

4.0 GROUND MANEUVERING

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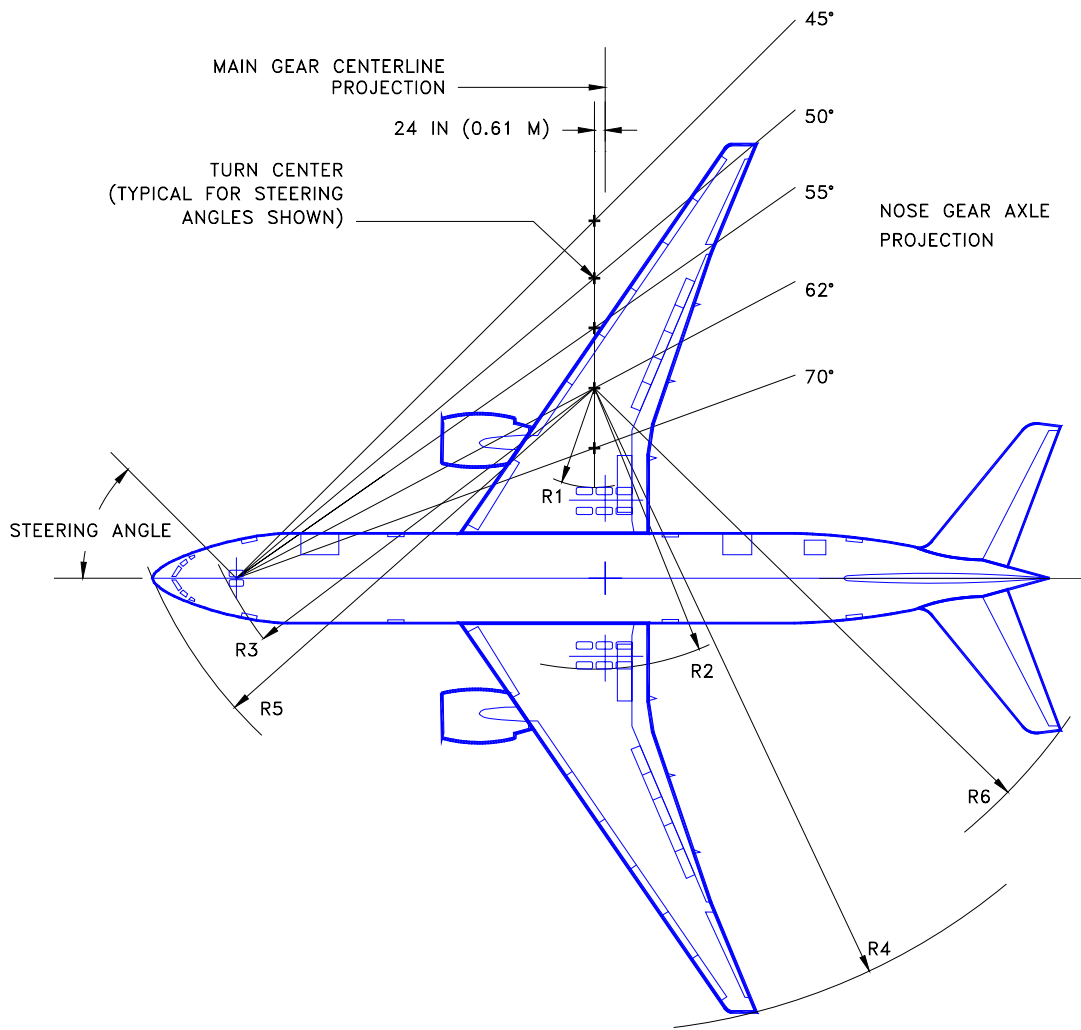
4.0 GROUND MANEUVERING

4.1 General Information

The 777 main landing gear consists of two main struts, each strut with six wheels. The steering system incorporates aft axle steering of the main landing gear in addition to the nose gear steering. The aft axle steering system is hydraulically actuated and programmed to provide steering ratios proportionate to the nose gear steering angles. During takeoff and landing, the aft axle steering system is centered, mechanically locked, and depressurized.

The turning radii and turning curves shown in this section are derived from airplane geometry. Other factors that could influence the geometry of the turn include:

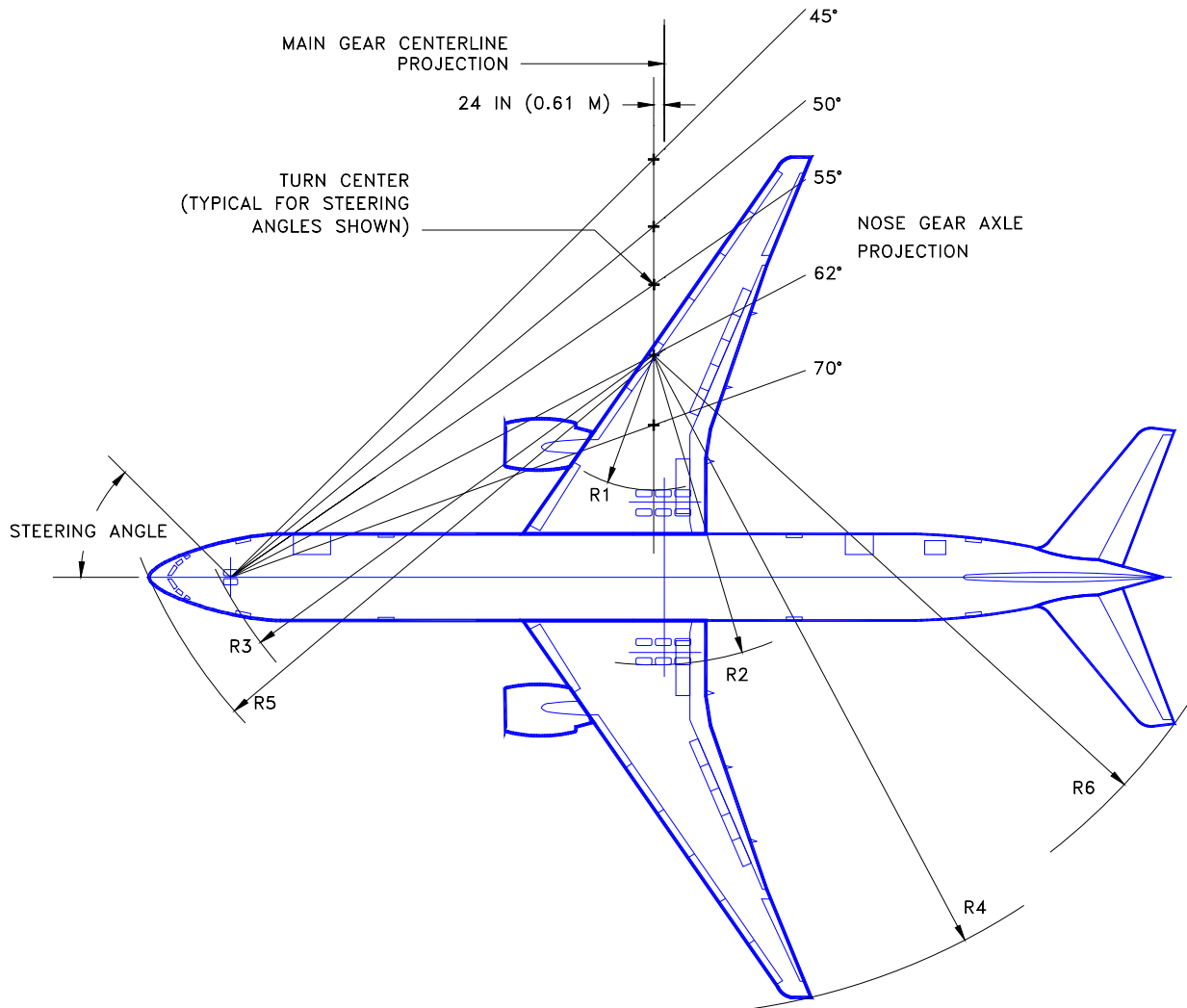
1. Engine power settings
2. Center of gravity location
3. Airplane weight
4. Pavement surface conditions
5. Amount of differential braking
6. Ground speed



NOTES: *DATA SHOWN FOR AIRPLANE WITH AFT AXLE STEERING.
 *ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN.
 *CONSULT WITH AIRLINE FOR SPECIFIC OPERATING PROCEDURE.
 *DIMENSIONS ROUNDED TO NEAREST FOOT AND 0.1 METER.

STEERING ANGLE (DEG)	R1 INNER GEAR		R2 OUTER GEAR		R3 NOSE GEAR		R4 WING TIP		R5 NOSE		R6 TAIL	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	123	37.5	165	50.3	168	51.3	247	75.3	177	53.8	209	63.6
35	98	29.7	140	42.6	147	44.8	222	67.6	157	47.8	187	57.1
40	78	23.7	120	36.6	131	40.0	202	61.7	142	43.4	171	52.2
45	62	18.9	104	31.7	120	36.4	187	56.9	132	40.2	159	48.5
50	49	14.8	91	27.7	111	33.7	174	52.9	124	37.7	150	45.6
55	37	11.2	79	24.1	103	31.5	162	49.5	118	35.8	142	43.2
60	27	8.1	69	21.0	98	29.9	152	46.5	113	34.4	135	41.2
65	17	5.3	60	18.2	94	28.6	143	43.7	109	33.3	130	39.5
70 (MAX)	9	2.7	51	15.6	90	27.6	135	41.2	107	32.5	125	38.1

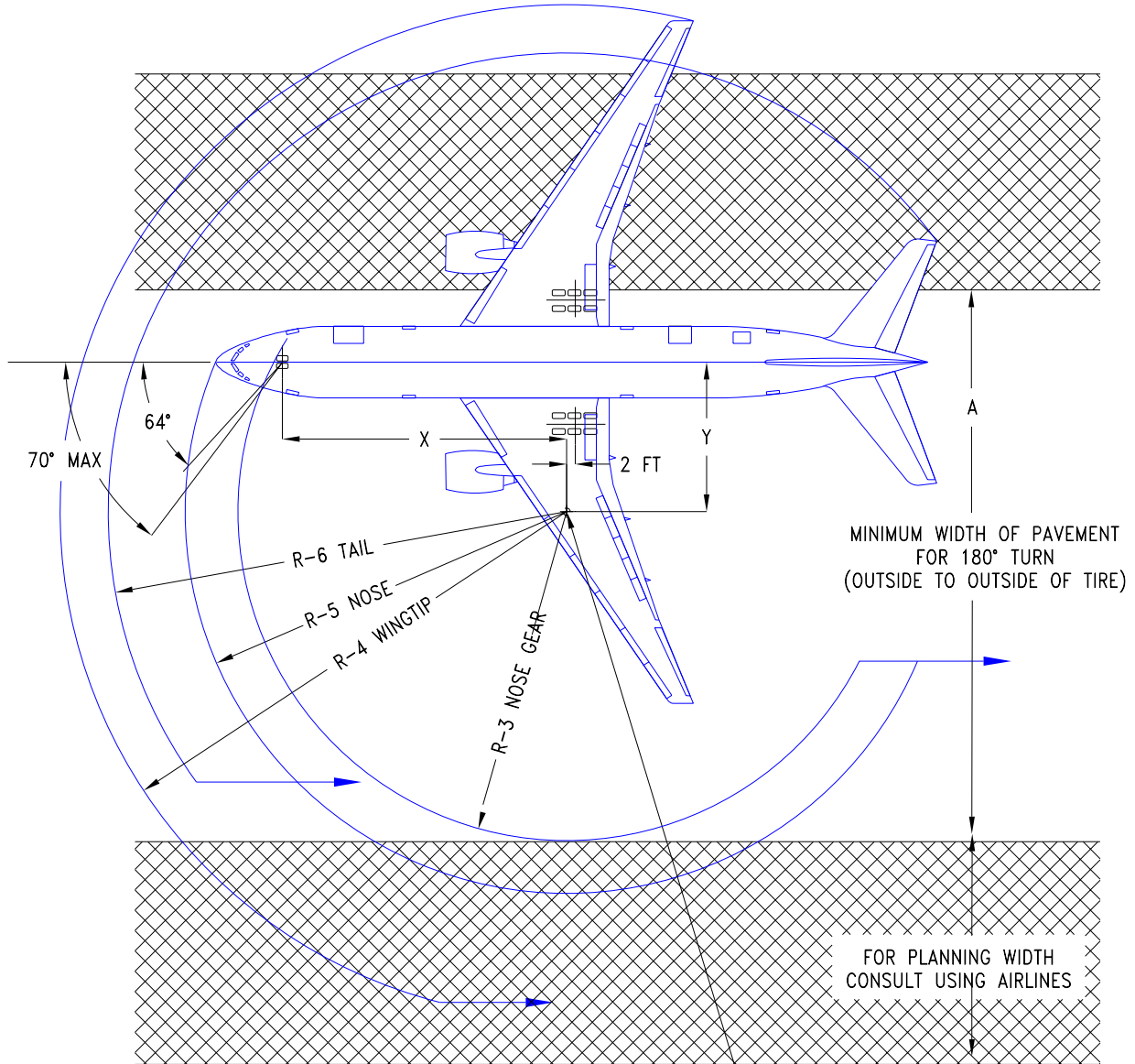
4.2.1 TURNING RADII - NO SLIP ANGLE
 MODEL 777-200



NOTES: *DATA SHOWN FOR AIRPLANE WITH AFT AXLE STEERING.
 *ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN.
 *CONSULT WITH AIRLINE FOR SPECIFIC OPERATING PROCEDURE.
 *DIMENSIONS ROUNDED TO NEAREST FOOT AND 0.1 METER.

STEERING ANGLE (DEG)	R1 INNER GEAR		R2 OUTER GEAR		R3 NOSE GEAR		R4 WING TIP		R5 NOSE		R6 TAIL	
	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
30	153	46.6	195	59.4	203	61.8	276	84.2	211	64.3	243	73.9
35	122	37.3	165	50.1	177	53.9	246	75.0	188	56.9	217	66.1
40	99	30.0	141	42.9	158	48.2	223	67.8	169	51.6	198	60.2
45	79	24.2	122	37.0	144	43.9	204	62.0	156	47.6	183	55.7
50	63	19.2	105	32.1	133	40.5	188	57.2	146	44.6	171	52.2
55	49	15.0	91	27.9	125	37.9	174	53.0	139	42.3	162	49.3
60	37	11.2	79	24.1	118	35.9	162	49.4	133	40.5	154	47.0
65	26	7.8	68	20.7	113	34.3	151	46.0	129	39.2	148	45.0
70 (MAX)	15	4.7	58	17.6	109	33.1	132	43.0	125	38.1	142	43.3

4.2.2 TURNING RADII - NO SLIP ANGLE
 MODEL 777-300



NOTES:

1. 6° TIRE SLIP ANGLE APPROXIMATE FOR 64° TURN ANGLE.
2. CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE.
3. DIMENSIONS ARE ROUNDED TO THE NEAREST 0.1 FOOT AND 0.1 METER.

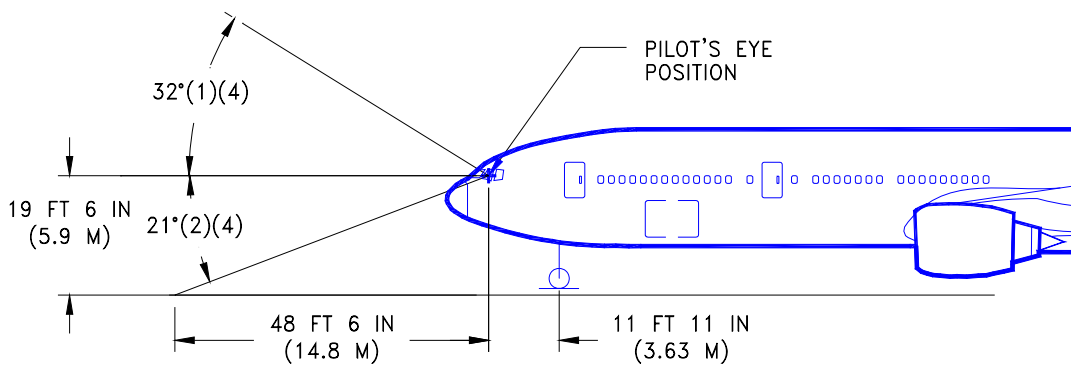
THEORETICAL CENTER OF TURN FOR MINIMUM TURNING RADIUS. SLOW CONTINUOUS TURN. NO DIFFERENTIAL THRUST. NO DIFFERENTIAL BRAKING.

AIRPLANE MODEL	EFFECTIVE TURNING ANGLE (DEG)	X		Y		A		R3		R4		R5		R6	
		FT	M	FT	M	FT	M	FT	M	FT	M	FT	M	FT	M
777-200	64	82.9	25.3	40.4	12.3	155.8	47.5	94.3	28.7	144.9	44.2	110.0	33.5	131.0	39.9
777-300	64	100.4	30.6	49.0	14.9	183.8	56.0	113.7	34.7	152.5	46.7	129.4	39.4	148.8	45.3

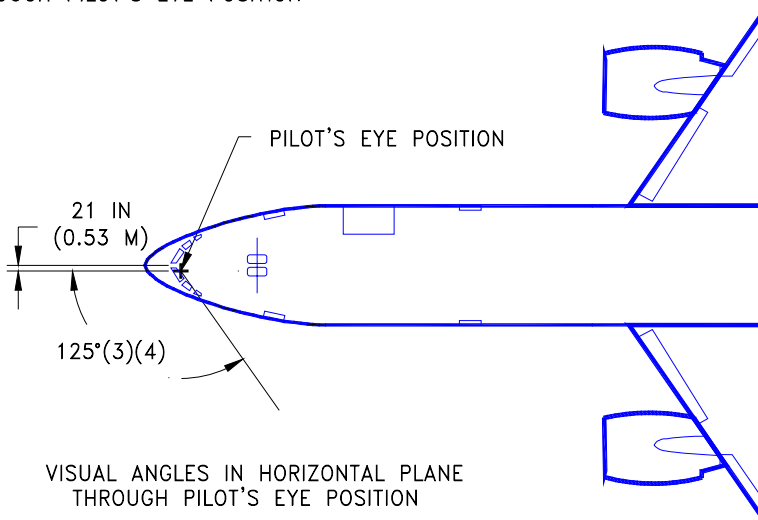
4.3 CLEARANCE RADII
MODEL 777-200, -300

NOT TO SCALE

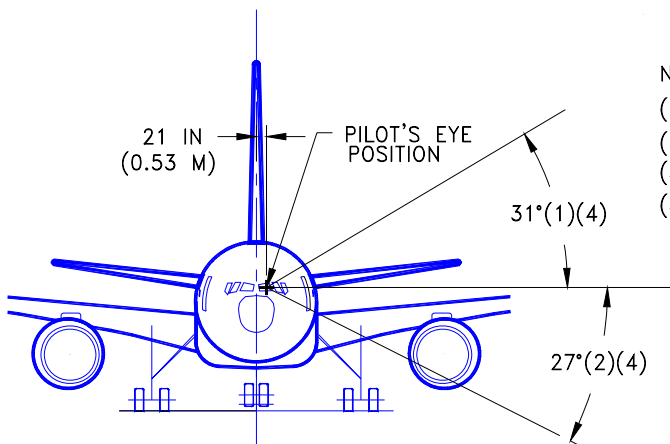
NOT TO BE USED FOR
LANDING APPROACH
VISIBILITY



VISUAL ANGLES IN VERTICAL PLANE
THROUGH PILOT'S EYE POSITION



VISUAL ANGLES IN HORIZONTAL PLANE
THROUGH PILOT'S EYE POSITION



VISUAL ANGLES IN A PLANE
PERPENDICULAR TO LONGITUDINAL AXIS
THROUGH PILOT'S EYE POSITION

NOTES:

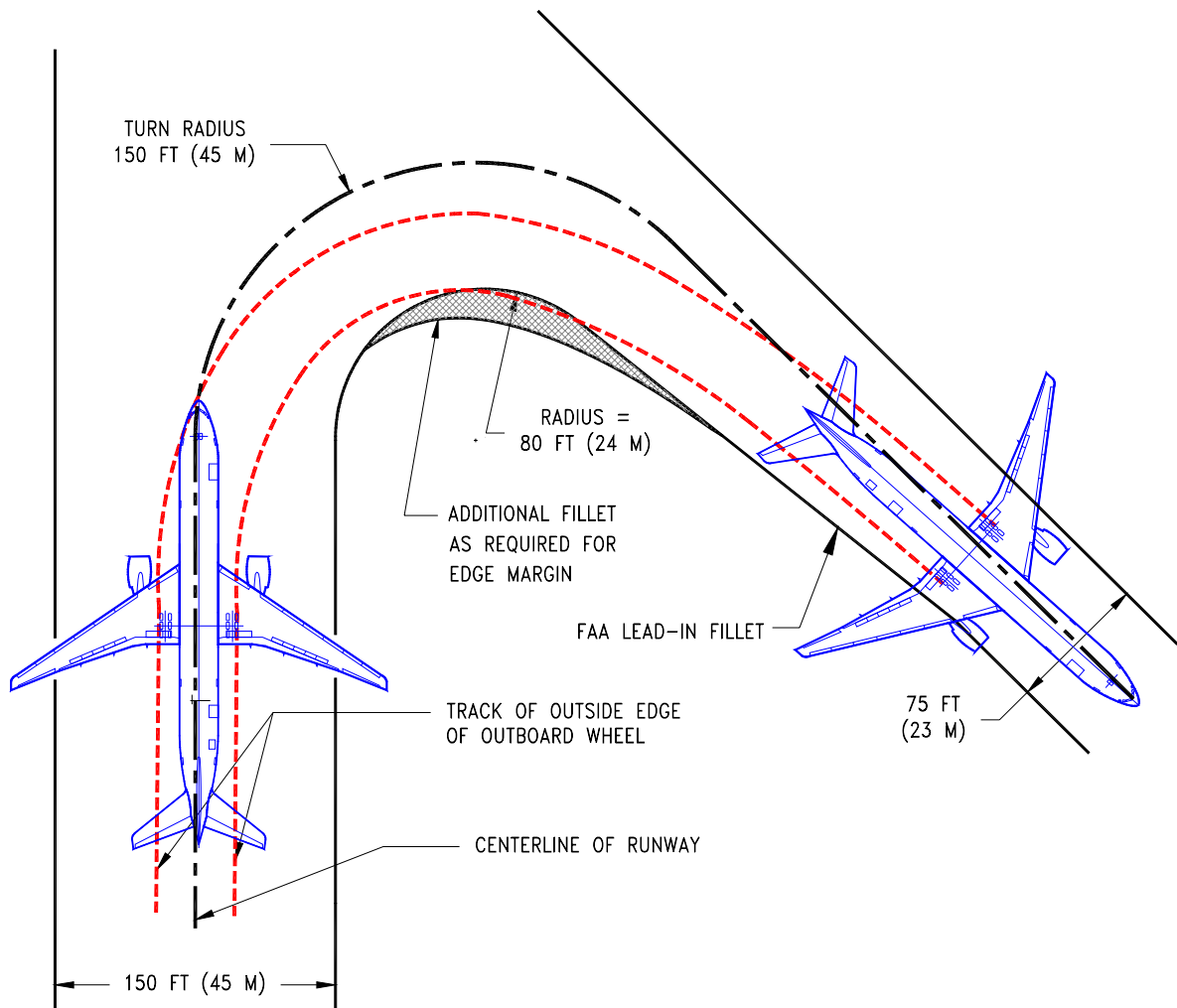
- (1) UPWARD THROUGH MAIN WINDOW
- (2) DOWNWARD THROUGH MAIN WINDOW
- (3) VISION THROUGH SIDE WINDOW
- (4) HEAD ROTATED ABOUT POINT
3.3 IN (0.08 M) AFT OF PILOT'S
REFERENCE EYE POSITION.

4.4 VISIBILITY FROM COCKPIT IN STATIC POSITION

MODEL 777-200, -300

NOTES:

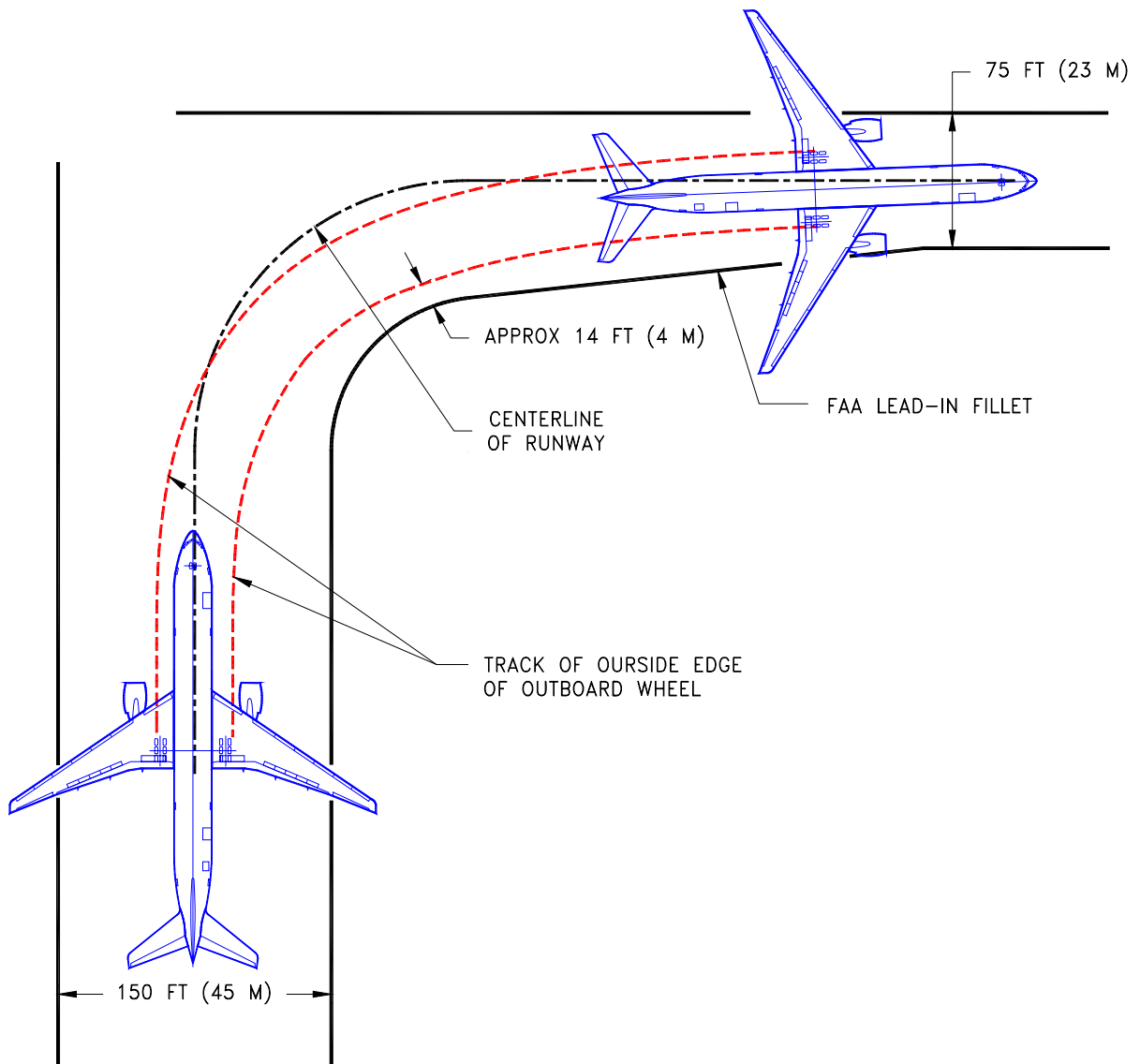
- BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THEY ARE EXPECTED TO USE AT THE AIRPORT
- 777-300 DATA SHOWN. 777-200 DATA WOULD BE LESS STRINGENT.



**4.5.1 RUNWAY AND TAXIWAY TURNPATHS - RUNWAY-TO-TAXIWAY,
MORE THAN 90 DEGREES**
MODEL 777-200, -300

NOTES:

- BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THEY ARE EXPECTED TO USE AT THE AIRPORT.
- 777-300 DATA SHOWN. CALCULATED EDGE MARGIN FOR THE 777-200 WOULD BE APPROXIMATELY 20 FT (6 M) INSTEAD OF 14 FT AS SHOWN.

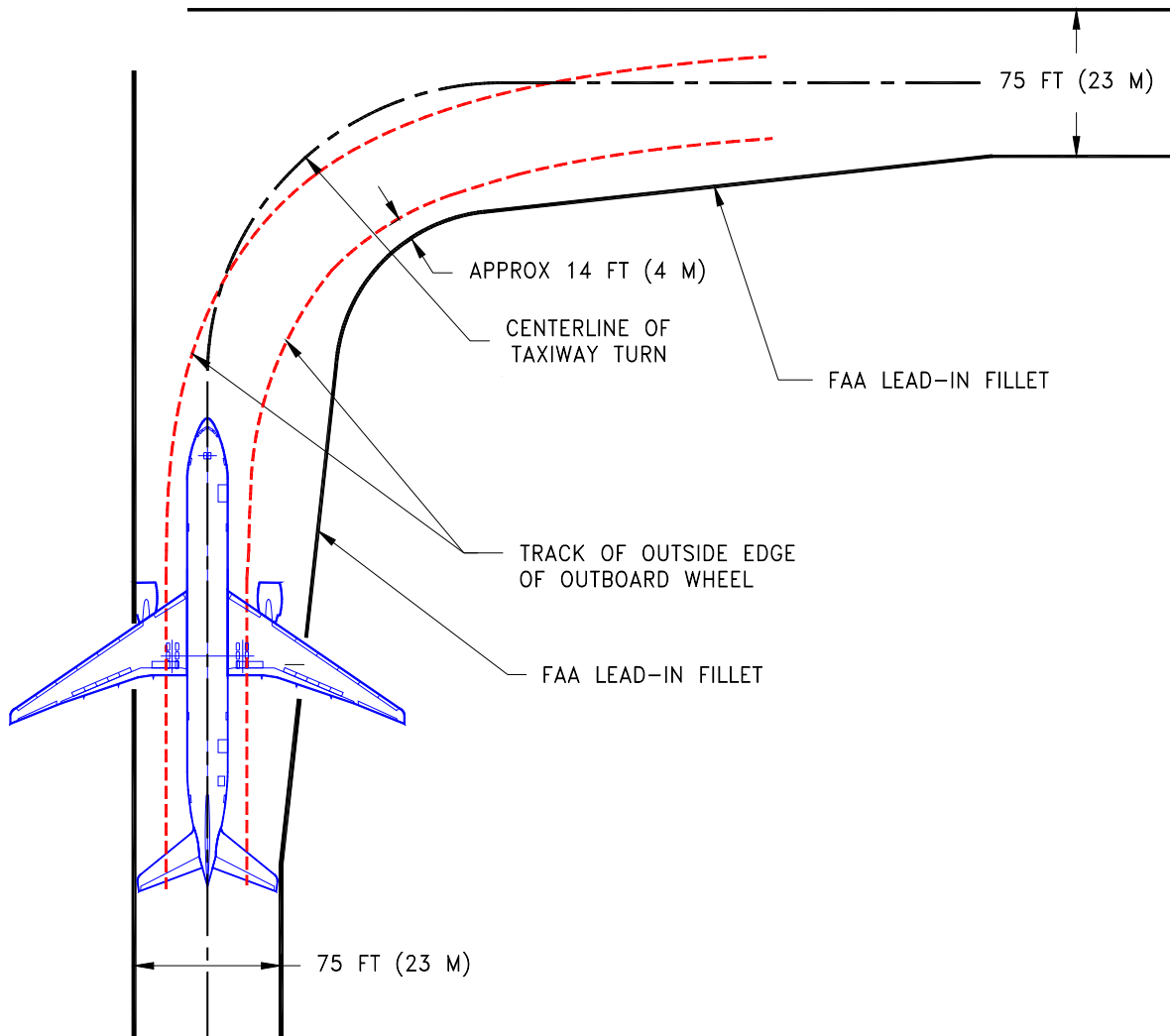


4.5.2 RUNWAY AND TAXIWAY TURNPATHS - RUNWAY-TO-TAXIWAY, 90 DEGREES

MODEL 777-200, -300

NOTES:

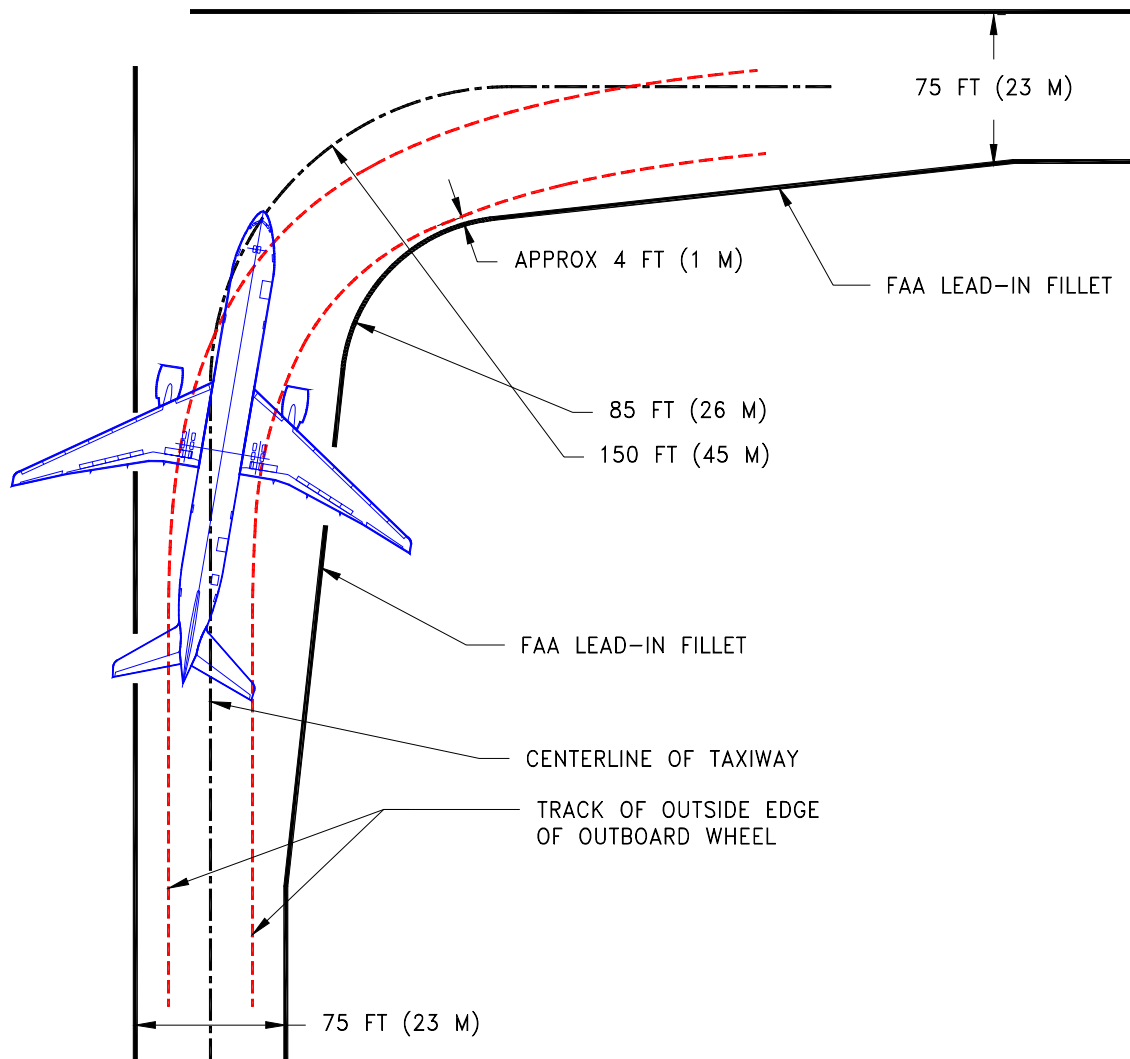
- BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THEY ARE EXPECTED TO USE AT THE AIRPORT
- 777-300 DATA SHOWN. CALCULATED EDGE MARGIN FOR THE 777-200 WOULD BE APPROXIMATELY 22 FT (6.7 M) INSTEAD OF 14 FT AS SHOWN.



**4.5.3 RUNWAY AND TAXIWAY TURNPATHS - TAXIWAY-TO-TAXIWAY,
90 DEGREES, NOSE GEAR TRACKS CENTERLINE**
MODEL 777-200, -300

NOTES:

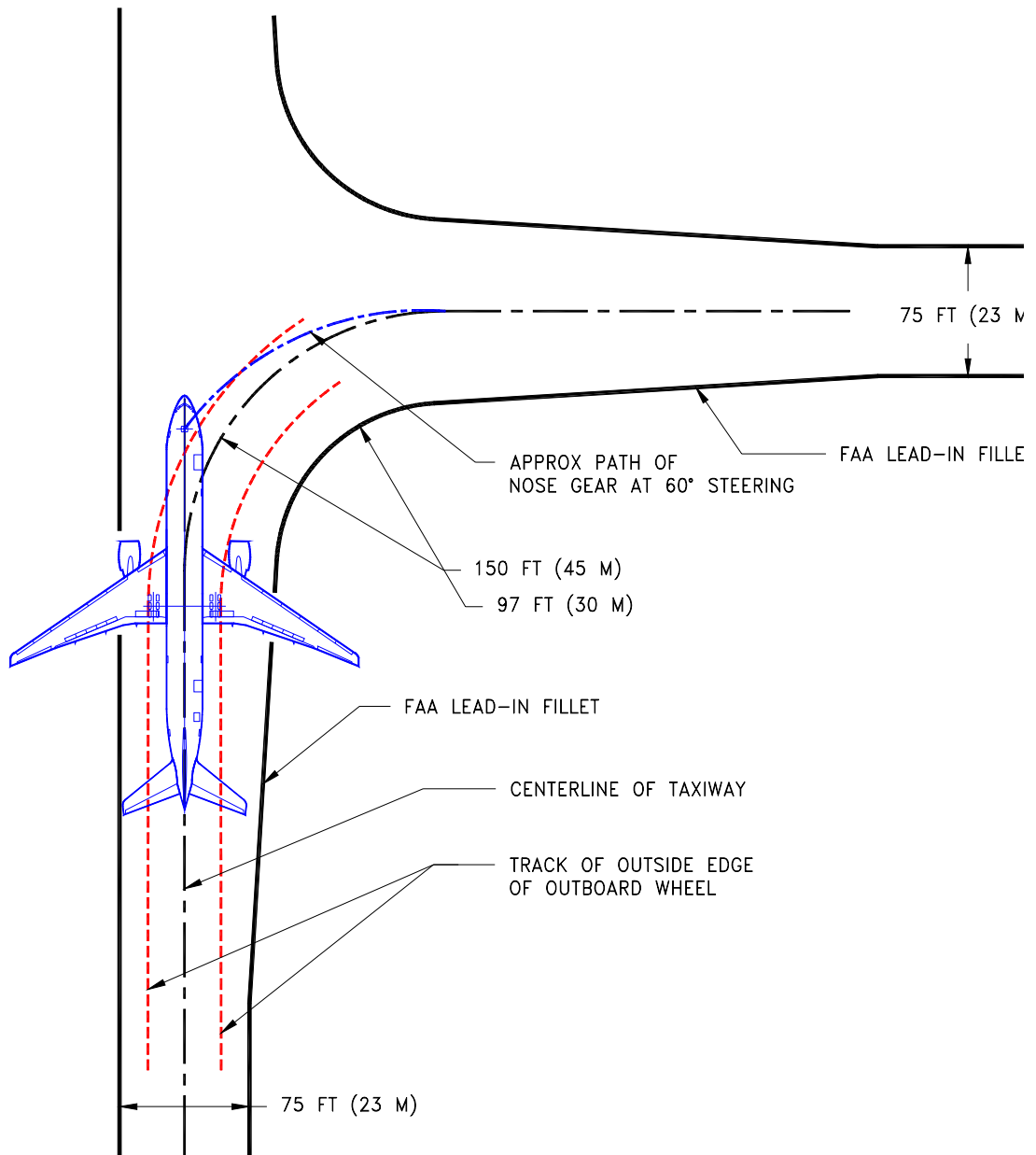
- BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THEY ARE EXPECTED TO USE AT THE AIRPORT
- 777-300 DATA SHOWN. CALCULATED EDGE MARGIN FOR THE 777-200 WOULD BE APPROXIMATELY 17 FT (5.2 M) INSTEAD OF 4 FT AS SHOWN.



**4.5.4 RUNWAY AND TAXIWAY TURNPATHS - TAXIWAY-TO-TAXIWAY,
90 DEGREES, COCKPIT TRACKS CENTERLINE**
MODEL 777-200, -300

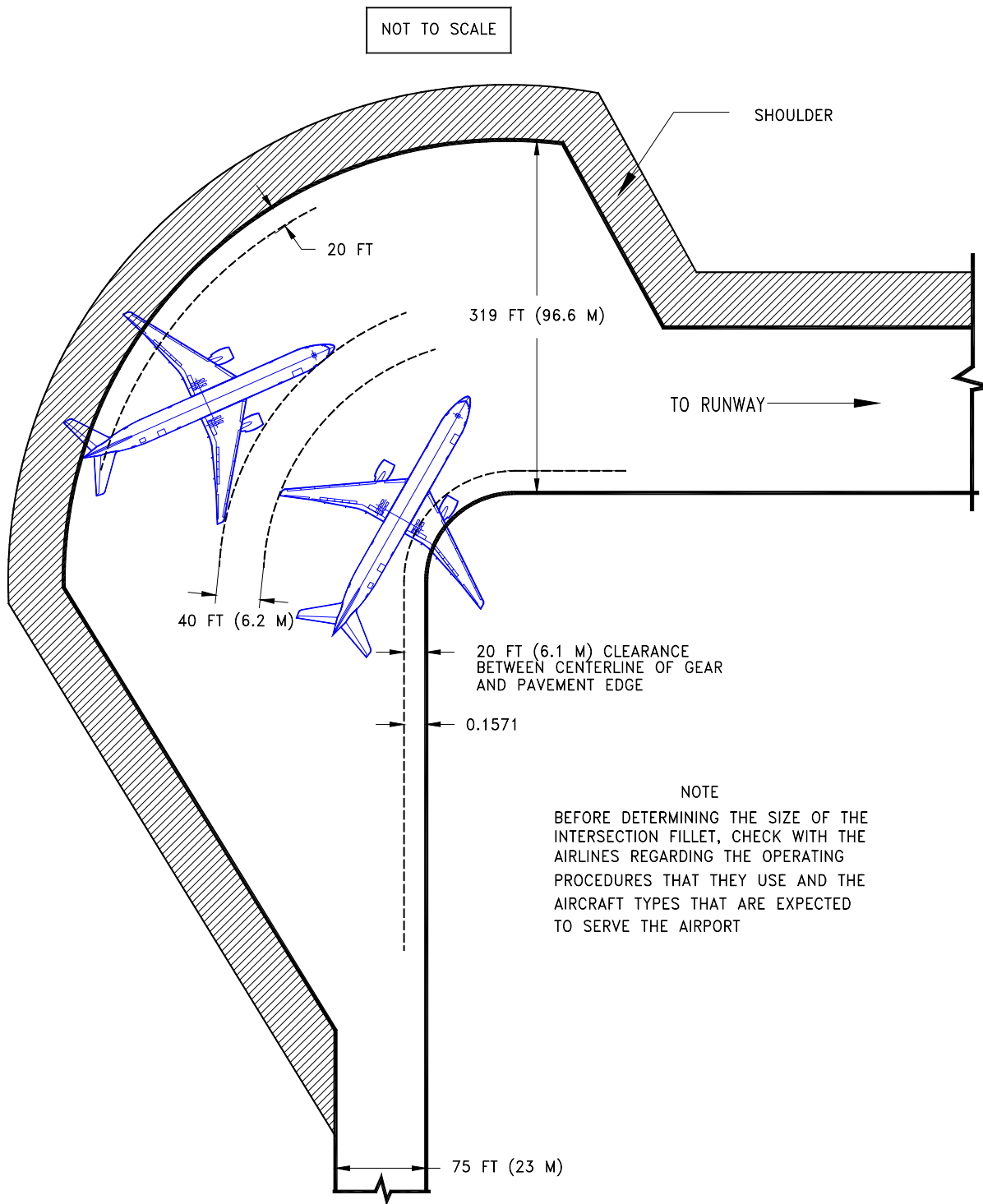
NOTES:

- BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THEY ARE EXPECTED TO USE AT THE AIRPORT
- **777-300 DATA SHOWN. 777-200 DATA WOULD BE LESS STRINGENT**



4.5.5 RUNWAY AND TAXIWAY TURNPATHS - TAXIWAY-TO-TAXIWAY, 90 DEGREES, JUDGMENTAL OVERSTEERING

MODEL 777-200, -300



4.6 RUNWAY HOLDING BAY
MODEL 777-200, -300