F F F F F F F F F F F F </b>                      | F F F F F F F F F F F F F F F F F F F              | FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF<br>FF                  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650   | F F F F F F F F F F F F F F F F F F F  | <b>F F F F F F F F F F F F F F F F F F F </b>  | F F F F F F F F F F F F F F F F F F F  | - F F F F F F F F F F F F F F F F F F F      | 4 F F F F F F F F F F F F F F F F F F F  |   | <b>F F F F F F F F F F F F F F F F F F F </b>   | <b>F F F F F F F F F F F F F F F F F F F </b>                      | <b>F F F F F F F F F F F F F F F F F F F </b>      | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1640<br>1650<br>1660   | <b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b> | <b>H H H H H H H H H H</b>   | F F F F F F F F F F F F F F F F F F F  |  | 9 F F F F F F F F F F F F F F F F F F F  | FFF FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  | <b>F F F F F F F F F F F F F F F F F F F </b>   | <b>FFFFFFFFFFFFFFFFFFFFFFFFF</b>                                   | F F F F F F F F F F F F F F F F F F F              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1550<br>1550<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660   | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | 17777777777777777777777777777777777777   | F F F F F F F F F F F F F F F F F F F  | 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7      | 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  |   | <b>FFFFFFFFFFFFFFFFFFFFFF</b>   | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF                             | F F F F F F F F F F F F F F F F F F F              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1520<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670   | <b>F</b> F F F F F F F F F F F F F F F F F F   | <b>H H H H H H H H H H</b>   | <b>H</b><br><b>H</b><br><b>H</b><br><b>H</b><br><b>H</b><br><b>H</b><br><b>H</b><br><b>H</b>                         |  | 9 F F F F F F F F F F F F F F F F F F F  |   | <b>F F F F F F F F F F F F F F F F F F F </b>   | <b>F F F F F F F F F F F F F F F F F F F </b>                      | <b>F</b> F F F F F F F F F F F F F F F F F F       | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670<br>1680                                 | <b>H H H H H H H H H H</b>   | <b>H H H H H H H H H H</b>   | <b>H H H H H H H H H H</b>   |  | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,        | L F F F F F F F F F F F F F F F F F F F   | <b>H H H H H H H H H H</b>  | <b>H</b> H H H H H H H H H H H H H H H H H H                       | <b>F F F F F F F F F F F F F F F F F F F </b>      | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670<br>1680<br>1690                                 | д д д д д д д д д д д д д д д д д д д  | д д д д д д д д д д д д д д д д д д д  |  |  |  |   | <b>H</b> H H H H H H H H H H H H H H H H H H  | л л л л л л л л л л л л л л л л л л л                              | <b>1 1 1 1 1 1 1 1 1 1</b>                         | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1550<br>1550<br>1560<br>1550<br>1560<br>1570<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1650<br>1660<br>1670<br>1680<br>1690                 | 1 4 4 4 4 4 7 4 7 4 4 4 4 4 7 4 7 4 7 4  | 1 4 4 4 4 4 7 4 7 4 4 4 4 4 7 4 7 4 7 4  | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                          | , , , , , , , , , , , , , , , , , , ,        | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1        |   | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 |  | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1610<br>1620<br>1610<br>1620<br>1640<br>1650<br>1660<br>1670<br>1680<br>1690<br>1700                 | <b>J J J J J J J J J J</b>   | <b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b> | <b>H H H H H H H H H H</b>   |  |  |   | <b>H H H H H H H H H H</b>  | <b>H H H H H H H H H H</b>   | <b>H H H H H H H H H H</b>                         | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1490<br>1500<br>1510<br>1520<br>1530<br>1550<br>1550<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670<br>1680<br>1690<br>1700<br>1710 |  | <b>H</b> H H H H H H H H H H H H H H H H H H   | <b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b><br><b>1</b> |  | 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  |   | <b>H</b> H H H H H H H H H H H H H H H H H H  | <b>H</b> H H H H H H H H H H H H H H H H H H                       | <b>H</b> H H H H H H H H H H H H H H H H H H       | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670<br>1680<br>1690<br>1700<br>1710<br>1720 | <b>J J J J J J J J J J</b>   | <b>H</b> H H H H H H H H H H H H H H H H H H   | <b>H</b> H H H H H H H H H H H H H H H H H H   | 4 प्रय भ म म म म म म म म म म म म म म म म म म | 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  | ר קר אר   | <b>H H H H H H H H H H</b>  | <b>H</b> H H H H H H H H H H H H H H H H H H                       | <b>H</b> H H H H H H H H H H H H H H H H H H       | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF   |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670<br>1680<br>1690<br>1700<br>1710         | 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  | 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | 9 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  | ,<br>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,    | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,        | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>, | 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4   | ачынананананынанананананан<br>актынанананананананананананан        | 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |
| 1450<br>1460<br>1470<br>1480<br>1500<br>1510<br>1520<br>1520<br>1530<br>1540<br>1550<br>1560<br>1570<br>1580<br>1590<br>1600<br>1610<br>1620<br>1630<br>1640<br>1650<br>1660<br>1670<br>1680<br>1690<br>1770<br>1710         | 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  |  |  | , , , , , , , , , , , , , , , , , , ,        | , 1<br>1<br>1<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2 |   | ו א א ה א ה א ה א ה א ה א ה א ה א ה א ה   | , , , , , , , , , , , , , , , , , , ,                              | , , , , , , , , , , , , , , , , , , ,              | FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF  |





| 1890     | FF                     | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
|----------|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------------|
| 1900     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 1910     | FF                     | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 1920     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 1930     | FF                     | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 1940     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 1950     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 1960     | FF                     | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 1970     | FF                     | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$ | FF            | FF            | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 1980     | $\mathbf{F}\mathbf{F}$ | $\mathbf{FF}$ | $\mathbf{F}\mathbf{F}$ |
| 1990     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| DID \$34 | 4                      |               |               |               |               |               |               |               |               |                        |
| 0000     | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0010     | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0020     | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0030     | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0040     | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0050     | $\mathbf{FF}$          | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$ | $\mathbf{FF}$          |
| 0060     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 0070     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 0080     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | $\mathbf{FF}$ | FF                     |
| 0090     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0100     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0110     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0120     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0130     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0140     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0150     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0160     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0170     | FF                     | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF            | FF                     |
| 0180     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0190     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0200     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0210     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0220     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0230     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0240     | F.F.                   | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.          | F.F.                   |
| 0250     | rr<br>DD               | F F           | F F           | F F           | FF<br>DD      | FF<br>DD      | F F           | F F           | F F           | F F                    |
| 0200     | rr<br>EE               | F F<br>E E    | FF<br>EE      | F F           | F F<br>TTT    | F F<br>E E    | FF<br>EE      | F F           | F F<br>TTT    | F F                    |
| 0270     | rr<br>EE               | F F<br>E E    | F F           | F F<br>E E    | F F<br>E E    | F F<br>E E    | F F           | F F<br>E E    | F F<br>E E    | F F<br>EE              |
| 0200     | rr<br>DD               | F F           | F F           | F F           | F F           | F F           | F F           | F F           | F F           | F F                    |
| 0290     | rr<br>EE               | F F<br>E E    | F F<br>TTT    | F F<br>EFE    | F F<br>EE              |
| 0300     | rr<br>DD               | F F           | F F           | F F           | F F           | F F           | F F           | F F           | F F           | F F                    |
| 0320     | rr<br>EE               | F F<br>E E    | F F<br>TTT    | F F<br>EFE    | F F<br>EE              |
| 0320     | rr<br>EE               | F F<br>E E    | F F           | F F<br>E E    | F F<br>E E    | F F<br>E E    | F F           | F F<br>E E    | F F<br>E E    | F F                    |
| 0240     | rr<br>EE               | F F<br>E E    | F F<br>TTT    | F F<br>EFE    | F F<br>EE              |
| 0340     | rr<br>rr               | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr      | rr<br>rr               |
| 0320     | rr<br>rr               | rr<br>rr      | rr<br>rr      | rr<br>rr      | гг<br>гг      | rr<br>rr      | rr<br>rr      | rr<br>rr      | гг<br>гг      | rr<br>rr               |
| 0300     | г. г<br>г. г           |               | <br>          |               |               |               | <br>          |               |               |                        |
| 0370     | ਰਾਜ਼<br>ਸ਼ਾਜ਼          | ਧਾਧ<br>ਸ਼ਾਸ਼  | ਰਾਰ<br>ਸ਼ਾਸ਼  | ਰਾਰ<br>ਸ਼ਾਸ਼  | ਧਾਧ<br>ਸਾਸ    | ਾਾ<br>ਸਾਸ     | ਰਾਰ<br>ਸ਼ਾਸ਼  | ਧਾਧ<br>ਸਾਸ    | ਧਾਧ<br>ਸ਼ਾਸ਼  | ਸ ਸ<br>ਸ               |
| 0390     | ਸ਼ਾ                    | ਸ਼ਾ           | ਸ਼ਾਸ਼         | ਸੂਸ           | ਸ਼ਾ           | ਸੂਸ           | ਸ਼ਾਸ਼         | ਸੂਸ           | ਸੂਸ           | ਸ਼ਾ                    |
|          |                        |               |               | ÷ +           | ÷ +           | ÷ +           |               | ÷ +           | ÷ +           |                        |





FF FF FF FF FF FF FF FF FF 0270 FF FF FF FF FF FF FF 0280 도도 ਸਤ FF 0290 FF 0300 ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ ㅋㅋ 0310 0320 FF 0330 FF 0340 FF 0350 0360 FF FF FF FF FF FF FF FF FF ਸਤ 0370 FF 0380 FF 0390 0400 FF 0410 0420 FF 0430 FF 0440 FF FF FF FF FF FF FF FF FF 0450 FF FF FF FF FF FF FF FF FF DTD \$36 00 00 00 00 00 00 00 00 00 DTD \$90 31 47 31 5A 45 35 53 54 38 47 46 2A 2A 2A 2A 2A 2A 2A DID \$98 50 43 46 41 53 54 4E 23 35 39 DID \$99 20 16 03 08

FF 0410 FF 0420 FF FF FF FF FF FF FF FF FF 0430 FF FF FF FF FF FF FF FF FF 0440 FF FF FF FF FF FF FF FF FF 0450 FF DID \$35 0000 FF 0010 0020 FF 0030 0040 FF 0050 FF 0060 0070 FF 0080 FF 0090 FF 0100 FF FF FF FF FF FF FF FF FF 0110 FF 0120 FF 0130 FF 0140 FF 0150

FF 0170 FF FF

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